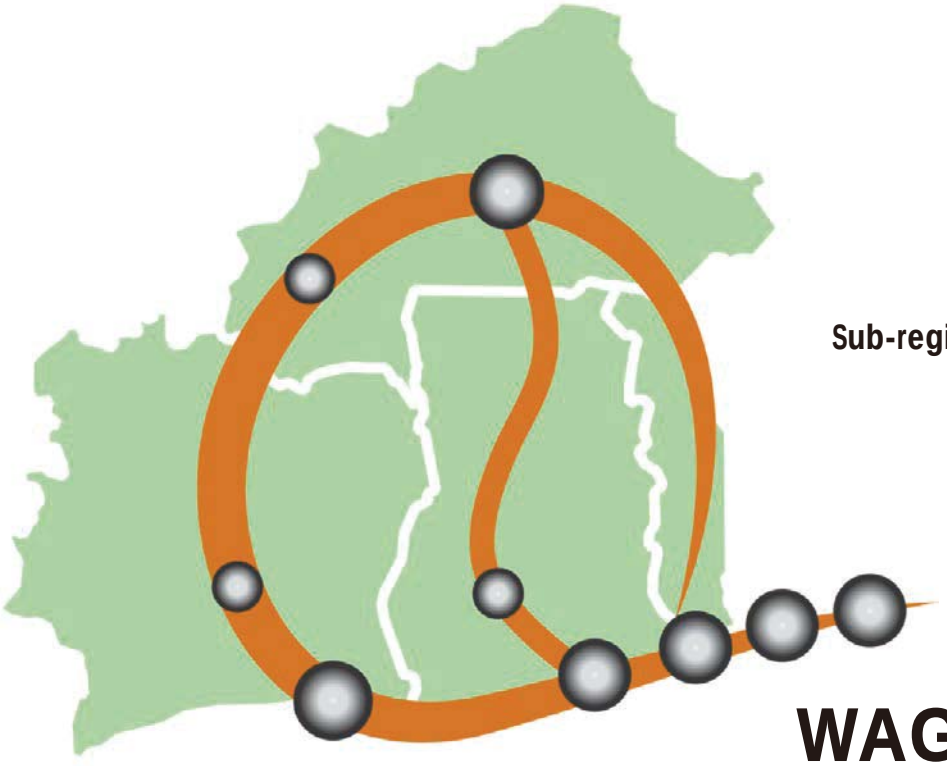
Department of Community Territorial Administration and Transport (DATC)
UEMOA Commission

National Development Planning Commission (NDPC)
Ministry of Roads and Highways (MRH)
Ministry of Finance (MoF)
The Republic of Ghana

THE PROJECT ON THE CORRIDOR DEVELOPMENT FOR WEST AFRICA GROWTH RING MASTER PLAN



Final Report

Volume 1

Sub-regional Development Strategies

March 2018

WAGRIC-CACAO

Japan International Cooperation Agency (JICA)

Oriental Consultants Global Co., Ltd.
CTI Engineering International Co., Ltd.
CTI Engineering Co., Ltd.

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Currency Exchange Rates

EUR 1.00	=	JPY 118.230
EUR 1.00	=	XOF 655.139
EUR 1.00	=	GHS 4.47650
USD 1.00	=	JPY 108.748
USD 1.00	=	XOF 602.333
USD 1.00	=	GHS 4.11747
XOF 1.00	=	JPY 0.180473
GHS 1.00	=	JPY 26.4406

Average during the period between June 2016 and May 2017

The Project on Corridor Development for West Africa Growth Ring Master Plan

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LIST OF ABBREVIATION

Abbreviation	English	French
ACA	African Cashew Alliances	-
ACS	Africa Coastal Services	-
ADCI	Agency for Development and Competitiveness of Industries in Côte d'Ivoire	Association des Démobilisés de Côte d'Ivoire
AFD	French Development Agency	Agence Française de Développement
AfDB	African Development Bank	-
AGEDI	Agency for Management and Development of Industrial Infrastructures	Agence pour la Gestion et le Développement des Infrastructures Industrielles
AGEROUTE	Road Management Agency of Côte d'Ivoire	Agence de Gestion des Routes
AGETUR	Executing Agency of Urban Work	Agence d'Execution des Travaux Urbains
AGI	Association of Ghana Industries	-
ANAC	National Agency for Civil Aviation	Agence Nationale de l'Aviation Civile
ANDE	National Environment Agency	Agence Nationale de l'Environnement
ANECI	National Water Agency of Côte d'Ivoire	Agence Nationale de l'Eau de Côte d'Ivoire
ANGE	National Agency for Environmental Management	Agence Nationale pour la Gestion de l'Environnement
ANPTIC	National Authority for Promotion of ICT	Autorité Nationale pour la Promotion des TIC
ANSUT	National Agency of Telecommunications Universal Service	Agence de Nationale du Service Universal des Telecommunications
APESS	Association for Livestock Promotion in Sahel and Savanna	Association pour la Promotion de l'Elevage au Sahel et en Savane
API-BF	Burkina Faso Investment Promotion Agency	Agence de Promotion des Investissements du Burkina Faso
API-ZF	Agency for Investment promotion and Free Zone	Agence de Promotion des Investissements et des Zones Franches
ARCEP	Regulatory Authority for Electronic Communications and Postal Services	Autorité de Régulation des Communications Electroniques et des Postes
ART&P	Regulation Authority of Telecommunication and Posts	Autorité de Régulation des Télécommunications et des Postes
ASYCUDA++	Automated System for Customs Data	-
ATP	Ashanti Technology Park	-
ATP	Agribusiness and Trade Promotion	-
BADEA	Arab Bank for Economic Development in Africa	Banque Arabe pour le Développement Economique en Afrique
BCEAO	Central Bank of West African States	Banque Centrale des Etats de l'Afrique de l'Ouest
BCF	Billion Cubic Feet	-
BCM	Billion Cubic Meter	-
BFCC	Burkina Faso Chamber of Commerce	Chambre de Commerce d'Industrie et d'Artisanat du Burkina Faso
BOE	Barrel of Oil Equivalent	-
BOOT	Build–Own–Operate–Transfer	-
bopd	barrels of oil per day	-
BOST	Bulk Oil Storage and Transportation Company Ltd.	-
BOT	Build-Operate-Transfer	-
BPA	Bui Power Authority	-
BPO	Business Process Outsourcing	-
bpsd	barrel per stream day	-
BSCF	Billion Standard Cubic Feet	-

Abbreviation	English	French
BTS	Base Transceiver Station	-
BUMIGEB	Bureau of Mines and Geology of Burkina Faso	Bureau des Mines et Géologie du Burkina Faso
BUNEE	National Office of Environmental Assessment	Bureau National des Evaluations Environnementales
CAADP	Comprehensive African Agriculture Development Programme	-
CACDI	Support Centers on Competitiveness and Industrial Development	Centres d'Appui à la Compétitivité et au Développement Industriel
CBC	Burkina Faso Shippers' Council	Conseil Burkinabé des Chargeurs
CCI	Ivorian Chamber of Commerce and Industry	Chambre de Commerce et d'Industrie ivoirienne
CDB	China Development Bank	-
CDU	Crude Distillation Unit	-
CEB	Electric Community of Benin	Communauté Électrique du Bénin
CEET	Electric Power Company of Togo	Copagunie Énergie Électrique du Togo
CEFCOD	Education Center for Training and Development Consultancy	Centre d'Étude de la Formation et de Conseil en Développement
CEFORE	Centre for Business Formalities	Centre de Formalités des Entreprises
CEPICI	Investment Promotion Centre in Cote d'Ivoire	Centre de Promotion des Investissements en Côte d'Ivoire
CERT	Cell Fight Against Cybercrime	Renforcer la Cellue de lutte contre la cybercriminalité
CFT	Togo Railways	Chemins de Fer du Togo
CGECI	General Confederation of Enterprises of Ivory Coast	Confederation General des Enterprises de Cote d'Ivoires
CHU	University Hospital	Centre Hospitalier Universitaire
CIA	Central Intelligence Agency	-
CIAPOL	Ivorian Anti-Pollution Center	Centre Ivoirien Antipollution
CICs	Community information Centers	-
CIDR	International Development and Research Centre	Alliance Internationale de Développement et de Recherche
CIE	Cote d'Ivoire Electricity Company	Compagnie Ivoirienne d'Electricité
CIP	Common Industrial Policy	Politique Industrielle Commune
CIRAD	Research Center for International Agricultural Development	Centre de coopération Internationale en Recherche Agronomique pour le Développement
CNCT	National Shipper's Council of Togo	Conseil National des Chargeurs du Togo
CNG	Compressed Natural Gas	-
CNR	Canadian Natural Resources Limited	-
COCOBOD	Ghana Cocoa Board	-
COFENABVI	Confederation of National Federation of Meat and Livestock Chain	Confédération des Fédérations Nationales de la Filière Bétail et Viande
CONIWAS	Coalition of NGOs in Water and Sanitation	-
CPO	Crude Palm Oil	-
CPR	Rural Promotion Center	Centre de Promotion Rurale
CRISTO	Social Engineer Research Centre in Togo	Centre de Recherche et Ingénier Socilaes du Togo
CSIR	Council for Scientific and Industrial Research	-
CSLP	Strategic Framework for Poverty Reduction	Cadre Stratégique de Lutte contre la Pauverté
CU	UEMOA Community Road Network	Réseau Routier de la Communauté UEMOA
CWIQ	Core Welfare Indicator Questionnaire	-
CWSA	Community Water Supply and Sanitation Agency	-
DA	Directorate of Sanitation	Direction de l'Assainissement

Abbreviation	English	French
DADO	District Agriculture Development Office	Bureau du Développement Agricole des Districts
DAEP	Directorate of Water Supply	Direction de l'Approvisionnement en Eau Potable
DAES	Directorate of Agricultural Extension Services	Direction des Services de Vulgarisation Agricole
DAFP	Directorate of Financial Affairs and Heritage	Direction des Affaires Administratives et Financières
DAHA	Directorate of Hydro-Agricultural Development	Direction des Aménagements Hydro-Agricoles
DAJUCIREP	Directorate of Legal Affairs; International Cooperation and Public Relations	Service des Affaires Juridiques, Coopération Internationale et de la Communication et des Relations Publiques
DANIDA	Danish International Development Agency	-
DAP	Directorate of Aquaculture and Fisheries	Direction de l'Aquaculture et des Pêches
DB	Doing Business	-
DCMTRIP	District Capital and Major Town Roads Improvement Project	-
DCS	Directorate of Crop Services	-
DDO	Diesel Distillate Oil	-
DF2VP	Directorate of Training, Extension, and The Value of Products	Direction de la Formation, de la Vulgarisation et de la Valorisation des Produits
DFA	Directorate of Finance and Administration	-
DFO	Diesel Fuel Oil	-
DFR	Department of Feeder Roads	-
DGADI	General Directorate of Irrigational Development	Direction Générale des Aménagements et du Développement de l'Irrigation
DGDER	General Directorate of Development of Regional Economy, Ministry of State, Ministry of Planning and Development	Direction Générale du Développement Economique Régional, Ministère d'Etat, Ministère du Plan et du Développement CI
DGDRME	General Direction of Rural Development and Irrigation	Directeur Général du Développement Rural et de la Maîtrise de l'Eau dans le domaine agricole
DGESS	General Directorate of Study, Planning and Statistics	Directeurs Généraux des Etudes Statistiques et Sectorielles
DGFOMR	General Directorate of Landholding, Training and Organization of Rural Society	Direction Générale du foncier de la Formation et de l'Organisation du Monde Rural
DGI	General Directorate of Industry	Direction Générale de l'Industrie
DGIHH	General Directorate of Infrastructure of Domestic Water	Direction Generale des Infrastructures de l'Hydraulique Humain
DGIR	General Directorate of Road Infrastructure	Direction Générale de l'Infrastructure Routier
DGMG	General Directorate of Mines and Geology	Direction Générale des Mines et de la Géologie
DGMN	General Directorate of National Meteorology	Direction Generare de Meteorolgie Nationale
DGPA	General Directorate of Animal Production	Direction Générale des Productions Animales
DGPER	General Directorate of the Promotion of Rural Economy	Direction Générale de la Promotion de l'Économie Rurale
DGPPS	General Direction of Planning, Project Management and Statistics	Direction Générale de la Panification, du contrôle des Projets et des Statistiques
DGPRE	Directorate of Management and Protection of Water Resources	Direction de la Gestion et de Protection des Ressources en Eau
DGPSA	General Direction of Production and Food Security	Directeur Général des Productions et de la Sécurité Alimentaire
DGPSE	General Directorate of Livestock Prevision Statistics	Direction Générale de la Prévision et des Statistiques de l'Elevage
DGPV	General Directorate of Plant Production	Direction Générale des Productions Végétales
DGR	General Directorate of Roads	Direction Générale des Routes
DGRE	Water Resources Department	Direction Générale des Ressources en Eau
DGSA	General Directorate of Animal Health	Direction Générale de la Santé Animale

Abbreviation	English	French
DMU	Diesel Multiple Unit	Diesel de Multiple Unit
DNAGEP	Directorate of Animal Nutrition and Management of Pastoral Areas	Direction de la Nutrition Animale et de la Gestion de l'Espace Pastoral
DO	Delivery Order	-
DOPAF	Directorate of Professional Organizations and Support Funding	Direction des Organisations Professionnelles et de l'Appui au Financement
DPAEP	Directorate of Personnel Management and Adaptation of the Professional Environment	Direction des Personnels et de l'Adaptation de l'Environnement Professionnel
DPARHASA	Provincial Directorate of Agriculture , Water Resources , Sanitation and Safety of Food	Direction Provinciale de l'Agriculture, des Ressources Hydrauliques, de l'Assainissement et de la Sécurité Alimentaire
DPC	Data Protection Commission	-
DPE	Directorate of Livestock Productions	Direction des Productions d'Elevage
DPFA	Directorate of Promotion of Animal Value Chain	Direction de la Promotion des Filières Animales
DPSP	Directorate of Planning, Statistics and Programs	Direction de la Planification, Statistiques et des Programmes
DRAEP	Regional Directorate of Agriculture, Livestock and Fisheries	Les Directions Régionales de l'Agriculture, de l'Élevage et de la Pêche
DRARHASA	Regional Director of the Ministry of Agriculture, Water Resources , Sanitation and Food Security	Directrice Régionale du ministère de l'Agriculture, des Ressources Hydrauliques, de l'Assainissement et de la Sécurité Alimentaire
DRE	Directorate of Water Resources	Direction des Ressources en Eau
DRH	Human Resources Directorate	Direction des Ressources Humaines
DSA	Directorate of Animal Health	Direction de la Santé Animale
DSV	Directorate of Veterinary Services	Direction des Services Vétérinaires
DUR	Department of Urban Roads	-
EATP	Extended West Africa Agribusiness and Trade Promotion	-
EBID	ECOWAS Bank for Investment and Development	-
EC	Ghana Energy Commission	-
EC	Electric Conductivity	-
ECA	Economic Consulting Associates Limited	-
ECG	Electricity Company of Ghana	-
ECOWAP	ECOWAS Agricultural Policy	-
ECOWAS	Economic Community of West African States	-
EDF	European Development Fund	-
EDI	Electronic Data Interchange	-
EDM	Electronic Document Management	-
E-GOV	Electronic Governance	-
EIA	Environmental Impact Assessment	-
ENP	National Prospective Study	Etude Nationale Prospective
ENV	Household Living Standards Survey	Enquête sur le Niveau de Vie des Ménages
EPA	Environmental Protection Agency	-
EPZ	Export Processing Zone	-
ESATIC	African School of Information Technology and Communication	l'Ecole Supérieure Africaine des Technologies de l'Information et de la Communication
ESOP	Service Companies and Producers Organizations	Entreprises de Service et Organisation de Producteurs
ETC	Electronic Toll Collection	-
F/S	Feasibility Study	-

Abbreviation	English	French
FAIR	Fund Assistance for Regional Integration	Fonds d'Aide à l'intégration Régionale des Etats membres de l'UEMOA
FAO	Food and Agriculture Organization of the United Nations	-
FASDEP	Food and Agriculture Sector Development Policy	-
FBOs	Farmers' Body Organizations	-
FC	Forestry Commission	-
FCFA	CFA Franc African Financial Community Franc	Francs de la Communauté Financière Africaine
FDI	Foreign Direct Investment	-
FEDOCI	The Federation Development Cote d'Ivoire NGO	La Fédération des ONG de Développement de Côte d'Ivoire
FER	Road Maintenance Fund	Fonds d'Entretien Routier
FER-B	Road Maintenance Fund of Burkina Faso	Fonds d'Entretien Routier du Burkina Faso
FIDA	Foundation for International Development Africa	-
FINGAP	Financing Ghanaian Agriculture Project	-
FIRCA	Inter-professional Fund for Research and Agricultural Council	Fonds Interprofessionnel pour la Recherche et le Conseil Agricoles
FNE	National Water Fund	Fonds National de l'Ea
FONGTO	Federation of Non-Governmental Organization in Togo	Fédération des Organisations Non-Gouvernementales du Togo
FPSO	Floating Production Storage and Offloading	-
FRCI	The Republican Forces of Cote d'Ivoire	Forces Républicaines de Côte d'Ivoire
FREMIN	Restructuring Fund	Fonds de Restructuration
FSRU	Floating Storage and Regasification Unit	-
G2G	Government-to-Government	-
GACL	Ghana Airport Company Limited	-
GAFSP	Global Agriculture and Food Security Program	-
GAP	Good Agricultural Practices	-
GAR	Results Based Management	Gestion Axée sur les Résultats
GASIP	Ghana Agriculture Sector Investment Programme	-
GASSCOM	Ghana Association of Software and IT Services Companies	-
GAWMIF	Ghana Agricultural Water Management Investment Framework	-
GCAP	Ghana Commercial Agriculture Project	-
GCMS	Ghana Customs Management System	-
GCNet	Ghana Community Network Services Limited	-
GDP	Gross Domestic Product	-
GEPA	Ghana Export Promotion Authority	-
GESTOCI	Management Company of the Oil Stocks of Ivory Coast	Société de Gestion des Stocks Pétroliers de Côte d'Ivoire
GFZB	Ghana Free Zones Board	-
GHA	Ghana Highway Authority	-
GHACEM	Ghana Cement Company Ltd.	-
Ghana Gas	Ghana National Gas Company	-
GHS	Ghanaian Cedi	-
GIDA	Ghana Irrigation Development Authority	-
GIPC	Ghana Investment Promotion Centre	-

Abbreviation	English	French
GIZ	German Corporation for International Cooperation (*Deutsche Gesellschaft fur Internationale Zusammenarbeit*)	-
GJT	Golden Jubilee Terminal	-
GLSS6	Ghana Living Standards Survey Round 6	-
GM	General Mortars Locomotive Group	-
GMC	Ghana Manganese Company Limited	-
GMET	Ghana Meteorological Agency	-
GMIC	Ghana Multimedia Incubation Center	-
GMP	Gas Master Plan of Ghana	-
GNAPF	Ghana National Association of Poultry Farmers	-
GNPC	Ghana National Petroleum Corporation	-
GNR	General Nice Resources	-
GoG	Government of Ghana	-
GOIL	Ghana Oil Company Ltd.	-
GOSTIC	Group Operators of the sector of Information Technology in Cote d'Ivoire	Groupment des Operateurs de sector des Technologies de l'Information de Cote d'Ivoire
GoT	Government of Togo	-
GPHA	Ghana Ports and Harbors Authority	-
GPRS II	Growth and Poverty Reduction Strategy 2006-2009	-
GPS	Global Positioning System	-
GRCL	Ghana Railway Company Limited	-
GRDA	Ghana Railway Development Authority	-
GRDP	Gross Regional Domestic Product	-
GRIDCo	Ghana Grid Company Limited	-
GSA	Ghana Shippers Association	-
GSA	Gas Supply Agreement	-
GSC	Ghana Shippers Council	-
GSGDA	Ghana Shared Growth and Development Agenda	-
GSGDA II	Ghana Shared Growth Development Agenda II 2014-2017	-
GSS	Ghana Statistical Services	-
GWCL	Ghana Water Company Limited	-
HFO	Heavy Fuel Oil	-
HIPC	Heavily Indebted Poor Countries	-
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immuno-Deficiency Syndrome	-
HVA	Improved Rural Water Supply	Hydraulique Villageoise Améliorée
IBP	International Best Practice	-
ICAO	International Civil Aviation Organization	-
ICAT	Institute Council and Technical Support	Institut de Conseil et d'Appui Technique
ICD	Inland Container Deport	Intérieurs de Conteneurs
ICT	Information and Communication Technology	Technologies de l'Information et de la Communication
ICT4D	ICT for Accelerated Development	-
IDB	Islamic Development Bank	-
IFAD	International Fund for Agricultural Development	-

Abbreviation	English	French
IFG-TG	International Fertilizers Group-Togo	International Fertilizers Group-Togo
IMF	International Monetary Fund	-
INERA	Institute of Environment and Agricultural Research	Institut National de l'Environnement et de Recherches Agricoles
INS	National Statistics Office	Institut National de la Statistique
INSD	National Institute of Statistics and Demography	Institut National de la Statistique et de la Demographie
IOC	International Oil Companies	-
IPP	Independent Power Producer	-
ISP	Internet Service Provider	-
ISRT	Inter-State Road Transit	-
ITC	International Trade Centre	-
ITES	IT Enabled Services Secretariat	-
ITRA	Togolese Institution of Agricultural Research	Institut Togolais de Recherche Agronomique
ITS	Intelligent Transportation Systems	-
ITU	International Telecommunication Union	Union internationale des télécommunications
IWRM	Integrated Water Resources Management	-
JAPTU	Joint Association of Port Transport Union	-
JICA	Japan International Cooperation Agency	Agence Japonaise de Coopération Internationale
KACE	Kofi Annan Centre of Excellence in ICT	-
kV	kilo Volt	kilo Volt
LAN	Local Area Networks	-
LCO	Light Crude Oil	-
LCT	Lomé Container Terminal	Terminal à Conteneurs de Lomé
LNG	Liquefied Natural Gas	-
LOTT	Orientation Law of Terrestrial Transport	Loi d'Orientation des Transports Terrestres
LPG	Liquefied Petroleum Gas	-
M/T	Metric Ton	-
MAE	Mean Annual Potential Evaporation-Transpiration	-
MAEH	Ministry of Agriculture, Livestock and Hydraulics	Ministère de l'Agriculture, de l'Elevage et de l'Hydraulique
MAEP	Ministry of Agriculture, Livestock and Fisheries	Ministère de l'Agriculture de l'Élevage et de la Pêche
MAHRA	Ministry of Agriculture, Hydraulics and Fishery Resources former MARHASA	Ministère de l'Agriculture, de l'Hydraulique et des Ressources Halieutiques former MARHASA
MAP	Mean Annual Precipitation	-
MARHASA	Ministry of Agriculture, Water Resources, Sanitation and Food Security	Ministère de l'Agriculture, des Ressources Hydrauliques, de l'Assainissement et de la Sécurité Alimentaire
MAT	Annual Mean Air Temperature	-
MC	Minerals Commission	-
MCLAU	Ministry of Construction, Housing, Sanitation and Urban Planning	Ministere de la Caonstruction, du Logement de l'Assainissement et de l'Urbanisme
MCM	Million Cubic Meter	-
MCT	Maersk Container Terminal	-
MDA	Ministries Departments and Agencies	-
MDENP	Ministry of development of digital economy and posts	Ministère du Développement de l'Economie Numérique et des Postes
MDG	Millennium Development Goal	-
MEAHV	Ministry of Water, Sanitation and Rural Hydraulic	Ministère de l'Eau, de l'Assainissement et de

Abbreviation	English	French
	(former MAEH)	l'Hydraulique Villageoise (ancien MAEH)
MEBF	Burkina Faso Business Centre	Maison de l'Entreprise du Burkina Faso
MEDD	Ministry of Environment and Sustainable Development	Ministère de l'Environnement et du Développement Durable
MEF	Ministry of Water and Forest	Ministère des Eaux et Forets
METASIP	Medium Term Agriculture Sector Investment Plan	-
MICA	Minister of Industry, Commerce and Handicrafts	Ministère de l'Industrie, du Commerce et de l'Artisanat
MIDT	Ministry of Infrastructures, Development and Transport	Ministère des Infrastructures, du Désenclavement et des Transports
MIE	Ministry of Economic Infrastructure	Ministere des Infrastructures Economiques
MIM	Ministry of Industry and Mines	Ministère de l'Industrie et des Mines
MINAGRI	Ministry of Agriculture	Ministère de l'Agriculture
MINESUDD	Ministry of Environment, Urban Safety and Sustainable Development	Ministère de l'Environnement, de la Salubrité Urbaine et du Dévéloppement Durable
MIRAH	Ministry of Animal and Fishery Resources	Ministere des Ressources Animales et Halieutiques
MIT	Ministry of Infrastructure and Transport	Ministère des Infrastructures et des Transports
MLGRD	Ministry of Local Government and Rural Development	-
mmcfd	million cubic feet per day	-
MMDAs	Metropolitan, Municipal and District Assemblies	-
MMDRU	Migration Management Data and Research Unit	-
MME	Ministry of Mines and Energy	Ministère des Mines et de l'Energie
MMET	Ministry of Mines and Energy of Togo	Ministère des Minses et de l'Energie au Togo
MMscfd	Million standard cubic feet per day	-
MOB	Bagré Construction project	Maîtrise d'Ouvrage de Bagré
MOC	Ministry of Communication	-
MOEP	Ministry of Energy and Petroleum	-
MOFA	Ministry of Food and Agriculture	-
MoFEP	Ministry of Finance and Economic Planning	-
MoH	Ministry of Health	-
MOP	Ministry of Power	-
MOPE	Ministry of Petroleum and Energy	-
MoT/MT/MOT	Ministry of Transport	-
MoU	Memorandum of Understanding	-
MPARH	Ministry of Livestock and Fish Resources	Ministère de la Production Animale et des Ressources Halieutiques
MPEN	Ministry of Post and Economy	Ministère de la Poste et de l'Economie Numérique
MPER	Micro and Small Rural Enterprises	Micro et Petites Entreprises Rurales
MPI	Multidimensional Poverty Index	-
MPTIC	Ministry of Posts and ICT	Ministère des Postes et des TIC
MRA	Ministry of Animal Resources	Ministère des Ressources Animales
MRE	Ministry of Rural Equipment (former MAEH)	Ministère de l'Equipement Rural (ancien MAEH)
MRH	Ministry of Roads and Highways	-
MTADP	Medium Term Agricultural Development Programme	-
MW	Mega Watt	-
MWRWH	Ministry of Water Resources, Works and Housing	-
NDP	National Development Plan	Plan National de Développement

Abbreviation	English	French
NDPC	National Development Planning Commission	-
NEDCo	Northern Electric Distribution Company	-
NGO	Non-Governmental Organization	-
NHIS	National Health Insurance Scheme	-
NIE	Note of Impact on Environment	-
NIIT	National Institute of Information and Technology	-
NISD	National Institute of Statistics and Demographics	Institut National de la Statistique et de la Démographie
NITA	National IT Agency	-
NOC	Network Operations Centre	-
NPA	National Petroleum Authority	-
NTP	National Transport Policy	-
NWP	National Water Policy	-
NWRMP	National Water Resources Master Plan	Plan directeur national des ressources en eau
OFID	Industrial Infrastructure Development Fund	Fonds de Développement des Infrastructures Industrielles
OMC	Oil Marketing Companies	-
ONAD	National Office for Sanitation and Drainage	Bureau National de l'Assainissement et du Drainage
ONATEL	The National Telecommunications Office	Office national des télécommunications
ONDR	National Office for Rice Development	Office National De Developpement De La Riziculture
ONEP	National Office of Water Supply	Office of National de l'Eau Potale
OSBP	One Stop Border Point	Postes de Contrôle Juxtaposés
OTRAF	The Organization of Motor Carriers of Burkina	Le l'Organisation des Transporteurs Routiers du Burkina
PAA	Port of Abidjan	Port Autonome d'Abidjan
PACITR	Community Roads of UEMOA infrastructure and Transport Action Program	Programme d'Actions Communautaire des Infrastructures et du Transport Routiers
PADAT	National Agricultural Development Policy of Togo	Projet d'Appui au Développement Agricole du Togo
PAFASP	Agriculture, Forestry and Livestock Value Chains Support Program	Programme d'Appui aux Filières Agro Sylvo Pastorales
PAGIRE	National Action Plan for Integrated Water Resources Management	Plan d'Action National de Gestion Intégrée des Ressources en Eau
PAL	Port Authority of Lomé	Port Automome de Lome
PAM	Pan African Minerals Ltd.	Pan-African Minerals
PANSEA	National Action Plan for the Water Sector and Sanitation	Plan d'Actions National pour le Secteur de l'Eau et de l'Assainissement
PAPAN	Support Program for National Poultry Production	Programme d'Appui à la Production Avicole Nationale
PAPAOM	Project to support the development of a blueprint for a Oriented Agriculture Promotion to the Market	Projet d'Appui à l'élaboration d'un schéma directeur pour la Promotion d'une Agriculture Orientée vers le Marché
PAPISE	Action Plan and Program for Investment of Livestock Sector	Plan d'Action et Programme d'Investissements du Secteur Elevage
PAPSA	Agricultural Productivity and Food Security Project	Projet d'Amélioration de la Productivité agricole et de la Sécurité Alimentaire
PASA	Agricultural Sector Support Project	Projet d'Appui au Secteur Agricole
PAUT	Urban Renovation Project in Togo	Projet d'Amenagement Urbain du Togo
PC	Petroleum Commission	-
PCESA	Agricultural Sector Economic Growth Program	Programme de Croissance Économique dans le Secteur Agricole
PDA	Master plan for Drainage/sewerage	Plan Directeur d'Assainissement
PDA	Agricultural Development Program	Programme Développement de l'Agriculture

Abbreviation	English	French
PDADOH	Master plans on development of hydraulic works	Plans Directeurs d'Aménagement et de Développement des Ouvrages Hydrauliques
PDIS	Integral Development Program of Sammandeni	Programme de Développement Intégré de la vallée de Samendéni
PDRI-Mô	Development Project of Rice in the plain Mô	Projet de Développement Rural Intégré en plain Mô
PEC	Competitive Economic Poles	Pôles Economiques Compétitifs
PERH	Livestock and Fisheries Post	Postes d'Elevage et des Ressources Halieutiques
PET	Potential Evaporation-Transpiration	-
PETROCI	National Company for Oil Operations in Côte d' Ivoire	Société Nationale d'Opérations Pétrolières de Côte d'Ivoire
PID	Detailed Investment Plan	Plan d'Investissement Détaillé
PIP	Priority Investment Program	Programmes d'Investissements Prioritaires
PLANGIRE	Action Plan of Integrated Water Resources Management	Plan d'Actions National de Gestion Intégrée des Ressources en Eau
PMAG	Pharmaceutical Manufacturers 'Association of Ghana	-
PMI	Small and Medium Industries	Petites et moyennes industries
PND	National Development Plan	Plan National de Developpement
PNDEL	National Policy Document Sustainable Livestock Development	Politique Nationale de Développement durable de l'Elevage
PNIA	National Agricultural Investment Program	Programme National d'Investissement Agricole
PNIASA	National Agriculture and Food Security Investment Programme	Programme National d'Investissement Agricole et de Sécurité Alimentaire
PNPER	National Project on Rural Entrepreneurship	Projet National de Promotion de l'Entreprenariat Rural
PNRMN	National Programme for Restructuring and Upgrading	Programme National de Restructuration et de Mise à Niveau
PNSR	National Programme for Rural Sector	Programme National du Secteur Rural
POSCIA	Sectoral Policy of Industry, Trade and Handicrafts	Politique Sectorielle du Commerce, de l'Industrie, et de l'Artisanat
PPA	Power Purchase Agreement	-
PPCB	Bagré Growth Pole Project	Projet Pôle de Croissance de Bagré
PPCS	Sahel Growth Pole Project	Projet Pôle de Croissance du Sahel
PPMED	Policy Planning Monitoring and Evaluation Directorate	-
PPP	Purchasing Power Parity	-
PPP	Public-Private Partnership	-
PPPs	Policies, Plans and Programmes	-
PPU	Presidential Emergency Program	Programme Présidentiel d'Urgence
PRD	Regional Development Plan	Plan Régional de Développement
ProDRA	Program of Rural and Agricultural Development	Programme du Développement Rural Agricole
PROFIL	Project in Support of Agricultural Value Chains	Projet d'appui aux Filières agricoles
PRSP	Poverty Reduction Strategy Paper	Document de Stratégie de Réduction de la Pauvreté
PSDPA	Strategic Plan for Development of Livestock, Fisheries and Aquaculture	Plan Strategique de Developpement de l'Elevage, de la Peche et de l'Aquaculture
PSRA	Strategic Plan for Revitalization of Poultry	Plan Stratégique de Relance de l'Aviculture
QUIBB	Wellness Questionnaire of Basic Indicators	Questionnaire des Indicateurs de Base du Bien-Etre
RD	Departmental Road	Routes départementales
RD-PA	Provincial Directorates of Animal Resources	Directions Provençales des Ressources Animales
RD-RA	Regional Departments of Animal Resources	Directions Régionales des Ressources Animales
RF	Road Fund	-
RGPH	General Census of Population and Housing	Recensement Général de la Population et de l'Habitat

Abbreviation	English	French
RN	National Road	Routes National
RR	Regional Road	Routes Régionales
SACS	African Society of Sausages and Meats	-
SADA	Savannah Accelerated Development Authority	-
SAZOF	Management Company of Free Zones	Compagnie de Gestion des Zones Franches
SCADD	Strategy for Accelerated Growth and Sustained Development	Stratégie de Croissance Accélérée et de Développement Durable
SCAPE	Strategy for Accelerated Growth and Promotion of Employment	Stratégie de Croissance Accélérée et de Promotion de l'Emploi
SDAU	Urban Development Master Plan	Schéma Directeur d'Aménagement et d'Urbanisme
SDE	Water Development Fund	Fonds de Développement de l'Eau
SDFA	Strategy for Agriculture Value Chain Development	Stratégie de Développement des Filières Agricoles
SDR	Rural Development Strategy	Stratégie de Développement Rural
SDU	Schematic Urban Master Plan	Schéma Directeur d'Urbanisme
SDUGA	Urban Master Plan for Greater Abidjan	Schéma Directeur d'Urbanisme du Grand Abidjan
SEA	Strategic Environment Assessment	-
SIC	State Insurance Company	-
SIPF	Ivorian Railway Asset Management Company	Société Ivoirienne de Gestion du Patrimoine Ferroviaire
SIR	Ivorian Refining Company	Société Ivoirienne de Raffinage
SITARAIL	The International Society for African rail transport	La Société internationale de transport africain par rail
SMB	Multinational company Bitumen	Société Multinationale de Bitumes
SME	Small and Medium sized Enterprises	-
SMIs	Small and Medium-sized Industry	-
SMTDP	Sector Medium-Term Development Plan	-
SNAT	National Strategy of Spatial Planning	Stratégie Nationale d'Aménagement du Territoire
SNCT	National Society of the Railways of Togo	Nouvelle Société Cotonniére du Togo
SNDCV	National Development Strategy for Food Crops Other than Rice	Strategie Nationale de Developpement des Cultures Vivrieres Autres Que le Riz
SNDI	Computer Development National Company	Société Nationale de Développement Informatique
SNDR	National Strategy for the Development of Rice Sector	Stratégie Nationale Revisee de Développement de la Filiere Riz
SNPT	State National Phosphate Company	Société National Phosphate Togo
SODECI	Côte d'Ivoire Water Company	Societe de Distribution d'Eau de la Côte d'Ivoire
SODEMI	State Company for Mining Development	Societe pour le Developpement Minier de la Côte d'Ivoire
SODEXAM	-	Societe d'Exploitation de Développement Aeroportuaure Aéronautique Météo
SODIGAZ	Gas Distribution Company in Togo	Société de Distribution de Gaz au Togo
SOFIB	Group of investors of France	Société Financière de Banque
SONABEL	National Company of Burkina electricity	Société Nationale d'électricité du Burkina
SONABHY	Company Burkinabe National Hydrocarbons	Société Nationale Burkinabè d'Hydrocarbures
SOPAFER-B	Trust Company of the Railway Assets of Burkina Faso	Societe de Genstion du Patrimoine Ferroviaire du Burkina
SPE	Society of Petroleum Engineers	-
SP-EAU	Agency for Water and Sanitation in Urban and Semi-Urban Area	Société de Patrimoine Eau et Assainissement en Milieu Urban et Semi-Urban
SPONG	Permanent Secretariat of Non-Governmental Organizations	Secretirat Permanent des Organisations Non Gouvernementales

Abbreviation	English	French
SP-PAGIRE	Permanent Secretariat for the IWRM Action Plan	Secrétariat Permanent du Plan d'Action pour la Gestion Intégrée des Ressources en Eau
SRAT	Regional Spatial Development Plan	Schéma Régional de l'Aménagement du Territoire
ST&I	Science, Technology & Innovation	-
SYDAM	Automated Customs Clearance System of Goods	Système de Dédouanement Automatisé des Marchandises
SYVLIE	Virtual Importing and Exporting Operations Liaison System	Système Virtuel de liaison des operations d'Importation et d'Exportation
TCF	Trillion cubic feet	-
TdE	Togo Water Company	Societe Togolaise des Eaux
TEN	Tweneboa, Enyenra & Ntomme	-
TEU	Twenty-foot Equivalent Unit	Équivalent vingt pieds
TFP	Technical and Financial Partners	-
TOR	Tema Oil Refinery Limited	-
ToR	Terms of Reference	Termes de Référence
WAEMU (UEMOA)	West African Economic and Monetary Union	Union Economique et Monétaire Africaine
UNDP	United Nations Development Program	-
UNICEF	United Nations Children's Fund	-
USAID	United States Agency for International Development	-
USD	US Dollar	-
VALCO	Volta Aluminum Company	-
VAT	Value Added Tax	-
VITIB	Village for Information Technology and Biotechnology	Village des Technologies de l'Information et de la Biotechnologie
VLTC	Volta Lake Transport Company Ltd.	-
VRA	Volta River Authority	-
WACIP	West African Common Industrial Policy	-
WADB	West African Development Bank	-
WAGP	West African Gas Pipeline	-
WAIPRO	West African Irrigation Project	-
WAPCo	West African Gas Pipeline Company	-
WAPP	West African Power Pool	-
WARCIP	West African Regional Communications Infrastructure Programme	-
WD	Water Directorate	-
WEF	World Economic Forum	-
WHO	World Health Organization	-
WRC	Water Resources Commission	-
WRI/CSIR	Water Research Institute of the Council for Scientific and Industrial Research	-
WSDBs	Water and Sanitation Development Boards	-
WSSDP	Water Sector Strategic Development Plan	-
WTP	Water Treatment Plant	-
XOF	CFA Franc	Franc CFA
ZAT	Zone of Technical Support	Zone d'Appui Technique

Executive Summary

The Project on the Corridor Development for West Africa Growth Ring Master Plan

~ Master Plan on Sub-Regional Corridor Development connecting Four Countries by "West Africa Growth Ring Corridors" based on Sub-Regional Economic Integration for Seeking Development of Economic Sectors oriented to Sub-Regional Markets ~

Target Area for the Master Plan: WAGRIC Sub-Region covering Burkina Faso, Côte d'Ivoire, Ghana and Togo

Major Corridors targeted by the Master Plan: Abidjan-Ouagadougou Corridor, Tema-Ouagadougou Corridor, Lomé-Ouagadougou Corridor and Abidjan-Lagos Corridor

Future Vision for WAGRIC Sub-Region: Inclusive and sustainable development is attained by developing competitive economic sectors and by attracting investment through sub-regional economic and spatial integration

Target Years of the Master Plan: Year 2025 for the Short Term, Year 2033 for the Mid Term and Year 2040 for the Long Term

Present Situation and Issues:

- At present, primary commodities, such as gold, bauxite, manganese, phosphate rock, cacao, cashew, palm oil, rubber and cotton, compose, in terms of commercial value, the majority of export products of the WAGRIC countries.
- In the 2000s, the WAGRIC countries experienced high economic growth due to higher prices and expanded production of the primary commodities. As a result, on the one hand, a large impact was made on the economies of coastal areas. On the other hand, a limited impact was made on the economies of inland areas.
- Although 1,000 km long north-south paved roads of two lanes have been relatively well developed to connect inland areas and coastal areas, long-distance cargo transport modes, such as railways, inland water transport and pipelines, have been poorly developed and not efficiently operated in the WAGRIC sub-region. As a result, transport costs have remained relatively high. Moreover, high-speed transport systems have not been developed yet for connecting inland areas and coastal areas, except for the motorway Abidjan-Yamoussoukro in Côte d'Ivoire. As a result, barriers of transport costs and transport time have been created between inland areas and coastal areas, hindering the development of economic sectors in inland areas.
- In the WAGRIC countries, production areas of primary commodities are mostly located in coastal areas, except for one inland country, Burkina Faso.[1] Although promising mineral resources are identified and cashew and cotton are also grown in inland areas, such production has not been activated due to the barriers of transport costs and travel time between inland areas and coastal areas.

[1] The primary commodities produced in Burkina Faso are gold and cotton. Gold does not depend on land transport from Burkina Faso to coasltal areas. Cotton mainly relies on railway between Ouagadougou and Abidjan.

- The production and export of primary commodities cannot contribute to the reduction of regional disparity between inland areas and coastal areas partly because they are subject to price fluctuations in the world markets, and partly because it is difficult to promote production of primary commodities in inland areas due to the barriers of transport cost.
- Therefore, it is difficult for national economies dependent on primary commodity export to achieve inclusive and sustainable development. For WAGRIC countries, diversification of economic sectors and development of economic sectors in inland areas are large challenges.
- Although WAGRIC countries are connected by transport corridors, economic relations (import and export relations) are relatively weak among neighbouring countries. Markets have not been integrated among neighbouring countries, and resources have not been utilized in an integrated manner among neighbouring countries. This is because the customs union has not been strongly implemented yet, although it has been already institutionalized by UEMOA and ECOWAS. As a result, WAGRIC countries have not been able to attract investments to economic sectors.

Future Socio-Economy, Changes of External Environment and Development Potential for WAGRIC Countries:

- While the population of the WAGRIC sub-region will increase from 77 million in 2015 to about 150 million in 2040, its urban population will reach about 89 million (59% of the total population) in 2040 from 35 million in 2017.
- Since climate conditions vary in the north-south direction in countries neighbouring the Gulf of Guinea, a variety of agricultural products are grown in the WAGRIC countries. In addition, mineral resources are also rich in these countries. Therefore, it is possible for primary commodities to support the growth of the national economies of the WAGRIC countries. At the same time, the size of the middle-income population, which is not small at present, is expected to increase more in the future, contributing to large increases of consumers' demands within the sub-region.
- In addition to the large increase of total population and middle-income population of the WAGRIC countries, the integration of sub-regional markets by strengthening of implementation of the customs union, which has been institutionalized but not yet substantially implemented, could enhance the attractiveness of investments in economic sectors.
- In view of the future circumstances in which very rapid urbanization of the world's rapidly increasing population will result in stasis of the population that is engaged in agriculture, and the gradual wage increase of working population in the emerging economies will make it difficult for them to maintain the price competitiveness of their manufactured products, the WAGRIC countries should gain opportunities to develop their productive capacities for food crops and consumer products targeting their own sub-regional markets.

The Core Issue to be tackled by the Master Plan: A weak relationship between coastal areas and inland areas in terms of economy and transport has been a critical factor creating a difficult and stagnant situation in which to try to develop economic sectors in inland areas. On the one hand, the high growth of the coastal economies has been driven by the production and export of primary commodities in coastal areas. On the other hand, inland areas have been economically stagnated due to isolation from the prosperous coastal economies. This is the core issue to be tackled by the WAGRIC Master Plan.

In other words, the inland areas are handicapped with the barriers of high transport costs and transport time, while the coastal areas have a growth engine for sub-regional economies. It is necessary to develop economic sectors in both inland areas and coastal areas by connecting inland areas and coastal areas in terms of economic sectors and transport for the purpose of creating a good cycle within the sub-regional economies. The key to connect stagnant inland areas and promising coastal areas is development of economic sectors targeting promising sub-regional consumer markets.

Selected Growth Scenario: Three alternative growth scenarios are identified for breaking the barriers of transport costs and transport time between inland areas and coastal areas and for creating good cycles of those economies. Out of the three alternatives, one growth scenario is

evaluated as the one which could make the most effective impact on the strengthening of connectivity between inland areas and coastal areas in terms of economy and transport. While seeking a strong sub-regional economic integration, the selected growth scenario aims at development of economic sectors targeting sub-regional markets and development of corridor infrastructures of both north-south corridors and the coastal east-west corridor for the purpose of strengthening both economic connectivity and transport connectivity between inland areas and coastal areas.

Four Buttons (Four Sets of Necessary Actions): In order to implement the selected growth scenario, the following four sets of necessary actions (four buttons) should be taken in an integrated manner. Buttons A, B and C are intended to initiate and drive corridor development. On the other hand, Button D is for securing inclusiveness and sustainability.

- **Button A: Development of Economic Sectors oriented to Sub-Regional Markets:** By Attracting Investments to Economic Sectors and Utilizing the Potential of Economic Sectors Targeting Sub-Regional Markets, as well as Production of Primary Commodities <<Take Advantage of Growing Sub-Regional Markets>>
- **Button B: Expansion of the Size of Coastal Markets:** By Economically and Spatially Integrating Coastal Markets of Neighbouring Countries and by Promoting Economic Sectors Development <<Strengthening of Growth Engine of Coastal Areas>>
- **Button C: Strengthening of North-South Connectivity:** By Establishment of Less Costly and High-Speed Transport Systems to Connect Inland Production Areas with Coastal Market Areas for Enhancing Competitiveness of Economic Sectors located in Inland Areas <<Strengthening of Connectivity between Inland Areas and Coastal Areas>>
- **Button D: Securing of Inclusive and Sustainable Development:** By Paying Attention to Social, Environmental and Security Aspects of Corridor Development <<For Pro-Actively Responding to Social, Environmental and Security Issues>>

Essential Strategies for Implementing the Selected Growth Scenario:

Ten essential strategies are formulated in order to implement the selected growth scenario. These essential strategies are categorized into the following four groups. These four groups of essential strategies are the four buttons to push for implementation of the selected growth scenario.

(1) Essential Strategies Group No.1 (Button A): Development of Economic Sectors

- Essential Strategy No.1: "Fostering of Various Growth Economic Sectors" that Contribute to Region-Wide Development, including Economic Sectors targeting Sub-Regional Markets, as well as Production of Primary Commodities
- Essential Strategy No.2: "Investment Promotion for Growth Economic Sectors" by Taking Advantage of Integration and Expansion of Sub-Regional Markets
- Essential Strategy No.3: "Development of Basic Infrastructure for Economic Sectors" to Support the Development of Growth Economic Sectors in both Inland and Coastal Areas

(2) Essential Strategies Group No.2 (Button B): Expansion of the Size of the Coastal Market

- Essential Strategy No.4: "Strengthening of Implementation of Customs Union" and "Facilitation of Sub-Regional Trade" on National Borders, Sea Ports and Transport Corridors among the WAGRIC Countries
- Essential Strategy No.5: Strategic Upgrading of Abidjan-Lagos Corridor Transport Infrastructure (Motorways)

(3) Essential Strategies Group No.3 (Button C): Strengthening of North-South Connectivity

- Essential Strategy No.6: Strategic Upgrading for Establishment of Efficient and Region-Wide Cargo Transport Networks (Railways, Multi-Modal Dry Ports, Inland Water Transport and Pipelines)
- Essential Strategy No.7: Strategic Upgrading of Transport Corridor Infrastructure by Emphasising the Importance of High Speed Transport and Services (Motorways, High-Standard 4-Lane Roads, Air Transport and ICT)

(4) Essential Strategies Group No.4 (Button D): Securing of Inclusive and Sustainable Development

- Essential Strategy No.8: Supporting of Small and Medium-sized Enterprises, Development of Human Resources for Economic Sectors and Strengthening of Basic Social Services in order to Enable More People to Participate in Emerging Development Opportunities due to Sub-Regional Corridor Development
- Essential Strategy No.9: Development of Systems and Activities of Environmental Management that could Respond to Potential Risks to the Natural and Social Environments that are Increasing across Wide Areas due to Sub-Regional Corridor Development
- Essential Strategy No.10: Strengthening of Security Measures for Maintaining Safe and Secure Societies and Sustainable Economies in the Sub-Region

Essential Strategies and Priority Projects:

Over 350 priority projects are identified for implementing the essential strategies in accordance with the selected growth scenario. At the same time, individual countries' implementation plans are formulated for phased corridor development covering three phases (Short Term: 2018-2025, Medium Term: 2026-2033, and Long Term: 2034-2040). Furthermore, priority projects cutting across the WAGRIC countries are also formulated

Spatial Structure of WAGRIC Sub-Region:

- **Spatial Development through Sub-Regional Economic Integration and Corridor Development**: The WAGRIC Master Plan aims to integrate the four countries economically by strengthening the customs union and physically by corridor development. This master plan seeks not only to develop economic sectors both in coastal areas and inland areas, but also to upgrade the transport infrastructure in north-south corridors and coastal east-west corridor. This effort will transform the spatial structure of WAGRIC Sub-Region.
- **Economic Corridors and Transport Corridors**: There are two types of north-south corridors connecting inland areas and coastal areas. One is an economic corridor and the other is a transport corridor. These different types of corridors have different functions and different forms of development. In economic corridors, transport functions are upgraded so as to break the barriers of transport cost and transport time, and moreover, basic infrastructures are provided so as to develop economic sectors in the cities along the corridors, as well as in other areas along the corridors. On the other hand, in transport corridors, the transport connectivity is strengthened not only between inland areas and coastal areas by improving road conditions, but also for improving accessibility to areas along these corridors.
- **Major Regional Cities**: People, goods and information will get together along north-south economic corridors and major regional cities. Urban functions, corridor infrastructure and basic infrastructures for economic sectors will be provided in those cities, accommodating administration function and service functions for neighbouring agriculture areas, and regional head office functions for private companies, and furthermore attracting manufacturing factories. For these cities, social services and cultural facilities will also be provided for promoting people's settlement in inland areas.
- **West Africa Coastal Mega-Region (Mega Coastal Economic Corridor):** Abidjan-Lagos Corridor is to be developed into an integrated coastal economic corridor (its population estimated to be 65 million in 2040) connecting coastal economies and cities between Abidjan and Lagos along the approximately 1,000km long motorway. Urban facilities, urban expansion areas, industrial areas and conservation areas should be strategically located along the two axes of existing roads and new motorway. In the super long term (beyond 2040), this area would become a coastal mega-region equipped with a high-speed railway, as well as a motorway.
- **Coastal Metropolitan Areas:** Coastal metropolitan areas, such as Greater Abidjan, Greater Accra, Greater Lomé and Greater Lagos, have been developed along the Abidjan-Lagos Corridor. These metropolitan areas are located at junctions between north-south economic corridors and coastal corridor. They would enhance international competitiveness by upgrading

their urban functions and advancing their economic sectors, as well as attracting soft functions, such as knowledge, information, finance, advanced services, and culture.

Key Points for Initiating and Driving Corridor Development for Individual Countries following the Selected Growth Scenario:

In order to implement the selected growth scenario, it is necessary for the WAGRIC countries together to push the four buttons (to take the four sets of necessary actions) for the purpose of initiating and driving individual countries' corridor development, as well as securing inclusive and sustainable corridor development.

(1) Burkina Faso's Key Points for Initiating and Promoting Corridor Development

[Button A]: Development of economic sectors oriented to coastal consumers' markets of the sub-region should be promoted by making the following efforts:

- Improvement of access roads to agricultural potential areas from north-south corridors to coastal countries (Cote d'Ivoire, Ghana and Togo), and expansion of irrigation schemes in agricultural potential areas for increasing the production and export of existing products (agricultural and livestock products) oriented to sub-regional consumers' markets
- Development of new signature products oriented to middle-income populations of sub-regional markets (agricultural and livestock products and agro-processed and livestock-processed products)

[Button C]: North-south connectivity should be strengthened for reducing long-distance cargo transport costs for development of economic sectors in inland areas by taking the following action:

- Development of Multi-Modal Dry Port in Ouagadougou and Expansion of Multi-Modal Dry Port in Bobo-Dioulasso for combining rail and truck transport for the purpose of expanding rail service areas and increasing rail transport demand, as well as for reducing cargo transport costs

[Button C]: North-south Connectivity should be strengthened by developing a high-speed transportation for attracting investment to economic sectors in inland areas as follows:

- Phased development of motorway from Ouagadougou to Bobo-Dioulasso for strengthening the connectivity with coastal markets of Côte d'Ivoire
- Phased development of high-standard four-lane roads from Ouagadougou toward Togo and Ghana for strengthening the connectivity with coastal markets through Togo and Ghana

(2) Côte d'Ivoire's Key Points for Initiating and Promoting Corridor Development

[Button A]: Development of economic sectors oriented to sub-regional markets should be promoted not only in coastal areas, but also in inland areas by taking the following actions:

- Investment promotion to economic sectors in both coastal areas and inland areas, by appealing of integrated and expanded markets within the sub-region
- Promote the agricultural production of rice, maize, soy bean, fresh vegetable and fresh fruits targeting coastal markets of the sub-region by improvement of access roads to potential agricultural areas from Abidjan-Ouagadougou Corridor and by providing infrastructure including irrigation facilities
- Provision of economic infrastructure, such as electricity, water and industrial parks, for agro-processing industries in Bouaké and Korhogo

[Button B]: Sub-regional markets should be integrated and expanded for creating the enabling environment to attract investment to economic sectors oriented to sub-regional markets by taking the following actions:

- Strengthening of implementation of Customs Union at the national border with Ghana for integrating Cote d'Ivoire's coastal markets with Ghanaian and other coastal markets

- Construction of East Exit Line of Motorway connecting Cocody with Bonoua, which could contribute to the strong connectivity of Greater Abidjan with Abidjan-Lagos Corridor

[Button C]: North-south Connectivity should be strengthened for reducing transport costs and transport time between inland areas and coastal areas, for creating the enabling environment for developing economic sectors in inland areas by taking the following actions:

- Extension of the motorway further north up to Niakaramandougou from Yamoussoukro for reducing transport time between inland areas and coastal areas
- Development of multi-modal dry ports at Suburban Abidjan and Ferkessédougou by combining rail transport and truck transport for expanding service areas of railway both in coastal areas and inland areas, and for reducing transport costs between inland areas and coastal areas

(3) Ghana's Key Points for Initiating and Promoting Corridor Development

[Button A]: Development of economic sectors oriented to sub-regional markets should be promoted not only in coastal areas, but also in inland areas by taking the following actions:

- Investment promotion to economic sectors in both coastal areas and inland areas, by appealing of integrated and expanded markets within the sub-region
- Promotion of development of agriculture targeting sub-regional markets in Northern Zone by attracting investments and by providing infrastructure (including east-west access roads to potential agricultural areas and irrigation facilities) in inland areas from the Central Corridor (Tema-Ouagadougou Corridor) of Ghana
- Strengthening of economic infrastructure, such as electricity, water and industrial parks, for supporting the development of Tamale as a Major Regional City in the Northern Zone for attracting investment to agro-processing industries targeting sub-regional markets

[Button B]: Sub-regional markets should be integrated and expanded for creating the enabling environment to attract investment to economic sectors oriented to sub-regional markets by taking the following actions:

- Strengthening of implementation of Customs Union at the national border with Côte d'Ivoire and Togo for integrating Ghana's coastal markets with neighbouring coastal markets
- Construction of strategically selected sections of Coastal Motorway within Ghana, not only for spatially integrate coastal markets, but also for forming a coastal industrial and urban belt (a coastal economic corridor)
- Formulation of Greater Accra's urban transportation master plan, especially for identifying the location of East-West Motorway within Greater Accra
- Formulation of a road plan for securing the connectivity of the new Tema container terminal with the Abidjan-Lagos Motorway, as well as with Tema-Ouagadougou Corridor (Central Corridor of Ghana)

[Button C]: North-south Connectivity should be strengthened for reducing transport costs and transport time between inland areas and coastal areas, for creating the enabling environment for developing economic sectors in inland areas by taking the following actions:

- Extension of 4-lane high-standard road between Nkawkaw and Kumasi, construction of Greater Kumasi Outer Ring Road and extension of 4-lane high-standard road between Kumasi and Kintampo for reducing travel time between inland areas and coastal areas
- Revitalization of water transport of the Volta Lake in the short term, by combining 1) construction of Tema-Akosonbo Railway, 2) development of Debre Port in the upstream of the Volta Lake and Akosonbo Port in its downstream, 3) rehabilitation of pipelines between Buipe and Bolgatanga

- Revitalization of Western Railway Line (Takoradi-Awaso-Kumasi), Eastern Railway Line (Tema-Boankra-Kumasi) in the short term, and new construction of railway from Kumasi up to northern areas in the mid and long terms

(4) Togo's Key Points for Initiating and Promoting Corridor Development

[Button A]: By utilizing the strength of Lomé-Ouagadougou Corridor and Coatal Abidjan-Lagos Corridor, the development of economic sectors should be promoted in both inland areas and coastal areas, targeting sub-regional coastal markets, by making the following efforts:

- Promotion of agriculture in inland areas, targeting the sub-regional market by developing agro-poles in inland areas including infrastructure, such as access roads and irrigation facilities to potential agricultural areas
- Promotion of agro-processing industries in inland areas by strengthening of infrastructure in Kara and Sokodé (major regional cities) including industrial parks
- Development of industrial and logistics parks in Greater Lomé by taking advantage of Abidjan-Lagos Coastal Motorway to be developed

[Button B]: Sub-regional markets should be integrated and expanded for creating the enabling environment to attract investment to economic sectors oriented to sub-regional markets by taking the following actions:

- Strengthening of implementation of Customs Union at national borders along Abidjan-Lagos Corridor
- Construction of strategically selected sections of Coastal Motorway, especially East-West Motorway in Greater Lomé, for strengthening of logistics function and enhancing locational potentiality for manufacturing sectors in the mid and long terms

[Button C]: North-south connectivity should be strengthened for reducing transport costs and transport time for investment promotion to economic sectors in inland areas as follows:

- Improvement of traffic congestion in surrounding areas of Lomé Port for maintaining of the competitiveness of Lomé Port and Lomé-Ouagadougou Corridor
- Phased upgrading of the north-south corridor road to a 4-lane high-standard road including the construction of 4-lane bypass roads on Lomé-Ouagadougou Corridor
- Phased development of railway between Lomé (Togo) and Cinkasé (Burkina Faso) for reducing long-distance cargo transport costs and by utilizing private sectors' initiatives of iron ore mining and transport for Banjeli

PART I
INTRODUCTION

Chapter 1 Introduction

1.1 The Project on the Corridor Development for West Africa Growth Ring Master Plan (Project WAGRIC)

The Project on the Corridor Development for West Africa Growth Ring Master Plan (Project WAGRIC[1]) is a study project for formulating a strategic master plan for corridor development. The Project WAGRIC deals with development of economic sectors and corridor infrastructure covering four countries, namely Burkina Faso, Côte d'Ivoire, Ghana and Togo. These four countries are referred to as WAGRIC countries or the WAGRIC Sub-Region.

Although the improvement of transport capacity of north-south corridors (Abidjan-Ouagadougou Corridor, Tema-Ouagadougou Corridor and Lomé-Ouagadougou Corridor) is expected to become an important trigger to activate economic sector development along the corridors, in actuality such impact of transport improvement alone is not so substantially large in the case of the WAGRIC countries. Therefore, it is necessary for WAGRIC countries to formulate other types of strategies to promote development of economic sectors.

Project WAGRIC pays attention to emerging and rapidly growing sub-regional markets of a variety of consumer products. This emergence and growth of sub-regional markets is due to high primary commodity prices and expansion of production of minerals and agricultural products in the 2000s around the world. This trend is considered to continue in the future due to global demand increase for those primary commodities even though price fluctuations take place.

In the WAGRIC Master Plan, promotion of development of economic sectors targeting growing sub-regional markets of WAGRIC countries is recommended, in addition to continued effort at expanding the export of primary commodities, such as minerals, cacao, cashew, oil palm, rubber and cotton, outside of the sub-regional markets (to overseas markets), by integrated implementation of sub-regional economic integration and corridor development.

Through sub-regional economic integration, the WAGRIC Master Plan is designed to promote corridor development for the purpose of strengthening the connectivity of the four countries, the north-south connectivity between inland areas and coastal areas and the east-west connectivity of coastal areas between neighbouring countries, in order to promote development of economic sectors targeting growing consumer markets within the sub-region. By attracting investments to both inland and coastal areas' economic sectors targeting growing sub-regional markets and by strengthening of north-south connectivity, inland economic sectors can be connected to growing coastal markets. By following the growth scenario selected by the WAGRIC Master Plan, the development of economic sectors in inland areas and coastal areas is promoted so as to prevent excessive outmigration from inland areas to coastal areas, and to reduce the increasing speed of regional disparity.

By implementing these strategies and plans on corridor development, the WAGRIC Master Plan will try to achieve "Dynamic and Inclusive Development, as well as Sustainable Development" for seeking balanced socio-economic development between inland countries/ inland areas and coastal countries/ coastal areas in the WAGRIC Sub-Region.

[1] WAGRIC is an English abbreviation for the Project on Corridor Development for West Africa Growth Ring Master Plan. CACAO is a French abbreviation for Le Projet du Plan Directeur de l'Aménagement des Corridors pour l'Anneau de Croissance en Afrique de l'Ouest.

1.2 Background of the Project

Africa, especially Sub-Saharan Africa, had been regarded as the region prone to severe poverty for many years. In the last decade, Sub-Saharan Africa has become a promising place with encouraging business, investment and economic growth. It is time for Sub-Saharan African countries to accelerate economic growth, as well as to promote poverty reduction. In fact, the four countries (Burkina Faso, Côte d'Ivoire, Ghana and Togo) of the Project on Strategic Master Planning for West Africa Growth Ring Corridor Development have formulated national development plans with emphasis on economic growth, as well as poverty reduction.

In addition to poverty issues, development partners and global business groups have approached West African countries by considering economic growth and investments in the last decade.

The population of WAGRIC countries (four countries) is around 77 million in 2015, while ECOWAS (15 member countries) has 343 million populations in 2015. In West Africa, many countries have grown their GDP at high growth rates of over 5% per annum in the last decade. West Africa is expected to continue to attract foreign investment and to grow its economy at high rates. Such a high economic growth would increase transport demand, which should be supported by rehabilitation and upgrading of transport corridors.

However, West African countries have suffered problems of high transport costs, low agricultural productivity and high-level wages, which hinder employment expansion, economic sectors development and economic growth.

Especially, West Africa's transport costs are considered to reach as much as 1.8~3.5 times higher as those in Asia and Latin America, due to poor infrastructure and inefficient operation for border-crossing facilities.

In such circumstances, the UEMOA Commission and Ghana Government respectively requested projects on the formulation of a strategic master plan on development of freight transport and economic sectors from the Japanese Government.

On the other hand, at the Yokohama Conference for TICAD V held in June 2013, the Government of Japan announced its ODA's emphasis on formation of 10 Strategic Master Plans in provision of Official Development Aid for the purpose of promoting African economic development and assisting private sectors activities. The Project on Strategic Master Plan on Corridor Development for West Africa Growth Ring is one of the 10 Strategic Master Plans for Africa.

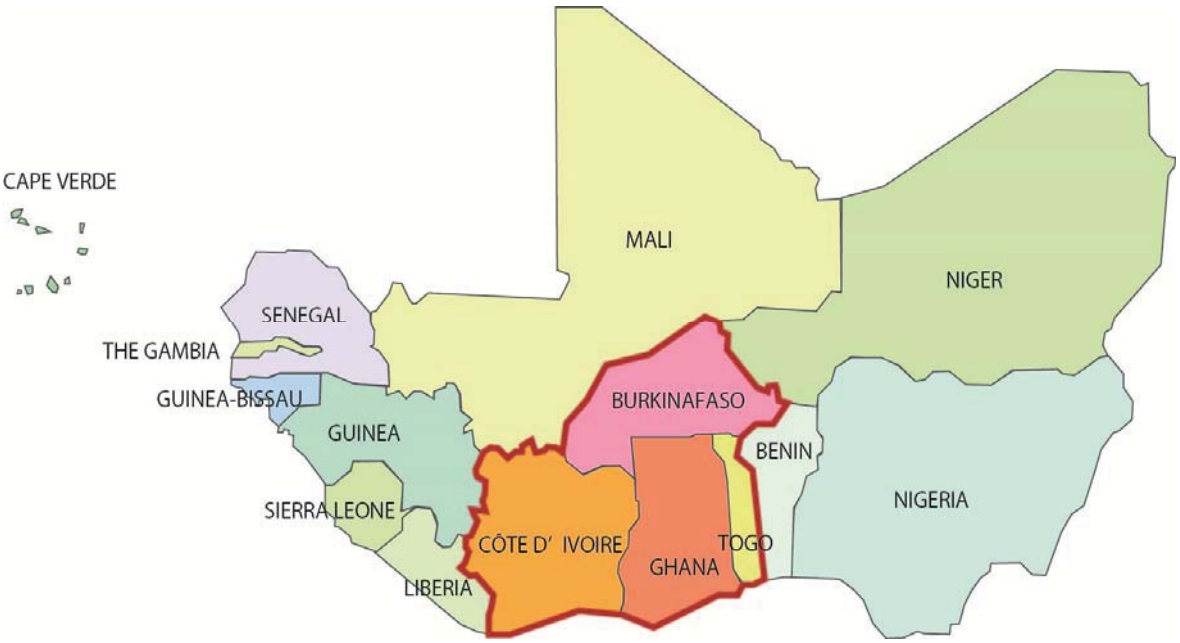
1.3 Goal of the Project

The goal of the Project is to seek balanced economic development between coastal areas and inland areas in the four countries of the Study Areas, by utilising identified development potentials of economic sectors and by solving identified bottlenecks of transport corridors.

The target years of the Strategic Master Plan are the year 2025 for the short term, the year 2033 for the middle term and the year 2040 for the long term.

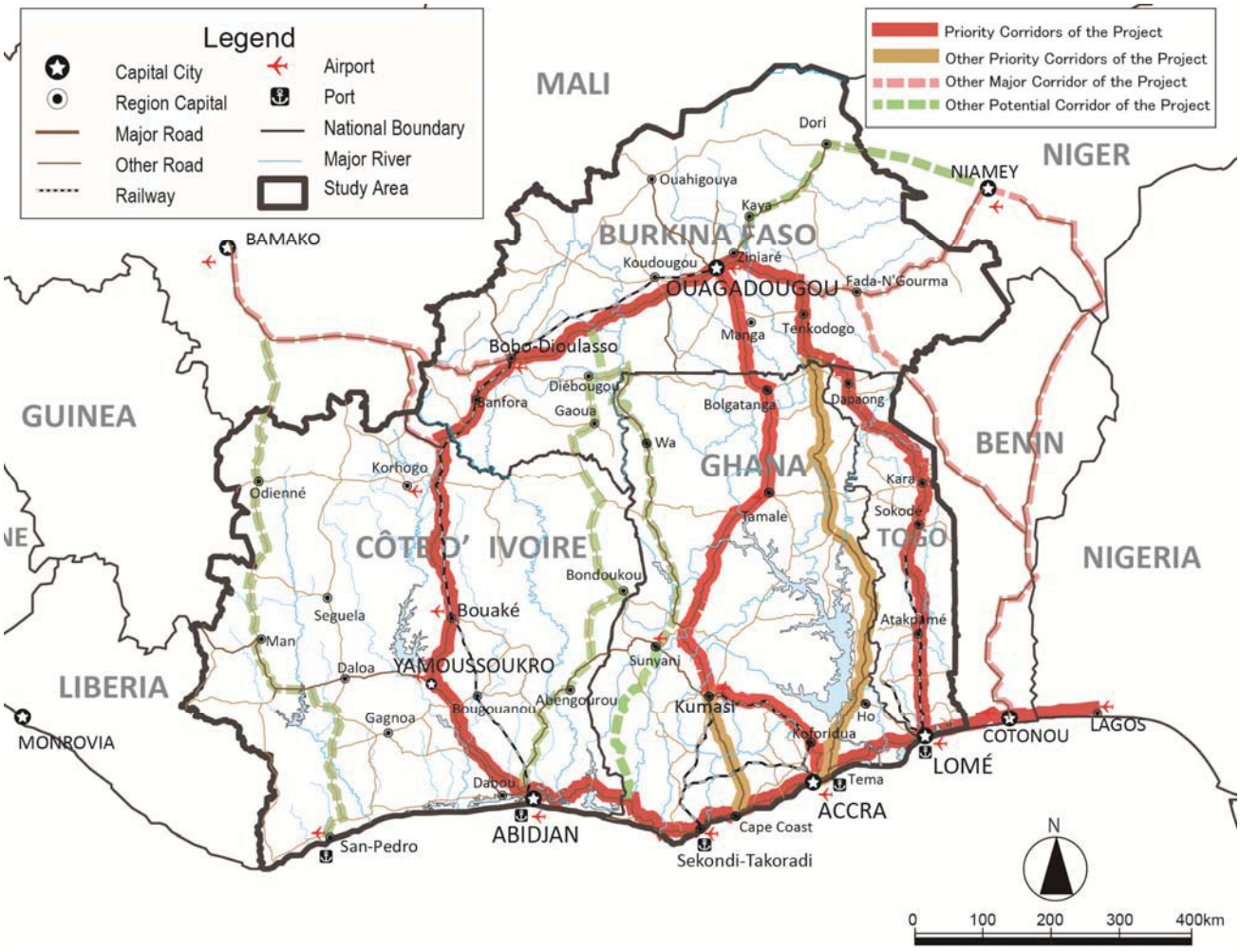
1.4 Study Areas and Major Target Corridors

The main target countries for the Project are Burkina Faso, Côte d'Ivoire, Ghana and Togo (WAGRIC countries). The WAGRIC Master Plan covers not only the four major corridors of West Africa's Growth Ring Corridors (Abidjan-Ouagadougou Corridor, Tema-Ouagadougou Corridor, Lomé-Ouagadougou Corridor and Abidjan-Lagos Corridor), but also other corridors. (See Figure 1.4.1 and Figure 1.4.2)



Source: JICA Study Team

Figure 1.4.1 ECOWAS Member Countries and Four Countries for the Project



Source: JICA Study Team

Figure 1.4.2 Four Countries and International Corridors in the Study Areas for the Project

1.5 Organisations for the Project

The Project's management structure has the following two lines:

- The one is for Burkina Faso, Côte d'Ivoire and Togo under the Department of Community Territorial Administration and Transport (DATC: *Département de l'Aménagement du Territoire Communautaire et des Transports*), the UEMOA Commission;
- The other is for Ghana under Ghana's National Development Planning Commission (NDPC) and Ghana's Ministry of Roads and Highways (MRH).

For UEOMA's three countries, at the national level Joint Technical and Monitoring Committees (JTMC-National) are organized by involving a variety of ministries and agencies. The chairs for JTMC-National are from the following ministries:

- Burkina Faso: Ministry of Economy and Finance
- Côte d'Ivoire: Ministry of Economy and Finance
- Togo: Ministry of Development Planning

At the sub-regional level, a Regional-Level of Joint Technical and Monitoring Committee (JTMC-Regional) is composed of representatives of seven ministries from each country and chaired by DATC, UEMOA Commission. Furthermore, a Joint Steering Committee is composed of seven ministers of the three countries.

For Ghana, the chair for the Steering Committee (SC) and Technical Committee (TC) is as follows:

- Ghana: National Development Planning Commission (NDPC)

(1) UEMOA Project Management Structure

There are the following three levels of committees under the UEMOA Commission:

- Joint Steering Committee (JSC)
- Joint Technical Monitoring Committee (JTMC) - Regional
- Joint Technical Monitoring Committee (JTMC) - National

1) Joint Steering Committee (JSC)

The JSC is the highest-level committee and it has the two following functions:

- To facilitate inter-organisational and international coordination
- To approve proposed sub-regional corridor strategies and plans

2) Joint Technical Monitoring Committee (JTMC) - Regional

The second-level committee is the JTMC-Regional. Its function is to hold international discussions on sub-regional corridor development strategies and plans.

3) Joint Technical Monitoring Committee (JTMC) - National

The third-level committee is JTMC-National. It is organised by each member country and its function is to hold discussions on corridor development in each country and to provide technical input and inter-ministerial coordination in each country.

(2) Ghanaian Project Management Structure

There are two committees in the Ghanaian Project Management Structure. The one is the Steering Committee, and the other is the Technical Committee.

1) Steering Committee (SC)

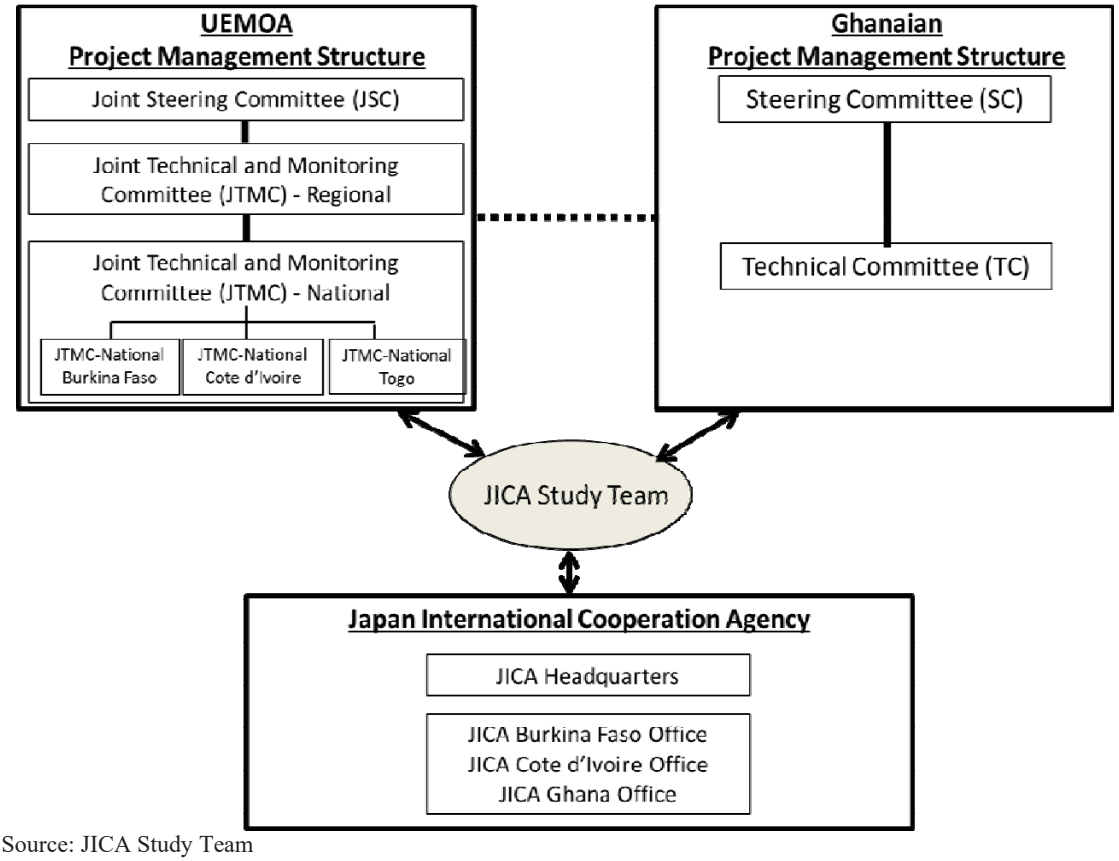
The first-level committee is the SC, and it has the following two functions:

- To facilitate inter-organisational and international coordination

- To approve proposed corridor development strategies and plans with due consideration of sub-regional integration

2) Technical Committee (TC)

The second-level committee is the TC. The function of the TC is to hold discussions to provide technical input and inter-ministerial coordination.



Source: JICA Study Team

Figure 1.5.1 Project Management Structure

1.6 Organisation of the WAGRIC Master Plan

The WAGRIC Master Plan is composed of two levels of corridor development strategies and plans. The one is at the sub-regional level and the second is at the individual country level. These two levels of strategies and plans are as follows:

- Sub-Regional Level: Sub-Regional Development Strategies
- Country Level: Individual Countries' Corridor Development Strategies and Plans

The sub-regional development strategies deal with overall strategies to achieve the goal of the Project. On the other hand, the four individual countries' strategies and plans contain their own development strategies/ plans and priority projects concerning corridor infrastructure and economic sectors in accordance with the sub-regional development strategies.

The four countries' corridor development strategies/ plans deal with not only primary north-south corridors and the coastal corridor, but also other corridors, for achieving the goal of the Project. These sub-regional and individual countries' development strategies and plans are formulated as an integrated development master plan.

1.7 Organisation of the Final Report

The Final Report was prepared based on the findings of data analyses and field investigations. The Final Report reflected views and opinions expressed by participants at Joint Technical and Monitoring Committee Meetings, Ghana's Technical Committee Meetings and other occasional meetings with the JICA Study Team.

The Final Report is composed of the following volumes:

- Summary
- Main Text
    - Volume 1: Sub-regional Development Strategies
    - Volume 2: Corridor Development Plans
    - Volume 3: Appendices

The Main Text of the Final Report is composed of 35 chapters of the following 8 parts and 6 appendices:

- Part I: Introduction
- Part II: Sub-Regional Development and Integration
- Part III: Sub-Regional Development Strategies
- Part IV: Corridor Development Plan for Burkina Faso
- Part V: Corridor Development Plan for Côte d'Ivoire
- Part VI: Corridor Development Plan for Ghana
- Part VII: Corridor Development Plan for Togo
- Part VIII : Strategic Environmental Assessment (SEA)
- Appendix A: Agricultural Value Chain in WAGRIC Countries
- Appendix B: Traffic Survey and Traffic Data
- Appendix C: Development Potential Maps of Economic Sectors and Information Maps of Corridor Infrastructure
- Appendix D: General Future Land Use for Abidjan-Lagos Corridor
- Appendix E: Planning Study's Activities
- Appendix F: Records of SEA Stakeholder Meetings

PART II

SUB-REGIONAL DEVELOPMENT AND INTEGRATION

Chapter 2 Review of Sub-Regional Development Vision and Review of Strategies for West Africa

2.1 Overview of ECOWAS and UEMOA

2.1.1 The West African Economic and Monetary Union (UEMOA)

UEMOA was established in 1994. UEMOA includes eight West African countries; Benin, Burkina Faso, Côte d'Ivoire, Mali, Niger, Senegal, Guinea Bissau, and Togo. They share the same money, West African francs (CFA francs) and French as an official language, with the exception of Guinea Bissau where Portuguese is the official language. They also have a common monetary policy, which is implemented by the common central bank, the Central Bank of West African States (BCEAO: *Banque centrale des Etats de l'Afrique de l'Ouest*). The French Treasury guarantees the convertibility of the common currency. Largely reflecting these commonalities, the UEMOA countries have been able to make more progress towards economic integration than the rest of the ECOWAS member countries.

Table 2.1.1 shows the policy and institutional framework of integration in UEMOA

Table 2.1.1 Overview of Policy and Institutional Framework in UEMOA

Items	Details
Common Monetary Policy	Backed up by a Convergence, Stability, Growth and Solidarity Pact aiming at ensuring financial discipline on the part of each member country. - Eight convergence criteria, four of which are primary criteria and four secondary, as well as a regular multilateral surveillance mechanisms - In the event of failure to comply with the primary criteria, the Council of Ministers of UEMOA member countries may request the national authorities concerned to draw up and implement a programme of corrective measures; the secondary criteria are structural indicators which may serve for the formulation of economic policy recommendations *Periodic reviews of member countries' macroeconomic policies based on convergence criteria
Harmonization of Fiscal Policy	Adoption of Directives in 1998 - On the harmonization of value added tax, excise tax, taxation of petroleum products, and the tax regime for bank deposits in 1998 - Tax convention on avoidance of double taxation between member countries, the directive on income tax. Adoption of Directives on tax legislation in 2009 - Guidelines for the implementation of fiscal policy
Common Exchange Regulations	Capital movements - All capital movements in CFA francs between UEMOA member countries are free and unrestricted - Capital inflows from any other (non-UEMOA) country are free in principle, with the exception of gold imports - Capital outflows to countries that are not members of UEMOA are subject to control on the basis of submission of supporting documents - Transfers of funds to cover operations linked with current transactions are free on submission of supporting documents (this requirement applies only to transfers in excess of CFAF 300,000) Import and export operations - Import and export operations must be domiciled with a local bank; export earnings must be repatriated within one month of the date on which payment is due, converted into CFA francs and deposited with an approved local intermediary. The Finance Ministry checks exchange operations relating to exports and imports ex post facto on the basis of the documents produced to Customs.
Regional Bank	Banque Centrale des Etats de l'Afrique de l'Ouest (BCEAO) - Founded in 1959 and in operation from 1962 - Headquarters in Dakar - Issuing the common currency, the African Financial Community franc (CFA franc or CFAF: The currency code is XOF.) - Responsible for: implementing the monetary policy defined annually by the UEMOA Council of Ministers; managing the operation accounts of the treasuries of the member States; and centralizing their foreign exchange reserves. - It also defines the regulations applicable to the Union's banks and financial institutions and oversees their operations. West African Development Bank (BOAD) - International public institution - Established by treaty signed on 14 November 1973 - Specialized institution common to the eight States of the West African Economic and Monetary Union (UEMOA) - Its purpose is to fight against poverty, the promotion of the balanced development of the Member States and the achievement of regional integration - The BOAD released a revised mission statement in 2001, refocusing their funding on three development goals: poverty reduction, economic integration and promotion of private sector activity.

Items	Details
	- Its headquarters are in Lomé (Togo), but it has one Resident Mission in each of the seven other Member States. - It aims to "promote the balanced development of the Member States and contribute to the achievement of the economic integration of West Africa" by financing priority rural development projects, basic infrastructure, modern infrastructures, telecommunications, energy , Industries, transport, agro-industries, tourism and other services
Regional Stock Exchange	The Bourse Régionale des Valeurs Mobilières SA ("Regional Securities Exchange SA") or BRVM. - BRVM is a joint-stock company. - Together with the Regional Council on cash deposits of the population and Financial Markets (CREPMF), BRVM forms a regional financial market in West Africa.
Common Accounting System	West African Accounting System (SYSCOA) - Launched on January 1, 1998. Interbank Monetary Association (GIM-UEMOA) - Created by the BCEAO in 2003 - GIM-UEMOA incorporates 100 banks, financial and mail institutions of UEMOA. System of money calculations in real time by the BCEAO since 2006 - To deepen the integration of the financial environment
Customs Union (*1)	The UEMOA's customs union was put into place in two steps: 1) In 1996, member countries removed tariffs and quantitative restrictions on intraregional trade (tariffs on trade in industrial products were phased out over four years); 2) In 2000, they adopted a common external tariff (CET), which reduced tariff rates and tariff dispersion substantially. - Adoption of UEMOA customs code in 2001. - Levies on imports from third countries are based on four tariff bands, ranging from 0 percent for "social" goods (for example, medicines), "cultural" goods (for example, books), and capital goods to 20 percent for finished consumer goods. - Two temporary regressive fees (declining proportionally to the income): Regressive protection tax; and Conjuncture import tax
Common Sectoral Policies	Industrial policy adopted in 1999 Mineral policy adopted in 2000 Agricultural policy adopted in 2001 Energy policy adopted in 2001 Policy on craft industries adopted in 2001 Policy on Telecommunications and Information and Communication Technologies adopted in 2006 (Recommendation No. 03/2000 / CM / UEMOA). Common Tourism Policy (PCT) adopted in 2010
Latest Strategy	The Regional Economic Programme (REP) 2 Phase 2012-2016 - To "promote strong growth and sustainable development thanks to the achievement of concrete and visible projects by the Union's population" - Strategic areas: food security by supporting the development of targeted agriculture sectors; better access to energy; protection of the environment and management of natural resources; food safety, through supporting the development of targeted agro-food systems; and further development and modernization of infrastructure. - The REP's 2 portfolio includes 45 renewed projects of the REP1 and 57 new projects, totalling 102 projects: e.g. Electrical energy with the Regional Initiative for Sustainable Development (IRED), transport infrastructure, and food security under the Union's agricultural policy (PAU).

Note (*1): Within UEMOA, total exemption from import duties and taxes has been applied to unprocessed local products since 1 July 1996 and is applied to products that have been sufficiently worked or processed, on the basis of the rules of origin adopted in 2003 (Additional Protocol No. III/2001 establishing rules of origin for UEMOA products) and approved by the National Approval Committee. According to the above Protocol, products obtained are as follows: primary products (e.g. live animals, vegetable products harvested in the member countries, etc.); traditional craft products; and products in which the proportion of all raw materials is greater than or equal to 60%, or that the proportion of products added in member countries is greater than or equal to 40% (this must be approved by the Commission). However, some countries do not fully implement the UEMOA rules of origin. The UEMOA rules are used to certify products as being of UEMOA origin and therefore as free of import tariffs. Nevertheless, for example, Mali and Côte d'Ivoire have generalized disputes on certificates issued by other countries and often apply the common external tariff (CET) to imports from other UEMOA members. Moreover, taxation of transit and re-exports is not harmonised in UEMOA. For example, Togo's taxes and fees on goods in transit and re-export are very low, well below Benin's, in an apparent effort to compensate for its geographical disadvantage in access to the Nigerian market.

Source: JICA Study Team based on documents, such as IMF (2015) West African Economic and Monetary Union: Common Policies of Member Countries, Press Release and Statement of the Executive Director; African Union (2013) The State of Integration in Africa (EIA IV)

2.1.2 Economic Community of West African States (ECOWAS)

ECOWAS was established in 1975 to create a common market in West Africa. At present, ECOWAS encompasses 15 countries of West Africa.

The objective of ECOWAS through the Revised Treaty of 1993 is to promote the harmonization and coordination of member countries' policies and the promotion of integration programmes, projects and activities, particularly in food, agriculture and natural resources, taxation, transport and communications.

In coordination with the Africa Action Plan (AAP) of the African Union (AU), ECOWAS leads and coordinates implementation of the New Partnership for Africa's Development (NEPAD) programmes in West Africa, including the Comprehensive African Agriculture Development Programme (CAADP) and the Programme for Infrastructure Development in Africa (PIDA). PIDA covers cross-border infrastructure investment needs, policies and other regulatory measures to accompany these investments up to 2040.

2.1.3 Relationship between ECOWAS and UEMOA

Table 2.1.2 and Table 2.1.3 show that while both ECOWAS and UEMOA have similar structures, their individual progress in sub-regional integration is uneven. Although member states strive to overcome the linguistic and geopolitical divides in the region, these differences still present challenges for the integration process. Achieving efficient coordination and rationalization among the dense network of sub-regional institutions are necessary remedies to these fundamental challenges. The ECOWAS-UEMOA stronger policy convergence remains a remarkable challenge.

After a formal cooperation agreement between the two sub-regional organisations had been signed in 2004 and a Joint Technical Secretariat (secrétariat technique conjoint) had been set up, the cooperation of ECOWAS and UEMOA seems to have been accelerated since 2014.

Table 2.1.2 Overview of ECOWAS and UEMOA

	ECOWAS	UEMOA
Establishment	28 May 1975 (Revised Treaty approved in 1993)	- The West African Monetary Union (WAMU) founded in 1962 - Transformation to the West African Economic and Monetary Union (UEMOA) in 1994
Status	Regional Economic Community (REC) recognised by the African Union (AU)	Not recognized by the AU
Member states	15 countries: Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo	8 countries: Benin, Burkina Faso, Côte d'Ivoire, Mali, Niger, Senegal and Togo
Goals	- To promote economic cooperation and integration in West Africa in order to raise the living standards of its peoples, to maintain and enhance economic stability - To foster relations among member states - To contribute to the progress and development of the African Continent	- Improvement of the competitiveness of the member states in an open, competition-based market and a rationalised, harmonised legal framework; - Creation of a common market based on the free movement of persons, goods, services and capital, freedom of establishment as well as a common external tariff and a common trade policy; - Convergence of the economic activities and policies of the member states through a multilateral monitoring mechanism; - Harmonisation of national laws and regulations, where this is required for the effective operation of the common market, particularly of the tax systems - Coordination of national sectoral policies, particularly in the areas of human resources, land use planning, transport and telecommunications, the environment, agriculture, energy, industry and mining.
Operation	- The highest decision-making body: The Authority of Heads of State and Government of the member states - Council of Ministers (two ministers from each member state): Meeting twice a year for the day-to-day implementation of the decisions of the Authority and monitoring of the institutions further down the line - Commissions: Responsible for managing day-to-day operations and for implementing the decisions of the Authority and the Council of Ministers - ECOWAS Court of Justice (7 judges): Independent from the ECOWAS member states and institutions	- Summit meetings of the heads of state and government for top-level decisions - Parliament of UEMOA established in 2003 - Council of Ministers: e.g. recently issued political guidelines as decreed by the above in Summit meetings - Commissions: Responsible for day-to-day operations - An inter-parliamentary committee: Responsible for the democratic oversight of the decision-making processes (but only in an advisory role) - A court of justice: To supervise the construction of the community's laws and an audit court checks the financial management at UEMOA - The Central Bank of West African States (BCEAO) - The West African Development Bank (BOAD)
Main Movements of Integration	- The Protocol on Free Movement of Persons (1976) - ECOWAS Ceasefire Monitoring Group (organisation to deploy a peacekeeping force) - The Revised Treaty approved in 1993 includes the aim of creating an economic and monetary union, in which the relevant measures involved the elimination of domestic customs duties	- A customs union with a common external tariff and free movement of goods within UEMOA were realised in 2000 - Trade legislations of the member states were harmonised and a common competition policy adopted - The multilateral mechanism for the harmonisation of economic policies was put into practice with a convergence pact: Primary and secondary convergence criteria - Development of a common agricultural policy as well as numerous additional sectoral policies, for instance in the area of transport and telecommunications, energy as well as industry and mining

Source: JICA Study Team based on materials related to ECOWAS and UEMOA, such as Overseas Development Institute (2001) "Regional Integration in Western Africa"; West Africa Civil Society Institute. (2011) "The Politics of Regional Integration in West Africa"

Table 2.1.3 State of Integration of ECOWAS and UEMOA by Comparison

Measure	ECOWAS	UEMOA
Elimination of customs duties within the community	Implemented	Implemented
Elimination of non-tariff trade barriers	-	-
Common external tariff	Implemented	Implemented
Further trade policies	Implemented	Implemented
Harmonisation of trade legislation	-	Implemented
Competition policy	-	Implemented
Free movement of persons	Implemented	Implemented
Free movement of capital	Implemented	Implemented
Common currency	Planned	Implemented
Coordination of economic policies	Planned	Implemented
Sectoral policies	Implemented	Implemented
Non-economic objectives (e.g. security policy)	Implemented	Planned

Source: JICA Study Team based on "Regional Cooperation in West Africa", KAS International Reports, 2014

2.1.4 Sub-Regional Common Policies of UEMOA Commission and ECOWAS

The regional integration process in West Africa is championed by the Community of West African States (ECOWAS) and the West African Economic and Monetary Union (UEMOA) and supported by the work of specialized technical agencies and sub-regional institutions. ECOWAS and UEMOA, together with their member states, have made significant progress, particularly at the political and institutional level, in advancing the regional construction. According to Article 55 "Realization of an economic and monetary union" of the revised treaty of the ECOWAS Commission published in 1993, member States undertake to establish within a period of five years after the creation of a customs union, an economic and monetary union through:

- Adoption of a common policy in all areas of socio-economic activities, including agriculture, industry, transport, communications, energy and scientific research
- Total elimination of all obstacles to the free movement of persons, goods, capital and services as well as the right of residence and establishment
- Harmonization of monetary, financial and fiscal policies, the creation of a West African Monetary Union, the establishment of a single Regional Central Bank and the creation of a single currency for West Africa

The West Africa sub-region has strategic frameworks in the process of being operationalized in order to consolidate its economic integration, strengthen its integration into the world economy and benefit from the Economic Partnership Agreement (EPA).

The Community Development Programme (CDP) is part of the implementation of the ECOWAS Vision 2020 and aims to formulate a coherent programme of actions capable of translating this vision into reality. Adopted by the Conference of Heads of State and Government of ECOWAS in July 2013 in Accra, Ghana, the implementation of the CDP (PCD), scheduled for 2014-2018, will be carried out on the basis of the priority projects identified in four (4) priority areas: (i) Integration of peoples, governance and human development; (ii) Deepening of economic integration; (iii) Infrastructure development and wealth creation; and (iv) Cooperation and financing.

The UEMOA Commission, for its part, adopted Strategic Plan 2011-2020, with five strategic axes: 1) Common Market and Prosperity; 2) Performance of Member States; 3) Synergies and Partnerships; 4) Outreach and communication; and 5) Organisational Performance. The objectives of this plan are to be achieved, inter alia, by the implementation of the "Regional Economic Programme" (PER II, 2012-2016: *Programme Economique Régional II*). This Programme aims to meet the new challenges facing the Union, namely: access to energy, food security, water control, development of less-favoured areas and the setting up of efficient productive systems.

Coherence between the Community Development Programme (CDP), the Regional Economic Programme (REP) and other regional programmes, in particular the New Partnership for Africa's Development (NEPAD), is underway through the CDP-REP collaborative platform. The 12th session of the inter-institutional ECOWAS/ UEMOA meeting, held from 24 to 30 June 2014 in Ouagadougou, was marked by the signing of a

convention defining the modalities of collaboration between the Regional Economic Programme (PER/UEMOA) and The Community Development Programme (PCD/ECOWAS). Finally, the adoption of the ECOWAS Sahel Strategy in July 2013 is worth mentioning. The action plan for this strategy, finalized in October 2014, envisages actions for the period 2015-2019 in the infrastructure sectors of connectivity, agriculture, resilience and food security, education, and accompanying peace and security measures. The creation of the common market has made significant progress in recent years. This is evidenced by the adoption of the ECOWAS Common External Tariff at the Extraordinary Summit of Heads of State of the region on 25 October 2013 in Dakar, which has been in operation since 1 January 2015, and the final approval of the Economic Partnership Agreement (EPA) by the ECOWAS Heads of State and Government on 10 July 2014. The region and its Member States are also engaged in the integration process of the African Union, notably through the continental free trade zone. Another important achievement is the free movement of persons with the abolition of visas between member states and the establishment of a travel certificate and the ECOWAS passport. However, in reality, many remaining obstacles and overlaps still need to be overcome to achieve a full harmonization of policies. Between all sub-regional organisations, UEMOA seems to have reached a higher level of convergence between its member states, and has already enacted a full set of common policies and programmes in different sectors (water, energy, tourism, mining, etc.). Similarly, ECOWAS has steadily improved its institutional architecture and has, over the years, implemented several sectoral policies that cover almost all of the areas identified in the initial and revised treaties, however, there are some areas in which ECOWAS performs only marginally, mainly because of lack of funding for its programmes (as in the common industrial policy) or of insufficient political will be shown on the part of Member States[1] (as in the Mining Policy). Table 2.1.4 highlights common framework documents that are already shared between ECOWAS and UEMOA in the agriculture, water resources, environmental and energy sectors.

Table 2.1.4 State of Integration of ECOWAS and UEMOA Common Policies by Comparison

ECOWAS	Common Framework Documents	UEMOA
- Common Policy on Agriculture, – Livestock - Fishing - Forests (ECOWAP/PDDAA). - Regional Action Plan 2006-2010 for the implementation of ECOWAS Agricultural Policy (ECOWAP) and CAADP/NEPAD in West Africa. - ECOWAS Environmental Policy	- Common Policy on Improving the Environment (PCAE) - Subregional action programme to combat desertification in West Africa and Chad (PASR / AO) - Ouagadougou Declaration on Integrated Water Resources Management - Water resources policy of West Africa. - Regional Action Plan for Integrated Water Resources Management (PAR-IWRM / WA) - ECOWAS/UEMOA Regional Policy on Access to Energy Services for Populations in Rural and Suburban Areas for Poverty Reduction towards the attainment of the Millennium Development Goals (MDGs)	- Agriculture Policy of the Union (PAU) - Common Energy Policy (CEP)

Source: Trahore/Hien (2010), p.29

An extensive list of parallel policies of UEMOA and ECOWAS is shown in Table 2.1.5. The table highlights, to some extent, the overlaps between the two organisations and the drive towards a full harmonisation of policies.

[1] According to the ECOWAS Report "ECOWAS AT 40 AN ASSESSMENT OF PROGRESS TOWARDS REGIONAL INTEGRATION IN WEST AFRICA" p.19; Burkina Faso is the only country who has ratified all ECOWAS protocols and conventions (as at 15 November 2013)

Table 2.1.5 List of Main Policies of ECOWAS and UEMOA

ECOWAS		UEMOA	
Policy Title	Adoption Date	Policy Title	Adoption Date
ECOWAP- The regional agricultural policy of West Africa	2005	PAU-UEMOA Agricultural Policy	SUPP/ACT n° 03/2001-19 December 2001
WACIP –West African Common Industrial Policy	2010	PIC-Common Industrial Policy	SUPP/ACT n°05/99-8 December 1999
EMDP –ECOWAS Mineral Development Policy	SUPP/ACT/ A/SA.16/02/12	PMC- Common Mining Policy	SUPP/ACT n°01/2000-14 December 2000
PEEC - ECOWAS Renewable Energy Policy	SUPP/ACT/SA.2/7/13	PEC-Common Policy on Energy	SUPP/ACT/n°04/2001-19 December 2001
(ECOTOUR 15/25 Regional Tourism Policy of ECOWAS	Under development	PPA- Policy on Promotion of Handicrafts PCT- Common policy for tourism within the UEMOA	SUPP/ACT/n° 05/2001-19 December 2001 SUPP/ACT n° 01/2010/CCEG/UEMOA
ECOWAS Environmental Policy	2008	PCAE-UEMOA Common Environment Improvement Policy	SUPP/ACT/N° 01-2008-CCEG-UEMOA
		PAT-UEMOA Community Territorial Development Policy	SUPP/ACT/N° 03/2004
PC- Regional Competition Policy in ECOWAS	ECOWAS Treaty Art 50 , P 7 and Art 60		
ECOQUAL The Quality Policy	SUPP/ACT/A/SA.1/2/13		
ECOWAS policy for Disaster Risk Reduction	2007		
ECOWAS Research Policy	SUPP/ACT/SA.6/7/13		
Policy Framework on the Establishment of Early Warning and Rapid Response Mechanisms	SUPPLEMENTARY ACT A/SA.6/07/14		
Policy for Gender Mainstreaming in Energy Access	2015		
Regional Policy on public private partnership (PPP).	Under development		
ECOWIP-Investment Policy	Under development		

Source: JICA Study Team based on data compiled from UEMOA and ECOWAS websites

2.2 Sub-Regional Development Visions

2.2.1 UEMOA's Mission and Vision 2020

The mission and vision of UEMOA for 2020 are defined in the Strategic Plan 2011-2020 of the Commission of the West African Economic and Monetary Union, thus allowing the refocusing of the process of integration on the fundamental missions laid down by the UEMOA Treaty, but keeping it open to the world of tomorrow. Five specific and realistic strategic axes have been identified in order to realize the mission and achieve the vision's objectives by 2020.

(1) Mission

Propel and coordinate the integration of the economies of the Member States with a view to creating an environment favourable to the creation of wealth for the well-being of the populations of the UEMOA area

(2) Vision

The UEMOA Commission, a leader in economic integration in West Africa, is recognized for its ability to mobilize, for its credibility, and for its sense of innovation. It provides a stimulating work environment, valuing the expertise and competence of its human resources.

2.2.2 Vision of ECOWAS 2020

ECOWAS Vision 2020[2] aims at setting a clear direction and goal to significantly raise the standard of living of the people through conscious and inclusive programmes.

"The Strategic Vision of ECOWAS aims at transforming the West African sub-region into a borderless region where citizens can create and benefit from business opportunities for sustainable production by exploiting the enormous resources of West Africa."

The Vision is pursuing implementation of the following objectives by the year 2020:

- Convert ECOWAS from an "ECOWAS of States" to an "ECOWAS of Peoples" in which the people will

[2] ECOWAS Vision 2020: Toward a Democratic and Prosperous Community (2011)", prepared by the ECOWAS Commission under the supervision of the Vice President of the ECOWAS Commission and the Coordination of the Director, Strategic Planning

be involved in the regional integration process so that they can own it, will be at the centre of regional policy concerns and will be the ultimate beneficiaries

- Create a space in which the people live in dignity and peace within the framework of the rule of law and good governance
- Make the West African sub-region a borderless sub-region
- Establish a sub-region which is properly integrated into the global economies and taking full advantage of globalisation

There are the following five transformational building blocks of integrative development of West Africa:

- Regional resource development
- Peace and security
- Governance
- Economic and monetary integration
- Private sector growth

The vision also involves the necessity of a region-wide functioning customs union through effective implementation of the common external tariff (CET) and complete removal of the many remaining non-tariff impediments to intra-ECOWAS trade for economic integration. The adoption of a CET is a major qualitative step in the establishment of the common market as the Revised Treaty of the ECOWAS states. In a joint effort, all the ECOWAS members together introduced the CET in early January 2015, though its progress has lagged.

2.3 Sub-Regional Development Strategies in West Africa

2.3.1 Strategic Areas for Sub-Regional Development in UEMOA

In order to fulfil its mission and vision, the Commission has adopted targeted strategic orientations, identified on the basis of an analysis of the strengths, weaknesses, opportunities and threats, in particular the presence of numerous organisations likely to contribute to the mission and the vision of the Commission. These orientations are based on five main axes and take into account the limited staff available to carry out the mission. The first three focus on concrete results for businesses and people, while the other two axes represent priorities for changes for the Commission's capacity building

(1) Strategic Area 1: Common market and prosperity

The most urgent problem facing the Union today is the weakness of its economic growth. This is still insufficient to enable the creation of meaningful net jobs and the eradication of poverty. The common market, with the free movement of goods and services and the right of establishment, should increase the economies of scale and scope and accelerate the development of regional enterprises by offering expansion opportunities for existing companies. This line fits perfectly with the NEPAD agenda and the infrastructure investment projects provided for in the Regional Economic Programme (PER), as well as the Community Action Plan for Infrastructure and Road Transport (PACITR: *Plan d'Action Communautaire des Infrastructures et du Transport Routier*).

Moreover, the last ten years show a renewed interest of foreign investors in the fields of mineral resources, which is a factor that requires governments to better manage these resources. The region should be made attractive for foreign investment with a strategy in place to safeguard the natural resources of the sub-region.

The objective of the Commission is to increase the regional market so as to encourage the real emergence of a competitive regional private sector that benefits the population. The Commission intends to reframe and develop its policies, programmes and projects in order to achieve the following results:

1) Intermediate Outcomes

- Economic infrastructure (transport, energy, telecommunication, etc.) available and functional
- Available and competitive production factors
- A seamless movement of people, goods and services and an effective right of establishment

- Competitive, diversified and job-creating enterprises
- An attractive business environment
- Natural resources preserved and valued
- Increasing Intra-Community trade

2) Strategic Outcome

- A regional market benefiting the companies and the populations of the UEMOA member states

(2) Strategic Area 2: Performance of Member States

The sixteen years of the Union's operation show remarkable progress and achievements. The Commission has drawn up Community policies and carried out various sectoral reforms.

However, the implementation of all these Community policies and the applicability of all the initiated reforms are still of concern at State level. At the same time, it is necessary to ensure a sustainable regulatory rhythm for the States, while accompanying them in the internalization of these processes through better communication and capacity building of the States. The Commission therefore intends to deploy its resources in order to achieve the results set out below:

1) Intermediate Outcomes

- Coordination, monitoring and evaluation of reforms, and policies are strengthened.
- The Community's reforms and policies are appropriated by the actors.
- All reforms and policies are implemented by the Member States in accordance with the Community requirements.
- The performance of Member States has improved.

2) Strategic Outcome

- Consolidated regional economic governance, and States perform adequately in the implementation of community reforms and policies

(3) Strategic Area 3: Synergies and Partnerships

West Africa is experiencing an abundance of IGOs operating in different development sectors. Their respective performances are highly varied and this situation has gradually encouraged the States to solicit, over time and for any type of action, those that are supposed to be performing.

This situation is, in the long term, a source of inefficiency and does not in any way enhance the principle of specialization of IGOs. It is necessary to break with this logic of dispersion and to establish the principle of action based on compatibility. Moreover, the emergence of ECOWAS encourages the Commission to evolve towards greater compatibility and synergy between the two institutions. This axis also makes it possible to clarify and perpetuate the vision of the African Union to bring together the actors of African integration to facilitate the emergence of attractive and competitive regional economic blocs. The level of solicitation of the Commission by the Member States also suggests that it is becoming increasingly important to establish better synergy with the other specialized bodies of the Union, in particular the BCEAO and the BOAD. The Commission therefore intends to take the necessary measures to achieve the results described:

1) Intermediate Outcomes

- TFP and other IGOs
  - ➢ The UEMOA Commission increases its mobilization of funds in the sub-region
  - ➢ The regional strategy of intervention of the TFPs is based more on the Commission of the UEMOA
  - ➢ IGOs in the sub-region with technical expertise contribute significantly to the work of the UEMOA Commission
- Institutional Relations with ECOWAS
  - ➢ The coordination mechanism between UEMOA and ECOWAS is strengthened
- Relations with UEMOA specialized agencies (BCEAO, BOAD)

- Coordination of macroeconomic policies is strengthened
- Funding for regional programmes and projects is optimized

2) Strategic Outcome

- Constructive, complementary and beneficial partnerships and synergies for beneficiaries.

These three priority development axes for 2011-2020 reflect the organisation's desire to concentrate on the areas in which it has the skills and is well positioned to achieve tangible results for the populations of the Member States. These guidelines will enable the Commission to guide its actions and allocate its resources accordingly.

The following two axes are cross-cutting and aim to build capacity and improve the performance of the Commission. They are necessary to bring to completion the many modernization initiatives undertaken and to make them grow.

(4) Strategic Area 4: Outreach and communication

The perception survey carried out by the UEMOA Commission in 2010 shows that the populations of the Community region have many expectations vis-à-vis the Commission. This requires better communication with the people, so that the Commission's actions can be appreciated at their true value. The credibility of the Commission is at stake.

Moreover, the Community region is still little known to the rest of the world, in particular emerging countries and economic areas. The Commission should contribute to better 'selling' the Community region in the world. The Commission therefore intends to intensify its efforts to promote the attractiveness of the Community region and achieve the following results:

1) Intermediate Outcomes

- An external communication strategy emphasizing the attractiveness of the UEMOA region is in place
- The Commission's actions are better known and appreciated by stakeholders and the populations
- The Commission's interventions / roles are taken into account by the administrations of the Member States
- The credibility of the Commission is increased

2) Strategic Outcome

- The attractions of the UEMOA region are known and the performances of the States and the Commission are communicated to the populations.

(5) Strategic Area 5: Organisational performance

Since 2004, the Commission has initiated important internal reforms in order to make the organisation more efficient and transparent. The Commission's internal progress in modernization requires both the development of effective management tools and the development of a results-oriented culture. Knowledge management remains a challenge for the Commission and the next decade should enable it to be valued. The dream, by 2020, is to be a modern, effective and efficient organisation free of bureaucratic burdens.

The Commission therefore intends to continue its modernization efforts and achieve the following results:

1) Intermediate Outcomes

- Executives have increased their capacity to manage change
- Responsibilities are clearly defined and fully assumed
- Knowledge is valued
- The Commission is a dynamic and challenging workplace that fosters expertise and competence
- The culture of results- based management is effective
- The Commission is modernized and efficient (administrative burdens abolished)

2) Strategic Outcome

- A culture of innovation, performance and knowledge capitalization is in place at the UEMOA Commission.

It is on these five strategic orientations that the UEMOA Commission intends to carry out its mission and vision and generate significant impacts in the region.

2.3.2 Basic Strategies for Sub-Regional Development in ECOWAS

ECOWAS set the following six priority goals in the Regional Strategic Plan (2011-2015):

- Priority Goal 1: Promote Good Governance, Justice and Upgrade Conflict Prevention, and promote Management and Resolution Mechanisms
- Priority Goal 2: Promote Infrastructural Development and a Competitive Business Environment
- Priority Goal 3: Sustainable Development and Cooperation in the Region
- Priority Goal 4: Deepen Socio-Economic and Monetary Integration
- Priority Goal 5: Reinforce Institutional Capacity
- Priority Goal 6: Strengthen the Mechanism for Integration into the Global Market

These priority goals suggest the coverage of the strategies and programmes of ECOWAS.

2.4 Review of the UEMOA's Regional Space Development Plan (SDER)

2.4.1 Objectives of SDER

The Regional Space Development Plan (SDER: *Schéma de Développement de l'Espace Régional*) prefigures the space of the UEMOA of tomorrow and aims to fix, from now on, the outlines for a viable and controlled future. In general, the SDER constitutes a two-level reference framework that is both technical and political, requiring the consensus of the main actors of development and integration within the UEMOA area. It therefore stands as:

- A reference framework to serve the Member States of the Union to better define their spatial planning policy
- A tool for the implementation of structuring actions at Union level

The SDER thus sets the main options for socio-economic development and physical and spatial planning for the long term. It contains the main orientations for future development and their spatial implications for rational land uses. The SDER also constitutes a comprehensive coherence framework in spatial terms and has major socio-economic implications. Aimed for the medium and long term it provides a basis for action at short and medium span.

Once developed, the SDER will have to assume three main missions, diagnostic, prospective and programmatic

(1) Diagnostic Mission

The goal is to build consensus on:

- Baseline situation
- Territorial problem
- Major options

(2) Prospective

The aim is to propose a shared vision of long-term development (25 years) according to the areas of (policies, services, economy, infrastructure) and according to urban and rural settings.

(3) Programme

The SDER must lead to a physical-financial model. It will describe the major structuring operations, quantify the costs and test the financial validity of the proposals.

2.4.2 Phases of the SDER

The study includes 4 phases:

- Phase 1 already completed is "preparatory". It concerns the collection of basic data, the more precise definition of certain methodological aspects and the elaboration of a first diagnostic framework. A first reference document entitled "Preliminary Diagnostic Note" defines and proposes fields of analysis grouped according to the five strategic areas: (1) Climate change and environment; (2) Demographic and urban dynamics; (3) Development infrastructures; (4) Productive spaces and services; and (5) Spatial, natural resources and institutional framework.
- Phase 2 under validation is "analytical / problem identifying / prospective". In terms of sectoral diagnoses, it has more to do with prospective geography rather than spatial planning. It deals with territorial diagnoses and evaluates development prospects in order to confront them with the territorial problem. It defines operational objectives in order to deduce both "the image of the territory" and the ensuing preliminary guidelines. It uses the convergence between the sectoral and territorial approach to identify territorial profiles and to highlight their potential for evolution. These profiles or this differentiated reading on the territorial realities leads to a global reading of the territory of the Union and draw a target image of it. The construction of this image is done through scenario method.
- Phase 3, will build on the analyses and conclusions of the diagnosis and the first guidelines (which will be developed throughout the consultation phases) to confront the general principles of territorial management and draw practical development options. Within this framework, a Priority Intervention Programme (PPI: *Programme Prioritaire d'Intervention*) will be drawn up with an indication of the institutional and financial structure of the structuring actions.
- Phase 4, devoted to finalizing the SDER, will consist of producing a summary document of the different phases, integrating the remarks and adjustments of the different actors. It will also include the development of a set of accompanying measures for the implementation of the SDER: (i) institutional, legal and financial measures; (ii) a communication plan for the media coverage of the SDER; and (iii) Monitoring and evaluation indicators.

2.5 Present Situation and Issues on Sub-Regional Integration of West Africa

Table 2.5.1 presents the integration process based on the Theory of Economic Integration by Bela Balass. Both the Economic Community of West African State (ECOWAS) and the West African Economic and Monetary Union (UEMOA: *Union Economique et Monétaire Ouest Africaine*) are trying to lift trade barriers regionally and internationally.

ECOWAS Vision 2020 involves the necessity of a region-wide functioning customs union through effective implementation of the common external tariff (CET) and complete removal of the many remaining non-tariff impediments to intra-ECOWAS trade for economic integration. The adoption of a CET is a major qualitative step in the establishment of the common market, as the Revised Treaty of the ECOWAS states. In a joint effort all the ECOWAS members together introduced the CET in early January 2015, though its progress has lagged.

UEMOA members share the same money, West African francs (CFA francs) and French as an official language. Largely reflecting several commonalities, the UEMOA countries have been able to make more progress towards economic integration than the rest of the ECOWAS member countries. The UEMOA customs union was put into place in two steps: in 1996 member countries removed tariffs and quantitative restrictions on intra-regional trade (tariffs on trade in industrial products were phased out over four years); in 2000 they adopted the CET, which reduced tariff rates and tariff dispersion substantially.

Table 2.5.1 Stages of Regional Economic Integration

Increasing Integration

Process	Main Features	Examples
Preferential Trade Area (PTAs)	PTAs exist when countries within a geographical region agree to reduce or eliminate tariff barriers on selected goods imported from other members of the area. This is often the first small step towards the creation of a trading bloc. Agreements may be made between two countries (bi-lateral), or several countries (multi-lateral).	- ASEAN has bilateral agreements with several countries such as Japan and China, and blocs - ASEAN makes an effort to achieve ASEAN Free Trade Area (AFTA) in 2015 (Member states have agreed to enact zero tariff rates on virtually all imports.)
Free Trade Area (FTAs)	- No tariffs among member countries - FTAs are created when two or more countries in a region agree to reduce or eliminate barriers to trade on all goods coming from other members.	- North Atlantic Free Trade Agreement (NAFTA) - Central European Free Trade Agreement (CEFTA) - COMESA, EAC, SADC, ECOWAS
Customs Union (CU)	- FTA + common external tariff (CET) - A customs union involves the removal of tariff barriers between members, plus the acceptance of a common (unified) external tariff against non-members. This means that members may negotiate as a single bloc with 3rd parties, such as with other trading blocs, or with the WTO.	- Southern Cone Common Market (MERCOSUR) - Southern African Customs Union (SACU) - EAC - ECOWAS (in progress) - UEMOA (in progress)
Common Market (CM)	- CU + free movement of labour and capital - All barriers to trade in goods, services, capital, and labour are removed. In addition, as well as removing tariffs, non-tariff barriers are also reduced and eliminated. For a common market to be successful there must also be a significant level of harmonisation of micro-economic policies, and common rules regarding monopolistic powers and other anti-competitive practices. - There may also be common policies affecting key industries, such as the Common Agricultural Policy (CAP) and Common Fisheries Policy (CFP) of the European Single Market (ESM).	- European Economic Area (EEA): The CM consists of 27 member countries of the European Union (EU) and 3 member countries of the European Free Trade Association (EFTA) - COMESA (in progress)
Economic Union	- CM + common economic policy and institution - Economic Union is a term applied to a trading bloc that has both a common market between members, and a common trade policy towards non-members, but where members are free to pursue independent macro-economic policies.	The European Union (EU) (in progress)
Monetary Union	- Monetary union is the first major step towards macro-economic integration, and enables economies to converge even more closely. Monetary union involves scrapping individual currencies, and adopting a single, shared currency. - There is a common exchange rate, a common monetary policy, including interest rates and the regulation of the quantity of money, and a single central bank	- The Euro for the Euro-16 countries managed by the European Central Bank - The East Caribbean Dollar for 11 islands in the East Caribbean managed by the East Caribbean Central Bank - UEMOA
Fiscal Union	A fiscal union is an agreement to harmonise tax rates, to establish common levels of public sector spending and borrowing, and jointly agree national budget deficits or surpluses.	25 EU states agreed a fiscal compact (Fiscal Stability Treaty) until 2014, which requires member countries to introduce laws limiting their structural government budget deficits to less than 0.5% of GDP
Economic and Monetary Union	Economic and Monetary Union (EMU) is a key stage towards complete integration, and involves a single economic market, a common trade policy, a single currency and a common monetary policy.	Economic and Monetary Union of the European Union
Complete Economic Integration	Complete economic integration involves a single economic market, a common trade policy, a single currency, a common monetary policy (EMU) together with a single fiscal policy, tax and benefit rates – in short, complete harmonisation of all policies, rates, and economic trade rules.	
Political Integration	As the economies of the co-operating countries become completely integrated into a single market, there appears a need for common policies in social policy (education, health care, unemployment benefits and pensions) and common political institutions. Its culmination occurs when the co-operating countries are so integrated that they share the same foreign policies and merge their armies. In effect, they form a new country.	

Source: JICA Study Team based on materials related to economic integration, such as Bela Balassa (1961) The Theory of Economic Integration; Economic Commission for Africa, etc. (2006) Assessing Regional Integration in Africa.

The trade volume within the ECOWAS and the UEMOA has continued to increase since the beginning of the 2000s. However, there are differences in the contribution to the regional trade (ratio of total volume of export and import) by countries in ECOWAS. For example, Nigeria and Côte d'Ivoire account for 29.0 percent and 25.5 percent, respectively, in the period from 2010 to 2014. While Ghana is more than 15 percent, Burkina Faso and Togo are less than 5 percent in the same period.

Moreover, although the two largest countries (Nigeria and Côte d'Ivoire) export a lot to the ECOWAS region, they do not really import much from the region. On the other hand, Ghana is the largest importer among those in this region.

Over the 1995 to 2014 period, intra-regional exports within Regional Economic Communities (RECs) such as ECOWAS accounted for an average 9.4 percent in the ECOWAS and 13.8 percent in UEMOA. Furthermore,

intra-regional imports accounted for an average of 11.1 percent in the ECOWAS and 10.0 percent in UEMOA. The intra-regional export and import within ECOWAS and UEMOA are still quite small.

There may be several reasons why the intra-regional trade within West African countries is still small. The reasons may be both tariff and non-tariff barriers to trade. There may be several challenges such as poor transportation networks; cumbersome import and export procedures and border crossing problems; limited use of information and communication technology (ICT); limited involvement of the private sector in the design of programmes intended to raise intra-regional trade; and poor trade settlement systems and financial impediments.

One of the significant issues is how the ECOWAS and/or the UEMOA can ensure commitments and effective monitoring of the FTA and the CET application for compliance. There are some enforcement problems, which do not follow the rules: e.g. Double taxation on transit goods still applies to some imports; Not full implementation of the rules of origin caused by disputes on certificates issued by other countries.

The reasons for the enforcement problems may be as follows:

- The existence of national trade regulations conflicted with ECOWAS / UEMOA rules
- The existence of some ambiguous rules
- Non-integrated customs system among member countries
- A shortage of capacity and motivation of customs staff

2.6 Relationship of Sub-Regional Economic Integration, Spatial Integration and Corridor Development

2.6.1 Concept of Corridor Development

By corridor development, WAGRIC Master Plan means the development of corridor infrastructure and economic sectors.

Development of economic sectors located away from major cities and ports needs the connectivity to large markets and ports. Such connectivity can be provided not only by roads and railways but also by air transportation. Development of economic sectors needs the support of other types of infrastructure, such as electricity and water supply, as well as local access roads. This kind of relationship with infrastructure can also be found in the relationship of infrastructure with the social sectors and social activities.

The corridor means the area along the transport corridor of roads and railways. The corridor is the area in which productive activities of economic sectors are conducted.

The areas influenced by such corridor development cannot be clearly defined. The distance of the area from a transport corridor and the size of the area depend on the types of economic sectors and availability of transport sub-corridors connecting with the major corridor.

Corridors are extended over a long distance connecting the centre (capital city or major sea port) with the regions and peripheral areas and furthermore with neighbouring countries.

While the area within a country is organized by various elements, the area within the country is mainly characterized by its transport corridors (roads and railways), urban centres (administrative capital, commercial capital and other major urban centres), sea ports and airports, as well as distribution of agricultural lands and forest areas.

Considering spatial development in such a country, it is not possible for the government or private sectors to provide a high density of corridor infrastructure all over the country. In other words, it is not possible to realize a high density of economic sector development by putting a high density of corridor infrastructure all over the country.

2.6.2 Concept of Sub-Regional Spatial Integration

Spatial integration over a long distance between countries requires the development of transport corridors. Spatial integration between countries can be achieved by transport corridor development like physical improvement or upgrading of corridor infrastructure.

However, such improvement or upgrading of the corridor infrastructure can be done when a large enough volume of transport demand is available for particular corridor infrastructure, such as roads and railways. It is also possible to implement necessary maintenance of such improved or upgraded corridor infrastructure when a large enough volume of transport demand is available because a certain high level of economic sector development is achieved along the transport corridors.

Long-distance, over 1,000 km, spatial integration between countries is very difficult without developed economies at an earlier stage of corridor development. Maputo Corridor and Nacala Corridor in Southern Africa are very special cases for successful operation of long-distance transport corridors. Maputo Corridor has the large developed economy of Johannesburg, and Nacala Corridor has a large high-quality deposit of coking coal.

In summary, sub-regional spatial integration should be supported by economic sector development along the transport corridor. Sub-regional spatial integration requires development of both corridor infrastructure and economic sectors.

The above mentioned successful examples of Maputo Corridor and Nacala Corridor are not applicable to most situations that involve long-distance spatial integration. For the case of WAGRIC countries' spatial integration, it is necessary to find out other solutions to create traffic demand for sub-regional long-distance corridor transport infrastructure. Such solutions are related to economic sectors targeting sub-regional markets, which are mentioned in the

2.6.3 Concept of Sub-Regional Integration

Integration of economies and various other systems into one within UEMOA or one within ECOWAS is the most significant goal for UEMOA and ECOWAS.

In such an integrated economic space within the sub-region, a larger size of population and market would be available under the one integrated system. Moreover, the integrated economic space of several and more countries could be treated like one country, in which it is not necessary to pay customs for goods crossing national borders, if those products are produced substantially within the sub-region or if those products are imported once and re-exported to another country within the sub-region.

In this way, since sub-regional integration, especially sub-regional economic integration, could increase the market size and availability of resources, it is more attractive for foreign and domestic investors to create larger-scale productive capacities targeting at sub-regional markets as a whole. In fact, urban population of coastal cities are increasing their income levels and purchasing power so as to compose a mass of consumers in the sub-regional markets.

Measures for sub-regional economic integration, including effective practice of customs union and trade facilitation, need to be supported by efficient and large capacity physical transportation and efficient transactions at national border crossings.

On the other hand, initial development and sustainable development of corridor transport infrastructure requires a certain volume of traffic demand for those transport infrastructures. Those traffic volumes would be generated by production activities of economic sectors.

2.6.4 Sub-Regional Economic Integration and Sub-Regional Spatial Integration

From discussion in the above sections, the following propositions are found in abstract terms:

- Sub-regional spatial integration is neither possible nor sustainable simply by development of corridor transport infrastructure.
- Sub-regional spatial integration should be supported by development of both economic sectors and corridor infrastructure.
- However, such development of economic sectors along transport corridors is not always easy. In fact, there are only a few successful cases of long-distance corridor development.
- Long-distance sub-regional spatial integration requires other strategies for promoting sub-regional economic development.
- One of the measures for achieving sub-regional economic development is to promote sub-regional

economic integration among neighbouring countries including inland and coastal countries.

- Such an effective sub-regional economic integration requires sub-regional spatial integration to be supported by sub-regional corridor development.

2.7 Future Vision for WAGRIC Sub-Region

A future vision statement for WAGRIC countries has been prepared for formulating the WAGRIC Master Plan. While there are no such official documents, the following statement for the future vision for WAGRIC countries is prepared by interpreting official documents for UEMOA and ECOWAS, as well as those for African Union.

"Through sub-regional economic and spatial integration, the WAGRIC Sub-Region is to have a competitive economy, attracting investments to their economic sectors and achieving inclusive and sustainable development."

PART III

SUB-REGIONAL DEVELOPMENT STRATEGIES

Chapter 3 Existing Conditions and Emerging Development Opportunities of WAGRIC Sub-Region

3.1 Existing Conditions of Economies and Economic Sectors of WAGRIC Countries

National economies of the four WAGRIC countries have grown based on overseas export oriented sectors such as mining and traditional and non-traditional agriculture. Especially since the 2000s, the high world price of mineral resources and traditional and non-traditional agricultural products as well as increasing production amount of such products helped the economies of the four countries to achieve a high annual growth rate with effective rate of over 5%.[1] (See Figure 3.1.1)

As a result, the middle income population in the urban areas increased. (See Table 3.1.1) The increase of middle income population caused a sudden increase in consumption of imported goods from Europe, Asia, USA etc. such as food, processed food and drinks, daily goods, home electrical appliances and transport machinery. (See Figure 3.1.2)

The two main export sectors, mining and traditional and non-traditional agriculture, occupy such an important place in total exports that the national economy of each of the four countries cannot function without the dynamics of these two sectors activities. (See Table 3.1.2 and Table 3.1.3). On the basis of this finding, and taking into account the list of imported articles and their high import amounts (See Table 3.1.4), it can be said that the national production of agriculture, livestock and fisheries as well as those of the daily consumer goods manufacturing industry in the four countries are not sufficiently developed to meet their own needs. For example, self-sufficiency rate of rice in 2014 was 49% in Burkina Faso, 68% in Côte d'Ivoire, 38% in Ghana and 54% in Togo (See Table 3.1.5). As for manufacturing, its share of GDP is relatively high with 13.8% in Côte d'Ivoire, but much smaller in the other three countries, from 5 to 7% (See Table 3.1.6).

Despite considerable growth of the national economies in the four countries since the 2000s, their per capita GDP ranks as low-income countries for Burkina Faso and Togo, and as middle-income countries for Ghana and Côte d'Ivoire. (See Figure 3.1.3)

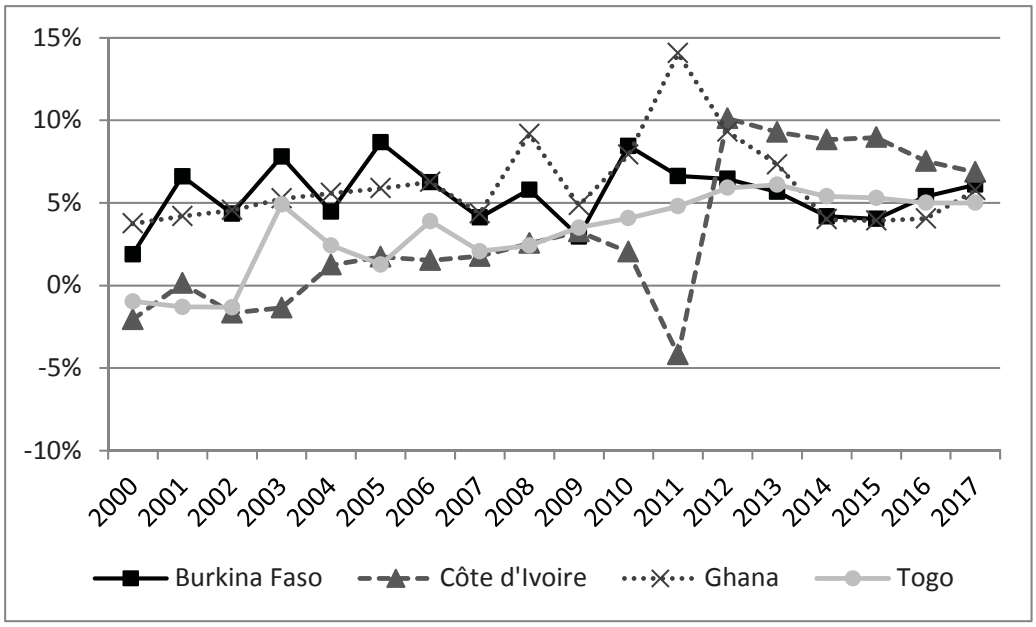
Regarding the poverty rate, despite the economic growth related to mining resources and agricultural products mentioned above, the relatively recent data indicate a high level, 58.7% for Togo (2011), 46.7% for Burkina Faso (2009), and 46.3% for Côte d'Ivoire (2015). Meanwhile, Ghana is experiencing a marked improvement in the poverty rate which is now 24.2% (2012-2013). With regard to the Human Development Index in 2015, which includes not only GDP per capita but also poverty and conditions for access to social services, Ghana is ranked in 139th position, Togo in 166th, Côte d'Ivoire in 171st and Burkina Faso in 185th (See Table 3.1.7).

It must be noted that the level of development of the four WAGRIC countries remains low despite the economic growth achieved through export sectors with global outlets such as mining and traditional and non-traditional agriculture.

The current industrial structure of the four WAGRIC countries remains heavily dependent on exports of mineral resources and traditional and non-traditional agricultural products, meaning that their national economies are heavily dependent on global economic conditions and world prices of mineral resources and traditional and non-traditional agricultural products. There is also the problem of the low productivity of farmers and workers in urban informal sectors, which still represent the

[1] In Togo, the annual growth rate of real GDP has exceeded 5% since 2011. In Côte d'Ivoire, the annual growth rate of real GDP has been almost 10% since 2012.

majority of the working population. As a result, these national economies are not able to ensure a certain level of comfort for their rapidly growing populations. The economic gaps between urban and inland areas continue to worsen, while the urban poor continue to grow.



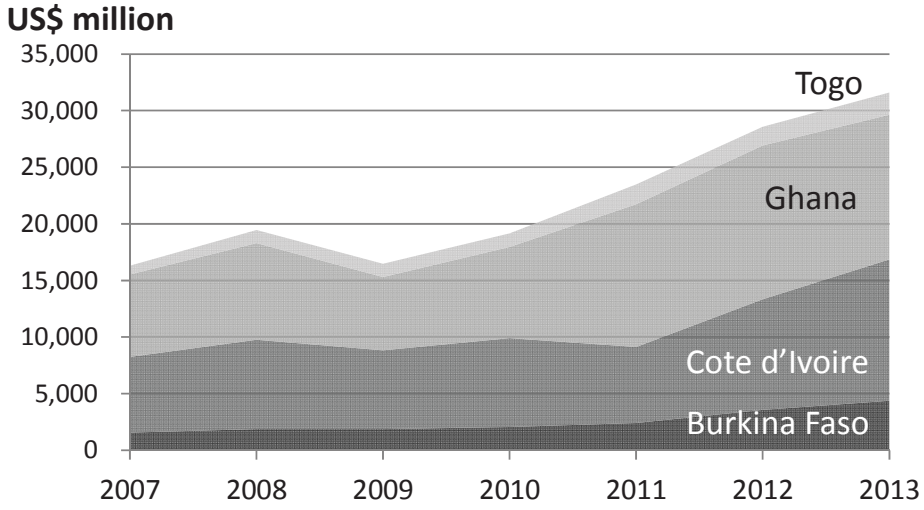
Note: IMF Estimates the Data of 2016-2017 of Ghana and 2015-2017 of Burkina Faso, Côte d'Ivoire and Togo
Source: International Monetary Fund (IMF), World Economic Outlook Database, April 2017

Figure 3.1.1 GDP Growth (Constant Price) of the WAGRIC Countries (2000-2017)

Table 3.1.1 Middle Income Population (2011): Those who spend US$ 4 or more per day

Country	Middle Income Population	% of Total Population	Other Major African Countries	Middle Income Population	% of Total Population
Ghana	4,812,000	19.8%	South Africa	10,017,000	19.8%
Côte d'Ivoire	4,288,999	18.9%	Nigeria	15,894,000	9.9%
Togo	628,000	8.8%	Kenya	6,873,000	16.8%
Burkina Faso	481,000	3.2%	Mozambique	572,000	2.6%

Source: JICA Study Team based on Nomura Research Institute (NRI), March 2013, "Report on Basic Research on Doing Business in Africa" (Based on United Nations, 2011, World Population Prospects, and African Development Bank, "Africa in 50 Years' Time" Low Case Scenario, 2011)



Source: UN Comtrade Database

Figure 3.1.2 Import Value of WAGRIC Countries (2007-2013)

Table 3.1.2 Share of Export Value of Agricultural Products and Mineral Resources (2014)

Country	Year	Export Value (USD Million)	Export Value of Agricultural Products (USD Million)	Export Value of Mineral Resources (USD Million)	Share of Total Export Value		
					Export Value of Agricultural Products	Export Value of Mineral Resources	Others
Burkina Faso	2016	2,520.0	572.9	1,667.1	22.7%	66.2%	11.1%
Côte d'Ivoire	2015	11,844.8	7,225.4	2,880.0	61.0%	24.3%	14.7%
Ghana	2016	10,655.8	3,468.4	6,307.8	32.5%	59.2%	8.3%
Togo	2016	714.9	105.6	196.8	14.8%	27.5%	57.7%

Source: ECOWAS、Regional Ecomac (http://www.ecomac.ecowas.int/en/index.htm)

Table 3.1.3 Production Volume of Major Traditional Cash Crops in WAGRIC Countries (2014)

	Cashew Nuts		Cacao		Oil Palm		Cotton	
Rank	Country	Ton	Country	Ton	Country	Ton	Country	Ton
1	Nigeria*	894,368	Côte d'Ivoire*	1,434,077	Indonesia*	126,684,128	India	20,867,647
2	India	753,000	Ghana	858,720	Malaysia	96,066,760	China	18,534,950
3	Côte d'Ivoire*	531,488	Indonesia	728,400	Thailand	12,434,520	USA	9,791,640
4	Vietnam	245,003	Brazil	273,793	Nigeria*	7,962,213	Pakistan	6,817,178
5	Benin	201,818	Cameroon*	269,902	Colombia	5,531,895	Brazil	4,236,763
6	Philippines	170,853	Nigeria**	248,000	Ecuador	3,468,510	Uzbekistan	3,400,200
7	Republic of Guinea-Bissau*	155,538	Ecuador	156,216	Cameroon*	2,571,881	Turkey	2,350,000
8	Indonesia	131,200	Peru	81,651	Ghana	2,443,270	Australia	2,136,700
9	Tanzania	130,124	Dominican Republic	69,633	Honduras*	2,165,056	Argentina	1,019,653
10	Brazil	107,713	Colombia	47,732	PNG*	2,158,822	Burkina Faso	894,982
11	Burkina Faso*	89,619	PNG*	45,019	Côte d'Ivoire*	1,672,877	Mexico	861,531
12	Mali	72,009	Togo*	30,516	Guatemala*	1,500,000	Greece	810,490
13	Mozambique	63,080	Mexico	26,969	Brazil	1,393,873	Syria	623,390
14	Ghana	50,000	Venezuela	21,735	DR Congo*	1,183,563	Turkmenistan**	590,000
15	Thailand	26,400	Uganda*	20,979	Costa Rica	884,406	Mali	548,696
16	Kenya	22,140	Sierra Leone*	15,879	Guinea*	833,458	Egypt**	525,000
17	Malaysia*	15,228	India	15,000	Mexico	678,935	Myanmar	493,600
18	Guinea*	8,871	Haiti	14,633	China*	678,090	Côte d'Ivoire*	410,000
19	Togo*	7,447	Guatemala	13,109	Peru	617,634	Benin	381,662
20	Senegal*	7,060	Guinea*	9,439	Benin*	586,975	Tajikistan	372,656
21	Madagascar*	7,036	Madagascar*	8,818	Philippines	437,439	Kazakhstan	320,706
22	Sri Lanka	6,378	Liberia**	7,500	Venezuela	407,111	Nigeria	299,700
23	Mexico	4,227	Bolivia	7,164	Angola*	279,688	Cameroon*	250,000
24	Peru	2,757	Tanzania*	5,645	Dominican Republic*	263,050	Tanzania	245,851
25	Gambia*	2,386	Philippines	5,428	Solomon Islands*	238,675	Spain	226,200
26	Angola*	2,028	Republic of Congo**	5,000	Sierra Leone*	209,819	Iran*	185,000
27	Honduras*	1,996	Solomon Islands*	4,825	Liberia*	175,153	Sudan	176,000
28	Myanmar*	1,394	Sao Tome and Principe**	3,200	Paraguay*	150,730	Zambia	120,314
29	El Salvador	1,113	Malaysia	2,665	Togo*	144,687	Bolivia*	117,000
30	Dominican Republic*	695	DR Congo**	2,500	Republic of Congo*	144,205	Ethiopia*	117,000

Source: FAOSTAT
Note: *FAO Estimate, **Unofficial Statistics

Table 3.1.4 Major Import Items of WAGRIC Countries (2013)

	Burkina Faso		Côte d'Ivoire		Ghana		Togo		Total WAGRIC	
Import Commodities	Import Volume (USD)	(%)	Import Volume (USD)	(%)	Import Volume (USD)	(%)	Import Volume (USD)	(%)	Import Volume (USD)	(%)
Mineral fuels, mineral oils and products of their distillation etc.	1,141,080,634	26.14	3,214,956,719	25.75	472,611,638	3.70	434,328,125	22.08	5,262,977,117	16.65
Nuclear reactors, boilers, machinery etc.	540,323,269	12.38	813,539,337	6.52	1,915,494,343	14.98	161,429,699	8.21	3,430,786,648	10.86
Vehicles other than railway or tramway rolling-stock	372,993,337	8.54	564,391,688	4.52	2,143,039,840	16.76	118,870,072	6.04	3,199,294,937	10.12
Ships, boats and floating structures	91,032	0.00	2,701,729,336	21.64	17,327,003	0.14	36,842,611	1.87	2,755,989,982	8.72
Electrical machinery and equipment etc.	219,393,263	5.03	514,278,206	4.12	950,753,596	7.44	74,003,345	3.76	1,758,428,410	5.56
Cereals	160,430,005	3.68	687,965,858	5.51	540,982,429	4.23	61,819,940	3.14	1,451,198,232	4.59
Plastics and articles thereof	80,579,000	1.85	381,314,494	3.05	471,931,625	3.69	124,992,269	6.35	1,058,817,388	3.35
Articles of iron or steel	171,656,476	3.93	216,755,771	1.74	536,334,840	4.19	86,927,134	4.42	1,011,674,221	3.20
Iron and steel	183,785,514	4.21	187,147,007	1.50	427,580,862	3.34	73,351,566	3.73	871,864,949	2.76
Salt; sulphur; earths and stone; lime and cement etc.	136,909,189	3.14	181,474,117	1.45	367,248,874	2.87	94,380,147	4.80	780,012,327	2.47
Pharmaceutical products	203,472,840	4.66	271,553,970	2.18	215,181,633	1.68	86,810,729	4.41	777,019,172	2.46
Fish and crustaceans etc.	10,012,729	0.23	362,650,886	2.91	330,171,894	2.58	30,259,070	1.54	733,094,579	2.32
Miscellaneous chemical products	43,235,095	0.99	142,788,919	1.14	337,915,810	2.64	18,499,694	0.94	542,439,518	1.72
Fertilisers	137,141,540	3.14	144,001,929	1.15	197,528,178	1.54	37,896,916	1.93	516,568,563	1.63
Rubber and articles thereof	77,147,959	1.77	97,546,229	0.78	223,890,091	1.75	14,378,627	0.73	412,962,906	1.31
Optical, photographic, medical or surgical instruments etc.	35,310,769	0.81	73,137,575	0.59	254,032,241	1.99	6,896,606	0.35	369,377,191	1.17
Paper and paperboard	38,989,325	0.89	131,915,419	1.06	162,737,884	1.27	27,247,698	1.39	360,890,326	1.14
Meat and edible meat offal	234,487	0.01	78,798,472	0.63	254,838,782	1.99	11,536,854	0.59	345,408,595	1.09
Animal or vegetable fats and oils etc.	37,675,700	0.86	68,860,205	0.55	186,507,005	1.46	44,954,936	2.29	337,997,846	1.07
Organic chemicals	74,175,649	1.70	73,304,919	0.59	151,647,003	1.19	7,993,672	0.41	307,121,243	0.97
Sugars and sugar confectionery	51,755,883	1.19	15,363,076	0.12	211,522,299	1.65	21,962,047	1.12	300,603,305	0.95
Others	649,037,129	14.87	1,559,509,987	12.49	2,417,955,529	18.91	391,958,067	19.92	5,018,460,712	15.88
Total	4,365,430,824	100.00	12,482,984,119	100.00	12,787,233,399	100.00	1,967,339,824	100.00	31,602,988,169	100.00

Source: UN Comtrade Database

Table 3.1.5 Rice Production Volume, its Import Ratio and Self-Sufficient Ratio in WAGRIC Countries and their Neighbouring Countries

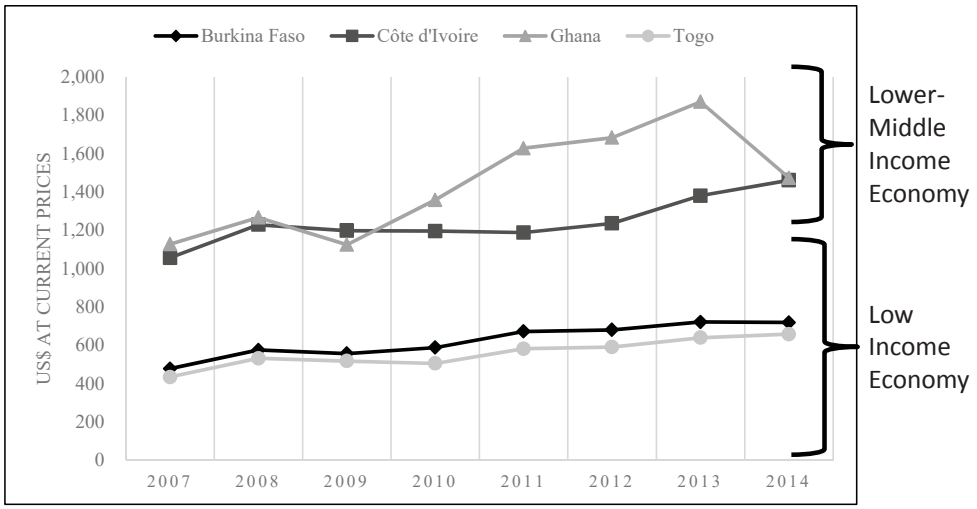
Country (Year)	Production Volume (1,000 ton)	Import Volume (1,000 ton)	Self-Sufficient Ratio (%)	Ratio of Import Volume (%)
Burkina Faso (2014)*	348	362	49.0%	51.0%
Côte d'Ivoire (2014)*	2,054	953	68.3%	31.7%
Ghana (2014)**	393	644	38.9%	62.1%
Togo (2014)*	148	126	54.0%	46.0%
Mali (2012)*	1,915	422	81.9%	18.1%
Niger (2014)*	109	363	23.1%	76.9%

Source 1: (Production Volume): *FAOSTAT, and **Ministry of Food and Agriculture of Ghana, Fact & Figures 2014
Source 2 : (Import Volume): UN Comtrade Database

Table 3.1.6 Share of Manufacturing Sector in Total GDP of Each WAGRIC Country (2014)

	Burkina Faso	Côte d'Ivoire	Ghana	Togo
GDP at Current Market Prices (US$ Million, 2014)	12,503	33,741	38,616	4,594
Primary Sector	34.7%	26.2%	22.4%	47.4%
Secondary sector	21.9%	23.2%	27.7%	19.6%
Manufacturing	6.3%	13.8%	5.1%	6.5%
Tertiary Sector	43.4%	50.6%	49.9%	33.0%

Source 1(GDP at Current Market Prices): IMF World Economic Outlook Database
Source 2 (Percentage of GDP by Sector of Ghana): Ghana Statistical Service
Source 3 (Percentage of GDP by Sector of Burkina Faso, Côte d'Ivoire and Togo): ECOWAS, Regional Ecomac (http://www.ecomac.ecowas.int/en/index.htm)



Source: IMF, World Economic Outlook database. October 2015

Figure 3.1.3 Transition of GDP per Capita of WAGRIC Countries (2007-2014)

Table 3.1.7 Human Development Index (HDI) and Poverty Rates of WAGRIC Countries

Country	Human Development Index (HDI)	HDI Rank	Poverty Rate	
	2015	2015	%	Year
Burkina Faso	0.402	185	46.7	2009
Côte d'Ivoire	0.474	171	46.3	2015
Ghana	0.579	139	24.2	2012-2013
Togo	0.487	166	58.7	2011

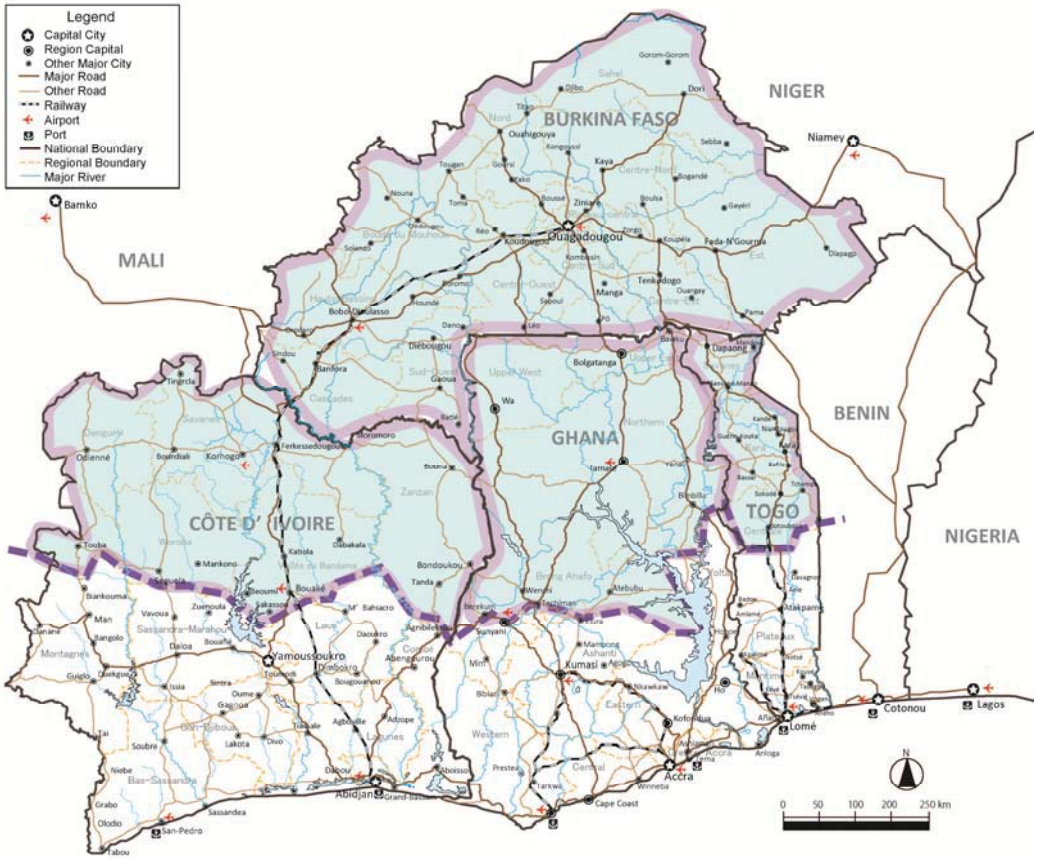
Source 1 (HDI): UNDP, Human Development Report 2016
Source 2 (Poverty Ratio):
Burkina Faso: Institut National de la Statistique et de la Demographie (INSD), Annuaire Statistique 2013
Côte d'Ivoire: Institut National de la Statistique (INS), Enquete sur le Niveau de Vie des Menages en Côte d'Ivoire (ENV2015)
Ghana: Ghana Statistical Service, Ghana Living Standard Survey Round 6(GLSS6)
Togo: Ministre auprès du Président de la République, chargée de la Planification, du Développement et de l'Aménagement du territoire, Questionnaire des Indicateurs de Base du Bien-Etre (QUIBB) 2011

3.2 Present Situation of the Inland Areas in the Coastal WAGRIC Countries and the Provinces of the Inland WAGRIC Countries

Inland areas in costal countries and provinces in the inland country are identified as follows (See Figure 3.2.1):

- Burkina Faso: 12 regions excluding the Centre Region where the capital city Ouagadougou is located (Major cities in rural areas are Bobo-Dioulasso, Koupela-Pouytenga, Banfora, Koudougou, Ouahigouya, Kaya, Houndé, Tenkodogo and Fada N'Gourma)

- Côte d'Ivoire: 12 regions of Poro, Gbêkê, Gontougo. Kabadougou, Worodogou, Bafing, Bagoué, Béré, Bounkani, Folon, Hambol, Tchologo (Major cities in inland areas are Bouaké, Korhogo, Bondoukou, Ferkessédougou and Odienné)
- Ghana: Four regions of Brong Ahafo, Northern, Upper East and Upper West (Major cities in the inland areas area Tamale, Sunyani, Techiman, Wa, Bolgatanga and Kintampo)
- Togo: Two regions of Kara and Savenes (Major cities in inland areas are Kara and Dapaong)



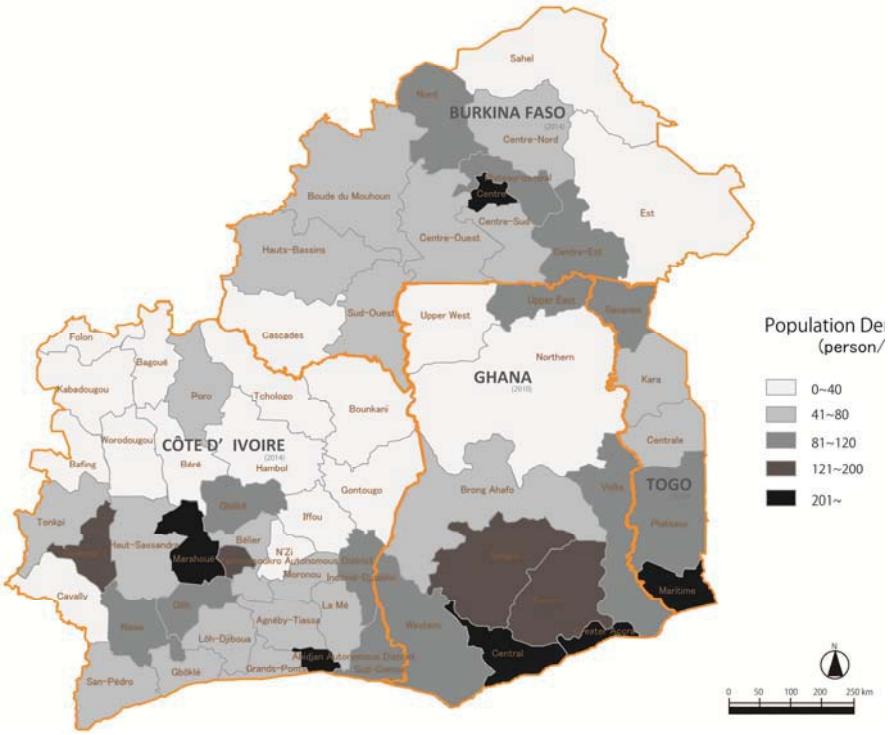
Source: JICA Study Team

Figure 3.2.1 Inland Areas in WAGRIC Countries

The WAGRIC Sub-Region is less populated in the inland areas of the coastal countries and in the provinces of the inland country compared to the coastal areas. The population density in the extended areas of these inland areas of the coastal countries and the provinces of the inland country is 80 person / km² or less, which is lower than that of the coastal areas of the coastal countries and around the capital of the inland country. It should be noted that most interior areas of Côte d'Ivoire and Ghana have a population density of less than 40 person / km² (See Figure 3.2.2).

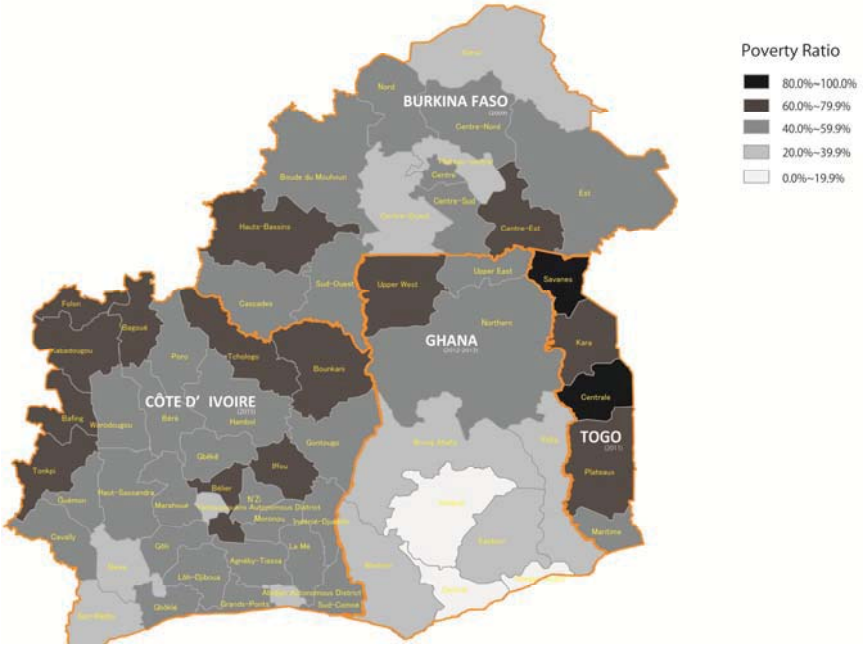
In addition, the population of major cities in the inland areas of the coastal countries and the provinces of the inland country are small. Greater Kumasi (2.5 million inhabitants) in central Ghana and Bobo-Dioulasso agglomeration (800 thousand inhabitants) in the south-west of Burkina Faso are exceptions with some manufacturing clusters. Other cities are sparsely populated with the population as follows: Korhogo in northern Côte d'Ivoire 250 thousand inhabitants, Bouaké in the centre of Côte d'Ivoire 480 thousand inhabitants, Tamale in northern Ghana 490 thousand inhabitants, Kara in northern Togo 120 thousand inhabitants, Banfora in south-eastern Burkina Faso 120 thousand inhabitants. (See Figure 3.2.4) Administrations and the service sector as well as businesses are dominant in these major cities, but there is little manufacturing development.

The indexes for the economic situation of each country based on the zones are not numerous. However, as mentioned above, the share of poverty is high in the inland areas of the coastal countries and the provinces of the inland country (See Figure 3.2.3).



Note: Data Year of Each Country is as follows. Burkina Faso: 2014 (Estimate), Côte d'Ivoire: 2014 (Census Data), Ghana: 2010 (Census Data), and Togo: 2010 (Census Data)
Source 1 (Burkina Faso): INSD
Source 2 (Côte d'Ivoire): INS, RGPH2014
Source 3 (Ghana): GSS, 2013, 2010 Population and Housing Service National Analytical Report
Source 4 (Togo): DGSCN, Recensement Général de la Population et de l'Habitat (RGPH) 2010

Figure 3.2.2 Population Density by Region in WAGRIC Countries



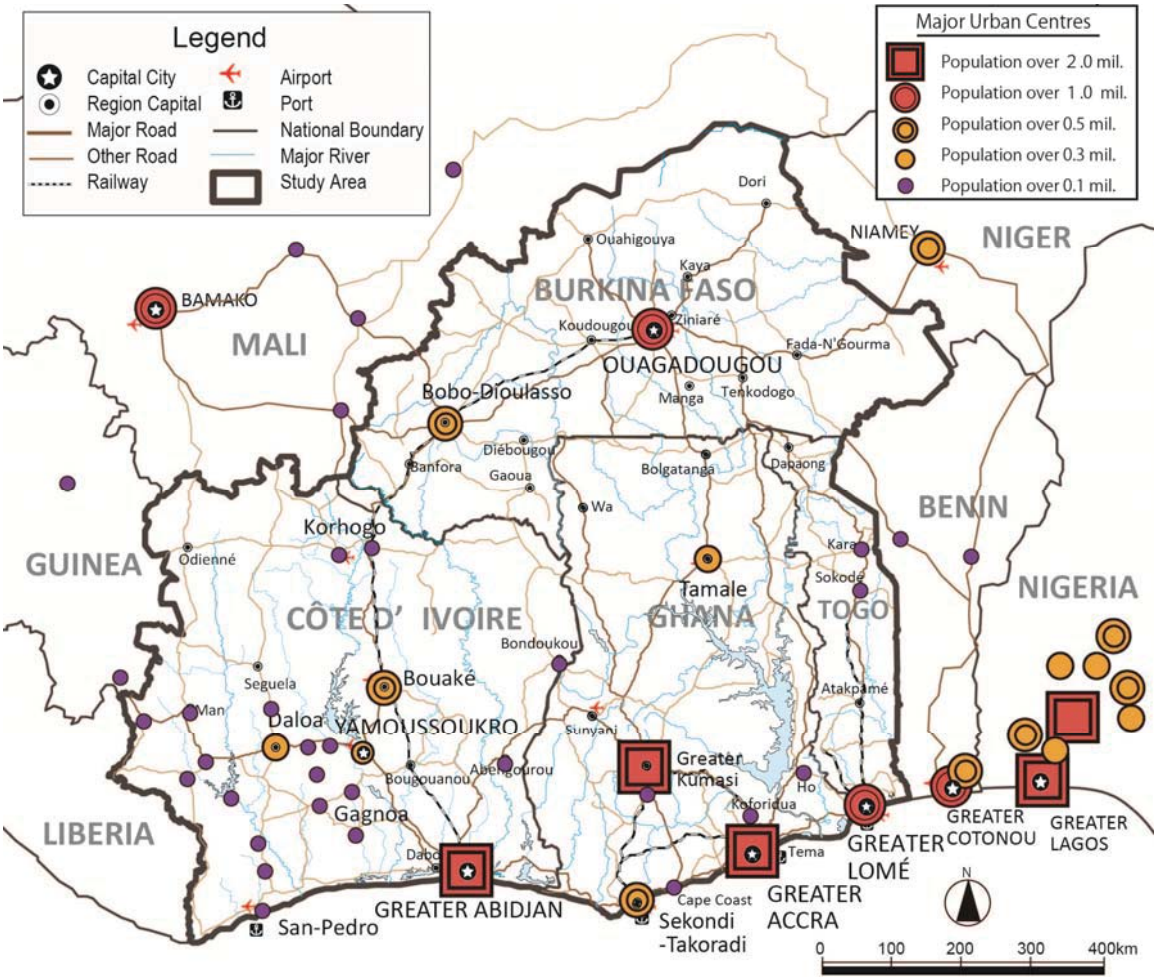
Note: Data year is as follows: Burkina Faso: 2009, Côte d'Ivoire: 2015, Ghana: 2012-2013, Togo: 2011
Source1(Burkina Faso): Institut National de la Statistique et de la Démographie, Annuaire Statistique 2013
Source2 (Côte d'Ivoire): Institut National de la Statistique (INS), Enquete sur le Niveau de Vie des Menages en Côte d'Ivoire (ENV2015)
Source3 (Ghana): Ghana Statistical Service (GSS), 2014, Ghana Living Standard Survey（GLSS) Round 6
Source4 (Togo): Ministere aupres du President de la Republique, Charge de la Planification, du Developpement et de l'Amenagement du Territoire, Questionnaire des Indicateurs de Base du Bien-Etre (QUIBB) 2011

Figure 3.2.3 Poverty Ratio by Administrative Region in WAGRIC Countries

In the inland areas of the coastal countries and the provinces of the inland country, low population density, high poverty rates and the small size of the local market make it difficult to improve industrial productivity autonomously or increase the size of production. In such area, besides growing cash crops such as cotton and cashew nuts, most people devote themselves to modest and low-productivity farming and livestock activities, centred on food crops and livestock for self-consumption. The surplus of production is a source of cash income. Under such conditions, it is difficult to establish value chains for agriculture, livestock or fisheries covering production and processing to distribution and sales even if assistance measures for economic sector development or economic infrastructure were implemented.

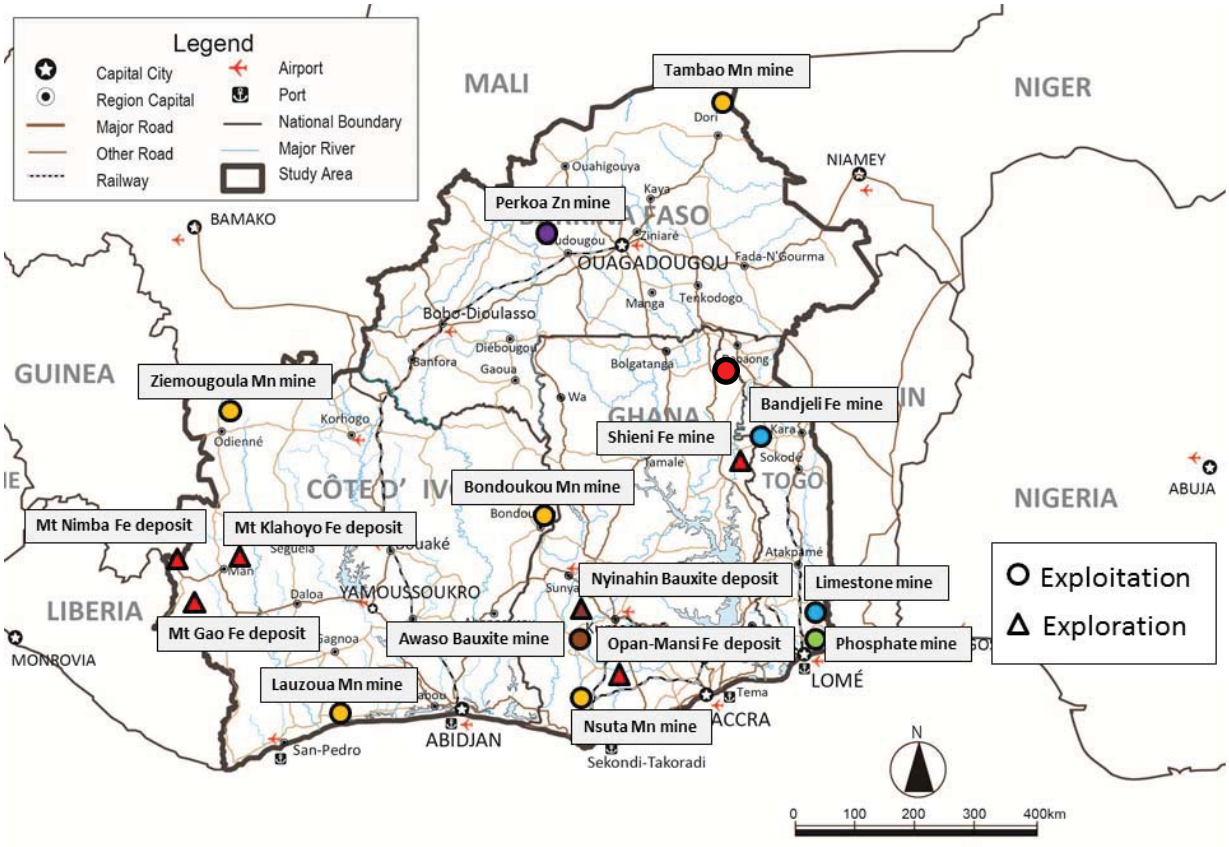
Some of the inland areas of the coastal countries and provinces of the inland country possess potential for exploiting mining resources and traditional and non-traditional agricultural products (See Figure 3.2.5). However, there is a large interior space devoid of such potentialities.

If the situation remains unchanged, inland areas / the inland country will remain cut off from the economic development of the coastal areas without ever benefiting from such development and the major cities in the inland areas / inland country will not grow. Consequently, the population exodus from rural area will continue.



Note: Data Year of Each Country is as following Census Years. Burkina Faso 2006. Côte d'Ivoire 2014, Ghana 2010, Togo 2010, Benin 2013, Mali 2009, Niger 2012, Nigeria 2006
Source: JICA Study Team based on
Burkina Faso: INSD, 2009, Analyse des résultats definitifs du RGPH 2006 Theme 2: Etat et Structure de la Population ,
Côte d'Ivoire: INS, RGPH 2014,
Ghana: GSS, 2013, 2010 Population and Housing Census,
Togo: Direction Générale de la Statistique et de la Comptabilité Nationale (DGSCN), Recensement Général de la Population et de l'Habitat (RGPH) 2010
Other Countries: City Population HP

Figure 3.2.4 Distribution of Cities with Population Over 100,000 in WAGRIC Countries



Note: Manganese (yellow), Iron ore (red), Bauxite (brown)
Source: JICA Study Team based on the information from each country

Figure 3.2.5 High Potential Mineral Resources and Mines in WAGRIC Countries

3.3 Summary of Overall Issues on Development of WAGRIC Countries

A set of overall issues for promoting development in the WAGRIC countries are summarized in this section. The overall issues are interrelated with each other.

(1) Not Enough Volume of Traffic Demand for Upgrading Transport Corridor Infrastructure

There is not a large enough volume of traffic in WAGRIC countries to make it economically feasible to upgrade transport corridor infrastructure. This is due to underdevelopment of the economic sectors in inland areas, as well as in inland countries, while the transportation conditions are relatively good in inland areas of coastal countries, as well as in inland countries.

Although the increase rates of road traffic volume on the borders between Burkina Faso and coastal countries were high in the last five years, the absolute traffic volume is not large enough to afford to upgrade the existing 2-lane road conditions up to 4-lane roads or access controlled motorways.

Indeed the road conditions of the central corridors of each country of the WAGRIC sub-region are relatively good. However, such road conditions are not enough to attract investment in inland areas of the coastal countries and in southern areas of the inland country.

(2) High Transport Cost in Transport Corridors

The transport cost in transport corridors between inland countries/ inland areas and sea ports is high partly due to the long distance that is over 800 km from sea ports, although transportation conditions are relatively good in inland areas of coastal countries, as well as in inland countries. It is also partly due to much harassment along transport corridors and at national borders.

According to the logistics survey done by the JICA Study Team (2016), land transport costs along the corridors, excluding port costs, border costs and other harassment costs, account for nearly 50 %.

This means that the upgrading of transport corridor infrastructure could contribute to the reduction of transport costs of the corridors.

Although one railway line is available connecting Abidjan Port and Burkina Faso, the cost of rail transport of cargo is expensive partly because there is no competition with other railway lines.

(3) Structural Difficulties in Promoting Development of Economic Sectors in Inland Areas of Coastal Countries, as well as in Inland Countries

The economic sectors in inland countries and inland areas of coastal countries are of low productivity. It is structurally difficult to promote economic sector development or to increase economic sectors' productivity in inland areas of coastal countries, as well as in inland countries. This is not only due to low population densities and prevailing poverty, but also due to poor infrastructure, although transportation conditions are relatively good in inland areas of coastal countries, as well as in inland countries.

(4) Underdevelopment of Manufacturing Sectors

The manufacturing sectors in WAGRIC countries are undeveloped due to mal-development of economic infrastructure, especially, electricity supply capacities. Because of the underdevelopment of manufacturing sectors, benefits derived from the customs union and sub-regional economic integration have not been very large yet.

(5) Difficulties in Attracting Foreign Investment

In the WAGRIC sub-region, populations, territories and economies of individual countries are not very large. As a result, market sizes of individual countries are not large enough to attract foreign and domestic investors to economic sectors.

(6) Ineffectiveness of Customs Union of UEMOA and ECOWAS

UEMOA has implemented a policy for formation of a customs union in two steps, the first in 1996 and the second in 2000[2], while ECOWAS also decided to move to economic integration through implementing measures for a customs union in 1993.[3] However, the customs union has not been functioning as well as expected.

The mal-functioning of the customs unions of UEMOA and ECOWAS have adversely affected economic integration in the sub-region. As a result, the institution of a customs union has not expanded the size of the integrated market of the sub-region, nor did it lead to increased investment in WAGRIC countries, UEMOA or ECOWAS.

(7) Too Much Import of Consumer Goods that could be Produced within their own Countries

In the first decade of the 2000s, the WAGRIC countries rapidly grew their national economies by expanding the export of minerals and cash crops, such as cacao, palm oil, cotton and cashew nuts, to overseas markets.

In the past decade, these exported goods have increased the number of middle income households and grown their disposable incomes in the WAGRIC countries, especially in southern coastal areas. These middle income households with a substantial purchasing power live in major metropolitan areas and consume a lot of imported consumer goods, such as sugar, rice, fish, chicken, beef and processed food, as well as electric appliances and cars, although some of those consumer goods can be produced by their own countries in the WAGRIC sub-region. In fact, the value of imported goods doubled between 2007 and 2013.

[2] In 1996, member countries removed tariffs and quantitative restrictions on intraregional trade (tariffs on trade in industrial products were phased out over four years). A customs union with a common external tariff and free movement of goods within UEMOA were realised in 2000.

[3] The Revised Treaty approved in 1993 includes the aim of creating an economic and monetary union, in which the relevant measures involved the elimination of domestic customs duties.

(8) Poor Development of Railways to Provide Railway Transport Services for Inland Areas, as well as for Inland Countries, resulting in High Transportation Cost

There is only one long-distance operational railway line, namely, Sitarail in WAGRIC countries. The rail track and bridges of Sitarail are very old, and some bridges are too dangerous to be a part of the central transport corridor.

At the same time, due to the absence of a region-wide railway network, it is difficult for the mining sector to accelerate mining development although investments have been attracted by world-class quality and quantity mines of WAGRIC countries.

(9) Relatively High Percentage of Overloaded Long-Distant Truck Transport resulting in Deterioration of Roads

It is reported that over 50% of long-distance trucks carry heavier loads than the official load limit. Although WAGRIC countries' governments have been aware of this fact and the serious impact on their roads and they have tried to make effort at law enforcement, it is not so easy to abolish overloaded long-distant trucks. This is partly because there is a strong desire on the part of cargo owners to minimize transport costs even by paying informal money and also partly because there is no alternative transport mode for heavier loads at lower prices, except for Sitarail. However, Sitarail's transport service coverage is not wide and its actual prices are not very low compared to truck transport under non-competing circumstances.

(10) Fewer Opportunities of Local Development in Inland Areas of Coastal Countries, as well as in Inland Countries

It appears that corridor development has not created many opportunities for local development of SMEs or self-helped small-scale farmers and entrepreneurs. Even worse, there could be a tendency for transport modernization, such as motorway development and railway containerization, to reduce jobs for small-scale producers and traders along those transport corridors,

(11) Risk of Terror Attacks

In West Africa, there are historically potential risks of terror attacks, which might result in creation of a less attractive environment for foreign and domestic investment, as well as unstable socio-economic development. Moreover, as corridor development is promoted further, improved transportation and relatively freer movement of goods and people might make terror attacks easier. Therefore, it is more important than ever to take actions for improving preparedness against security problems.

3.4 SWOT Analysis of WAGRIC Countries

A SWOT Analysis was conducted considering the WAGRIC countries in relation to sub-regional corridor development.

SWOT Analyses for individual countries of the WAGRIC countries are presented in Section 9.1 for Burkina Faso, Section 15.1 for Côte d'Ivoire, Section 21.1 for Ghana and Section 27.1 for Togo.

Table 3.4.1 SWOT Analysis for WAGRIC Countries

Strength	Weakness
• WAGRIC-CACAO's countries share the foundation of economic integration because the four countries belong to ECOWAS and the three Francophone countries belong to UEMOA. • The size of market combining the four countries is relatively large. The present population is 77 million, and the future population (year 2040) will be 150 million. On the other hand, the present urban population is 33 million and the future urban population (year 2040) will be 80 million. • Especially the economic growth capacities of Ghana and Côte	• Individual countries are small in terms of population size, urban population size, GDP size and agricultural production volume. • The distance between Abidjan and Lagos is about 1,000 km. The distance between Abidjan and Ouagadougou is about 1,200 km. The geographical extent of the WAGRIC countries is quite large. • Regulations and rules agreed by ECOWAS and UEMOA, such as axle load control for heavy vehicles, have not been so strongly enforced. • The power supply situation is not so good except for Côte d'Ivoire.

d'Ivoire are large. • The four countries are geographically concentrated. • At present, there are relatively well maintained roads connecting the three costal countries (Côte d'Ivoire, Ghana and Togo) with the inland neighbouring countries (Burkina Faso, Mali and Niger), while there are some sections of deteriorated pavement. • West Africa Power Pool (WAPP) covering 14 countries of ECOWAS is functional.	• For Asian companies, West Africa is not only physically but also physiologically far from Asia.
Opportunities	Threat
• There is a high possibility to attract foreign and domestic investments, especially to economic sectors targeting sub-regional markets. • Foreign private investors see increasing business opportunities in response to prospective economic growth in the Abidjan-Lagos Corridor. • In addition to the sub-regional markets within the four countries, Nigeria, a member country of ECOWAS, has a huge economy and high growth potential within the sub-region. There is some possibility for the WAGRIC countries to attract more foreign and domestic investments in manufacturing sectors targeting at Nigeria's growing market. • The western part of Côte d'Ivoire has relatively abundant water resources, which can be used for hydro power generation. On the other hand, although Ghana has suffered a long term electricity crisis, it can manage to get out from the critical situation due to the discovery and utilization of gas for power generation. Based on Côte d'Ivoire's capacity for increasing power generation by utilizing water resources and by continuing gas exploration and exploitation, it would be possible for the West Africa Power Pool to maintain stable power supply for the WAGRIC countries.	• The WAGRIC countries have a continuing risk of receiving attacks by terrorist groups based in the interior of West Africa. This situation might negatively affect foreign and domestic investment promotion in the four countries. • The regulations and rules of customs union agreed by UEMOA and ECOWAS might not make as much progress in the future as expected. • In the past several years, Nigeria has strengthened its policies for nurturing and protecting domestic industries, resulting in going in the opposite direction, away from sub-regional economic integration. In that situation, the WAGRIC countries will find it difficult to implement their strategies for manufacturing and exporting intermediate goods and spare parts for Nigeria. • Conflicts between countries over water use of international rivers might arise due to future increase of water utilization.

Source: JICA Study Team

3.5 Emerging Opportunities in WAGRIC Sub-Region

(1) Global Population, Urbanization and Food Demand

The world population in 2015 is 7,349 million inhabitants with 54% of the population living in urban areas. In 2050, this will reach 9,725 million inhabitants, of which 66% will be living in urban areas. (See Figure 3.5.1)

Rural populations will decline in many countries. This will also result in a gradual decline in the workforce in the agricultural sector. Despite the likely improvement in agricultural, livestock and fisheries productivity, it may be difficult in the future to meet the global food demand. Low income population in the rural areas will particularly be affected by the rising prices of agricultural products caused by instability and low production volumes due to climate change, as well as rising agricultural product prices due to wild ups and downs of oil prices. This will accelerate urban expansion.

It will be necessary to increase the volume of food production by 75% in order to meet the world food demand in 2050. The import volume of rice, meat and fish are increasing in WAGRIC countries. However, in the future, such products may be lacking and the prices may rise. Considering the considerable population growth projected in the sub-regions in parallel with that of food demand, it is necessary to increase food production in each WAGRIC country.

(2) Demographic Trends and Demographic Bonuses in Sub-Saharan Africa

Africa is entering the period of benefitting from the demographic bonus[4]. It is expected that Africa will have the longest duration of this bonus which is until 2089. Moreover, after 2025, the labour force in Sub-Saharan Africa will be greater than in other regions of the world and, consequently, Sub-Saharan Africa could become a supplier of economically active populations to the rest of the

[4] Demographic bonus is when the growth rate of the labour force exceeds that of the population as a whole and the economic growth is accelerating.

world. However, the increase in social instability linked to the unemployment of growing number of economically active populations and the difficulty of investing through national savings will not allow for growth equivalent to the successes of Asia East and South-East Asia.

For Sub-Saharan Africa including WAGRIC countries, to benefit from the demographic bonus, the following measures are urgently needed: (1) job creation (improving agricultural productivity, creating employment in high-productivity non-agricultural sectors, etc.); (2) investment in human resources (education, health); (3) development of a financial market (savings). Indeed, the economically active populations of the WAGRIC countries will increase by 30 million people between 2015 and 2025.

(3) Population, Urbanization and Changes in the Lifestyle and Consumption Patterns of the Four WAGRIC Countries

The total population of the four countries will reach around 150 million inhabitants in 2040, of which 59%, or 89 million, are to be in urban areas. (See Table 3.5.1)

The countries of the Gulf of Guinea benefit from wide differences in climatic conditions from south to north which allows great agricultural diversification. They also possess various and rich mineral resources. The sub-regional economies will thus continue to be supported by primary products.

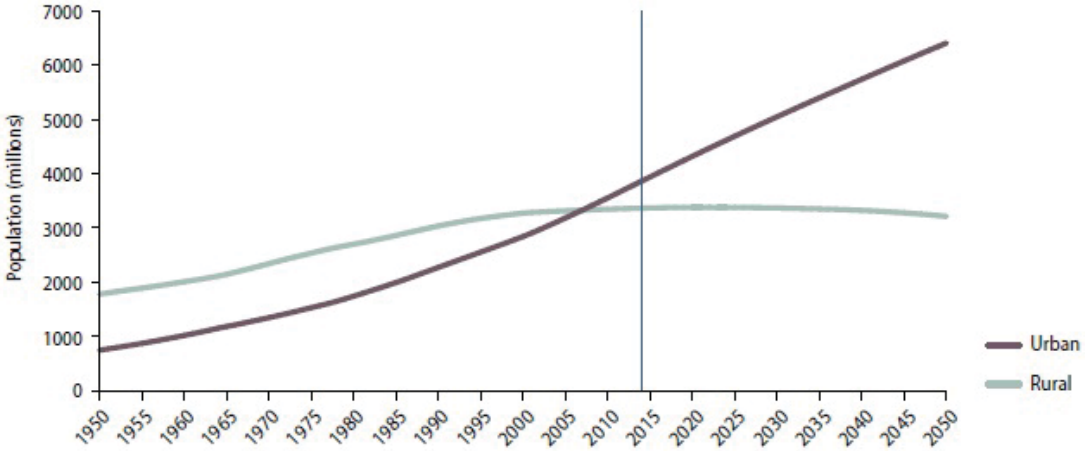
As a result, with the continuing growth of the already significant middle class populations in the sub-regions, the requirements for meat, fish, dairy products and fresh vegetables will increase considerably (See Figure 3.5.2, Figure 3.5.3 and Figure 3.5.4).

Moreover, the size of the national markets of the sub-regions represented by the national populations of 2015 is modest: 19 to 28 million inhabitants in Ghana, Côte d'Ivoire and Burkina Faso and 7 million in Togo. However, the attractiveness of the industry for investors can be enhanced by integrating markets in the WAGRIC Sub-Regions through the consolidated implementation of the customs union which is already institutionally ready but not fully implemented at the customs.

The urbanization rates of the four WAGRIC countries in 2040 are forecast to become as follows: 48% for Burkina Faso, 65% for Côte d'Ivoire, 65% for Ghana and 55% for Togo.

The increase in food demand of the urban population and the growing middle-class populations will accompany the increase in the consumption demand.

Globally, the number of people engaged in the agricultural sector will not increase, because of the urbanization, despite the considerable population growth in the world. Moreover, the increase in wages in the emerging countries will make it difficult to maintain the competitiveness of exports from these countries. Given these circumstances, the four WAGRIC countries will have opportunities to develop food production and consumer goods manufacturing which until now have remained dominated by imports in each country and within the WAGRIC Sub-Region.



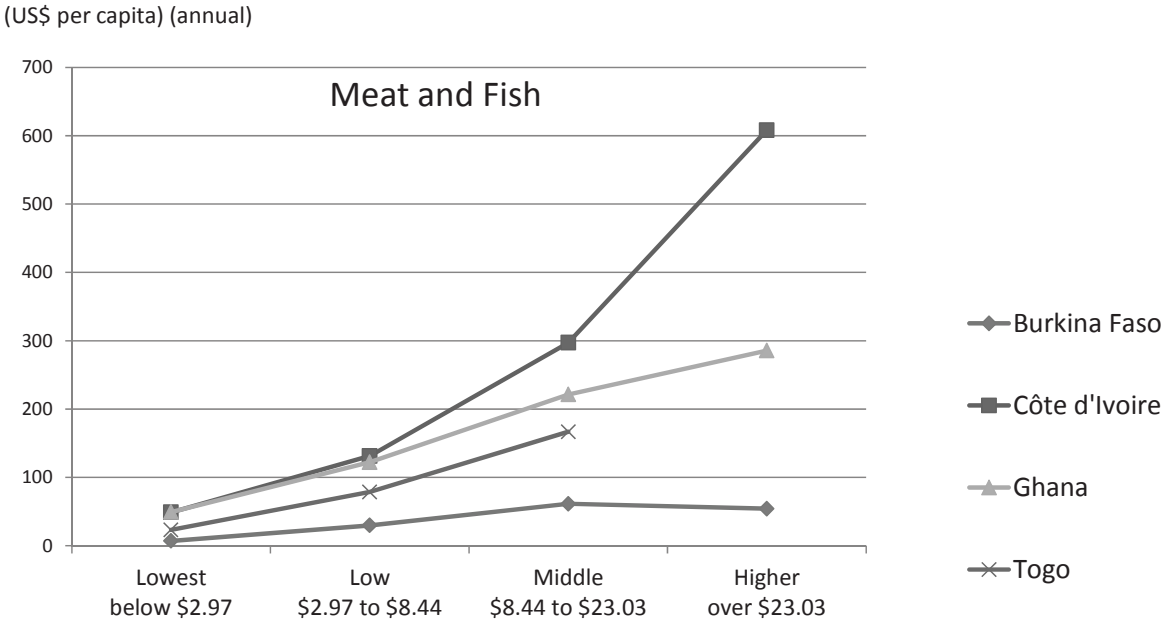
Source: The Department of Economic and Social Affairs of the United Nations Secretariat, 2014, World Urbanizations Prospects 2014 Revision

Figure 3.5.1 Transition of Urban Population in the World (1950-2050)

Table 3.5.1 Urban Population in WAGRIC Countries

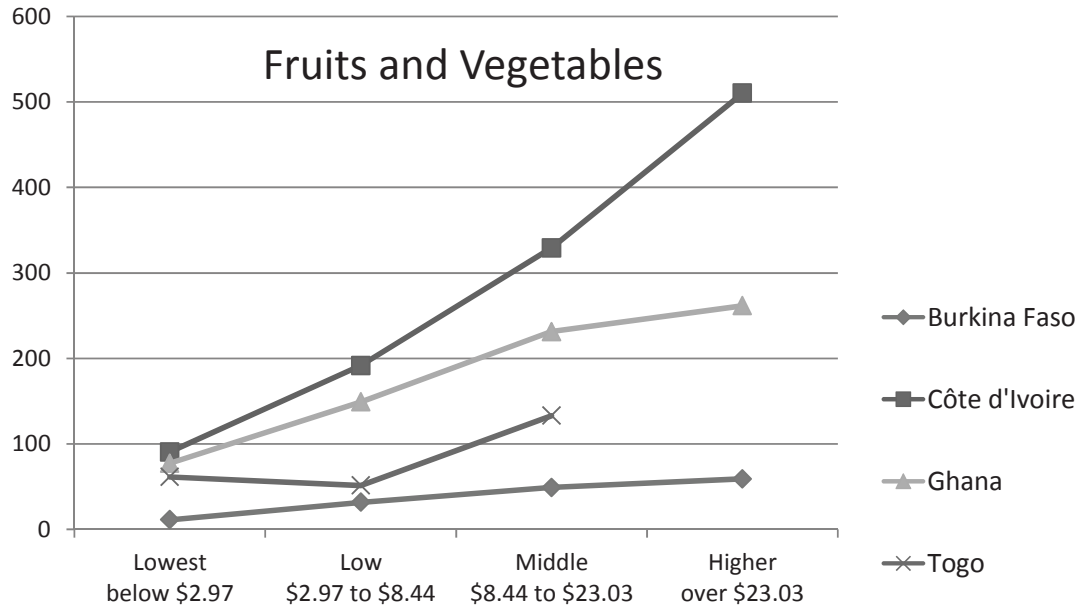
Country		2015	2040
Burkina Faso	Urban Population (thousand)	5,670	19,820
	Share of Urban Population	29%	48%
Côte d'Ivoire	Urban Population (thousand)	11,609	15,780
	Share of Urban Population	49%	65%
Ghana	Urban Population (thousand)	13,169	17,416
	Share of Urban Population	53%	65%
Togo	Urban Population (thousand)	2,860	7,822
	Share of Urban Population	39%	55%
WAGRIC Countries	Urban Population (thousand)	35,019	89,330
	Share of Urban Population	45%	59%

Source: JICA Study Team based on Census of Each Country and UN World Urbanizations Prospects 2014 Revision



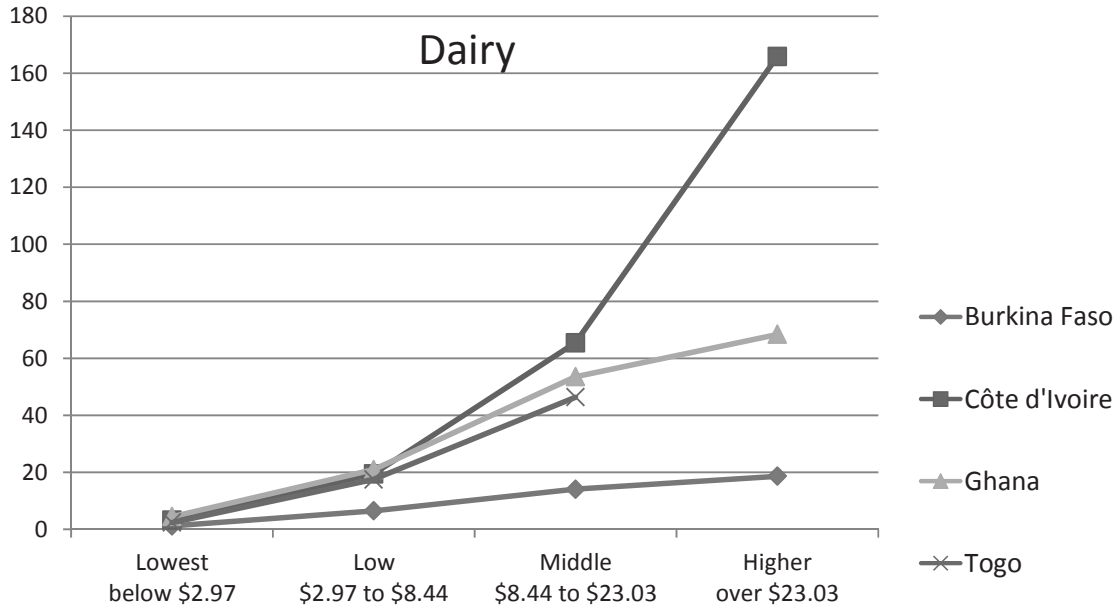
Source: World Bank, Global Consumption Database (World Bank estimates based on national household consumption or expenditure surveys)

Figure 3.5.2 Consumption Difference between Income Groups: Meat and Fish (USD per capita/year)



Source: World Bank, Global Consumption Database (World Bank estimates based on national household consumption or expenditure surveys)

Figure 3.5.3 Consumption Difference between Income Groups: Fruits and Vegetables (USD per capita/year)



Source: World Bank, Global Consumption Database (World Bank estimates based on national household consumption or expenditure surveys)

Figure 3.5.4 Consumption Difference between Income Groups: Dairy products (USD per capita/year)

Chapter 4 Sub-Regional Development Strategies for WAGRIC Countries

4.1 Strategic Objective: Aim for Formulating the WAGRIC Master Plan

4.1.1 Introduction

The WAGRIC Master Plan is composed of sub-regional development strategies and individual countries' corridor development plans for achieving WAGRIC Sub-Region's future vision described in Section 2.7.

In order to formulate such a master plan, it is necessary to clarify a "Strategic Objective", which is the aim for formulating the master plan.

4.1.2 Implications of Present Situation of WAGRIC Sub-Region and the Future Vision of WAGRIC Sub-Region for "Strategic Objective"

In Chapter 3, the present situations of WAGRIC Sub-Region are characterised from two perspectives, namely, 1) national economy of individual countries and 2) development situation of inland areas/ inland countries. The first characteristic is too dependent on production and export of primary commodities (mineral resources development and traditional/ non-traditional agriculture for export). The other is regional disparities between inland areas and coastal areas, as well as underdevelopment of inland areas. Based on this understanding of the present situation of WAGRIC Sub-Regions, this section identifies what should be aimed at in the formulation of necessary actions to be recommended by the WAGRIC Master Plan.

Since their national economies are highly dependent on export of mineral resources and traditional/ non-traditional agricultural products to areas outside of the sub-regional markets, it was difficult for WAGRIC countries not only to improve the poverty situation remaining in individual countries but also to prevent expanding regional disparities and social disparities. See Section 3.1.

Among the major reasons for such underdeveloped economic situations of individual countries of WAGRIC Sub-Region are 1) underdevelopment of the manufacturing sectors that could generate higher value addition (See Section 3.1 and Table 3.1.6) and 2) low productivity of the economic sectors in inland areas of coastal countries and rural areas of inland countries (See Section 3.2 and Table 4.2.1 and Table 4.2.2).

Due to the above circumstances, individual national governments acknowledge the need to diversify economic sectors by promoting development of economic sectors other than mineral resources development and traditional/ non-traditional agricultural production for export to areas outside of the sub-regional markets.

Those individual national governments are concerned that the lack of effective actions against expanding the regional disparities between inland areas/ inland countries and coastal areas might cause social and political instability, leading to massive labour migration from inland countries to urban areas and rural areas of coastal countries.

It is needed for the individual national governments to take necessary actions against the expanding regional disparities between inland areas/ inland countries and coastal areas since the modern affluent lives of middle-income and higher-income people have been rapidly emerging in coastal metropolitan areas. Such actions should be taken promptly and smoothly beginning in the short-term.

4.1.3 Strategic Objective

As summarized in the previous section, the aim ("Strategic Objective") for formulating the WAGRIC Master Plan is neither "Development of Corridor Transport Infrastructure" nor "Development of Economic Sectors along Corridors." It is necessary to set it at wider and higher levels.

- The WAGRIC Master Plan should not limit its target to inland areas, but target widely the whole areas of WAGRIC sub-regions including inland areas.
- The WAGRIC Master Plan should seek not only to expand the export of primary commodities which are the major strength of the WAGRIC countries, but also to diversify economic sectors other than those primary commodities.
- The WAGRIC Master Plan should tackle the problem of regional disparities between inland areas and coastal areas within the WAGRIC countries.
- Therefore, by taking advantage of emerging growth opportunities from now on toward the long-term future, it is necessary to take necessary actions for seeking a large leap of the whole economy of WAGRIC Sub-Region not in a staid manner, but in a prompt and smooth manner beginning with the short term and extending toward the long term.

By analysing these points, the following strategic objective is set for formulating the WAGRIC Master Plan:

"To seek a large leap of the whole economy of the WAGRIC Sub-Region including inland countries and inland areas of coastal countries by developing diversified economic sectors, as well as by preventing accelerating expansion of regional disparity between inland areas and coastal areas both within individual countries and within the sub-region."

4.2 Core Issue Identified from a Relationship of Economic Sectors and Transport

In order to achieve the strategic objective and the future vision of the WAGRIC sub-region, it is necessary to solve a variety of issues. Out of the various issues, in this chapter, a core issue is identified from a relationship between the economic sectors and transport concerning inland areas and coastal areas.

4.2.1 Vicious Circles of Inland Areas concerning Economic Sectors and Transport: Weak Geographical and Economic Relationship between Inland Areas and Coastal Areas

Underdevelopment of economic sectors in inland areas/ inland countries is due to the fact that inland areas and inland countries have been geographically and economically isolated from the central areas (the centres of production and consumption) of WAGRIC countries' economies. As a result, a vicious cycle between economic sectors and transport is taking place.

(1) "Barriers of Transport Costs" derived from the Distance between Inland Areas and Coastal Areas

Geographically isolated relationship between inland areas and coastal areas is due to the fact that the physical distance between inland areas and coastal cities is more than 500 km. For example, the distance between Abidjan and Korhogo in Côte d'Ivoire is 570 km. The distance between Accra and Tamale in Ghana is 630 km. The distance between Lomé and Kara in Togo is 410 km. The distance between coastal cities and inland countries is over 800 km.

This physical distance increases the cost of cargo transport between inland areas and coastal areas. It is partly because railway, inland water transport and pipelines are neither well developed nor well utilized in WAGRIC countries although these transport modes are good at less-costly long-distance cargo transport. See Figure 4.2.1Figure 4.2.1. Since long-distance cargo transport between inland

areas and coastal countries mostly depends on costly truck transport, various materials including fuels, cement and food, are more expensive in inland areas. As a result, underdevelopment of economic sectors continues in inland areas. Therefore, it is not possible to remove "the barriers of transport costs" between inland areas and coastal areas by upgrading transport infrastructure of north-south corridors. Therefore, it is difficult to develop economic sectors in inland areas. Under the presence of transport cost barriers, it is difficult to establish value chains of economic sectors concerning both inland areas and coastal areas.

Since economic sectors have not been highly developed in inland areas, there is not a great deal of demand for transportation from inland areas to coastal markets. See Table 4.2.1 and Table 4.2.2 and Figure 4.2.2. Since there is a larger volume for import cargo for inland areas than that for export, the state of one-way transportation is found in many trucks for import direction for inland areas. In the case of WAGRIC countries, the proportion of the volume of import cargo for inland areas against that of export cargo is 8:2. As a result, the cargo transport between inland areas and coastal areas becomes inefficient, pushing up the prices of materials which can be purchased in inland areas and hindering the development of economic sectors in inland areas. This is a vicious cycle concerning economic sectors and transport and is also related to inland areas and coastal areas.

This vicious cycle is caused by the situation that incomes from mineral resources development and traditional/non-traditional agricultural production are circulated only within the coastal areas and between the urban dwellers. The incomes are not distributed around inland areas so as to promote development of economic sectors in inland areas. Increased consumer demand from urban areas is not so well utilized for promoting the development of economic sectors in inland areas. In other words, the relationship between inland areas' economic sectors and coastal markets is geographically and economically weak.

(2) "Barriers of Transport Time" due to the Distance between Inland Areas and Coastal Areas

Not only the speed of cargo transport, but also the high speed of passenger transport by upgrading corridor transport infrastructure, such as motorways, high-standard 4-lane roads and air transport, is needed for attracting investments in economic sectors in inland areas and for enabling business operation in inland areas. In addition to the high speed for passenger transport, the high speed for transmitting information by upgrading ICT infrastructure and services is also important for investment attraction and business operation. However, the problem is that there is not a large demand for corridor infrastructure of motorways, air transport and ICT which would make those necessary investments feasible and attractive.

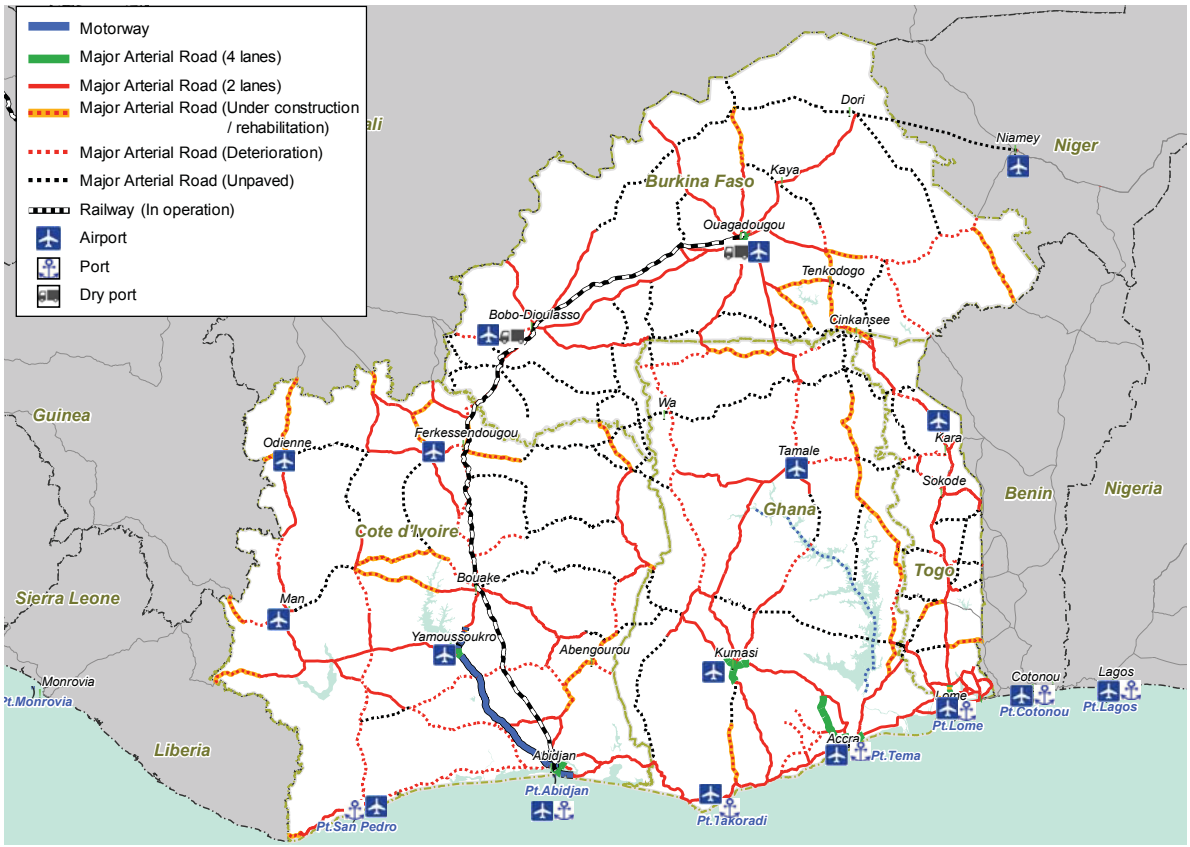
In order to break down the barriers of transport time, it is also necessary to take measures for improving the efficiency of cross-border procedures at national borders including measures for reducing harassment at national borders, as well as on corridors.

Such motorway construction reduces costs of vehicle operation and transport time and improves the punctuality of truck transport. It could improve the efficiency of truck transport operation, resulting in reduction of prices for truck transport and leading to improvement of profitability of truck transport businesses. Furthermore, because of this improved business operation, truck companies could obtain bank loans easier than before, and they could purchase more new trucks so that they could lower the costs of vehicle maintenance and break downs. As a result, more companies would join the long-distance truck transport sector, leading to increased competition among truck companies and reduced prices of truck transport.

Because of these improvements, it will become easier to promote economic sector development in inland areas. Then the transport demand for north-south corridor roads would increase. Furthermore, it would become easier to get funding or financial support to road upgrading to motorways or high-standard 4-lane roads. In the mid and long terms, high-speed transport connecting inland areas to coastal areas would become possible, enabling the transport of fresh agricultural products and fresh dairy products from inland areas to coastal markets. In other words, by breaking down of the barriers of transport costs and transport time, it would be possible to develop value chains in economic sectors related to inland areas and coastal areas. As a result, these circumstantial changes

could improve development potentialities of economic sectors in inland areas. Furthermore, it would become easier to promote development of economic sectors in inland areas.

As described above, inland areas and coastal areas are not strongly connected with each other not only in a relationship between economic sectors and markets, but also in terms of transport of cargo, passengers and information. By solving the vicious cycles related to the relationship between economic sectors and investments, and those related to the relationship between economic sectors and transport infrastructure, and by breaking down the barriers of transport costs and time, it is possible to create an enabling environment for development of the economic sectors in inland areas.



Note: Yamoussoukro Airport is not functioning
Source: JICA Study Team based on Information from Counterparts in Each Country

Figure 4.2.1 Present Situation of Existing Transport Infrastructures of WAGRIC Countries

Table 4.2.1 Economic Active Population Engaged in Manufacturing in Major Cities in Côte d'Ivoire (1998)

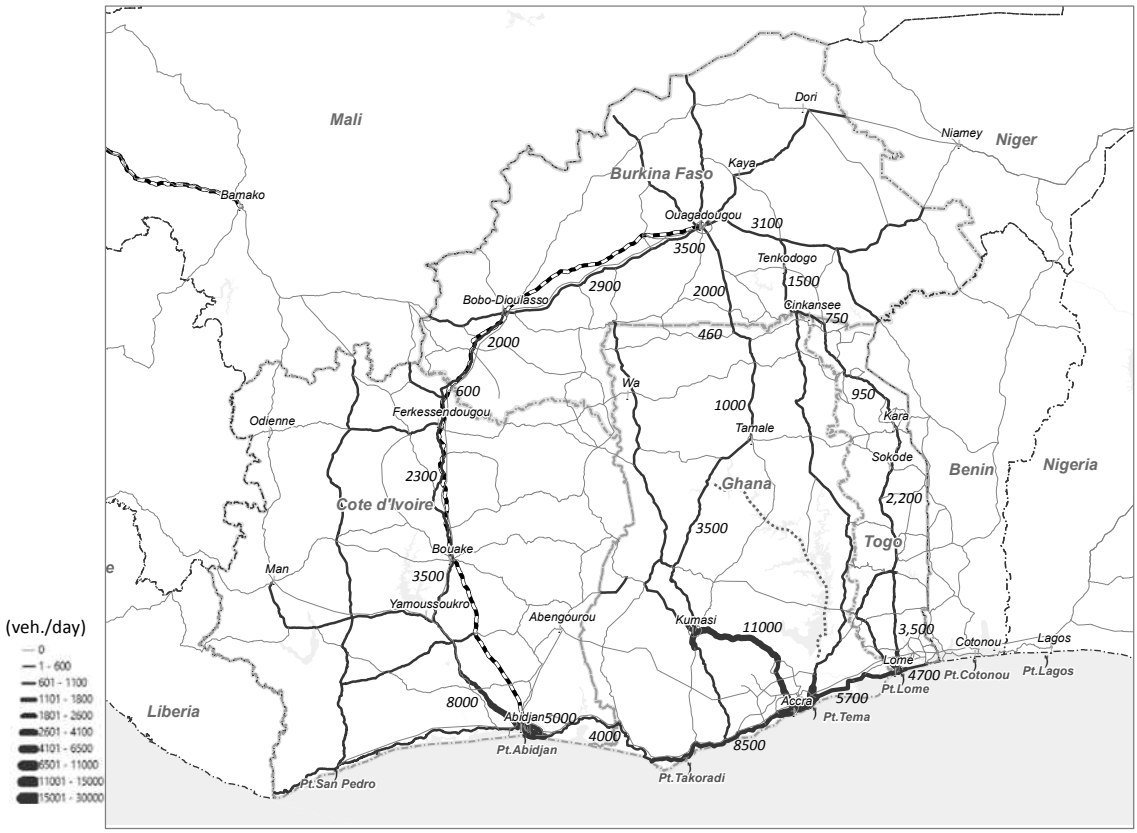
	Economic Active Population Engaged in Manufacturing	Share of Economic Active Population Engaged in Manufacturing
Abidjan District	164,254	46%
Bouaké Commune	23,084	7%
National Total	355,533	100%

Source: INS, Recensement Général de la Population et de l'Habitat (RGPH) 1998

Table 4.2.2 Number of Establishments of Secondary Sector Industry and Manufacturing in Regions with Major Cities in Ghana

		National	Western Region	Greater Accra Region	Ashanti Region	Northern Region
Secondary Sector Industry	Number of Establishments	108,242	9,899	27,302	20,752	8,662
	Share (%)	100%	9.1%	25.2%	19.2%	8.0%
	Rank (out of 10 regions)	-	3	1	2	6
Manufacturing	Number of Establishments	99,437	9,134	23,313	19,483	8,274
	Share (%)	100%	9.2%	23.4%	19.6%	8.3%
	Rank (out of 10 regions)	-	3	1	2	6

Note: Secondary Sector Industry includes Manufacturing, Mining and Quarrying, Electricity and Gas, Water Supply, Sewage and Waste Management, and Construction
Source: GSS, 2015, Integrated Business Establishment Survey Summary Report



Source: JICA Study Team based on the traffic volume survey conducted by the Team in 2015 and other collected documents

Figure 4.2.2 Average Daily Traffic Volume in WAGRIC Countries (2015)

4.2.2 Core Issue to be tackled by the Master Plan

Based on the understanding discussed in the previous section, the core issue to be tackled by the master plan is determined to be "To develop both inland areas and coastal areas by connecting these areas through economic sectors development and transport infrastructure development." WAGRIC countries cannot overcome the vicious circle concerning economic sectors and transport without tackling this issue as the core issue.

Without solving this issue, WAGRIC countries cannot fulfil the strategic objective and sub-regional future vision.

Chapter 5 Growth Scenarios and Essential Strategies

5.1 Selected Growth Scenario to Tackle the Core Issue

At the next stage, it is necessary to consider solutions for the core issues identified in Section 3.3, which are how to strongly connect inland areas and coastal areas by both economic sectors and transport. In Section 5.1, at first, it is considered what kinds of economic sectors are to be promoted, and secondly, growth scenarios are considered from a perspective of economic sectors and transport.

5.1.1 How to Deal with Underdevelopment and Regional Disparity of WAGRIC Countries: Directions of Development of Economic Sectors for Seeking Balanced Economic Development within Each Country

(1) Basics on Policies for Economic Sector Development

It is necessary to select other economic sectors than mining and export agriculture and to promote their development in order to diversify economic sectors and seek balanced economic development within each country because WAGRIC countries' economies are dependent on primary commodity production and export, and their regional disparity is large as a result of separation of inland areas from coastal markets in terms of economy and transport, as shown in Chapter 3.

Various alternative types of economic sector development, such as import substitution, export promotion, import processing and export processing, can be created by combining different factors, such as types of economic sectors (1st industrial sector, 2nd industrial sector and 3rd industrial sector), origins of resources (domestic resources, regional resources and import resources) and market orientation (domestic market orientation, regional market orientation, outside regional market orientation).

In addition to the conventional types of economic sector development (import substitution, export promotion, import processing and export processing), the WAGRIC countries have an additional potential type of economic sector development, which is import substitution and export promotion to sub-regional markets, because WAGRIC countries are member countries of UEMOA and ECOWAS, both of them have established a system for a Customs Union.

For developing countries, it is a popular strategy to produce for export markets by taking advantage of their relatively cheaper labour costs and certain domestic resources. However, unlike Southeast Asian and South Asian countries, it is difficult for many Southern African countries to satisfy conditions to enable them to be competitive in export markets. Especially, WAGRIC countries have the problem that they are not geographically close to any large developed markets.

In the future, the world demand for primary commodities (mineral products and agricultural products) is expected to increase in response to increasing global population and continuing economic development. Therefore, WAGRIC countries have possibilities to expand their production of primary commodities. However, since their prices in international markets tend to fluctuate greatly, with such export promotion of primary commodities alone to outside the sub-region, WAGRIC countries are not able to grow their national economies from a low-income country status to a middle-income country status and furthermore to get out from a lower middle-income status.

(2) Growth Potential Economic Sectors for WAGRIC Countries

From the above reasons, the individual governments of WAGRIC countries recognize the necessity to diversify their economic sectors to sectors other than mining and export agriculture. In order to promote such economic diversification, the following different types of economic sectors are identified:

- Type No.1: Processing Industries for Traditional and Non-Traditional Agricultural Export Products for Outside Sub-Regional Markets (Developed Countries' Markets) (by increasing the percentage of processed agricultural products and by increasing the level of processing of agricultural products)
- Type No.2: Export Oriented Manufacturing (based in Export Processing Zones by Importing Raw Material and Spare Parts to Produce Spare Parts and Intermediate Products for Electronic Appliances and Transport Machinery) targeting Outside Sub-Regional Markets
- Type No.3: Agriculture, Livestock and Aquaculture targeting at Domestic and Sub-Regional Consumer Markets (in response to increasing middle-income populations' demand for a wide range of high-value agricultural, livestock and aquacultural products, including rice, sugarcane, tilapia, cat fish, fresh beef, fresh fruits, fresh vegetable, and fresh dairy products)
- Type No.4: Manufacturing of Processed Food and Drinks and Other Processed Products oriented to Domestic and Sub-Regional Markets utilizing Domestic and Sub-Regional Resources of Agricultural and Livestock (targeting increasing demand by middle-income populations)
- Type No.5: Advanced Service Industries targeting Domestic and Sub-Regional Markets
- Type No.6: Mineral Resources Development for Export to Outside Sub-Regional Markets
- Type No.7: Production of Traditional and Non-Traditional Agricultural Products oriented to Outside Sub-Regional Markets

The economic sectors of both Type No.1 (Processing of Agricultural Export Products) and Type No.2 (Manufacturing at Export Processing Zones) are oriented to outside sub-regional markets (developed countries' markets). The development of agro-processing like Type No.1 in West Africa is not good at producing final products like chocolate which are targeting developed countries' markets by utilizing locally produced cocoa butter. The WAGRIC countries need to take measured steps over the long term for increasing the level of processing from that of simple processing, it would be difficult to realize it in the short and medium terms. The economic sectors of Type No.2 (manufacturing in export processing zones) are of a successful industrial development model of Southeast and South Asian countries, but those markets are extremely competitive worldwide. When it comes to shortage and high wages of skilled workers, lack of technologies and underdevelopment of supporting industries in WAGRIC countries, it is difficult to anticipate any comparative advantage of WAGRIC countries for this type of economic sector. In fact, substantial industrial accumulations have not been found in existing export processing zones of WAGRIC countries.

However, such export oriented manufacturing could be developed in WAGRIC sub-region's coastal areas for supplying spare parts and intermediate products for Nigeria's manufacturing of transport machinery and electric appliances when the implementation of the custom union is strengthened.

(3) WAGRIC Countries' Growth Possibility of Economic Sectors targeting Sub-Regional Consumer Markets

Although it is necessary to make a continuing effort at development of economic sectors oriented to outside sub-regional markets (overseas markets), it is the fact that the economic sectors of Types No.3 and No.4 have domestic and sub-regional markets which could provide large growth opportunities. The volume of imported goods increased rapidly in the 2000s. See Figure 3.1.2. Among the imported goods, there are some products which can be produced domestically. That is, import substitution is possible for some imported products. See Table 3.1.4. The economic sectors of Types No.3 and No.4 are based on such import substitution targeting domestic and sub-regional

markets. Since WAGRIC countries have rapidly increased domestic consumption for those products, their domestic production cannot catch up with such increased consumption. This is especially because middle and high-income populations showed strong preference for such imported goods.

Therefore, the markets for the economic sectors of Type No.3 and No.4 are present in WAGRIC countries, but they have to compete with imported products.

Although these market sizes are much smaller than the world markets for mineral resources and traditional/ non-traditional agricultural export products, they are not small markets as target markets for nurturing of immature economic sectors. The size of the markets is estimated to be USD 4.5 billion by considering the amount of values of imported products which could be substituted by domestic and sub-regional production. See Table 5.1.1.

In WAGRIC sub-region, sub-regional consumer markets for food are expected to expand greatly due to the increasing non self-subsistent urban populations due to large in-migration from rural areas and natural growth occurring in urban areas. At the same time, middle-income populations are increasing mostly in urban areas and their consumption level is higher than others. For these reasons, it is considered that sub-regional consumption markets would grow in WAGRIC countries in the future.

At present, it is said that WAGRIC countries have a substantial amount of middle and high-income population, whose size is comparable to that of East African countries. See Table 3.1.1. In the future, it is considered that the consumption markets would be expanded by increasing middle and high-income population. Among the agricultural and livestock products of Type No.3 economic sectors, the consumption of beef, chicken, fresh vegetables and fresh dairy products is expected to grow greatly. See Figures 3.3.2 through 3.3.4.

The demand for consumer processed products by Type No.4 is also considered to increase. It is estimated that the urban population of WAGRIC countries will increase from 35 million to 90 million at an annual average growth rate of 3.8%. See Table 3.3.1. Consumption markets targeted for the economic sectors of Type No.3 and Type No.4 are found in coastal areas in WAGRIC sub-region.

In addition, considering middle-income population increase and their concentration in metropolitan areas and the large size of their consumption markets, the economic sector of Type No.5 (advanced service industries) is considered to develop more so as to provide advanced services, which have been available in developed countries, such as investment services for financial products, information providing services, entertainment services and recreational services. Development of such advanced service industries could increase the populations of middle and high-income populations, leading to consumption market expansion, which would help development of the economic sectors of Types No.3 and No.4.

(4) Inland Areas/ Inland Countries' Promotion of Economic Sector Development Oriented to Sub-Regional Markets

Among the economic sectors with various development potentials, which are discussed above, the highest-priority to be tackled is the promotion of development of inland areas/ inland countries' economic sectors, together with the strengthening of growth engines for the coastal economic sectors. Without making a substantial effort at inland areas' economic sector development, it is not possible to improve poverty, regional disparity or out-migration from inland rural areas.

Furthermore, the most important ones among the economic sectors to be developed in inland areas/ inland countries are those targeting sub-regional markets. This is because they could economically connect inland areas/ inland countries with coastal areas. The economic sectors of Type 3 targeting domestic and sub-regional markets have better locational advantages in inland areas of coastal countries and rural areas of inland countries, which are of low population density and low-density land use. In those areas, rural people are engaged in agriculture, livestock and aquaculture sectors in an extensive manner.

On the other hand, the economic sectors of Type No.4 targeting domestic and sub-regional markets would have locational advantages in coastal areas of WAGRIC sub-regions. However, when the

north-south corridor transport infrastructures have been developed and the barriers of transport costs and time between inland areas and coastal areas are greatly reduced, it will become difficult to get large plots of land for business operations due to high land prices and overcrowding and the players in the economic sectors of Type 4 will need to look for land in inland areas.

(5) Necessity for Mineral Resources Development, Traditional and Non-Traditional Agricultural Production and Economic Sector Development in Coastal Areas: For Promotion of Economic Sectors in Inland Areas/ Inland Countries

It is important, but it is not easy to attract investments and promote economic sector development in inland areas/ inland countries. Additionally, it is necessary to tackle difficult transport problems composed of barriers of transport costs and time, therefore, it is not easy to promote development of economic sectors in inland areas/ inland countries. If certain areas of inland areas/ inland countries have development potential for mining and traditional/ non-traditional export agriculture, it will also be necessary to promote development of those economic sectors in parallel with economic sector development targeting sub-regional markets.

At the same time, it is important to promote development of the economic sectors oriented to sub-regional markets in coastal areas for the purpose of promoting development of economic sectors oriented to sub-regional markets in inland areas/ inland countries. This is because the coastal areas have the largest consumer markets within the sub-region. It is not only because coastal areas have larger growth opportunities for economic sectors targeting consumer markets, but also because such an effort at development of economic sectors in coastal areas could directly expand the consumer markets of their own coastal areas.

Furthermore, it is very important to develop economic sectors, especially manufacturing sectors, targeting sub-regional consumer markets, in coastal areas, which are the centres of the coastal countries' economies. Such an effort at developing manufacturing industries oriented sub-regional consumer markets could create the foundation of technologies, human resources and national economies for further development of manufacturing industries. Without this kind of foundation, it is difficult to achieve the future vision of the WAGRIC sub-regions.

As shown in this section, Types No.3, No.4, No.5, No.6 and No.7 are promising economic sectors for WAGRIC countries. All of these economic sectors are oriented toward sub-regional coastal markets, except for the economic sectors of Type No.6 (mining for export) and the economic sectors of Type No.7 (traditional/ non-traditional export agriculture). Table 5.1.2 shows identified economic growth sectors in accordance with the types of economic sectors.

Table 5.1.1 Local Commodities for Import Substitution and their Import Value in WAGRIC Countries (2013, USD)

Import Substitution Target	Commodity	Burkina Faso	Côte d'Ivoire	Ghana	Togo
First Target	Cereals	160,430,005	687,965,858	540,982,429	61,819,940
First Target	Fish and crustaceans, molluscs and other aquatic invertebrates	10,012,729	362,650,886	330,171,894	30,259,070
First Target	Meat and edible meat offal	234,487	78,798,472	254,838,782	11,536,854
First Target	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes	37,675,700	68,860,205	186,507,005	44,954,936
First Target	Sugars and sugar confectionery	51,755,883	15,363,076	211,522,299	21,962,047
First Target	Dairy produce; birds' eggs; natural honey; edible products of animal origin not elsewhere specified or included	24,636,366	82,716,469	104,709,931	23,007,727
First Target	Preparations of cereals, flour, starch or milk; pastry cooks' products	30,104,803	58,725,523	87,659,790	15,304,302
First Target	Edible vegetables and certain roots and tubers	4,016,175	59,876,337	18,550,821	1,843,826
First Target	Edible fruit and nuts; peel of citrus fruit or melons	2,670,821	11,313,037	13,068,922	401,147
First Target	Cocoa and cocoa preparations	466,656	5,437,112	4,450,828	1,094,506
Second Target	Pharmaceutical products	203,472,840	271,553,970	215,181,633	86,810,729
Second Target	Beverages, spirits and vinegar	15,748,164	76,632,182	151,994,337	14,267,980
Second Target	Preparations of vegetables, fruit, nuts or other parts of plants	8,383,678	28,161,564	146,196,087	9,522,079
First Target	Sub-total (USD)	322,003,625	1,431,706,975	1,752,462,701	212,184,355
Second Target	Sub-total (USD)	227,604,682	376,347,716	513,372,057	110,600,788
Items Possible for Import Substitution	Total (USD)	549,608,307	1,808,054,691	2,265,834,758	322,785,143
	Share	12.6%	14.5%	17.7%	16.4%
All Import	Total (USD)	4,365,430,824	12,482,984,119	12,787,233,399	1,967,339,824

Source: UN Comtrade Database

Table 5.1.2 Economic Growth Sectors for WAGRIC Countries

Types of Economic Sectors*	Economic Growth Sectors	Present	Short Term	Mid Term	Long Term	Super-Long Term
Type No.1: Processing Industries for Traditional Agricultural Export Products for Outside the Sub-Region	Agro-processing Industries of Traditional Agricultural Export Products, such as Cacao, Oil Palm, Rubber, Cashews and Cotton		●	●	●	
Type No.4: Agriculture, Livestock and Fisheries targeting Middle-Income Populations' Domestic and Sub-Regional Markets	Agriculture of Rice and Sugarcane, and Aquaculture of Tilapia and Cat Fish		●	●		
	Production of Cattle in Inland Countries, Export of Live Cattle to Coastal Countries, and Production and Sales of Fresh Beef		●	●	●	
	Agriculture oriented to Middle-Income Populations, including Fruits, Fresh Vegetable and Fresh Dairy Products		●	●	●	●
Type No.3:Manufacturing of Consumer Products for Middle-Income Populations' Domestic and Sub-Regional Markets	Production of Processed Food and Processed Drink		●	●	●	●
	Production of Plastic Daily Products		●	●	●	●
	Production of Pharmaceutical Products			●	●	●
Type No.2: Manufacturing of Spare Parts and Intermediate Products for Nigerian Assembling Factories	Manufacturing of Spare Parts and Intermediate Products of Transport Machinery for Supplying to Nigerian Assembling Factories				●	●
Type No.5: Advanced Service Industries oriented to Domestic and Sub-Regional Markets	Finance Business, ICT-BOP, Entertainment, Higher Education Services, Advanced Medical Services		●	●	●	●
Types No.6 and No.7: Traditional Export Economic Sectors to Outside Sub-Region	Production of Traditional Agro-Products (Cacao, Oil Palm, Rubber, Cashew and Cotton)	●	●	●	●	
	Mining (Gold, Iron, Manganese, Bauxite etc.)	●	●	●	●	

Note*: Numbers of types are the same as those in (2) of Section 5.1.1
Note: Those underlined are economic sectors oriented to sub-regional markets.
Source: JICA Study Team

5.1.2 Comparison of Alternative Growth Scenarios

In this section, directions of solutions (growth scenarios) for the core issues identified in Section 3.3 are considered. The directions of solutions (growth scenarios) suggest the necessity to implement measures to strongly connect inland areas and coastal areas in terms of economic sectors and transport.

Three alternative growth scenarios are prepared by using three factors, namely 1) which economic sectors are emphasized for promotion, 2) to what extent sub-regional economic integration is promoted, 3) what kinds of corridor infrastructures are strengthened for connecting inland areas and coastal areas

- [Alternative Growth Scenario No.1: Corridor Development oriented to Sub-Regional Markets] : While seeking a strong sub-regional economic integration, Growth Scenario No.1 aims at development of economic sectors targeting sub-regional markets and development of corridor infrastructures of both north-south corridors and the coastal east-west corridor for the purpose of strengthening both economic connectivity and transport connectivity between inland areas and coastal areas.
- [Alternative Growth Scenario No.2: Corridor Development oriented to Individual Domestic Markets]: Growth Scenario No.2 aims at development of various economic sectors in both inland areas and coastal areas by developing corridor infrastructures of north-south corridors in individual countries.
- [Alternative Growth Scenario No.3: Corridor Development oriented to Outside Sub-Regional Markets (Overseas Export Markets)]: Growth Scenario No.3 aims at development of economic sectors oriented to outside sub-regional markets (overseas export markets) in both inland and coastal areas by developing north-south corridor infrastructures.

(1) Alternative Growth Scenario No.1: Corridor Development oriented to Sub-Regional Markets

Growth Scenario No.1 aims at inland areas' development of economic sectors, in addition to expanding of production and export of primary commodities in inland areas.

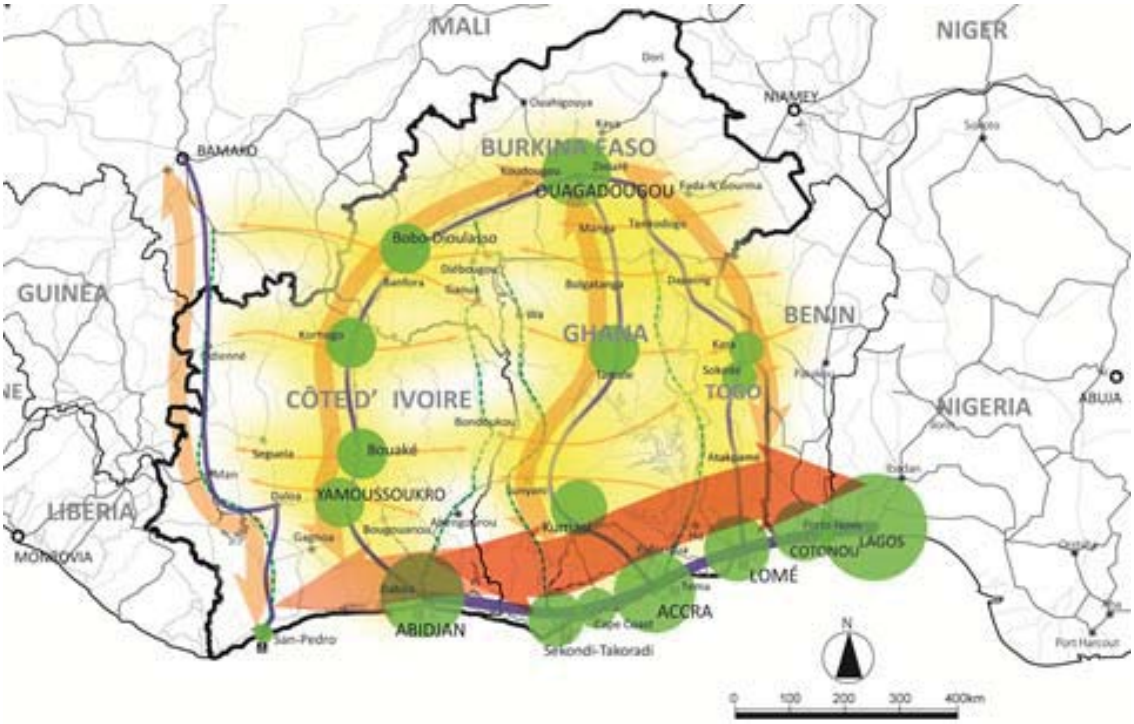
Measures

To implement Growth Scenario No.1, the following four measures should be taken:

- Strengthening of implementation of the customs union in order to integrate sub-regional markets and to attract investments in economic sectors
- Development of motorways or high-standard 4-lane roads in selected sections in both north-south corridors and the coastal east-west corridor in order to break down the barriers of transport time
- Development of an efficient long-distance cargo transport system in order to break down the barriers of transport costs
- Promotion of development of economic sectors targeting sub-regional markets in both inland areas and coastal areas in order to connect inland areas and coastal areas in relationship with production areas and markets

Impact

- By following "Growth Scenario No.1", the development of economic sectors in inland areas would be more substantial than those of Alternative 2 and Alternative 3.
- It is because the main targets of Growth Scenario No.1 is the integrated sub-regional markets, which are larger than individual countries' markets. Larger sub-regional markets could attract more investments to economic sectors.



Source: JICA Study Team

Figure 5.1.1 Alternative Growth Scenario 1 for WAGRIC-CACAO
"Corridor Development oriented to Sub-Regional Markets"

(2) Alternative Growth Scenario No.2: Corridor Development oriented to Individual Domestic Markets

Growth Scenario No.2 aims at development of various economic sectors in both inland areas and coastal areas by developing north-south corridor infrastructures in individual countries. However, Growth Scenario No.2 does not expect much effect of implementation of the customs union.

Measures

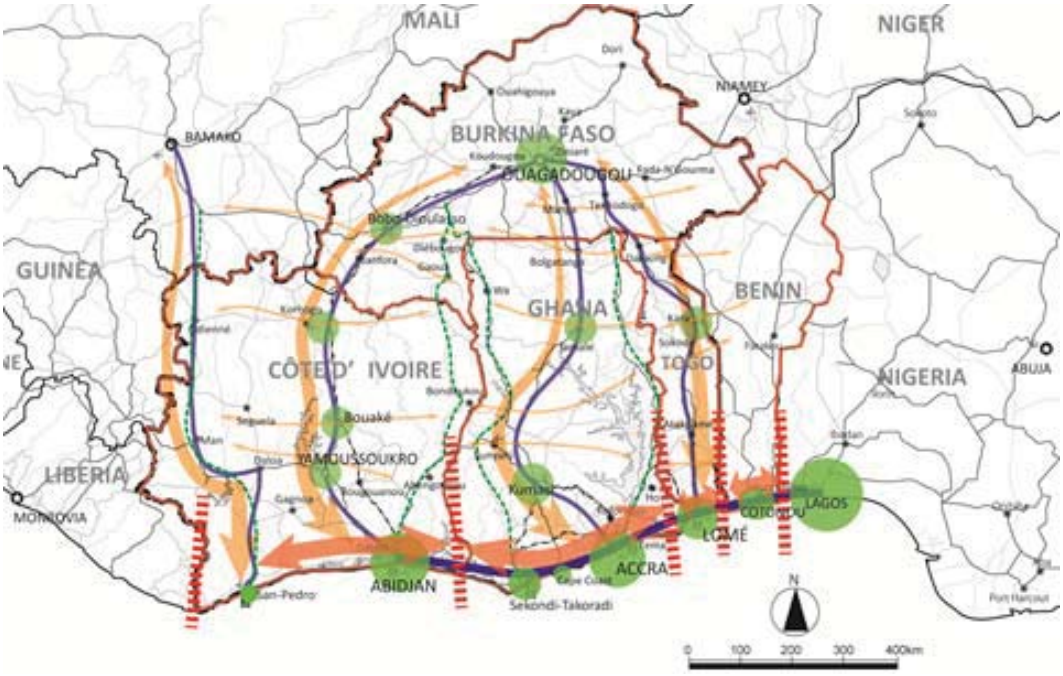
In accordance with Growth Scenario No.2, the following actions are taken and effects are achieved:

- Gradual development of coastal east-west motorways so that sub-regional economic integration is not so effectively achieved and expansion of sub-regional consumer markets is also not so well achieved
- Promotion of economic sector development targeting domestic consumer markets in inland areas of individual countries by developing corridor transport infrastructures of not only north-south central corridors, but also other north-south corridors
- Promotion of development of mineral resources development and traditional/ non-traditional export agriculture targeting outside sub-regional markets not only in coastal areas but also in inland areas
- Promotion of upgrading of north-south roads in the inland country for inland countries' access to coastal countries' consumer markets because relatively slow progress on development of north-south motorways or high-standard 4-lane roads is expected in coastal countries

Impact

- Since "Growth Scenario 2" does not depend much on the effect of sub-regional economic integration, the target markets for economic sectors are not so large and attractive for investments as Alternative 1.

- As a result, by following Growth Scenario 2, outmigration from inland areas would become larger than Alternative 1 and deterioration of inland economies would be more accelerated than Alternative 1.



Source: JICA Study Team

Figure 5.1.2 Alternative Growth Scenario 2 for WAGRIC-CACAO
"Corridor Development oriented to Individual Domestic Markets"

(3) Alternative Growth Scenario No.3: Corridor Development oriented to Outside Sub-Regional Markets (Overseas Export Markets)

Growth Scenario No.3 aims at development of economic sectors oriented to outside sub-regional markets (overseas export markets) in both inland and coastal areas by developing north-south corridor infrastructures.

Measures

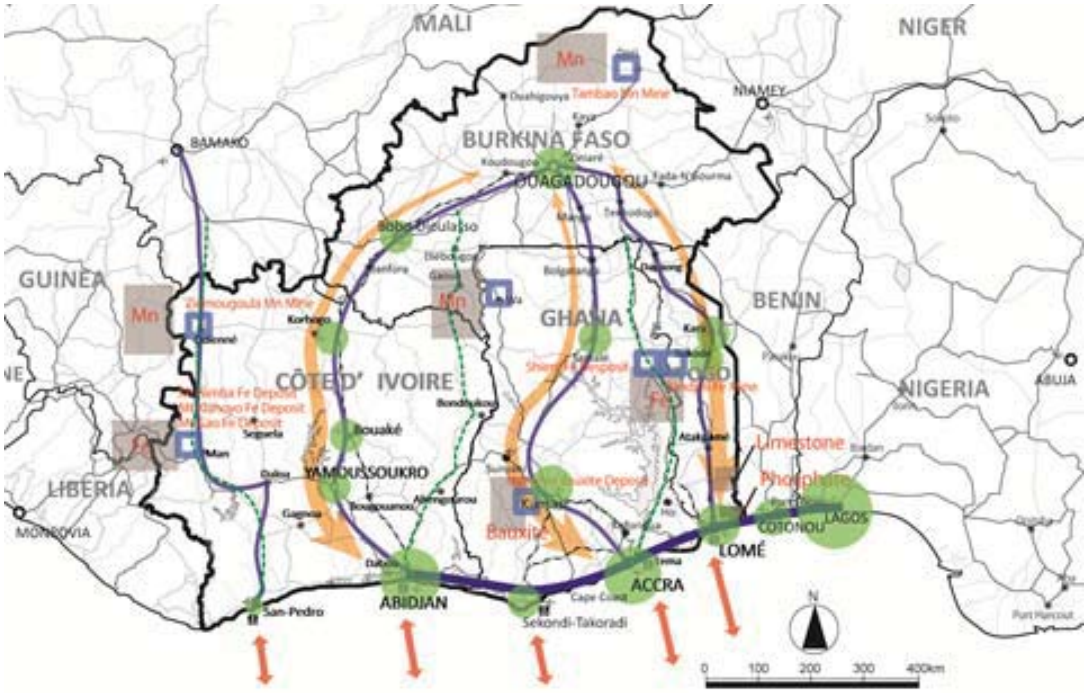
In accordance with Growth Scenario No.3, the following measures are taken and effects are achieved:

- Promotion of economic sectors oriented to outside sub-regional markets (overseas markets)
- Development of long-distance cargo transport infrastructures (railways, inland waterways and pipelines) of north-south corridors
- Gradual development of motorways or high-standard 4-lane roads in north-south corridors, because investments in economic sectors is not so much promoted by upgrading north-south infrastructures (motorways or high-standard 4-lane roads, air transport and ICT)
- Slow progress of development of coastal east-west corridor motorways because intra-regional trade with neighbouring countries is not expected to greatly increase along the coastal corridor
- Not much effort at promotion of economic sectors development targeting consumer markets in inland areas

Impact

- Growth Scenario No.3 emphasizes more the production and export of primary commodities to outside the sub-region (world export markets) than the economic sectors oriented to sub-regional markets. By following "Growth Scenario No.3", much resource is not allocated to programmes for development of economic sectors oriented to sub-regional markets.

- As a result, Growth Scenario No.3 could achieve higher economic growth than Alternatives 1 and 2. However, inland economic sectors would not develop so much as Alternative 1.



Source: JICA Study Team

Figure 5.1.3 Alternative Growth Scenario 3 for WAGRIC-CACAO
"Corridor Development oriented to Overseas Export Market"

Table 5.1.3 Comparison of Alternative Growth Scenarios

	Selected Economic Sectors	Sub-Regional Integration	North-South Corridor Infrastructure
Options	Type No.1: Processing Industries for Traditional and Non-Traditional Agricultural Export Products for Outside Sub-Regional Markets Type No.2: Export Oriented Manufacturing Type No.3: Agriculture, Livestock and Aquaculture targeting at Domestic and Sub-Regional Consumer Markets Type No.4: Manufacturing of Processed Food and Drinks and Other Processed Products oriented to Domestic and Sub-Regional Markets utilizing Domestic and Sub-Regional Resources of Agricultural and Livestock Type No.5: Advanced Service Industries targeting Domestic and Sub-Regional Markets Type No.6: Mineral Resources Development for Export to Outside Sub-Regional Markets Type No.7: Production of Traditional and Non-Traditional Agricultural Products oriented to Outside Sub-Regional Markets	• Strengthening of customs union • Construction of coastal corridor motorway	• Corridor Transport Infrastructure between Inland Areas and Coastal Areas • Construction of north-south corridor motorway • Establishment of north-south corridor's long-distance cargo transport systems (Railway, Inland Water Transport, Pipeline etc.)
Alternative Growth Scenario 1 Corridor Development oriented to Sub-Regional Market	Inland Areas Type No.3: Agriculture, Livestock and Aquaculture targeting at Domestic and Sub-Regional Consumer Markets Type No.4: Manufacturing of Processed Food and Drinks and Other Processed Products oriented to Domestic and Sub-Regional Markets utilizing Domestic and Sub-Regional Resources of Agricultural and Livestock Type No.6: Mineral Resources Development for Export to Outside Sub-Regional Markets Type No.7: Production of Traditional and Non-Traditional Agricultural Products oriented to Outside Sub-Regional Markets Coastal Areas Type No.1: Processing Industries for Traditional and Non-Traditional Agricultural Export Products for Outside Sub-Regional Markets Type No.2: Export Oriented Manufacturing	• Strengthening of Customs Union • Promotion of Constructing Coastal Corridor Motorway from Early Stage • Integration of Consumption Market in the Coastal Countries through Strengthening of Customs Union	• Strong Promotion of Constructing North-South Corridor Motorway (This motorway is for attracting investment towards the economic sectors in inland areas and inland countries. The development of the north-south corridor's motorway will shorten travel time, enabling managers and technicians of the investment companies to travel between inland areas and coastal areas for necessary production development and management at the investment site.) • Establishment of north-south corridor's long-distance cargo

	Selected Economic Sectors	Sub-Regional Integration	North-South Corridor Infrastructure
	Type No.4: Manufacturing of Processed Food and Drinks and Other Processed Products oriented to Domestic and Sub-Regional Markets utilizing Domestic and Sub-Regional Resources of Agricultural and Livestock Type No.5: Advanced Service Industries targeting Domestic and Sub-Regional Markets Type No.6: Mineral Resources Development for Export to Outside Sub-Regional Markets Type No.7: Production of Traditional and Non-Traditional Agricultural Products oriented to Outside Sub-Regional Markets		transport systems (Railway, Inland Water Transport, Pipeline etc.)
Alternative Growth Scenario 2 Corridor Development oriented to Individual Domestic Markets	Inland Areas Type No.3: Agriculture, Livestock and Aquaculture targeting at Domestic and Sub-Regional Consumer Markets Type No.4: Manufacturing of Processed Food and Drinks and Other Processed Products oriented to Domestic and Sub-Regional Markets utilizing Domestic and Sub-Regional Resources of Agricultural and Livestock Type No.6: Mineral Resources Development for Export to Outside Sub-Regional Markets Type No.7: Production of Traditional and Non-Traditional Agricultural Products oriented to Outside Sub-Regional Markets Coastal Areas Type No.1: Processing Industries for Traditional and Non-Traditional Agricultural Export Products for Outside Sub-Regional Markets Type No.2: Export Oriented Manufacturing Type No.3: Agriculture, Livestock and Aquaculture targeting at Domestic and Sub-Regional Consumer Markets Type No.4: Manufacturing of Processed Food and Drinks and Other Processed Products oriented toward Domestic and Sub-Regional Markets utilizing Domestic and Sub-Regional Resources of Agricultural and Livestock Type No.5: Advanced Service Industries targeting Domestic and Sub-Regional Markets Type No.6: Mineral Resources Development for Export to Outside Sub-Regional Markets Type No.7: Production of Traditional and Non-Traditional Agricultural Products oriented to Outside Sub-Regional Markets	• Sub-regional development not relying on strengthening of customs union • Coastal corridor motorway will be constructed but early construction will not be promoted • Integration of consumption market in the coastal countries will not be strongly promoted (leave sub-regional integration to take its own course)	• Construction of north-south corridor motorway will be promoted. However, it is assumed that the development of the economic sector in the inland areas will not be sufficient to increase the transport demand. Therefore, it will take time for the construction of the North-South Corridor Motorway to be implemented. • Establishment of north-south corridor's long-distance cargo transport systems (Railway, Inland Water Transport, Pipeline etc.) will also take time due to insufficient development of economic sectors in the inland areas and inland country.
Alternative Growth Scenario 3 Corridor Development oriented to Overseas Export Market	Inland Areas Type No.6: Mineral Resources Development for Export to Outside Sub-Regional Markets Type No.7: Production of Traditional and Non-Traditional Agricultural Products oriented to Outside Sub-Regional Markets Coastal Areas Type No.1: Processing Industries for Traditional and Non-Traditional Agricultural Export Products for Outside Sub-Regional Markets Type No.2: Export Oriented Manufacturing Type No.5: Advanced Service Industries targeting Domestic and Sub-Regional Markets Type No.6: Mineral Resources Development for Export to Outside Sub-Regional Markets Type No.7: Production of Traditional and Non-Traditional Agricultural Products oriented to Outside Sub-Regional Markets	• Sub-Regional development not relying on strengthening of customs union • Coastal corridor motorway will be constructed but early construction will not be promoted • Integration of consumption market in the coastal countries will not be strongly promoted (leave sub-regional integration to take its own course)	• Construction of north-south corridor motorway will not be strongly promoted. (This is due to the character of Alternative Growth Scenario 3, which aims to strengthen economic sectors oriented to overseas export market. For such economic sectors, it is assumed that the motorway will not be a factor to attract investment.) • Establishment of the North-South Corridor's Long-Distance Cargo Transport Systems (Railway, Inland Water Transport, Pipeline etc.) will be strongly promoted rather than the north-south corridor motorway.

Source: JICA Study Team

5.1.3 Selected Growth Scenario

Three alternative growth scenarios adopt different directions of solutions for promotion of economic sector development in inland areas and coastal areas, and strengthening of economic and transport connectivity between inland areas and coastal areas. The different growth scenarios would have different decrees of impact on economic and transport connectivity between inland areas and coastal areas. Growth Scenario No.1 is expected to make the largest impact, Growth Scenario No.2 could

make the second largest impact, and Growth Scenario No.3 would make the smallest impact on economic and transport connectivity between inland areas and coastal areas.

Growth Scenario No.1 "Corridor Development oriented to Sub-Regional Markets" is selected to tackle the core issues identified in Section 3.3.

It is the economic sectors that are targeting sub-regional consumer markets that will strongly connect inland areas and coastal areas in terms of economy and transport. Promotion of economic sector development oriented to sub-regional markets is "the key" to solve the core issue of "a weak relationship between coastal economies and inland areas' economic sectors in terms of economy and transport."

5.1.4 Three Sets of Necessary Actions ("Three Buttons") for the Selected Growth Scenario

In accordance with the selected Growth Scenario 1 "Corridor Development oriented to the Sub-Regional Market," the following three sets ("three buttons") of necessary actions should be taken for initiating and driving corridor development in an integrated manner:

- [Button A] Promotion and Fostering of Economic Sectors oriented toward Sub-Regional Market: By Utilizing the Potential of the Economic Sectors and by Targeting Sub-Regional Markets. <<Take Advantage of Growing Sub-Regional Markets>>
- [Button B] Expansion of the Size of Coastal Markets: By Strengthening of Implementation of a Customs Union and By Promoting Economic Sector Development. <<Strengthening of Growth Engine of Coastal Areas>>
- [Button C] Establishment of Less Costly and High-Speed Transport Systems to Connect Inland Production Areas with Coastal Market Areas: For Enhancing the Competitiveness of the Economic Sectors that are located in Inland Areas and for Expanding Potential Areas in which High-Value Added Businesses can be Located. <<Strengthening of Connectivity between Inland Areas and Coastal Areas>>

These three sets of necessary actions correspond to the essential strategy groups 1 to 3 in Section 5.2.1.

5.2 Ten Essential Strategies

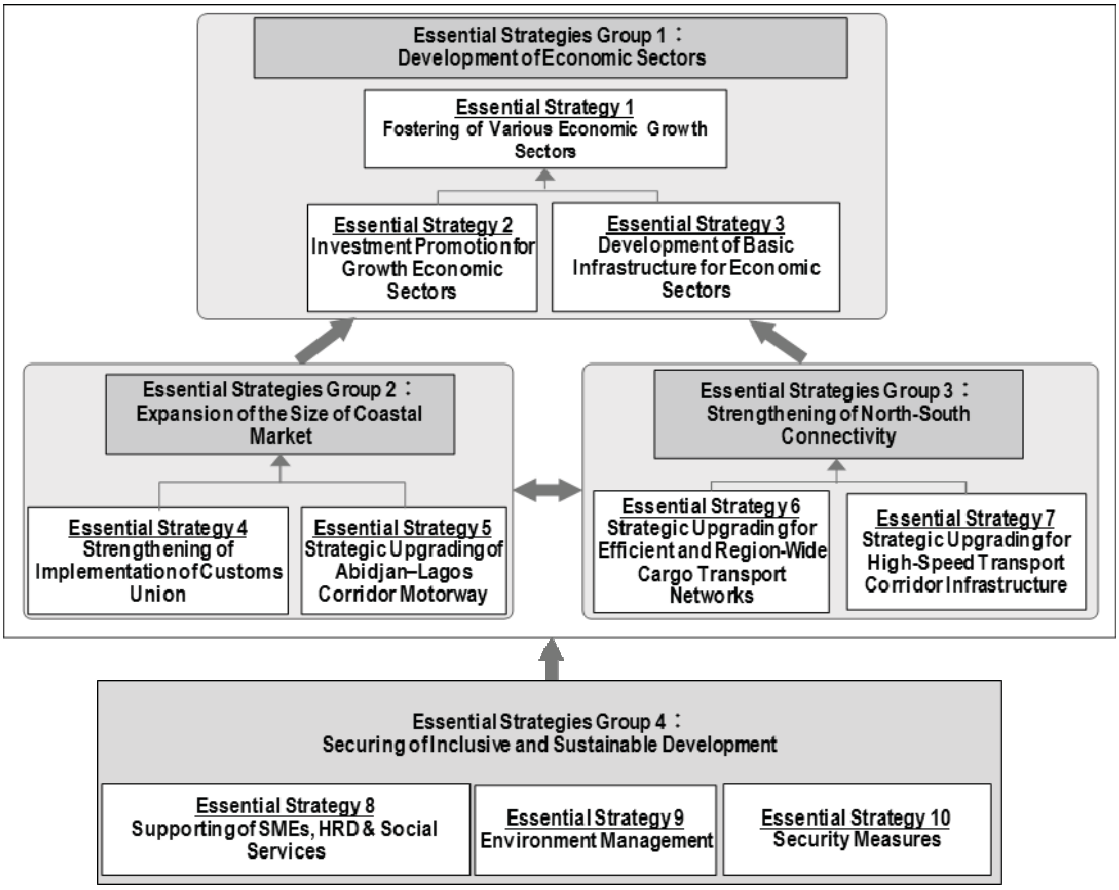
5.2.1 Ten Essential Strategies and Four Strategy Groups

To achieve the future vision of the sub-region, 10 essential strategies are formulated and grouped into the following four groups:

- Essential Strategies Group 1 (Button A): Development of Economic Sectors
- Essential Strategies Group 2 (Button B): Expansion of the Size of Coastal Markets
- Essential Strategies Group 3 (Button C): Strengthening of Connectivity between Coastal Markets and Inland Areas
- Essential Strategies Group 4 (Button D): Securing of Inclusive and Sustainable Development

These four strategy groups are related to each other as described below. Essential Strategies Group 1 is supported by essential strategies for Group 2 and Group3. Essential Strategies Group 4 supports essential strategies for Group 1, Group 2 and Group 3 as a whole. (See Figure 5.2.1)

The concepts and necessary actions for each essential strategy are described in the following sections. These actions will be taken through policy decisions or implementation of priority projects.



Source: JICA Study Team

Figure 5.2.1 Essential Strategies of WAGRIC Master Plan

5.2.2 Essential Strategies Group1 (Button A): Development of Economic Sectors

Essential Strategies Group1 is composed of the following three essential strategies:

- Essential Strategy 1: "Fostering of Various Growth Economic Sectors" that Contribute to Region-Wide Development
- Essential Strategy 2: "Investment Promotion for Growth Economic Sectors" by Taking Advantage of Integration and Expansion of Sub-Regional Markets
- Essential Strategy 3: "Development of Basic Infrastructure for Economic Sectors" to Support the Development of Growth Economic Sectors in both Inland and Coastal Areas

In order to increase the effectiveness of implementation of Essential Strategy 1, it is necessary to implement Essential Strategies 2 and 3 substantially.

(1) Essential Strategy No. 1: "Fostering of Various Growth Economic Sectors" that Contribute to Region-Wide Development

Essential Strategy 1 focuses on economic sectors targeting sub-regional markets in both inland areas and coastal areas, in addition to making of an increasing effort at production and export of primary products (mineral resources and agricultural products) which have been the engine of economic growth in this sub-region. Another economic sector which should also be promoted alongside is advanced service industries which have future potential in major metropolitans of the sub-region. Especially for economic sectors oriented to sub-regional markets, as discussed in Table 5.1.2, there are consumer products targeting the middle income populations, such as rice, sugar, farmed fish, beef, fresh fruits and fresh vegetables and fresh dairy products in the short term, plastic products for daily use and pharmaceutical products in the medium term and manufacturing of spare parts and

intermediate goods for transport machinery and electronic goods in the long and super-long term, and also advanced service industries, such as financial services, ICT-BPO, entertainment industries, advanced education, and advanced medical services.

It is necessary to implement various measures included in Essential Strategies 2-7, for creating an enabling business environment for developing economic sectors targeting sub-regional markets. At the same time, there are different key points for fostering different growth economic sectors. Individual countries' governments should implement their own policies for economic sector development by following those key points. This is Essential Strategy 1.

Economic sectors orientated to sub-regional markets will face competition with imported goods from overseas in both inland areas and coastal areas. Therefore, it is necessary to transform its industrial structure by improving productivity and increasing production volume etc. To do so, it is important to attract investments to such economic sectors by implementing Essential Strategy 2 "Investment Promotion for Growth Economic Sectors" and Essential Strategy 3 "Development of Basic Infrastructures for Economic Sectors."

For improving the business environment for promoting the economic sectors, it is also important for each individual country to identify specific development measures for fostering selected growth economic sectors targeting sub-regional markets.

The following are some possible measures for establishing value chains related to certain growth economic sectors:

- Important Measures for Increasing Rice Production: Necessary measures include improvement of rice varieties and dissemination of necessary production technologies, provision of rice mills and rice storage facilities by private sectors, and fostering of private rice distributors. However, to promote private investors to build rice mills and storage facilities for increasing rice production in inland areas, it is necessary for the governments to consider and give incentives to private sectors.
- Important Measures for Fostering Poultry Industries: Necessary measures are increasing of production of maize, which is a main ingredient of poultry feeds, and fostering of poultry feeds producers. The WAGRIC countries heavily rely on imported poultry feeds. To improve this current situation, it is important to support development of a value chain for poultry feeds, by expanding maize production and supply for poultry feeds and also by utilizing by-products of various agro-processing products, such as rice dregs from rice milling and oil-dregs from cooking oil production.
- Important Measures for Productivity Improvement and Production Scale Expansion of Inland Aquaculture: It is essential to utilize feeds for aquaculture to improve aquaculture productivity. Therefore, it is necessary to support private sectors in feeds production for aquaculture. It is also important to promote production of feeds in the sub-region and export them to neighbouring countries in the sub-region by taking advantage of the customs union.
- Important Measures for Increasing Production and Expansion of Sub-Regional Sales Market for Fresh Vegetables and Fresh Fruits: Necessary measures are to develop and disseminate fresh market varieties of fruits and vegetables, production and branding of local specialties, and utilization of refrigerated transport technologies for fresh fruits and vegetables. Construction of parts of the north-south motorways, construction of bypass roads and widening of roads to high-standard four-lane roads could bring a huge positive impact on reduction of transport time. However, as a short-term solution, it is realistic to use simple refrigerated transport methodologies by utilizing crashed ice and foam coolers. It is also important to simplify border crossing procedures for sub-regional products on north-south corridors and coastal east-west corridor in order shorten the transport time.

- Important Measures for Farmers in Inland Areas/Inland Countries to Enhance Access to Coastal Markets: One necessary measure is to develop distribution linkage between agricultural producers in inland areas and inland country with large-scale distributors (supermarkets and chain stores etc.) of coastal metropolitans.
- Important Measures for Sustainable Development of Extensive Distribution of Live Cattle and Livestock: It is necessary to take measures to prevent communicable diseases of livestock from spreading while transporting a large number of live cattle and other livestock by railway from inland countries to coastal areas, as well as to distribute livestock hygienically. At the same time, in addition to modernization of transport means for livestock, it is also important to formulate and implement management plans to resolve conflicts between transhumant cattle raisers and farmers.
- Important Measures for Development of Processed Food and Drinks for Middle Income Population, Increase of their Production and Strengthen Competitiveness against Imported Goods: Necessary measures are to upgrade and expand industrial areas with necessary basic infrastructure, to support acquisition of "certificates of origin of products" for exporting to neighbouring countries of the sub-region without paying customs duties by utilizing the customs union, and strengthening of implementation of the customs union for enabling producers to import raw materials without paying customs duties within the sub-region.

(2) Essential Strategy No. 2: "Investment Promotion for Growth Economic Sectors" by Taking Advantage of Integration and Expansion of Sub-Regional Markets

Taking advantage of and appealing of the integrated and expanded markets by strengthening of implementation of the customs union and construction of coastal corridor motorway to be achieved by Essential Strategy Group 2, Essential Strategy 1 is designed for investment promotion targeting economic sectors targeting sub-regional markets.

Since economic sectors oriented to sub-regional markets need to compete with imported goods from overseas, it is important for those economic sectors to obtain investments (international and domestic investments) for improving productivity and to increase the scale of production for gaining competitiveness. However, the size of population and economy in each WAGRIC country is not large enough to attract investments to its economic sectors. In fact, each country has tried to attract investment by promoting its own country's potential, but has not been successful except for mineral resources development for overseas export.

It is necessary from now on to accelerate investment promotion by paying attention to growing opportunities of exporting to neighbouring countries' markets (sub-regional markets), in addition to promoting products for domestic markets and overseas markets. Investment promotion agencies of individual countries need to change their activity plans to this direction.

It is not only integration and expansion of sub-regional markets which can be obtained through strengthening of implementation of a customs union and corridor development. Once the customs union is strengthened, taxes are to be exempted for importing raw materials from neighbouring countries. This will decrease the cost of procuring raw materials. Such advantages can be used for attracting investment to economic sectors.

In addition, it is necessary to focus efforts at "following up of post investment" by checking if invested companies can actually get incentives as expected. If they do not receive expected incentives from the customs union, it is significant to support their realization of utilization of expected incentives. This function should be incorporated into the roles of investment promotion agencies, by officially widening their scopes of activities. It is also important for the investment promotion agencies to support invested companies in getting certificates of origin of their products.

Furthermore, especially when it comes to investment to agriculture and food systems, it is necessary to improve the quality of investment, as well as to increase the quantity of investment. Principles of

responsible investment in agriculture and food systems, which is known as RAI, should be applied by national government agencies for investment promotion and regional government organizations. Since the sub-regional economic integration is associated with the increase of investment in economic sectors, a sub-regional programme by UEMOA Commission and national projects by individual governments should be implemented for promotion of utilization of principles of responsible investment in the sectors of agriculture, livestock, forestry and fisheries.

(3) Essential Strategy No. 3: "Development of Basic Infrastructure for Economic Sectors" to Support the Development of Growth Economic Sectors in both Inland and Coastal Areas

To promote economic sector development and foster economic sectors oriented to sub-regional markets in both inland and coastal areas, more is needed than just providing the corridor infrastructure to connect inland and coastal areas and to connect the markets of the neighbouring countries. Basic infrastructure to support economic sectors, including energy, electricity supply, access roads, water resources and industrial parks, are necessary for developing growth economic sectors.

1) Development of Energy and Electricity Supply Sector Infrastructure which is Fundamental for all Economic Sectors

Infrastructures for energy and electricity supply sectors need to be developed, not only for people's daily life, but also for activities of all economic sectors. Electricity supply is essential especially for manufacturing sectors of processed food and drink, pharmaceutical products and plastic products for daily use targeting sub-regional markets. The following energy and electricity supply infrastructures are particularly essential:

Development of Infrastructure (Gas Pipeline) to Support Sustainable Exploration and Development of Oil and Gas in Côte d'Ivoire and Ghana

Although they are limited, Côte d'Ivoire and Ghana have recoverable oil and gas reserves. Both countries need to continuously explore oil and gas in order to support their national revenues and power generation.

In both Côte d'Ivoire and Ghana, natural gas is used as the main source of power generation making gas-fired power generation important for both countries to support their national electricity supply. Therefore, it is necessary to prepare a favourable investment environment and promote investment so that natural gas exploration and development could be sustainable.

For attracting investment to exploitation and development of natural gas, the construction and operation of onshore gas pipelines is necessary as a basic infrastructure.

Strengthening of Interconnected Power Transmission Lines among WAGRIC Countries and with the Countries surrounding WAGRIC Countries

Côte d'Ivoire and Ghana are relatively privileged with hydropower resources and natural gas among the four countries. Therefore, the power generation capacity of these two countries should be strengthened utilizing those existing resources. At the same time, interconnected power transmission lines among the four WAGRIC countries and with their surrounding countries should be strengthened for utilizing the existing system and functions of the West Africa Power Pool (WAPP). This will enable more stable and efficient electricity supply for people's daily lives and growth economic sectors.

As for Burkina Faso and Togo, if they stick to power generation within their own countries, they would need to build relatively smaller power plants which are not so efficient due to the smaller size of their economies and electricity demand. Therefore, these two countries need to continue to increase their countries' power generation capacities by utilizing their natural resources (water resources, solar and wind power), in addition to the establishment of interconnecting power transmission lines for importing electricity from neighbouring countries through WAPP.

- Côte d'Ivoire and Ghana need to construct interconnecting power transmission lines for exporting electricity to WAPP member countries.
- Burkina Faso and Togo need to construct interconnecting power transmission lines for importing electricity from WAPP member countries.

Strengthening Power Generation Capacities by Using Natural Gas and Hydropower (Côte d'Ivoire and Ghana)

As already mentioned above, among the four countries Côte d'Ivoire and Ghana are relatively be endowed with hydropower resources and natural gas. Therefore, these countries should increase production of electricity by utilizing those resources not only for their own countries but also for supplying to WAPP.

Increasing Production of Electricity Using Domestic Natural Resources (Burkina Faso and Togo)

Burkina Faso should continue to develop solar power plants, while Togo should continue to develop hydropower plants to increase its power generation capacity.

2) Road Development for Improving Access to Potential Agricultural Areas in the Inland

Existing roads of north-south corridors are in relatively good condition. However, there are not enough industries developed in inland areas. As a result, the transport demand is not large enough to justify upgrading of these existing roads. However, in inland areas of coastal countries and in rural areas of Burkina Faso, there are existing potential agricultural areas that could grow products that could be exported not only to overseas markets but also for sub-regional markets. By improving the access to such areas from the main corridors, it will increase the transport demand on the main north-south corridor. Therefore, it is necessary to improve east-west roads from north-south corridors to potential agricultural areas by attracting investment in the agricultural sector and activating agricultural production.

3) Water Resources Development and Development of Irrigation Facilities for Agricultural Development in Inland Areas

Irrigation facilities should be developed through water resources development for supporting agriculture in inland areas of coastal countries and rural areas of Burkina Faso. In some cases, existing irrigation facilities could be expanded by using water resources already developed for increasing agricultural production.

4) Water Resources Development and Water Supply Necessary for Urban Development in Inland Areas and Coastal Areas

As corridor development continues, population increase and economic sector development would occur in major urban centres in inland areas. This would increase the demand for water. Therefore, water resources development, as well as provision of water supply infrastructures, is required for urban development.

5) Development of Industrial Parks with Basic Infrastructure for Economic Sectors in Inland Areas and Coastal Areas

Development of industrial parks with basic infrastructure for economic sectors, such as access roads, electricity and water supply, is necessary in major urban centres of inland areas and around the metropolitan areas along the Abidjan-Lagos Corridor.

Industrial parks for major urban centres in inland areas should be developed along bypass roads on north-south corridors. On the other hand, in Abidjan-Lagos coastal corridor, in which motorways are to be developed in selected sections, industrial parks should be developed in strategic locations close to metropolitans where the access to integrated and expanded coastal markets are to be improved.

5.2.3 Essential Strategies Group 2 (Button B): Expansion of the Size of Coastal Markets

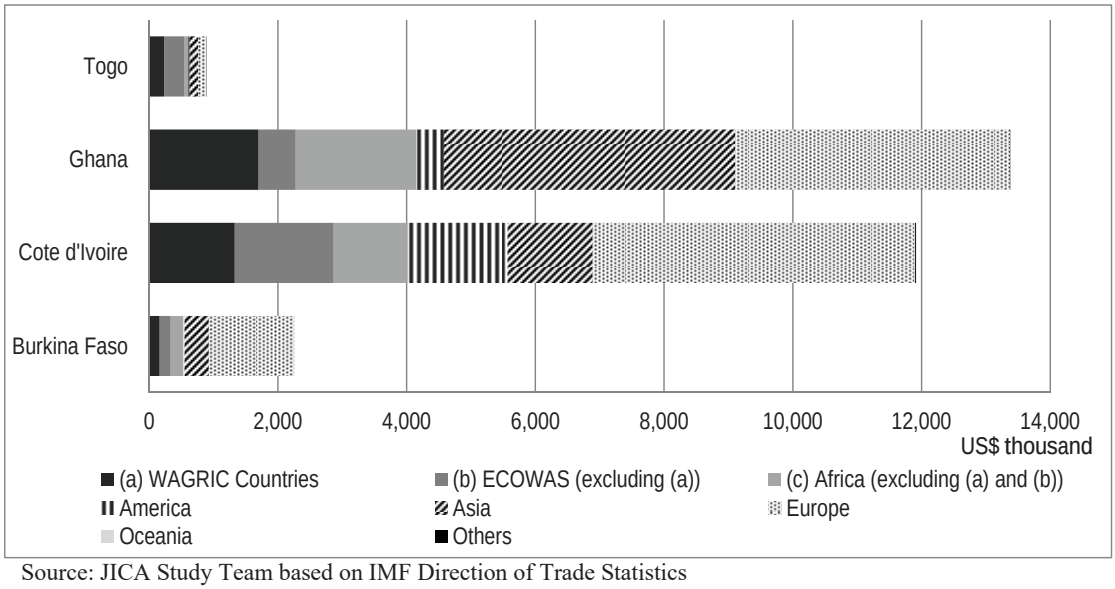
At present, the trade volumes among the WAGRIC countries are small as shown in Figure 5.2.2. It is considered that sub-regional economic integration is still limited. However, WAGRIC countries have potentiality to integrate their economies and markets by strengthening of the implementation of the customs union and by upgrading transportation infrastructure to strongly connect coastal countries along the coastal corridor. This integration and expansion of coastal markets is necessary to attract investment to economic sectors oriented sub-regional markets in coastal areas.

Essential Strategies Group 2 aims to expand the size of coastal markets. It consists of the following two essential strategies:

- Essential Strategy No. 4: "Strengthening of Implementation of the Customs Union" and "Facilitation of Sub-Regional Trade" on National Borders, Sea Ports and Transport Corridors among the WAGRIC Countries
- Essential Strategy No. 5: Strategic Upgrading of Abidjan-Lagos Corridor Transport Infrastructure (Motorways)

The size of coastal markets can be expanded by integration of individual coastal countries' markets by implementing Essential Strategy No. 4 and Essential Strategy No. 5. The combined implementation of these two essential strategies could increase the effectiveness of integration of coastal markets. In addition to these two essential strategies, the coastal markets could be expanded by combining with the effect of implementation of Essential Strategy No. 1 "Fostering of Growth Economic Sector."

The expansion of the size of coastal markets is necessary for increasing the growth potential of sub-regional market oriented economic sectors to be promoted in inland areas. By promoting the sub-regional market oriented economic sectors, the economies of inland areas and coastal areas would be connected to each other. This could create a good cycle of relationship between transport infrastructure and economic sectors within the sub-region.



Source: JICA Study Team based on IMF Direction of Trade Statistics

Figure 5.2.2 Limited Present Intra-Sub-Regional Trade: Average Export Amount per Year (2011-2016)

(1) Essential Strategy No. 4: "Strengthening of Implementation of the Customs Union" and "Facilitation of Sub-Regional Trade" on National Borders, Sea Ports and Transport Corridors among the WAGRIC Countries

Investment should be promoted specially for selected growth economic sectors targeting sub-regional consumers' markets, by appealing of the impact of sub-regional economic integration, expansion of the size of the sub-regional markets and utilization of raw material within the

sub-region. For promoting investment for sub-regional oriented economic sectors, actual practice of custom-free trading must be strengthened for all agricultural, livestock and fisheries products as well as sub-regional manufacturing products (goods with certificates of origin within the sub-region). At the same time, sub-regional trading should be facilitated by enforcing regulations on reducing harassments at national borders, sea ports and on the corridors.

The operation of the customs union for sub-regional trading has already commenced in both UEMOA and ECOWAS countries. The common customs tariff has also been put in operation since January 2015 in Burkina Faso, Côte d'Ivoire and Togo, and since January 2016 in Ghana. Table 5.2.1shows the rates for five categories of Common External Tariff, which are currently adopted by ECOWAS and UEMOA. All goods produced in the sub-region, as well as goods with over 30% of value added within the sub-region, are to be subject to exemption of custom duties.

Table 5.2.1 Common External Tariff for ECOWAS Countries including UEMOA Countries

Categories	Common External Tariff (CET)	Number of Tariff Lines
The zero Category for Essential Social Goods	0%	85 Tariff Lines
Category 1 for Basic Raw Materials and Capital Goods	5%	2,146 Tariff Lines
Intermediate Goods	10%	1,373 Tariff Lines
Consumer Goods	20%	2,165 Tariff Lines
Goods Specifically for Economic Development	35%	130 Tariff Lines

Source: "Trade Policy Review (The member countries of the UEMOA): Report by the Secretariat, September 2017, World Trade Organization (WTO)

However, in reality, many customs offices at the national borders are still applying taxes on tax exempt goods from within the sub-region or otherwise treating such products as subjects of inspections. That is, the customs union is not always effective.

Collection of custom duties which does not comply with the customs union must be banned. Customs inspection must be simplified and facilitated specially for sub-regional products by strengthening of implementation of the customs union at national borders of the four countries. At the same time, by targeting sub-regional products, special trade facilitation measures to reduce harassments at the national borders on the corridors should be implemented.

Existing measures for trade facilitation have not been particularly suited for sub-regional trading. New measures, especially for inter-regional trading of local products (sub-regionally produced goods), should be designed for trade and sub-regional economic sectors developing, as well as for promoting intra-regional.

Customs procedures at the national border of the WAGRIC countries should be improved by applying the following methods (policy and specific measures to simplify the customs procedures to take advantage of the merits of the customs union). This should be practiced in collaboration among UEMOA Commission, ECOWAS and individual countries.

- To prepare manuals and conduct trainings for strengthening "No Custom Duties for Local Products"
- To advocate promotion of "No Custom Duties for Local Products" within the WAGRIC countries by collaboration of UEMOA Commission and ECOWAS. (Full enforcement of customs exemption for all local products crossing the national borders of WAGRIC countries)
- Among the four countries in collaboration with UEMOA Commission and ECOWAS, to reconfirm the strengthening of implementation of measures to reduce harassment activities at the national borders for trade facilitation of local products.

(2) Essential Strategy No. 5: Strategic Upgrading of Abidjan-Lagos Corridor Transport Infrastructure (Motorways)

Markets beyond the national boundaries will be integrated by constructing Abidjan-Lagos Motorway for strengthening physical connectivity together with implementation of Essential Strategy No. 4

which is ≪"Strengthening of Implementation of the Customs Union" and "Facilitation of Sub-Regional Trade" on National Borders, Sea Ports and Transport Corridors.≫ The integration of coastal markets will expand the size of the consumers' markets. This will make it easier for economic sectors targeting expanded coastal markets to attract investments and also to do business operation.

Furthermore, this coastal area will form a mega coastal economic corridor (West Africa Coastal Mega-Region) of 1,000 km between Abidjan and Lagos with a coastal corridor motorway and existing roads as axes. In this mega-region, large metropolitan areas of Abidjan, Accra and Lagos and other large cities Sekondi-Takoradi, Lomé and Cotonou, and other medium size cities are located continuously, accommodating the accumulation of manufacturing and other economic sectors. These urban and surrounding areas will not only provide infrastructures, such as electricity, water and ICT services, which will support economic sectors and urban activities, but also high international standard infrastructures, such as international airports and international sea ports.

In theory, sub-regional economic integration may be achieved by strengthening implementation of the customs union. However, in reality, due to geographical distances, transport costs and time could be barriers to hindering economic integration. As a result, the markets will only be integrated within a certain range of transport costs and time.

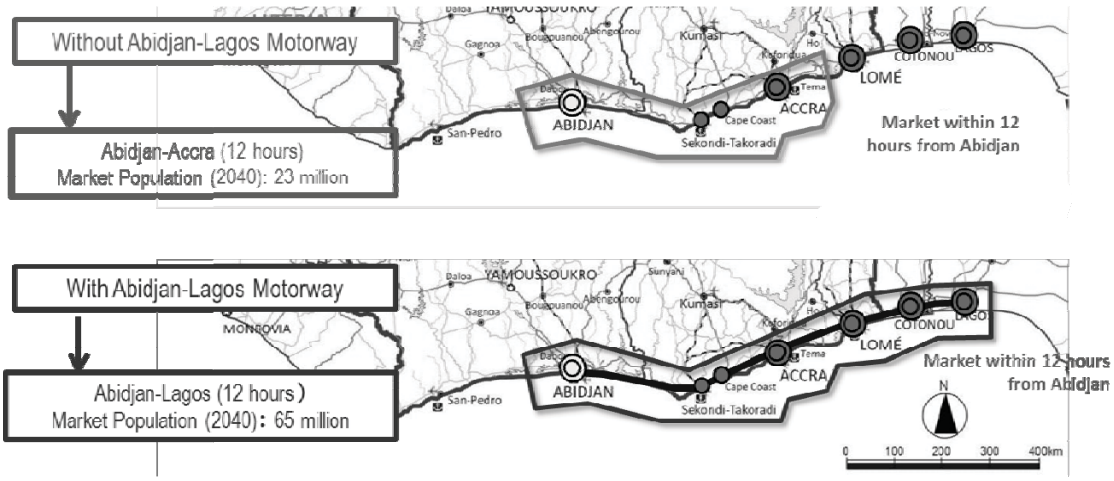
In the case of the WAGRIC countries, market integration becomes possible by upgrading the corridor transport infrastructure, connecting neighbouring coastal markets of Côte d'Ivoire, Ghana and Togo with stronger physical connections.

The plan for constructing a motorway connecting Abidjan and Lagos has been agreed and signed by the heads of state of the five concerned countries. Currently, formulation of implementation plans and preparation for a feasible study are on-going by ECOWAS and AfDB, and it is contemplated that the actual construction will proceed according to each country's budget and financial situation. To integrate the markets and form a mega coastal economic corridor (coastal mega-region) in the coastal area and furthermore to increase the size of the sub-regional markets, it is necessary to start construction of the coastal motorway as soon as possible. However, in order to substantially accomplish coastal market integration, strategically selected construction of the motorway is required by paying attention to the difficulty sections to go through, such as east-west sections within metropolitan areas, such as Abidjan, Accra, Lomé and Cotonou. Therefore, formulation of urban master plans or urban transport master plans should be completed as soon as possible.

In the near future, global competition between cities will increase. Under such circumstance, it is expected that the number of major cities neighbouring each other from Abidjan and Lagos with functions such as administration centre, commercial hub, business headquarters, industrial accumulation, international airport and international sea port will compete with each other as well as complement each other to develop as a corridor region (economic corridor) with competitiveness beyond each city's boundary.

In the short and medium terms, the motorway should be partly constructed to form a 12 hour Abidjan-Lagos economic zone connecting Abidjan and Accra as well as Accra and Lagos in 6 hours, and Abidjan and Lagos in 12 hours.

In the super-long term, sub-regional economic integration should be strengthened, high-speed railway should be implemented in the coastal corridor. This area should strive for develop as "West Africa Coastal Mega-Region" or in other words the "Mega Coastal Economic Corridor."



Source: JICA Study Team

Figure 5.2.3 Coastal Cities Reachable from Abidjan within 12 hours (2040)

5.2.4 Essential Strategies Group 3 (Button C): Strengthening of Connectivity between Coastal Markets and Inland Areas

Essential Strategies Group 3 aims to strengthen the connectivity between coastal markets and inland areas. The strengthened connectivity between coastal markets and inland areas would create an important spatial environment to support the development and fostering of economic sectors in inland areas

This strategy group consists of the following two essential strategies:

- Essential Strategy No.6: Strategic Upgrading of for Establishment of Efficient and Region-Wide Cargo Transport Networks (Railways, Multi-Modal Dry Ports, Inland Water Transport and Pipelines) for Reducing Transport Costs
- Essential Strategy No.7: Strategic Upgrading of Transport Corridor Infrastructure by Emphasising the Importance of High Speed Transport and Services for Investment Promotion for Inland Areas (Motorways, High-Standard 4-Lane Roads, Air Transport and ICT)

The effectiveness of strengthening of connectivity between coastal markets and inland areas can be increased by implementing both Essential Strategy No. 6 and No. 7.

(1) Essential Strategy No.6: Strategic Upgrading for Establishment of Efficient and Region-Wide Cargo Transport Networks (Railways, Multi-Modal Dry Ports, Inland Water Transport and Pipelines)

In Essential Strategy No.6, long-distance cargo transport between inland areas / inland countries and coastal areas would increase efficiency and reduce transport costs for developing and fostering economic sectors in inland areas / inland countries targeting sub-regional consumers' markets by strategically (selectively) upgrading railways, inland water transport and pipelines.

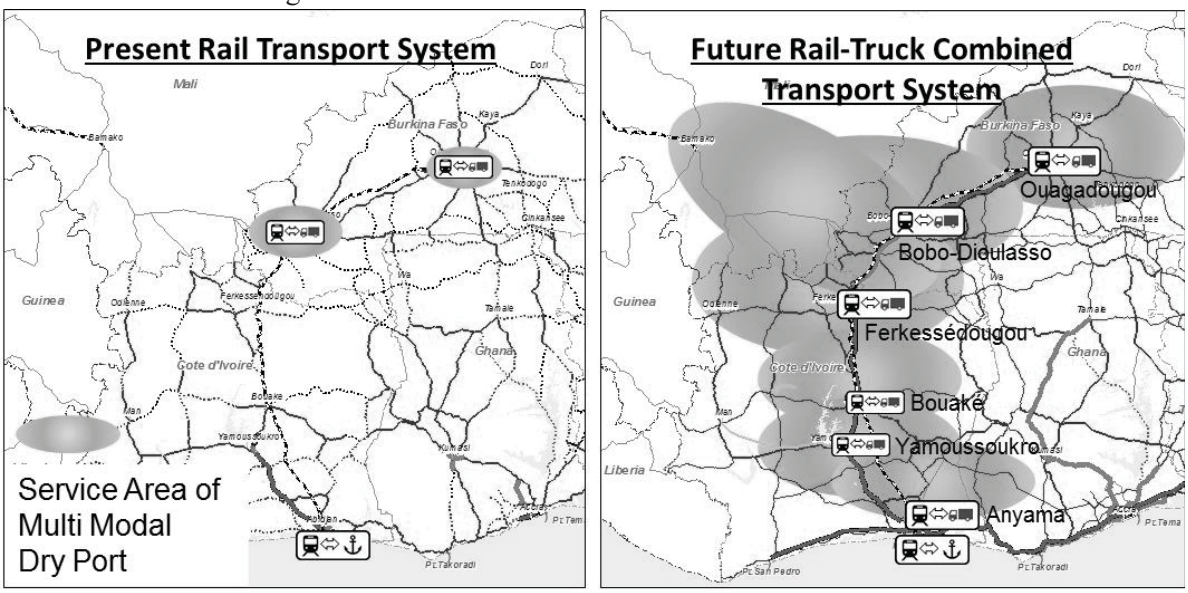
At present, Sitarail connecting Abidjan Port and Burkina Faso's capital Ouagadougou is the only railway for north-south long-distance cargo transport in the WAGRIC countries. However, present service areas of Sitarail are limited to just along the railway between Abidjan Port, Bobo-Dioulasso and Ouagadougou.

Ghana has a north-south cargo transport system using inland water transport on the Volta Lake. This water transport can function as a long-distance transport system, together with pipelines connecting Tema Port, Akosombo Port (south of the Volta Lake), Buipe Port (north of the Volta Lake) and Bolgatanga (city in northern Ghana), as well as with truck transport. However, the pipeline between Tema and Akosombo is not functioning and the water level of the Volta Lake at Buipe Port has become too low for inland water transport to operate. As a result, this multi-modal transport

involving inland water transport is dysfunctional. On the other hand, Togo north-south corridor does not have such a long-distance cargo transport system, such as railway, inland water transport and pipelines, except for truck transport.

The development policies for long-distance cargo transport for the WAGRIC Master Plan are as follows:

- Service areas for rail transport should be expanded by combining railway and truck transport. At the same time, strict regulation on overloaded trucks should be enforced to encourage cargo to shift to the rail and truck combined transport. This measure could increase cargo demand for rail transport on the existing railway. The effectiveness of controlling of overloaded trucks is also expected to increase by providing an alternative cargo transport mode.
- As more cargo uses the combined rail and truck transport in the future, another long-distance railway line or more (in Ghana and Togo) besides Sitarail could be constructed and operated in the WAGRIC Sub-regions in the long term. Prospective competition between these two railways could reduce the prices of long-distance cargo transport than the present level.
- The inland water transport on the Volta Lake is not a stable means of transport due to the decrease in the lake water level caused by global environmental changes. Since it is not easy in the short / medium term in Ghana to develop a railway line connecting inland areas and coastal areas, it is important to take some measures to utilize the inland water transport, while seeking to establish a long-distance railway from Tema to inland areas, and further with Burkina Faso.
- Oil product pipelines from coastal areas to inland areas should be developed. In Côte d'Ivoire and Burkina Faso, the oil product pipeline should be extended from Abidjan to Bobo-Dioulasso.
- In Ghana and Burkina Faso, the oil product pipeline should be extended from Buipe (Debre) on Volta Lake to Ouagadougou via Bolgatanga. In the long term, an oil products pipeline should be extended from Tema Port to Accra, Kumasi then to Buipe, for connecting with the pipeline between Buipe and Bolgatanga and further with Ouagadougou.
- Development of new railway lines should be promoted by utilizing private companies' initiatives for developing mineral resources in inland areas of coastal countries. Furthermore, such railway lines for developing mineral resources should be extended to inland countries in the medium and long terms.



Source: JICA Study Team

Figure 5.2.4 Expansion of Service Areas of Combined Rail and Track Transport by Establishing Multi-Modal Dry Ports

In order to implement these policies, the measures at the sub-regional level and each country level are as below.

1) Establishment and Operation of International Railway Committee

For promoting the use of railway for long-distance transport and increase the transport demand for railway in the four WAGRIC countries, cooperation between all the countries is necessary as well as guiding the private concessioners in an appropriate manner. An International Railway Committee should be established in this sense to plan the international railway network, monitor operation etc.

The themes to be discussed in this committee for the time being are as follows:

- Implementing Possible Measures for Promoting Railway and Truck Intermodal Transport Utilizing Sitarail
- Project for Studying and Implementing Possible Measures for Promoting Railway and Truck Multi-Modal Transport Utilizing Sitarail
- Project for Study on Ouagadougou-Lomé Railway
- Project for Study on a Loop Railway of Abidjan-Ouagadougou-Niamey-Cotonou
- Project for Study on Ouagadougou-Accra-Tema Railway

2) Approach by Each Country

In the four countries, they should operate long-distance cargo transport systems as shown below.

Côte d'Ivoire and Burkina Faso

- In Côte d'Ivoire and Burkina Faso, in order to strengthen the combined transport with the exiting railway and trucks, (1) multi-modal dry ports should be established in Greater Abidjan and Ferkessédougou for Côte d'Ivoire, and (2) multi-modal dry ports should be established in Ouagadougou and activate the existing multi-modal dry port in Bobo-Dioulasso for Burkina Faso.
- The north-south central corridor should be strengthened by replacement of old bridges of Sitarail.

Ghana

- In Ghana, a multi-modal transport system should be established by composing 1) a new railway between Tema Port and Akosombo Port, 2) inland water transport on the Volta Lake and 3) oil products pipeline from Buipe to Bolgatanga. In order to utilize the inland water transport, Debre Port should be improved and extend the oil products pipeline to Debre to counter the declining water level of the Volta Lake. Akosombo Port should also be newly developed for connecting the new railway from Tema Port.
- In the short-term and middle terms, the Eastern Line of Tema-Accra-Boankra-Kumasi should be rehabilitated. And in the middle and long terms, a new railway line should be extended from Kumasi up to Paga, border with Burkina Faso. For building new railway lines, it is essential to consider the incorporation of mining companies' initiatives for railway development.

Togo

- In Togo, the transport cost of cargo is high, when a long-distance cargo transport system depends on truck transport on the north-south corridor. Therefore, railway should be developed phase by phase. In the short term the railway should be constructed from Lomé to Blitta, then extended in the medium term from Blitta to Kabou (also for promoting iron ore mining development) and in the long term from Kabou to Cinkasé of Burkina Faso. In Cinkasé of Burkina Faso, a multi-modal dry port should be established to attract cargo of Burkina Faso and Niger.

(2) Essential Strategy No.7: Strategic Upgrading of Transport Corridor Infrastructure by Emphasising the Importance of High-Speed Transport and Services (Motorways, High-Standard 4-Lane Roads, Air Transport and ICT)

Essential Strategy No.7 aims at increasing the speed of movement of "people, goods and information" by construction of selected part of motorways or high-standard 4-lane roads, strengthening of domestic and sub-regional air transport and strengthening of ICT network. This could break down the transport time barrier between inland areas and coastal areas, so as to attract investment to economic sectors in inland areas. By developing a high-speed transport system from the place of production in inland areas to the place of consumption in coastal areas, the production of high-value added products, such as fresh fruits, fresh vegetables, fresh dairy products, in inland areas and their selling to coastal markets would become possible.

Essential Strategy No.7 includes the following measures for roads, air transport and ICT.

1) Construction of North-South Motorways and High Standard 4-Lane Roads

Investment from outside (both domestic and foreign investment) is necessary to transform the economic structure of inland areas. For attracting such investments to inland areas, it is necessary to satisfy the following conditions:

- Managers and technicians of the companies must be able to move easily between the places of production in inland areas and the places of company headquarters located in coastal metropolitans. This condition would enable companies to conduct appropriate management of production and transport.
- Inland areas must be able to produce high-value added products targeting middle-income populations by connecting inland production areas and coastal consumption areas with high-speed transportation.

For satisfying these two requirements, the upgrading of the corridor infrastructures described below is necessary. This upgrading does not aim to connect all inland areas to coastal areas in the short term, but rather to selectively upgrade part of the corridors so that major coastal metropolitans would be connected to major inland cities by 6-hour drive.

- Construction of motorways and high-standard 4-lane roads
- Strengthening of existing north-south corridor roads
- Replacement of old bridges of north-south corridor roads
- Improvement of pavement of north-south corridor roads
- Construction of bypass roads and ring roads for cities on north-south corridors
- Widening of major roads within the cities on north-south corridors
- Improvement of major intersections in cities on north-south corridors (construction of flyovers)

2) Confirmation and Implementation of International Motorway Network and High-Standard 4-Lane Road Construction Programmes for WAGRIC Countries

The construction of north-south motorways and high-standard 4-lane roads needs to be agreed and signed as a programme by the heads of state of the concerned countries, in a similar way to the agreement on Abidjan-Lagos Corridor Motorway signed by the six heads of states. This agreement could smoothen the strengthening of spatial integration of the WAGRIC countries, leading to substantial economic integration.

The coordination for development of these motorways and high-standard 4-lane roads of north-south corridors should be done by UEMOA Commission, while the coordination for the coastal corridor motorway has been done by ECOWAS Secretariat.

3) Strengthening of Domestic and Sub-Regional Air Transport

In addition to construction of the roads necessary to satisfy the requirements of 6-hour drive distance, air transport service is also necessary. However, it is difficult to serve frequent air transport services

(more than one round trip per day) from an early stage. Therefore, it is still important to construct roads which enable high-speed movement. It is assumed that the frequency of the air transport service will increase as the high-speed movement on the roads becomes possible.

- Strengthening of domestic air transport
- Strengthening of sub-regional air transport

In order to implement this Essential Strategy No.7, the following points should be taken into consideration:

- Individual capital cities have development plans to relocate the existing international airports to their suburbs in order to expand airport sizes and to solve noise problems due to the airports. However, it is a good idea to convert the international airports located in central areas of the capital cities to domestic and sub-regional airports for securing the accessibility to the domestic and sub-regional airports.
- It is important to encourage new airlines to provide domestic and sub-regional flights.

4) Strengthening of ICT Network

Internet use and its supporting sub-sectors, such as ICT infrastructure, ICT industries and ICT human resources) have become essential in the social life and economic activities. ICT will continue to be important infrastructure and economic sector in the future. To strengthen ICT, which is also an important corridor infrastructure, emphasising the importance of high speed in Essential Strategy No.7, the following actions are necessary:

- Provision of data centres in individual countries' capital cities and strengthening of the basis of ICT infrastructure
- Strengthening of optical fibre networks along economic corridors
- Promotion of internet use in inland areas by providing public internet kiosks in smaller urban centres of inland areas
- ICT human resources development

5.2.5 Essential Strategies Group 4 (Button D): Securing of Inclusive and Sustainable Development

Essential Strategies Group 4 is designed to seek the sub-regional future vision from social, environmental and security perspectives. It consists of the following three essential strategies:

- Essential Strategy No.8: Supporting of Small and Medium Enterprises, Development of Human Resources for the Economic Sectors and Strengthening of the Basic Social Services in order to Enable More People to Participate in Emerging Development Opportunities due to Sub-Regional Corridor Development
- Essential Strategy No.9: Development of Systems and Activities of Environmental Management that could Respond to Potential Risks to the Natural and Social Environments that are Increasing across Wide Areas due to Sub-Regional Corridor Development
- Essential Strategy No.10: Strengthening of Security Measures for Maintaining Safe and Secure Societies and Sustainable Economies in the Sub-Region

(1) Essential Strategy No.8: Supporting of Small and Medium Enterprises, Development of Human Resources for Economic Sectors and Strengthening of Basic Social Services in order to Enable More People to Participate in Emerging Development Opportunities due to Sub-Regional Corridor Development

In order to enable more people to participate in emerging development opportunities, SME support and human resources development for economic sectors, as well as basic education and health

services, should be improved for both inland areas of coastal countries and rural areas of inland countries.

It is also necessary to encourage private companies investing in inland areas to have linkage with local SMEs and local human resources. For this purpose, a linkage programme to support SME, as well as a programme to develop local human resources in inland areas, is necessary.

For the increasing population in both rural and urban areas of inland areas, it is also necessary to improve basic education and basic health services which have been underdeveloped compared with those in the coastal areas.

(2) Essential Strategy No.9: Development of Systems and Activities of Environmental Management that could Respond to Potential Risks to the Natural and Social Environments Increasing across Wide Areas due to Sub-Regional Corridor Development

Since the development of economic sectors is expected to occur across wider areas in the sub-region due to corridor development, environmental and social risks may reach not only rural areas in coastal areas, but also inland areas. It is necessary to develop legal institutions, strengthen organisations and enhance their technical capabilities for implementing environmental management.

It is especially necessary to strengthen capacities to monitor the environment and activities for environmental management plans, which project proponents should prepare and implement under the existing system of environmental impact assessment (EIA). For the purpose of conducting such environmental monitoring, the establishment of environmental laboratories is also necessary to test various environmental data.

(3) Essential Strategy No.10: Strengthening of Security Measures for Maintaining Safe and Secure Societies and Sustainable Economies in the Sub-Region

Measures to prevent terrorist attacks which jeopardize social and economic safety and stability should be taken.

Implementation of the WAGRIC Master Plan itself is already taking actions towards poverty and social problems which are factors which threaten the security of the sub-region since this master plan will foster economic sectors in inland areas and inland countries as well as activate the economies in the whole of the sub-region to help prevent a further widening of regional and social disparities because of the future vision this master plan aims for as well as sub-regional economic and physical integration.

On the other hand, with larger mobility of people and goods within the sub-region and with outside of the sub-region in the future, individual security measures would become more important. It is especially necessary to strengthen the implementation of security measures at the national borders, sea ports, airports and on the major corridors.

Chapter 6 Sub-Regional Socioeconomic Framework and Future Spatial Structure of WAGRIC Sub-Region

6.1 Population Framework

6.1.1 Current Population in ECOWAS Countries

(1) Past Population Trend in ECOWAS Countries

The population of West Africa has been growing at an extremely high rate in the past decades at an annual growth rate of over 2.7% between year 2000 and 2014 for the whole of ECOWAS (Economic Community of West Africans States) countries as shown in Table 6.1.1. The estimated total population of ECOWAS countries in 2014 was approximately 339 million with a population density of 66.2 person/km^2.

Compared with the ECOWAS sub-region, the total population of West African Economic and Monetary Union (UEMOA: *Union Économique et Monetaire Ouest Africaine*) is growing more rapidly with almost three per cent per annum between 2000 and 2014. However, the population density is still very small in UEMOA sub-region which is 31.5 person/km^2 while that of ECOWAS sub-region is 66.2 person/km^2.

Table 6.1.1 Populations, Annual Growth Rates and Population Densities of ECOWAS Countries

Country	Population (thousand)[1]		Annual Growth Rate (%)	Area (km^2)[2]	Population Density (2014, person/km^2)
	2000	2014			
Burkina Faso*	11,608	17,589	3.01%	274,220	64.1
Côte d'Ivoire*	16,518	22,671[5]	2.29%	322,460	70.3
Ghana	18,912[3]	26,787	2.52%	238,540	112.3
Togo*	4,875	7,115	2.74%	56,790	125.3
WAGRIC Total	51,913	74,162	2.58%	892,010	83.1
Benin*	6,949	10,598	3.06%	114,760	92.3
Cape Verde	435[4]	514	1.20%	4,030	127.5
Gambia	1,229	1,928	3.27%	11,300	170.6
Guinea	8,799	10,629[6]	1.36%	245,860	43.2
Guinea-Bissau*	1,315	1,801	2.27%	36,130	49.8
Liberia	2,892	4,397	3.04%	111,370	39.5
Mali*	11,047	17,086	3.16%	1,240,190	13.8
Niger*	11,225	19,114	3.88%	1,267,000	15.1
Nigeria	122,877	177,476	2.66%	923,770	192.1
Senegal*	9,861	14,673	2.88%	196,710	74.6
Sierra Leone	4,061	6,316	3.20%	72,300	87.4
ECOWAS Total	232,603	338,694	2.72%	5,115,430	66.2
UEMOA Total	73,398	110,647	2.98%	3,508,260	31.5

Note*: UEMOA countries
Source 1: United Nations, World Population Prospects: The 2015 Revision, 2015
Source 2: The World Bank, World Development Indicators
Source 3: Ghana Statistical Services, General Population and Housing Census 2010
Source 4: Instituto Nacional de Estatística, Recenseamento Geral da População e de Habitaçao - Censo 2010
Source 5: Republic de Côte d'Ivoire Institut National de la Statistique, Recensement Général de la Population et de l'Habitat (RGPH) 2014
Source 6: Institut National de la Statistique de Guinée, Recensement Général de la Population et de l'Habitation (RGPH) 2014

Among the ECOWAS countries, in 2014, Nigeria has the largest population of approximately 177 million followed by Ghana and Côte d'Ivoire with approximately 27 million and 23 million respectively.

The total population of the WAGRIC countries (Burkina Faso, Côte d'Ivoire, Ghana and Togo) was approximately 74 million in 2014. This is approximately 21% of the total population of ECOWAS.

The WGRIC area has a smaller population growth rate compared with ECOWAS as a whole. However, its population growth rate of 2.58% is still very high. Burkina Faso's population growth rate was 3.01% per annum, which was the highest among the WAGRIC countries, followed by Togo at 2.74%.

(2) Future Population Projection by United Nations

Table 6.1.2 shows the UN Population Division's population forecast in ECOWAS countries for years 2015, 2025 and 2040. The figures used in the table are the medium variant. This medium variant projection is based on the assumption that fertility in Africa as a whole will fall from 4.7 children per women in 2010-2015 to 3.1 in 2045-2050.

Table 6.1.2 Future Population Forecast in the ECOWAS Countries by UN

Unit: thousand

Country		2015	2025	2040	Population Increase 2015-2040
Burkina Faso	Population	18,106	23,903	34,695	16,589
	Annual Growth Rate	-	2.82%	2.52%	2.64%
Côte d'Ivoire	Population	22,702	28,717	39,882	17,180
	Annual Growth Rate	-	2.38%	2.21%	2.28%
Ghana	Population	27,410	34,312	43,454	16,044
	Annual Growth Rate	-	2.27%	1.59%	1.86%
Togo	Population	7305	9,352	12,991	5,686
	Annual Growth Rate	-	2.50%	2.22%	2.33%
WAGRIC Total	Population	75,523	96,284	131,022	55,499
	Annual Growth Rate	-	2.46%	2.07%	2.23%
Benin	Population	10,880	13,937	19,050	8,170
	Annual Growth Rate	-	2.51%	2.11%	2.27%
Cape Verde	Population	521	585	667	146
	Annual Growth Rate	-	1.17%	0.88%	0.99%
Gambia	Population	1,991	2,776	4,010	2,019
	Annual Growth Rate	-	3.38%	2.48%	2.84%
Guinea	Population	12,609	16,246	22,700	10,091
	Annual Growth Rate	-	2.57%	2.26%	2.38%
Guinea-Bissau	Population	1,844	2,301	3,045	1,201
	Annual Growth Rate	-	2.24%	1.89%	2.03%
Liberia	Population	4,503	5,728	7,892	3,389
	Annual Growth Rate	-	2.43%	2.16%	2.27%
Mali	Population	17,600	23,702	35,854	18,254
	Annual Growth Rate	-	3.02%	2.80%	2.89%
Niger	Population	19,899	29,645	51,878	31,979
	Annual Growth Rate	-	4.07%	3.80%	3.91%
Nigeria	Population	182,202	233,558	327,406	145,204
	Annual Growth Rate	-	2.51%	2.28%	2.37%
Senegal	Population	15,129	20,037	29,086	13,957
	Annual Growth Rate	-	2.85%	2.52%	2.65%
Sierra Leone	Population	6,453	7,874	10,041	3,588
	Annual Growth Rate	-	2.01%	1.63%	1.78%
ECOWAS Total	Population	344,797	446,377	634,929	293,497
	Annual Growth Rate	-	2.62%	2.36%	2.47%
UEMOA Total	Population	113,465	151,594	226,481	113,016
	Annual Growth Rate	-	2.94%	2.71%	2.80%

Source: Department of Economic and Social Affairs Population Division, 2015, World Population Prospects the 2015 Revision Key Finding and Advance Tables, United Nations

The UN assumes that the population in most ECOWAS countries will still increase rapidly at annual population growth rates of over two per cent between 2015 and 2040. However, it is also assumed that the growth rate will eventually gradually decrease. The total population of ECOWAS is expected to increase to over 600 million by 2040, whereas the total population in the WAGRIC countries is expected to increase to 130 million.

The most rapidly growing country is Niger, whose annual population growth rates are expected to be almost four per cent in the next 25 years. The most populated country in ECOWAS is Nigeria which also has the seventh largest population in the world. It is expected to continue to grow and its

population is forecast to be over 320 million in 2040. The UN projects that by 2050 Nigeria will become the third largest country in the world.

On the other hand, Ghana's annual growth rate is expected to slow between 2025 and 2040 to 1.59% which is a big drop compared with the annual growth rate between 2000 to 2014 which was 2.52%.

6.1.2 Future Populations

(1) Population Framework for ECOWAS Sub-Region

The UN's medium variant is chosen for setting the future population framework of ECOWAS sub-region. However, the populations of 2015 were adjusted based on each country's recent census data.

The future population framework of ECOWAS sub-region is shown in Table 6.1.3. In 2040, the total population of ECOWAS sub-region is projected to be 632 million which is almost twice the size of the current population.

Table 6.1.3 Population Framework of ECOWAS Sub-Region

Unit: million

	2000	2010	2015	2020	2025	2030	2035	2040
Population	227.8	299.0	343.5	391.8	444.6	502.3	565.0	632.2
Annual Growth Rate	-	2.76%	2.81%	2.67%	2.56%	2.47%	2.38%	2.27%

Source: JICA Study Team

(2) Alternative Scenarios for Corridor Development for WAGRIC Countries

At the WAGRIC sub-regional level, three alternative scenarios for corridor development are formulated as described in Chapter 5. Based on the corridor development scenarios for the WAGRIC countries, the following two alternative future population frameworks are proposed:

- Scenario A: This scenario promotes stronger economic integration along the coastal corridor, while it seeks development of north-south corridors by taking advantage of expanding markets to be created in the coastal corridor. (Corridor Development oriented to Sub-Regional Market)
- Scenario B: This scenario promotes development along north-south corridors, especially in inland areas. Scenario B does not emphasise the economic integration along the coastal corridor. (Corridor Development oriented to Domestic or Overseas Export Market)

Based on these two alternative scenarios, two population frameworks for WAGRIC countries are prepared as shown in Table 6.1.4.

Table 6.1.4 Future Populations of ECOWAS Countries following the Two Alternative Scenarios

Unit: Thousand

Country \ Scenarios		Scenario A: Corridor Development oriented to Sub-Regional Market			Scenario B: Corridor Development oriented to Domestic or Overseas Export Market		
		2015	2025	2040	2015	2025	2040
Burkina Faso	Population	19,000	26,548	40,560	19,000	26,564	41,195
	Annual Growth Rate		3.40%	2.87%		3.41%	2.97%
Cote d'Ivoire	Population	23,217	30,470	45,142	23,217	30,245	43,192
	Annual Growth Rate		2.76%	2.66%		2.68%	2.40%
Ghana	Population	28,018	35,831	49,758	28,018	35,612	48,250
	Annual Growth Rate		2.49%	2.21%		2.43%	2.05%
Togo	Population	7,150	9,493	14,222	7,150	9,493	14,189
	Annual Growth Rate		2.87%	2.73%		2.87%	2.72%
WAGRIC Total	Population	77,420	102,344	149,684	77,386	101,913	146,826
	Annual Growth Rate		2.83%	2.57%		2.79%	2.46%
Benin	Population	10,543	13,339	17,911	10,549	13,367	18,023
	Annual Growth Rate		2.38%	2.00%		2.40%	2.01%
Cape Verde	Population	522	579	648	522	580	653
	Annual Growth Rate		1.05%	0.75%		1.06%	0.79%

Gambia	Population	2,006	2,678	3,881	2,006	2,681	3,910
	Annual Growth Rate		2.93%	2.51%		2.94%	2.55%
Guinea	Population	10,809	13,759	18,847	10,809	13,776	18,988
	Annual Growth Rate		2.44%	2.12%		2.46%	2.16%
Guinea-Bissau	Population	1,715	2,113	2,742	1,715	2,116	2,762
	Annual Growth Rate		2.11%	1.75%		2.13%	1.79%
Liberia	Population	4,263	5,356	7,235	4,263	5,363	7,289
	Annual Growth Rate		2.31%	2.02%		2.32%	2.07%
Mali	Population	17,401	23,151	34,333	17,401	23,180	34,589
	Annual Growth Rate		2.90%	2.66%		2.91%	2.70%
Niger	Population	19,338	28,461	48,828	19,338	28,496	49,192
	Annual Growth Rate		3.94%	3.66%		3.95%	3.71%
Nigeria	Population	178,533	226,085	311,373	178,533	226,369	313,023
	Annual Growth Rate		2.39%	2.16%		2.40%	2.18%
Senegal	Population	14,356	18,783	26,730	14,356	18,806	26,929
	Annual Growth Rate		2.72%	2.38%		2.74%	2.42%
Sierra Leone	Population	6,594	7,949	9,937	6,594	7,959	10,011
	Annual Growth Rate		1.89%	1.50%		1.90%	1.54%
ECOWAS	Population	343,472	444,607	632,195	343,472	444,607	632,195
	Annual Growth Rate		2.61%	2.37%		2.61%	2.37%
UEMOA	Population	11,727	152,369	230,515	112,727	152,267	230,070
	Annual Growth Rate		3.06%	2.80%		3.05%	2.79%

Source: JICA Study Team

By promoting the coastal corridor development through physical and economic integration, more foreign investment will come to the three coastal countries, namely Côte d'Ivoire, Ghana and Togo from an earlier stage. As a result, this will be likely to increase the number of migrant workers from the other countries to these three countries.

6.1.3 Future Population Framework for ECOWAS Countries including WAGRIC Countries

Scenario A is selected for the future population framework, which will accelerate the integration and development of the WAGRIC countries through the development of the coastal corridor. Table 6.1.5 shows the future population by country for the ECOWAS countries.

Table 6.1.5 Population Framework for ECOWAS Countries including WAGRIC Countries

Country		2000	2010	2015	2025	2033	2040
Burkina Faso	Population	11.588.542	16.018.720	18.999.897	2. 548.027	33.754.508	40.559.751
	Annual Growth Rate		3,29%	3,47%	3,40 %	3,05 %	2,66 %
Cote d'Ivoire	Population	16.867.069	20.741.611	23.217.271	30.470.452	38.109.762	45.142.028
	Annual Growth Rate		2,09%	2,28%	2,76 %	2,84 %	2,45 %
Ghana	Population	18.912.038	24.659.120	28.018.147	35.831.244	42.994.619	49.758.219
	Annual Growth Rate		2,69%	2,59%	2,49 %	2,30 %	2,11 %
Togo	Population	4.633.431	6.190.000	7.150.472	9.493.005	11.822.161	14.222.551
	Annual Growth Rate		2,94%	2,93%	2,87 %	2,78 %	2,68 %
WAGRIC	Population	52.001.080	67.609.450	77.385.786	102.342.728	126.681.049	149.682.549
	Annual Growth Rate		2,66%	2,74%	2,83 %	2,70 %	2,41 %
Benin	Population	6.738.316	9.220.988	10.549.412	13.350.142	15.747.313	17.958.375
	Annual Growth Rate		3,19%	2,73%	2,38 %	2,09 %	1,89 %
Cape Verde	Population	434.625	491,875	522.09	579.289	618.282	648.169
	Annual Growth Rate		1,25%	1,20%	1,05 %	0,82 %	0,68 %
Gambia	Population	1.236.172	1.706.403	2.006.227	2.677.593	3.292.336	3.881.338
	Annual Growth Rate		3,28%	3,29%	2,93 %	2,62 %	2,38 %
Guinea	Population	7.615.722	9.437.395	10.808.781	13.758.890	16.367.060	18.847.013
	Annual Growth Rate		2,17%	2,75%	2,44 %	2,19 %	2,04 %
Guinea-Bissau	Population	1.252.845	1.556.416	1.714.817	2.113.490	2.440.584	2.741.707
	Annual Growth Rate		2,19%	1,96%	2,11 %	1,81 %	1,68 %
Mali	Population	10.922.205	14.996.046	17.400.992	23.150.938	28.734.481	34.332.569
	Annual Growth Rate		3,22%	3,02%	2,90 %	2,74 %	2,58 %

Niger	Population	10.908.153	15.832.791	19.338.251	28.460.501	38.205.588	48.828.194
	Annual Growth Rate		3,80%	4,08%	3,94 %	3,75 %	3,57 %
Nigeria	Population	120.402.160	156.214.154	178.532.674	226.085.460	269.124.739	311.373.227
	Annual Growth Rate		2,64%	2,71%	2,39 %	2,20 %	2,10 %
Liberia	Population	2.737.500	3.746.582	4.262.896	5.356.445	6.326.858	7.235.360
	Annual Growth Rate		3,19%	2,62%	2,31 %	2,10 %	1,94 %
Senegal	Population	9.356.632	12.294.607	14.356.060	18.782.705	22.770.394	26.729.925
	Annual Growth Rate		2,77%	3,15%	2,72 %	2,44 %	2,32 %
Sierra Leone	Population	4.149.422	5.902.087	6.594.165	7.948.876	9.012.827	9.936.840
	Annual Growth Rate		3,59%	2,24%	1,89 %	1,58 %	1,40 %
ECOWAS	Population	227.754.834	299.008.794	343.472.151	444.607.058	539.321.510	632.195.266
	Annual Growth Rate		2,76%	2,81%	2,61 %	2,44 %	2,30 %
UEMOA	Population	72.267.194	96.851.178	112.727.171	152.369.260	191.584.790	230.515.100
	Annual Growth Rate		2,97%	3,08%	3,06 %	2,90 %	2,68 %

Source: JICA Study Team

The most populated country in Africa, Nigeria, will have over 300 million populations by 2040 which will be the fourth most populated country in the world, next to India, China and United States of America.

Ghana will continue to be the second most populated country in ECOWAS sub-region, followed by Niger with populations of almost 50 million each in 2040. Côte d'Ivoire and Burkina Faso will follow Niger with approximately 45 million and 40 million respectively.

As a result, the total population of WAGRIC countries will be over 100 million by 2025 and almost 150 million by 2040.

6.2 Economic Framework

6.2.1 Current Economic Framework in the WAGRIC Countries

(1) Targeted or Projected GDP in the WAGRIC Countries by the Medium-Term Development Plans

Based on the current medium-term development plans in the WAGRIC countries, the real GDP growth rates are projected as shown in Table 6.2.1 to Table 6.2.4.

According to this table, robust economic growth is projected in Burkina Faso, Côte d'Ivoire and Ghana at an annual increase of about 10%. As for Togo, the annual average growth rates are about 6% for the baseline scenario and about 7% for the alternate scenario. In most of the countries, high economic growth of the secondary sector is expected.

Table 6.2.1 Medium-Term Projected Real GDP Growth in Burkina Faso

	2012	2013	2014	2015
Primary sector	7.5	12.5	13.2	14.7
Secondary sector	11.7	11.9	12.1	12.2
Tertiary sector	9.7	13.6	14.5	15.6
Real GDP (1999 prices)	9.8	10.4	10.7	10.8

Source: SCADD 2011-2015

Table 6.2.2 Medium-Term Projected Real GDP Growth in Côte d'Ivoire

	2012	2013	2014	2015
Primary sector	0.9	4.6	6.3	5.4
Secondary sector	11.8	13.1	12.6	13.1
Tertiary sector	14.4	12.3	13.7	14.1
Real GDP (2009 prices)	8.1	9.0	10.0	10.1

Source: PND 2012-2015

Table 6.2.3 Medium-Term Projected Real GDP Growth in Ghana

	2014	2015	2016	2017	2014-2017
Primary sector	5.7	5.9	6.6	7.2	6.4
Secondary sector	8.6	10.5	14.0	20.0	13.2
Tertiary sector	8.1	9.9	10.8	11.2	10.0
Real GDP with oil	8.3	9.5	11.4	13.2	10.6
Real GDP without oil (2006 prices)	7.9	9.1	10.2	11.1	9.6

Source: Ghana Shared Growth and Development Agenda (GSGDA) II, 2014-2017

Table 6.2.4 Medium-Term Projected Real GDP Growth in Togo

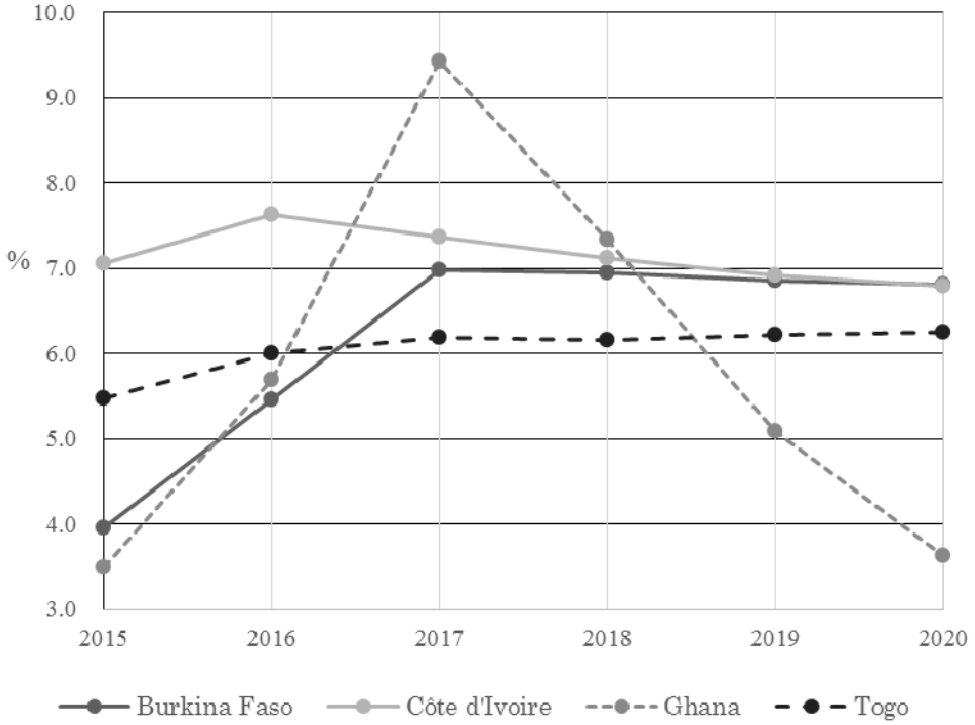
Baseline scenario	2013	2014	2015	2016	2017
Primary sector	4.5	4.4	4.7	5.0	5.1
Secondary sector	12.3	9.9	10.9	11.1	11.2
Manufacturing	*10.0*	*6.0*	*8.0*	*9.0*	*9.0*
Tertiary sector	4.5	6.8	5.1	6.0	6.2
Real GDP (2000 prices)	5.8	6.0	5.9	6.1	6.3

Alternative scenario	2013	2014	2015	2016	2017
Primary sector	5.3	6.1	6.5	6.6	6.9
Secondary sector	13.3	14.3	15.2	15.8	16.4
Manufacturing	*11.5*	*11.8*	*12.1*	*12.1*	*12.2*
Tertiary sector	5.9	5.9	6.4	6.4	6.5
Real GDP (2000 prices)	6.0	6.6	7.2	7.6	8.1

Source: Accelerated Growth Strategy and Employment Promotion (SCAPE), 2013-2017

(2) Future Economic Growth in the WAGRIC Countries

Figure 6.2.1 shows the annual growth rate of the GDP (constant prices) in the WAGRIC countries during 2015-2020 as estimated by the IMF or Ministry of Economy and Finance of Burkina Faso and Togo. According to these estimates, the economic performances in the WAGRIC countries are rather promising. The growth rates in Burkina Faso, Côte d'Ivoire and Togo vary between 5.0% and 8.0% approximately. On the other hand, Ghana's growth is fluctuating from 3.5% to more than 9%. Ghana's increase of GDP in 2017 will be based on the gas production in the new fields.



Source: JICA Study Team based on IMF World Economic Outlook Database, February 2016, Ministry of Economy and Finance of Burkina Faso and Ministry of Economy and Finance of Togo

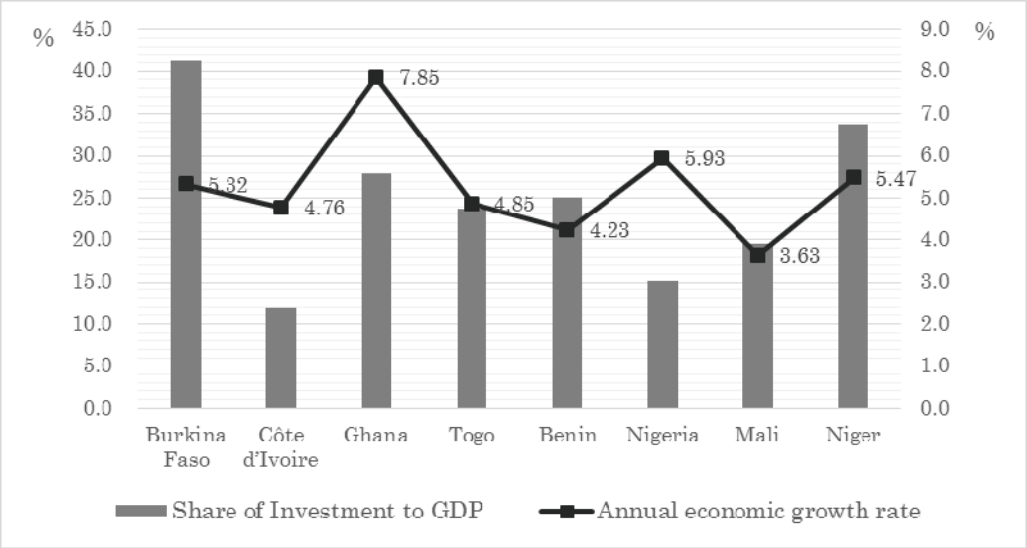
Figure 6.2.1 Future Economic Growth in the WAGRIC Countries during 2015-2020

6.2.2 Formulation of Economic Framework in WAGRIC Countries for Corridor Development

(1) Investment Efficiency

Figure 6.2.2 shows the relation of the average share of the gross capital formation or investment to GDP and annual GDP growth rate in 2008-2014 in the WAGRIC countries and also the surrounding countries. In the four countries, the share of investment to GDP is the highest in Burkina Faso, but the economic growth is moderate. On the other hand, in Côte d'Ivoire, a similar growth rate is accomplished despite the low share of investment to GDP. In Ghana, the medium share of investment to GDP will cause a high economic growth rate. In Togo, the share of investment to GDP is almost the same as Ghana, but the growth rate is lower than Ghana.

To analyse these situations, the Incremental Capital Output Ratios (ICOR) in the 4 countries and the surrounding countries are calculated as shown in Figure 6.2.3. ICOR is obtained by dividing the increase in the amount of gross capital formation or total investment by the increase in the amount of the real GDP growth in a certain period. A smaller ratio implies more efficient investment. In the WAGRIC countries, Côte d'Ivoire and Ghana (and also Nigeria) are more capital efficient than other countries. This is partially affected by investment in the mineral or oil-gas sector by foreign investors.



Source: JICA Study Team based on World Bank World Development Indicators

Figure 6.2.2 Average Share of Investment to GDP and Annual GDP Growth Rate in 2008-2014

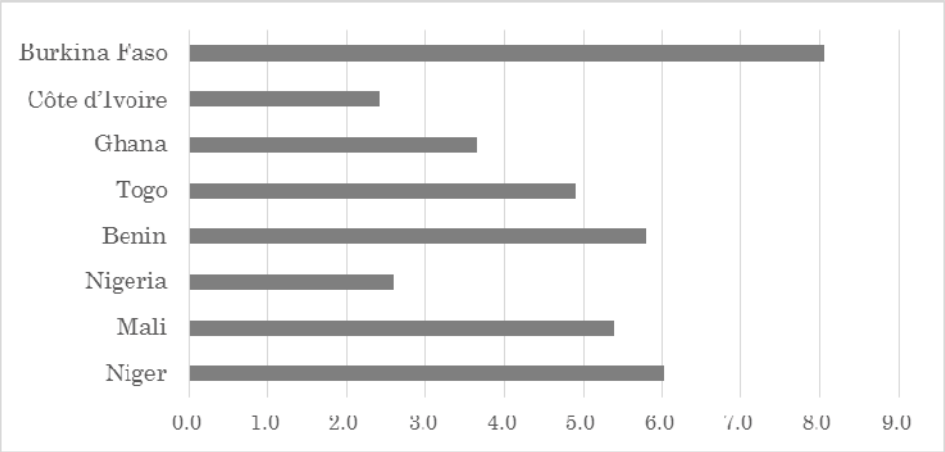
On the other hand, ICOR of Burkina Faso is more than 8, the largest in WAGRIC countries and the surrounding other countries. This generally suggests that Burkina Faso is allocating resources to the projects, mainly infrastructure, with economic return lower than the cost of capital.

Also, the inland location of the country (including Niger and Mali) may cause this result since economic returns resulting from the investment in the large cities such as Abidjan and Accra/Tema along the Gulf of Guinea, although they are not within the boundary of the country, will not cause the subsequent ripple effects.

According to the experiences in Asian countries, a higher ICOR value is seen in the initial stage of development, and a lower ICOR value is seen in the secondary stage, which the foreign direct investment in particular will increase, then its value will increase again in the further stage in accordance to the maturing of the economy.

Based on above analysis of ICOR, investment efficiency will be an indicator to formulate the scenarios of the economic framework, which is discussed in the next section, assuming that (i) the regional economic integration among the coastal countries and inland countries will increase the efficiency of investment and (ii) investment efficiency of the WAGRIC countries will be steadily

improved since they are moving from the initial stage to the secondary stage of development according to the experiences in Asian countries.



Source: JICA Study Team based on World Bank World Development Indicators

Figure 6.2.3 Incremental Capital-Output Ratio: ICOR (2008-2014)

(2) Scenarios of Economic Framework in WAGRIC Countries

In response to the discussion of the preceding section about investment efficiency, two economic growth scenarios in the 4 countries are proposed as an economic framework.

The first one will be a base scenario, which comes from the continuation of the current economic growth in WAGRIC countries. The growth rates of this scenario are mainly based on the projection between 2015-2020, which is coming from IMF World Economic Outlook Database or economic agencies in the respective country, and the extension of them.

The other will be an integrated scenario, which is based on the increase of the investment efficiency among WAGRIC countries by targeting the balanced and robust development of WAGRIC countries through the linkage among major North-South Corridors (Abidjan-Ouagadougou, Accra/Tema-Ouagadougou and Lomé-Ouagadougou) and East-West (or Coastal) Corridor (Lagos-Abidjan) and as well as feeder corridors. (Corridor Development oriented to Sub-Regional Market)

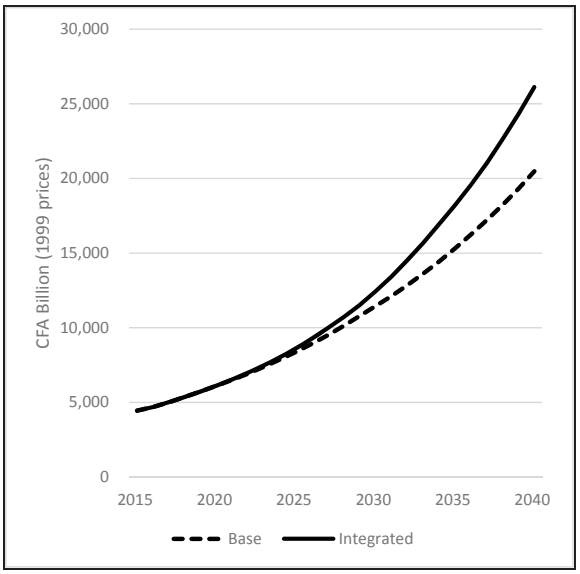
This scenario is composed of development of transportation infrastructure and networks, increased production and productivity of the agricultural sector, expansion of manufacturers in the growth centres as well as development of industrial zones and free zones, strengthening of the linkages among manufacturers, oil-gas industries, ICT, logistics, services and creation of employment opportunities and development of human resources.

According to calculations, the economic growth rates of Burkina Faso and Togo will be higher by a 1.5 - 2 percent point if applying the current value of ICOR of Ghana and keeping similar ratios of investment to GDP. As a result, the growth rates of the integrated scenario in both countries will be larger than the base scenario by 1.5 – 2 percent point.

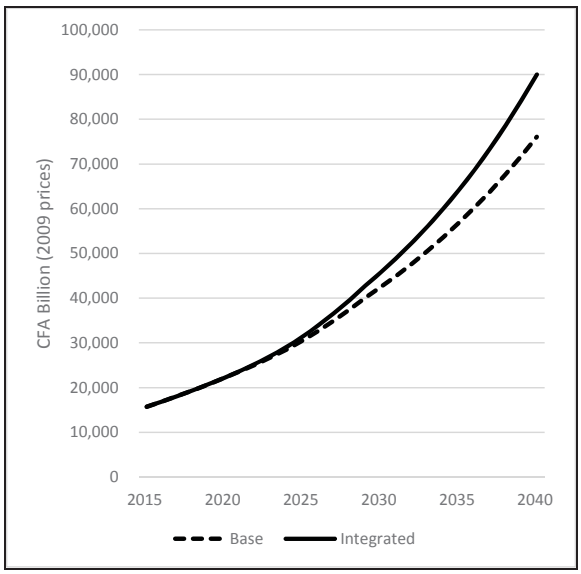
It should be noted that the growth rates of GDP by economic sector of these scenarios are the likely numbers rather than projections because the contribution to GDP by the economic activities or the projects, especially over a long-term period, is not predictable. The contribution of oil and gas sector to Côte d'Ivoire and Ghana are included in both the base and integrated scenarios in a conservative manner.

(3) Economic Framework in WAGRIC Countries

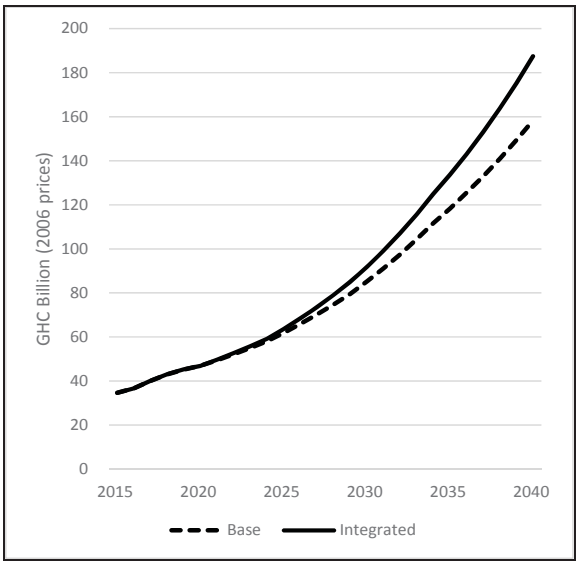
Two scenarios for the economic framework of GDP growth at market prices in each local currency of WAGRIC countries are summarized in Figure 6.2.4 and Table 6.2.5. Table 6.2.6 shows the total amount of GDP at market prices in WAGRIC countries expressed in US dollars.



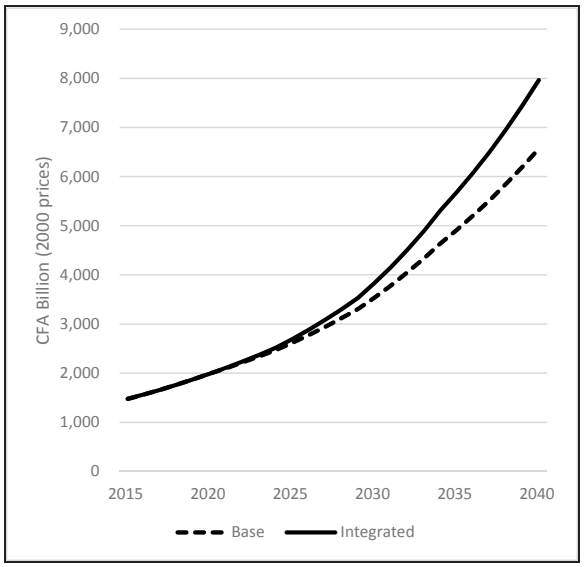
(1) Burkina Faso



(2) Côte d'Ivoire



(3) Ghana



(4) Togo

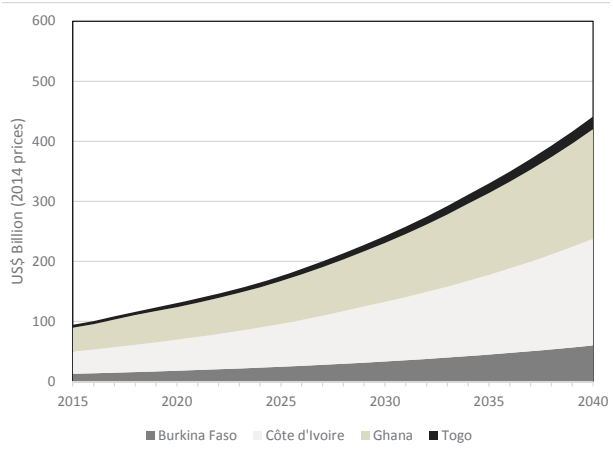
Source: JICA Study Team

Figure 6.2.4 Growth of GDPs as Economic Framework in WAGRIC Countries

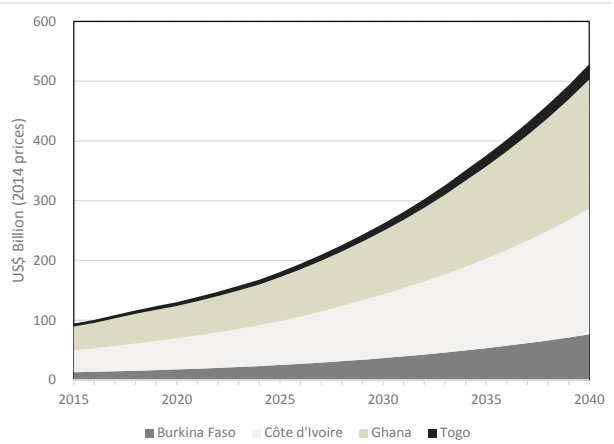
Table 6.2.5 GDP Growth Rates (%) as Economic Framework in WAGRIC Countries

Country	Scenario	2015-2020	2021-2025	2026-2033	2034-2040
Burkina Faso	Base	6.6	6.5	6.2	6.0
	Integrated	6.6	7.1	7.8	7.5
Côte d'Ivoire	Base	7.2	6.6	6.4	6.0
	Integrated	7.2	7.2	7.4	7.0
Ghana	Base	6.2	5.7	6.8	6.0
	Integrated	6.2	6.4	7.8	7.0
Togo	Base	6.2	5.6	6.6	6.0
	Integrated	6.2	6.2	7.8	7.0

Source: JICA Study Team



(1) Base Scenario



(2) Integrated Scenario

Source: JICA Study Team

Figure 6.2.5 Total of GDPs as Economic Framework in WAGRIC Countries

Table 6.2.6 GDP as Economic Framework in WAGRIC Countries

Unit: US$ Billion (2014 prices)

Country	Scenario	2015	2020	2025	2033	2040
Burkina Faso	Base	13.0	18.0	24.6	39.9	60.1
	Integrated	13.0	18.0	25.3	46.0	76.6
Côte d'Ivoire	Base	36.7	51.8	71.3	118.1	177.5
	Integrated	36.7	51.8	73.4	130.9	210.1
Ghana	Base	40.0	54.0	71.3	120.2	182.5
	Integrated	40.0	54.0	73.3	133.2	216.0
Togo	Base	4.8	6.4	8.4	14.0	21.2
	Integrated	4.8	6.4	8.7	15.8	25.7
Total	Base	94.4	130.2	175.7	292.2	441.3
	Integrated	94.4	130.2	180.7	325.8	528.4

Source: JICA Study Team

Note: GDP in 2014 at current U.S. dollars amounts to 12.5 billion for Burkina Faso, 34.3 billion for Côte d'Ivoire, 38.6 billion for Ghana and 4.5 billion for Togo, respectively.

(4) GDP Growth in ECOWAS Region

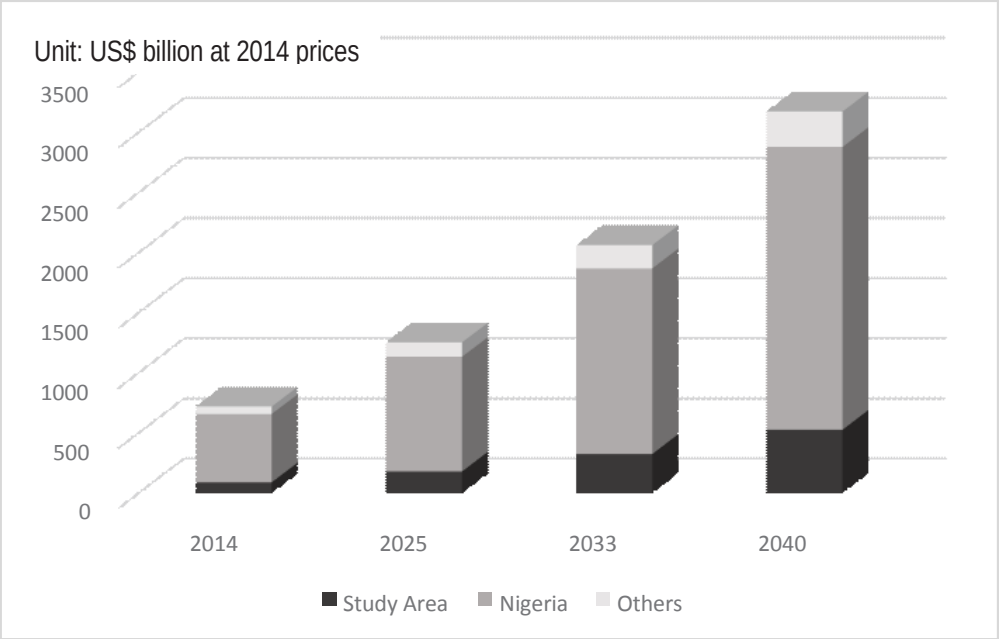
Estimated GDP in ECOWAS region in 2025, 2033 and 2040 are shown in Table 6.2.7 and Figure 6.2.6 for reference. The estimated GDP for the 4-countries comes from the above-mentioned integrated scenario. The estimation for other countries were also conducted by the JICA Study Team using World Development Indicators, IMF's World Economic Outlook Database (October 2015) and the economic growth rate of the Study on the Programme for Infrastructure Development in Africa (PIDA); Africa's Infrastructure Outlooks 2040. The volume of GDP in the ECOWAS region will more than quadruple in the next 25 years.

Table 6.2.7 Estimated GDP in ECOWAS Region

Unit: US$ billion (2014 prices)

Country/Area	2014	Share (%)	2025	Share (%)	2033	Share (%)	2040	Share (%)
Study Area (4-countries)	89.9	12.5	180.7	14.4	325.8	15.8	528.3	16.6
Nigeria	568.5	78.8	954.0	76.0	1543.6	74.8	2351.8	74.1
Others	62.7	8.7	119.8	9.6	193.9	9.4	295.5	9.3
ECOWAS Total	721.1	100.0	1254.5	100.0	2063.3	100.0	3175.5	100.0

Source: JICA Study Team based on World Bank World Development Indicators, IMF World Economic Outlook Database (October 2015) and the Study on the Programme for Infrastructure Development in Africa (PIDA); Africa's Infrastructure Outlooks 2040



Source: JICA Study Team based on World Bank World Development Indicators, IMF World Economic Outlook Database (October 2015) and the Study on the Programme for Infrastructure Development in Africa (PIDA); Africa's Infrastructure Outlooks 2040

Figure 6.2.6 Growth of Regional GDP in ECOWAS

(5) Change of Economic Structure in the WAGRIC Countries

In accordance with the estimated GDP as a macro-control indicator of the framework of the Integrated Scenario, which is discussed in the preceding sections, the shares of the economic sector in 2025, 2033 and 2040 and their growth rates are set up as shown in Table 6.2.8 through Table 6.2.11, considering targeted indicators by the economic sector in the current five year plans of the WAGRIC countries, the prospect or trend of IMF World Economic Outlook Database and World Bank's World Economic Indicators and other data/information including the interviews with planning and economic agencies of the WAGRIC countries.

1) Burkina Faso

According to interviews with planning experts, the mining sector will be activated circa 2017. Thus, the growth rate of the secondary sector will be high between 2015 and 2020.

In terms of growth rates, the agriculture, mining and manufacturing sectors and the service sector will rise steadily, although the agriculture sector will gradually lose its share.

Table 6.2.8 Change of Economic Structure in Burkina Faso

(1) Change of Share of Economic Sector

Year	GDP at Factor Cost (CFA billion 1999 prices)	Primary Industry (%)	Secondary Industry (%)	Tertiary Industry (%)
2014	3,749	28	22	50
2025	7,600	24	26	50
2033	13,700	21	28	51
2040	22,900	19	29	52

Sources: JICA Study Team and IMF World Economic Outlook Database, February 2016
Note: Total of value added in three sectors is equal to GDP at factor cost.

(2) Growth Rates by Economic Sector

Period	Primary Industry (%)	Secondary Industry (%)	Tertiary Industry (%)
2015-2020	5.3	8.6	6.4
2021-2025	5.6	8.5	7.1
2026-2033	6.0	8.7	8.1
2034-2040	5.5	8.4	7.8

Source: JICA Study Team

2) Côte d'Ivoire

The development of each economic sector will be balanced in the long term period. Exploitation by the oil and gas sector will contribute to the steady growth in the secondary sector.

In terms of growth rates, the agriculture and mining and manufacturing sectors will rise steadily, although the agriculture sector will gradually lose its share.

Table 6.2.9 Change of Economic Structure in Côte d'Ivoire

(1) Change of Share of Economic Sector

Year	GDP at Factor Cost (CFA billion 2009 prices)	Primary Industry (%)	Secondary Industry (%)	Tertiary Industry (%)
2014	12,787	23	22	55
2025	27,400	17	23	60
2033	48,800	14	23	63
2040	78,600	12	24	64

Sources: JICA Study Team and IMF World Economic Outlook Database, February 2016
Note: Total of value added in three sectors is equal to GDP at factor cost.

(2) Growth Rates by Economic Sector

Period	Primary Industry (%)	Secondary Industry (%)	Tertiary Industry (%)
2015-2020	4.0	7.5	8.1
2021-2025	4.6	7.6	7.9
2026-2033	5.0	7.7	7.9
2034-2040	5.0	7.5	7.3

Source: JICA Study Team

3) Ghana

Similar to Côte d'Ivoire, the development of each economic sector will be balanced in the long term period. Exploitation by the oil and gas sector will also contribute to the steady growth in the secondary sector.

In terms of share of economic sector, those of the mining and manufacturing sectors and the service sector will rise steadily and robustly, although the agriculture sector will gradually lose its share.

Table 6.2.10 Change of Economic Structure in Ghana

(1) Change of Share of Economic Sector

Year	GDP at Factor Cost (GHC billion 2006 prices)	Primary Industry (%)	Secondary Industry (%)	Tertiary Industry (%)
2014	31.2	24	27	49
2025	59.3	19	28	52
2033	107.6	16	29	55
2040	174.6	14	30	56

Sources: JICA Study Team and IMF World Economic Outlook Database, February 2016
Note: Total of value added in three sectors is equal to GDP at factor cost.

(2) Growth Rates by Economic Sector

Period	Primary Industry (%)	Secondary Industry (%)	Tertiary Industry (%)
2015-2020	4.0	6.8	6.9
2021-2025	4.6	6.5	7.0
2026-2033	5.0	8.3	8.4
2034-2040	5.0	7.5	7.3

Source: JICA Study Team

4) Togo

According to interviews with planning experts, development of the agriculture sector will be highly expected in the next five years. Thus, the growth rate of the primary sector will be high between 2015 and 2020. In the long term period, high growth of the service sector is foreseen.

Table 6.2.11 Change of Economic Structure in Togo

(1) Change of Share of Economic Sector

Year	GDP at Factor Cost (GHC billion 2000 prices)	Primary Industry (%)	Secondary Industry (%)	Tertiary Industry (%)
2014	1,408	30	20	49
2025	2,700	34	25	41
2033	4,900	32	25	43
2040	8,100	30	26	43

Sources: JICA Study Team and IMF World Economic Outlook Database, February 2016
Note: Total of value added in three sectors is equal to GDP at factor cost.

(2) Growth Rates by Economic Sector

Period	Primary Industry (%)	Secondary Industry (%)	Tertiary Industry (%)
2015-2020	8.2	8.9	3.5
2021-2025	7.0	7.6	5.1
2026-2033	7.0	7.8	8.6
2034-2040	6.5	7.8	7.0

Source: JICA Study Team

(6) GDP per Capita in WAGRIC Countries

GDP per capita for the target years for WAGRIC countries based on the selected population and economic scenarios are shown in Table 6.2.12. By selecting the growth scenario which is "Corridor Development oriented to Sub-Regional Market," Burkina Faso and Togo will lift themselves from low-income economies to lower-middle-income economies, while Côte d'Ivoire and Ghana will reach to become upper-middle-income economies by 2040.

Table 6.2.12 Future GDP per Capita in WAGRIC Countries

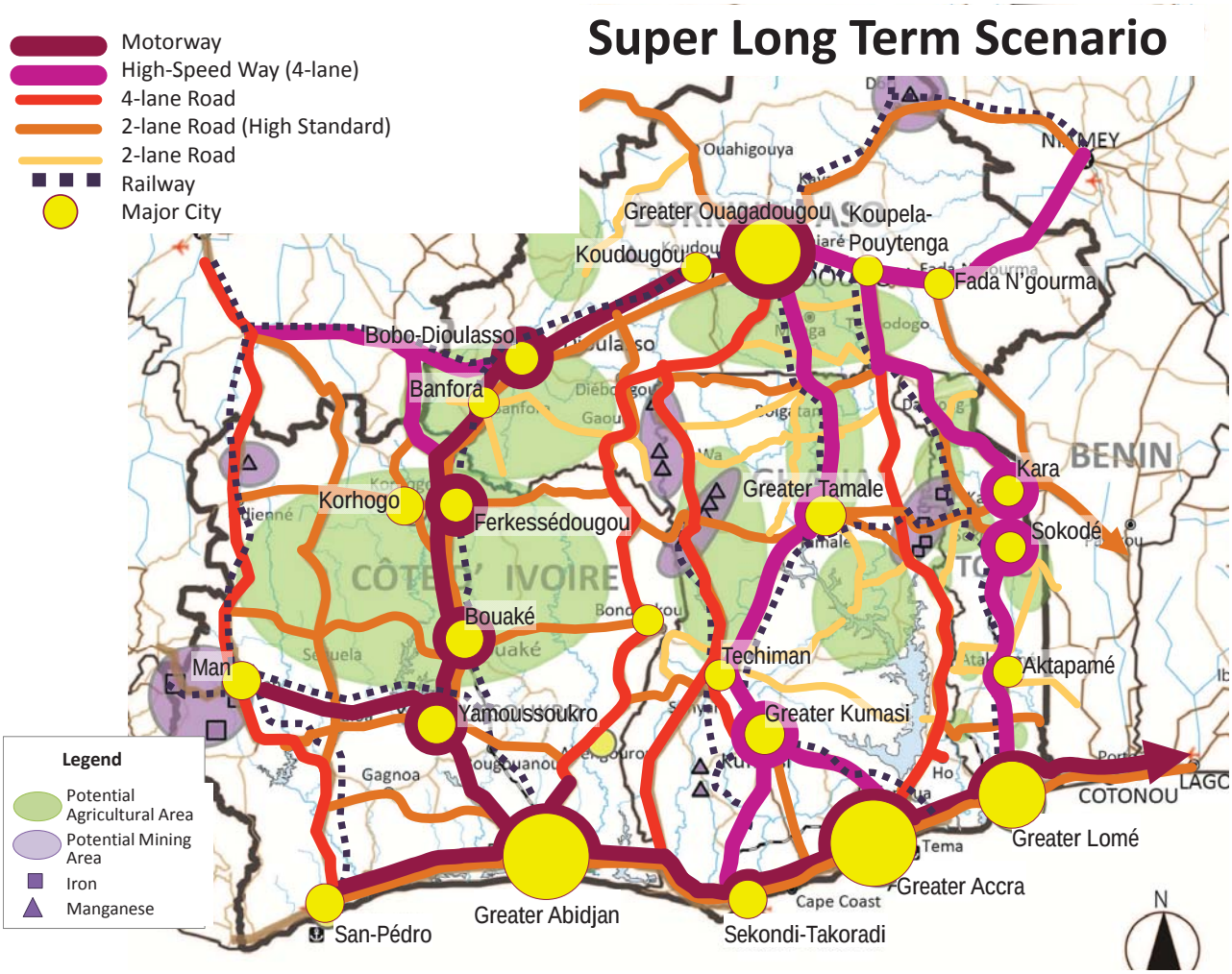
Country	GDP per Capita (USD)				Annual Growth Rate (%)		
	2015	2025	2033	2040	2015-2025	2025-2033	2033-2040
Burkina Faso	684	953	1,363	1,889	3.4%	4.6%	4.8%
Côte d'Ivoire	1,581	2,409	3,435	4,654	4.3%	4.5%	4.4%
Ghana	1,428	2,046	3,098	4,339	3.7%	5.3%	4.9%
Togo	671	916	1,336	1,807	3.2%	4.8%	4.4%
WAGRIC Sub-Region	1,220	1,766	2,572	3,530	3.8%	4.8%	4.6%

Source: JICA Study Team

6.3 Future Spatial Structure of WAGRIC Sub-Region

6.3.1 Spatial Development through Sub-Regional Economic Integration and Corridor Development

The WAGRIC Master Plan aims to integrate the four countries economically by strengthening the customs union and physically by corridor development. Therefore, this master plan seeks not only to develop the economic sectors but also to upgrade the transport infrastructure connecting the inland areas and the coastal areas to strengthen the economic relationship between these areas. This will form a sub-region and one territory where the inland areas and coastal areas are connected economically and also with transport network.

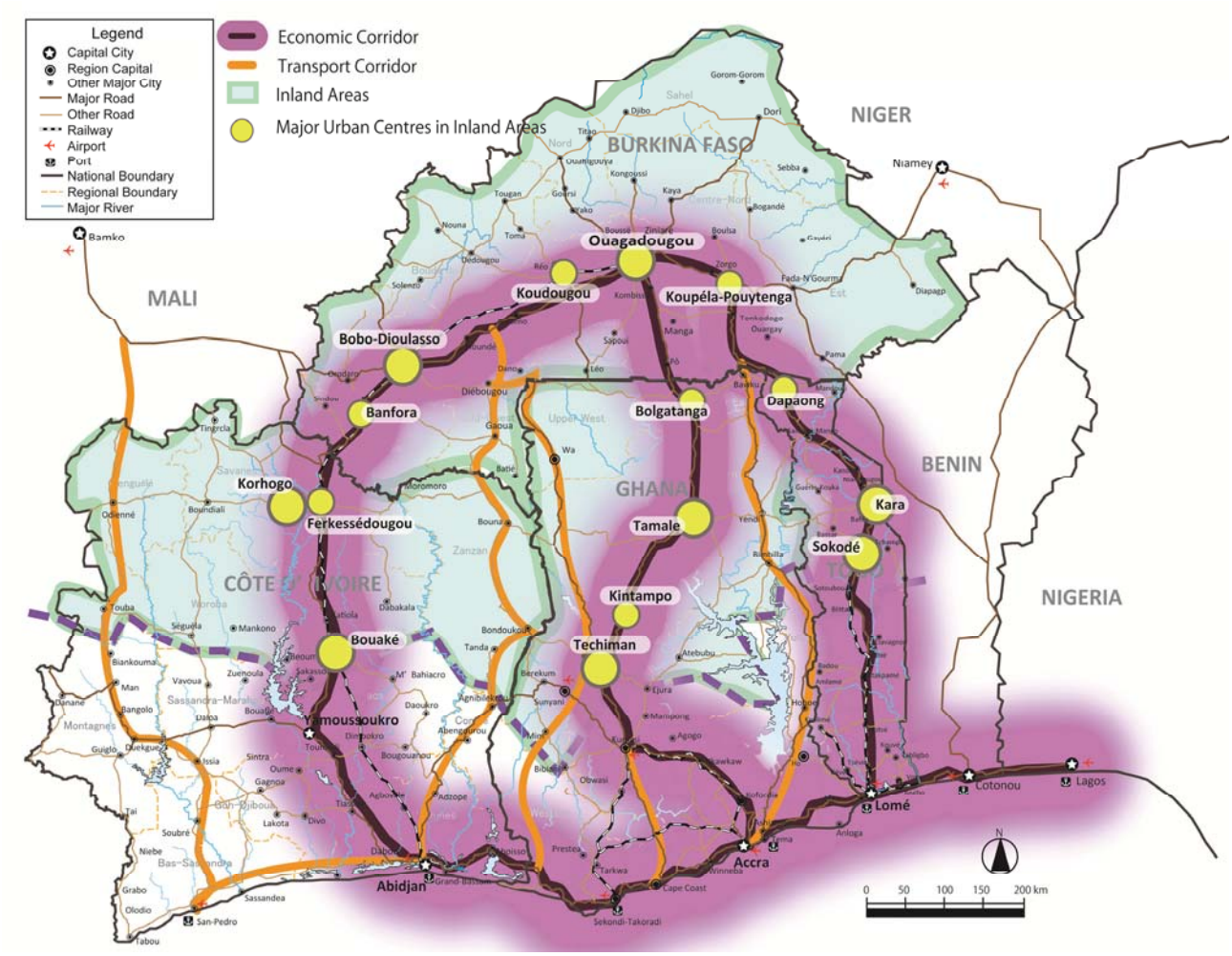


Source: JICA Study Team

Figure 6.3.1 Super Long Term Spatial Structure of WAGRIC Sub-Region (Beyond 2040)

6.3.2 Economic Corridors and Transport Corridors of the North-South Corridors

The north-south corridors which connect the inland areas and coastal areas are to be developed into two different types of corridors. One is an economic corridor and the other is a transport corridor. These different types of corridors have different functions and different forms of development. Economic corridors will upgrade the transport function to break the barriers of transport cost and time and also develop basic infrastructures for economic sectors for developing economic sectors in the cities along the corridor, as well as in other areas along the corridor. Transport corridors will strengthen the transport function concentrating on roads. This will strengthen the connectivity between coastal areas and inland areas and also improve the access to areas along these corridors.



Source: JICA Study Team

Figure 6.3.2 Economic Corridors and Transport Corridors in WAGRIC Sub-Region

6.3.3 Major Regional Cities

People, goods and information will start to gather along the north-south economic corridors. The hub for such accumulation will be at the major regional cities. These cities will develop urban function, corridor infrastructure, basic infrastructures for economic sectors, and strengthen the administration function and service functions for the neighbouring agriculture areas, and regional head office functions for private companies, and furthermore promote establishment of manufacturing factories. These cities should also improve facilities for social services and cultural facilities to become not only economic hubs but also the focal point of regional settlement.

The major regional cities in inland areas of the WAGRIC Sub-Region are as follows:

- Bobo-Dioulasso (along Abidjan-Ouagadougou Corridor in Burkina Faso)
- Bouaké: Abidjan-Ouagadougou Corridor in Côte d'Ivoire)
- Korhogo (Abidjan-Ouagadougou Corridor in Côte d'Ivoire)
- Tamale (Tema-Ouagadougou Corridor in Ghana)
- Kara (Lomé-Ouagadougou Corridor in Togo)
- Sokodé (Lomé-Ouagadougou Corridor in Togo)

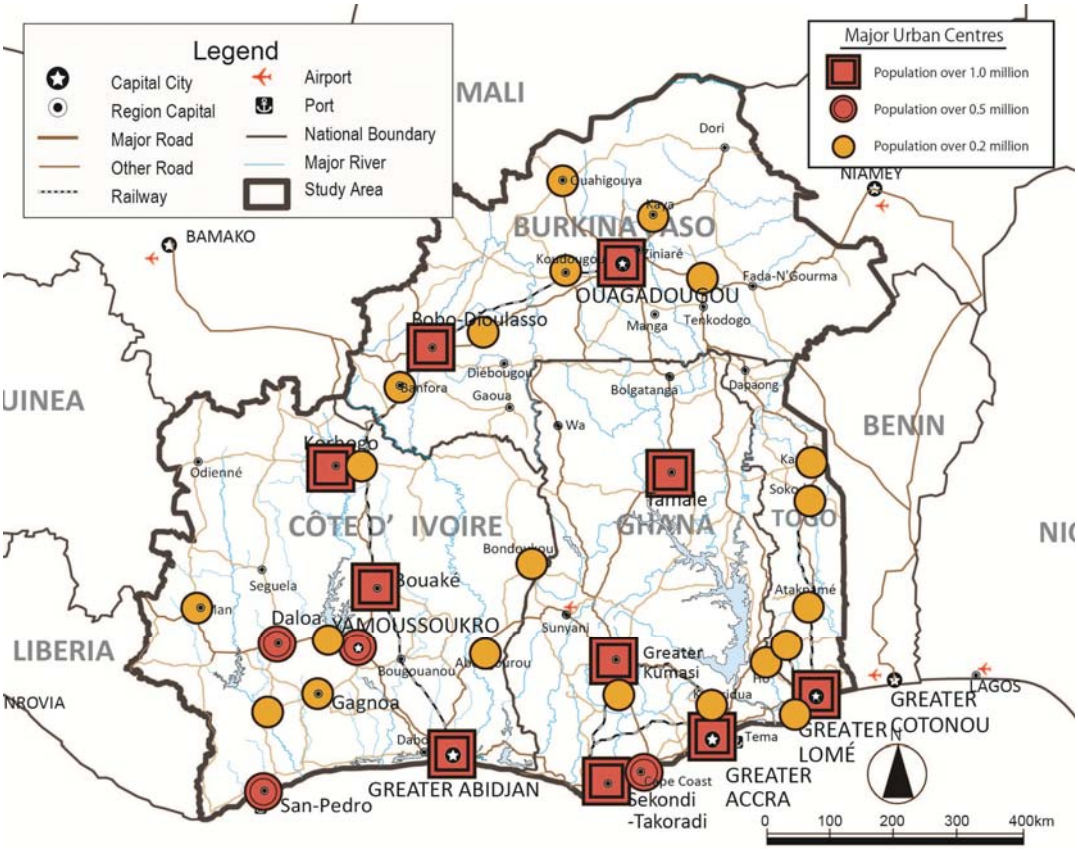
The future population of major cities in WAGRIC countries are shown in Table 6.3.1 and Figure 6.3.3.

Table 6.3.1 Future Population of Major Cities in WAGRIC Countries

Country	Major City	Region		2015	2025	2033	2040
Burkina Faso	Ouagadougou	Centre	Population	2,557,000	4,370,000	6,135,000	7,731,000
			Annual Growth Rate		5.51%	4.33%	3.36%
	Bobo-Dioulasso	Hauts-Bassins	Population	771,000	1,215,000	1,709,000	2,247,000
			Annual Growth Rate		4.66%	4.35%	3.99%
	Hounde	Hauts-Bassins	Population	66,000	119,000	186,000	268,000
			Annual Growth Rate		6.06%	5.75%	5.38%
	Koudougou	Centre-Ouest	Population	115,000	155,000	195,000	236,000
			Annual Growth Rate		3.00%	2.92%	2.78%
	Banfora	Cascades	Population	121,000	193,000	272,000	361,000
			Annual Growth Rate		4.80%	4.40%	4.12%
	Ouahigouya	Nord	Population	104,000	151,000	202,000	255,000
			Annual Growth Rate		3.77%	3.66%	3.42%
	Kaya	Centre-Nord	Population	87,000	144,000	212,000	294,000
			Annual Growth Rate		5.19%	5.00%	4.73%
	Koupela-Pouytenga	Centre-Est	Population	143,000	238,000	351,000	481,000
			Annual Growth Rate		5.25%	4.96%	4.61%
	Tenkodogo	Centre-Est	Population	62,000	88,000	113,000	139,000
			Annual Growth Rate		3.54%	3.27%	2.92%
	Fada N'Gourma	Est	Population	62,000	95,000	132,000	172,000
			Annual Growth Rate		4.41%	4.18%	3.90%
Côte d'Ivoire	Greater Abidjan (Incl. part of Indénié-Djuablin Region)	Abidjan	Population	5,004,000	6,611,000	8,292,000	9,832,000
			Annual Growth Rate		2.82%	2.87%	2.46%
	Yamoussoukro	Yamoussoukro	Population	363,000	465,000	571,000	667,000
			Annual Growth Rate		2.50%	2.60%	2.24%
	Bouaké	Gbêkê	Population	478,000	688,000	924,000	1,166,000
			Annual Growth Rate		3.72%	3.77%	3.37%
	San-Pédro	San-Pédro	Population	172,000	306,000	509,000	762,000
			Annual Growth Rate		5.91%	6.55%	5.94%
	Soubré	La Nawa	Population	108,000	177,000	236,000	291,000
			Annual Growth Rate		5.06%	3.66%	3.08%
	Abengourou	Indénié-Djuablin	Population	103,000	147,000	197,000	248,000
			Annual Growth Rate		3.61%	3.71%	3.34%
	Odienné	Kabadougou	Population	43,000	56,000	70,000	83,000
			Annual Growth Rate		2.62%	2.82%	2.56%
	Gagnoa	Gôh	Population	166,000	239,000	322,000	407,000
			Annual Growth Rate		3.73%	3.78%	3.38%
	Dimbokro	N'Zi	Population	50,000	65,000	81,000	95,000
			Annual Growth Rate		2.66%	2.72%	2.33%
	Agboville	Agnéby-Tiassa	Population	52,000	75,000	100,000	126,000
			Annual Growth Rate		3.58%	3.74%	3.40%
	Man	Tonkpi	Population	153,000	211,000	272,000	331,000
			Annual Growth Rate		3.22%	3.26%	2.85%
	Daloa	Hout-Sasandra	Population	254,000	344,000	438,000	524,000
			Annual Growth Rate		3.09%	3.07%	2.59%
	Bouaflé	La Marahoué	Population	97,000	165,000	251,000	351,000
			Annual Growth Rate		5.42%	5.39%	4.90%
	Korhogo	Poro	Population	253,000	477,000	770,000	1,108,000
			Annual Growth Rate		6.56%	6.17%	5.35%
	Ferkessédougou	Tchologo	Population	58,000	107,000	169,000	239,000
			Annual Growth Rate		6.28%	5.90%	5.08%
	Séguéla	Worodougou	Population	49,000	85,000	132,000	190,000
			Annual Growth Rate		5.71%	5.74%	5.30%
	Bondoukou	Gontougo	Population	92,000	133,000	180,000	232,000
			Annual Growth Rate		3.75%	3.92%	3.63%

Country	Major City	Region		2015	2025	2033	2040
Ghana	Sekondi-Takoradi	Western	Population	756,000	1,407,000	2,205,000	3,108,000
			Annual Growth Rate		6.42%	5.77%	5.03%
	Cape Coast	Central	Population	210,000	316,000	427,000	547,000
			Annual Growth Rate		4.15%	3.84%	3.62%
	Greater Accra (Incl. part of Central Region)	Greater Accra	Population	4,750,000	6,434,000	7,913,000	9,183,000
			Annual Growth Rate		3.08%	2.62%	2.15%
	Ho	Volta	Population	136,000	225,000	323,000	434,000
			Annual Growth Rate		5.12%	4.66%	4.29%
	Aflao	Volta	Population	91,000	170,000	271,000	397,000
			Annual Growth Rate		6.45%	5.98%	5.61%
	Kofordia	Eastern	Population	141,000	188,000	235,000	287,000
			Annual Growth Rate		2.93%	2.82%	2.90%
	Greater Kumasi	Ashanti	Population	3,060,000	4,617,000	6,187,000	7,780,000
			Annual Growth Rate		4.20%	3.73%	3.33%
	Obwasi	Ashanti	Population	161,000	200,000	229,000	250,000
			Annual Growth Rate		2.15%	1.68%	1.29%
	Sunyani	Brong Ahafo	Population	83,000	101,000	115,000	127,000
			Annual Growth Rate		2.02%	1.67%	1.37%
	Techiman	Brong Ahafo	Population	80,000	111,000	145,000	179,000
			Annual Growth Rate		3.36%	3.35%	3.05%
	Kintampo	Brong Ahafo	Population	52,000	77,000	102,000	132,000
			Annual Growth Rate		3.91%	3.61%	3.69%
	Tamale	Northern	Population	495,000	856,000	1,313,000	1,865,000
			Annual Growth Rate		5.64%	5.50%	5.13%
	Bolgataga	Upper East	Population	69,000	85,000	100,000	115,000
			Annual Growth Rate		2.17%	2.02%	2.02%
	Wa	Upper West	Population	80,000	100,000	117,000	132,000
			Annual Growth Rate		2.24%	1.97%	1.80%
Togo	Greater Lomé	Maritime	Population	1,950,000	2,916,000	3,909,000	4,970,000
			Annual Growth Rate		4.11%	3.73%	3.49%
	Tsevié	Maritime	Population	62,000	80,000	97,000	111,000
			Annual Growth Rate		2.67%	2.33%	2.08%
	Aktapamé	Plateaux	Population	88,000	142,000	206,000	284,000
			Annual Growth Rate		4.88%	4.80%	4.67%
	Kpalimé	Plateaux	Population	89,000	124,000	161,000	200,000
			Annual Growth Rate		3.39%	3.30%	3.17%
	Sokodé	Centrale	Population	119,000	184,000	258,000	343,000
			Annual Growth Rate		4.48%	4.32%	4.15%
	Kara	Kara	Population	117,000	178,000	250,000	334,000
			Annual Growth Rate		4.31%	4.33%	4.24%
	Dapaong	Savenes	Population	72,000	108,000	147,000	191,000
			Annual Growth Rate		4.17%	3.97%	3.79%

Source: JICA Study Team



Source: JICA Study Team

Figure 6.3.3 Future Distribution of Major Cities in WAGRIC Countries (2040)

6.3.4 West Africa Coastal Mega-Region (Mega Coastal Economic Corridor)

Abidjan-Lagos Corridor is to be developed into a mega coastal economic corridor (its population in 2040 estimated to be 65 million) connecting coastal economies and cities between Abidjan and Lagos with an approximately 1,000km long motorway. The urban facilities, urban expansion areas, industrial areas, and conservation areas should be strategically located along the two axes of existing roads and new motorways.

In the super long term (beyond 2040), this area would become a coastal mega-region equipped with a high-speed railway, as well as a motorway, connecting capital cities and regional cities which have metropolitan functions, strategic sea ports, international airports and economic sectors. See the spatial concept of West Africa Coastal Mega-Region shown inFigure 6.3.4.

Table 6.3.2 Future Population of Major Cities along Abidjan-Lagos Corridor (2040)

Major Cities	Population 2040 (thousand)
San-Pédro	500
Greater Abidjan	11,000
Sekondi-Takoradi	2,500
Cape Coast	500
Greater Accra	9,300
Greater Lomé	5,000
Greater Cotonou	3,200
Port Nouvo	1,700
Greater Lagos and Surrounding Cities	32,000
Total	65,700

Source: JICA Study Team

6.3.5 Coastal Metropolitan Areas

The coastal metropolitan Areas, such as Greater Abidjan, Greater Accra, Greater Lomé and Greater Lagos, have been developed along the Abidjan-Lagos Corridor. These metropolitan areas are located at junctions between north-south economic corridors and Abidjan-Lagos Coastal Corridor. They should strengthen global competitiveness by upgrading their urban functions, and advancing their economic sectors, as well as attracting functions, such as knowledge, information, finance, advanced services, and culture.

For implementing the selected growth scenario, it is necessary for Greater Abidjan, Greater Accra and Greater Lomé to promote spatial development for satisfying the following points.

- Where to put an east-west motorway, as part of the Abidjan-Lagos Corridor Motorway, in each coastal metropolitan area
- How to secure the connectivity between north-south corridors and coastal corridor within each of the coastal metropolitan area
- How to secure a strong access to strategic sea ports which have plans for expansion within coastal metropolitan areas
- How to get access to new international airports planned within each of the coastal metropolitan areas
- Where to locate new industrial zones within each of the coastal metropolitan areas

In order to do so, it is necessary to formulate urban spatial development plans including urban transportation development planning, for those metropolitan areas. WAGRIC-CACAO Project prepared spatial concepts for those coastal metropolitan areas by conducting preliminary analyses on these points. See Figure 6.3.5 through Figure 6.3.7.

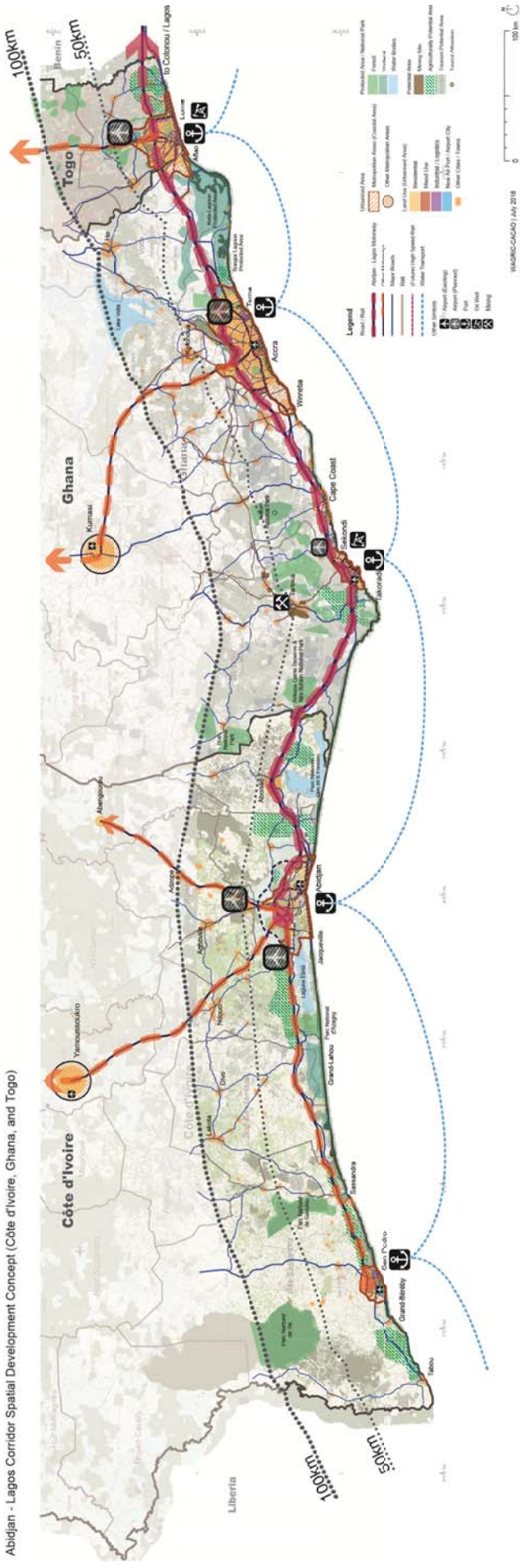
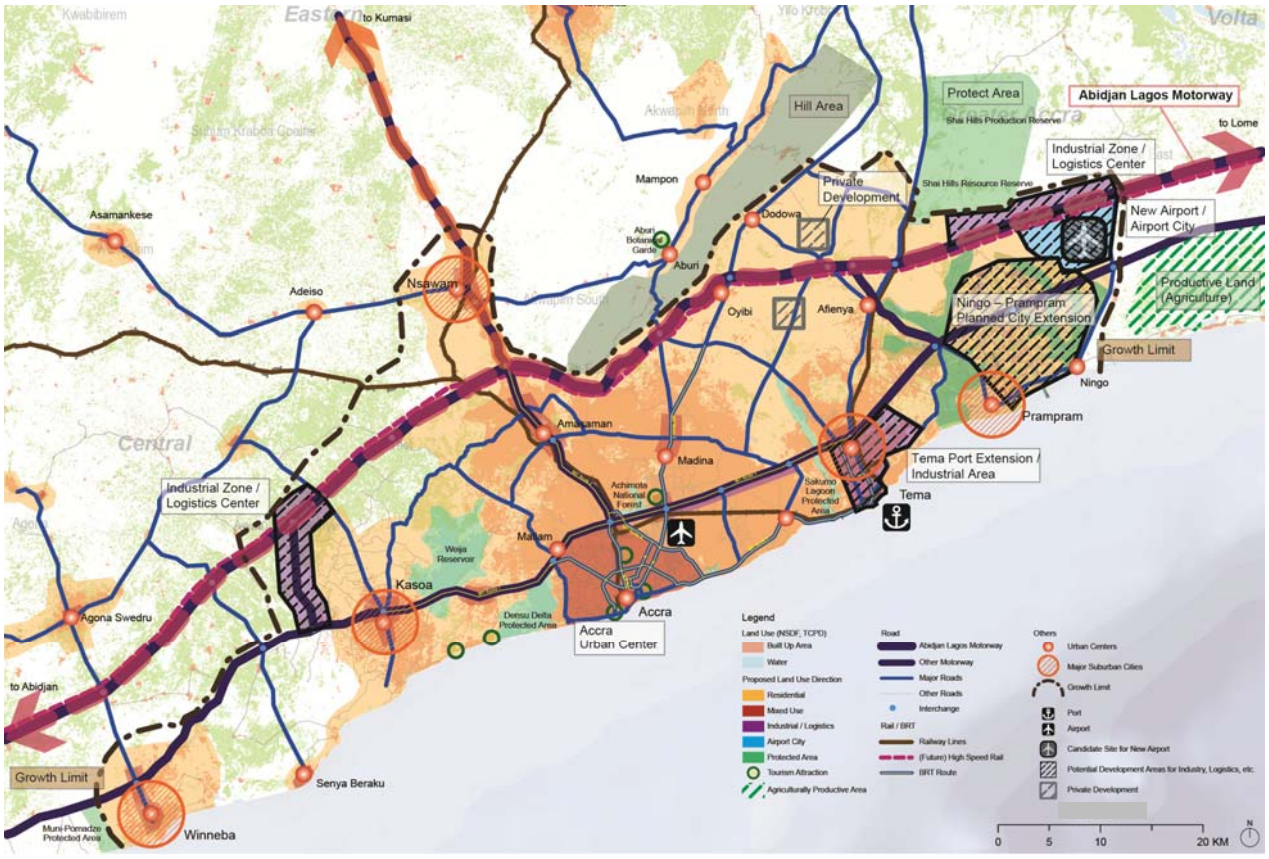


Figure 6.3.4 Spatial Concept of Abidjan-Lagos Corridor (West Africa Coastal Mega-Region)

Source: JICA Study Team

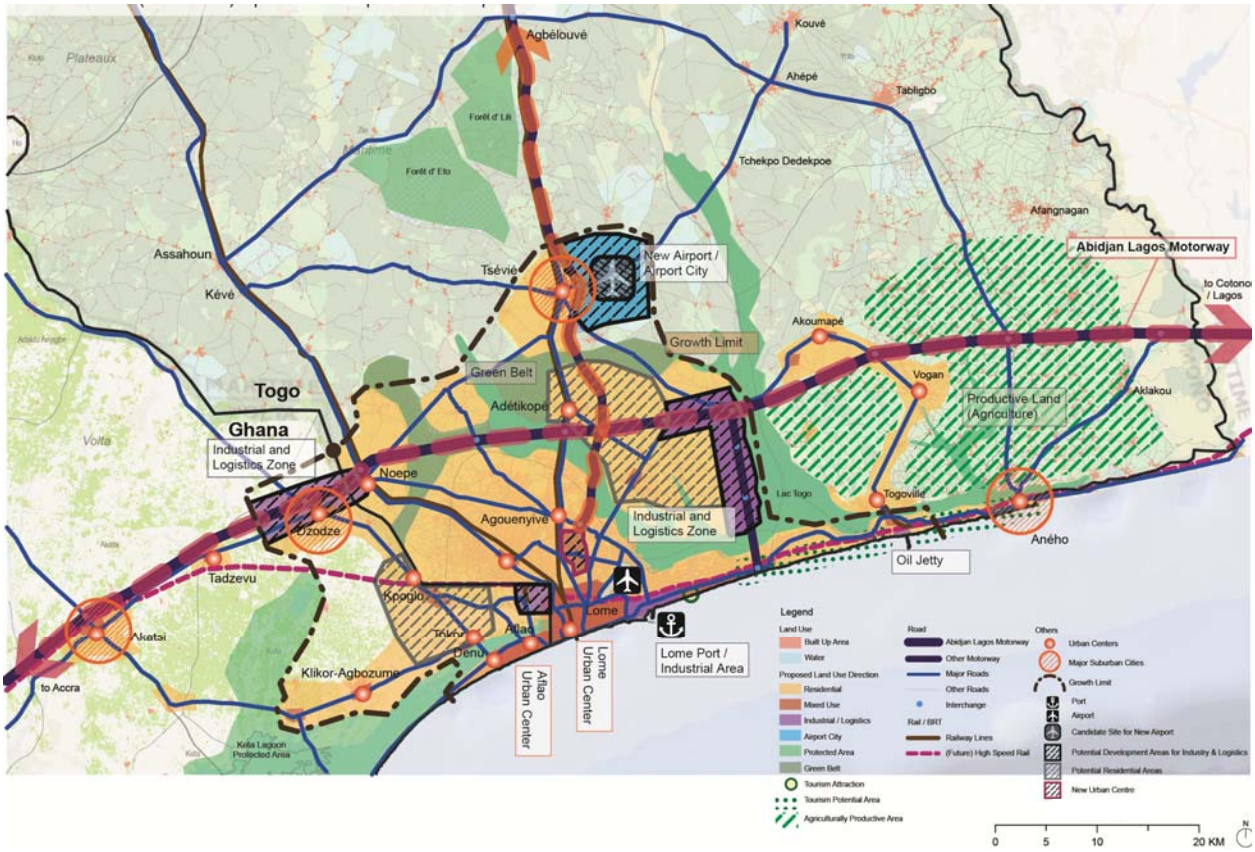
Source: JICA Study Team

Figure 6.3.5 Spatial Concept of Greater Abidjan



Source: JICA Study Team

Figure 6.3.6 Spatial Concept of Greater Accra



Source: JICA Study Team

Figure 6.3.7 Spatial Concept of Greater Lomé

Chapter 7 Sub-Regional Sector Development Strategies for WAGRIC Countries

7.1 Introduction

This chapter synthetizes present situations, issues, development strategies and some priority projects of various economic sectors and infrastructure sectors from perspectives of the sub-region.

7.2 Sub-Regional Economic Sector Development Strategies for WAGRIC Countries

7.2.1 Sub-Regional Level Development Strategies for Agricultural Sector

(1) Present Situation of Agricultural Sector in WAGRIC Sub-Region

The WAGRIC countries have a wide range of agro-ecological conditions from wetter coastal plains to dry steppe plateaus from the south to the north. Although the agro-ecological conditions, which are easily affected by climate change, are not so favourable for agriculture comparing to other countries, the agricultural sector is a main source of income for 60% of the population and contributes more than 20% to the GDP of those countries. The major cash crops in the WAGRIC countries are cocoa, cotton, cashew nuts and oil seeds, such as sesame and soybeans, which are exported to the international markets and earn foreign currency for economic growth. The main trading partners are Switzerland, France, German, USA and Asian countries, including Japan, as described in the following table.

Table 7.2.1 Export of Main Cash Crops to International Markets and Main Export Destinations in 2013

Countries	Main cash crops	Value (USD)	Volume (t.)	Top 3 Export Destinations (share % in Volume)
Burkina Faso	Cotton	441,051,593	274,282	China (26), Singapore(13), Malaysia(12)
	Sesame seeds	161,305,723	113,093	Singapore(33), Japan(29), Togo(11)
	Cashew nuts	52,162,410	82,563	Ghana (30), Vanuatu (19), Singapore(16)
Côte d'Ivoire	Cocoa beans	2,044,455,853	813,891	USA(23), Netherlands(19), Belgium(13)
	Natural rubber	759,555,406	259,860	Malaysia (22), Germany(15), USA(13)
	Cashew nuts	339,418,200	430,736	India (49), Vietnam (47), Brazil(1)
Ghana	Cocoa beans	1,380,501,318	526,187	Netherlands(30), USA (9), Belgium(8)
	Cashew nuts	416,862,629	184,966	India (26), Switzerland(2), Japan(16)
	Sesame seeds	33,448,221	514,268	Switzerland(95), Japan(3), China(1)
Togo	Cotton	60,236,849	33,867	Indonesia (22), China (16),Bangladesh(16)
	Cocoa beans	15,045,566	15,019	China (35), Belgium(18), USA(14)
	Cashew nuts	4,101,700	13,840	Belgium- Luxembourg(37), France (32), Burkina Faso(21)

Source: UN Comtrade Database

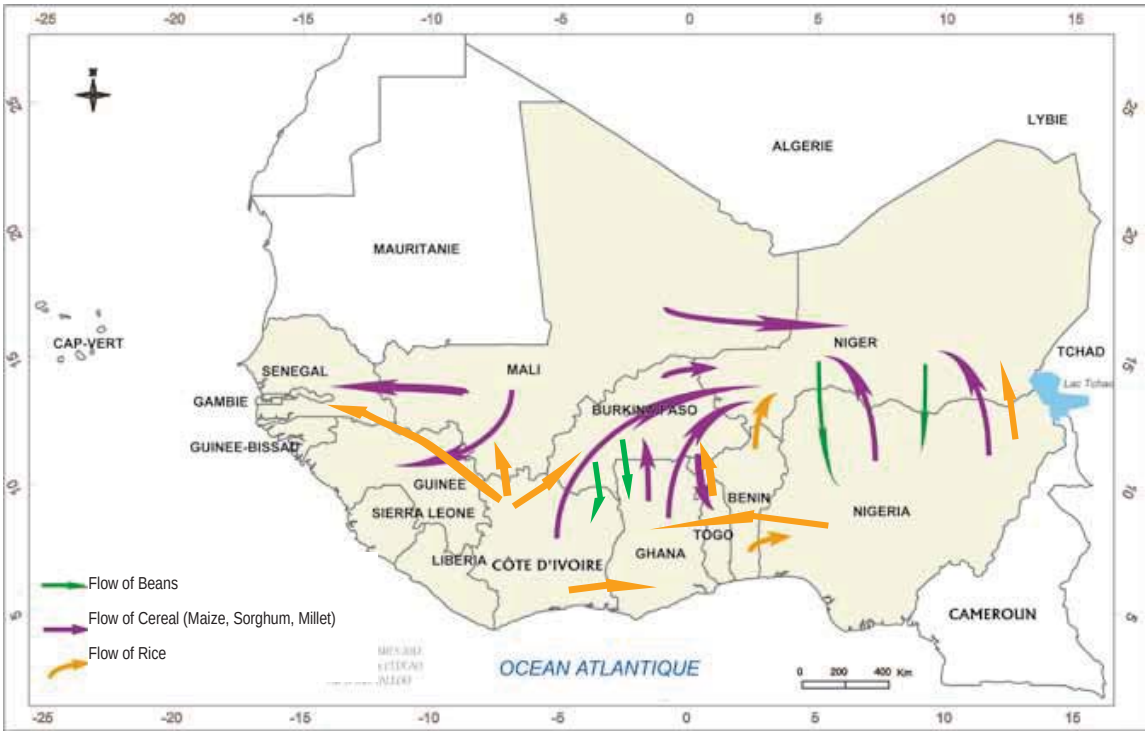
As same as the cash crops, trading food crops, such as cereals (maize, millet and sorghum), pulses (cowpea, soya beans and ground nuts), fresh vegetables and fruits contribute to the national and rural economies, especially in the sub-regional markets. Those crops have been produced mainly for self-consumption of the producers, but are sold informally to customers from Senegal to Nigeria and even to Cameroon. Sometimes the WFP purchases a certain quantity of cereals from sub-regional countries with surplus and distribute them to deficit countries. Thus sub-regional trade also works for food security for the whole of West Africa.

Table 7.2.2 Export of Food Crops to the West Africa Markets and Main Export Destinations in 2013

Countries	Main food crops	Value (USD)	Volume (t.)	Top 3 Export Destinations in West Africa (share % in Volume)
Burkina Faso	Fresh Vegetables	9,440,918	40,440	Cote d'Ivoire(55), Ghana(16), Mali(14)
	Maize	6,955,312	25,709	Niger(99.7), Cameroon(0.2), Mali(0.1)
	Beans	5,947,170	12,073	Cote d'Ivoire(37), Mali(33), Burkina Faso(30)
Côte d'Ivoire	Rice	13,954,432	29,263	Burkina Faso(61), Mali(21), Ghana(16)
	Maize	2,859,862	15,687	Senegal(44), Niger(28), Burkina Faso(16)
	Fresh Vegetables	1,406,499	4,304	Burkina Faso(37), Mali(21), Ghana(19)
Ghana	Fruit	8,091,331	2,991	Nigeria(75), Togo(1)
	Nuts and seed	7,752,463	2,494	Nigeria(90), Togo(1)
	Maize	398,649	3,406	Niger(49), Burkina Faso (42),Togo(7)
Togo	Maize	209,296	516	Cameroon(100)
	Fresh Vegetables	232,215	597	Gabon(60),Burkina Faso(13), Benin(2)
	Beans	60,704	197	Gabon(81)

Source: Source : FAOSTAT and UN Comtrade Database

The WAGRIC countries also are importers of agricultural commodities. Food crops, such as beans and cereals including rice are traded prosperously and mutually among the sub-regional countries. The flows of such food crops are shown below.



Source: JICA Study Team based on 'L'état du commerce en Afrique de l'Ouest'Rapport Annual 2012, Centre Africain pour le Commerce, l'Intégration et le Développement (CACID),2012

Figure 7.2.1 Flow of Beans, Cereals and Rice in the Sub-Region

On the whole, beans and cereals are well distributed for balancing food supply and demand in sub-regional countries. However, even though rice is grown and traded mutually in the sub-region as shown in the above figure, most of the rice is imported from overseas countries, such as Thailand, Vietnam and India. Like rice, a large amount of raw and confectionery sugar are imported from Latin American countries, although environmental condition is suitable for sugarcane in certain areas of the sub-region. The imported volume and value of these crops in 2014 for each country and also Nigeria are described in the following table.

Table 7.2.3 Volume and Value of Rice and Sugar Imported in 2013

	Rice		Sugar	
	Volume (t)	Value (USD)	Volume (t)	Value (USD)
Burkina Faso	362,027	99,123,160	98,058	34,912,690
Côte d'Ivoire	952,600	437,314,909	27	59,534
Ghana	644,334	421,312,460	318,200	193,940,875
Togo	126,048	19,356,116	104,706	21,086,799
Nigeria	752,410	679,287,413	1,376,119	853,637,918

Source: UN Comtrade Database

Thus it can be said that the situation of food security and income generation which are the main objectives of the agricultural sector are improving gradually. Some countries have already achieved food security. In the light of this improvement, the WAGRIC countries set up a new national economic development strategy or programme to develop agriculture as a main industry leading to more the economic growth by encouraging private sectors to involve themselves and invest in the sector.

(2) Issues on Agricultural Sector in WAGRIC Sub-Region

In order to realize what each government planned for development of the agricultural sector, several issues should be considered and solved. Different issues are raised in different countries but the key cross cutting issues in the WAGRIC countries can be summarized in the following three points:

1) Low and Unstable Production and Productivity

Although the agricultural production is main the economic activity in the rural area and in the country as well, the agricultural production and productivity still are low for all kinds of crops. It is because most of the farmers practice agricultural production in small scale farmland with traditional extensive way and low investment. For example, the farmers in Burkina Faso barely use chemical fertilizer or improved seed due to unavailability and lack of information thus the production always is unstable and influenced by climate. Because Togolese farmers are not familiar with how to raise cattle or horses to plow land, the animal traction is not practiced hence 50 % of the farmland is not utilized.

In addition, irrigation facilities or supplemental watering systems are not well developed even though plenty of water resources exist untouched. Due to abundant rain in Côte d'Ivoire, Ghana and Togo it is possible to use it to grow crops without irrigation but drought and/or flood sometimes occur, and the production and the productivity are low and unstable. Therefore the farmers suffer from food shortage even in Côte d'Ivoire where a lot of cereals are exported and the sector cannot lure the private sector to invest.

2) Underdeveloped Agribusiness

Despite of low and unstable agricultural production and productivity, the agricultural processing and trade as an agribusiness in the international and sub-regional markets are increasing in recent years. However the actual business is not reasonably profitable, because most products are traded as food for direct consumption or a raw material which are non-processed or just after being first processing at best. In addition, most agricultural trade in sub-regions is practiced informally, and the business cannot contribute as much to the national economy as it could.

In order to strengthen the agribusiness and optimise its effectiveness for the country, the WAGRIC countries are setting a target in their new national development policy to raise the processing ratio for cash crops and for formal agricultural trade shown as follows.

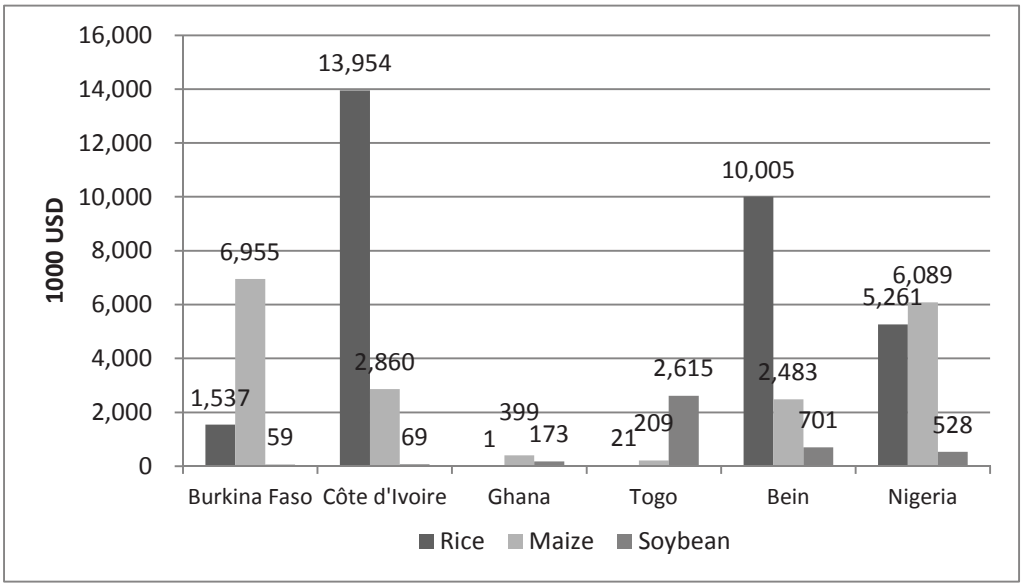
Table 7.2.4 Target for Raising Ratio of Processing and Trading of Main Cash Crops in 2013

Country	Crops	Actuality	Target to 2020
Burkina Faso	Cotton	12% (by 2015)	25%
Côte d'Ivoire	Cocoa Others (cashew nuts)	30% (by 2014) >5% for others	50% 100% for cashew nut
Ghana	Cocoa Cashew nuts	27% (by 2013) >5% for cashew	60% 75%
Togo	Cocoa	19% (by 2015)	29%

Source: FAOSTAT and UN Comtrade Database

3) Lack of Awareness regarding Sub-Regional Markets

The recent national development strategy and other agricultural development plans focus on promotion of agricultural supply chain or cluster development ('Filière Agricole' in French) for respective crops inside the country or aims at the overseas international markets. Considering that the agricultural trade balance is in the red except for Côte d'Ivoire, it is reasonable to promote 'Filière Agricole' targeting the domestic market for the local population (for self-sufficiency) or international market which brings foreign currency for national economic growth. But the sub-regional markets they used to trade are also quite large and can contribute to the individual country's economy and also to the sub-region as a whole. In particular, Nigeria is the largest agricultural producer, but are also the largest food consumers at the same time, due to its population. For example, Nigeria has been importing maize from Latin American countries, but started to purchase it also from Ghana from 2014. As for rice, Nigeria exported rice approximately 481,000 USD in 2014, while it imported 711,000,000 USD of which 4,260,000 was brought from Benin. The following figure shows the export values to compare among 6 major producing countries in 2013.



Source: FAOSTAT and UN Comtrade Database

Figure 7.2.2 Volume of Export of Rice, Maize and Soybean by Country in the Sub-Region in 2013

Benin had not been seen to sell own its own rice, and it re-exported the rice collected from surrounding countries, such as Burkina Faso, Togo and Niger. Like Benin, Togo has the advantage of its location thus access to several markets means that it can be used as a trade hub in West Africa. But these countries do not utilize this advantage well and they trade and re-trade in the informal traditional way at the present.

(3) Future Prospects for Agricultural Sector in WAGRIC Sub-Region

According to the ECOWAS Agricultural Policy (ECOWAP), the vision of the development of the agriculture sector is set out to be "a modern and sustainable agriculture based on effective and efficient family farms and the promotion of agricultural enterprises through the involvement of private sectors." Once the improvement of productivity and competitiveness at the intra-communities and international markets are achieved, the policy should be able to guarantee food

security and secure decent incomes for agricultural workers. Under this vision, future perspectives of the agriculture sector of WAGRIC countries are described by crop category in this section.

1) Staple Food Crops

Staple food crops such as cassava and yam are fundamental to the food security of each country and securing its food sovereignty. In WAGRIC countries, it is expected to increase production of those crops substantially and food supply will meet demand stably in each country and at the sub-regional level. The surplus amount of crops is expected to be exported to regional markets. Processing sectors of those crops are expected to be fostered and developed and it will contribute to generate added value of crops.

2) Other Grain Crops

Demand and consumption of rice and maize is increasing in sub-region countries. The production of those crops in the countries does not meet the demand at the moment and these foods are imported to make up for the deficit. In WAGRIC countries, each government implements various action plans/projects related to increasing production of those crops, so that the production of rice has increased significantly and contributes to reduce the import amount, especially in Côte d'Ivoire and Ghana in recent years. The production of those crops is on course to increase in each country and the sub-regional demand is expected to be satisfied. In addition, rice is expected to become an export commodity to neighbouring countries by further increase of production.

3) Traditional Industrial Crops

The production of traditional industrial crops, such as cocoa, oil palm, rubber, cotton, will increase in producing countries and related industries will be revitalized. The quality and quantity of raw material will be improved through investment in rural areas. The level of processing will increase by using sufficient and high quality raw material and it will contribute to generation of added value to the agricultural products.

4) Emerging Cash Crops

The production of emerging cash crops, such as cashew and sesame, will increase in producing countries. The quality and quantity of emerging cash crops will increase through investment in inland rural areas. The level of processing will increase and it will contribute to generation of added value to the agricultural products.

The production of fruits and fresh vegetables will increase by targeting urban markets of each country, as well as the sub-regional market.

(4) Objectives for Agricultural Sector in WAGRIC Sub-Region

ECOWAS Agricultural Policy (ECOWAP) sets its general objective to "contribute in a sustainable way to meeting the food needs of the population, to economic and social development, to the reduction of poverty in the Member States, and thus to reduce existing inequalities among territories, zones and nations." It affirms the principle of regional food sovereignty, primarily through high regional integration and appropriate levels of border protection, differentiated according to the specific needs of each supply chain.

UEMOA Agricultural Policy (PAU: *Politique Agricole de l'UEMOA*), which was established in 2001, defines its key objectives of agricultural development in the member countries: to realise food security, to increase agricultural productivity and to improve the operation of markets for agricultural, livestock and fisheries products.

In line with the above regional development objectives in the agricultural sector, the sub-regional level objectives for the agricultural sector of WAGRIC countries are set as follows:

- Improvement of productivity and competitiveness of agricultural and related processing products by attracting investments to agricultural and related processing products,
- Substantial increase of volume and processing level of agricultural products ,

- Sustainable improvement of the management of natural resources (water, soil, vegetation) for more productive and competitive agriculture,
- Contribution to structural and sustainable reduction of the food and nutritional vulnerability of the region, and
- Increase of agricultural production targeting sub-regional markets of agricultural and processing products.

(5) Basic Strategies for Agricultural Sector in WAGRIC Sub-Region

Major basic strategies for the agriculture sector that must be implemented to achieve the above objectives are as follows:

i) Increase of production and productivity of agricultural products and related processing products

- Improving farming technology by improving accessibility to technical assistance, agricultural input, materials and machinery service
- Development, rehabilitation and improvement of agricultural infrastructure such as irrigation systems, rural roads, storages, etc.
- Promotion and enhancement of production of traditional and future special products of each country or area, with linkage to sub-regional market.

ii) Promotion of agribusiness and value chain development

- To Attract private investment in the agriculture sector through creating an appropriate environment for business and investment
- To support farmer's organizations to develop value chain of crops and achieve cluster integration at the national and sub-regional level
- Promotion of public private partnership into the development of the agriculture sector
- Increase of level of processing through attracting private investment and increasing quality and quantity of raw materials

iii) Development of sub-regional markets

- To improve and promote the access to sub-regional markets for agricultural products
- Enhancement of agricultural production and processing targeting sub-regional markets by promoting investment

iv) Establishment of agricultural development bases in the production areas according to the concept of agricultural growth pole development (Burkina Faso, Côte d'Ivoire and Togo) and agricultural cluster area development (Ghana)

- Agricultural growth pole development and agricultural cluster area development is considered as a development tool for putting into practice the above basic strategies i) - iii).
- Support to formulation of development plans and implementation of agricultural growth pole projects and agricultural cluster area development projects

(6) Priority Projects for Agricultural Sector in WAGRIC Sub-Region

In WAGRIC Sub-Region, priority projects are chosen from projects related to the growth pole (Agropole) projects (Burkina Faso, Côte d'Ivoire and Togo) and Agricultural cluster area development projects (Ghana), and related infrastructure development projects formulated in the development strategies for the agriculture sector in each country. Growth pole and agricultural cluster area development projects have been developed by individual countries considering their potential production areas and target markets.

These priority projects for agriculture are intended to improve the productivity of agricultural potential by attracting investments to agricultural production and trade not only for improving self-sufficiency, but also for exporting to neighbouring countries' markets of the sub-region. This strategy is supported by the growing potential of sub-regional consumers' markets, especially in the coastal areas in the sub-region.

1) Agricultural Growth Pole Projects in Burkina Faso

Project for Marketing Support Project on the Bagré Growth Pole Project (PPCB : Projet Pôle de croissance de Bagré)

In order to determine how to optimize agricultural income in production areas and overcome a food shortage in the country, this project is to support the agricultural marketing aspects of the PPCB through the development or rehabilitation of the rural tracks, distribution of market information and then diversification of the production. This may help the producers to sell their products throughout the country at an appropriate price and to extend their market to sub-regions; Ghana and Togo which have large consumption areas for rice and vegetables respectively.

Project for Irrigation and Agribusiness Development in Douna Karfiguéla and Kou Valley

Burkina Faso's agricultural sector is good at producing a variety of agricultural products not only targeting outside of sub-regional markets, but also oriented to domestic and sub-regional markets. Considering the growing market potential in coastal areas within the sub-region, it is important to expand the production of agricultural sector targeting coastal markets.

For this purpose, this project to develop (construct or rehabilitate) irrigation facilities and to introduce market oriented agricultural production and processing for promoting the existing and future agribusiness around Douna, Karfiguéla and Kou Valley.

It is also necessary to rehabilitate a feeder road between Sindou to Banfora for Douna by taking advantage of the corridor road between Ouagadougou and coastal areas of Côte d'Ivoire through Bobo-Dioulasso.

The details of the above projects are described in the Project Profiles in the Development Strategies for the Agriculture Sector of Burkina Faso.

Projects for Irrigation and Agribusiness Development in Sourou Valley and Samendeni Valley

These projects are also designed to expand the agricultural sector oriented to coastal markets within the sub-region, as well as to domestic markets and to outside of the sub-regional markets.

2) Agro-industrial Pole Projects in Côte d'Ivoire

The Agro-industrial Pole project is to operationalize a global approach to agricultural development strategies that arise in the region for inclusive economic growth and strength. This is to ensure consistency and compatibility of interventions both private and public, in order to effectively address the need for development of the region and concerns of producers and other players in the agricultural sector. The proposed initiatives will also be to develop actions to promote agribusiness in order to ensure a lasting bond between producers and existing and future industrial units. The project will contribute to the emergence of a growth pole in connection with the private sector, according to the guidelines of the National Development Plan.

The priority site of the Agro-industrial Pole Project is "Agro-industrial Pole Project of Bélier Region."

Following the Agro-industrial Pole Project of Bélier Region, additional candidate sites are being identified and planned to be qualified by MIINADER.

The details of the above programmes are described in the Project Profiles in the Development Strategies for the Agriculture Sector of Côte d'Ivoire.

3) Agricultural Cluster Development Programmes in Ghana

The agricultural cluster development programmes aim to increase agricultural production and develop value chains of the various agricultural products in the identified agricultural cluster area, by utilizing the natural and economic potential of the area. It is expected to increase production and develop value chains of various crops such as cashew, citrus, and yams, as well as food crops including rice, other grains and soybeans, which have advantages of production processing and marketing in each area.

The agricultural cluster area development programmes in Ghana are as follows:

- Tamale-Mamprusi Agricultural Cluster Area Development Programme
- Atebubu-East Gonja Agricultural Cluster Area Development Programme
- Gonja-Kintampo and Bole-Tain Agricultural Cluster Area Development Programme
- Accra Plains Irrigation Development Project

The details of the above programmes are described in the Project Profiles in the Development Strategies for Agriculture Sector of Ghana.

4) Agropole Development Project in Togo (PRODAT : Projet de Développement des Agropôles au Togo)

Aiming at the above mentioned objective of the new Agricultural Policy 2016-2030, the project of Agropole development (PRODAT) is to promote sustainable and harmonised rural development by taking advantage of the country's strengths, such as the human, natural, geographical, socio-cultural resources. In particular it should be implemented through a coherence and complementarity of interventions both private and public to effectively address the need for development of targeted areas and concerns of producers and other players in the agricultural sector.

The project will be implemented initially in three target sites as a pilot:

- Kara basin in Kara Region;
- Oti basin in the Savannah Region; and
- Headwaters of the Mono basin, located in the Central and Plateaux Regions.

The details of the above projects are described in the Project Profiles in the Development Strategies for Agriculture Sector of Togo.

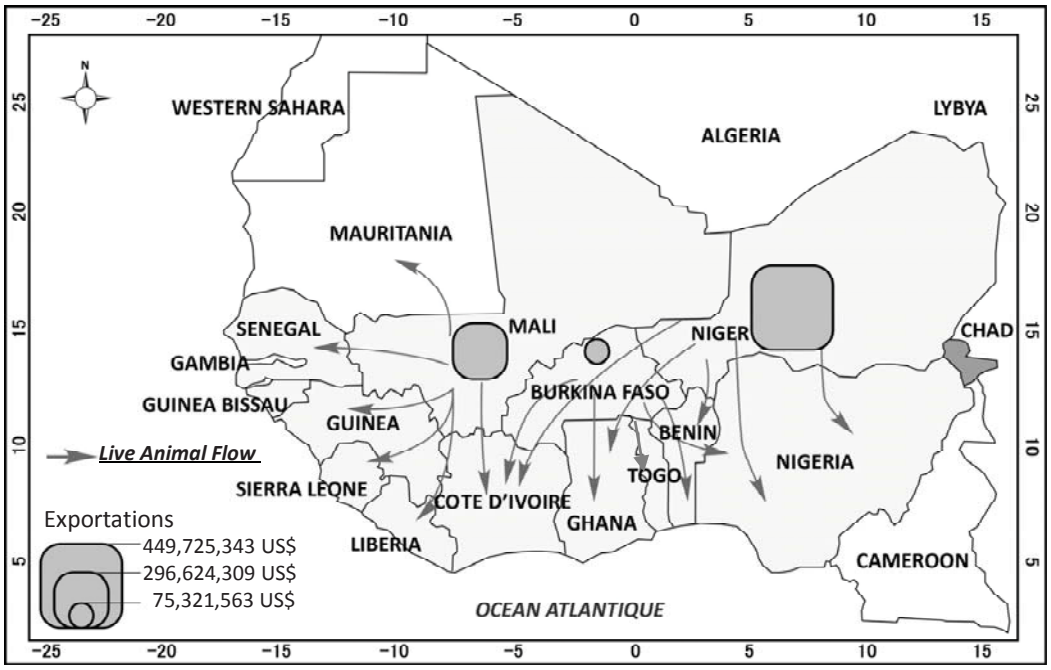
7.2.2 Sub-Regional Level Development Strategies for Livestock Sector

(1) Present Situation of Livestock Sector in WAGRIC Sub-Region

Due to environmental conditions and tradition, the livestock sector is characterised by two different areas: 1) animal raised in land-locked dry countries, such as Mali, Burkina Faso and Niger and 2) the meat is consumed in coastal humid countries, such as Côte d'Ivoire, Ghana, Togo, Benin and Nigeria. The latter countries have livestock naturally but its numbers are not sufficient to satisfy their own domestic markets. Thus, in the WAGRIC countries and their surrounding countries, there are producing countries of excess livestock and three are consuming countries by importing livestock and fresh meat.

Main animals raised and consumed in the areas are cattle, sheep, goats and poultry, which are mainly raised for food (meat and milk) and kept as family asset. Cattle are used for traction animal for agriculture mostly in Burkina Faso. The production of pigs and guinea fowl for meat also have increased to some extent recently.

Most of the time, live animals are exported within sub-regional countries, and very few animal products are produced after slaughtering or processing. The export flow and export value of main traded animals are shown in the following figure.



Source: The State of Trade in West Africa in 2012 Annual Report

Figure 7.2.3 Trade Flows of Live Animals within ECOWAS and Export Values in USD (2012)

The animal husbandry and trade is quite active in the sub-region, but the share of the GDP is basically low. The sector contributes only approximately 10% in the land-locked countries, even though 80% of the farmers gain income from the sector in Burkina Faso. As for the coastal countries, the sector contributes less than 5% for GDP. One of the most plausible reasons is that animals still are raised in an expensive way with the traditional transhumant style. Livestock farmers mostly live and raise their animals in the above-mentioned land-locked three countries but they are conducting animals to the coastal countries in the dry season. Certain animals are traded in coastal countries that are raised by transhumance, hence the trading profit is not counted officially.

The meat supply from land-locked countries is not enough for the coastal countries because the demand has surged recently in accordance with the economic growth. Out of the trading in sub-regional countries, most of the countries, even animal producing countries, are importing frozen meat from EU, USA or Oceania. The imported meat volume by country is shown in Table 7.2.5.

The most overseas meat importing country is Ghana, especially for pig, sheep and goat, it spent approximately 8 million USD in 2014. Nigeria and Côte d'Ivoire also import live animals for meat from overseas and from Mali, Burkina Faso and Niger as live animals.

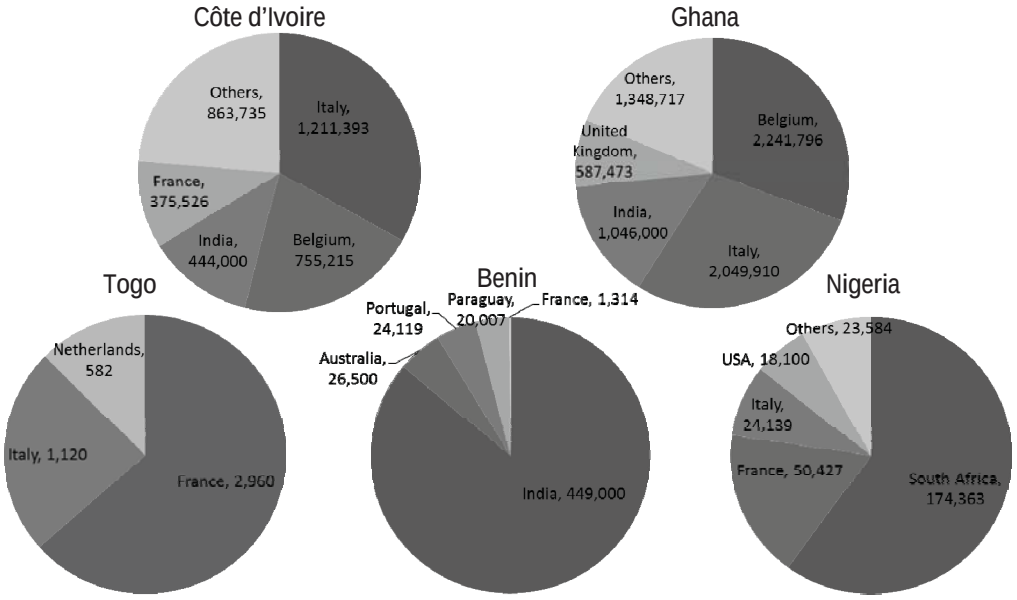
Table 7.2.5 Imported Meat by Country in 2013 (Net Weight in Tonnes / Trade Value in USD)

	Beef		Sheep & Goat		Pork		Poultry meat	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Burkina Faso	22	177,493	0	0	13	28,122	52	156,907
Côte d'Ivoire	1,329	5,444,048	1,087	3,183,000	18,593	15,973,438	112	323,982
Ghana	2,319	5,316,388	3,947	6,285,000	1,259	1,271,254	1,460	1,300,194
Togo	50	40,391	0	0	31	31,416	44	30,830
Benin	48	64,424	17	30,000	63	24,969	1,523	2,274,266
Nigeria	8	1,757,455	44	545,000	NA	NA	42	47,196

Source: FAOSTAT and UN Comtrade Database

Among traded animals, live cattle are the most important for the economy and society in the sub-region and West Africa. As for the economic aspect, the live cattle are the most profitable as meat and also as producers of milk. Also the cattle trade has a chance to expand business more since the coastal countries import a large amount of meat from foreign countries other than West Africa and spend an enormous amount of money.

For that reason, the value addition is not as well developed in the land-locked countries of origin as it is in the coastal countries. Nigeria, Côte d'Ivoire and Ghana have somewhat developed a dairy production industry but most of the products are imported from EU countries.



Source: United Nations Statistics Division (export base number)

Figure 7.2.4 Volume of Imported Beef in the Coastal Counties by Origin in 2014

As for the social aspect, there are many conflicts between crop farmers in the coastal areas and pastoralists from northern areas since certain cattle conducted by the transhumance often pass from north to south while destroying crops in farmlands. Although it is said that the conflicts have decreased, they are reported every year and sometimes end in murder. For solving the troubles, the ECOWAS have formulated and passed legislation and legal texts in 2008. An action plan for livestock development and transformation in the ECOWAS 2011-2020 also has set a component to secure and facilitate cross-border livestock mobility and to reduce conflicts.

In fact, all sub-regional countries mentioned their intent to improve extensive and traditional husbandry style related closely to the transhumant as a priority in the national plan or policy in common in the WAGRIC countries. The second priority is different between Burkina Faso and other coastal countries. The former aims to establish value chine development and related industries, while the latter ones plan to raise animal production to reduce import volume as much as possible.

(2) Issues on Livestock Sector in WAGRIC Sub-Region

As above-mentioned, issues of the livestock sector in the WAGRIC are summarized as the following three points:

1) Extensive and Traditional Raising Style

As above-mentioned, most of livestock husbandry is practiced generally by extensive transhumant raising style in Burkina Faso and in the northern part of the other three coastal countries. It is because the vertical mobility from north to south is a resilient practice that is used to easily find pasture land, water points for animals and markets to sell in for the pastoralists. This style also is effective to avoid disease affected areas, and thus is reasonable and practical for pastoralists.

However, this style can be a source of conflict and dispute between crop farmers in southern areas and pastoralists from northern areas in connection with equitable sharing of the natural resources. Over the past decade, conflicts have escalated into a security problem and thus have led to strict measures against transhumance (Ghana and Benin in particular). More recently, Togo, a host country, has raised its entry fees to get into its territory (5,000 CFA / head of cattle), which is more strictly practical for livestock farmers. For the pastoralists, even though the transhumance is reasonable and practical, it affects the pastoralists badly who are always chased away and forced to go here and there, and undergo frequent traffic harassment at police stops or by highway robbers.

2) Low Productivity and Competitiveness

Low productivity is mainly caused by an extensive style of traditional husbandry, especially the transhumance. For example, approximately two thirds (2/3) cattle (in terms of weight) which is produced and traded in Burkina Faso is eventually sold and consumed coastal countries. Even though animals are kept in sedentary pasture land, most of them are raised in an extensive style. For this extensive raising style, several problems can be raised as follows:

- Lack of input and facilities for husbandry: pasture land, water points and medicines, etc.
- Lack of nutrient rich feed that is affordable for farmers, even raw materials for making feed
- Lack of necessary infrastructure: ranches, breeding stations, stockyards and slaughterhouses
- Lack of veterinary and technical extension service
- Lack of the capacity of stakeholders especially livestock farmers

All problems seen in the WAGRIC countries are due to different causes: lack of financial sources in Burkina Faso, a decade of socio-political crisis in Côte d'Ivoire and less priority to livestock in Ghana and Togo. However, the WAGRIC countries have common characteristics that the governments do not allocate an enough amount of budgets to their livestock sectors.

As for the competitive power, it is particularly about chicken meat in the coastal areas. In the case of Ghana and Togo, the domestic chickens are more expensive than imported ones because of the high cost of poultry production due to high feed cost.

In terms of hygiene and quality of products, wealthy households prefer to the imported rather than domestic ones for all kinds of meat.

3) Underdeveloped Value Chain

The meat supply chain has been established in the past to flow from producing countries to the consuming counties. However, the value chain and related industry are not well developed in the sub-region due to low productivity and competitive power of the animal products in the sub-region.

For instance, it is difficult to launch and develop related industry in Burkina Faso, partly because the animal production is not large enough for processing in the country and milk and by-products like skin and residues go to the coastal countries by transhumance, and also partly because it is difficult for inland countries to develop cold-chain transport systems from inland countries to coastal markets.

On the other hand, at present, Côte d'Ivoire and Ghana have a chance to sell animals or to add value by processing, but the animals are sold alive or as meat just after slaughter in the local markets, and barely have any added value. The dairy industry is relatively developed in the land-locked countries, but it is said that most of the raw materials are imported from EU.

(3) Future Prospects for Livestock Sector in WAGRIC Sub-Region

Observing the present situation for the WAGRIC countries, the livestock sector is underdeveloped but still has development potential. Because the issues, bottle necks in other words can be solved if the government considers the sector as an important contributor to the rural and national economies, and allocates national budget to increase what is lacked, including inputs and facilities, affordable nutrient feed, and infrastructures. The detail prospects by category are described as follows:

1) For the Sub-regional Countries, such as ECOWAS and UEMOA

The transhumance always is mentioned as a problem to constrain development of the livestock sector, as well the agricultural sector. However, in other words, thanks to the transhumant system, the traditional trade and supply chain has grown in the ECOWAS countries. If necessary facilities, infrastructures and techniques are provided, the existing supply chain depending on the transhumant can be more efficient.

2) For Burkina Faso as Producing Country

Burkina Faso, as well as Mali and Nigeria, still has development potential of livestock production if they have access to growing consumers' markets of livestock meat in coastal areas. If the animals can be fattened to the maximum inside the county by setting aside pasture land and producing and providing high nutrient feed, the income from the sector could increase. In fact, cattle, for example, command twice the price for animals that are well fattened and in good shape than ordinary animals according to a market research conducted in 2014.

Since the coastal markets of animal meats have been growing and their imports of animal meats have been increasing, there are some potentialities for inland countries to produce more livestock and sell them to growing coastal markets. Although inland countries which produce surplus of livestock have government policies to develop their own processing industries of animal meat and skin, it is not so easy for inland countries to achieve it partly due to the difficulty of coal chain transport of fresh meat from inland countries to coastal markets. Therefore, while seeking development of livestock processing industries, inland countries try to sell their live animals to coastal markets by rail transport or truck transport after fattening them in inland countries.

3) For Côte d'Ivoire, Ghana and Togo as Consuming Countries

It will be possible to utilise transhumant animals as their livestock resource to take milk or add value by developing facilities for 'proper' transhumance, such as pasture land, water points and livestock markets. That can be a solution to the conflict caused by the transhumance.

The coastal countries (Côte d'Ivoire, Ghana and Togo) increased their import of live animals in order to supply meat to their own consumers markets. Such animal imports depend mostly on truck transport. On the other, in the case of Côte d'Ivoire, such animal imports from inland countries rely on rail transport (existing Sitarail), as well as truck transport.

Not only as consumers, but also as producers, the governments of the coastal countries are planning to develop their own poultry industry of private sectors to raise the self-sufficiency rate and to decrease import volume. In that case, high nutrient feed needs to be made in the countries by using crop residues.

(4) Sub-Regional Level Objectives for Livestock Sector

In accordance with the increasing demand for animal products and the governmental programs/projects, the overall objective of the livestock sector for sub-regional integration and corridor development is to establish a cross-border value chain of animal products. In order to achieve it, each sub-region and country is to fulfil specific objectives according to the positioning of the sub-regional livestock sector as follows:

- To solve and prevent the conflict between crop farmers and pastoralists
- To establish a preventive system of communicative livestock diseases for securing of trade of hygienic live animals
- To increase the productivity and competitiveness of the livestock sector for increasing the export to neighbouring countries in the both forms of live animals and fresh meat
- To develop meat production and related industries, especially targeting middle class consumers in coastal areas

(5) Sub-Regional Level Basic Strategies for Livestock Sector

Based on the present situation, the basic strategies by each actor to achieve the above objectives are as follows:

- To solve and prevent the conflict between crop farmers and pastoralists by
  - Immediately enforcing related legislation, legal texts and regional programs formulated by ECOWAS and UEMOA
  - Strengthening the function of the existing livestock markets through utilisation of the

present supply chain
  - Efficiently facilitating communication and rules between transhumance and local communities and organizations such as CEBV, COFENABVI, APESS, etc.
- To improve the productivity and competitive power of livestock by
  - Developing specific pasture land and water points or other related facilities and infrastructures for breeding and fattening inside the country
  - Developing feed production using residue from crops, livestock and fish
  - Strengthening capacity of all parties concerned especially livestock farmers and their organisations
- To develop meat production and related industries, especially for middle class consumers by
  - Utilising transhumant animals passing through the county for breeding and taking milk and bi-products
  - Identifying potential grazing land and industrial locations
  - Introducing technologies, facilities and infrastructures for meat production and related industries

(6) Sub-Regional Level Priority Projects for Livestock Sector

Priority projects at the sub-regional level are chosen from the projects formulated by ECOWAS or UEMOA based on agricultural development programmes or policies.

1) Development and Management of Sustainable Pastoral Recourses

Rational

The transhumance has been practiced for finding pasture and water in the southern areas for animals. But it has been leading to overuse of natural resources or crop devastation in farmland areas and causes conflicts between the pastoralists and the crop farmers.

Objective

This project aims at developing, protecting and sustainably managing pastoral resources and conflicts related to cross-border transhumance by setting aside common pasture land with water points and creating systems for mediation and integration between pastoralists and crop farmers.

Project Description

This project consists of two parts of activities, as for infrastructure development and social organization for conflict management. The details are described as follows:

- Infrastructure development by Realizing pasture land development with water points and Promoting integration of agriculture and livestock farming/transhumance.
- Social organization for conflict management by establishing a regional strategy for management of natural resources and legal and social measures.

Expected Benefits

The following impacts and benefits are expected in this project:

- Infrastructure development that allows all farmers access to pasture and water resources is secured by facilitating pasture land and water points without overuse of natural resources
- Create a social organization for conflict management to ensure that all farmers have access to the natural resource which would be sustainable by good management of the natural resource among all parties concerned (pastoralist, crop famers, other residents, etc.).

Related Projects

Related projects which will be implemented by each country are as follows:

- Burkina Faso: Sustainable Feed Project
- Côte d'Ivoire: Rehabilitation of Ranches and Breeding Stations
- Ghana: Formulating National Plan for Transhumance Management
- Togo: Cross-border Transhumance Management

2) Promotion of Cluster Development for Livestock, Meat and Milk

Rational

In the light of the recent surge of animal products import, The Agricultural Political Commune of ECOWAS (ECOWAP) and the Detailed Programme for African Agricultural Development (PDDAA) have prioritised increasing production and productivity and to improve the competitiveness of its animal products by developing related industries in West Africa.

Objective

In response to the high demand for animal products at the present, the project aims to increase production, productivity and competitiveness of animal products through the improvement of the situation on animal health, livestock feed and local animal breeds.

Project Description

This project consists of three parts and related activities described as follows:

- Improvement of animal health situation
  - Strengthening the diagnostic capacity of a network of laboratories at the regional level,
  - Strengthening early warning and regional response to animal health (Transboundary animal diseases and zoonosis),
  - Facilitating access to veterinary services and veterinary inputs, etc.
- Improvement of access to livestock feed
  - Establishing an early warning system on the risks of fodder and water crises,
  - Promoting the integration of agriculture and livestock,
  - Improving the livestock food supply and feed seed system, etc.
- Improvement of local animal breeds
  - Assessing and harmonizing regulations on the management of genetic resources,
  - Networking the centres of genetic study for local animal breeds and strengthening their capacities, etc.

Expected Benefits

The overall benefit is to reduce the cost of the imported products in West Africa by promoting cluster development of livestock husbandry. Each part will derive the specific benefits as follows:

i) Improvement of animal health situation

The benefit expected is to decrease of the number of disease affected animals and mortality rate. It will be done through improvement of epidemiological surveillance, of quality veterinary inputs accessibility, and of the function of regional networks among parties concerned from livestock farmers to the officials and laboratories, etc.

ii) Improvement of access to livestock feed

Same as the above mentioned project, development of identified pasture land and water points are expected for the pastoralists both in transhumance and sedentary. Additionally, it is expected to develop forage seed and high nutrient feed for animal production and industrial promotion as well as a diversification of economic activities in rural areas.

iii) Improvement of local animal breeds

The productivity of animal products (meat, milk, eggs) will be improved by introducing productive breeds or crossbreeding within the possible range of the regulatory and institutional framework.

Related Projects

This project relates to priority projects which will be mentioned by country and are as follows:

- Burkina Faso: Sustainable Feed Project
- Côte d'Ivoire: Rehabilitation of Ranches and Breeding Stations
- Ghana
  - Feed Resource Development Project
  - Improvement of Livestock Stations of Pong Tamale Livestock Breeding Station
  - Babile Pig Breeding Station and Amrahia Dairy Farm
- Togo: Agropole Development Project in Togo

3) Promotion of Animal Production in Intra-Regional Trading

Rational

In spite of the numerous institutional arrangements adopted by UEMOA and ECOWAS, livestock markets still put up a weak performance in official trade in and outside the countries. Especially, inadequate rural infrastructures (e.g., storage equipment, roads) constrain the distribution of animal products from one region to other regions or countries. Exporting countries generally seek to strengthen the marketing and processing of livestock products and to promote intra-regional trade in live animals for meat and milk.

Objectives

This project aims to improve intra-regional trade of animal products to meet the demand for animals in West Africa to activate sub-regional trade and to reduce the import cost from overseas countries.

Project Description

This project consists of two main activities, which are i) Establishment of facilitation mechanism for intra-regional trade and ii) Encouragement to better regional integration of the livestock trade. The main activities to be implemented are described below:

- Establishment of an intra-regional trade facilitation mechanism
  - Conducting comparative impact studies of domestic and sub-regional markets,
  - Planning specific activities for harmonising development of infrastructures and facilities for intra-regional trade,
  - Facilitating to secure the cross-bordered livestock trade by implementing ECOWAS regulations by reducing the number of fixed checkpoints.
- Encouragement to better regional integration of the livestock trade
  - Simplifying, harmonizing and implementing protocols on intra-regional livestock trade and regional integration introduced by the UEMOA and the ECOWAS,
  - Encouraging the dissemination of information on the livestock trade through creating awareness of concerned parties and information channels (e.g. radio, television and posters) ,
  - Reducing customs duties on imports of new trucks and their spare parts in order to reduce purchase and rental costs and facilitate road transport and
  - Harmonizing policies in the trading areas in terms of liberalization and facilitation, exchange and payment systems.

Expected Benefits

Through implementation of this project, it is expected to promote and greatly increase livestock trade in domestic and sub-regional markets in West Africa. In particular, this project is expected to

facilitate the livestock farmers and those organizations to trade their animal products and to enlarge their markets to sub-regional countries without the difficulties encountered in the present. In the end, it will contribute to reduce the import from overseas countries and reactivate sub-regional integration and development.

Related Projects

This project relates to priority projects which will be mentioned by country and are as follows:

- Burkina Faso: Supply Chain Development for Animal Products
- Côte d'Ivoire
  - Construction of Cattle Market and Slaughterhouse Complex in Anyama (CAMA)
  - Construction of Slaughterhouses in the Country (Yamoussoukro, Daloa, Bouaké, Ferkessédougou and Korhogo)
- Ghana: Feed Resource Development Project, Development of Poultry Processing Plants with Cold Storage
- Togo: Cross-border Transhumance Management ,Agropole Development Project in Togo

7.2.3 Sub-Regional Level Development Strategies for Fisheries Sector

(1) Present Situation of Fisheries Sector in WAGRIC Sub-Region

1) Fisheries Sector in West Africa

Fish is becoming a more and more important source of animal protein in Africa. As the population increases and the income level rises in this sub-region, the demand for fish is rising rapidly. Especially in WAGRIC countries, the consumption of fish in Burkina Faso and Togo have more than doubled in just the six years between 2008 and 2013.

Table 7.2.6 Amount of Fish Consumption in ECOWAS Countries

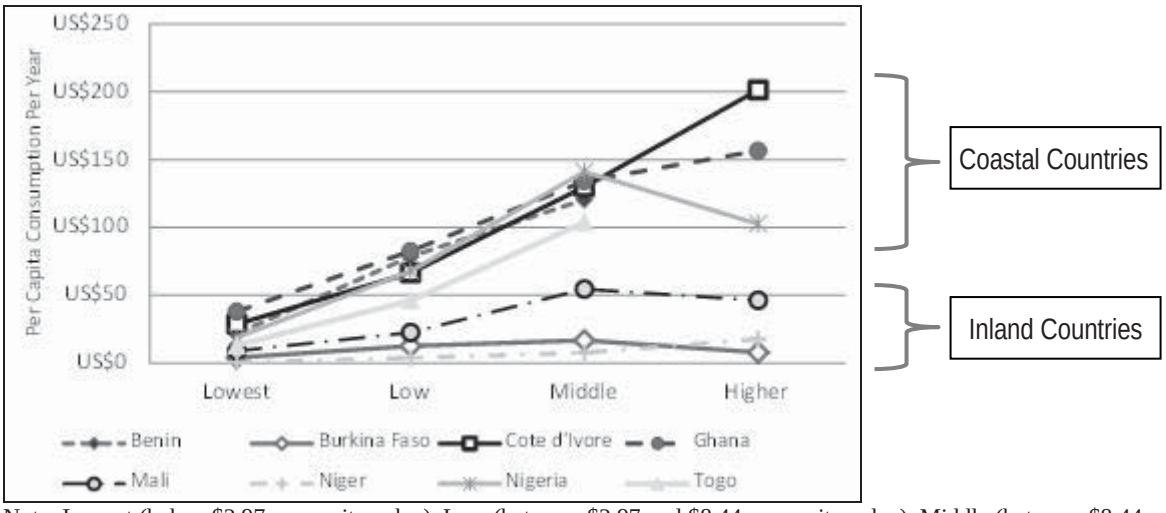
Unit: tonnes

	2008	2009	2010	2011	2012	2013
Burkina Faso	38,108	64,760	82,075	106,693	112,885	112,885
Côte d'Ivoire	312,586	351,911	334,261	344,408	306,623	306,623
Ghana	553,797	540,338	540,634	652,542	573,006	636,403
Togo	31,577	39,332	67,792	76,525	76,525	76,525
WAGRIC-CACAO	936,068	996,341	1,024,762	1,180,168	1,069,039	1,132,436
Benin	118,489	114,467	118,940	119,386	119,117	130,990
Cabo Verde	4,771	4,504	3,529	3,906	3,906	3,906
Gambia	28,984	32,668	36,849	31,359	26,945	29,090
Guinea	63,057	88,195	78,221	79,514	79,514	79,514
Guinea-Bissau	2,755	1,426	842	1,324	1,788	1,645
Liberia	9,815	10,009	13,519	14,084	14,084	14,084
Mali	111,569	111,708	116,911	124,637	86,606	116,802
Niger	31,807	32,839	43,097	54,480	48,982	47,900
Nigeria	1,548,087	1,213,350	1,286,277	1,531,168	1,531,168	1,531,168
Sierra Leone	149,256	146,745	145,420	150,323	148,891	147,182
ECOWAS	3,004,658	2,752,252	2,868,367	3,290,349	3,130,040	3,234,717

Source: FAOSTAT Fisheries Statistical Collections Consumption Database

This trend of rapid increase in fish consumption is expected to continue in the sub-region due to the following factors:

- In West Africa, the population will continue to grow with an annual growth rate of over 2% for the next 25 years following the current trend. (See Chapter 6)
- The number of middle income households will increase as the economic situation in each country improves. (See Chapter 6)
- Per capita consumption of fish in general increases as the income level rises, especially in the coastal countries as shown in Figure 7.2.5.



Note: Lowest (below $2.97 per capita a day), Low (between $2.97 and $8.44 per capita a day), Middle (between $8.44 and $23.03 per capita a day), Higher (above $23.03 per capita a day)
Source: JICA Study Team based on World Bank Global Consumption Database

Figure 7.2.5 Fish Consumption in Major West African Countries by Segment in 2010

West Africa has a long history of consuming both saltwater fish and freshwater fish such as tilapia. The countries along the coast in West Africa have been benefiting from the fisheries resource in the Atlantic Ocean offering a rich variety of marine biodiversity for many centuries. However, illegal fishing by both foreign industrial vessels and unregistered local fisherman are threatening the fish stock in the waters, especially of the Guinea Gulf.

In the inland areas of WAGRIC countries, inland water fisheries also exist but the scale is small and is also under the pressure of fish stock

As a result, the countries in West Africa are relying on imported fish such as tilapia from China to satisfy their demand and the amount of fish imported is also increasing. For example, in WAGRIC countries, Côte d'Ivoire imported over 90% of its fish consumed in 2013 (See Table 7.2.7) and this amount has almost doubled in the last few years (See Table 7.2.8).

Table 7.2.7 Fish Consumption and Import of WAGRIC Countries in 2013

Countries	Consumption Amount (t)	Import Amount (t)	Share of Import
Burkina Faso	112,885	63,208	56.0%
Côte d'Ivoire	306,623	288,001	93.9%
Ghana	636,403	278,658	43.8%
Togo	76,525	51,069	66.7%
Total	1,132,436	680,936	60.1%

Source: FAOSTAT Fisheries Statistical Collections Consumption Database and UN Comtrade

Table 7.2.8 Amount of Fish Imported into West Africa

Unit: tonnes

Country	Year	2011	2012	2013	2014	2015
Burkina Faso	Total Fish Import	60,351	-	63,208	65,792	75,322
	Fresh/Chilled/Frozen	40,042	-	42,224	48,551	57,009
	Dried/Salted/Smoked	19,495	-	19,792	15,998	15,933
	Others	814	-	1,192	1,243	2,380
Côte d'Ivoire	Total Fish Import	298,422	284,925	288,001	326,997	437,788
	Fresh/Chilled/Frozen	296,151	281,894	285,312	325,137	436,712
	Dried/Salted/Smoked	56	35	32	54	74
	Others	2,215	2,996	2,657	1,806	1,002
Ghana	Total Fish Import	320,869	232,550	278,658	-	-
	Fresh/Chilled/Frozen	291,154	215,442	245,575	-	-
	Dried/Salted/Smoked	2,005	689	1,248	-	-
	Others	27,710	16,419	31,835	-	-
Togo	Total Fish Import	53,225	53,887	51,069	48,534	59,983
	Fresh/Chilled/Frozen	49,280	49,877	47,062	45,092	54,967
	Dried/Salted/Smoked	1,312	1,788	1,604	1,330	2,017
	Others	2,633	2,222	2,403	2,112	2,999

Benin	Total Fish Import	-	-	84,329	183,875	148,392
	Fresh/Chilled/Frozen	-	-	82,530	182,124	145,108
	Dried/Salted/Smoked	-	-	66	25	25
	Others	-	-	1,733	1,726	3,259
Mali	Total Fish Import	21,995	20,755	-	-	-
	Fresh/Chilled/Frozen	19,647	17,799	-	-	-
	Dried/Salted/Smoked	849	1,196	-	-	-
	Others	1,499	1,760	-	-	-
Niger	Total Fish Import	2,862	3,802	4,859	5,822	7,214
	Fresh/Chilled/Frozen	2,540	3,259	4,028	5,082	5,640
	Dried/Salted/Smoked	1	2	3	3	4
	Others	321	541	828	737	1,570
Nigeria	Total Fish Import	487,922	486,441	396,595	-	-
	Fresh/Chilled/Frozen	410,912	425,031	338,633	-	-
	Dried/Salted/Smoked	38,992	35,807	38,487	-	-
	Others	38,018	25,603	19,475	-	-

Source: UN Comtrade

To increase the amount of fish supply, countries in West Africa have been modernizing their fishing ports and also seeking to develop the aquaculture industry. However, to protect the limited resources of the Atlantic Ocean and also the freshwater, sustainable management of fishery resources needs to be enforced, and at the same time, measures for promoting aquaculture development need to be accelerated.

2) Sub-Regional Institutions for the Fisheries Sector

The Department of Food Security, Agriculture, Mines and the Environment (DSAME: *Département de la Sécurité Alimentaire, de l'Agriculture, des Mines et de l'Environnement*) of UEMOA Commission has expert in charge of the fisheries sector. In November 2016, DSAME gathered the representatives of UEMOA countries to discuss topics such as “condition of fisheries and fisheries resources in West Africa", "regional information and information systems for fisheries", and "development of aquaculture in Africa".

The Sub-Regional Fisheries Commission (CSRP: *Commission Sous-Régionale des Pêches*) in West Africa was also established in 1985 to enforce the mechanism of sustainable governance of fisheries resources. However, there are only seven member countries, namely Cabo Verde, Gambia, Guinea, Guinea-Bissau, Mauritania, Senegal and Sierra Leone. The countries along the Guinea Gulf are not part of this organization.

3) Sub-Regional Policies and Plans for the Fisheries Sector

In 2001, UEMOA Unions’ Agricultural Policy (PAU: *Politique agricole de l'Union*) was adopted by the UEMOA Commission. This policy included programmes for the development of fisheries and aquaculture in the countries of UEMOA. To implement this Policy, the Plan for Concerted Development of Fisheries and Aquaculture (*Plan d’Aménagement concerté des pêches et d’aquaculture*) was adopted in 2007. The Plan includes thirteen programmes and projects, including the Regional Programme for Strengthening the Fishery Statistical Data Collection and Establishing a Regional Database (*Programme régional de renforcement de collecte de données statistiques des pêches et de création d’une base de données régionale*).

4) Sub-Regional Projects and Programmes for the Fisheries Sector

There are some ongoing sub-regional projects in WAGRIC countries for the fisheries sector.

The World Bank is currently implementing the West Africa Regional Fisheries Programme (WARFP) covering nine countries in West Africa including Ghana. Besides Ghana, Côte d’Ivoire is also included as one of the potential countries which are to take part in this programme. The overall objective of this programme is to sustainably increase the overall wealth generated by the exploitation of the marine fisheries resources of West Africa, and the portion of that wealth captured by West African countries. The programme has four components which are as follows:

- Component 1 - Good Governance and Sustainable Management of the Fisheries: To build the

capacity of Governments and stakeholders to implement a shared approach that would ensure that the marine fish resources are used in a manner that is environmentally sustainable, socially fair and economically profitable

- Component 2 - Reduction of Illegal Fishing: To reduce the illegal fishing activities threatening the sustainable management of the marine fish resources and the wealth they can generate for the region.
- Component 3 - Increasing the Contribution of the Marine Fish Resources to the Local Economies: To increase the benefits to West Africa from the marine fish resources, by increasing the share of the value-added captured in the region.
- Component 4 - Coordination, Monitoring and Evaluation and Programme Management: To support the countries to implement the programme in the context of the CSRP Strategic Action Plan, and to monitor and evaluate the results.

UEMOA Commission has also implemented the Project to Support Fisheries Information System (*Projet d'appui au système d'information pêche*). This project has established a database system for the sub-regional fisheries sector for the eight member countries.

(2) Issues on the Fisheries Sector in WAGRIC Sub-Region

The following issues are identified in the fisheries sector at the sub-regional level:

- Lack of capacity to produce enough fish for the increasing populations
- High cost of aquaculture industry due to imported feeds and fingerlings and limited competition in the domestic market for feeds production
- Limited implementation of fishery resources management
- Lack of institutions for capacity development for the fisheries industry

(3) Future Prospects for Fisheries Sector in WAGRIC Sub-Region

The consumption of fish in the sub-region will increase as the population of the sub-region reaches approximately 150 million by 2040.

According to FAO (Food and Agriculture Organization), current global per capita fish consumption is above 20 kg a year which has doubled in the past 50 years. However, in the WAGRIC countries the per capita fish consumption is smaller than the global average except for Ghana.

Table 7.2.9 Fish Supply Quantity Per Capita by Country in 2013

	Freshwater Fish	Marine Fish*	Total Fish Consumption
Burkina Faso	1.04 kg	5.63 kg	6.67 kg
Côte d'Ivoire	0.54 kg	14.55 kg	15.09 kg
Ghana	4.86 kg	19.71 kg	24.57 kg
Togo	1.31 kg	9.92 kg	11.23 kg
Benin	2.64 kg	10.05 kg	12.69 kg
Mali	6.14 kg	1.49 kg	7.63 kg
Niger	2.57 kg	0.12 kg	2.69 kg
Nigeria	3.01 kg	5.80 kg	8.81 kg

Note*: Marine Fish includes the total of fish under the category of marine fish and pelagic fish
Source: FAOSTAT HP (http://www.fao.org/faostat/en/#data/CL)

The current fish consumption of WAGRIC countries including imported fish is a little over one million ton as described in Table 7.2.6. If the average per capita fish consumption of the WAGRIC countries rose to the current global average of 20kg a year by 2040, necessary fish supply for all of the WAGRIC countries would become threefold, amounting to three million ton a year. Taking into account the other surrounding countries, there is a much larger future market in the whole sub-region. However, due to limited and deteriorated fishing resources in the Guinea Bay, strong support for aquaculture development is desired to fill this gap. Therefore, aquafarming is expected to grow in the WAGRIC sub-region.

(4) Sub-Regional Level Objectives for Fisheries Sector

The objective for the fisheries sector at the sub-regional level is to increase the amount of fish production for supplying sufficient animal protein for the increasing demand in the sub-region.

(5) Sub-Regional Level Basic Strategies for Fisheries Sector

The strategies for the fisheries sector at the sub-regional level are as follows:

- To increase the volume of farmed fish and to shorten the growth period of fingerling by increasing the availability of affordable quality fish feed in the market
- To improve the knowledge and skills of the people engaged in the fisheries sector by establishing sub-regional research institutes which could raise the level of the fishing industry in each country
- To promote sustainable use of fishery resources by conserving natural fishery resources
- To establish cold chains in the medium and long term for fresh fish distribution, at first along the Abidjan-Lagos Corridor and secondly along north-south corridors, for the increasing demand for fresh fish by the middle income population

7.2.4 Sub-Regional Level Development Strategies for Mining Sector

(1) Present Situation of Mining Sector in WAGRIC Sub-Region

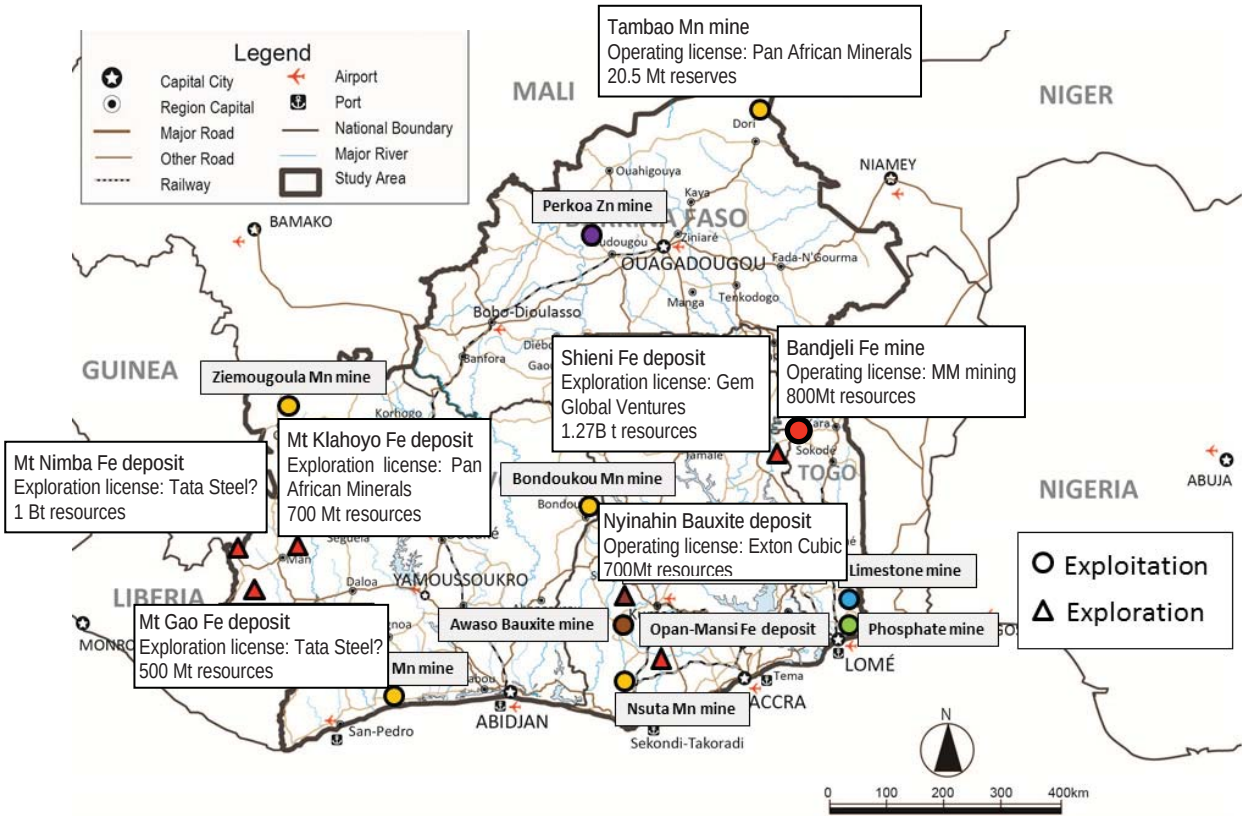
The mining sector has been playing a major role in economic development for WAGRIC countries. Especially for countries exporting gold, such as Burkina Faso and Ghana, mineral resources have been seen as one of the most important sources of foreign exchange. For example, the share of Burkina Faso's mineral export is over 50% of the country's total export followed by Ghana with almost 30%.

Table 7.2.10 Economic Contribution of Mining Sector in WAGRIC Countries

	GDP (2014, USD Million)	Total Export (2014,USD Million)	Mineral Resources Export (2014, USD Million)	Share of Mining Sector to Total GDP	Share of Mineral Resources to Total Export
Burkina Faso	12,503	2,845.6	1,462.9	7.9%	51.4%
Côte d'Ivoire	33,741	12,985.1	703.0	6.1%	5.4%
Ghana	38,616	13,277.2	3,725.8	8.3%	28.1%
Togo	4,594	724.9	90.3	3.3%	12.5%

Source: IMF World Economic Outlook Database, October 2015; Ghana Statistical Service; and ECOWAS, Regional Ecomac (http://www.ecomac.ecowas.int/en/index.htm)

Besides gold, WAGRIC countries also are rich in other mineral resources, such as iron, manganese, and bauxite, whose development potential is high. There are deposits with world-class reserves, and some projects are already underway to develop them. These relatively heavy and bulky mineral resources require railways for transporting mineral products for export. In other words, since these minerals could generate long-distant cargo demand, it is possible to make the development and operation of railway feasible. Manganese in Burkina Faso, iron ores in Côte d'Ivoire, bauxite in Ghana and iron ores at the border of Ghana and Togo are particularly important for enabling railway development.



Note: Manganese (yellow), Iron ore (red), Bauxite (brown)
Source: JICA Study Team based on various collected information

Figure 7.2.6 High Potential Mineral Resources and Mines for Railway Development in WAGRIC Countries

Table 7.2.11 Mineral Reserves and Resources and Production Forecast of Major Mines

Country	Ore Deposit	Reserves and Resources	Production forecast
Burkina Faso	Tambao Mn mine (Suspended)	107million ton measured, indicated and inferred resources[1]	3 million ton/year full production by 2017[1]
Côte d'Ivoire	Mt Nimba Fe deposit (Not developed)	1 billion ton of resources[2]	–
Côte d'Ivoire	Mt Gao Fe deposit (Not developed)	500 million ton of resources[2]	–
Côte d'Ivoire	Mt Klahoyo Fe deposit (Not developed)	700 million ton of resources	11 million ton/year[3]
Ghana	Nyinahin Bauxite Deposit (Not developed)	700 million ton resources[4]	2017: 3 million ton [5] 2018: 12 million ton [5]
Ghana	Shieni Fe Mine (Not developed)	1.27 billion ton Inferred resources[4]	–
Togo	Bandjeli Fe mine (Suspended)	800 million ton resources[6]	100,000 ton/year

Source 1: Timis Corporation Annual Report
Source 2: Ministry of Industry and Mines, 2015
Source 3: SODEMI, 2015
Source 4: Minerals Commission, 2015
Source 5: Exton Cubic Ltd, 2016
Source 6: Elenilto homepage,
http://www.elenilto.com/press/elenilto-rejoint-le-geant-chinois-wengfu-pour-lappel-doffre-relatif-au-phosphate-du-togo/

(2) Issues on Mining Sector in WAGRIC Sub-Region

The world's resource industries, including the mining industry, are entering a new phase after having experienced the beginning and end of unprecedented high metals prices caused by an insatiable Chinese appetite for resources, and capital flowing into emerging economies due to American quantitative easing.

The mining sectors of the four countries, especially Burkina Faso and Ghana, have been heavily reliant on gold production. They have been easily affected by volatile commodity markets. To avoid

risks to be caused by national economic structure relying on particular resources, it is necessary to promote the development of other mineral resources like iron, manganese, bauxite and phosphate, as well as to diversify economic sectors as a whole.

1) Advantages and Disadvantages of WAGRIC Countries

Bulky resources, such as iron, manganese, bauxite and phosphate in the four countries, are not well developed compared with the neighbouring countries. This may be due to lack of competitiveness compared with countries such as Guinea and Liberia, which have reserves of iron and bauxite that are much larger than those in WAGRIC countries. In addition to that, considering shipment to Europe, the deposits in Guinea and Liberia appear to have a geographical advantage.

However, the iron ore deposits in the vicinity of Mount Nimba and Mount Gao in Côte d'Ivoire, and the Nyinahin bauxite deposit in Ghana, are not inferior in scale to those of neighbouring countries, and the distance to ports is not far. However, the railroad infrastructure is either not being used at present, or the frequency of use is low, and rehabilitation of the facilities is necessary. Regarding manganese resources, it can be said that the Tambao Mine in Burkina Faso has excellent grade and reserves.

Besides iron, bauxite and manganese, the phosphate deposits in Togo appear to be some of the best in West Africa in terms of scale and grade, and this is the main factor that will support the great development of phosphate in Togo. There are occurrences of phosphate rock not only in developed areas along Togo's coast, but also in the interior and the unexplored areas around Bassar. There is a chance that successful exploration in this region will increase the development potential around Bassar.

Togo is also blessed with limestone which is exported to surrounding countries in the form of clinker and cement, and it is probably the country's second most important mineral resource after phosphate rock.

2) Fluctuation of Metal Prices

Due to various conditions, such as declining prices of metals, some of the mining development projects have been halted. Some examples of halted projects include Pan African Mining's project to develop the Tambao Manganese Deposit in Burkina Faso, and Tata Steel's project to develop the Mt. Gao Iron Deposits in Côte d'Ivoire. These projects have entailed memorandum or contracts that have been negotiated with governments which have incorporated agreements for things such as infrastructure development and returning profits to local communities. Despite these agreements, there are many cases where companies have not been able to keep their promises and development has been halted.

3) Country Risks

WAGRIC countries have followed the lead of advanced mining countries to revise their respective mining laws. Various measures are being employed to develop the mining industry. However, repeated revisions of such laws tend to make foreign investors nervous when they are making investment decisions. There are also cases where mining laws were revised when a new government took control, so the maintenance of a stable government is an important part of attracting foreign investors. As occurred with the Tambao Mine, for example, there are instances where problems arise when a contract is signed with one government but an interim government takes over, or there are sections of the contract that are not in accordance with new mining regulations. This kind of discord makes investors flee from investing in mining in that country.

(3) Future Prospects for Mining Sector in WAGRIC Sub-Region

An industrial structure that relies heavily on mining activities is highly affected by fluctuations of world mineral prices. However, it is important for each country to continue expansion of mineral resources exploitation including gold, manganese, bauxite, and iron, which have driven and will continue to drive the economic growth of WAGRIC countries.

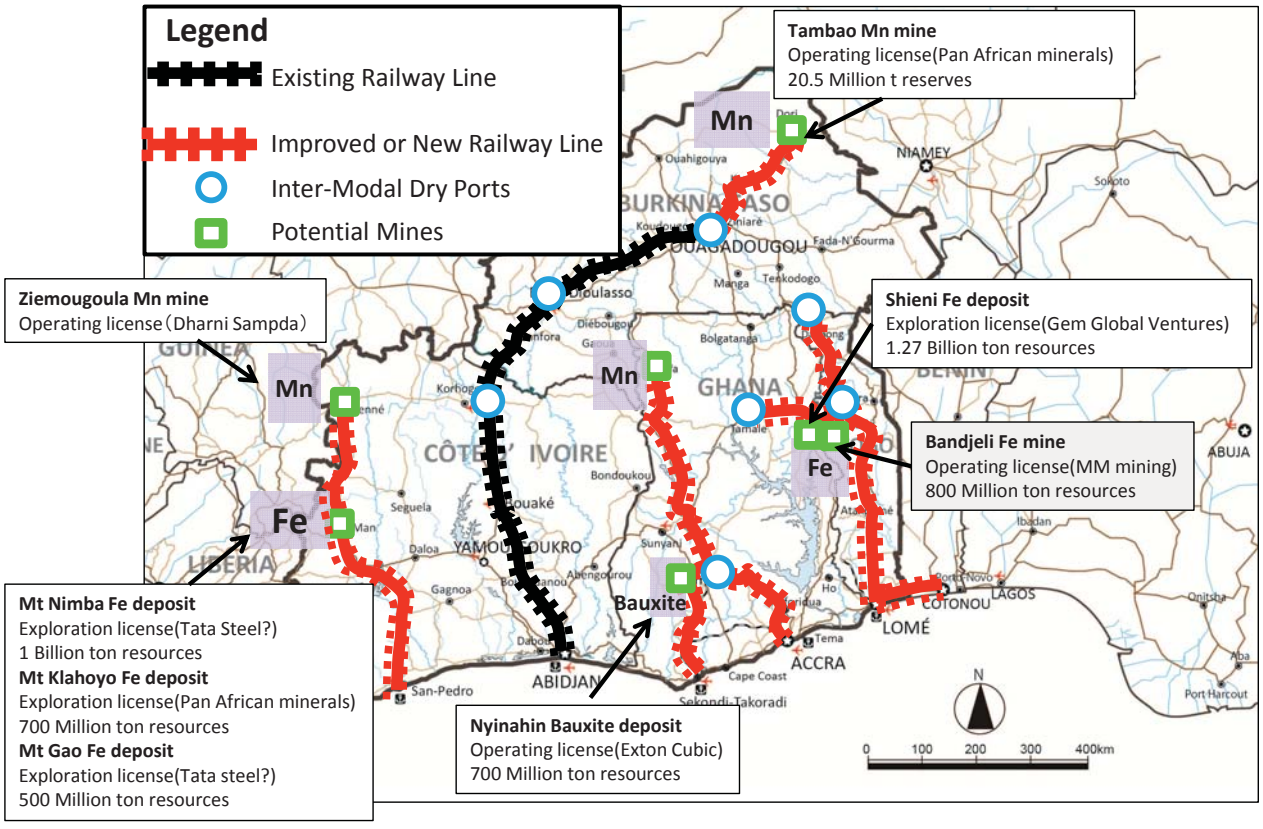
In addition to that, once the mineral prices rise again, great benefits can be obtained by mining companies. Therefore, it is important for each country to be prepared before the mineral prices are at high levels to utilize the existing mineral resources for their economic growth.

To maintain the advantages of existing bulky mineral resources, it is necessary to develop railways for transporting extracted ores to sea ports since rail transport is more cost-effective than road transport. Therefore, railway infrastructure should be developed for making mineral resources development possible and feasible.

There are some cases in Togo where railways are used to transport phosphate rock and limestone, but these cases are not long-distance transport.

It is important to consider the development of transportation infrastructure, especially railway, in conjunction with mining development. How to facilitate mining development and railway development is a key issue for corridor development. Which railway sections can be contributed by private mining companies needs to be well planned for actual implementation.

Figure 7.2.7 shows existing large potential mines which should consider railway development.



Source: JICA Study Team based on interviews

Figure 7.2.7 Bulk Mineral Resources and Railway Development

(4) Objectives for Mining Sector in WAGRIC Sub-Region

The objectives for the mining sector at the sub-regional level are as follows:

- For individual governments, as well as the UEMOA Commission and ECOWAS Commission, to continue expansion of mineral resources development by promoting foreign investments, not only for sustaining the economic growth of individual countries, but also for expanding the size of market of the sub-region.
- For individual governments, as well as the UEMOA Commission and ECOWAS Commission, to facilitate railway development for mineral resources exploitation.

(5) Sub-Regional Level Basic Strategies for Mining Sector

The strategies for the mining sector at the sub-regional level are as follows:

- To ease regulations on mining activities for promoting investments for exploration and exploitation, and to promote the export of ores mined (known as "mining investment promotion measures")
- To determine railway sections which should be supported by public finances and to start developing or rehabilitating those railway sections by public finances, so that mining companies can utilize those publicly built sections of railways by building the remaining rail sections for mineral transport.

7.2.5 Sub-Regional Level Development Strategies for Manufacturing Sector

(1) Present Situation of Manufacturing Sector in WAGRIC Sub-Region

The Gross Domestic Products (GDP) at factor cost in the manufacturing sector of WAGRIC countries are shown in Table 7.2.12. As for the manufacturing sector, the share in Côte d'Ivoire is outstanding among the 4-countries at 13.8%, followed by Togo at 6.5%. On the other hand, Ghana shows the highest share of the secondary sector at 28%, where the mining and quarrying sector including the oil and gas extraction industry accounted for more than 8%.

Table 7.2.12 Gross Domestic Product in Manufacturing & Secondary Sector of the WAGRIC Countries

	Burkina Faso	Côte d'Ivoire	Ghana	Togo
GDP at Current Market Price (2014, US$ Million)	12,503	33,741	38,616	4,594
Secondary Sector (% share of GDP)	21.9%	23.2%	27.7%	19.6%
Mining and quarrying (mining, petroleum, quarry)	7.9%	6.1%	8.3%	3.3%
Oil/Petroleum/Gas	*n.a.*	*n.a.*	*7.5%*	*n.a.*
Manufacturing	6.3%	13.8%	5.1%	6.5%
Production and distribution of electricity, gas and water	0.8%	0.7%	1.0%	3.4%
Construction	6.9%	2.7%	13.2%	6.5%

Sources: IMF World Economic Outlook Database, October 2015; Ghana Statistical Service; and ECOWAS, Regional Ecomac (http://www.ecomac.ecowas.int/en/index.htm)

Table 7.2.13 summarises the numbers of manufactures and their employees, and major type of sub-sector of manufacturing sector in the 4-countries. The number of manufacturers amounted to slightly less than 100 thousand in Ghana based on the Integrated Business Establishment Survey. As for the number of employees, Côte d'Ivoire amounted to 550 thousand in 2012, followed by Ghana at 440 thousand in 2015. The accumulation of manufacturers in Burkina Faso and Togo is small.

As for major sub-sectors, agro-products, food and beverages play important roles in the 4-countries. In Ghana and Côte d'Ivoire, chemicals, pharmaceutical and oil-refinery products also represent significant shares.

Table 7.2.13 Basic Information on Manufacturing Sector of the WAGRIC Countries

	Burkina Faso	Côte d'Ivoire	Ghana	Togo
Number of manufactures	2,346 (2008)	5,200 (2012)	99,437 (2015)	90 *1 (2014)
Number of employees of manufacturing sector	9,804 (2011)	550,839 (2012)	437,316 (2015)	2,408 *1 (2013)
Major types of sub-sectors of manufacturing sector	Agro-products, Beverages, Textiles	Agro-products, Oil refinery products, Plastic products	Agro-products, Chemicals, Construction materials	Agro-products, Beverages, Cement, Chemicals

Note (*1): Numbers in Free Zones and Customs Territory

Sources: Directorate General of Industry, Minister of Industry, Commerce and Handicrafts of Burkina Faso, Information of Ivorian Economy, Ministry of industry and Mines of Côte d'Ivoire, Summary Report of Integrated Business Establishment Survey of Ghana (2015), and Ministry of Commerce, Industry, Private Sector Promotion and Tourism of Togo

Ministries and agencies concerned with the manufacturing and industrial sector are summarized in Table 7.2.14. The Ministry of Industry of each country is the prime institution for overall industrial development in the 4-countries. In Ghana, the Ghana Free Zones Board (GFZB) and the Ghana Investment Promotion Centre (GIPC) play a large role to attract foreign investment through provision of industrial sites and one-stop services. In Côte d'Ivoire, the Investment Promotion Centre in Côte d'Ivoire (CEPICI) functions as a one-stop shop and the newly established Agency for the Management and Development of Industrial Infrastructures (AGEDI) is responsible for development of industrial zones. In Togo, SAZOF is responsible for free zone development.

Table 7.2.14 Institutions related to Manufacturing Sector of WAGRIC Countries

Burkina Faso	Côte d'Ivoire	Ghana	Togo
• Ministry of Industry, Commerce and Handicrafts (MICA): Prime institution for the overall industrial development; • Centre for Business Formalities (CEFORE): A single window for businesses; • Investment Promotion Agency (API-BF)	• Ministry of Industry and Mines (MIM): Prime institution for the overall industrial development; • Ministry of National Entrepreneurship, Promotion of SME and Handicrafts; • Investment Promotion Centre in Côte d'Ivoire (CEPICI): A one-stop shop to promote domestic and foreign investment and finance; • Agency for the Management and Development of Industrial Infrastructures (AGEDI)	• Ministry of Trade and Industry (MTI): Prime institution for the overall industrial development; • Ghana Free Zones Board (GFZB); • Ghana Investment Promotion Centre (GIPC); • Ghana Export Promotion Authority (GEPA); • National Board for Small Scale Industries; • Ghana Standard Authority; • Association of Ghana Industries (AGI)	• Ministry of Commerce, Industry, Private Sector Promotion and Tourism (MCIPT): Prime institution for the overall industrial development; • Agency for Investment Promotion and Free Zones (API-ZF); current Free Zone Administration (SAZOF): Responsible for free zone development; • Chamber of Commerce and Industry: As an investment promotion agency

Source: JICA Study Team based on the information of the ministries and agencies concerned

Existing development policies, plans and programmes for the manufacturing sector are summarized in Table 7.2.15. Almost all the countries stress expansion of the business environment including marketing, product competitiveness, trade promotion, strengthening of institutional framework including incentives, technological innovation, and human resources development. In Togo, integration of the agriculture and industrial sectors are emphasized.

Table 7.2.15 Existing Development Policies, Plans and Programmes for Manufacturing Sector of WAGRIC Countries

Burkina Faso (Sectoral Policy of Industry, Trade and Handicrafts: POSCIA)	Côte d'Ivoire (Industrial Policy)	Ghana (Industrial Policy)	Togo (Industrial Policy)
• Industrial Programme, with priority actions such as business competitiveness and development of SMEs / SMIs; • Trade Programmes that will run through implementation of priority actions • Crafts programme that will implement regulations for the craft sector • Private Sector Programme that will work towards improving the business environment, the identification and marketing, and • Pilot programme and support service including coordination and monitoring, management of financial and material resources, and human resources	• Strengthening the Incentive Framework such as (i) tax incentives for the investment period, (ii) tax incentive measures for exploitation, and (iii) tax incentives for SMEs • Improving the Business Environment • Major reforms such as implementation of the single window formalities • Support for specific sectors such as processing of agricultural products • Support for the Programme for Quality Management such as Law on Standardization and Quality • National Program for Restructuring and Upgrading	• Production and distribution through requisite skills, adequate and cost-competitive production inputs (raw materials) and services and finance for industrial development. • Technology and innovation through strengthening of the Science, Technology & Innovation (ST&I) and Research & Development and • Incentives and regulatory regime through (i) incentives for industrial development, (ii) industrial legislation and regulations, (iii) labour and industrial relations, (iv) spatial distribution and (v) strategic interventions	• Integration of the agriculture and industrial sector (i) to encourage intensification and expansion of the cultivation of agricultural commodities and (ii) to promote the harmonious operation throughout the country • Competitive products and compliance with standards • Industrial entrepreneurship (i) to acquire and develop industrial sites nationally, (ii) to develop industrial sites in each economic region and (iii) to encourage the development of private industrial parks, • Institutional capacity building for the related agencies/organizations.

Source: JICA Study Team based on industrial policies, plans and programs prepared by ministries of industry of the 4-countries

(2) Issues on Manufacturing Sector in WAGRIC Sub-Region

Table 7.2.16 shows issues and challenges in the manufacturing sector of the four countries, which are basically stated in industrial polices, plans or strategies. According to the table, technological support, access to raw materials and marketing promotion, infrastructure development such as industrial zones, cost competitive utilities such as electricity, establishment of standards, provision of long-term finance, institutional support for manufactures, and training for employees are designated as major issues and challenges.

Table 7.2.16 Issues and Challenges on Manufacturing Sector in WAGRIC Countries

Burkina Faso (by MICA)	Côte d'Ivoire (by MIM)	Ghana (by MTI)	Togo (by MCIPT)
• Unavailability of supporting infrastructure including specific industrial zones/areas devoted to manufacturers; • Difficulty in access to finance; • Lack of access to raw materials; • High cost of utilities (water and electricity); • Obsolete machines and equipment; • Constraints on the marketing and consumption of local products; • Constraints related to the supporting organizations	• Need for renovation of the industrial production system; • Need for rehabilitation of the existing industrial zones and economic infrastructure; • Need for improved training and employment report; • Difficulty in access to long-term financial resources; • Enhancement of the level of quality of industrial products	• Need to develop requisite skills and to ensure adequate and cost-competitive production inputs (raw materials) and services • Need for finance for industrial development; • Lack of adequate and cost-competitive physical infrastructure; • Strengthening of the Science, Technology & Innovation (ST&I) base; • Need to establish standards for industrial development	• Low Competitiveness of Togolese industrial products; • Low level of investment in the industrial sector; • Poor integration of industrial sector to the rest of the economy; • Low support to industries through the related departments and agencies; • Lack of infrastructure (developed industrial zones, inadequate communication channels, low extension of ICT)

Source: JICA Study Team based on industry policies, plans or strategies prepared by ministries of industry of the 4-countries

WAGRIC countries share the foundation of economic integration because the four countries belong to ECOWAS and the three Francophone countries belong to UEMOA. Also, foreign private investors, including Japanese, see increasing business opportunities in response to prospective economic growth especially in the Abidjan-Lagos area, including the oil and gas sectors, as well as electricity.

However, in addition to the above-mentioned issues on each country, the following are raised as issues or challenges to deter smooth development of the manufacturing sector from the viewpoint of sub-regional corridor development:

- There are no upgraded roads connecting the three costal countries (Côte d'Ivoire, Ghana and Togo) with the inland neighbouring countries (Burkina Faso, Mali and Niger), although there are two-lane paved roads, of which some sections are not always well maintained.
- Insufficient power supply situation except for Côte d'Ivoire
- Slow implementation of the regulations and rules of the customs union agreed by UEMOA and ECOWAS
- Nigeria's policies for nurturing and protecting domestic industries are detrimental to sub-regional economic integration, but there still remains a high possibility to attract foreign and domestic investment to manufacturing sectors targeted at sub-regional markets
- Not much investment attracted to economic sectors in the WAGRIC countries

(3) Future Prospects for Manufacturing Sector in WAGRIC Sub-Region

Based on the data and information collected and observations, future prospects for the manufacturing sector in WAGRIC countries are discussed below.

1) Prioritized Industries

Several industrial subsectors are prioritized through industrial policy, plans and programs or investment promotion schemes by the governments of WAGRIC countries as shown in Table 7.2.17.

Agro-processing (e.g., cocoa, oil palm, cereals, fruit and vegetables), food and beverages, light industries such as textiles and garments, plastics, and chemicals including pharmaceutical products are major prioritized types of industrial subsectors.

Although the current industrial policies do not emphasize the development potentials of machinery, electrical or electronics, or automobile industries, production of the parts or associated products for them will be highly expected in the long term.

Table 7.2.17 Prioritized Subsectors in WAGRIC Countries

	Burkina Faso	Côte d'Ivoire	Ghana	Togo
Priority Subsector in Manufacturing	1. Agro-processing and food (cotton, cereals, fruits, vegetables, milk, meat, hides & skins, etc.) 2. Fabricated metal 3. Plastics and rubber 4. Construction materials 5. Chemical products such as fertilizers and pesticides 6. Pharmaceutical products (by Minister of Industry, Commerce and Handicrafts)	1. Agribusiness (oil palm, cashew, cotton textiles, cocoa, hevea, fruits and vegetables); 2. Structural industries (Metallurgy and Steel Plant, Cement, Chemicals, etc.); 3. Consumer products (Textiles, Packaging, Generic Drugs, etc.); 4. Light manufacturing (Assembly and Installation, Equipment). (by Ministry of Industry and Mines)	1. Agro-processing (cocoa, oil palm, sugarcane, cassava for industrial starch, etc.) 2. Food and beverages 3. Chemical products (such as fertilizer) 4. Pharmaceutical products 5. Light industries such as garments and furniture 6. ICT 7. Industries in linkage with the mining industry (by Ministry of Trade and Industry)	1. Agro-processing (utilizing raw materials such as cereals oilseeds, palm, coconut, cashew nuts, cotton seed, fruits (pineapple, mango), cashew nuts, flowers and aromatic and medicinal plants, vegetables and cash crops (coffee; cocoa, cotton)) 2. Cement 3. Light industries (by Ministry of Commerce, Industry, Private Sector Promotion and Tourism
Priority Sector (larger categories of the sector)	Livestock sector Manufacturing Mining Construction (by Minister of Industry, Commerce and Handicrafts)	Agro-processing Oil & Gas Mining ICT (by CEPICI)	Energy, Oil & Gas Infrastructure Agriculture Tourism Manufacturing Gold Refinery Services ICT Financial Education Health Care (by GIPC)	Agriculture Arts sector Service provider Transportation Tourism Energy Industry Housing Vocational Training (by Chamber of Commerce and Industry)

Source: JICA Study Team based on Industrial Policies and Investment Promotion Policies by Ministries Concerned

2) Development of Industrial Zones and Free Zones

Table 7.2.18 shows the overview of existing or planned industrial zones and free zones (including export processing zones) in WAGRIC countries. As the basis to attract the above-mentioned prioritized types of industrial sub-sectors or investors, development of the industrial zones, free zones or special economic zones are critically important.

Table 7.2.18 Overviews of Industrial Zones and Free Zones in WAGRIC Countries

	Burkina Faso	Côte d'Ivoire	Ghana	Togo
Existing Industrial Zones/Free Zones	Gounghin Industrial Zone Kossodo Industrial Zone Bobo-Dioulasso Industrial Zone	Yopougon Industrial Zone Kumasi Industrial Zone Vridi Industrial Zone	One Export Processing Zone in Tema, one in Takoradi (Shama Export Processing Zone), one in Sekondi (Sekondi Export Processing Zone) and one in Kumasi (Ashanti Technology Park) Also, one IT park in Tema	Four Export Processing Zones (EPZ); three in Lomé and one in Kara
Planned Industrial Zones/Free Zones	New industrial zone in the province of Houet Two new industrial sites one each at Tanghin Dassouri and Koubri both in the province of Kadiogo	PK24 project in Abidjan Industrial zones in Bonoua, San Pedro, Bouaké, Yamoussoukro, Man, and Korhogo through PPP scheme New zone for ICT and biotechnology in Grand-Bassam	Tamale Industrial Zone (at Sagnarigu District adjacent to Tamale in the Northern Region) ICT Park at Cape Coast	New industrial areas of Kpomé and Adétikopé
Legal framework of Free Zones	-	-	Ghana Free Zone Board Act	Export Processing Zone Act
Organization for promoting Free Zones	-	Agency for Development of Infrastructure for Industries (AGEDI)	Ghana Free Zone Board (GFZB)	Management Company of Free Zones (SAZOF)

	Burkina Faso	Côte d'Ivoire	Ghana	Togo
Conditions of Free Zones	-	Desirable areas: Biotechnology, Information, and Communication technologies, banks and financial institutions to support the investments made in the Free Zone	At least 70% of annual production of goods and services of Free Zone Enterprises must be exported	Carry out a processing or a service activity Guarantee export of their production of goods and services Reserve permanent jobs for Togolese nationals on a priority basis
Benefits/Incentives of Free Zones	-	Customs and Duties Benefits: 0% Customs duties on import and export, 0% income tax for the first five years of operation, 0% Value added tax on electricity, water and oil consumption, etc. Other Benefits: (Free transfer of funds on salaries and distributed dividends, A one-stop shop for the fast processing of administrative operations, Long term visas and work permits for foreign workers and their families, etc.)	Customs and Duties Benefits: (0% Customs duties on import and export, 100% exemption from payment of income tax on profits for 10 years which will not exceed 8 per cent thereafter, total exemption from payment of withholding taxes from dividends arising out of free zone investments, relief from double taxation for foreign investors and employees, etc.) Other Benefits: (No import licensing requirements, 100% ownership of shares by any investor, etc.)	Customs and Duties Benefits: (0% Customs duties on import and export, 10 year exemption from VAT on goods and services earmarked for the setting up and operation of the companies, stabilization of corporate duty at the reduced rate, reduced flat rate of 2% payroll tax for the lifetime of the company (as against 7% regular rate), reduction in business license tax according to graduated scale, etc.) Other Benefits: (Preferential tariffs are granted to free zone companies on the provision of public utilities)

Source: JICA Study Team based on Pamphlets, Webpages, or Interviews with the relevant Ministries and Agencies

(4) Objectives for Manufacturing Sector in WAGRIC Sub-Region

Major objectives for the manufacturing sector of the countries are as follows:

- To revitalize the existing industrial zones to boost the economy along the East-West (or Coastal) and North-South Corridor areas,
- To develop new industrial zones to strengthen private sector activities in accordance with the appropriate type of industrial subsector such as agro-based industries with high value-added products,
- To develop "Agropole" or equivalent development scheme to integrate the industrial sector into the other sectors (agriculture, livestock, fisheries, trade, etc.) and to increase the processing of local raw materials,
- To strengthen the capacity of industrial supporting agencies or organisations,
- To strengthen the capacity of employees through upgraded public and private vocational training schools

(5) Sub-Regional Level Basic Strategies for Manufacturing Sector

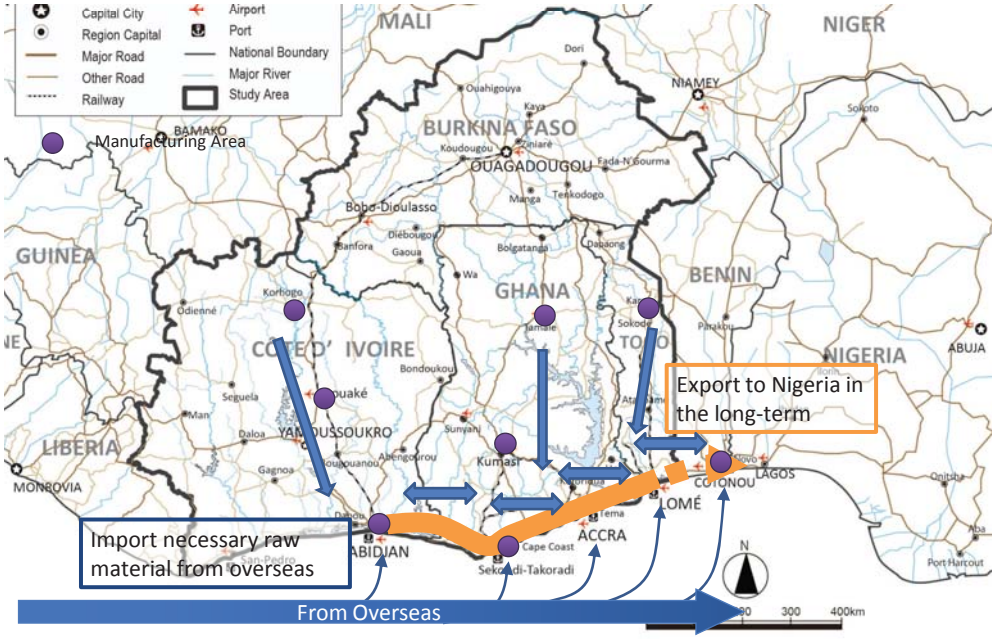
Major strategies for the manufacturing sector of the countries are as follows:

- Formulation and implementation of development and redevelopment or modernization programs of industrial zone and free zones for manufacturers along the Corridors,
- Formulation of action plans for investment promotion and negotiation with developers and potential investors/tenants,

- Formulation of action plans for strengthening of industrial supporting agencies or organisations,
- Development and promotion of SMEs through improvement of access to credit for SMEs, strengthening of business development services and value-chain promotion,
- Capacity development of human resources through upgraded technical and vocational education and training
- Provision of necessary infrastructure: road improvement; revitalization of railways; power generation and transmission, and so on.

Based on the above-mentioned prospects, objectives and strategies, from the perspective of product flow, the future images for midterm and long term development of the manufacturing sector are shown in Figure 7.2.8 and Figure 7.2.9.

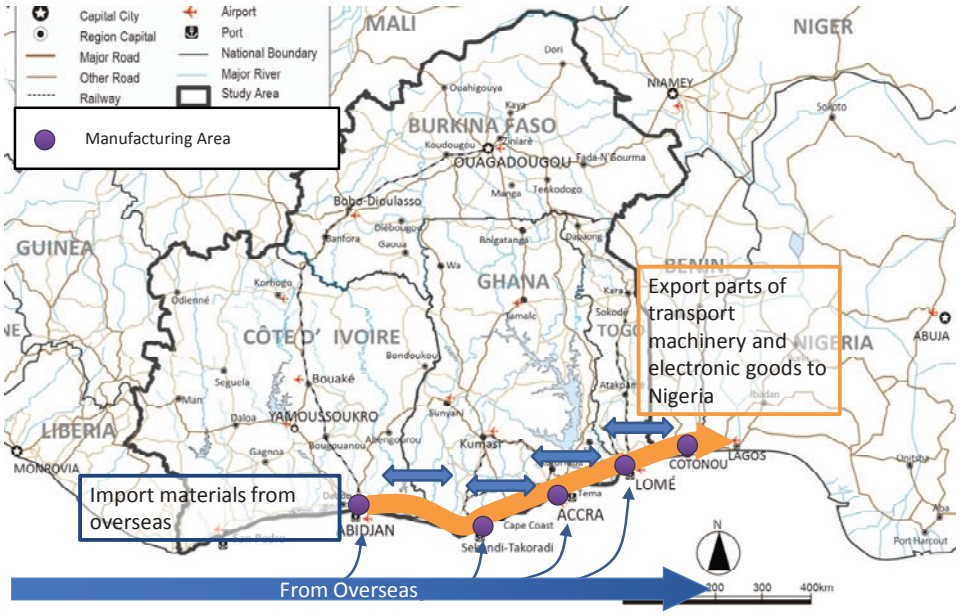
Figure 7.2.8 shows the flow of products such as (i) food including confectionery, noodles, tomato paste, and health food and beverages, (ii) daily use commodities including plastic products, (iii) chemicals and pharmaceuticals, and so on. Some raw materials are imported and others are produced or processed at industrial areas within the WAGRIC countries. Also, some of the final goods will be exported to the market of Nigeria.



Source: JICA Study Team

Figure 7.2.8 Flow of Products such as Food and Daily Use Commodities

On the other hand, Figure 7.2.9 shows the flow of parts and associated products for automobiles and electrical and electronic products, which are mainly produced or processed at the industrial areas along the East-West Corridor or the Coastal Corridor, to the final assembling factories in Nigeria.



Source: JICA Study Team

Figure 7.2.9 Flow of Parts and Associated Products for Automobiles and Electronic Products

(6) Sub-Regional Level Priority Projects for Manufacturing Sector

1) Development of Industrial Zones, Free Zones and Special Economic Zones

As shown in Table 7.2.18, several Industrial Zone or Free Zone development projects are currently ongoing. Those zones will become the key basis to accept manufacturers to start or expand their production. Development of the industrial zones in the suburban or local areas should be initiated by governments or public corporations as a pilot project, although most of the governments in the WAGRIC countries plan to develop industrial zones through PPP scheme or developers.

2) Formulation of Industrial Master Plan at the Sub-regional Level

Formulation of comprehensive industrial master plan for the WAGRIC countries or totally sub-regional level (ECOWAS countries) will be proposed although each country has industrial policies and programs. The master plan should cover future directions at the sub-regional level, which are composed of selective industrial accumulation in the industrial zones and free zones, distribution of functions of the prioritized types of industry, internal and external trade promotion, investment promotion, the border area customs services development, common human resources development for the ministries and agencies concerned, and so on. The process of formulation of the master plan will enhance the sound competitiveness among the WAGRIC countries.

3) Strengthening of Technical and Vocational Education and Training (TVET)

There are several public and private training schools in the four countries, but it is needed to strengthen them by providing standardization of training programs/curriculum with common certificates for the trainees in the WAGRIC countries. Also, it is important to raise the level of trainers at vocational training schools through provision of intensive training in the prestigious private companies, foreign vocational schools, polytechnics or colleges.

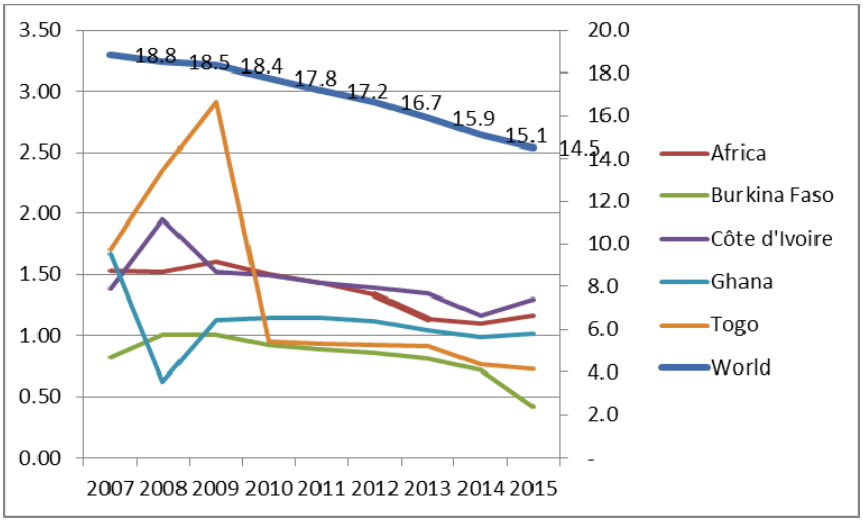
7.2.6 Sub-Regional Level Development Strategies for ICT Sector

(1) Present Situation of ICT Sector in WAGRIC Sub-Region

Historical statistics of telephony and internet penetration indicate the following:

- Mobile phones are well penetrated.
- Internet utilization is expected to be expanded.

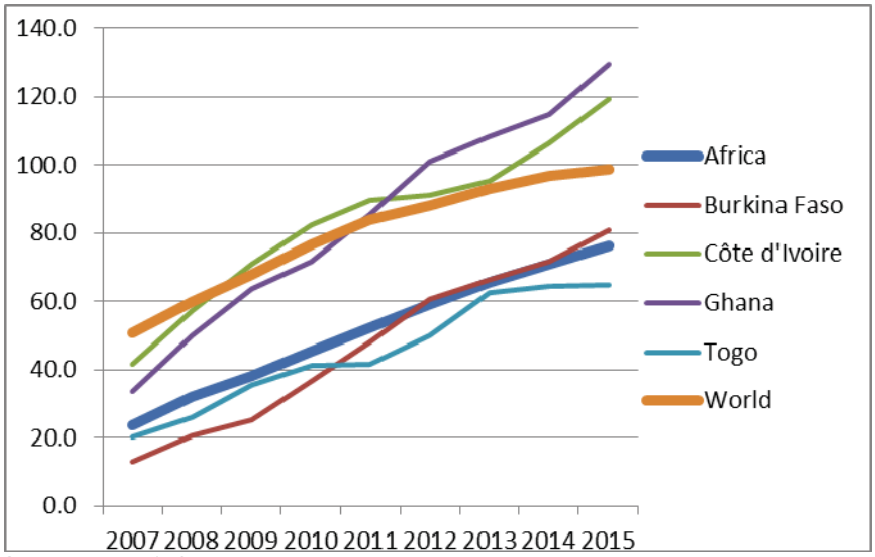
- Broadband connection is still low.



Source: ITU, 2016

Figure 7.2.10 Fixed-line Phone Subscription (Unit: %, World: Right Axis, Others: Left Axis)

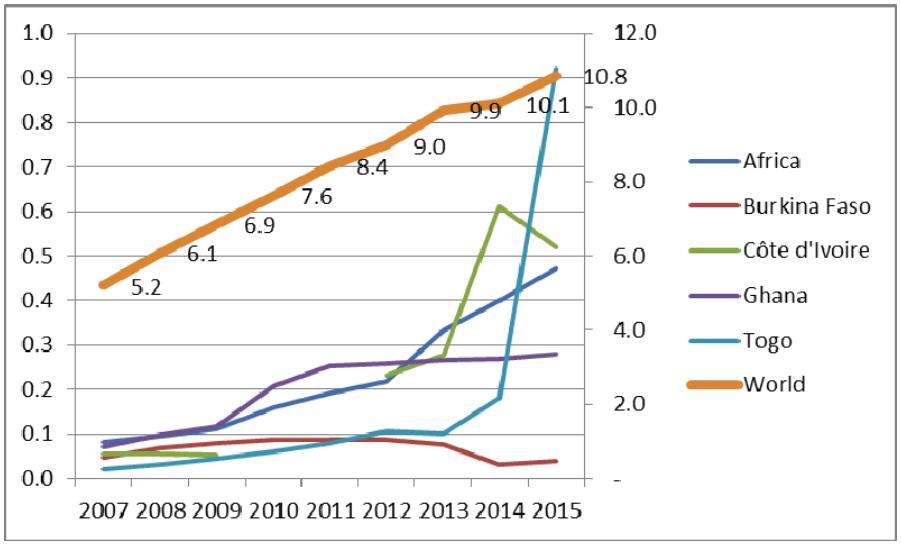
Fixed-line telephones have penetrated into the WAGRIC countries at a much lower rate than the world average, even lower than the African average (except for Togo). The same as the global trend, the fixed-line subscriptions will be declining. In Africa, fixed-line services are very marginal.



Source : ITU, 2016

Figure 7.2.11 Mobile Phone Subscription (Unit: %)

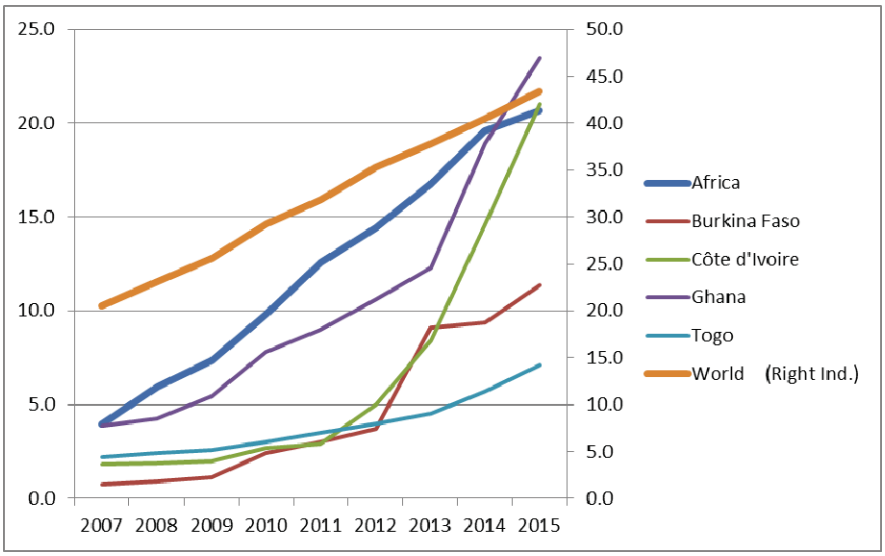
Mobile-phone subscription in the WAGRIC countries is close to the global average. Average figure of UEMOA in 2015 was 85.6%, while ECOWAS was 86.3%. The smallest penetration in 2015 in the 4 countries was Togo at 64.95%, but it must have become 70% or higher, looking at the figure for the World or Africa in 2015. This figure means that there were more than 1 handset per 1 working aged person and that is more or less the same figure as for the USA, France or Japan in 2005. Thus mobile-phone applications are ready to be expanded.



Source: ITU, 2016

Figure 7.2.12 Fixed Broadband Subscription (Unit: %, World: Right Axis, Others: Left Axis)

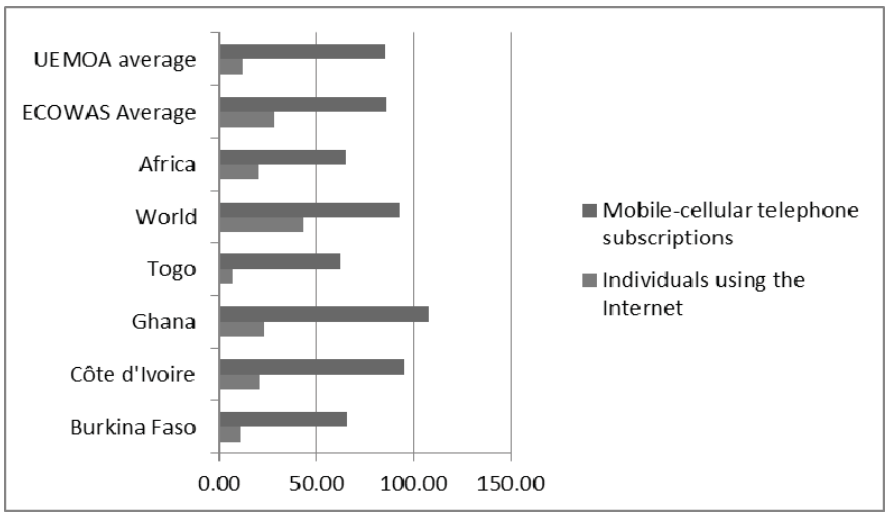
Looking at fixed broadband connections, there is no country data. Figure 7.2.12 shows only fixed-line subscription trends. Here, world average is 10.8% and African average is 0.5%, while available statistics indicate that the world average of mobile broadband subscription was 47.2% in 2015 and Africa's is 17.2%. Growth of broadband is expected.



Source: ITU, 2016

Figure 7.2.13 Individuals Using the Internet (Unit: %, World: Right Axis, Others: Left Axis)

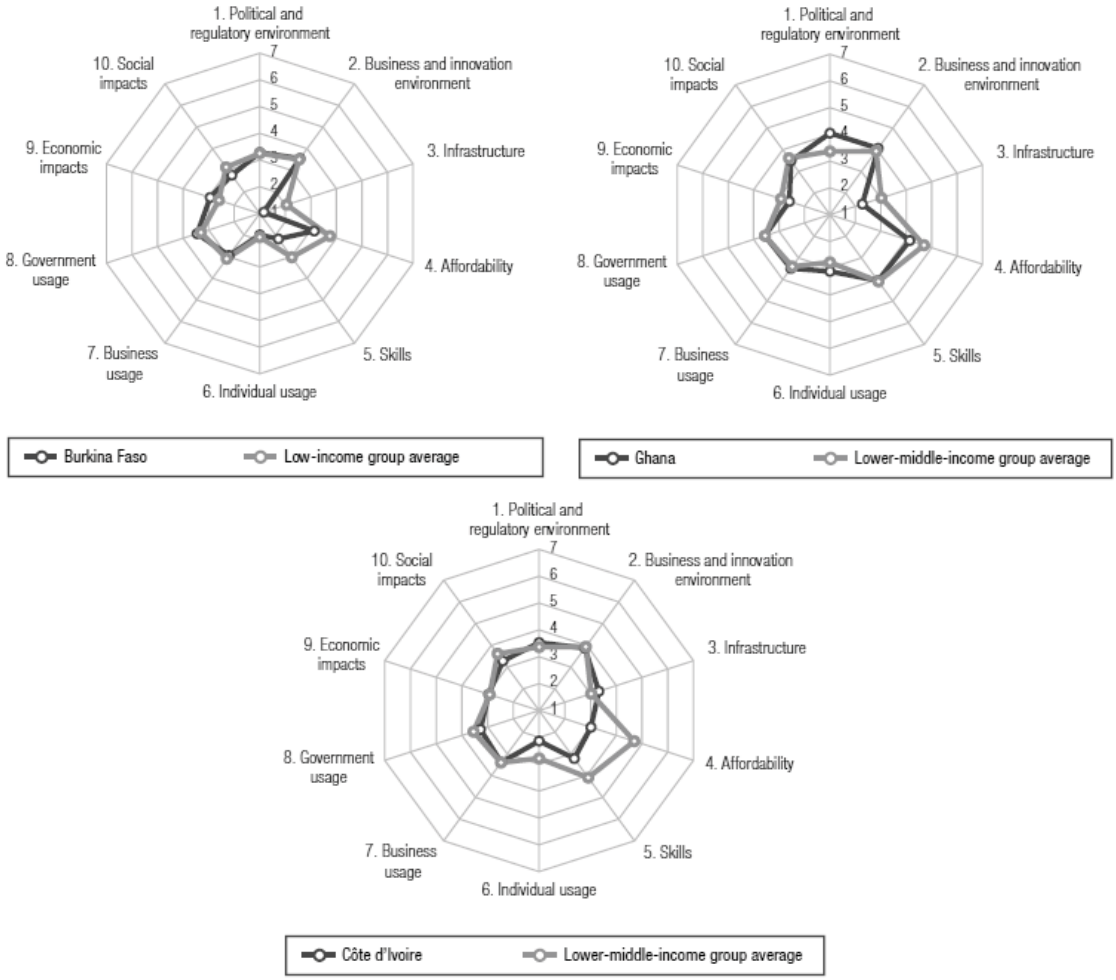
In comparison with the widely-spread mobile phone usage, the general connectivity (internet access by PCs and tablets) is limited mainly due to economic reasons. An alternative way to increase the internet access is to prepare facilities where people can share PCs or tablets. The development of public telecentres or cyber-centres are alternative ways to provide the people with more opportunities to reach the internet. Figure 7.2.14 shows the comparison of internet penetration and mobile-phone penetration. This shows that mobile phones are well penetrated in the four countries and UEMOA countries, in comparison with the world average or African average, while internet penetration is much lower than the average of ECOWAS. (ECOWAS's internet penetration level was raised by the presence of Nigeria.)



Source: ITU, 2016

Figure 7.2.14 Comparison between Internet Usage and Mobile Phone Subscription

Though there is no data for Togo, the WEF (World Economic Forum) annually publishes a report named "WEF Global IT report". From the 2015 publishing, the positions of the three countries (Burkina Faso, Ghana and Côte d'Ivoire) in the world (165 countries) are shown in Figure 7.2.15.



Source: Global IT Report 2015 (World Economic Forum)

Figure 7.2.15 Comparison of ICT Situations among Burkina Faso, Côte d'Ivoire and Togo

The 165 countries are categorized into four groups, namely 62 high-income countries, 41 upper-middle income countries, 37 lower-middle income countries and 25 low-income countries. Ghana and Côte d'Ivoire belong to the low-middle income group. On the other hand, Burkina Faso

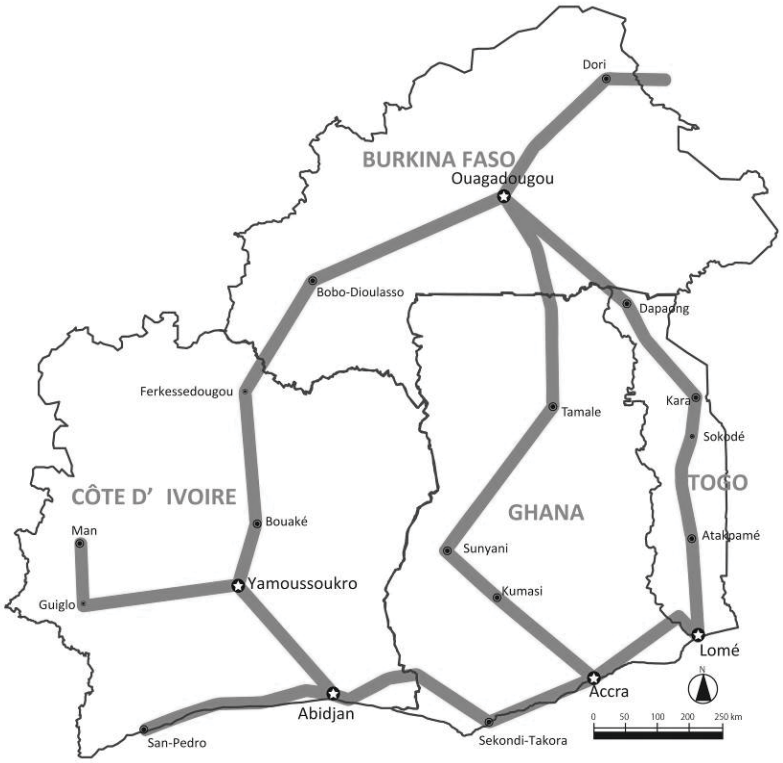
belongs to the low income group. Ghana is almost at the average of all the groups. Côte d'Ivoire also has some areas where evaluation values are lower than the group average. Burkina Faso's situation is close to group average, but is slightly lower. Togo's position is supposed to be similar to Burkina Faso. In order to join the higher income group, it is necessary to overcome the existing group average. It is important firstly to focus on weak areas. But continuous effort to upgrade the relatively strong areas is also required.

The ICT situation, especially regarding the WAGRIC countries, is summarized in Table 7.2.19.

Table 7.2.19 ICT Situation: Comparison among WAGRIC Countries

	Burkina Faso	Côte d'Ivoire	Ghana	Togo
Policies	Strategy for Accelerated Growth and Sustained Development (SCADD)	The National Development Plan (PND	ICT4AD GSGDA(Overall Plan)	The Strategy for Accelerated Growth and Promotion of Employment (SCAPE)
Major Organizations	Ministry: MDENP Implementation: ANPTIC	Ministry: MENUP Implementation: ANSUT/SNDI	Ministry: MOC Implementation: NITA	Ministry: MPEN
e-Government	-Developing network -Planning -Applications	-Developing network -Planning -Applications	-Expanding network -Implementing -Applications	-Implementing network
Integrated Data Centre	Planning	Existing (still small)	Existing	Planning
ICT Park	Planning	Existing. Planning to expand	Under Construction	In the Planning Phase
Association of ICT Industry	Inconspicuous	GOTIC	GASSCOM	Inconspicuous
Human Resources Development	-National school of Computer Science. -Small private schools	-ESATIC -Private Schools -Vocational schools	-ANTI-CAFÉ -Private Schools	-Private Schools -Universities

Source: JICA Study Team based on Interview, 2015



Source: JICA Study Team based on interview from responsible agencies in the 4 countries

Figure 7.2.16 Major Optic Fibre Network in WGRIC Sub-Region

Coastal countries are in a better position in terms of international connections because submarine cable connections are available. Inland broadband infrastructure is being expanded by optic fibre cable and wireless solutions.

UEMOA is taking care of telecommunication policies as well as some initiatives in the sub-region (Ghana is out of scope) as below:

- Interconnection (between capital cities of eight countries by optic fibres)
- Large Access to ICT thru Universal Access
- Annual Regulation Authorities conference
- Security (Personal Information Protection /e-Commerce regulation / Cyber Security)

(2) Issues on ICT Sector in WAGRIC Sub-Region

1) Weak Telecommunication Network

The backbone network is nation-wide constructed in Ghana and Côte d'Ivoire with good international connections including submarine cable connection and in-land connections, while Togo and Burkina Faso need more installations.

Because of rapid growth of traffic including new types of heavy data more than voices or texts, the effort to additionally develop and to upgrade the network is necessary.

Currently, at least along with the target corridors, there exist optic fibre cable lines. However by the reason above, capacity to install new cables along with infrastructures like highways, railways, pipe lines and even electricity lines should be prepared at the time that they are constructed. Actual implementation of cable should be executed by prioritizing from the various aspects.

Access lines are practically and mainly to be wireless for quicker and cheaper installation.

Except for Togo, telecommunication operation is fully liberalized and privatized as is the global trend. Private operators are competing in health, with public policy like universal services. Price level to users are still relatively high. UEMOA is thinking about price caps for them and making roaming service cheaper or implementing one network services. It is obviously good for consumers and business users. Though those policies may force operators to make a larger investment, as a result, only huge companies can participate in the market.

2) Other ICT Infrastructure (data centre, etc)

All of the four countries have or plan to have national data centres where government systems, enterprise systems, cloud systems can be accommodated. It is important to have solid, secure but convenient facilities for the ICT services. They are located near the main corridors. That will provide ICT support to infrastructures and industries. Without these and with good prepared telecommunication infrastructure and more deeply penetrated ICT equipment, utilizing services in foreign counties means increasing imports. Local contents (digital contents, software, services which are used in the countries or the region) should be grown in the counties or the region.

ICT is definitely mandatory for physical and virtual corridor development, regional integration and growth. Data centres and related facilities in each country should take central rolls in the region in order to support them.

A and ICT park can also be a landmark which attracts ICT or High-tech companies from both local and foreign countries. Whether intentionally built or unintentionally, those types of successful facilities in other countries often became famous, attracting industries,

3) e-Government

All of the 4 countries have e-Government initiatives. However, at this moment, except for Ghana they are still in the infrastructure development stage such as dedicated network for central and local government offices. The concept and example applications are very common all over the world.

Major and necessary concepts are as follows:

- To keep transparency & accountability using ICT
- To improve efficiency of government operation using ICT
- To provide convenience to citizens by ICT

All projects have to be evaluated from the above concept view point in prioritization and calculation of investment-effectiveness. Grand designs including applications exist. It should be reviewed from the above point of view to improve and draw the detailed projects more than just listing them with process chart. And the progress must be monitored periodically. Though some infrastructure is mandatory, even minimum infrastructure can be enough to start mounting applications. In parallel with constructing the infrastructure, application and service development must be kicking off. In order to reduce cost, joint or shared development beyond borders in the region, or distribution of existing e-Government software is expected.

(3) Future Prospects for ICT Sector in WAGRIC Sub-Region

ICT needs have been growing in businesses, personal uses and civil society. More users must reach ICT, more applications must be developed and used, and more data must be handled by network capacity. Connectivity requirements are becoming higher and software/digital contents development and implementation needs are growing.

ICT Infrastructure in WAGRIC will be gradually improved. However, it should be accelerated more to catch up with developed counties and future expansion of ICT needs.

It must be considered that better telecommunication infrastructure may permit easier access to foreign contents:

- Cloud services and other ICT services in foreign countries
- Software / contents developed in the foreign countries

Along with ICT infrastructure development, development of local contents is highly expected.

(4) Sub-Regional Level Objectives for ICT Sector

1) Direct Contribution to Economy

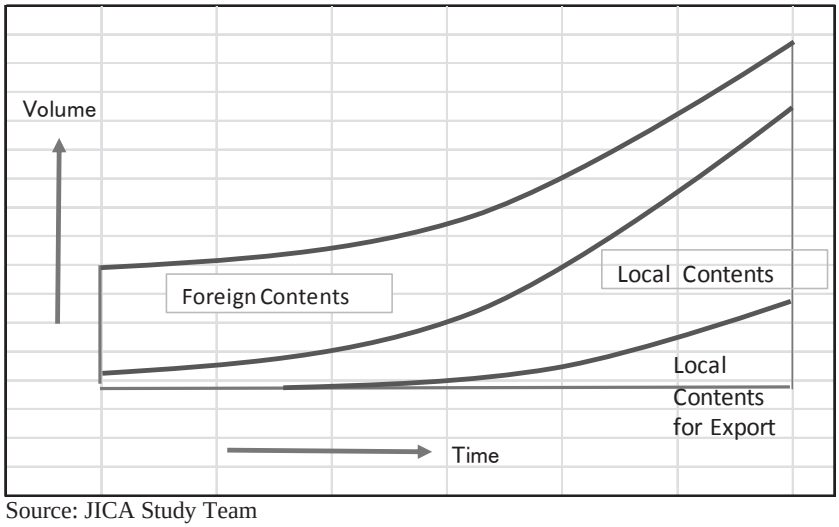
More local contents nationally or regionally to avoid too much ICT import and to collect knowhow in the region

Create and keep local contents in the country or the region. These should be developed by local resources and stored in the data centres in the country or the region but not outside of the region.

Local contents here include:

- Data generated manually/automatically in the country or region.
- Software for use in the region. It should be developed locally as much as possible.
- Digital contents should also be developed locally

It is much better that local contents will be sold to foreign countries.



Source: JICA Study Team

Figure 7.2.17 Digital Contents Growth Image

ICT as a New Industry

ICT is a new industry, which could contribute to economic development, as well as to generation of more employment opportunities, especially for females and rural residents.

- Development and operation of local contents
- ICT enabled development of Service Industries, such as BPO (including call centres), e-Commerce, and Knowledge process outsourcing

2) ICT Development Contributing to Sub-Regional Integration

ICT can be an important tool to accelerate sub-regional integration. Some of potential applications are:

- e-Government (each country must have good governance)
- Custom's integration
- Cargo tracking beyond borders

3) ICT for Improving People's Lives

- More employment opportunities in the ICT sector for females and rural residents
- ICT in education, healthcare
- Modern agriculture requires ICT support.

4) ICT for Supporting Other Economic Sectors (including Agriculture)

(5) Sub-Regional Level Basic Strategies for ICT Sector

1) Preparation/Improvement of ICT Infrastructure

- Expansion of telecommunication trunk lines to rural areas
- Upgrade mobile technology.
- At least a few robust data centres in each country and interconnection of those data centres.
- Mutual facilities and data preservation

2) Human Resources Development

- Human resources development (HRD) for ICT sector (telecommunication, systems development, project management, system operation, designers, etc.)
- ICT for education for school age students and industrial personnel
- ICT skills for users

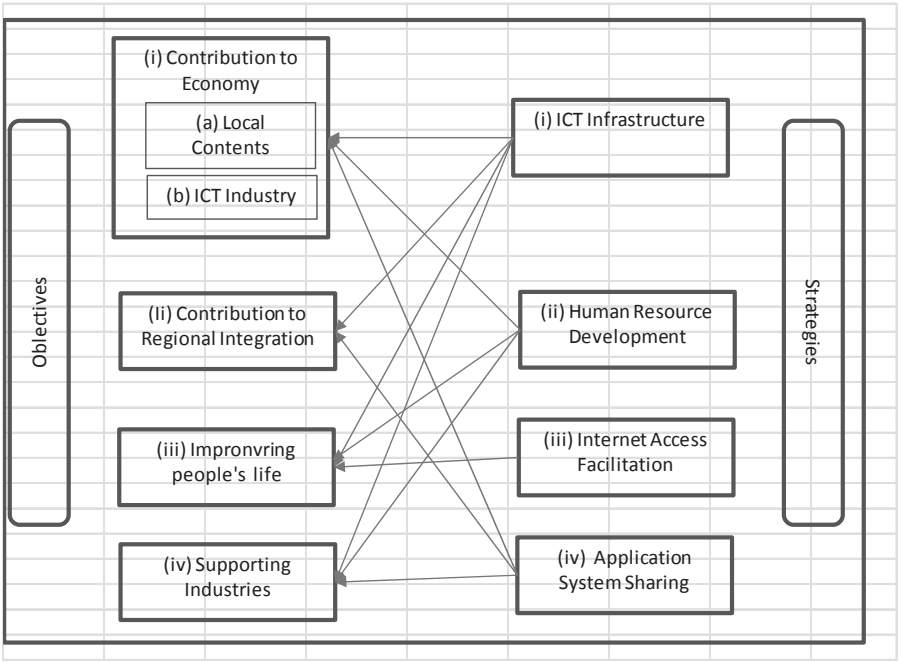
3) Promotion of Internet Access for more Citizens

- Promotion of public internet access places with PCs and other equipment for citizens widely distributed in the sub-region
- Improvement of general web access, specific applications can be used such as;
  - e-education
  - e-health
  - e-Agriculture

4) Development of Sharing Schemes for Public Application Systems

- Application software developed in the sub-region should be shared by sub-regional countries in order to avoid duplicated development and to accumulate experience
- Those software programmes are to be loaded in the cloud servers in the sub-region for users in the sub-region, or
- Data exchange centres by applications

In the case of Customs' system connection, instead of one to one connections, the central exchange function should be established in a central location to support control of all of the data exchange from a centre to any other centres.



Source: JICA Study Team

Figure 7.2.18 Relationships between Objects and Strategy for ICT Industry

7.2.7 Sub-Regional Level Development Strategies for Oil & Gas Sector

(1) Present Situations of Oil and Gas Sector in WAGRIC Sub-Region

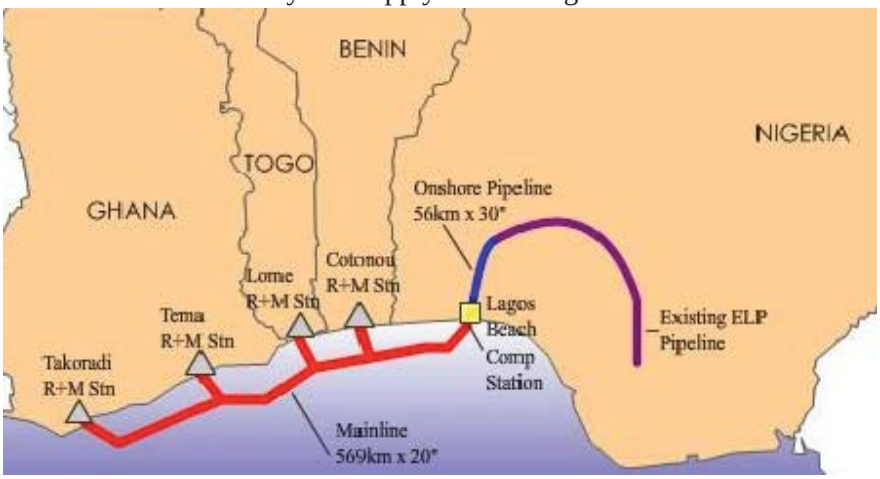
1) Oil Sector

- Out of the WAGRIC countries, crude oil is only produced in Côte d'Ivoire and Ghana. Nigeria produces a large volume of crude oil, more than 60 times that produced in Côte d'Ivoire or more than 20 times that in Ghana.
- Côte d'Ivoire's proved reserves (remaining recoverable reserves as of 30th June, 2015) of crude oil were 203 million barrels. Current oil and gas production in the country is estimated at 60,000 BOE (Barrel of Oil Equivalent) per day. It will increase to at least 100,000 BOE per day by the year 2020.
- Ghana's total proved reserve base for 2014 were approximately 876.7 million barrels of oil. Ghana's total production amounted to 100,000 barrels of oil per day in 2015.
- There are three oil refineries in the WAGRIC sub-region. One is Tema Refinery (TOR) in Ghana. Others are Société Ivoirienne de Raffinage (SIR) and Société Multinationale de Bitumes (SMB) in Côte d'Ivoire.
- There are import terminals for refined petroleum products in Abidjan, Tema, and Lomé from which products are sent all over the country and neighbouring countries by road, rail, or pipeline.

2) Gas Sector

- Out of the WAGRIC countries, natural gas is only produced in Côte d'Ivoire and Ghana. Nigeria produces a large volume of natural gas, 15 - 20 times what is produced in Côte d'Ivoire or approximately 30 times that in Ghana.

- Ghana's total proved reserve base for 2014 were approximately 2.3 trillion cubic feet (tcf) of gas. Ghana's total production amounted to 80 mscf of natural gas a day in 2015.
- Natural gas produced in Nigeria is sent to Togo and Ghana via the West Africa Gas Pipeline (WAGP).
- A project to import liquefied natural gas (LNG) is being executed in Ghana and planned in Côte d'Ivoire to fill their deficiency in a supply of natural gas.



Source: WAPCo

Figure 7.2.19 Route of West Africa Gas Pipeline (WAGP)

(2) Issues on Oil and Gas Sector in WAGRIC Sub-Region

1) Bulk Transportation of Petroleum Products to Inland Areas

A large volume of petroleum products is currently being transported to inland areas of Côte d'Ivoire, Ghana and Togo, and the landlocked country, Burkina Faso, mainly by road. It is pointed out that heavy lorry tankers cause damage to roads. It takes a long time and costs a lot for transportation.

2) Gas Shortage in Coastal Areas

Shortage of gas supplies is serious for power generation in the coastal areas of Côte d'Ivoire, Ghana and Togo.

(3) Future Prospects for Oil and Gas Sector in WAGRIC Sub-Region

1) Potential of Oil Supply

There is a possibility of discovery of new oil reserves, but domestic consumption and export will cause the depletion of the existing oil reserve sooner or later. Import and export of petroleum products would increase in and outside the sub-region.

2) Potential of Gas Supply

Gas supply from sub-regional gas fields likely would be in short-term in the foreseeable future, although there is a possibility of discovery of new gas reserves. This gas shortage is expected to be covered by LNG imported from international markets and gas imported from Nigeria via WAGP.

(4) Expected Measures by UEMOA or ECOWAS for Oil and Gas Sector in WAGRIC Sub-Region

It is expected that UEMOA and ECOWAS will assist the sub-regional countries by taking the following measures to tackle sub-regional issues of the oil and gas sector.

1) Petroleum Products Pipeline between Ghana and Burkina Faso

The following matters need to be solved prior to the implementation of the project of the multi-product pipeline between Bolgatanga (Ghana) and Bingo (Burkina Faso):

- Completion of a domestic multi-product pipeline in Ghana between Tema and Bolgatanga,

which is a prerequisite for extending the pipeline to Bolgatanga in Burkina Faso

- Ensuring pipeline operation at a reasonable capacity usage ratio even under separated transfer by road or railway via Abidjan, Tema, Lomé, and Cotonou routes to reduce transport risk

Petroleum products are currently imported into Burkina Faso by road and railway through the four corridors (Abidjan, Tema, Lomé and Cotonou). Except for Tema-Ouagadougou Corridor, which will be replaced by pipeline transport, such multiple transport corridors (road and railway) should be kept for reducing transport risk, even after starting the pipeline operation between Tema-Bolgatanga.

2) Increase Usage of WAGP

To increase the usage of the West African Gas Pipeline (WAGP) is an effective measure to cover gas shortages in the coastal areas. Challenges for realizing this are as follows:

- Côte d'Ivoire, Ghana and Togo should negotiate with gas suppliers in Nigeria to increase gas supply from Nigeria.
- Côte d'Ivoire should gain membership in the West African Gas Pipeline Company (WAPCo), which is currently owned by Chevron West African Gas Pipeline Ltd (36.9%), Nigerian National Petroleum Corporation (24.9%), Shell Overseas Holdings Limited (17.9%), Takoradi Power Company Limited (16.3%), Societe Togolaise de Gaz (2%) and Societe BenGaz S.A. (2%).
- Côte d'Ivoire should extend the WAGP to connect with its domestic gas pipelines.

7.2.8 Sub-Regional Level Development Strategies for Investment Promotion Sector

(1) Present Situation of Investment Promotion in WAGRIC Sub-Region

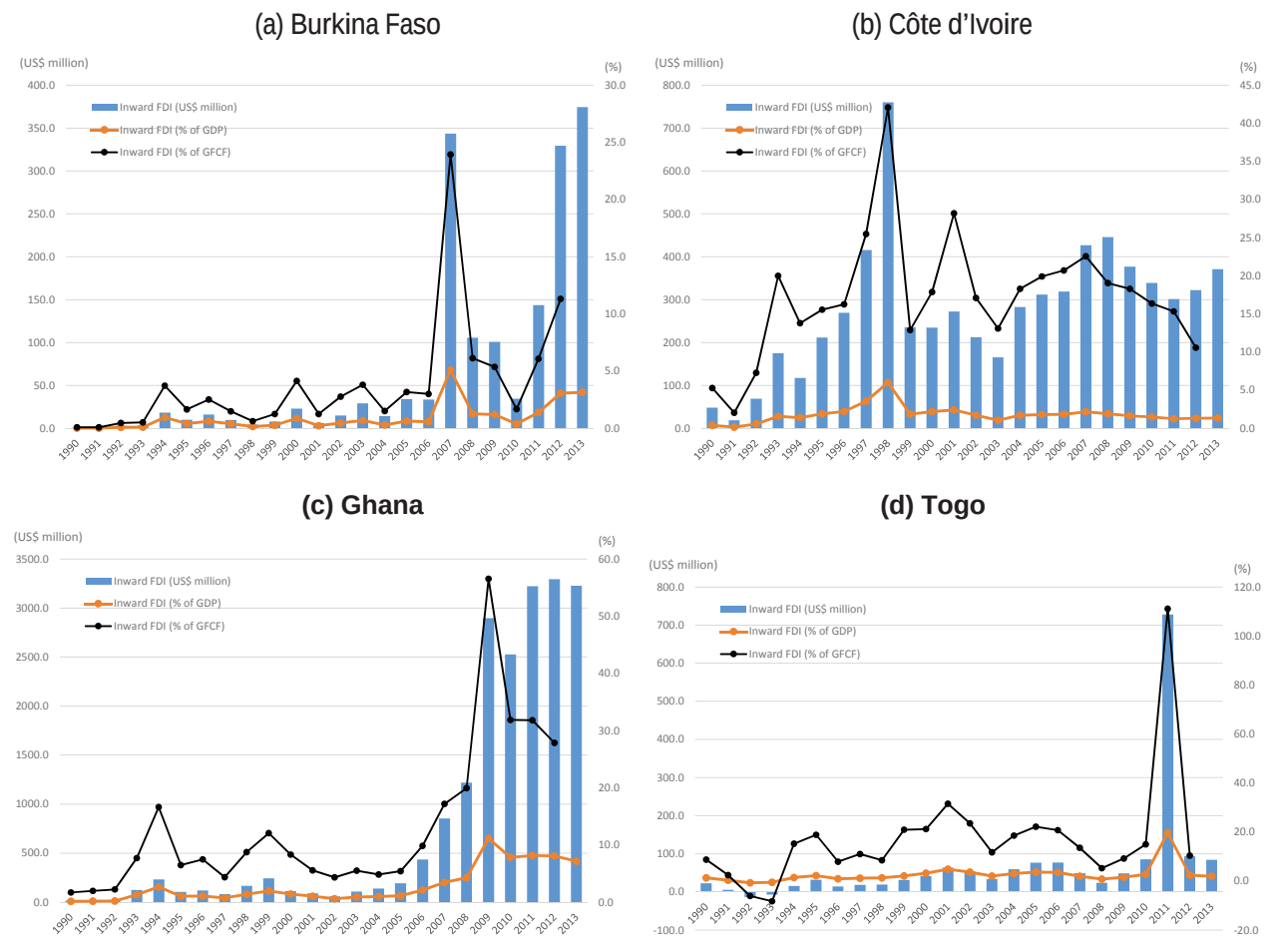
Figure 7.2.20 shows the latest value for foreign direct investment (FDI) in the WAGRIC countries.

In Burkina Faso, although there have been variations since the later part of the first decade of the 2000s, the volume has increased sharply. The Percentage of FDI to GDP was 3.2 percent in 2013 and that to Gross Fixed Capital Formation (GFCF) was 11.3 percent in 2012. The sectors that attracted FDI most were telecommunications, mining (specifically of gold and zinc), banks, and the hotel and catering industry.

In Côte d'Ivoire, while the volume decreased substantially from 2009, it has recovered since 2012. The percentage of FDI to GDP was 1.3 percent in 2013 and that to GFCF was 10.6 percent in 2012. The main sectors that benefited from FDI were those of mining, the food-processing industry, telecommunications and transport.

Ghana increased at a compound annual growth rate of more than 50% between 2007 and 2013, the fastest in Africa. The latest value for FDI in Ghana was US$3,226.3 million as of 2013. At the end of 2013, Ghana was the fourth largest recipient of FDI in sub-Saharan Africa. The percentage of FDI to GDP was 7.1 percent in 2013 and that to GFCF was 27.9 percent in 2012. Mining and oil exploration are the main sectors that attract most of the FDI.

In Togo, the latest value for FDI was US$84.2 million as of 2013. At the end of 2010, Togo reached its completion point under the IMF and World Bank Heavily Indebted Poor Country (HIPC) Initiative, resulting in US$1.8 billion of debt relief. Illustrating the rising confidence in Togo's political stability and creditworthiness, FDI continued its ascent, reflecting both Togo's emergence from years of political and economic isolation and China's rising influence. The percentage of FDI to GDP was 1.9 percent in 2013 and that to GFCF was 10.4 percent in 2012. The sectors that attract most of the foreign investment are phosphates, cotton, coffee and cocoa.



Source: JICA Study Team based on UNCTAD Stat database

Figure 7.2.20 Foreign Direct Investment in WAGRIC Countries

1) Government Agencies in charge of Investment Promotion

To support the creation of business, and facilitate and simplify the process among different administrations, the Government of Burkina Faso in 2005 created eight enterprise registration centres called Centres for Business Formalities (CEFORE). To further encourage business and investment, the Government of Burkina Faso created the Presidential Investment Council in 2009. Moreover, the Government created the Burkina Faso Investment Promotion Agency (API-BF) in March 2013. The API-BF is responsible for promoting and facilitating investment in the country and assists all investors and also promotes the prestigious image of Burkina Faso inside and outside the country.

Beginning in 1995, the Government of Côte d'Ivoire stepped up its investment promotion campaign through the establishment of an Investment Promotion Centre (CEPICI). The CEPICI operates 3 basic programs: a "one-stop-shop" for investors; an outreach program designed to match opportunities with potential investors; and a liaison program between the public and private sectors. At the one-stop-shop launched in 2012, entrepreneurs are allowed to register with the commercial register, the tax authority and the social security institute. Prior to that, entrepreneurs were required to visit these agencies separately. The CEPICI also maintains a file of projects seeking foreign investment and is the one-stop service desk for investments in Côte d'Ivoire. It amalgamates, coordinates and rationalizes the initiatives and government actions in terms of investment promotion and private sector development.

The Ghana Investment Promotion Centre (GIPC) is a Government agency founded under the GIPC Act, 2013 (Act 865) and is responsible for promotion of investments in the country through provision of the creation of an attractive incentive framework and a transparent, predictable and facilitating environment for investments. The GIPC coordinates and monitors all investment

activities by connecting between investors and Ministries, Government departments and agencies, institutional lenders and other authorities concerned with investments. Moreover, the GIPC has established a one-stop-shop for investment registration and has become the official and most accurate information hub for investors in Ghana by providing seamless “one stop shop – high value added" services.

The Chamber of Commerce and Industry Togo (CCIT) is an institution dedicated to provide various services to its members and economic operators with training sessions to strengthen the enterprises and provide support related to the creation of enterprises. The CCIT gathers all the economic operators of Togo that are carrying on commercial and industrial activities.

Table 7.2.20 summarizes related agencies for investment promotion in the 4 countries.

Table 7.2.20 Summary of Government Agencies in charge of Investment Promotion

	Burkina Faso	Côte d'Ivoire	Ghana	Togo
Investment Promotion Agency	Burkina Faso Investment Promotion Agency (API-BF)	Centre for the Promotion of Investment in Côte d'Ivoire (CEPICI)	Ghana Investment Promotion Centre (GIPC)	Chamber of Commerce and Industry of Togo (CCIT)
Roles & Mission	The API-BF assists all investors and also promotes the prestigious image of Burkina Faso inside and outside the country. • Identify investment opportunities in Burkina Faso and promote them in world business communities, • Provide information on investment regulation and incentives in Burkina Faso, • Assist foreign and national investors in the formalities and their projects implementation • Promote public-private partnerships and joint-ventures between domestic and foreign investors	The CEPICI is the one-stop service desk for investments in Côte d'Ivoire. It federates, coordinates and rationalizes the initiatives and government actions in terms of investment promotion and private sector development. • Facilitation of administrative formalities for starting a business, • Management of the Investment Code, • Acceptance of industrial land application files, • Promotion and attraction of domestic and foreign direct investment in Ivory Coast, • Improving the business environment	The GIPC is the official and most accurate information hub for investors in Ghana by providing seamless “one stop shop – high value added services”. • Investment Facilitation by maintenance of liaison between investors and Ministries, and other authorities concerned with investments, • Provision and dissemination of up-to-date information on incentives available to investors; assisting incoming and existing investors by providing support services, • Monitoring & Evaluation (e.g. registering and keeping records of all enterprises)	The CCIT gathers all the economic operators of Togo carrying on commercial and industrial activities, and the provisions of services. • An advisory role and principal intermediary between the public authority and the private sector • An organization of reception, information, assistance to the economic operators, businessmen, industrialists and service providers

Source: JICA Study Team based on each organization’s pamphlets and webpages

2) Laws and Regulations related to Investment Promotion

The Investment Code shows Burkina Faso’s interest in attracting FDI to create industries that produce goods for export and provide training and jobs for its domestic workforce. The code provides standardized guarantees to all legally established firms, whether domestic or foreign, operating in the country. Under this code, all personal and legal entities lawfully established in the country, both domestic and foreign, are entitled to the following rights: fixed property; forest and industrial rights; concessions; administrative authorizations; access to permits; and participation in state contracts. Additionally, all companies that use at least 50 percent locally supplied raw materials are exempted from trading taxes and receive a 50 percent reduction in customs taxes in addition to the elimination of other duties.

The Investment Code in Côte d’Ivoire is designed to encourage additional private sector investment in the economy. For all practical purposes, there are no differences in the treatment of foreign and national investors, either in terms of the level of foreign ownership or sector of investment. The Code offers incentives, including tax reductions and in some cases exemptions from value added taxes (VAT), on equipment for private investors. This code also states incentives for enterprises which will be located in the planned industrial zones such as special tax treatment for periods ranging from 8 to 15 years, depending on the location of the investment.

The Ghana government passed new laws to encourage foreign investment and replaced regulations perceived as unfriendly to investors. The Ghana Investment Promotion Centre (GIPC) Act regulates investments in almost every sector except minerals and mining, oil and gas, and the industries within Free Zones, the latter of which are regulated by the Ghana Free Zone Board (GFZB) under the Free Zones Act, 1995, Act 504. Foreign investors are not subject to differential treatment on taxes, prices, or access to foreign exchange, imports or credit. The GIPC Act requires foreign investors to satisfy a minimum capital requirement. However, the GIPC Act provides incentives for foreign investors such as tax holidays, capital allowances, location incentives and other inducements. There is also custom duty exemption for agricultural and industrial plant and machinery and equipment imported for investment purposes.

The Togolese National Assembly adopted the 2012 Investment Code, which prescribes equal treatment for Togolese and foreign businesses and investors; free management and circulation of capital for foreign investors; respect of private property; protection of private investment against expropriation; and investment dispute resolution regulation. The code indicates benefits on taxes, as well as customs duties and taxes for investments in the industrial sector. These benefits vary depending on the zone or the geographical location of the establishment of the new company. Registered companies are exempted from the minimum fixed-rate tax for the first three years of their activity. It is also very advantageous for a foreign investor to create a partnership with a local company. Table 7.2.21 summarizes tax incentives provided by the investment codes in the 4 countries.

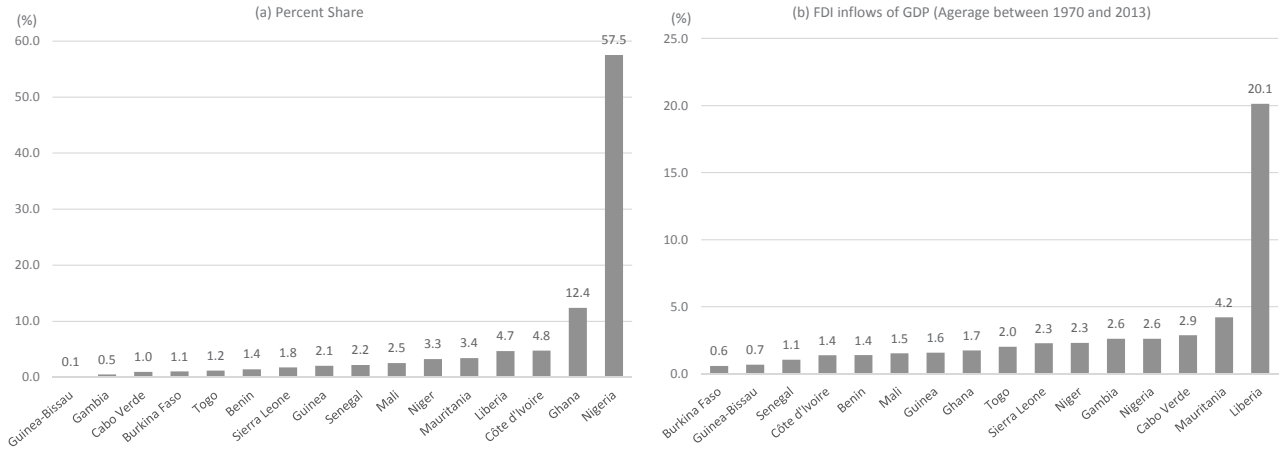
Table 7.2.21 Summary of Tax Incentives Provided by WAGRIC Countries' Investment Codes

Country	Excluded activities	Tax incentives provided		Length of holiday during operation phase (years)
		Development phase	Operation phase	
Burkina Faso 2010	Retail, mining, banking, telecoms	Tariff reduced to 5%, and an exemption from VAT	Longer loss carry forward period; exemption from employer payroll taxes, patents; investment tax credit; and holiday period extended by 3 years for investment in rural areas.	5 to 7 years: depends on amount invested
Côte d'Ivoire 2012	Buildings for non-industrial use, trade, banking and financial services	Full exemption from VAT on materials and equipment, and the first batch of spare parts during the investment process	Reduction of the custom duties on materials and equipment and the first batch of spare parts; Exemption from BIC tax and license; Partial exemption from the employer's share of tax on wages and salaries	5 to 15 years: depends on location
Ghana 2013	Petroleum business, minerals and mining business, portfolio investments, and free zones activities		Corporate tax (8% on export income, 25% for hotels and 35% for others), locational incentive (25-50% tax rebates), tariff exemption (100% duty exemption for production equipment)	5 years
Togo 2012	Retail	Exoneration of customs duties, of VAT and of industrial and trade profits on imported new machinery and equipment necessary to carry out the investment program	Reduction of payroll tax, reduction on property tax and business tax	Not specified.

Sources: JICA Study Team based on investment codes of the 4 countries

(2) Issues on Investment Promotion in WAGRIC Sub-Region

FDI inflows are still limited and vary across the countries in West Africa. Between 1970 and 2013, as Figure 7.2.21(a) indicates, the top three recipient countries in West Africa were Nigeria, Ghana, and Côte d'Ivoire, most of which are fossil fuel and metal producers and exporters. Moreover, as a share of GDP in Figure 7.2.21(b), FDI inflows to major recipients in terms of value were much smaller: between 1970 and 2013, except for Nigeria, the five top recipients in terms of the share of FDI inflows in GDP were smaller economies such as Liberia, Mauritania, Cape Verde, and Gambia.



Note 1: Figure 7.1.21 (a) show the percentages that the amount of FDI inflow into each country is divided by the accumulated amounts of FDI inflows to all West African countries between 1970 and 2013.
Note 2: Figure 7.1.21 (b) shows percentages that the amount of FDI inflow into each ountry is divided by GDP of each country.
Source: JICA Study Team based on UNCTADStat database

Figure 7.2.21 FDI Inflows into West African Countries between 1970 and 2013

Although there may still be difficulties in promoting foreign investment, the governments in the 4 countries have made great efforts to improve the investment environment.

Table 7.2.22 shows the ranks of the 4 countries in "Doing Business" by the World Bank. Ghana ranked within the top 100 in 2013/2014, but, did not maintain its position in 2014/2015. However, Burkina Faso has slightly improved its ranking for the ease of doing business. Furthermore, Côte d'Ivoire and Togo stay on almost the same ranking.

Table 7.2.22 Ranks in "Doing Business" (2014/2015) of WAGRIC Countries

	Burkina Faso	Côte d'Ivoire	Ghana	Togo
Doing Business	*143*	*142*	*114*	*150*
Starting a Business	78	46	102	133
Dealing with Construction Permits	76	180	132	179
Getting Electricity	183	146	121	109
Registering Property	149	109	77	182
Getting Credit	133	133	42	113
Protecting Minority Investors	144	155	66	155
Paying Taxes	153	176	106	163
Trading Across Borders	103	142	171	126
Enforcing Contracts	163	120	116	125
Resolving Insolvency	112	76	161	93

Source: JICA Study Team based on the Doing Business website by the World Bank

The JICA Study Team has conducted interview surveys with several Japanese firms which operate in the 4 countries. The total number of the respondents amounted to 19, including trading companies (10), manufacturing companies (5), and others (4). The questionnaire includes challenges related to business activities in West African countries.

According to the result of the survey, the main challenges are as follows: (i) insufficient infrastructure such as power supply and water supply; (ii) weak rule of law affected by corruption; (iii) insufficient investor protections including fragile protection of property rights; (iv) undeveloped institutional capacity for operating policy; and (v) macroeconomic instability leading to a reduction in government's expenditure.

(3) Future Prospects for Investment Promotion in WAGRIC Sub-Region

West African countries including the WAGRIC countries have implemented several measures to integrate at the sub-regional level. If trade integration proceeds smoothly by elimination of tariffs and simplification of customs clearance, etc., it may make the sub-region more attractive for foreign

investors and enterprises, leading to an increase in capital inflows. Moreover, when each country revises investment-related laws and regulations to improve the business environment, such as ensuring investor protection, it will become possible to attract a much larger volume of FDI.

(4) Sub-Regional Level Objectives for Investment Promotion

The objective for investment promotion at the sub-regional level is to create a more favourable investment environment (safe, fair and smooth environment for investing) for the WAGRIC sub-region, especially for those economic growth sectors targeting sub-regional markets, in addition to mining and traditional agricultural cash crop production.

(5) Basic Strategies for Investment Promotion in WAGRIC Sub-Region

The basic strategies for the investment promotion are the following:

- To improve the business climate by removal of restrictions on investment and offering more appropriate services to potential and existing domestic and foreign investors
- To promote private investment with strategic focuses on specific growth sectors targeting sub-regional markets in order to enhance the competitive edge of the WAGRIC sub-region
- To develop, harmonise and apply rules and regulations on investment promotion

(6) Priority Projects for Investment Promotion in WAGRIC Sub-Region

- Trade integration
  - Removal of non-trade barriers by simplification of customs clearance within the WAGRIC countries
- Improving business climate
  - Implementation of effective law enforcement
  - Implementation of judicial reforms
  - Unification of application forms for investment
- Selection, focus and sharing of roles for enhancing competition among the WAGRIC countries
  - Strengthening of regional industrial policy and establishment of priority value chains with a sub-regional dimension
  - Selection of promising economic growth sectors targeting sub-regional markets within the WAGRIC countries
  - Collective promotion of foreign investment for those selected economic growth sectors at the sub-regional level
- Strengthening information services and knowledge sharing
  - Sharing information about foreign investment among investment promotion institutions in the four countries
  - Linking of websites for investment promotion institutions among the WAGRIC countries
  - Development of business partnerships, support for business and investment forums for the interest of the WAGRIC countries' companies

Building of capacity of sub-regional intermediary organisations (e.g. regional chambers of commerce, professional associations for business development, employer organisations, etc.) and setting up of intelligence networks for the private sector.

7.3 Sub-Regional Infrastructure Sector Development Strategies for WAGRIC Countries

7.3.1 Sub-Regional Level Development Strategies for Road Sector

(1) Present Situation of Road Sector in WAGRIC Sub-Region

1) Road Network

International arterial roads have already been improved mainly to 2-lane roads through asphalt paving with support of AfDB and other development partners. However, some road sections are still greatly deteriorated. There are a number of poorly maintained sections along the corridors in inland areas of coastal countries, as well as in cross-border areas, which are bottlenecks for logistics. Also, some road sections are found to require large-scale rehabilitation. Table 7.3.1 shows the profile of roads and traffic at three major north-south corridors. Figure 7.3.1 shows the current road network at the sub-regional level.

On the other hand, since the road sections entering into Greater Abidjan, Greater Accra and Greater Lomé would have large volumes of traffic demand in the future, multi-lane motorways should be developed. For example, the road sections between Greater Abidjan and Yamoussoukro and between Greater Accra and Tema have motorways at present. The road section between Greater Accra and Greater Kumasi and the northern section of Greater Lomé correspond to this type of road. The pavement type of Accra-Tema motorway is of concrete pavement.

Road development at the sub-regional level has focused on the upgrading of existing roads. Main roles of the sub-regional road network are as follows:

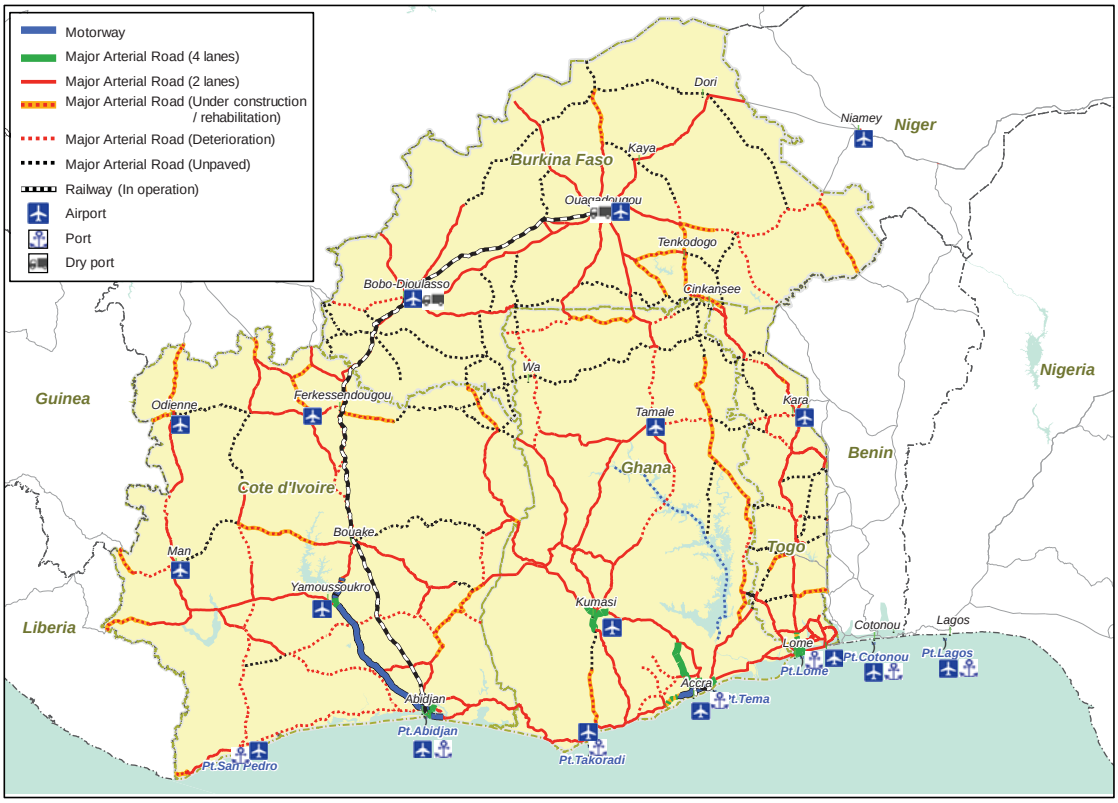
- To link international ports and landlocked countries, especially major cities, in the north-south direction;
- To link capital cities (metropolitan areas) and major cities in coastal areas in the east-west direction.

On the other hand, the linkage of countries in the east-west direction in inland areas has not been developed so well. It is partly because emphasis has been put on the linkage between sea ports and inland areas/ inland countries, rather than inland east-west connections. Upon road development for the sub-regional corridor development master plan, it is important to consider both points of view of promoting sub-regional economic integration and physical connecting neighbouring countries and areas.

Table 7.3.1 Profile of Roads and Traffic at Corridors

	Corridor		
	Abidjan-Ouagadougou	Accra-Ouagadougou	Lomé-Ouagadougou
Road length	1,148km	1,040km	948km
Road structure	Abidjan- Yamoussoukro: Motorway, 4 lane road Yamoussoukro- Ouagadougou: Paved 2 lane road	Accra-Bunso: Paved 4 lane road, Bunso- Ouagadougou: Paved 2 lane road	Lomé-Tsévié: Paved 4 lane road (Road widening work in progress) Tsévié- Ouagadougou: Paved 2 lane road
Cross border traffic*	612 veh./day (Ratio of Large truck : 61.6%)	465 veh./day (Ratio of Large truck : 76.3%)	746 veh./day (Ratio of Large truck : 76.1%

Note *: Traffic survey result in 2015 by JICA study team
Source: JICA Study Team



Source: JICA Study Team based on information from road authorities

Figure 7.3.1 Existing Road Conditions in WAGRIC Countries

2) Pavement Conditions and Bottlenecked Bridges

Roads in East-West Directions

As mentioned in the previous section, roads in east-west directions have been suffering from lack of rehabilitation in comparison with roads in north-south directions. In the case of Togo, the central corridor road (Route No.1) and coastal corridor road (Route No.2) have been paved and maintained. However, roads of other corridors in east-west directions have neither been paved nor maintained. Further, the central corridor road in Togo is one of the best roads among the WAGRIC countries. In the case of Ghana, paved road ratios of the corridor roads in east-west directions are low compared with the corridors in north-south directions as shown in Table 7.3.2.

Table 7.3.2 Paved Ratio of Roads composing Major Corridors in Ghana

	Total Length	Paved (Asphalt, Concrete, Surface Treatment)	Unpaved
Coastal Corridor	544 km	544 km (100%)	0 km (0%)
Eastern Corridor	697 km	348 km (49.9%)	349 km (50.1%)
Central Corridor	814 km	814 km (100%)	0 km (0%)
Western Corridor	802 km	515 km (64.2%	287 km (35.8%)
Northern Corridor	363 km	164 km (45.2%)	199 km (54.8%)
Upper East-West Corridor	384 km	104 km (27.1%)	280 km (72.9%)

Source: Road Condition Report Year 2014, Ghana Highway Authority

In the case of Côte d'Ivoire, although most of the roads of the three corridors in north-south directions have been paved and well maintained, many corridor roads in east-west directions, such as Touba - Seguela Section, Man - Seguela Section, Odienne - Boudiali Section and Grandlahou - San-Pedro Section have neither been paved nor maintained. Furthermore, although the Abidjan – Bouna Section of the Eastern Corridor of a north-south direction can be travelled by car in a day, the shorter-distance section of Ferkessédougou - Bouna in an east-west direction requires 2-3 days to travel by car according to the hearing survey by the JICA Study Team (2016).

Central Corridor in Togo (south-north)

Road going to Ghana Border (east-west)

Central Corridor in Ghana (south-north)

Northern Corridor in Ghana(east-west)

Central Corridor in Côte d'Ivoire (south-north)

Man-Seguela (east-west)

Abidjan-Bondoukou in Côte d'Ivoire (south-north)

Coastal Corridor in Côte d'Ivoire (east-west)

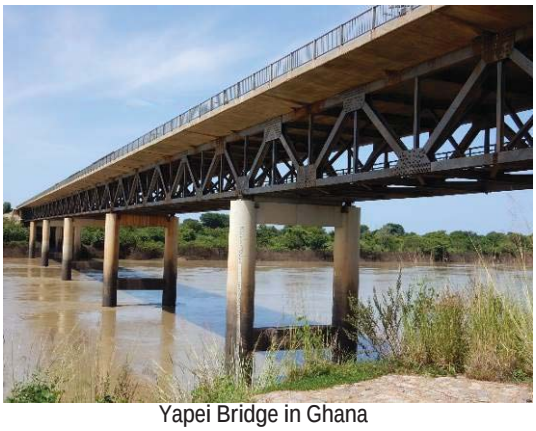
Figure 7.3.2 Road Conditions of Corridors in Côte d'Ivoire

Bottle Necks of Old Bridges

Some of the old and long-span bridges have not been well maintained and rehabilitated and they might become bottlenecks in the near future. An old bridge crossing Kara River in Kara in Togo causes heavy traffic congestion during morning and evening rush hours. This bridge might become a

serious bottleneck in the future. Yapei and Buipe Bridges which were built in 1964 by a British Contractor in Northern Region in Ghana have seriously deteriorated. Their concrete slabs are bouncing and make a loud noise on the steel girders when heavy trucks pass on the bridges because the concrete slab structures are already disconnected from the steel girders. After the bouncing of concrete slabs, the bridges wave vertically in a long cycle. Furthermore, the concrete slabs have deteriorated and their reinforcing bars have been exposed, and holes throughout the concrete slabs are beginning to appear. It seems that these bridges are in a dangerous condition. It also seems that in the absence of detour roads, passing of the continuous heavy trucks make the maintenance and rehabilitation of the bridges difficult. Comoé Bridge is an old and long bridge crossing Comoé River in Côte d'Ivoire. The bridge is on the corridor between Abidjan and Bondoukou. Though, most of this corridor has been rehabilitated and upgraded, this bridge remains untouched. If the aging progresses and the traffic volume is increased, this bridge might be the bottleneck of this corridor in the future.

Bridge in Kara in Togo



Yapei Bridge in Ghana

Buipe Bridge in Ghana

Comoé Bridge in Côte d'Ivoire

Figure 7.3.3 Bottle Necks of Old Bridges on Major Corridors

Lack of Regular Maintenance

It has been observed that deterioration of roads progresses due to the absence of regular maintenance. As a result, large-scale rehabilitation that will cost a large amount of money is required.

On the coastal roads in Togo and Ghana and the sections of Korhogo - Ferkessédougou, Daloa – Yamoussoukro in Côte d'Ivoire, scattered potholes were observed. These potholes might require urgent large-scale rehabilitation. On the Daloa - San Pedro and Boundiali – Korhogo sections, grasses and trees on the roadsides were not trimmed. These grasses and trees hamper the function of roadside ditches and visibility, deteriorate pavements and cause traffic accidents. If more regular maintenance is provided, it seems that total maintenance costs can be lowered.

Coastal Corridor in Togo

Coastal Corridor in Ghana

Korgho-Ferkessédougou Section in Côte d'Ivoire

Daloa-San Pedro Section in Côte d'Ivoire

Figure 7.3.4 Maintenance Situation of Corridor Roads

DBST

It was confirmed that the pavement type of some sections of major corridors in Ghana and Côte d'Ivoire is still Double Bitumen Surface Treatment (DBST) in accordance with the collected documents. The pavement structure of DBST is very thin and it is not durable, compared with thick asphalt concrete pavement. DBST is not considered as an appropriate pavement type for major corridor roads of the WAGRIC sub-region.

Most of the road shoulders have deteriorated and partly disappeared. As a result, people and bicycles cannot use those roads safely. Furthermore, such deterioration sometimes has damaged edges of carriage ways.

Edge damage on central corridor in Togo

DBST on Upper East-West Corridor

DBST on Western Corridor in Ghana

DBST in Yamoussoukro

Figure 7.3.5 Situation of DBST

Difficulty in Construction of New Roads

Based on the observations on existing pavement of major corridor roads, the following could be mentioned. Both Bafilo Bypass roads in Togo have been damaged in just several months after the completion of road construction due to unexpected overloaded trucks which were not considered in the design for computation of ESAL (Equivalent Single Accumulative Load) value and being rehabilitated. It seems that these damages have been caused by both poor design and construction work. Many repairs are found on the new sections of Accra-Kumasi Road on the Central Corridor in Ghana and on Abidjan-Yamoussoukro Motorway in Côte d'Ivoire. It seems that most of the pavement defects have been caused by sub-grade failure. New road construction should be done with great care because of unknown conditions of sub-grade.

Bafilo Bypass in Togo

Nkawkaw Bypass in Ghana

Motorway Abidjan-Yamoussoukro in Côte d'Ivoire

Figure 7.3.6 Road Condition and Maintenance Situation

Cement Stabilized Method

Soil stabilization methods using cement has been often used in Togo. In Bafilo Bypass Road, subbase course and base course are constructed by a soil stabilization method using cement. It may shorten the service period of this road. The cement stabilized base course cannot have sufficient friction with Asphalt Concrete Pavement. Once the cement stabilized base course has cracks, its strength would decrease to the strength of only the base material, such as sand and soil.

After Removal of Cement stabilized Base Course on Bafilo Bypass in Togo

Completion of Cement Stabilized Sub-base Course on Lomé - Tsevie Section in Togo

Figure 7.3.7 Cement Stabilized Soil of Roads in Togo

3) Road Traffic

The traffic survey conducted by the JICA Study Team revealed the latest situation of the road traffic in the sub-region. Figure 7.3.8, Figure 7.3.9 and Figure 7.3.10 show the traffic flow between the zones. Figure 7.3.12 shows the annual average daily traffic data. These figures reveal the general tendencies mentioned below.

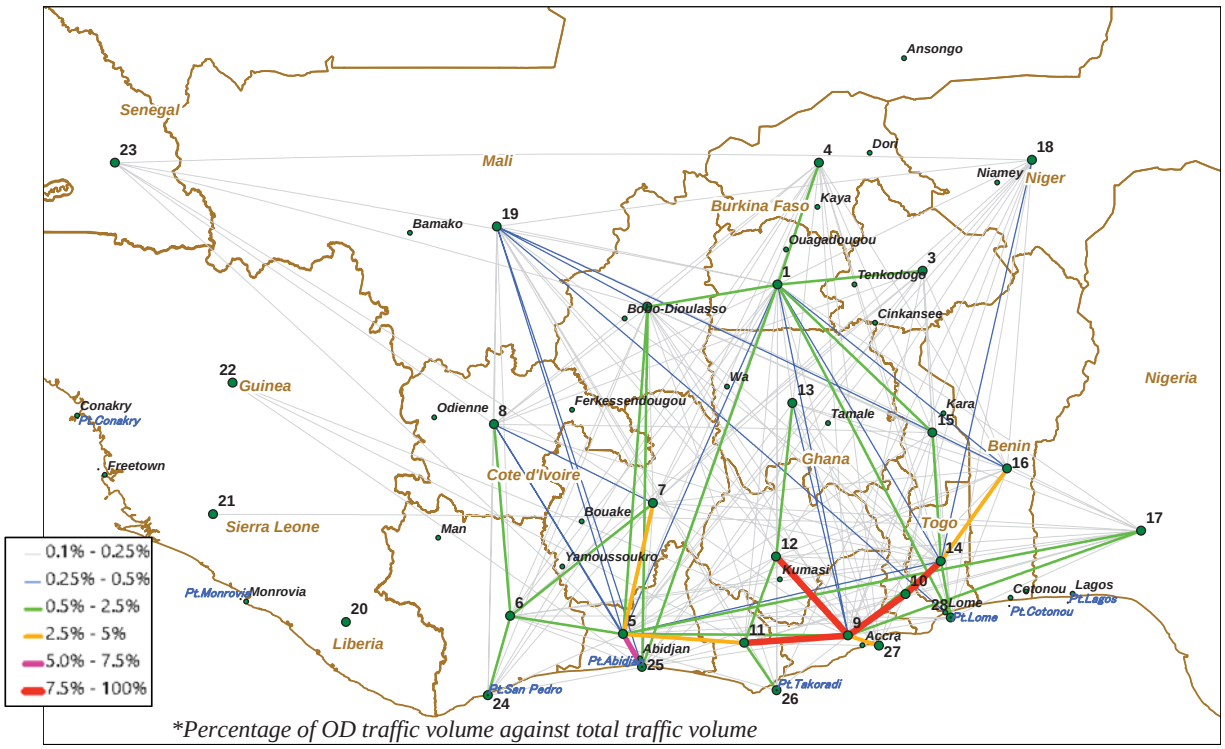
Large traffic flow is found on the roads in east-west directions in the coastal areas and arterial roads between port cities and central areas in the coastal countries. The figures also reveal that there is significant traffic flow between the three coastal countries, and Benin and Nigeria. The heaviest traffic flow between the capital of Burkina Faso, Ouagadougou, and the neighbouring countries was observed in Burkina Faso.

The analysis of the passenger traffic revealed that there was large passenger traffic in the coastal and central inland areas. The passenger traffic in the Greater Accra is characterized by the large inter-zonal traffic flow on arterial roads. Meanwhile, the inter-zonal traffic flow on arterial roads in the Greater Abidjan is observed to be smaller than that in the Accra. The large concentration of the population of Côte d'Ivoire in the Greater Abidjan is considered to be the reason for the small inter-zonal traffic flow in the area. In Ghana, the freight traffic is characterized by having more OD patterns than the passenger traffic. The freight traffic from ports to the north is large, while the freight traffic flow between coastal areas tends to be smaller than that in the north-south direction.

Heavy traffic was observed on the roads connecting major cities in coastal and central areas. The values of the annual average daily traffic between Abidjan and Yamoussoukro, between Accra and Kumasi and between Lomé and Tsévié were approx. 8,000, 10,000 and 5,000 vehicles/day, respectively. The traffic on roads north of these sections was smaller, with the maximum at approx. 3,500 vehicles/day. The traffic on the road between Ouagadougou and Bobo-Dioulasso was approx. 3,000 vehicles/day. The volumes of the north-south cross-border traffic between Côte d'Ivoire and Burkina Faso, between Ghana and Burkina Faso and between Togo and Burkina Faso were 612, 465, and 746 vehicles/day, respectively. Figure 7.3.12 shows that freight vehicles accounted for 60 to 80 % of the north-south cross-border traffic.

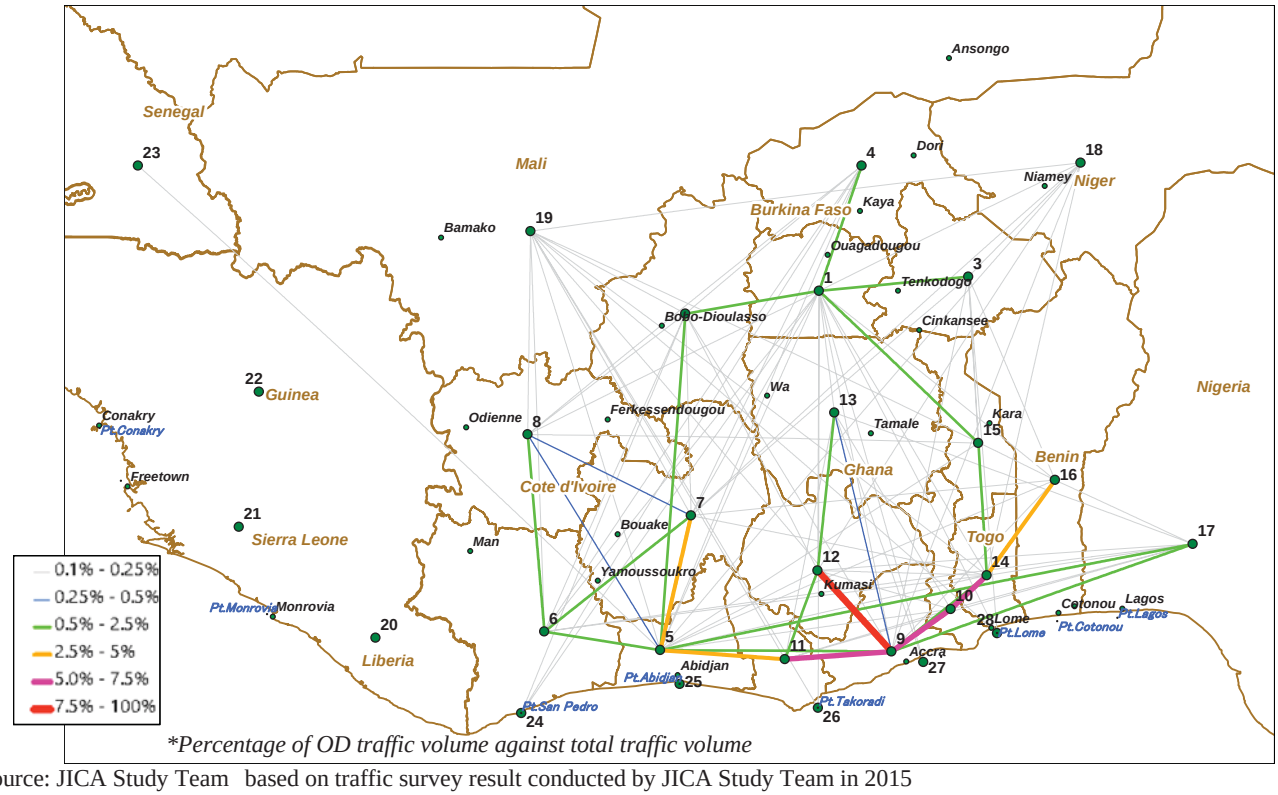
The east-west cross-border traffic was heavier than the north-south cross-border traffic. The average values of the traffic between Côte d'Ivoire and Ghana, between Ghana and Togo and between Togo and Benin were 4,000, 6,000 and 6,000 vehicles/day, respectively. Approx. 90 % of the east-west

cross border traffic was passenger traffic. Although the proportion of the freight traffic in the east-west cross-border traffic was very small, the actual number of trucks in this traffic was approximately the same as that in the north-south cross-border traffic. (Note: The WAGRIC countries are divided into 15 zones consisting of several regions and districts in this study.)



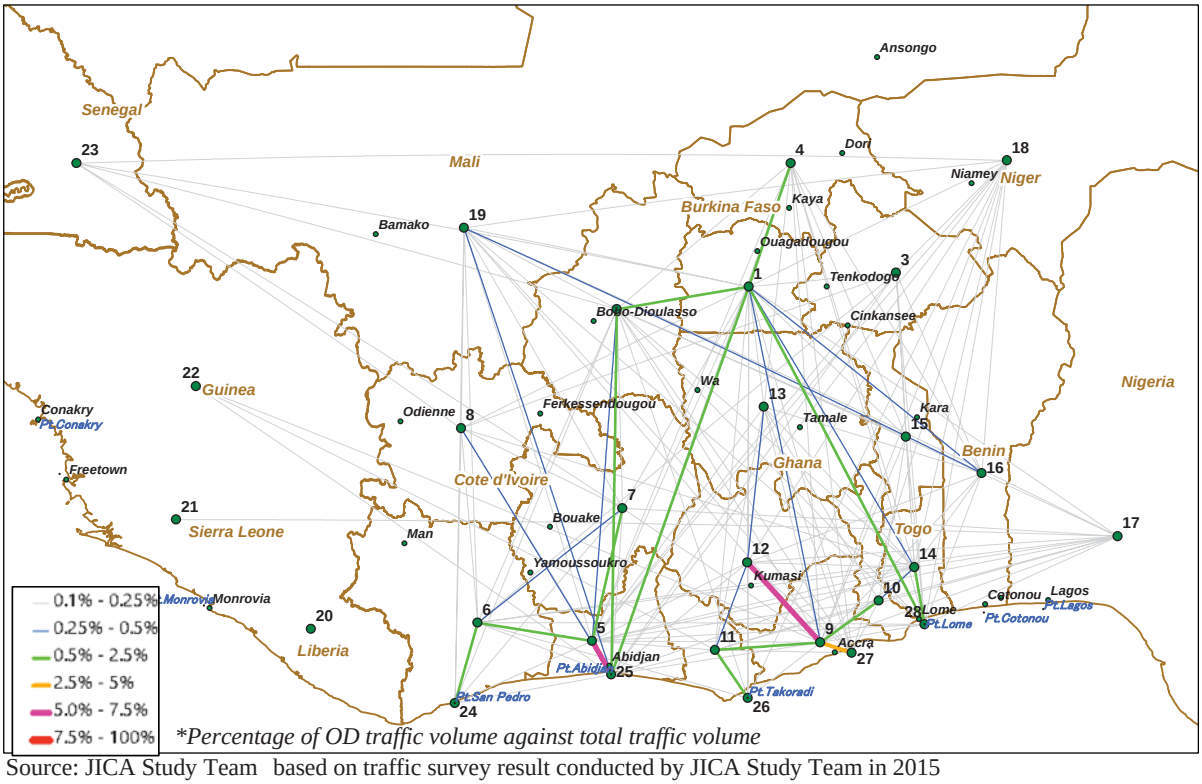
Source : JICA study team based on traffic survey result conducted by JICA study team in 2015

Figure 7.3.8 Existing Pattern of Traffic flow - Total of All Vehicles



Source: JICA Study Team based on traffic survey result conducted by JICA Study Team in 2015

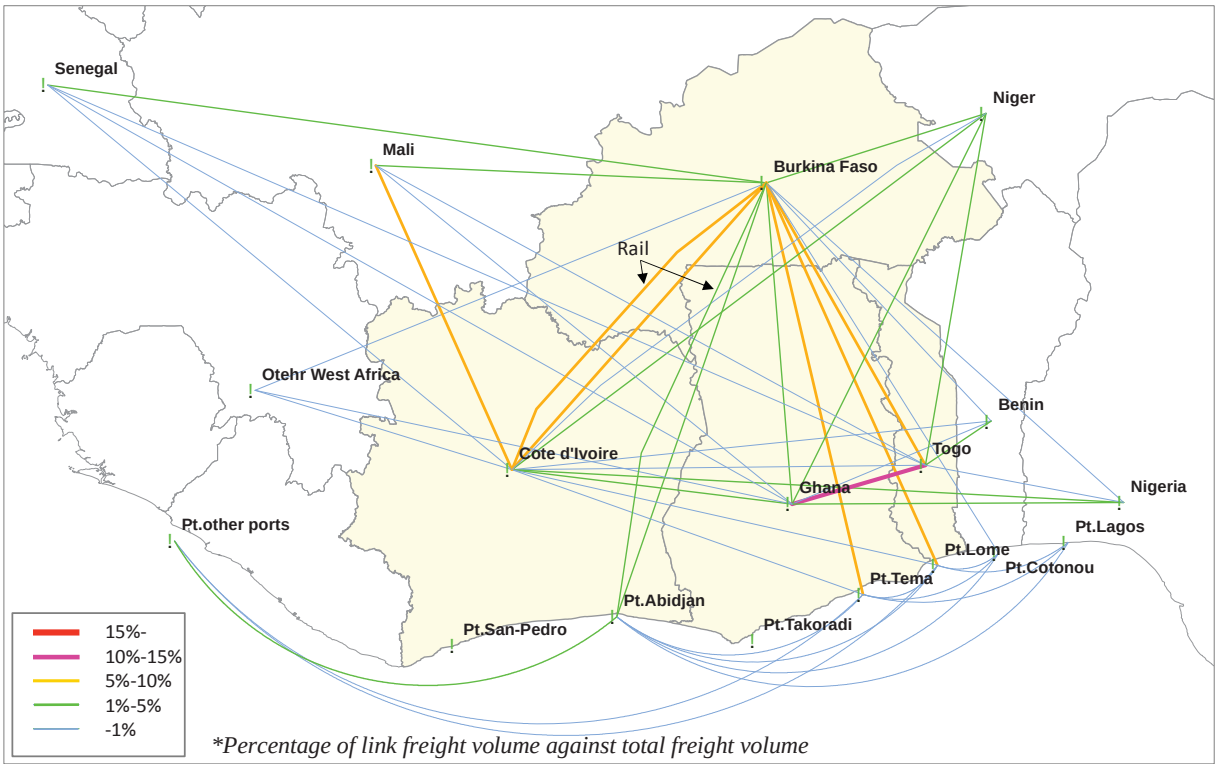
Figure 7.3.9 Existing Pattern of Traffic Flow – Passenger Cars



*Percentage of OD traffic volume against total traffic volume

Source: JICA Study Team based on traffic survey result conducted by JICA Study Team in 2015

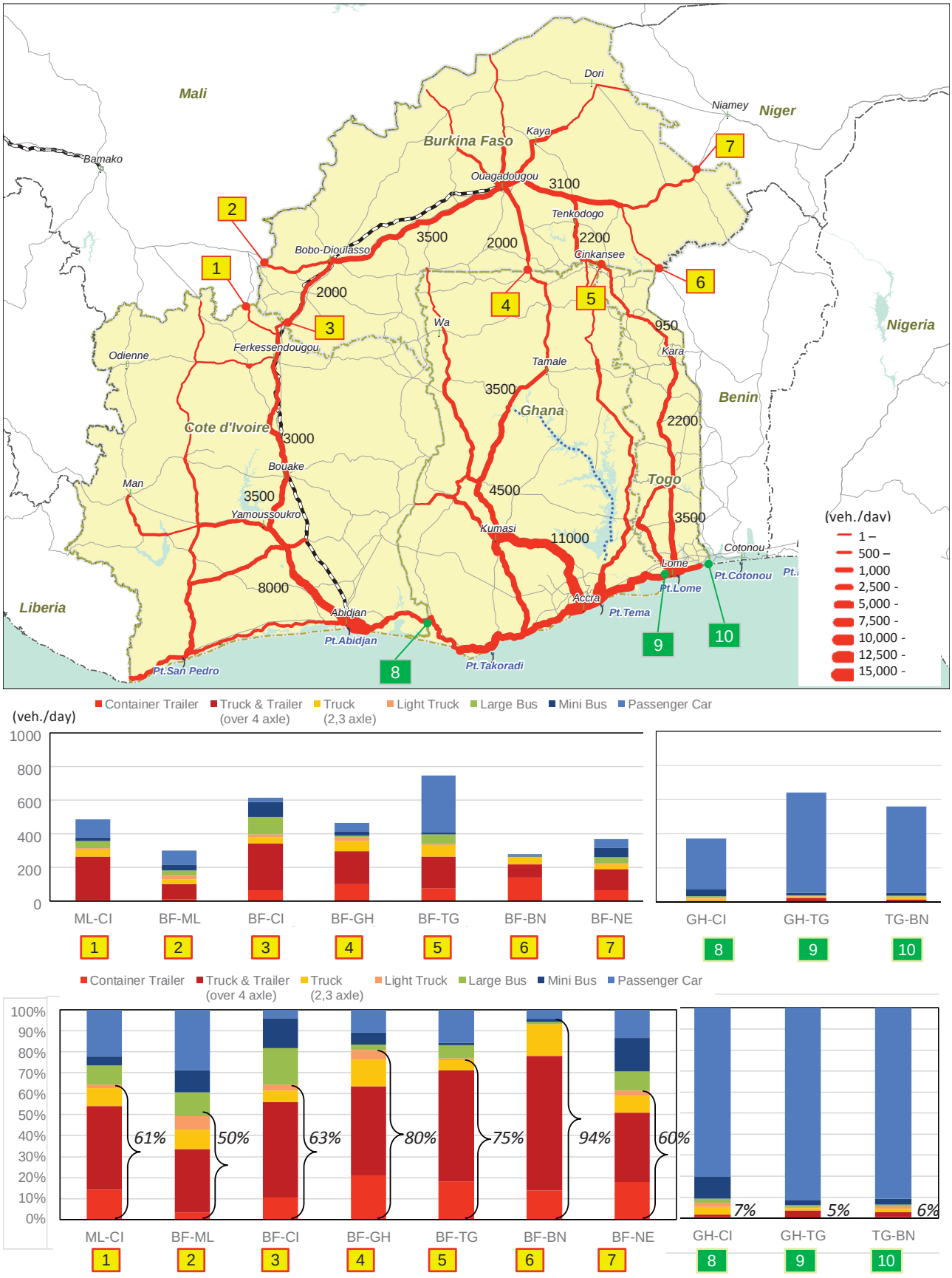
Figure 7.3.10 Existing Pattern of Traffic flow – Freight Vehicles



*Percentage of link freight volume against total freight volume

Note *: Type of goods: Total without Oil products, Total volume: 8,540 thousand tons /year
Note **: Cargo to overseas like EU, Air cargo and Transhipment cargo are not included
Source: JICA Study Team based on customs data in 2014

Figure 7.3.11 Freight Flow centring on WAGRIC Countries



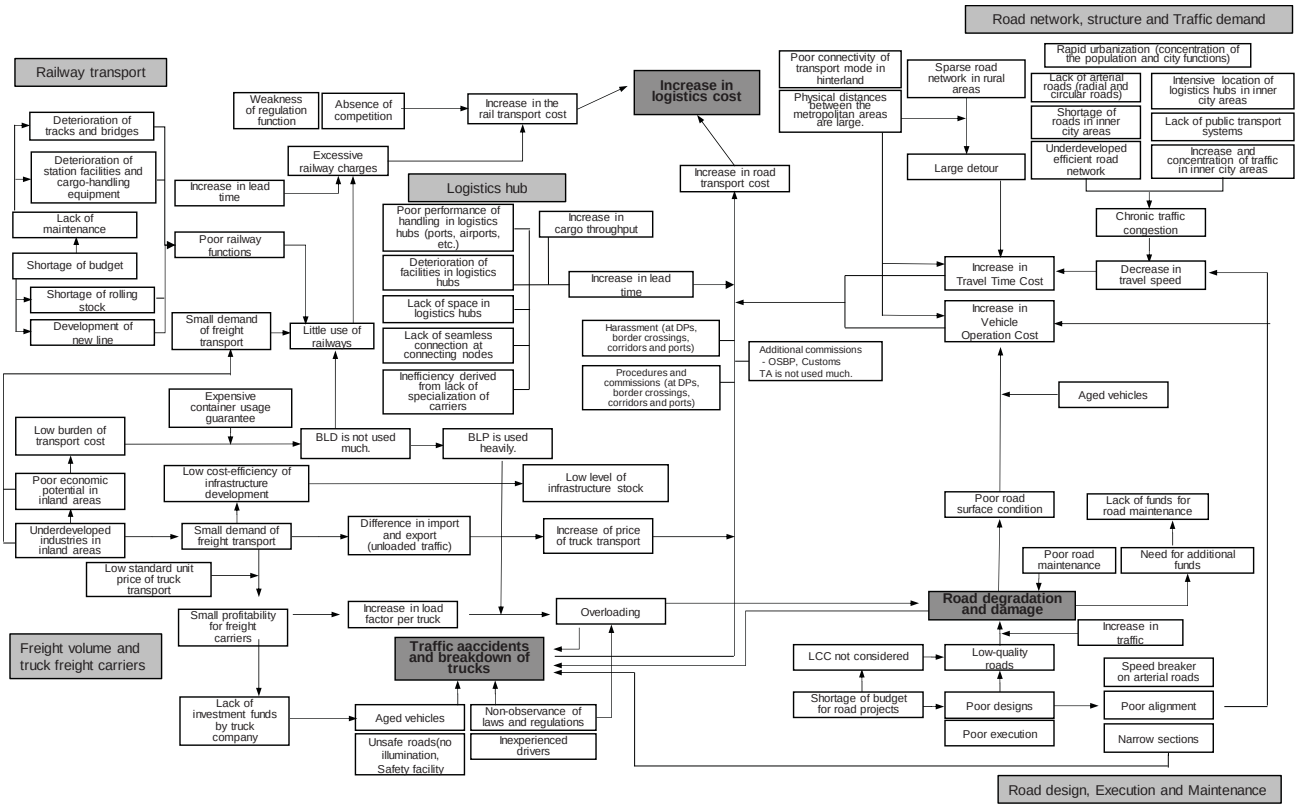
Source: JICA Study Team based on traffic survey result conducted by JICA Study Team in 2015

Figure 7.3.12 Daily Traffic Volume on Arterial Roads in WAGRIC Countries

(2) Issues on Road Sector in WAGRIC Sub-Region

1) Bottlenecks on Transport Corridors in WAGRIC Countries

The WAGRIC countries have a variety of bottlenecks on international transport corridors. Ports, which are to serve as the origins of physical distribution, as well as road and railway infrastructure, which are to serve as transport infrastructure, have their own problems, which have been influencing one another. Figure 7.3.13 shows the relationships between the bottleneck problems. The interaction of many of these bottleneck conditions has generated various problems including the increase in the cost of physical distribution, road deterioration and damage, traffic accidents and breakdown of vehicles. Planning and implementation of appropriate measures against these problems based on the understanding of their interactions will be required for the elimination of the bottlenecks in the transport.



Source: JICA Study Team

Figure 7.3.13 Problem Structure for Road Sector in WAGRIC Countries

The bottlenecks in the transport in the Growth Ring Corridors have been derived from the five major barriers mentioned below. Physical distribution in the corridors has been impeded by these barriers. The development of the Growth Ring Corridors will require their removal.

2) Barriers of Transport Cost and Barriers of Transport Time due to Distances

- Physical distances between ports/coastal cities and cities in inland areas (including Ouagadougou, the capital of a landlocked country) are one of the major sources for creating the following two types of barriers:
- Barriers of transport cost
- Barriers of transport time
- Low-density transport corridor network (the ratio of driving distance to straight-line distance is large.) When driving from one corridor to another, one's only option is to pass through an inner-city area of a large city,
- Non-existence of high-speed transport network.

3) Barriers on Crossing National Borders

- Complex procedures and harassment at national border crossings,
- Markets separated by national boundaries of the coastal countries,
- Necessity for customs-clearance procedures and inspection of various licenses,
- Difference in language and business practices.

4) Barriers concerning the Quality of Transport Infrastructure

- Low-quality roads (road surface inappropriate for the intended use), lack of multi-lane roads and bypasses, unsafe roads, installation of speed humps on arterial roads, etc.,
- Deterioration of railway tracks and bridges, deterioration of station facilities and cargo-handling equipment, lack of seamless railway junctions,
- Small return on investment in transport infrastructure because of low traffic demand derived from the industrial structure, life-style and income levels in the sub-region.

5) Barriers at International Gateways

- International ports, international airports and dry ports in the sub-region are concentrated in inner-city areas of large cities,
- Deterioration of and lack of space in the existing gateway facilities - the traffic congestion is expected to worsen with the extension of the terminals in the existing gateway facilities and the increase in the traffic in the inner-city areas. Motorization of the sub-region is expected to be completed by 2030,
- Need to go through congested sections of roads to reach gateway facilities: Port and Airport,
- Complicated procedures and need for a large quantity of documentation for international trade.

6) Human and Mentality Barriers

- Harassment in the transport corridors,
- Lack of professionalism of shippers and transporters,
- Non-observance of laws and regulations (over-loading, use of defective vehicles, unsafe driving),
- Lack of awareness of total life cycle cost.

7) Importance of International Corridors

The study results have proven the indispensability of the road infrastructure which forms the international corridors as basic infrastructure which supports movement within the area and composes part of the framework of the area. Especially, the importance of the international corridors as major transport infrastructure is emphasized for the landlocked areas and countries which have to import the majority of everyday goods, on which economic activities and development in the countries depend.

From now on traffic infrastructure will have to be constructed for the promotion of the growth of fast-growing industries, regional integration and trade in the sub-region. A high-speed transport network will also have to be constructed in the sub-region with stepwise upgrading of the transport corridors.

8) Issues to be addressed to meet Traffic Demand in the Future

If the political and economic stability of the countries in the area is maintained in the future, the traffic volume in these countries is expected to increase at an annual rate of 7.1 %. It may increase at an annual rate of 9 % in Burkina Faso and Côte d'Ivoire where the traffic flow on the existing arterial roads is limited by poor infrastructure. If the traffic volume increases at the expected rate, the traffic volumes in the sub-region are expected to reach twice and 3.5 times the current volume in 2025 and 2033, respectively.

Especially, it is expected that the traffic volume between the coastal states will also greatly increase depending on the progress of free trade and the regional integration. As a consequence, the importance of the road infrastructure is expected to increase further.

9) Problems on Road Pavement

Although the road corridors currently used have already been improved through asphalt paving, we also find that many road sections are deteriorating greatly. There are a number of poorly maintained sections along the corridors in landlocked areas of coastal countries as well as cross-border areas, which are bottlenecks for logistics.

Also, some road sections are found to require large-scale rehabilitation. Specifically, there is a concern about road sections that are badly maintained in inland areas far from the capital. When such large-scale rehabilitation works are required in such places, the work period hinders the traffic there to make traveling along the road inefficient and unsafe. Only international corridors currently in operation can connect countries and it is highly important to keep them as permanent logistic routes through appropriate management and maintenance. The degradation of road conditions is supposed to be mainly due to the following causes: drainage problems, lack of weight control, poor construction materials, inadequate road design and construction work, and lack of preventive maintenance.

10) Conclusions

The international arterial roads which form the Growth Ring Corridors are positioned as critical infrastructure to support not only transit transport from international ports, but also exchange and trade between landlocked countries and coastal countries. At present, several international arterial roads on the Growth Ring Corridors are the only major roads connecting the countries in the WAGRIC sub-region. Meanwhile, the projection of traffic demand suggests that two-lane or four-lane roads will meet the demand for the time being with the exception of urban areas. Road development with multiple-lanes will be required for the road sections that link the national capital cities or that link each national capital city with major hub cities depending on the increase in traffic demand. The other road network will be developed with two-lanes. In that case, the cross section of the UEMOA standard two-lane road should be used as the basic road cross section in the future road construction and the pavement and bridge design has to have sufficient durability to withstand the expected increase in the traffic of heavy trucks. It is extremely important to continue appropriate maintenance of the roads to ensure that they serve the function of permanent transportation routes. The upgrading of urban infrastructure functions is a very important consideration in the development of the Growth Ring Corridors. Measures to increase the traffic capacity of certain sections of roads, such as construction of bypasses, outer ring roads, elevated roads, flyovers or underpasses beneath intersections, passing lanes and slow traffic climbing lanes, should be taken where such measures are required. Sufficient right of way should be reserved beside the roads so that appropriate measures can be taken when the traffic demand increases.

On the other hand, the linkages of countries in east-west directions in inland areas have not been considered very well. It is thought that the sub-regional level has been examined with an emphasis on the linkage between the port and inland areas and on the physical sub-regional integration so far.

(3) Future Prospects for Road Sector in WAGRIC Sub-Region

Since the GDP of WAGRIC Sub-Region is expected to continue to grow at over 7% per year on the basis of population increase and steady expansion of primary commodity production, the medium and long-distant cargo transport demand is considered to continue to increase.[1]

Such cargo demand would emerge not only in the coastal economic corridor, but also in the major north-south economic corridors, because economic activities are intensified in those economic corridors.

[1] See Chapter 6 for Future Socio-Economic Framework of WAGRIC Sub-Region.

At the same time, middle-income populations are considered to increase mainly in urban areas, resulting in rapid motorization mostly in urban areas. Therefore, it will become much more difficult to go through urban areas along both the coastal corridor and major north-south corridors.

(4) Objectives for Road Sector in WAGRIC Sub-Region

By considering the future vision and identified issues for WAGRIC Sub-Region, the following issues on the road network, road development objectives are identified:

1) Objective 1

To establish a road network that contributes to sub-regional spatial integration, and furthermore to sub-regional economic integration including economic exchanges

2) Objective 2

To realize a road network that forms a region-wide network for sub-regional spatial integration linking metropolitan areas and cities, and to enhance the gateway function in the coastal economic corridor, for driving economic growth and improving economic sectors' efficient productive activities

3) Objective 3

To establish a road network for facilitating exchanges of people and goods in east-west directions in inland areas from the central corridors of north-south directions in individual countries

4) Objective 4

To establish a road network for improving accessibility conditions between economic sectors' potential production areas and major markets

5) Objective 5

To establish a road network for smooth traffic and safe transportation

(5) Basic Strategies for Road Sector in WAGRIC Sub-Region

In order to achieve the objectives of road network development, the following ten basic road development strategies are defined. Possible measures to implement each strategy are also described below. Road development strategies for individual countries of the WAGRIC sub-region will be defined based on these basic strategies.

1) Strategies 1 and 2

Strategy 1: With respect to Central Corridors of individual countries that are expected to serve as development axes, "rehabilitation" and "upgrading" of central corridor roads should be done so that the central corridors could provide high-speed transportation service.

Strategy 2: "Rehabilitation" and "upgrading" of the roads that compose Secondary North-South Corridors, which complement the Growth Ring Corridors, should be done so that coastal areas could be connected to inland areas and inland countries.

Supplementary Explanation for Strategies 1 and 2

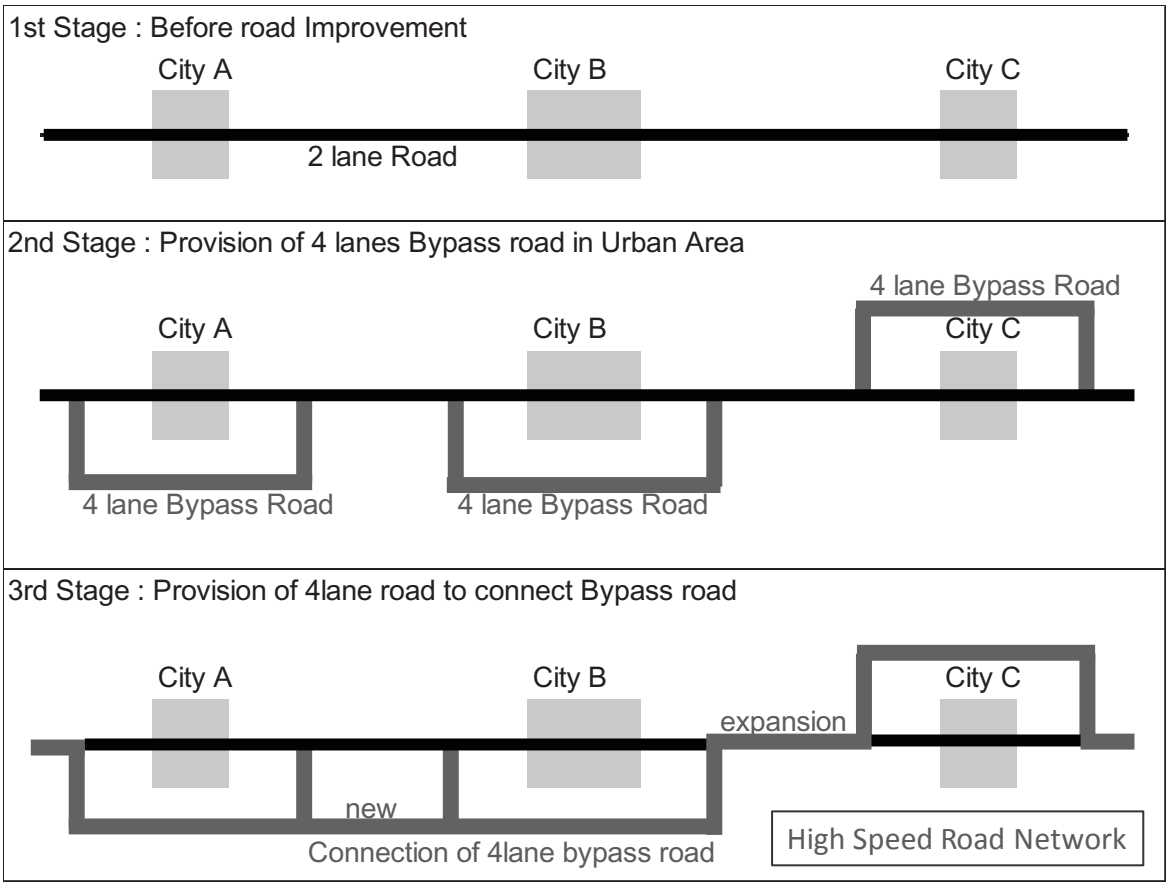
"Rehabilitation" and "upgrading" of roads composing Central Corridors and Secondary Corridors, which are expected to serve as development axes of the Growth Ring Corridors, should be promoted. The roads for these development axes will play an important role in the fundamental exchange of people and goods across the sub-region. As such, these roads should have the functions to provide high-speed transportation service and long-lasting running environment and services. In addition, with respect to the Corridors paralleling railways, efforts should be made to realize multi-modal transportation by enhancing the connectivity with the railway stations.

For the provision of high-speed transportation service, these roads should be developed with the objective of enabling vehicles to operate at around 100km/h or more on these roads. More

specifically, development of motorways, conversion of national highways to motor highways, introduction of double lanes and development of inter-city bypasses should be carried out.

Development of motorways separate from ordinary roads should be promoted for the sections between major cities that are expected to carry high transportation demands. For the sections with budgetary constraints and limited transportation demands, a certain level of service should be secured by partial conversion of current highways to motor highways, introduction of double lanes and development of inter-city bypasses.

Provision of a sustainable road use environment is achieved by the application of earthwork, pavement and bridge structures that can withstand increased transportation demands and operation of heavy vehicles. Also, continuous maintenance is essential. Suspension of traffic and deterioration of sustainable service caused by road damage must be avoided for these major roads.



Source: JICA Study Team

Figure 7.3.14 Concept of Staged Development from General Road to High Speed Road (High-Standard 4-Lane Road)

Proposed Road Design and Construction for "Rehabilitation" and "Upgrading" of Roads

The interruptions of major corridors due to pavement defects caused by passage of heavy vehicles might cause not only the economic loss but also traffic accidents. Therefore, major corridor roads should be developed using good design and construction work to enable heavy vehicles to flow without any interruptions. Measures in the future for design and construction of major corridors are as follows.

Removal of overloaded trucks in these target areas seems to be impossible. The design load ESAL values will vary directly with the fourth power of single wheel load ratio to a standard load 18kips. Therefore, ten years design traffic loads can be produced in a single year with overloaded trucks. Status of over loaded trucks shall be surveyed and reflected in the design.

The major corridors shall be constructed with durable structures such as Asphalt Concrete Pavement or Concrete Pavement because surface treatment (DBST or SBST) is not durable. Asphalt concrete pavements or concrete pavements are also advantageous in terms of maintenance costs.

Potholes, rutting and shoving may be caused depending on the materials and mix proportion of asphalt concrete. The materials shall be selected and the proportion shall be determined with great care. Modified asphalt to resist potholes, rutting and shoving shall also be considered.

New road construction requires high quality control such as evaluation of the subgrade which determines the pavement thickness, replacement of unsuitable materials and measures for spring water. Therefore, in the case of development of major corridors, good local contractors or foreign contractors with sophisticated technologies and equipment shall be selected with high prequalification requirements.

The quality control for cement stabilization is very difficult. Therefore, the contractors shall be limited to the good local contractors or foreign contractors. This method shall not be used for the base course layer to avoid slipping of asphalt concrete. Base course shall be constructed with granular materials to make sure the friction of the Asphalt concrete is proper. The granular base course can also soften the impact of traffic loads to cement stabilized materials.

Possible Measures for Strategies 1 and 2

- Road development with asphalt concrete pavement that can withstand traffic of heavy vehicles
- Reinforcement or replacement of aged bridges and introduction of double lanes
- Introduction of double lanes to sections, such as inter-city sections where high transportation demands are expected
- Development of motorways between major cities
- Development of city bypasses and circular roads (ring roads)
- Conversion of major intersections to overpasses (flyovers)
- Installation of bus bays and truck bays

2) Strategies 3, 4 and 5

Strategy 3: Development of motorway network forming the Coastal Growth Belt between Abidjan and Lagos should be initiated from selected priority sections in order to promote sub-regional economic and spatial integration. As it will take time to develop all the sections of the motorway between Abidjan and Lagos, maintenance and rehabilitation of existing roads should be carried out to improve the service level.

Strategy 4: In order to respond to increasing transportation demands, a circular road network should be developed in southern metropolitan areas that will serve as the nodes of the Growth Ring Corridors to promote smooth traffic and expansion of urban areas. In addition, measures to implement smart traffic systems that contribute to improvement of the functionality of road infrastructure should be promoted.

Strategy 5: Accessibility to the motorway network (Growth Ring Corridors) from the international port and international airport located in the Coastal Growth Belt should be enhanced to establish an efficient transportation structure.

Supplementary Explanation for Strategies 3, 4 and 5

A motorway network should be established to form a region-wide corridor linking the metropolitan areas, such as Abidjan, Accra, Lomé, Cotonou and Lagos, which will serve as the foundation of the economic growth of the Growth Ring Corridors. In addition, inter-city and local links supporting daily transportation between neighbouring cities should be strengthened. A multi-layered network consisting of a wide-area corridor network to be established by the development of motorways and inter-city and local road networks to be established by the strengthening of ordinary roads will activate the exchange of people and goods in the coastal areas, which will attract investment to the Coastal Economic Growth Belt and support economic growth.

The metropolitan areas located along the coast corridor have an international gateway function as they have international sea ports and the international airport. To improve the international competitiveness of such metropolitan areas, improvement and renovation of the traffic of urban areas should be promoted along with the improvement of traffic accessibility to sea ports and airports from the urban areas. More specifically, efforts should be made to develop a circular road network and implement smart traffic systems, which will contribute to the improvement of mobility. In particular, since the metropolitan areas are the nodes of the Growth Ring Corridors, establishment of a seamless road network system should be promoted to link the "North-South Corridors and East-West Coastal Corridor" and "sea ports/airports and major transport corridors". Continuous inflow of population and expansion of land use are expected in the metropolitan areas. Therefore, it is necessary to initiate establishment of road networks and induction of sound land use as soon as possible to avoid the paralysis of city functions and node functions.

Possible Measures for Strategy 3, 4 and 5

- Development of 6-lane motorway (Lagos-Abidjan Motorway)
- Development of motorways within the metropolitan areas and cities
- Road development with asphalt concrete pavement that can withstand traffic of heavy vehicles
- Reinforcement or replacement of aged bridges and introduction of double lanes
- Introduction of double lanes to sections, such as inter-city sections where high transportation demands are expected
- Development of city bypasses and circular roads (ring roads)
- Conversion of major intersections to overpasses (flyovers)
- Installation of bus bays and truck bays
- Development of airport access roads
- Development of port access roads
- Introduction of ETC to the motorway network
- Introduction of ITS system within the cities

3) Strategies 6 and 7

Strategy 6: Roads to connect major urban centres on Central Corridors and urban centres serving people's daily requirements in inland areas should be improved.

Strategy 7: Pavement of roads and construction of bridges should be promoted to facilitate the access from the North-South Corridors and connecting roads to villages and farms.

Supplementary Explanation for Strategies 6 and 7

In order to encourage and support the development of inland areas, road development should be promoted to improve the accessibility from inland areas to major transport corridors. More specifically, development of connecting roads to link cities serving as the base of people's lives located between Central Corridors should be promoted to improve the accessibility to the Central Corridors (roads/railways), rural airports and core cities located on the North-South Corridor. Urban services of the core cities should be improved.

Efforts should also be made to pave village roads and construct bridges to provide access from the North-South Corridor and connecting roads to villages and farms located along them in order to realize smooth transportation by car, bus and truck even in the rainy season.

Possible Measures for Strategies 6 and 7

On the premises that connecting roads should have double lanes, the following measures should be implemented:

- Pavement of roads with asphalt concrete
- Rehabilitation
- Reinforcement or replacement of aged bridges

- Widening of sections passing through cities or development of bypasses
- Development of access roads to rural airports
- Development of feeder roads (simple pavement, construction of bridges)

4) Strategy 8

Access roads from large-scale development areas to metropolitan/ city areas and international sea ports should be strengthened.

Supplementary Explanation for Strategy 8

Road development should be promoted to facilitate the development and support the activities of areas with high development potentials. More specifically, road development should be implemented to contribute to improvement of the access to markets, such as industrial areas, large-scale agricultural development areas, mine development areas and tourist areas as well as the improvement of raw material procurement. Timely road development should be carried out in consideration of the schedule of the development plan. Such road development should also greatly support the establishment of supply chains within the West African sub-region.

Possible Measures for Strategy 8

- Development of access roads to major trunk roads (paved with asphalt)
- Development of access roads to major trunk roads (construction of bridges)
- Development of access roads to railway cargo stations
- Development of access roads to major logistics bases (logistic centre, market, etc.)
- Road development within development areas

5) Strategies 9 and 10

Strategy 9: Development of ancillary road facilities should be promoted to ensure efficient and safe use of the roads after development.

Strategy 10: Strengthening of road administration function should be promoted.

Supplementary Explanation for Strategies 9 and 10

Measures to develop the road environment for effective utilization of existing road infrastructure and road infrastructure to be developed in the future should be implemented. More specifically, installation of traffic safety facilities for prevention of traffic accidents, introduction of ITS measures including traffic control systems and advanced traffic signal systems in urban areas, and installation of signage in major transport corridors should be promoted.

In order to achieve a sustainable road traffic environment, administrative functions concerning road planning, design, construction and maintenance should be strengthened. For sharing of information about the development status of major transport corridors by each country and UEMOA Commission, a common database should be established and managed in an efficient and effective manner.

Training should be implemented and regulations should be strengthened to prevent overloading and to facilitate safe driving of trucks. Also, the transport corridors to be developed should serve as major logistics routes. Accordingly, road structures capable of responding to the increase in the size of marine containers and overloading should be applied to these heavy-loaded roads.

Proposal on Maintenance Works

During site inspections for major transport corridors in three countries, unrepaired potholes, rutting and shoving have been observed. Early repairs and maintenance works can reduce maintenance costs and lengthen the service period of roads. Periodical maintenance is indispensable for proper maintenance work.

Performance-based road maintenance contracts defined by service level of ditches or carriage ways which are adopted in some African countries should be considered in the future.

Possible Measures for Strategies 9 and 10

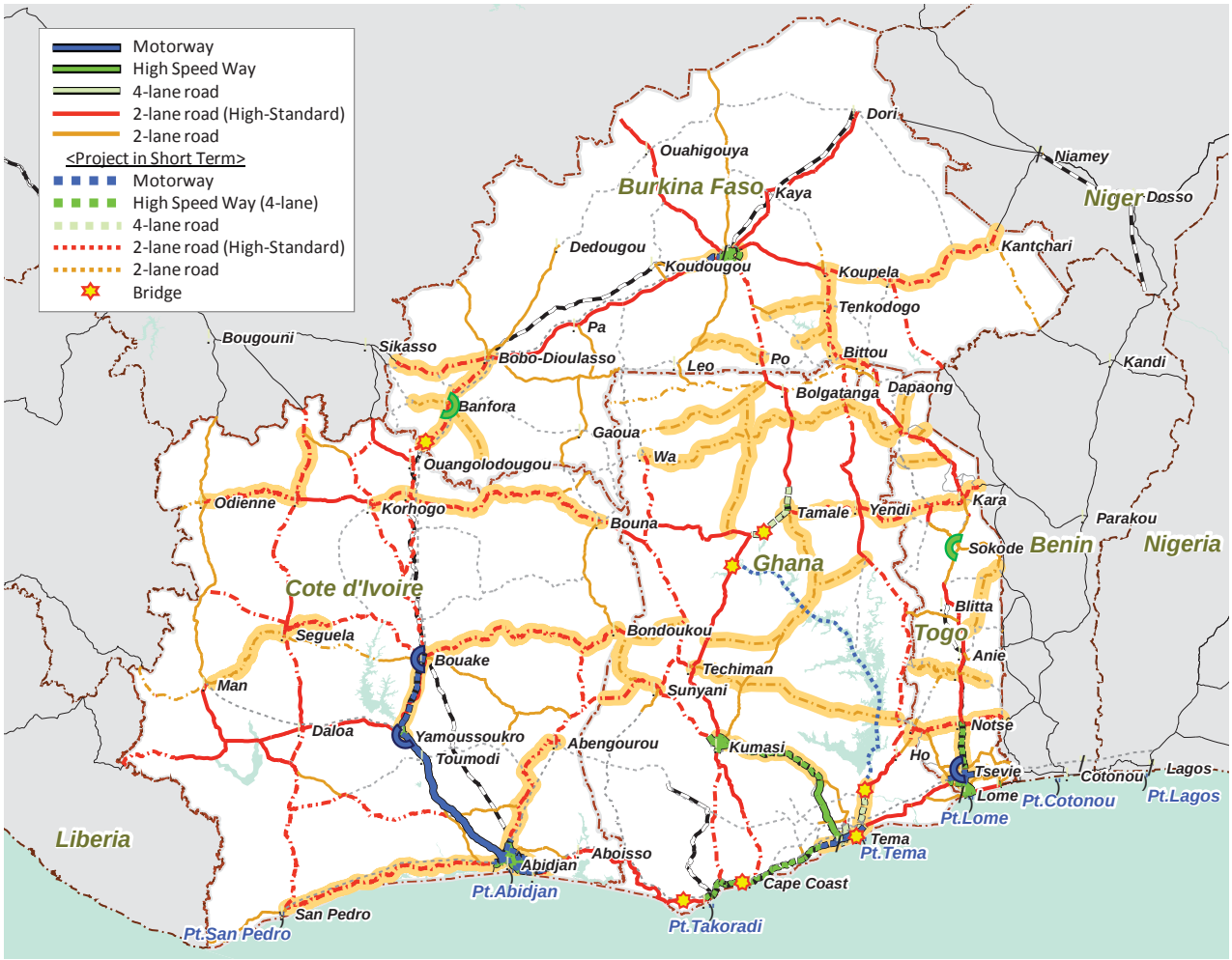
- Implementation of road safety measures
- Implementation of ITS systems (traffic control systems, advanced traffic signal systems, traffic information providing systems etc.)
- Strengthening of administrative functions concerning road planning, design, construction and maintenance
- Strengthening of maintenance capabilities (maintenance planning capabilities, equipment, budgeting)
- Introduction of overload monitoring system and strengthening of control
- Training of trucking companies to improve the safe transportation capabilities and to ensure compliance with regulations

(6) Priority Projects for Road Sector in WAGRIC Sub-Region

1) Priority Projects by Phase

To achieve the future road network, the road development programme is formulated as follows.

Priority Projects to be Completed between 2017 and 2025



Source: JICA Study Team

Figure 7.3.15 Road Projects for Short Term in WAGRIC Countries

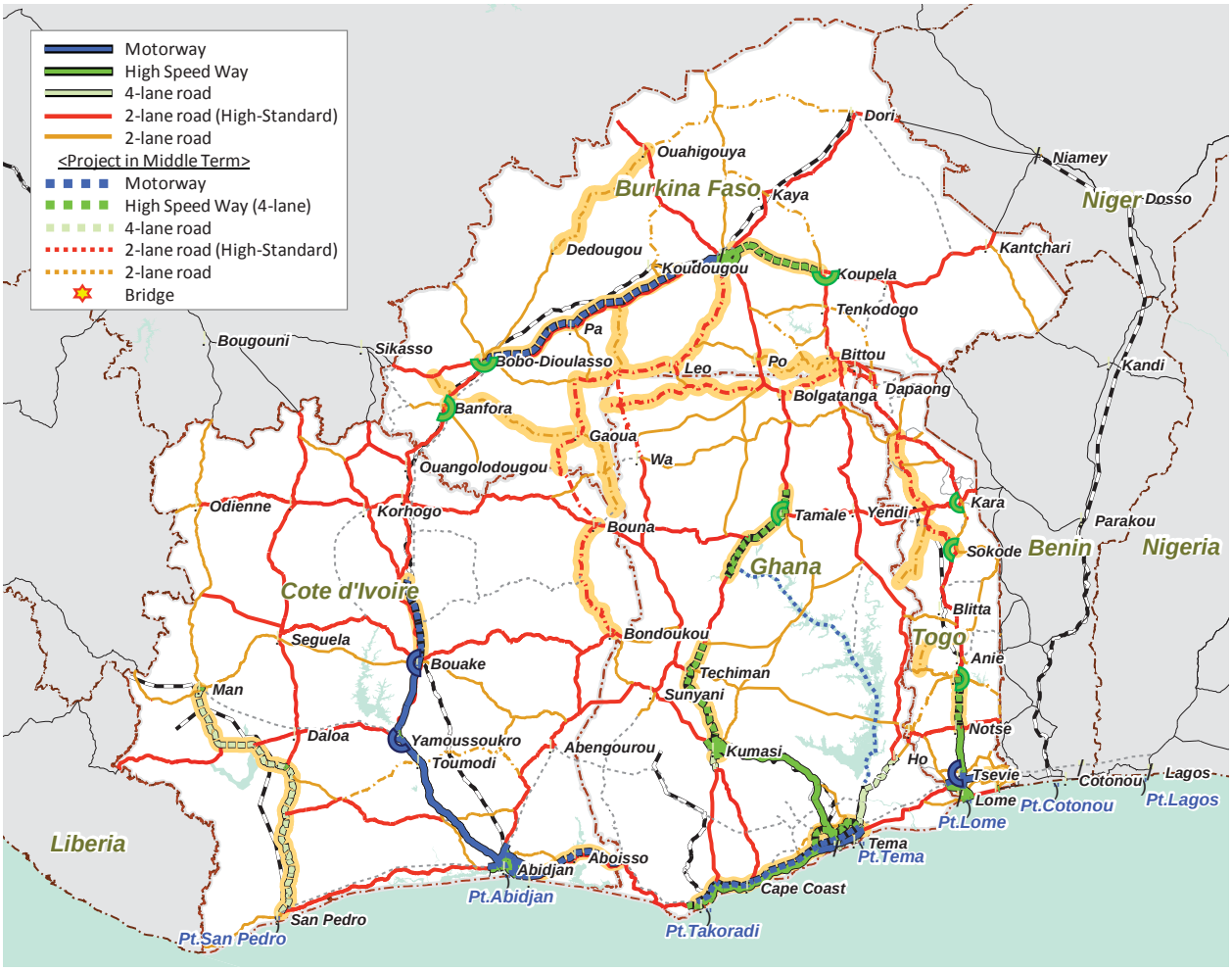
Table 7.3.3 Road Projects for Short Term in WAGRIC Countries

	Name of Priority Project	No. Lane	Length	
	Burkina Faso			
BF-S-1	Improvement of Road (R21) between Banfora and Douna	2	42	km
BF-S-2	Improvement of Road (N17) connecting N5 and N16 (Guiba - Garango)	2	87	km
BF-S-3	Improvement of Road (R9 and N29) connecting N16 and N17 for providing better Access to Bagrépole	2	48	km
BF-S-4	Improvement of Road (N25) connecting N5 and N6 (between Pô and Nébou)	2	89	km
BF-S-5	Improvement of Road between Banfora and Mangodara	2	50	km
BF-S-6	Widening of Inner Ring Road (Tensoba Boulevard) of Ouagadougou	4	10	km
BF-S-7	Rehabilitation of National Road (N16) between Koupéla and Cinkaseé (Border of Togo)	2	150	km
BF-S-8	Rehabilitation of National Road (N4) between Koupéla and Kanchari (Border of Niger)	2	265	km
BF-S-9	Construction of Inner Ring Road of Bobo-Dioulasso (Southern Section)	2	15	km
BF-S-10	Rehabilitation of National Road (N8) between Bobo-Dioulasso and Koloko (Border of Mali)	2	132	km
BF-S-11	Rehabilitation of National Road (N7) between Bobo-Dioulasso and Niangoloko (Border of Cote d'Ivoire)	2	154	km
BF-S-12	Replacement of Laleraba Bridge for Crossing the National Border between Burkina Faso and Côte d'Ivoire	2	-	km
BF-S-13	Construction of Southern Sections (between N1 and N4) of Ouagadougou Outer Ring Road (Southern Bypass)	4	60	km
BF-S-14	Construction of Motorway between Ouagadougou and Koudougou	4	70	km
	Côte d'Ivoire			
CI-S-1	Improvement of Road between Ferkessédougou and Bouna	2	287	km
CI-S-2	Improvement of Road between Bouaké and Bondouokou	2	250	km
CI-S-3	Improvement of Road between Boundiali and Odienné	2	134	km
CI-S-4	Improvement of Road between Tieningboué and Séguéla	2	120	km
CI-S-5	Improvement of Road between Séguéla and Man	2	135	km
CI-S-6	Improvement of Three Intersections by Construction of Flyovers in Greater Abidjan	4	-	km
CI-S-7	Construction of 4- lane Motorway of the East Exit Line Cocody-Bonoua	4	35	km
CI-S-8	Construction of 4- lane Motorway of Y4 Ring Road: Anyama - Cocody Section	4	16	km
CI-S-9	Construction of 4-lane Motorway of Y4 Ring Road: Anyama – Attinguié Section	4	14	km
CI-S-10	Construction of 4-lane Motorway of Y4 Ring Road: Cocody – Riviéra 6 Section	4	15	km
CI-S-11	Construction of 6th Bridge (part of Y4 Ring Road)	4	-	km
CI-S-12	Construction of 4-lane Motorway of Y4 Ring Road: Aerocité Section	4	?	km
CI-S-13	Construction of 4- lane Motorway of the West Exit Line (Songon)	4	12	km
CI-S-14	Rehabilitation of National Road between Songon and San-Pédro	2	320	km
CI-S-15	Improvement of Solibra Intersection by Construction of Flyovers in Greater Abidjan	4	-	km
CI-S-16	Construction of 4- lane Motorway; the North Exit Line (Anyama)	4	17	km
CI-S-17	Construction of Vridi-Bietry Bridge (for Better Access to Abidjan Port)	4	-	km
CI-S-18	Construction of Bypass Road for Yamoussoukro (part of Motorway)	4	20	km
CI-S-19	Construction of 4- lane Motorway between Yamoussoukro and Bouaké	4	100	km
CI-S-20	Construction of Western Section for Bouaké Outer Ring Road (part of Motorway)	4	20	km
CI-S-21	Upgrading of Road between Anyama and Abengourou	4	214	km
CI-S-22	Upgrading of Road between Boundiali and Tingréla	2	120	km
	Ghana			
GH-S-1	Improvement of Inter-Regional Road between Yawgu and Wa	2	400	km
GH-S-2	Improvement of Regional Road between Navrongo and Fian	2	183	km
GH-S-3	Improvement of Inter-Regional Road between Navrongo and Banusu	2	230	km
GH-S-4	Improvement of Inter-Regional Road between Tamale and Makango	2	145	km
GH-S-5	Improvement of Inter-Regional Road between Yeji and Kintampo	2	144	km
GH-S-6	Improvement of Inter-Regional Road between Salaga and Bimbila	2	76	km
GH-S-7	Improvement of Inter-Regional Road between Techiman and Agordeke	2	302	km
GH-S-8	Improvement of Inter-Regional Road between Kpando-Torkor and Golokwati	2	18	km
GH-S-9	Improvement of Inter-Regional Road between Berekum and Banda Nkwanta	2	166	km
GH-S-10	Construction of East-West Motorway in Greater Accra	6	20	km
GH-S-11	Replacement of Ankobra Bridge (Coastal Corridor)	4	200	km
GH-S-12	Replacement of Iture Bridge (Coastal Corridor)	4	60	km
GH-S-13	Widening of Accra – Tema Motorway up to 6 Lanes (Abidjan - Lagos Corridor)	6	19	km
GH-S-14	Construction of Motorway between Tema and Prampram (Abidjan-Lagos Corridor)	6	15	km
GH-S-15	Upgrading of National Road No. 2 between Tema Roundabout and Atimpoku to 4-Lane Dualized Road	4	60	km
GH-S-16	Improvement of Tema Intersection by Construction of Flyovers	4	-	km
GH-S-17	Construction of High-Speed Way on National Road No.1 between Nkawkaw and Kumasi (Central Corridor) (Continuation of Widening of Accra - Kumasi Road)	4	200	km
GH-S-18	Construction of Greater Kumasi Outer Ring Road North-East Section (Central Corridor)	4	25	km
GH-S-19	Upgrading of National Road No.1 between Tamale-Yaipe and Tamale- Savelugu to 4-lane Road (Central Corridor)	4	70	km
GH-S-20	Completion of North-East Section of Inner Ring Road in Tamale	4	4	km
GH-S-21	Construction of Buipe Bridge (Replacement)	4	250	km
GH-S-22	Construction of Yapei Bridge (Replacement)	4	250	km
GH-S-23	Improvement of National Road No. 11 between Bolgatanga and Bawku	2	80	km
GH-S-24	Improvement of National Road No. 13 between Lawra and Navrongo	2	250	km
GH-S-25	Improvement of Regional Road between Tamale and the National Boarder with Togo (Nachemba)	2	70	km
GH-S-26	Improvement of National Road between Sunyani and the National Boarder with Côte d'Ivoire (Gonnokron)	2	160	km

	Name of Priority Project	No. Lane	Length	
	Togo			
TG-S-1	Improvement of Road of Borgou and Mango and Road of Baouré and Road of Mogou and Gando-Namoni for Oti Agropole	2	50	km
TG-S-2	Improvement of Road of Tchitcho – Leon – Guérin-Kouka for Kara Agropole	2	50	km
TG-S-3	Improvement of Road between Kambole – Bila - Goubi - Bagou - Issati –Moretan - Nyamassila for Mono Agropole	2	50	km
TG-S-4	Improvement of Road between Kougnonhou and Atakpamé for Agricultural Potential Areas for Mini-Agropoles of Amou and Agou in Plateau Region	2	95	km
TG-S-5	Improvement of Road between Atakpamé and Nangbéto Dam	2	40	km
TG-S-6	Project for Construction of Greater Lomé Sections of Abidjan-Lagos Motorway	6	30	km
TG-S-7	Project for Construction of Motorway between Lomé Bypass and New International Airport (including Tsévié Bypass)	4	25	km
TG-S-8	Construction of 4-Lane High-Speed Way between Tsévié and Notsé	4	60	km
TG-S-9	Construction of Sokodé Bypass Road as part of 4-Lane High-Speed Way	4	10	km
TG-S-10	Project for Upgrading of East-West Road Connecting Kara with Kétao at East Side National Border (toward to Parakou of Benin) and with West Side National Border (toward to Yendi and Tamale of Ghana)	2	80	km
TG-S-11	Project for Upgrading of East-West Road Connecting Notsé with East Side National Border (toward Bohicon of Benin) and with West Side National Border (toward to Ho of Ghana)	2	140	km
TG-S-12	Project for Reconstruction of Three Bridges of National Road No.1 for Strengthening of Lomé-Ouagadougou Corridor	2	-	km

Source: JICA Study Team

Priority Projects to be Completed between 2026 and 2033



Source: JICA Study Team

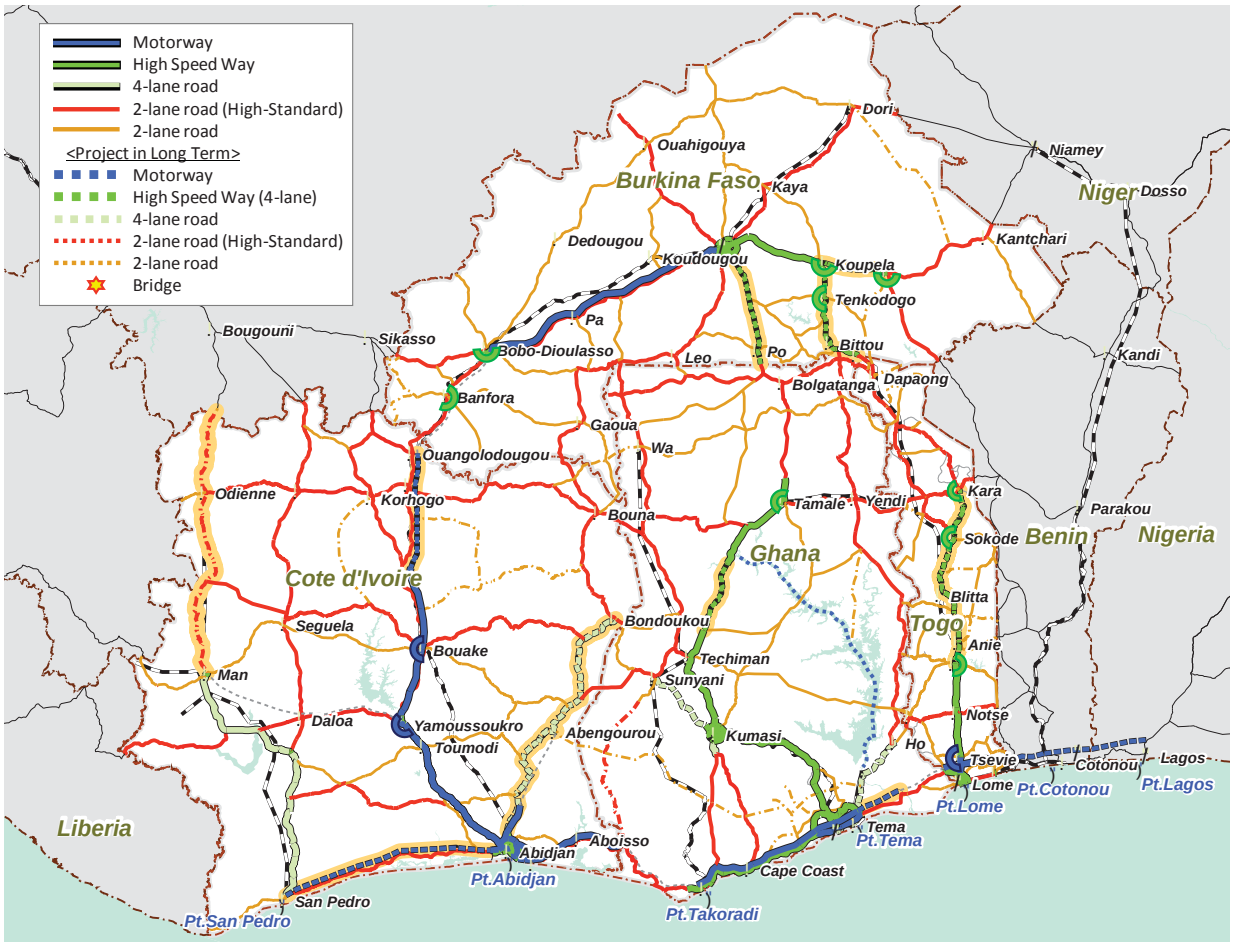
Figure 7.3.16 Road Projects for Medium Term in WAGRIC Countries

Table 7.3.4 Road Projects for Medium Term in WAGRIC Countries

Name of Priority Project		No. Lane	Length	
Burkina Faso				
BF-M-1	Improvement of Road between Dédougou and Ouahigouya through Tougan for Sourou Agricultural Potential Area	2	188	km
BF-M-2	Improvement of Road connecting N5 and N16 between Pô and Bittou	2	119	km
BF-M-3	Improvement of Road (N11) between Orodara – Banfora – Gaoua – Boarder of Côte d'Ivoire	2	198	km
BF-M-4	Construction of Southern Section (between N1 and N8) of Bobo-Dioulasso Outer Ring Road (Southern Bypass)	4	8	km
BF-M-5	Construction of Motorway between Koudougou and Bobo-Dioulasso	4	55	km
BF-M-6	Construction of 4-Lane High-Speed Way between Ouagadougou and Koupéla	4	157	km
BF-M-7	Upgrading of Road N6 to a High-Standard 2-lane Road between Ouagadougou and Léo	2	167	km
BF-M-8	Upgrading of Road N 20 to a High-Standard 2-lane Road between Léo and Djipologo (toward Eastern Corridor of Côte d' Ivoire)	2	81	km
BF-M-9	Upgrading of Road N 20 to a High-Standard 2-lane Road between Ouessa and Hamile (toward Wa of Ghana)	2	104	km
BF-M-10	Upgrading of Road N 12 to a High-Standard 2-lane Road between Djipolgo and Gatapoula (toward Bouna of Côte d'Ivoire)	2	142	km
Côte d'Ivoire				
CI-M-1	Project for Construction of 6- lane Motorway between Bonoua and the border of Ghana	6	105	km
CI-M-2	Project for Construction of Motorway between Bouaké and Niakaramandougou	4	120	km
CI-M-3	Project for Upgrading of Road between Bondoukou and Bouna	2	168	km
CI-M-4	Project for Upgrading of Road between San-Pédro and Man to 4-lane Road	4	400	km
Ghana				
GH-M-1	Construction of Outer Ring Road for Sekondi-Takoradi as part of Abidjan-Lagos Motorway (Coastal Corridor)	4	20	km
GH-M-2	Construction of Abidjan-Lagos Motorway between Accra (Kasoa)- Cape Coast	6	110	km
GH-M-3	Construction of Abidjan-Lagos Motorway Section between Cape Coast – Sekondi-Takoradi (Coastal Corridor)	6	70	km
GH-M-4	Construction of Outer Ring Road for Greater Accra	6	108	km
GH-M-5	Construction of 4-Lane High-Speed Way on National Road No.1 between Buipe and Savelugu including Bypass Road for Tamale as part of High-Speed Way (Central Corridor)	4	30	km
GH-M-6	Construction of 4-Lane High-Speed Way on National Road No.1 between Kumasi and Kintampo including Bypass Road at Techiman and Kintampo (Central Corridor)	4	180	km
GH-M-7	Upgrading of National Road No. 9 between Tamale and Bimbila	2	100	km
GH-M-8	Upgrading of National Road No. 11 between Bolgatanga and Bawku to 2-Lane High-Standard Road	2	80	km
GH-M-9	Upgrading of National Road No. 13 between Lawra and Navrongo to 2-Lane High-Standard Road	2	250	km
GH-M-10	Construction of Greater Kumasi Outer Ring Road South-East Section	4	20	km
Togo				
TG-M-1	Improvement of Road of Bassar – Mô – Tindjasse – the Western National Border with Ghana for Agricultural Potential Areas in Mô Valley of Central Region	2	110	km
TG-M-2	Improvement of North-South Road between Sokodé and Bassar	2	60	km
TG-M-3	Improvement of North-South Road between Kabou and Sansanné Mango	2	105	km
TG-M-4	Construction of Kara Bypass Road as part of 4-Lane High-Speed Way	4	10	km
TG-M-5	Construction of 4-Lane High-Speed Way from Notsé to Atakpamé including Atakpamé Bypass	4	65	km
TG-M-6	Project for Construction of Togo's Central and Eastern Sections of Abidjan-Lagos Motorway	4	80	km
TG-M-7	Improvement of Road between Kougnonhou and Nyamassila for Agricultural Potential Areas in Plateau Region	2	80	km

Source: JICA Study Team

Priority Projects to be completed between 2034 and 2040



Source: JICA Study Team

Figure 7.3.17 Road Projects for Long Term in WAGRIC Countries

Table 7.3.5 Road Projects for Long Term in WAGRIC Countries

	Name of Priority Project	No. Lane	Length	
Burkina Faso				
BF-L-1	Upgrading to a 4-Lane High-Speed Way between Koupéla and Cinkansé including Bypass for Koupela (toward Togo)	4	150	km
BF-L-2	Upgrading to a 4-Lane High-Speed Way between Koupéla and Fada N'Gourma including Bypass Road for Fada N'Gourma (toward Niger and Benin)	4	157	km
BF-L-3	Upgrading to a 4-Lane High-Speed Way between Ouagadougou and Paga (toward Tamale)	2	166	km
Côte d'Ivoire				
CI-L-1	Construction of 4th bridge (Île Boulay) of Greater Abidjan	4	-	km
CI-L-2	Construction of Motorway between Abidjan and San-Pédro	4	300	km
CI-L-3	Construction of 4- lane Motorway between Niakaramandougou and Ouangolodougou	4	100	km
CI-L-4	Upgrading of Road between Man – Odienné – the border of Mali	4	200	km
CI-L-5	Upgrading of Road between Anyama and Bondoukou to 4-lane Road	4	400	km
Ghana				
GH-L-1	Construction of Abidjan-Lagos Motorway between Prampram - Sogakope (Coastal Corridor)	6	65	km
GH-L-2	Construction of High-Speed Way between Kintampo and Buipe (Central Corridor)	4	92	km
Togo				
TG-L-1	Project for Construction of 4-Lane High-Speed Way from Atakpamé to Kara	4	180	km

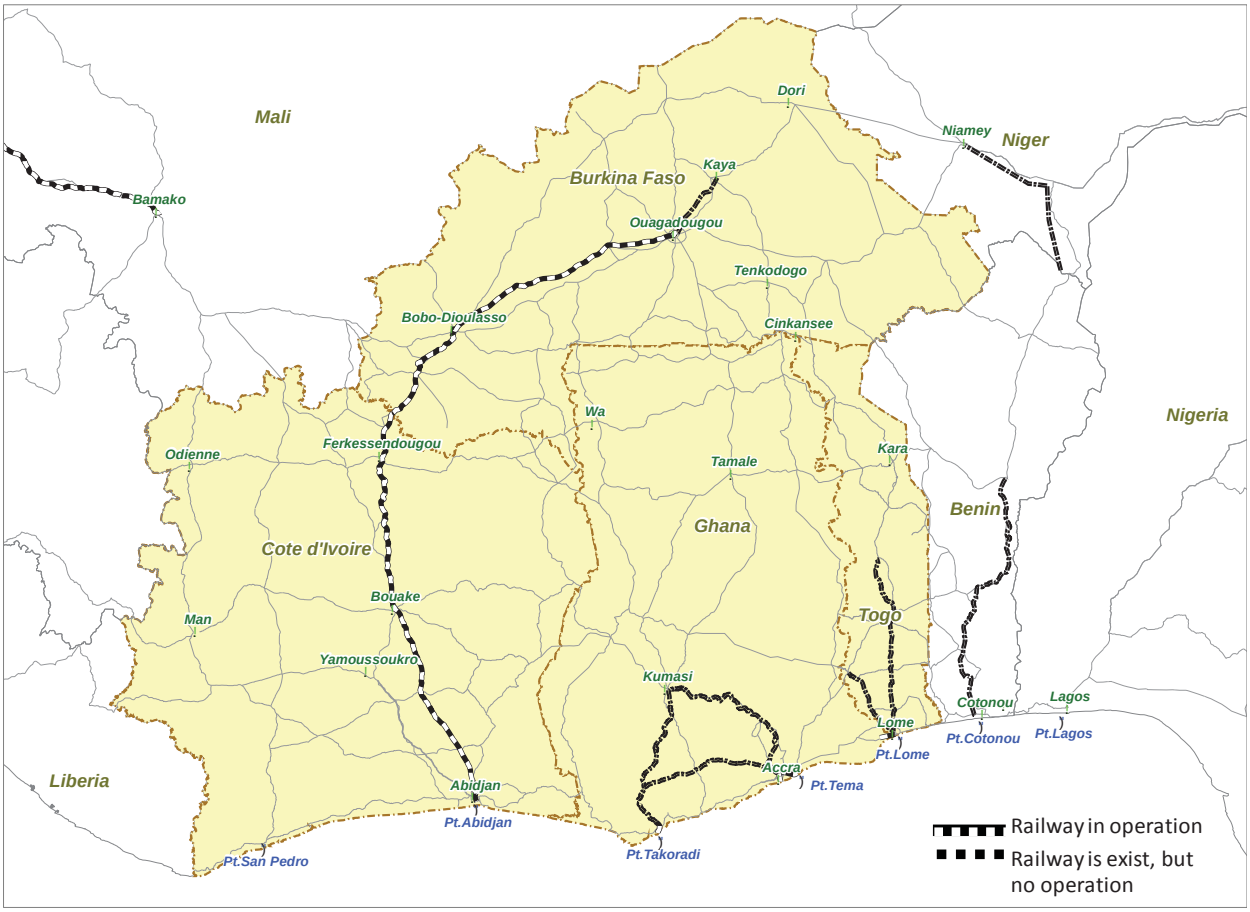
Source: JICA Study Team

7.3.2 Sub-Regional Level Development Strategies for Railway Sector

(1) Present Situation of Railway Sector in WAGRIC Sub-Region

The importance of railway transport in the improvement of physical distribution efficiency in the WAGRIC Sub-Region, that stretches more than 1,000 km from north to south, is expected to increase.

Figure 7.3.18 and Table 7.3.6 show the current state of the railway infrastructure in the sub-region.



Note *: Railway from Niger is new constructed line.
Source: JICA Study Team based on the Interview with Each Government

Figure 7.3.18 Current State of Railway Infrastructure in WAGRIC Sub-region

The 1,154 km-long railway line connecting the Port of Abidjan and Ouagadougou is the only operational railway line utilized for international physical distribution in the sub-region (in WAGRIC). It is operated and maintained by SITARAIL, a subsidiary of Bolloré Africa Logistics. SITARAIL has been operating it under a concession agreement since 1995. Asset management organizations are the SIPF (Société Ivoirienne de gestion du patrimoine Ferroviaire) in Côte d'Ivoire and SOPAFER-B (Societe de genstion du patrimoine ferroviaire du Burkina) in Burkina Faso which are governmental organizations under the Ministries of Transport of the two countries. The line is a meter-gauge (1,000mm), single-track and non-electrified railway line. SITARAIL operates the line with 19 main engines manufactured by GM and 947 wagons and 17 coaches made in India, France, and Canada. There are three to four freight services/day and three passenger services/ week from Abidjan to Ouagadougou. The travel times of the passenger and freight services from Abidjan to Ouagadougou are 33 hours and 60 hours, respectively, and the average speeds of the passenger and freight services are only 33 km/h and 19 km/h, respectively. The annual traffic volume on the line in 2014 was only 800,000 t consisting of 680,000 t to the inland areas and 120,000 t in the opposite direction. Petroleum products accounted for 25 % of the traffic to the inland areas. A derailment accident and an accident of bridge collapse due to the aging of infrastructure have occurred on the line of SITARAIL in Côte d'Ivoire in 2016.

In Togo, there used to be a rail service on the approx. 280 km-long railway line between the Port of Lomé and Blitta located in the central part of the country. However, the service was terminated. The Government of Togo is conducting a feasibility study on extending the railway line to the border with Burkina Faso and service resumption, considering that these are essential for the improvement of the logistics function in the country.

Table 7.3.6 Current State of the Railway Infrastructure in WAGRIC Countries

Country	Line/Length	Operational status	Operator / Asset management organization
Côte d'Ivoire / Burkina Faso (Type of Railway) -Total length of railroad track 1206km (106km is closed) -Single track, -Meter gauge (1,000mm), -Not electrified	Abidjan-Ouagadougou 1154km (Total) - 638 km (CI) - 516 km (BF) Ouagadougou-Kaya - 106km	(Freight) 3-4 train/day, Travel time: 60hr, Travel speed:19km/hr. 800,000 tonne/year (2014) (Passenger) 3 trains/week Travel time: 33hr. Travel speed: 33km/hr *No operation between Ouagadougou and Kaya	(Operator) SITARAIL (Concessionaire from 1995) (Asset management organization) Côte d'Ivoire: Société Ivoirienne de gestion du patrimoine Ferroviaire (SIPF) Burkina Faso: Societe de genstion du patrimoine ferroviaire du Burkina (SOPAFER-B)
Ghana (Type of Railway) - Total length of railroad track constructed 947 km (806km is closed) -Single track -Narrow gauge (1,067mm) -Not electrified	Tema – Accra - 35km	(Passenger) One round trip per day	(Operator) Ghana Railway Company Limited (GRCL) (Asset management organization) Ghana Railway Development Authority (GRDA)
	Accra – Nsawan (Eastern Line) - 40.5km	(Passenger) Two round trip per day	
	Takoradi – Nsuta (Western Line) - 65km	(Passenger) One round trip per day (Takoradi –Kojokrom) (Freight) For manganese, Two round trips per day (Takoradi –Nsuta)	
Togo (Type of Railway) - Total length of railroad track constructed 559 km (442km is closed) -Single track -Meter gauge (1,000mm), -Not electrified	Lomé – Blitta - 276km	No operation (Closed in 2012)	M.M.Mining
	Lomé-Kpalime - 119km	No operation (Closed in 1996)	
	Lomé-Aneho - 47km	No operation (Closed in 1986)	
	Lomé-Tabligo - 77km Lomé-Aflao (to Ghana) - 4km,	For Clinker	Togo Rail
	Kpeme-Dagbati - 30km Kpeme-Aveta - 6km	For Phosphate	SNPT

Source: JICA Study Team based on the Interview with Each Government

In the WAGRIC area, railroads with a total length of over 2,700km had been developed.

Since these railroad facilities are in a very poor condition due to deterioration, they are not able to fully function.

(2) Issues on Railway Sector in WAGRIC Sub-Region

Below are the issues of railway development in the sub-region.

Table 7.3.7 Issues of Railway Development in WAGRIC Countries

Common issues of railway on the operational line • Aging of railroad tracks, infrastructures, rolling stocks and equipment, • Low-level transportation service in terms of transport capacity, frequency, travel speed, time reliability and comfort, • Low-level transit service in terms of cargo handling, storage function, procedures for documentation, and lack of adequate access roads from the transit terminal to arterial roads in Ouagadougou • Weakness of the government regulatory body in regulating private concessioners' management and operation, • Little substantial effort at promoting multi-modal transport between railway and truck transport, • Lack of transport demand for rehabilitation and upgrading of the railway and expansion of new lines. • Fund shortage of public sector and private sector.
Issues of railway in urban areas and port areas • Absence of an urban railway system or of a convenient network,

• Low-level transportation service in terms of transport capacity, frequency, travel speed, time reliability and comfort, • Aging of railroad tracks, infrastructures of connection lines to port terminal, • Insufficient space and function for transit in port areas or for transit between railway and truck. • Integrated development of railway with dry port in inland area.
Issues of railway for the mining development • Absence of freight transport system to potential mining development areas, • Inactive investment of private companies to the development of railway for transportation of mining.

Source: JICA Study Team

It is proposed that the priority issue is to improve the cargo transport making full use of existing railway infrastructure. Furthermore, the realization of new railway lines that contribute to the industrial development promotion including mine development is required.

The following issues on Railway Sector are identified:

1) International Railway Network is Limited

Currently, the only railway that functions as an international corridor is the line between Abidjan and Ouagadougou. Although railways are in place and operated in both Ghana and Togo, they are only used for domestic transport needs for commuters or for the transportation of mining products and do not function as an international logistic mode. The railway network is insufficient as an international transportation mode.

2) Deteriorated Rail Tracks and Systems

Rail tracks are vulnerable and at the same time wide in variety: Meter gauge has been applied in Côte d'Ivoire, Burkina Faso and Togo. On the other hand, the railway was constructed by another type of gauge in Ghana. The tracks were laid down as early as the 1910s to the 1970s and about 40 to 100 years have already passed. The railways and facilities have aged significantly and are not in a condition to fully meet transport needs. Their transport capacity is vulnerable because of deteriorated train cars and the poor capacity of freight cars. In addition, it is difficult to procure spare parts when any malfunction occurs, which results in a deteriorated capacity in operating rate. Inefficiency is also caused by the fact it is difficult to standardize locomotive engines and freight cars that are wide in variety. Transport needs are not met because freights are kept waiting at the port of Abidjan where freight cars are scarce.

3) Low Service Level: Low Travel Speed and Frequent Derailment Accidents

Because of deteriorated rail tracks, normal traveling speed cannot be attained and derailment accidents occur frequently, which means only a very low level of service is offered.

The average traveling speed for passenger travel along the Abidjan-Ouagadougou section is just over 30 km/h, which is a very limited service level. This service level is not sufficient for attracting users comparing with inter-city bus services.

The former, however, operates using a single track, which causes a concern because freights are kept waiting for their turn to be transported. There are also safety issues, for example, derailment accidents occur annually along the Abidjan-Ouagadougou section.

4) Importance of Development of Multi-Modal Transport Systems and Coordination among the Countries

At present, the railway accounts for only 10 % of the land transport (tonne-based) in the WAGRIC countries according the analysis based on the customs data. However, on the route between Abidjan and Ouagadougou, on which a direct rail service is available, the railway accounts for a much higher percentage, i.e. approx. 50 %, of the physical distribution. Although the quality of the rail service on this route is far from good, it is selected because it is slightly cheaper, safer and more reliable than the road transport. If reduction in lead time, improvement in the punctuality and reduction in the cost of the railway transport are achieved through increase in the railway infrastructure transport capacity,

rehabilitation of existing and construction of new lines, as well as increase in cargo-handling capacity at ports and dry ports, the percentage railway occupies in the land transport is expected to increase even more.

In the future, economic growth is expected to increase the volume and concentration of the general and truck traffic, particularly in the Abidjan and Accra metropolitan areas where port facilities are located. Therefore, measures against the increasing road traffic need to be taken in these areas. Railway transport may be used as a solution to reduce the truck traffic. In order to promote the modal shift with railways at the sub-regional level, coordination among the governments of the four WAGRIC countries will be required in the promotion and regulation of railway facilities standardization.

5) Construction of Railways for Mine Development and Creation of an Appropriate Environment for Investment in the Railway Sector

The advantages of railway transport over road transport lie in its capacities to transport goods for a long distance at a low cost, and to transport massive and heavy goods. Such advantages can be utilized effectively in the transport of mineral resources. Mine development requires construction of a railway. Once such a railway is constructed, it can also be utilized for the general freight and passenger services.

(3) Future Prospects for Railway Sector in WAGRIC Sub-Region

In the WAGRIC Sub-Region, the utilization of railways is very important for the improvement of physical distribution efficiency. The length between the port and inland area is more than 1,000 km. The major cargos on a weight basis are petrol products, construction materials like cement and steel frames, and agricultural products. As the railway transport is suitable for transportation of massive and heavy products, it can be said that the above situation is exactly where railway transportation is required. Currently, although the railway transportation is mainly utilised for the transportation of importation goods, according to the regional development strategy of this master plan, the increase of regional production volume and consumption volume within the region is expected. Especially, 1) the promotion of exportation of traditional industry like agriculture and mining industry, 2) and the exportation of beef cattle from the rich livestock area in the northern part of Burkina Faso to coastal areas are mentioned as the economic growth sectors in the WAGRIC area.

The railway should support the activation of the above industrial sector and the trade facilitation within the sub-region by providing a highly stable mass transport network with more reasonable price. The ultimate goal of the railway development should be the improvement of global competitiveness and expansion of domestic demands (local economic growth) of the target four countries. In view of the current status, issues and approaches to railway development in each country, the ideal state of long-term railway network for the sustainable development of the Growth Ring Corridor is defined as described in Figure 7.3.19.

Source: JICA Study Team

Figure 7.3.19 Railway Network in the Super-Long Term in WAGRIC Countries

(4) Objectives for Railway Sector in WAGRIC Sub-Region

In view of the development objectives and development strategy of the Growth Ring Corridor and the current status and issues of the railway network, railway development objectives that should be achieved on the regional development strategies to facilitate the development of the Growth Ring Corridor are developed as described below.

1) Objective 1

To provide a new transport mode that contributes to the trade facilitation for the economic growth sector targeting at the Sub-regional market and the Sub-regional integration.

2) Objective 2

To achieve a proper transport sharing between railway transport and road transport to reduce the burden of increasing traffic on the roads by establishing a multimodal transportation system between the Ports and the inland areas.

3) Objective 3

To upgrade railway cargo transport services not only for providing cheaper, more rapid and higher security transport services, but also for providing a larger volume of long-distance cargo transport services. This could lead to the improvement of the environment of corridor competition between corridors in the four WAGRIC countries, as well as in the ECOWAS sub-region.

4) Objective 4

To provide new railway lines and to upgrade the railway for passenger transport services not only for providing cheaper, more rapid and more comfortable services, but also providing a larger volume

of long-distance passenger transport services and large volume passenger travel in urban areas in response to rapid urbanization and for improvement of airport access.

5) Objective 5

To support the utilization of development potential like mining potential as economic growth sectors in Sub-region by linking with ports.

(5) Basic Strategies for Railway Sector in WAGRIC Sub-Region

In order to achieve the objectives of railway development, five basic strategies for railway development strategies are defined as described below.

1) Strategy 1

Promotion of the rehabilitation of the existing railway for effective use of existing assets, improvement of service level, increasing the number of passengers and handling volume of cargos

2) Strategy 2

Strengthening of multi-modal transport function between road transportation, railway transportation, and air transportation by construction of multi-modal dry ports and railway terminals (for connecting railway and truck transport) at strategic nodes, and by providing access roads from railway terminals to arterial roads (international corridors)

3) Strategy 3

Promotion to attract investments to rehabilitation of existing railway lines and construction of new railway lines to potential development areas mainly for mining development

4) Strategy 4

Strengthening of access to ports and industrial zones by new construction or rehabilitation of railway tracks in port areas for expansion of berths and container terminals by coordinating with port authorities

5) Strategy 5

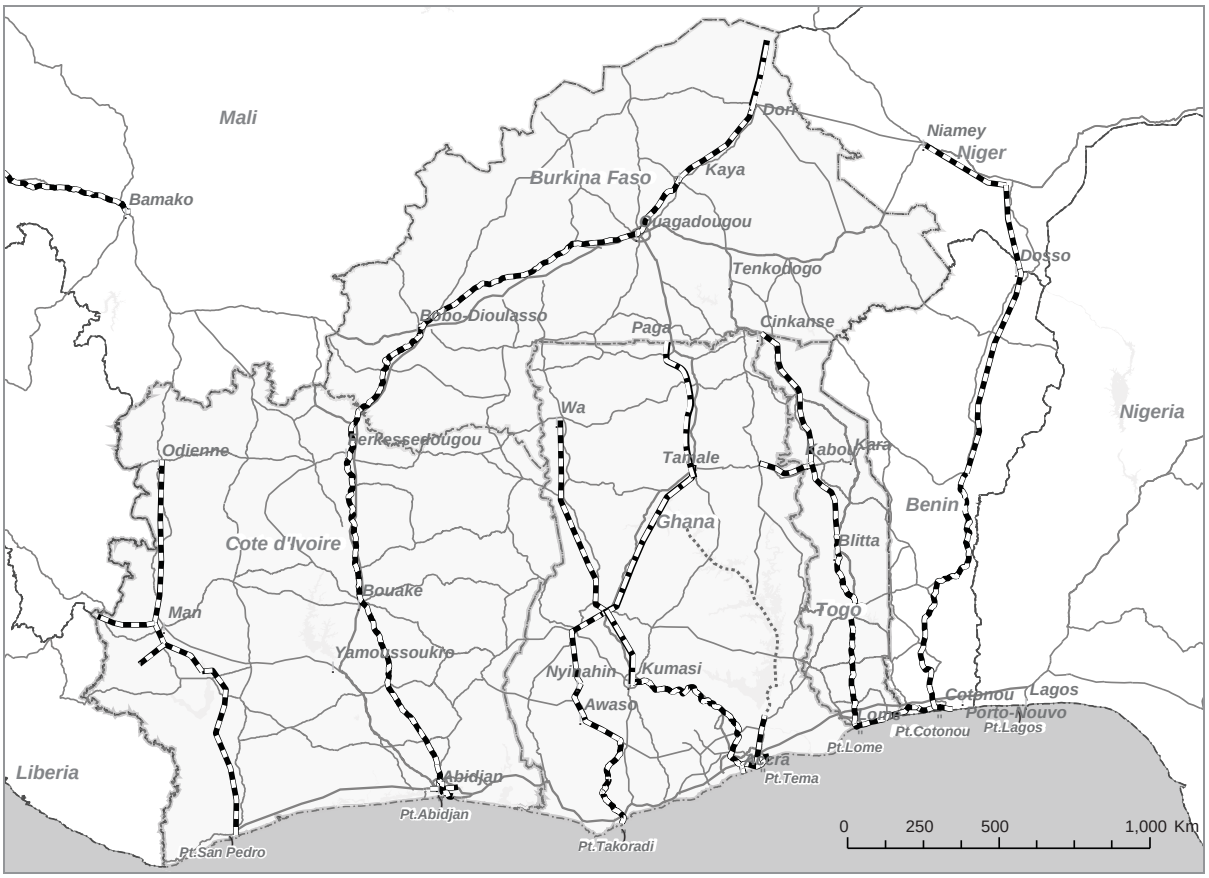
Reforming of regulatory body and strengthening of the regulatory function of the government for attracting private investment for development and operation of railway assets

It is necessary to establish an international railway management committee that is responsible for the harmonization of railway development policy and management such as the sharing common railway specifications between countries, trade facilitation, and regulation of freight rates.

(6) Priority Projects for Railway Sector in WAGRIC Sub-Region

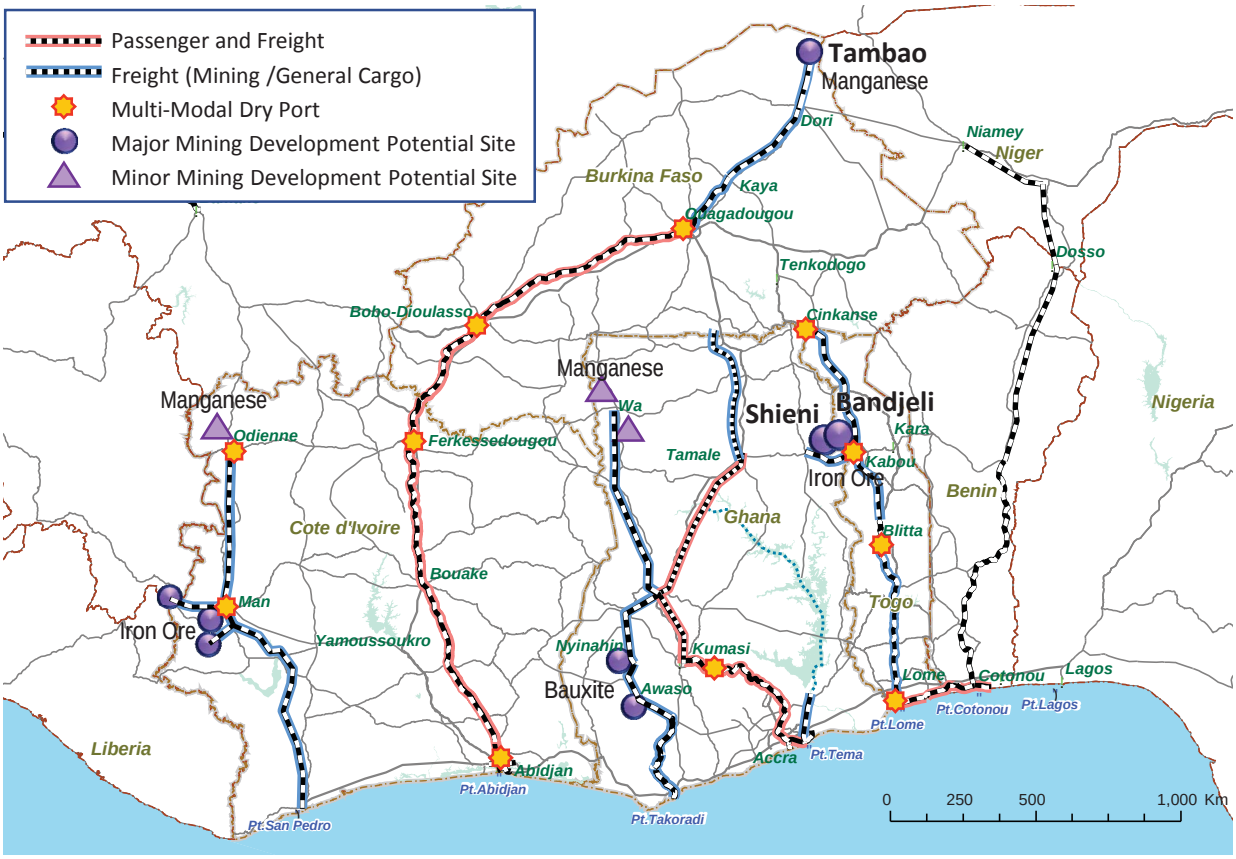
1) Future Railway Network for WAGRIC Sub-Region

Figure 7.3.20 shows the railway network that we should realize by 2040 for WAGRIC countries. To achieve the goal of the strategic objective, the railway development program is proposed in the next section. The railway network will consist of 3,500 km in 2040. Figure 7.3.21 shows the main function of each railway. The image of multi modal transport system is described in Figure 7.3.22



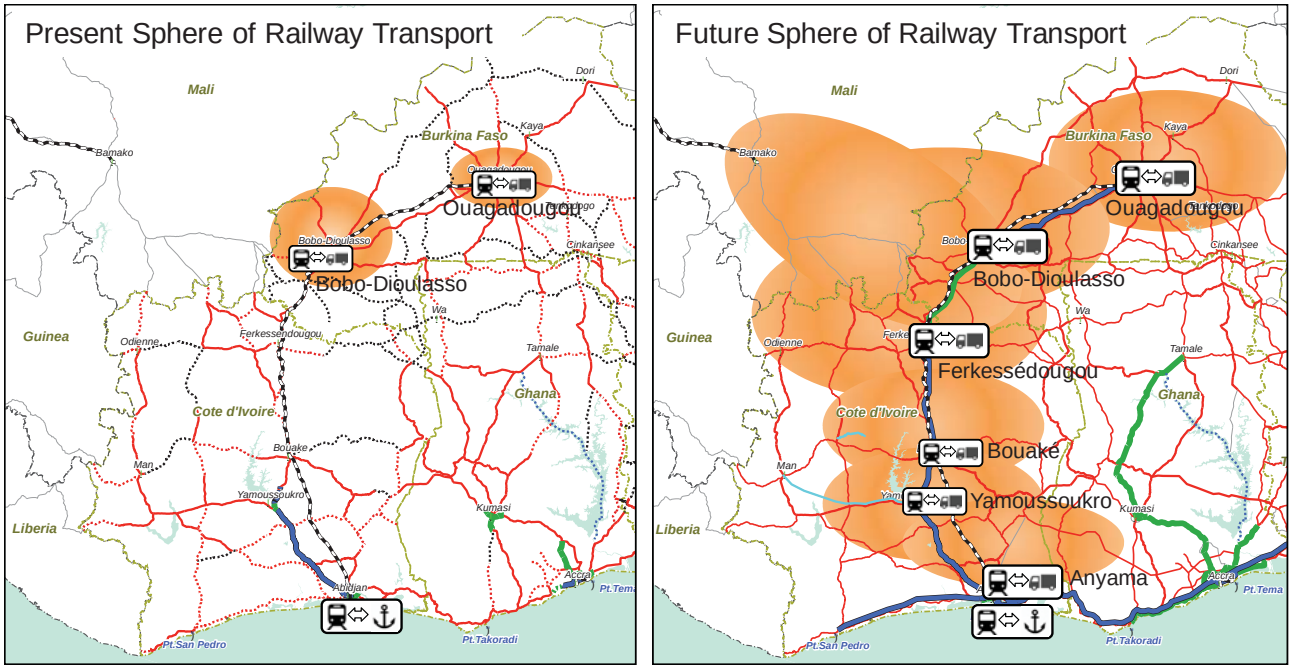
Source: JICA Study Team

Figure 7.3.20 Railway Network by 2040 in WAGRIC Countries



Source: JICA Study Team

Figure 7.3.21 Expected Functions of Major Railway by 2040 in WAGRIC Countries

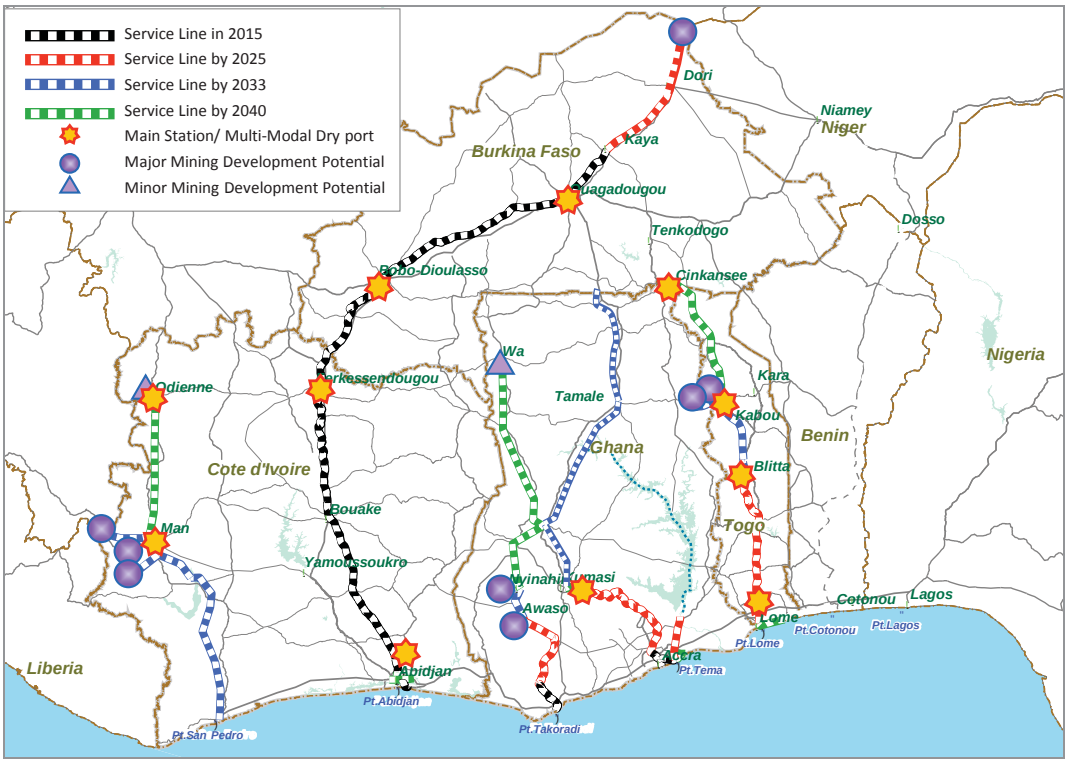


Source: JICA Study Team

Figure 7.3.22 Image of Multi-Modal Transport System combining Rail Transport and Truck Transport

2) Priority Projects by Development Term

The phased development of the railway network is shown in Figure 7.3.23. The projects for the railway development by development term are listed in the tables below.



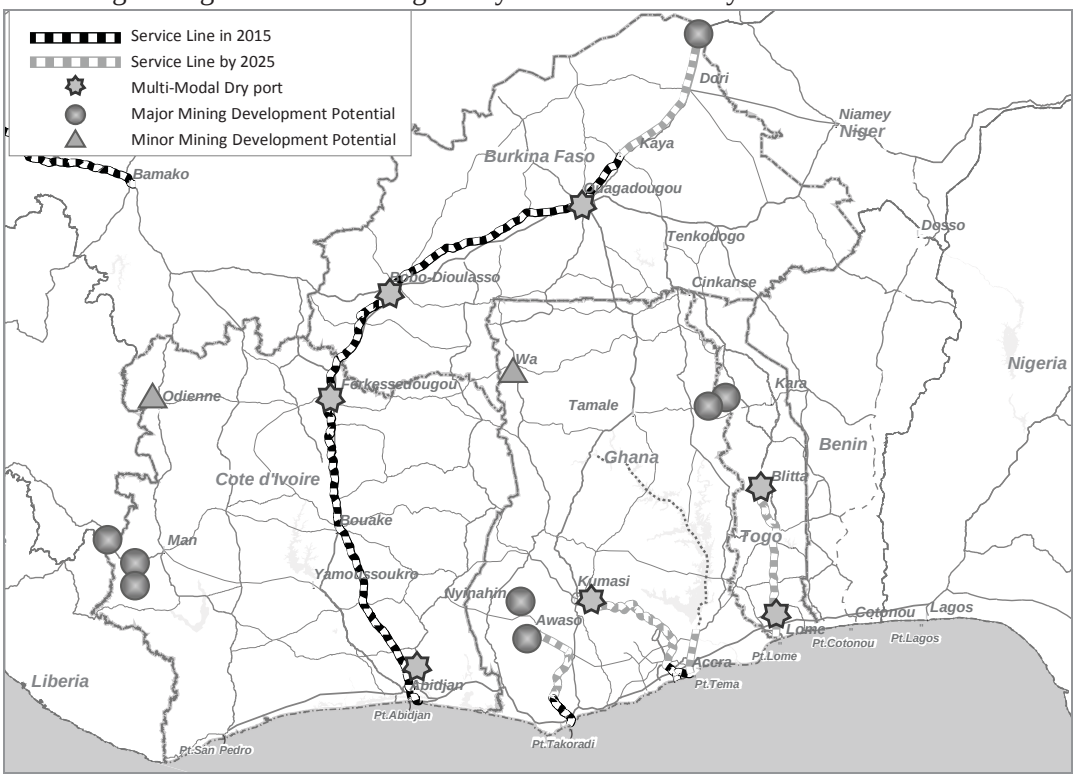
Source: JICA Study Team

Figure 7.3.23 Phased Development of Railway Network in WAGRIC Countries

Priority Projects to be completed between 2018 and 2025

- Replacement and/or rehabilitation of old railway bridges and improvement of track of existing of railway line

- Rehabilitation of the track of the Kaya and Ouagadougou railway line and construction of a railway between Tambao and Kaya through Dori
- Development of loading and off-loading facilities for cattle at the following railway stations together with cattle waiting pens
  - Railway Station in a Suburban Area of Ouagadougou,
  - Railway Station in a Suburban Area of Bobo-Dioulasso, and
  - Railway Station in Kaya
- Construction of off-loading facility of cattle for railway at Anyama railway station
- Construction of loading and off-loading facility for cattle for railway at Ferkessédougou Railway Station or at a suburban railway station near Ferkessédougou,
- Rehabilitation of Takoradi - Awaso section of Western Railway
- Upgrading of Tema - Accra railway
- Construction of railway from Tema Port to Akosombo Port (Eastern Corridor)
- Rehabilitation of Tema Port-Boankra-Kumasi section of Eastern Railway
- Construction of railway from Lomé to Blitta
- Strengthening and reform of regulatory function of railway sector

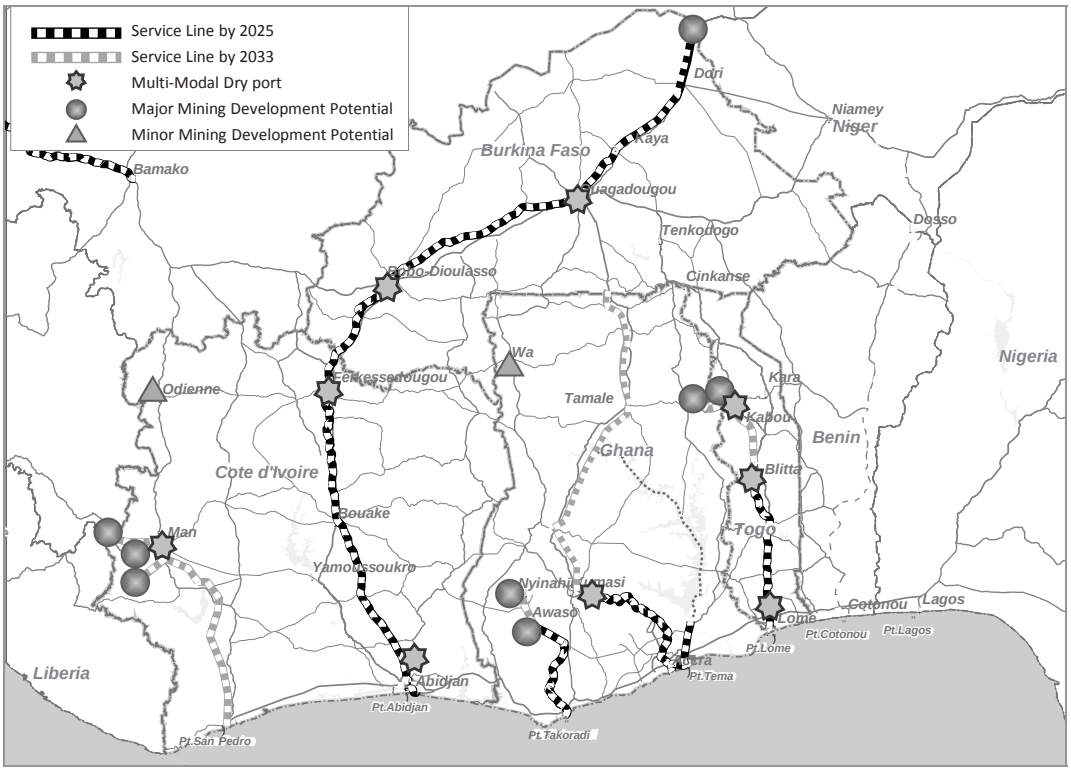


Source: JICA Study Team

Figure 7.3.24 Short Term Development of Railway Network in WAGRIC Countries

Priority Projects to be completed between 2026 and 2033

- Construction of railway from San-Pédro to iron ore mines in Tonkpi Region
  - Railway between San-Pé dro - Man - Mt. Nimba
  - Railway between San-Pé dro - Man - Mt. Klahoyo
  - Railway between San-Pé dro - Man- Mt. Gao
- Contraction of railway between Awaso - Nyinahin
- Construction of railway between Kumasi - Paga
- Construction of railway between Blitta - Kabou

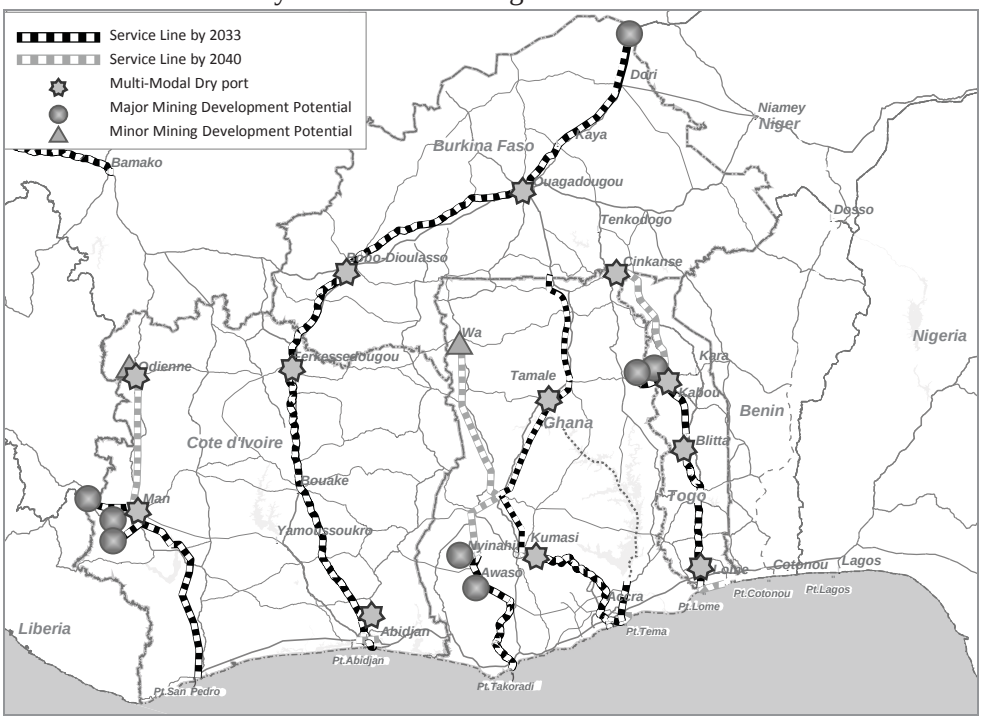


Source: JICA Study Team

Figure 7.3.25 Medium Term Development of Railway Network

Priority Projects to be completed between 2034 and 2040

- Construction of Railway to New Port in Île Boulay
- Construction of Railway between Man - Odienné
- Contraction of Railway between Nyinahin-Wa
- Construction of Railway from Kabou of Togo to Cinkasé of Burkina Faso



Source: JICA Study Team

Figure 7.3.26 Long Term Development of Railway Network in WAGRIC Countries

7.3.3 Sub-Regional Level Development Strategies for Sea Port Sector

(1) Present Situation of Sea Port Sector in WAGRIC Sub-Region

1) Port Infrastructure

There are five ports in WAGRIC countries, namely San-Pédro port, Abidjan port, Takoradi port, Tema port and Lomé port from west to east. Table 7.3.8 shows the outlines of the port infrastructures in the five ports in the WAGRIC Sub-region.

Abidjan Port has the largest facilities in the sub-region. The total length of the docks in this port including berths for general cargo, containers, minerals and grain is 5,400 m. The size of the facilities in Tema Port is approximately half that in Abidjan Port. The port of Lomé now has the cargo-handling facility comparable to that of Tema Port after the opening of a new container terminal of Lomé Port in 2014. Regarding the container berth, the Facility size is overwhelming.

Abidjan Port has an advantageous hinterland connectivity condition because rail transport to inland parts of Côte d'Ivoire and Burkina Faso, which are landlocked countries, is available from the port. Tema Port, which is located approx. 30 km from the Accra metropolitan area, is accessible through the Accra-Tema Motorway. It can be expanded on unused lots in the existing industrial development zone and on new land development in the port area. Lomé port has an advantage of having a container berth with the largest draft in the sub-region (16.6 m) that allows berthing of large size vessels. This level of container terminal is adequate to be positioned to serve as a transhipment hub for the West African coast. The combined length and cargo-handling capacity of the container berths in the five ports are 5,000 m and 4.1 million TEU per year, respectively.

Table 7.3.8 Present Port Infrastructures and Hinterland Transport Connectivity in WAGRIC Countries

	San-Pedro	Abidjan	Takoradi	Tema	Lomé
Port authority	Port Autonome de San-Pedro	Port Autonome d'Abidjan	Ghana Ports and Harbours Authority	Ghana Ports and Harbours Authority	Port Autonome de Lomé
No. of Berths	6 Berths	37 Berths	7 Berths	14 Berths	12 Berths
Total length of berths	1,211 m	5,4504 m	1,161 m	2,797 m	2,977 m
Facilities	West Quay (581 m, 11.0-12.0 m, Container & General) South Quay (155 m, 9.0 m, Multi-purpose) Servitude Quay (110 m, 6.0 m, Liquid-bulk) Cement Quay (200 m, 11.0 m, Break-bulk & Cement) Timber Quay (165m, 4.0m, Timber, Wood & Logs)	Bananier Quay (373 m, 8.5 m, Reefer, Container & General) North Quay (No.1-5) (790 m, 9.45 m, Breakbulk, Bulk Cereal, General & Project) West Quay (No.6-14) (1,525 m, 9.45 m, Breakbulk, Bulk Clinker & Manganese, Project, General & Reefer) South Quay (No.16-24) (1,578 m, 11.0-11.5 m, Breakbulk, Container, General, Palm Oil & Ro-Ro) South Quay (No.25) (193 m, 11.5 m, Container) Siveng Quay (90 m, 8.2 m, Fertilizer) Socopao (300 m, 6.5 m, Bulk Manganese) Ro-Ro (380 m, 11.0 m, Ro-Ro, General) Petro Ci Soutes (55 m, Bunker) Petro Ci (53 m, 10.0 m, Petroleum Products) SIAP (80 m, 9.4 m, Petroleum Products) Puma (87 m, 11.5 m, Petroleum Products)	Bauxite Quay (170 m, 9.3 m, Bulk Bauxite) Manganese Quay (Ship max. size 157 m, 8.6 m, Bulk Bauxite) No.1 Quay (120 m, 8.4 m, Breakbulk & Container etc.) No.2 Quay (Breakbulk, Container and General etc.) No.3 Quay (153 m, 9.0 m, Breakbulk, Container & General etc.) No.4 Quay (183 m, 9.0 m, Breakbulk, Container & General etc.) No.5 Quay (225 m, 10.0 m, Breakbulk, Container & General etc.)	No.1 Berth (283 m, 11.6 m, Container) No.2 Berth (283 m, 12.0 m, Container) No.3 Berth (200 m, 10.0 m, Container, Breakbulk) No.4 Berth (200 m, 10.0 m, Container Breakbulk) No.5 Berth (200 m, 9.0 m, Container, Breakbulk) No.6 Berth (183 m, 9.0 m, Ro-Ro/ConRo) No.7 Berth (183 m, 9.0 m, ConRo) No.8 Berth (183 m, 9.0 m, General, Dry Bulk, Breakbulk & Liquid Bulk) No.9 Berth (183 m, 9.0 m, General, Dry Bulk, Breakbulk & Liquid Bulk) No.10 Berth (183 m, 9.0 m, General, Dry Bulk, Breakbulk & Liquid Bulk) No.11 Berth (183 m, 9.0 m, Dry Bulk) No.12 Berth (183 m, 8.0 m, Dry Bulk) Valco Berth (175 m, 9.6 m, Dry Bulk) Oil Berth (175 m, 9.0 m, Liquid Bulk)	No.1 Berth (150 m, 6.0 m, General) No.2 Berth (150 m, 10.0 m, General) No.3 Berth (150 m, 10.0 m, General) No.4 Berth (150 m, 8.5 m, General) Togo Terminal (950 m, 12.0-15.0 m, Container) Lomé Container Terminal (1,050 m, 16.6 m, Container) Mineral Berth (190 m, 12.0 m, Mineral) Tanker Berth (187 m, 14.0 m, Fuel)

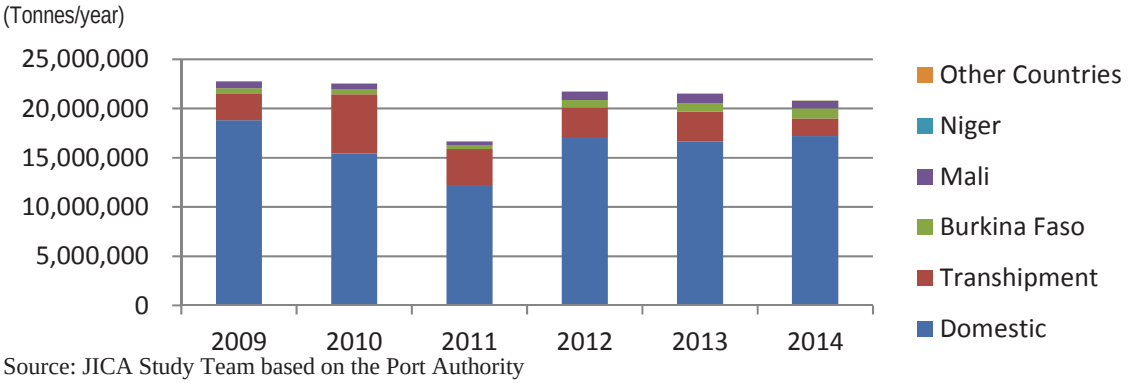
Source: JICA Study Team based on the Port Authorities and others

2) Cargo Throughput

In the five ports of WAGRIC countries, Abidjan, Tema and Lomé Ports are commercial and industrial ports serving as hubs of physical distribution in Côte d'Ivoire, Ghana and Togo, respectively. Large metropolitan areas have been formed in the hinterlands of these ports. The three hub ports are not only the hubs of the domestic physical distribution but also the transport hubs of cargo in transit to the neighbouring landlocked countries. San-Pédro and Takoradi Ports are used for the export of resources produced in the western parts of Côte d'Ivoire and Ghana, respectively such as cacao and mineral resources etc. Figure 7.3.27 shows that the volume of the cargo handled at Abidjan Port was more than 20 million tonnes per year in 2014 which is the largest volume in the sub-region. In the same year, the port of Tema and Lomé handled approx. 10 million tonnes per year. The volumes of the cargo handled at Abidjan and Tema Ports have changed little in recent years.

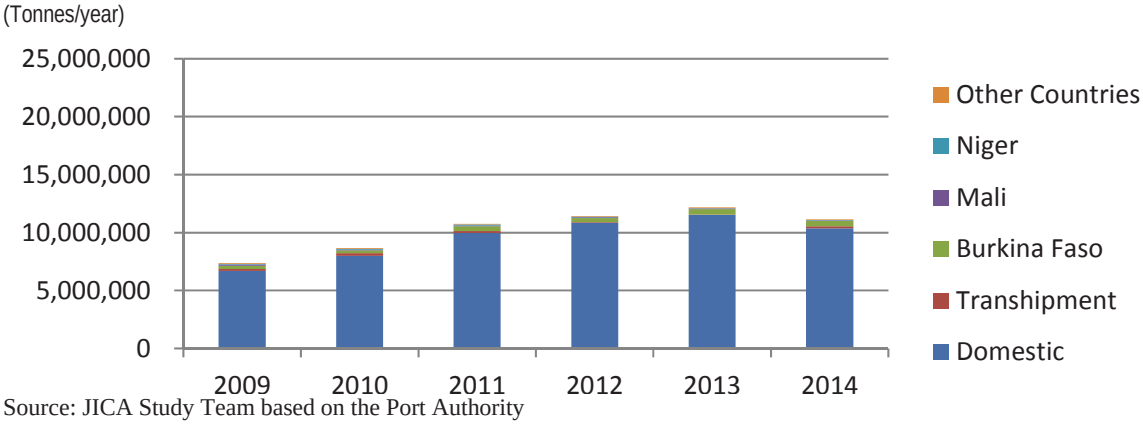
The expansion of the new container terminal has led to a rapid increase in the volume of transhipment cargo at Lomé Port. The total traffic in 2015 was 15 million tonnes that is around 1.5 times the volume handled in 2014. (The figure in 2015 is not shown in the graph).

The volume of the cargo in transit to the neighbouring landlocked countries has been on a steady increase. While the cargo in transit accounted for a little more than 40 % of the cargo handled at Lomé and Abidjan Ports, it accounted for only approx. 10 % of the cargo handled at Tema Port in 2014. More than 80 % of the cargo handled at Abidjan and Accra Ports is local cargo, while 50 %, 30 % and 20 % of the cargo handled at Lomé Port are local cargo, transhipment cargo and cargo in transit from/to the neighbouring landlocked countries mainly Burkina Faso, respectively. The largest proportion (66 %) of the cargo handled at San-Pédro Port is transhipment cargo and the largest proportion (63 %) of the cargo handled at Takoradi Port is export cargo.



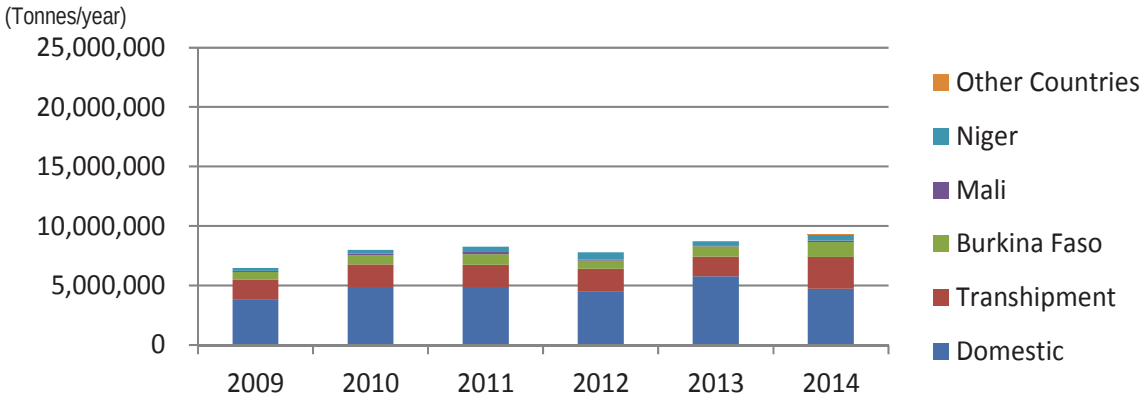
Source: JICA Study Team based on the Port Authority

Figure 7.3.27 Trend of Cargo throughput at Abidjan Port



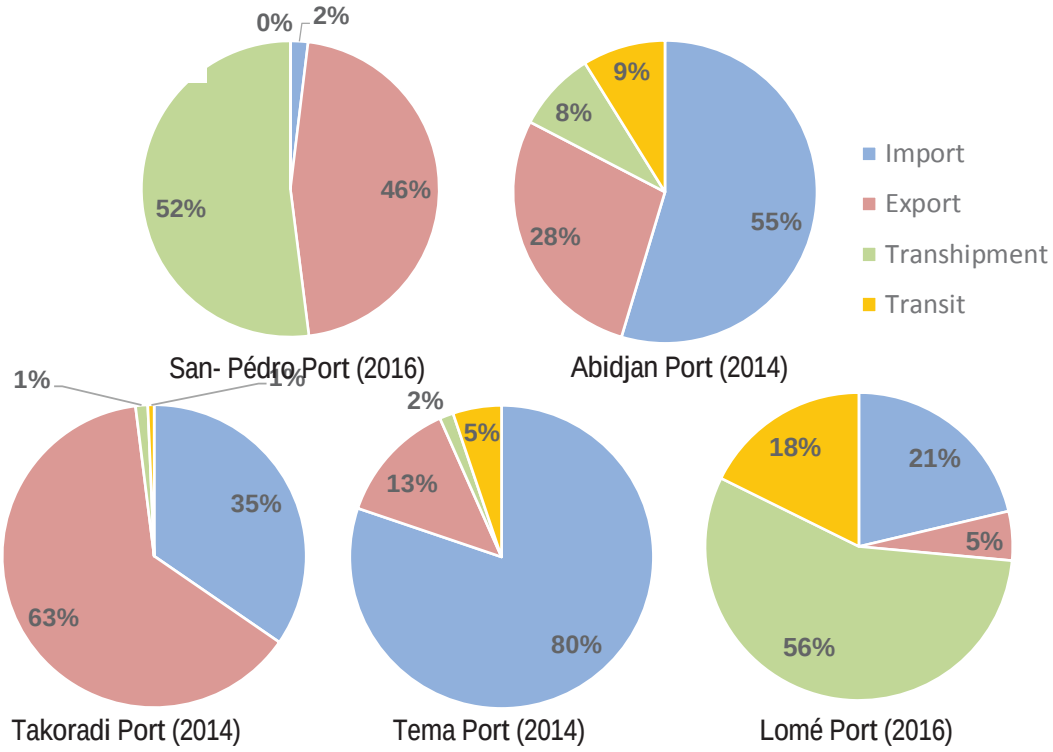
Source: JICA Study Team based on the Port Authority

Figure 7.3.28 Trend of Cargo throughput at Tema Port



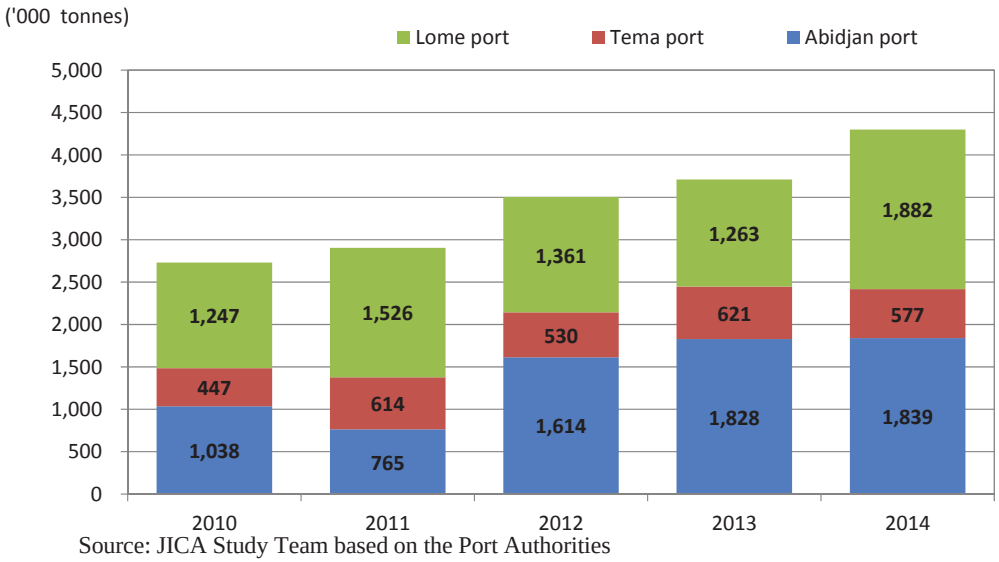
Source: JICA Study Team based on the Port Authority

Figure 7.3.29 Trend of Cargo throughput at Lomé Port



Source: JICA Study Team based on the Port Authorities

Figure 7.3.30 Composition of Cargo throughput at the Five Ports in WAGRIC Countries

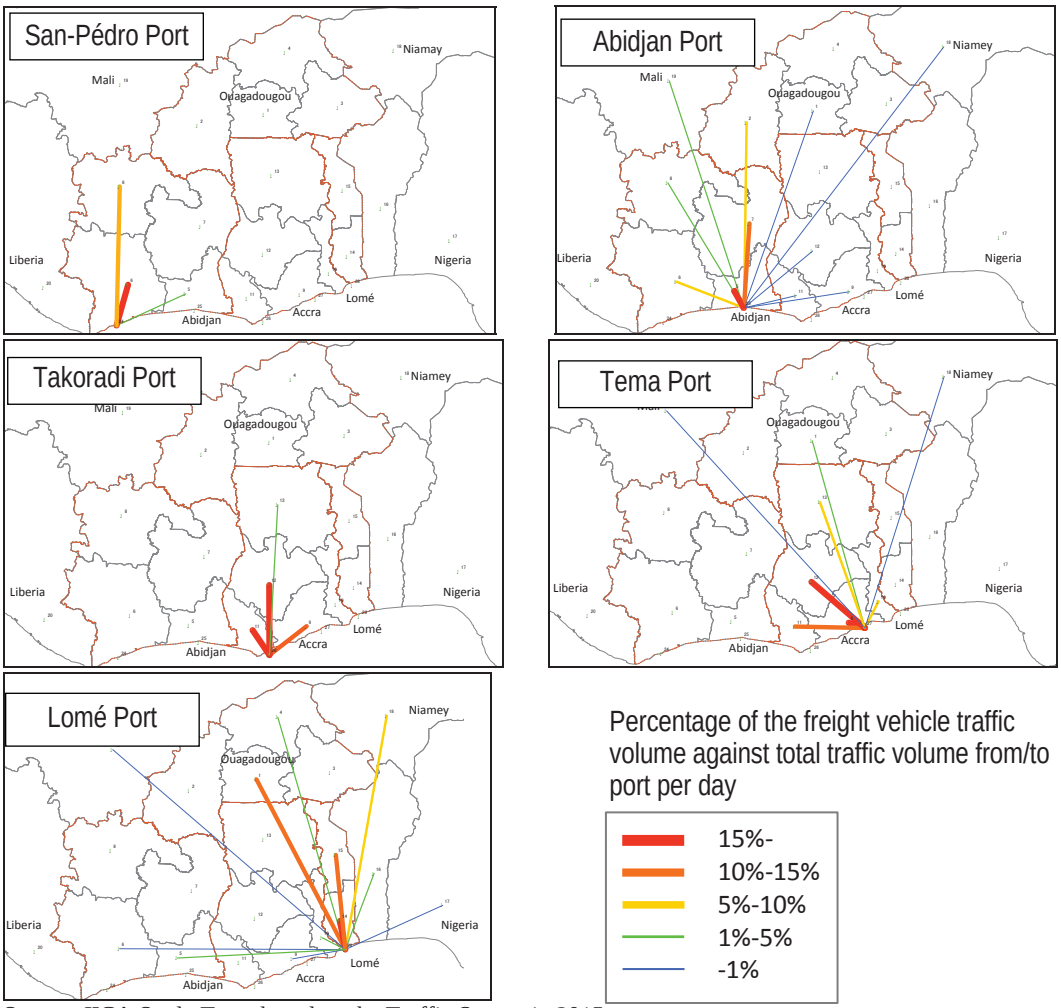


Source: JICA Study Team based on the Port Authorities

Figure 7.3.31 Transit Cargo throughput for Inland Countries from the Three Major Ports in WAGRIC Countries

3) Pattern of Cargo Traffic in Hinterland

Figure 7.3.32 shows the proportions of the numbers of loaded trucks arriving at/departing from each of the five ports by origin/destination. In principle, there is a great deal of truck traffic in the north-south direction from/to the ports and between the ports and the neighbouring areas. A comparison of the truck traffic from/to the five ports reveals that Lomé Port has a large hinterland area which is the market area, in other words, it is used not only as a port for the transport of local cargo but also as a transit port for a wide area. Cross-border traffic in the east-west direction was also observed. The hinterland area of Abidjan Port consists of the territory of Côte d'Ivoire and western Burkina Faso. Most of the hinterland area of Tema Port is restricted in the territory of Ghana. The hinterland areas of San-Pédro and Takoradi Ports consist of the western parts of Côte d'Ivoire and Ghana, respectively, including mainly the areas near the ports.



Source: JICA Study Team based on the Traffic Survey in 2015

Figure 7.3.32 Traffic Flow Pattern of Loaded Trucks from / to the Three Major Ports in WAGRIC Countries

(2) Issues on Sea Port Sector in WAGRIC Sub-Region

Although the vulnerability of the port facility and poor performance has been pointed out before, the private sector capital investors are trying to change the port situation in the sub-region. For example, the new container berth by LCT (Lomé Container Terminal) and the third container berth by investment of Bolloré African logistics have changed drastically the function of the port and the volume of throughput at Lomé port. However, it should be mentioned that the existing port system in general still has many issues based on our observations as follows.

1) Lack of and Aging Equipment, Limited Draft and Berth Infrastructure

Although the handling and yard equipment paid for by private operators is accordingly modernized, the handling equipment in the area managed by the public sector (port authority) is poor. For

example, some ports only have mobile cranes or ship-based equipment. And, the aging of the port facilities, equipment and the insufficient capacity of the yard surface have all been pointed out.

The expansion of international container berths is also a big issue that is intended to invite and accommodate the large size vessels by keeping pace with the upsizing of the container ships. It is essential to respond to upsizing of container ships to permit access to the maritime container cargo market in the world. In the present situation, the port of Lomé has a container terminal with 16.6m draft that is available for large size container ships. The container berths in other ports have less than 12.0m draft. The insufficient road maintenance in the port area and deterioration of pavement in the yard are observed in many places.

2) Low Level of Port Operation Performance, Complication of Trade Procedures and Port Cost

The competitiveness of the ports is low due to the poor performance of port operation and high cost and complex procedures for trade. The handling performance of cranes in the three main ports is 10-20 cycles per hour depending on the crane type based on the interview with the port authorities, while the global standard is usually around 30 cycles per hour.

According to the Logistics Performance Index researched by the World Bank, which evaluates customs procedure level, transport infrastructure, international shipment, logistics competence, tracking and tracing, and timeliness, although the index is improving, LPI rank of the 4 countries is lower than the average of the world.

3) Modernization and Renewal of Port Areas

The port areas are not used efficiently and the facilities, warehouse and entrepot are poor and aging. The modernization and renewal is a necessity because the following situations are observed:

- Poor and inefficient land use within the port area and its surrounding area,
- Insufficient land for parking space for trucks which are waiting for cargos near the port,
- Insufficient land for container depot, industrial and commercial use near the port,
- Necessity to encourage sustained growth of port-related industries.

4) Conversion from Resource Shipping Port to Multipurpose Port

For Takoradi port of Ghana and San-Pedro port of Côte d'Ivoire, firstly strengthening their function as export ports for mineral products that contributes to promote the development of the western regions of Ghana and Côte d'Ivoire is essential. And then, they are required to strengthen their function as multipurpose ports that supply imported goods to areas surrounding the ports and the western areas of countries.

5) Hinterland Connectivity and Traffic Congestion

In recent years, the investment in ports by the private sector has been increasing, and the realization of the development plan is progressing. At the same time, the strengthening of an efficient and reliable transportation network in the hinterland is a significant issue to properly fulfil the port function. The bad road connection from port to hinterland should be resolved. It is important to promote an inter-modal transport system that does not rely solely on the road. The development of various means of transport leads to an increase in port competitiveness.

As an urgent issue, it is necessary to resolve the traffic congestion in the port area that is caused by road degradation in the port area and within the yard, and the shortage of space for parking the trucks.

6) Political Instability and Uncertainty, Low Capital Investment

Political instability caused the low capital investment for port development. Currently, politics and security are stabilizing, and public investment and private investment are starting at all ports in the WAGRIC area. The political stability is very important to attract the capital investment for port development and to increase cargo throughput.

(3) Future Prospects for Sea Port Sector in WAGRIC Sub-Region

Each port authority has an expansion plan. The development plan is firstly for the expansion and modernization of berths like multipurpose berth, grain berth, mineral berth that respond to future increases in import and export volume. Secondly, the authority has a development plan for an international container berth that can handle not only for the import and export cargo but also for transhipment cargo.

The three major ports have large scale expansion plans for a container berth. The total planned capacity of the container berths is more than 10 million TEU, which is around 2.5 times the existing container berth capacity. This capacity is 5 times the volume of current handled containers which was 2.0 million TEU in 2014. Although Lomé Port has the largest container berth at present, the level of container handling capacity and draft will be similar in the near future among the three main ports. According the present plan, Tema Port will have the largest container terminal in this sub-region. Each country intends to make their main port a hub port in the sub-region. The competition between ports to take the initiative as the hub port in the sub-region will soon be started. In addition to these three major ports, San Pédro Port and Takoradi Port, which have been mainly functioning as export ports for agricultural products and mineral resources, are also trying to expand their container terminal function. It is likely that this strategy will be spurring port competition between ports on the Guinea-Gulf Coast. The summary of container berth plans is shown in Table 7.3.9.

Table 7.3.9 Present Situation and Future Plans of Container Berths in WAGRIC Countries

	Present Condition			Future Plan		
Name of Port	Berth Length (m)	Capacity (TEU)	Draft Depth (m)	Berth Length (m)	Capacity (TEU)	Draft Depth (m)
San Pédro	580	493,000	11.0-12.0	1,180	1,033,000	11.0-14.0
Abidjan	1,080	918,000	8.5-11.5	3,180	2,808,000	8.5-16.0
Takoradi	230	196,000	9.0-10.0	530	466,000	9.0-14.0
Tema	870	740,000	9.0-12.0	3,670	3,260,000	9.0-16.0
Lomé	2,000	1,753,000	12.0-16.6	3,400	3,013,000	12.0-16.6
Total	*5,000*	*4,100,000*	-	*12,000*	*10,580,000*	-

Source: JICA Study Team based on the information from Port Authorities

(4) Objectives for Sea Port Sector in WAGRIC Sub-Region

There are two basic aspects regarding the roles and functions of ports in the region:

- To contribute to development of a port city to create an international gateway and also to develop the core of industrial growth on the international corridors
- To import and export a reasonable amount of goods at more competitive charges for cargo handling by reducing transportation cost and time in transit and by promoting the intra modal transport system.

All ports in the area are located on a strategic node of the international corridor. Its importance is very high not only from the point of view for efficient logistics on the corridors, but also from the point of view of industrial development. And some ports will be expected to play a role as an export port for agricultural and mineral products.

Based on the basic roles and functions of the port, major objectives of reform and development of the ports are set as follows:

1) Objective 1

To provide good services and efficient service performance to port users: namely shippers, shipping companies, transporters and other users related to the logistics businesses.

Regarding the port performance, the following points should be improved for increasing the port competitiveness:

- Port / Terminal operation efficiency level: opening time, reliability, lead time, cargo damage,

accuracy of information,
- Price reduction of charges: port charge, cargo handling charges, port facilities usage fee, etc.,
- Safety improvement: compliance, number of accidents, accident prevention,
- Customer orientation: responsiveness, flexibility, reducing claims,
- Adaptability to the changing market environment,
- Landside accessibility and connectivity.

2) Objective 2

To increase revenues not only from handling domestic cargo, but also from collecting more cargos in transit from / to Burkina Faso, Mali and Niger and coastal neighbouring countries, and transhipment of containers by expanding service areas

3) Objective 3

To support attracting investment and companies that are related to the selected growth economic sectors and the creation of employment in port related industries

(5) Basic Strategies for Sea Port Sector in WAGRIC Sub-Region

In order to achieve the objectives of port development, the following ten common basic development strategies are defined as described below.

- **Strategy 1:** To promote aggressively the implementation of expansion plans using private capital investment,
- **Strategy 2:** To improve a logistics supply chain within the port including road network improvements, and improvement of the layout of the port area and surrounding areas,
- **Strategy 3:** To upgrade the port performance by making maximum use of existing facilities and equipment,
- **Strategy 4:** To improve the efficiency of the logistics supply chain by improving interfaces between berths and railway lines and between berths and roads for smooth access to the north-south corridors and coastal corridor,
- **Strategy 5:** To promote the development of cargo handling capacity and infrastructure that satisfy increase of shipping demands, advancement of economic sectors and changes of technologies,
- **Strategy 6:** To promote the development of new and innovative berth infrastructure and equipment including new container terminals and additional berths,
- **Strategy 7:** To promote the expansion of land areas of the port including development of truck parking, container depots and dry ports for reducing traffic congestion and for effective utilization of the land in the port area,
- **Strategy 8:** To promote the development of logistics parks to attract related industries and to promote better integration of port areas with the strategic industrial areas,
- **Strategy 9:** To provide the value-added services responding to port user demands,
- **Strategy 10:** To develop business opportunities for increasing trade, including diversification of cargoes, new revenue streams and new pricing.

Regarding the value-added services, the following services should be considered for increasing the quality of customer service and for increasing port competitiveness.

Table 7.3.10 Value-added Services for Increasing Customer Service and Port Competitiveness

Value-added Logistics Services	Loading/unloading, Stripping/stuffing, Bulk storage, Tank storage, General warehousing, Air conditioned warehousing, Distribution centres
Logistics chain Integration Services	Quality control, Repacking, Customizing, Assembly, Testing, Repair, Re-use
Value-added Facilities	Parking facilities, weighbridges, customs facilities, truck maintenance and repair facilities, container repair and maintenance, cleaning facilities, tanking facilities, trailer renting and leasing, Information and communication, safety and security services, offices, hotels, restaurants, shops

Source: JICA Study Team

(6) Sub-Regional Level Priority Projects for Sea Port Sector

1) Future Sea Port for WAGRIC Development

Table 7.3.11 is the port facility we should construct by 2040 for WAGRIC development. To achieve this goal, the port development program is proposed below.

Table 7.3.11 Project List of Port Development in WAGRIC Countries

Project Name		Implementation Schedule		
		Short Term (2018-2025)	Medium Term (2026- 2033)	Long Term (2034-2040)
Abidjan Port				
1	Widening and Dredging of Channel Vridi (LOA=250m, Draft=16m)	✓		
2	Modernization of Fishing Port	✓		
3	Construction of 2nd Container Terminal at South Dock	✓		
4	Creation of Grain Terminal	✓		
5	Creation of Ore Terminal	✓		
6	Landfilling of Baie Lagoon of Vridi Bietry Lagoon (35ha)	✓	✓	
7	Development of new logistics park in port area		✓	✓
8	Construction of Vridi-Bietry Bridge	✓		
9	Construction of Ro/Ro Terminal at South Dock	✓		
10	Construction of Treatment Station for Liquid Waste	✓		
11	Construction of Logistic Centre and Inland Container Depot at PK26 (30ha)	✓		
12	Introduction of Barge Transportation System for Containers from the Port to Jacque ville (Barge & Pusher:4sets, Facility)	✓		
13	Development of new port area at Boulay Island and construction of access road bridge and railway to new development area	✓	✓	✓
San-Pédro Port				
1	Construction of Mineral Berth (in harbour)	✓		
2	Reclamation of 150ha in the Port Domain (150ha)	✓	✓	
3	Construction of New Container Terminal	✓	✓	✓
4	Construction of Platform for Tanker	✓		
5	Construction of Hydrocarbon Terminal	✓		
6	Arrangement of Logistic Platform	✓		
7	Construction of Mineral Berth (offshore)	✓	✓	
8	Construction of Fishery Harbour	✓		
Tema Port				
1	Construction of Container Berth (Stage 1, 4 Berths/8 Berths, 1400m)	✓		
2	Construction of Container Berth (Stage 2, 2 Berths/8 Berths, 700m)		✓	
3	Construction of Container Berth (Stage 3, 2 Berths/8 Berths, 700m)			✓
4	Construction of General/Break Bulk Cargo Terminal (4 Berths)	✓	✓	✓
5	Construction of Ro-Ro/Con. Ro Berth (2 Berths)	✓	✓	
6	Construction of Mineral Bulk Berth (6 Berths)	✓	✓	✓
7	Construction of Agricultural Bulk Berth (4 Berths)	✓	✓	✓
8	Construction of Liquid Bulk Berth (1 Berth)	✓		
9	Construction of Mineral Oil Berth (2 Berths)	✓	✓	
10	Construction of Breakwater	✓	✓	✓
11	Dredging Works,	✓	✓	✓
12	Construction of a Truck Terminal Area	✓		
13	Construction of Vanpool located out of the Port	✓		
14	Passenger Terminal for Passengers and Cargo Ferry Service between Lagos	✓		

	(Nigeria) and Tema (Ghana)			
15	Construction of New Port Road (L=10km)	✓		
16	Dredging of Access Channel to 16.0m	✓		
Takoradi Port				
1	Access Channel dredged to 16.0m	✓		
2	Extension of Breakwater 1.75 km northward	✓		
3	Construction of Bulk Terminal with 16.0 m depth (800 m)	✓		
4	Construction of Oil Services Terminal	✓		
5	Reclamation of 53 ha of land	✓	✓	
6	Construction of Open Storage Area for Oil field, Plants and Machinery	✓		
7	Construction of Dual Access Roads to the Port	✓		
8	Railway Connection from the Port to Boankra (Dry Port) to Paga (Border).	✓	✓	
Lomé port				
1	LCT Phase II: Construction of 1,315m Quaywall with 4 Berths	✓		
2	Extension of the Ore Terminal	✓		
3	Construction of Dry Port and Rail Connection from/to Sahel Countries	✓	✓	
4	Rehabilitation of Port	✓	✓	✓
5	Rehabilitation of Road	✓	✓	✓
6	Rehabilitation and Improvement of Port Access Road	✓	✓	
7	Truck Management System	✓		
8	Extension of Mineral Berth	✓		
9	Railway Connection to Dry Port	✓		
10	Truck Parking Area for Big Trucks and Inland Container Depot (50ha)	✓		
11	Renewal of Truck Terminal	✓		
12	Training of Professionals	✓	✓	✓
13	Warehouses for Logistics in port area	✓	✓	
14	Imported Used Cars' Parking Area (relocation) 100ha	✓		

Source: JICA Study Team based on Port Authority

7.3.4 Sub-Regional Level Development Strategies for Logistics Sector

(1) Present Situation of Logistics Sector in WAGRIC Sub-Region

1) Cross-Border Traffic Flow

The volumes of vehicular traffic have been increasing in all the corridors reflecting improved economic exchanges between the land-locked countries and coastal countries. By comparing the 2012 JICA traffic survey with the 2015 JICA traffic survey carried out under this study, it was observed that Côte d'Ivoire-Burkina Faso border has registered the highest growth with 177.0% (245 to 612), followed by the Ghana -Burkina Faso border with 90.0% and followed by Togo-Burkina Faso border with 25.0%. The busiest border in terms of total number of vehicles however is still the Togo-Burkina Faso border (Table 7.3.12).

The trend for the growth of truck traffic volumes also follows the same pattern where the highest growth was observed in the Côte d'Ivoire-Burkina Faso border with 359% (82 to 377), Ghana-Burkina Faso border with 173.0% (130 to 355), and Togo-Burkina Faso with 106.0% (275 to 568). Like the above trend, the highest number of trucks was still seen at the Togo-Burkina Faso border explicitly confirming the status of Lomé-Ouagadougou Corridor as the corridor preferred by the trading communities. Likewise, the share of trucks in the total traffic is over 60% revealing the attribute of the cross-border activities which is more inclined toward trade relationships.

Table 7.3.12 Cross-border Daily Traffic in the Region (AADT) in 2015

Border	Total Traffic (vehicles/ day)	Share of trucks	Share of other vehicles
Côte d'Ivoire -Burkina Faso (Laleraba)	612	61.6%	38.4%
Ghana - Burkina Faso (Paga)	465	76.3%	23.7%
Togo - Burkina Faso (Cinkasse)	746	76.1%	23.9%

Source: 2015 Traffic Survey by the JICA Study Team

2) Container Traffic

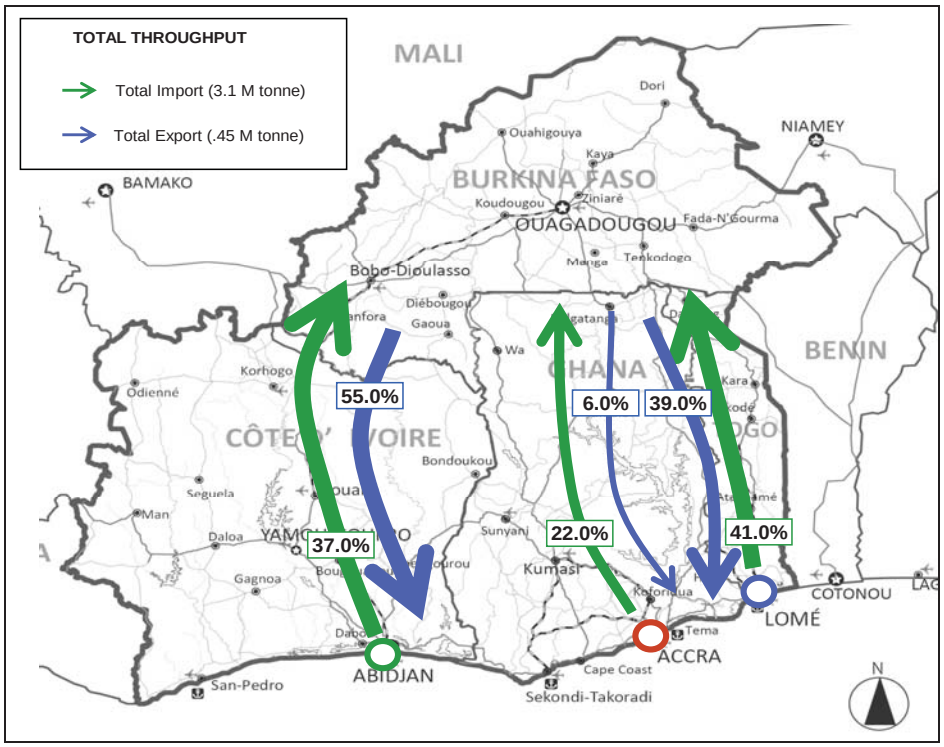
Along with the increasing number of trucks crossing between Burkina Faso and the coastal countries, another positive development concerning logistics is the observed increased amount of container traffic at the national borders. By comparing 2012 data with 2015 data, it was observed that container traffic at the Côte d'Ivoire-Burkina Faso border has increased by 1,400% (from two container trucks to thirty container trucks). Ghana's border with Burkina Faso has also seen an increase in container traffic from 17 in 2012 to 56 in 2015 (229% increase). The exception appears to be the border of Burkina Faso with Togo where container traffic decreased by 18.8% (from 48 to 39).

Although the above trend looks promising, a closer look at the whole picture of the freight transport reveals otherwise. For instance, the DANIDA project entitled Accelerating Trade in West Africa (ATWA) and completed September 2016 observed that the share of containers at the Ougainter (Dry Port) and Seto Terminal (SITARAIL station in Ouagadougou) has fallen. Its share was 32% of the total cargo in both terminals in 2012, 28% in 2013 and 24% in 2014. This trend suggests that although containerized cargo is increasing, its growth is outpaced by the growth of cargo transported by bulk and break-bulk.

3) Volume of Import and Export

In 2015, cargoes imported into Burkina Faso as reported by Burkina Faso Shippers' Council (CBC) reached 3.1 million tonnes which is 11.2% higher than the previous year. Significant volume of the cargoes entered via Lomé-Ouagadougou corridor (40.7%) and was closely followed by the Abidjan-Ouagadougou corridor (37.0%) and the rest was captured by the Tema-Ouagadougou corridor (22.2%).

Export cargoes by Burkina Faso in 2015 are just about 450 tonnes or merely 14.5% of the import volume which clearly demonstrates the imbalanced flow of trade. This imbalanced freight movement has many implications in the trucking industry including the serious issue of empty trucks returning to the port. More than 55% of these exported cargoes passed through the Abidjan-Ouagadougou corridor. The presence of a railway along this route surely aided this corridor in capturing the highest volume of export cargoes.

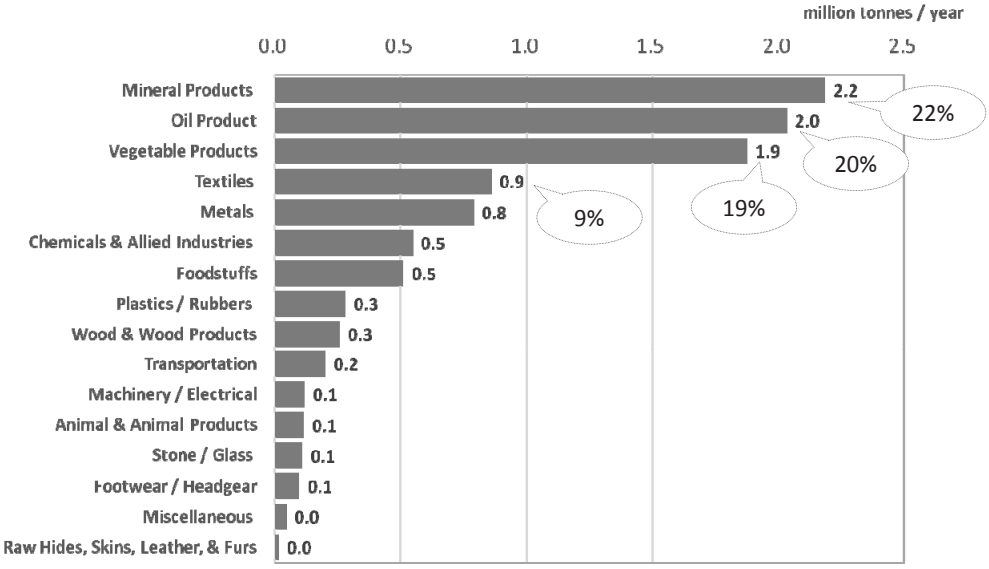


Source: Prepared by the JICA Study Team based on Burkina Faso Shippers' Council (CBC) data

Figure 7.3.33 Export and Import Volume per Corridor in WAGRIC Countries (2015)

4) Types of Freight Moving across Borders

By analysing the customs data of the countries in the region, the JICA Study Team was able to confirm the type of cargoes moving across the borders by land transport based on freight weight. Occupying the top spot is minerals (22%) which highlight the importance of this particular natural resource in the economy of the four countries and most likely moves in a single direction towards the ports for export. Likewise, oil products, vegetable products, textiles, and metals have registered high shares close to 10%. Food stuffs, which enter the sub-region from overseas through the ports of the coastal countries, has made a significant presence as well at 5% despite its nature as a light commodity. Most of this commodity ends up in Burkina Faso.



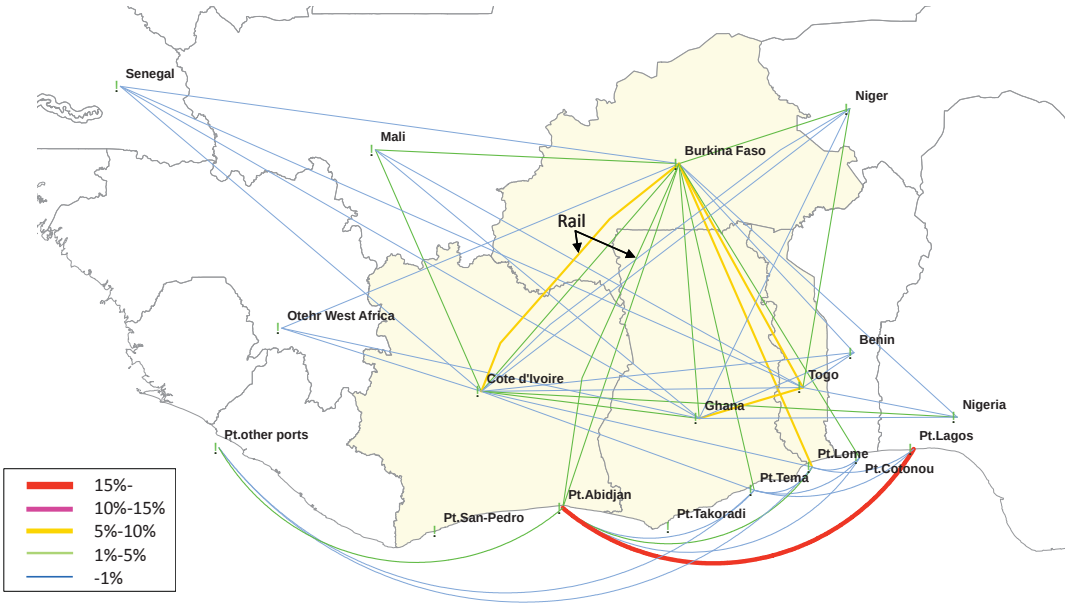
Source: JICA Study Team based on the customs data in 2014

Figure 7.3.34 Types of Cross-Border Freight Traffic by Land Transport in WAGRIC Countries

5) Freight Flow among the Countries in WAGRIC Sub-Region

By plotting the origin and destination of cargoes based on the customs data, the trade interactions among the countries in the region become apparent (Table 7.3.14). A further closer look at the data reveals the following:

- The highest volume of oil related products movement (about 15% of the total) is taking place between Abidjan-Lagos.
- The highest volume of agricultural products movement (over 10% of the total volume) is observed between Burkina Faso and Côte d'Ivoire.
- The highest volume of food stuffs movement (about 15 of the total) is between Lomé Port and Burkina Faso validating the status of the Lomé-Ouagadougou Corridor as the favourite choice of traders in Burkina Faso.
- For mineral products, the highest movement is observed among Ghana-Togo, Burkina Faso-Togo, and Niger-Togo.
- For vehicles and parts, the highest movement is between Lomé-Burkina Faso and Tema-Burkina Faso which indicates that the two ports are the gateways of imported vehicles in Burkina Faso.



Note: Type of goods: Total (all goods); Total volume: 14,465 thousand tons /year
Source: JICA Study Team based on the customs data in 2014

Figure 7.3.35 Freight Flow in WAGRIC Sub-Region

6) Position of WAGRIC Sub-Region based on Logistics Performance Index

The Logistics Performance Index (LPI) is conducted by the World Bank every two years thru surveys of freight forwarders and logistics professionals in a particular country. It is a useful indicator on how "logistics friendly" the country is. Likewise, it helps authorities identify particular chains where bottlenecks exist thus quick intervention can be carried out. Based on the table below, the following are observed:

- In general, the four countries under the study performed well compared with the other countries in the sub-region. For instance, although Burkina Faso is ranked 81st in the world, it is the best performing country in West Africa.

A further look reveals that the all but one of the positions from 1 to 5 are occupied by the countries within the study area with Nigeria being the only outsider in the first five at number three (second place is occupied by Ghana; fourth is occupied by Togo, and fifth is occupied by Côte d'Ivoire).

Table 7.3.13 Comparison of Logistics Performance Index (LPI) among West African Countries (2016, 2014, 2010)

Area	Country	LPI Rank (World)			Position in West Africa based on the LPI Ranking
		2010	2014	2016	
WAGRIC Area	Burkina Faso	134	98	81	1
	Côte d'Ivoire	83	79	95	5
	Ghana	108	100	88	2
	Togo	97	139	92	4
Other countries in West Africa	Senegal	110	101	132	11
	Gambia	118	146	No data	15
	Guinea-Bissau	94	127	128	9
	Guinea	115	122	129	10
	Sierra Leone	150	No data	155	13
	Liberia	119	102	142	12
	Mali	No data	119	109	7
	Nigeria	121	75	90	3
	Niger	87	130	100	6
	Benin	67	109	115	8

Source: Logistics Performance Index, World Bank, 2016

7) Corridor Performance on Import and Export Commodities (based on the JICA Study Team's Survey)

The JICA Study Team carried out a Logistics Chain Survey from August to October 2016 covering the three corridors. Although there have been many studies carried out in the region, these were taken in different periods, different methodologies, and different scopes. In order to compare the performances of the three corridors and get a clearer picture, a new survey with the same scope, the same methodology and in the same period was deemed necessary. Thus this survey aims to provide information regarding the recent performance of the three corridors and identify issues affecting corridor performance and what are the best ways forward.

Cheapest Corridor to Use for Import

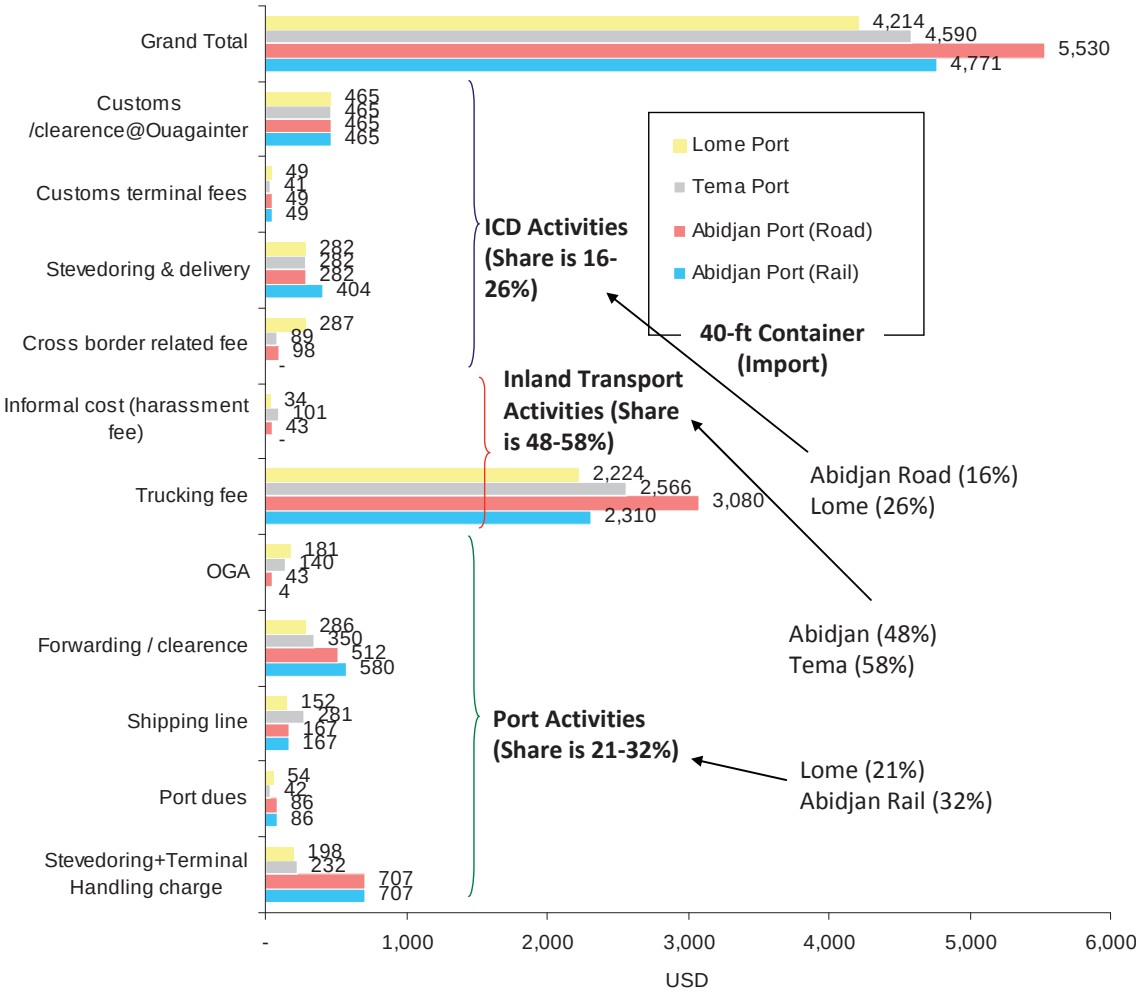
The cheapest corridor to use for import of transit cargo (40-ft containers) is Lomé-Ouagadougou Corridor (Table 7.3.14). This is largely due to lower port cost (stevedoring, terminal handling fee, and shipping line fee which is lower by about USD 174 to the closest rival, Tema Port) and lower inland transport cost (lower by USD 210 to the closest rival which is Tema-Ouagadougou Corridor) as revealed in Figure 7.3.36.

Table 7.3.14 Cost Comparison of Import Cargoes (Container vs Bulk) – Unit (USD)

Corridor	40-ft container (24 t)	Bulk (24 t)	Difference
Abidjan-Ouagadougou (Road)	5,531	4,929	602
Abidjan-Ouagadougou (Rail)	4,772	4,345	427
Tema/Accra-Ouagadougou (Road)	4,590	3,591	999
Lomé-Ouagadougou (Road)	4,214	3,393	821

Note: For bulk cargo, the scenario is that cargo arrived in a container, opened at the port and transported as bulk from the port to Ouagadougou. Likewise, type of goods considered is construction materials (white cement).

Abidjan railway comes third. Although inland transport cost is the second lowest (after Lomé) among the competing corridors, the high port cost at Abidjan Port plus the final truck delivery from Seto terminal of SITARAIL to the consignee's warehouse drives up the cost.



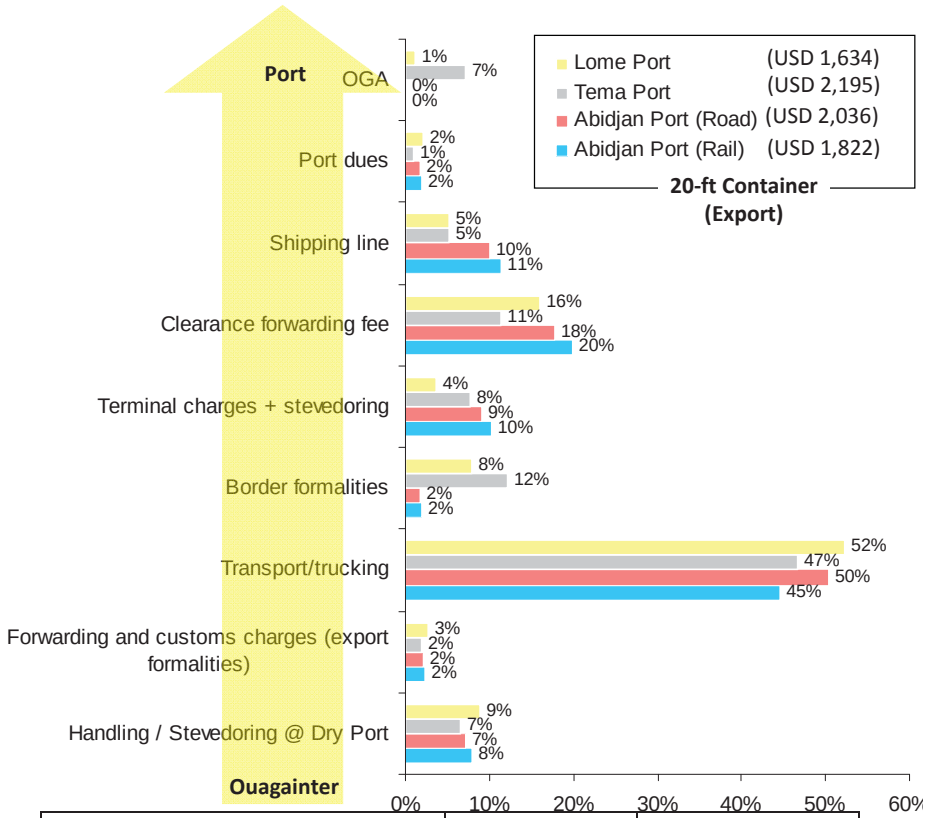
Source: 2016 Logistics Survey by the JICA Study Team: Logistics Chain Survey (between Port to Final Destination) and Supply Chain and Distribution System of Major Manufacturing Companies

Figure 7.3.36 Details of Import Cost (40-ft container) per Corridor

The same is true for bulk-cargo (40-ft container stripped at the port), the cheapest corridor to bring in cargoes from port to Ouagadougou is Lomé-Ouagadougou Corridor. This is largely due to lower port cost. Tema-Ouagadougou comes second with the difference of merely about USD 200. However, it should be noted that the advantage that Lomé-Ouagadougou Corridor has is reduced by the high cost at the border crossing and once this issue is corrected, the corridor cost would further decrease.

Cheapest Corridor to Use for Export

It should be noted that export cargoes in the sub-region, unlike in the past, are now mostly containerized and in 20-ft containers. The choice of a 20-ft container perhaps has something to do with the characteristics of export cargoes which are composed of agricultural products and are typically heavy. For the cost of export cargoes coming from Burkina Faso, the cheapest corridor to use is Lomé-Ouagadougou Corridor Figure 7.3.37). Tema/Accra-Ouagadougou Corridor is particularly affected by the high cost for various fees imposed on export cargo (certification, shippers council, etc.) plus the USD 200 transit fee for transit (transit VAT) cargo imposed by customs and being collected per truck at the border. Other corridors don't have this additional cost.



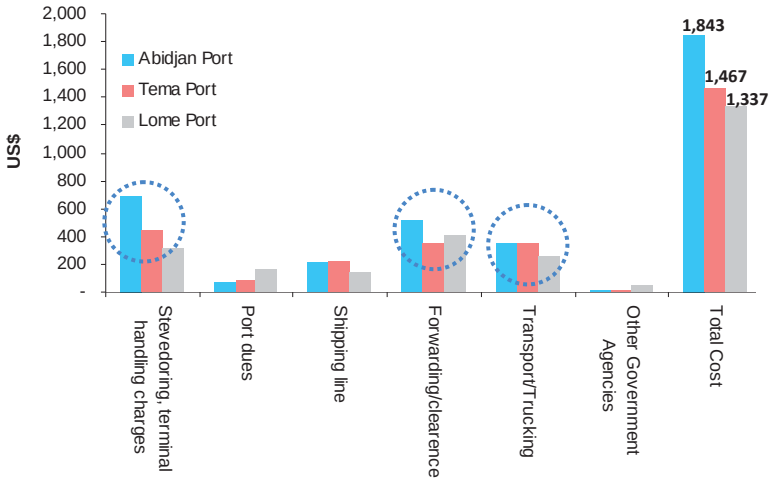
Corridor	20-ft container	40-ft container
Abidjan- Ouagadougou (Road)	2,036	2,830
Abidjan- Ouagadougou (Rail)	1,822	2,385
Tema/Accra- Ouagadougou (Road)	2,195	3,098
Lomé- Ouagadougou (Road)	1,634	2,158

Note: Type of goods considered is agricultural products (sesame seeds)
Source: 2016 Logistics Survey by the JICA Study Team: Logistics Chain Survey (between Port to Final Destination) and Supply Chain and Distribution System of Major Manufacturing Companies

Figure 7.3.37 Comparison of Export Costs among the Three Major North-South Corridors

Cheapest Coastal Capital City to Import and Export Cargoes

Among the three capital cities, Lomé (USD 1,337) and Accra (USD 1,467) received imported cargoes at the lowest rate (40-ft container) as indicated in Figure 7.3.38. The factors which pull down cost for Lomé are largely due to lower port cost charged for local import and lower transportation cost since the city is very close to the port. For Abidjan City, aside from high port cost, transportation cost from port to warehouse which is part of the stevedoring cost is the highest among the three ports (trucking cost/inland transport cost is embedded in the stevedoring cost). There's an effort to liberalize transportation (meaning to separate inland transport cost from stevedoring cost) however this has not been realized yet.

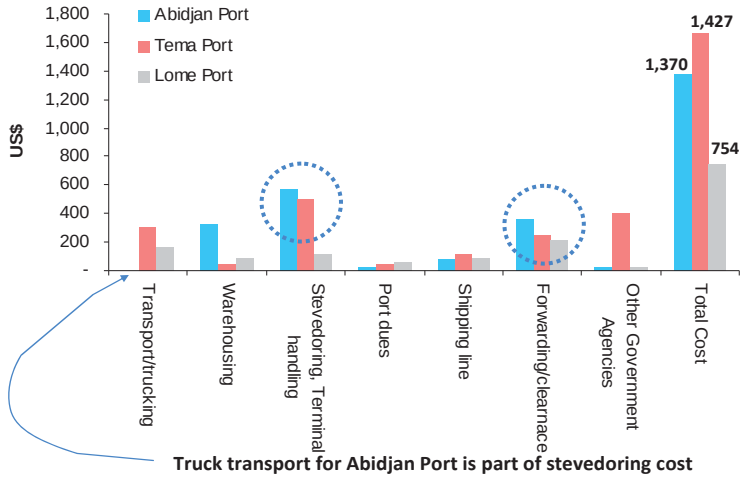


From – To	Total Cost (USD)	Port Cost		Inland Transport	
		USD	Share	USD	Share
Abidjan Port to Abidjan City	1,843	1,331	72%	512	28%
Tema Port to Accra City	1,467	1,117	76%	350	24%
Lomé Port to Lomé City	1,337	1,081	81%	257	19%

Note: Type of goods considered is construction materials (white cement)
Source: 2016 Logistics Survey by the JICA Study Team: Logistics Chain Survey (between Port to Final Destination) and Supply Chain and Distribution System of Major Manufacturing Companies

Figure 7.3.38 Cost of Import by Coastal Capital City (40-ft container)

When it comes to exporting cargoes (20-ft container), Lomé Port is way below the rest in terms of cost (USD 754). This is due to lower port cost (stevedoring, terminal handling charge), which is almost half the price charged by the other ports. Lomé Port is also lower in other aspects of the export logistics chain, such as forwarding/clearance processes (Figure 7.3.39).



From - To	Total Cost (USD)	Inland transport + warehousing		Port Cost	
		USD	Share	USD	Share
From Abidjan City via Abidjan Port	1,370	320	23%	1,050	77%
From Accra City via Tema Port	1,427	349	24%	1,078	76%
From Lomé City via Lomé Port	754	258	34%	495	66%

Note: Type of goods considered is agricultural products (sesame seeds)
Source: 2016 Logistics Survey by the JICA Study Team: Logistics Chain Survey (between Port to Final Destination) and Supply Chain and Distribution System of Major Manufacturing Companies

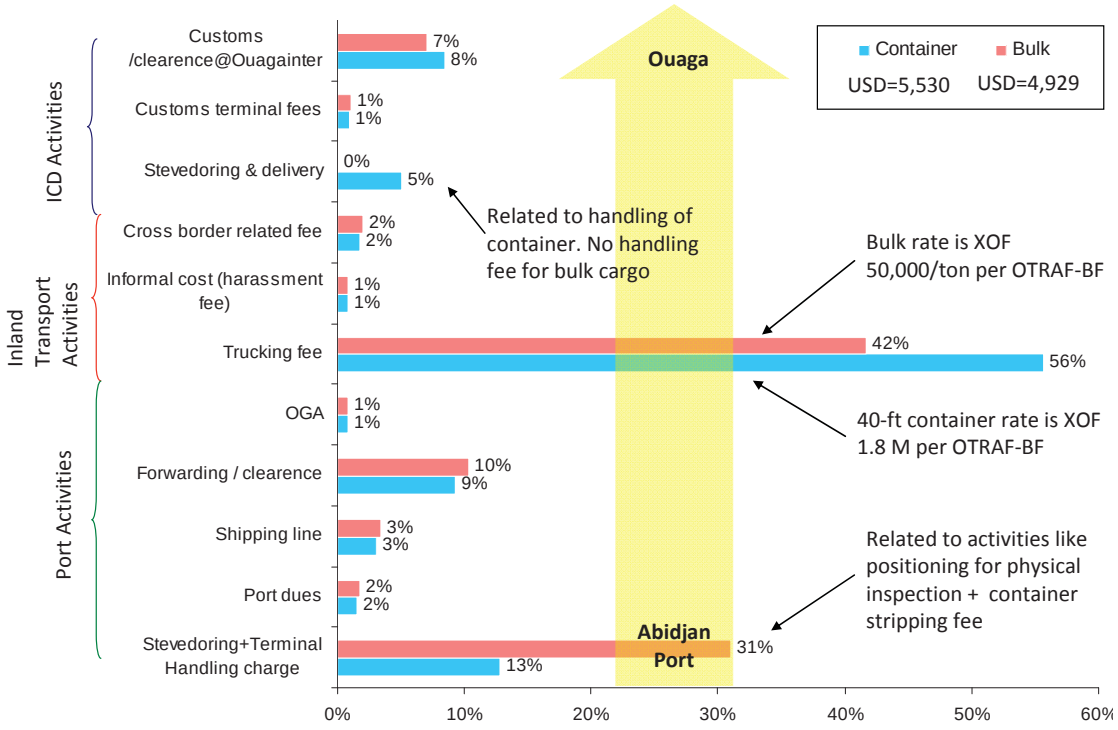
Figure 7.3.39 Cost of Export by Coastal Capital Cities (20-ft container)

Container (40-ft) versus Bulk (24t) in Transporting Cargoes from Ports to Ouagadougou

The survey confirmed the long held belief that transporting by bulk cargo from port to Ouagadougou is cheaper than by container. The degree of difference (saving) is as follows: less by 10.9% (USD

602) for Abidjan-Ouagadougou (Road), less by 8.9% (USD 429) for Abidjan-Ouagadougou (Rail), less by 21.8% (USD 999) for Tema/Ouagadougou, and less by 19.5% (USD 821) for Lomé-Ouagadougou (Table 7.3.14).

The activities in the chain which made transport by bulk cheaper are as follows: lower inland transport fee (rate is per ton), no stevedoring/handling charge (unlike a container that has to be lifted on and lifted off), lower customs clearance cost by clearing agent (rate is per ton). See Figure 7.3.40.



Source: 2016 Logistics Survey by the JICA Study Team: Logistics Chain Survey (between Port to Final Destination) and Supply Chain and Distribution System of Major Manufacturing Companies

Figure 7.3.40 Example of Transport Cost Distribution between Transporting Cargo by Container and by Bulk (Abidjan-Ouagadougou by Road)

Road versus Rail for Abidjan-Ouagadougou Corridor

In terms of cost, rail is the cheaper mode both for import (both container and bulk) and export (container) using the Abidjan-Ouagadougou corridor. It is cheaper by 14% for import cargoes using containers and cheaper by 12% if cargoes are transported by bulk. For export cargo, rail is cheaper by about 11% for a 20-ft container and the saving would rise to 16% if cargoes are in a 40-ft container. The disadvantage however for import cargoes using rail is the shortage of wagons which means that waiting time could extend from 7 to 9 days.

Table 7.3.15 Cost Comparison between Road and Rail along the Abidjan-Ouagadougou Corridor

	Cargo type	Road (USD)	Rail (USD)	Difference (Road-Rail)
Import	40-ft container (24 t)	5,531	4,772	759
	Bulk (24 t)	4,929	4,345	584
Export	20-ft container	2,036	1,822	214
	40-ft container	2,830	2,385	445

Note: Import= type of goods is white cement; Export= type of goods is agricultural products (sesame seeds)
Source: 2016 Logistics Survey by the JICA Study Team: Logistics Chain Survey (between Port to Final Destination) and Supply Chain and Distribution System of Major Manufacturing Companies

8) Road Harassment along the Corridors

Since 2010, road harassment among the corridors, which is detrimental to trade, has been documented by the UEMOA/USAID Trade Hub Road Governance. Recently, other development

partners have participated by partnering with non-government organizations like BORDERLESS Alliance and Shippers Council to name a few. JICA as well contributed by way of engaging partners (both private and government actors) thru workshops and seminars as well as participating in some verification missions. One of these missions which aimed to confirm the level of interference by different authorities along the corridor was carried out in November 2015 on the Lomé-Ouagadougou Corridor. The findings of the mission are rather disappointing in several aspects: First, the number of control points increased to 29 (there were only 13 in 2013); secondly, the amount of bribes increased to CFA 21,500 (only CFA 11,321 in 2013). The above findings underscore the need to sustain the on-going efforts to remove unnecessary control points which become a venue for authorities to solicit illicit money.

Taking into account the latest available data from the BORDERLESS Alliance as shown in the table below, Abidjan-Ouagadougou corridor has the highest amount of illegal fees demanded by the authorities which is about USD 51.0 (against USD 35.0 for Lomé-Ouagadougou corridor and USD 18.0 for Tema/Accra-Ouagadougou corridor). The 2016 JICA Logistics Survey also included harassment cost in the list of its questions to logistics stakeholders in the region. The findings reveal that there are almost no changes on the amount of harassment cost with the two corridors (USD 43 for Abidjan-Ouagadougou; USD 34 for Lome-Ouagadougou) however a very high increase was recorded at the Tema/Accra-Ouagadougou which is now about USD 101 (only USD 18 in 2013). It is, however, important to put into perspective the amount of informal cost to the total logistics cost of imported cargoes (port to warehouse of a consignee). Taking into account the JICA's survey result,, the current harassment cost represent just 1% to 2% of the total cost (Lomé-Ouagadougou=USD 34 (1%); Tema/Accra- Ouagadougou=USD 101 (2%); Abidjan-Ouagadougou=USD 43 (1%).

Table 7.3.16 Road Harassment on the Three Major North-South Corridors (Import Cargoes)

Parameters	Abidjan-Ouagadougou		Accra/Tema-Ouagadougou		Lomé-Ouagadougou	
	Item	Avg. per 100km	Item	Avg. per 100km	Item	Avg. per 100km
No. of check points	CI side	3.5	GH side	1.9	TG side	1.9
	BF side	3.5	BF side	2.8	BF side	4.7
	Avg.	3.5	Avg.	2.1	Avg.	2.6
Avg. delay per trip due to control points (min)	CI side	100.3	GH side	81.7	TG side	2.7
	BF side	70.6	BF side	204.5	BF side	27.4
	Avg.	87.9	Avg.	102.2	Avg.	9.3
Bribe per trip (CFA)	CI side	3,899.7	GH side	812.9	TG side	737.3
	BF side	784.3	BF side	2,629.0	BF side	5,839.4
	Avg.	2,605.9	Avg.	1,115.3	Avg.	2,107.8

Source: JICA Study Team's Logistics Survey
Note: All data comes from Borderless Alliance with the following year: Abidjan-Ouagadougou (2016 data); Accra/Tema-Ouagadougou (2013 data); Lomé-Ouagadougou (2015 data)

(2) Recent Logistics-related Development with Sub-Regional Implications

The following recent developments have wider implications in the way trade is conducted in the region and thus necessitates a closer look.

- Ouagainter has officially launched SYLVIE in February 2016. SYLVIE is a single point of entry for documents required for pre-clearance, integrating 7 government agencies, 5 private sector agencies, 10 banks and 5 insurance companies and the time it takes to go through the customs pre-clearance process will be reduced from 15 days to 3 days. The number of documents required for importing will be reduced from 10 to 7, and for export from 10 to 3.
- As discussed, shipping lines at Abidjan Port have introduced a new Terminal handling fee this June 2016. This new charge (EURO 115 for a 20-ft container and EURO 150 for a 40-ft container) are being challenged by importers since they already pay a terminal handing fee to the terminal operator. The same situation is happening in Tema Port although it was currently deferred by the government in August this year.
- At Lomé Port, the two chambers of commerce (guarantors) of Togo and Burkina Faso signed an

MOU in late 2015 to allow the two customs bounds fees to be charged once at Lomé port, however, this has not been implemented yet.

- At Abidjan Port since 2015 Customs bonds (0.50%) are now paid once at Abidjan Port unlike in the past where Customs bonds were paid twice: (0.25% in Abidjan Port and 0.25% at Burkina Faso border. The same arrangement was previously made with Mali as well. At Tema Port, the construction of Kpone Container Devanning Terminal by Ghana Ports and Harbours Authority (GPHA) is almost complete and about to commence its operation late this year or early next year.
- The World Bank has an on-going programme assistance for the governments of Côte d'Ivoire and Burkina Faso aiming to professionalize the transport sector engaged in logistics services by requiring the two countries to introduce clear criteria and qualifications for entities wanting to enter the logistics market (ex. become trucking company, forwarders, etc.). If successful, this will elevate the quality of service of the logistics providers in the region.

(3) Issues on Logistics Sector in WAGRIC Sub-Region

Major logistics issues that have implications in the whole sub-region can be classified into three: (a) hard infrastructure issues, (b) soft infrastructure issues, and (c) institutional and human resources development issues. These are further discussed below.

1) Hard Infrastructure Issues on Logistics Sector

- Poor and congested access road to port is a serious concern among the three primary ports (Abidjan Port, Tema Port, Lomé Port) as well the secondary ports (Takoradi Port and San-Pedro Port). Construction of new access roads bypassing congested portions of the city and provision of truck terminals as well as refinement of the spatial use of the port and adjacent areas are in order.
- Truck terminals with advanced logistics functions (intermodal terminal with logistics centre function) are sorely missing in the sub-region that could serve as platforms for more advanced logistics operation.
- Rest areas strategically situated along the three corridors to serve the needs of truck drivers and thus promote traffic safety are also absent (the exception is Lomé-Ouagadougou Corridor which installed rest facilities although interviewed drivers complain about the locations of some of the facilities).
- Strictly speaking, the sub-region has no railway network where smaller lines feed the main line and provide various alternatives to reach coastal ports from the coastal countries. What exists is a single link connecting Abidjan to Ouagadougou and some other lines dedicated to a particular industry (examples: mining in Ghana and Togo). This is one of the infrastructure gaps in the sub-region that needs to be addressed to realize its economic potential.

2) Soft Infrastructure Issues on Logistics Sector

- Most of the trucks serving the sub-region are old and poorly maintained. Lack of access to financial institutions for fleet renewal is believed to be one of the main causes.
- Clearance procedure and time in the sub-region (at the port, at the cross border and at the final terminal (Ouagainter Dry Port)) is still too long. This calls for further utilization of ICT, customs interconnection among the terminals (port, border, final terminal), streamlining of processes and closer coordination of several agencies involved in the clearing process. The issues of slow internet connection and power unreliability must be addressed as well.
- Single window systems in the sub-region have to evolve quickly (current function is limited) by bringing on-board more trade-related stakeholders including addition of a new function that

would make it possible to settle balance accounts for trade-related activities.

- Introduction of GPS tracking is indeed a positive development in the sub-region. However, frequent shortage of GPS devises (at Abidjan Port) as well as the reported frequent cases of stolen GPS must be addressed. Likewise, there is a need to advocate for common use of GPS tracking (single GPS device from port to Ouagainter) which should not be offloaded at the border. This will simplify the process (paying a single GPS provider) and completely remove the escort system which slows down the flow of cargo movement.
- Axle load control, despite strong objection from shippers which claimed that transport cost rose by 15%, has to be vigorously enforced to protect road assets and avoid frequent occurrence of accidents. This policy for vigorous enforcement of axle load control for trucks should be associated with the widening of influence areas of multi-modal transport systems (combining rail transport and truck transport) by establishment and operation of multi-modal dry ports.
- Since 2015 customs bonds (0.50%) have been paid once at Abidjan Port unlike in the past where Customs bonds were paid twice: (0.25% in Abidjan Port and 0.25% at Burkina Faso border). At Lomé Port, the two chambers of commerce (guarantors) of Togo and Burkina Faso signed an MOU in late 2015 to allow the two customs bounds fees to be combined and charged once at Lomé port, however, this has not been implemented yet. What has been achieved in Abidjan related to customs bond should be pursued by the two other ports.
- Although the amount involved in the illegal check points (road harassment) is minimal (1% to 2% of the total cost), these unauthorized activities by the government organs require vigorous and sustain campaigns to further promote trading within the sub-region, as well as to promote overseas trading.

3) Institutional and Human Resources Development Issues on Logistics Sector

- The cargo sharing (or quota system) and queuing system (or first-come first serve system) in place in the sub-regions has to be gradually eliminated. This practice has several negative effects. Chief among them is that it encouraged old and poorly maintained trucks to remain in service since they have equal chances of getting loads as newer and better maintained trucks. In a competitive market, newer and better maintained trucks would be preferred more by customers, but the queuing system gives equal opportunities to old and poorly maintained trucks.
- In the long term, there is a need to reform the transport (trucking) industry in the sub-regions to professionalize and formalize its operation. This means that the governments in the region have to introduce a regulation that would lay down the qualifications to access the industry (minimum qualifications before a license is issued to a person/company to become a transporter). This can be done either (i) by bilateral agreement between a land-locked country and a coastal country or (ii) by region-wide initiative championed by the likes of ECOWAS and UEMOA. The World Bank in 2015 has initiated an effort in this direction taking Abidjan-Ouagadougou Corridor as the case study.
- Enhancing the capacity to deliver logistics services of stakeholders composing the logistics industry is another area where resources need to be placed. Efforts in this direction may include driver training (including establishment of reformed driver training centres), fleet management training, and truck company management training. The EU in 2015 launched a project aiming to improve the driving skills of truck drivers in Côte d'Ivoire and enhance the management capability of the managers of selected truck companies.

(4) Future Prospects for Logistics Sector in WAGRIC Sub-Region

High costs for transporting cargoes from ports to land-locked countries and from land-locked countries to ports of coastal countries, including distribution of cargoes within a national border in the sub-region are negatively affecting all aspects of the national economies. It increases the cost of manufacturing, the cost of basic commodities, and pulls down the economic competitiveness of the sub-region which adversely affects investors' confidence. Despite this bleak reality, the future prospect of the logistics sector in the sub-region remains promising. This is largely due to its strategically located competitive ports, reasonable level of development of road networks, governments' active pursuit of a single window system, initial deployment of ICT to aid trade facilitation, and the evolving legal framework for governing trade, as well as a customs union that has been operating for many years. Likewise, the governments in the sub-region have been collaborating with international development partners in seeking solutions to such outstanding logistics issues.

Hence it is reasonable to be optimistic that increase of trade, reduction of transport cost, achieving higher competitive indices, and improving investors' confidence are very much within the grasp of the sub-region in the coming years. This positive outlook for the future of the logistics sector is propelled by the positive growth of the national economies in the sub-region, but it will only come to fruition if some bold steps are taken. These may include the following: (i) further advancement of the legal instrument governing freight transport, (ii) continued evolution of the single window system to link up more stakeholders in the trading community and to integrate an online payment system, (iii) further simplification of clearance procedures at logistics terminals – ports, national borders, and dry ports, (iv) expansion of reach of both the road networks and the railway networks to exploit potential areas, (v) strengthening of the primary and secondary ports, and (vi) formalization of the transport industry along with enhancement of the capability of the stakeholders. These actions are expected to be among the main drivers of the national economies in moving forward.

(5) Objectives for Logistics Sector in WAGRIC Sub-Region

As discussed earlier (in Chapter 6), moving cargoes in the sub-region is expensive and this is due to several factors including institutional barriers (ineffective and bureaucratic clearance procedures, cargo-sharing arrangements, etc.), logistics operational system barriers (including outdated tracking system, incomplete single window system) and infrastructure barriers (congested port areas and access road, lack of truck terminals and intermodal terminals, limited railway network, lack of access roads to potential areas, etc.). Likewise, poor human resources in the logistics sector in the sub-region are further hurting various economic sectors, as well as the logistics industry.

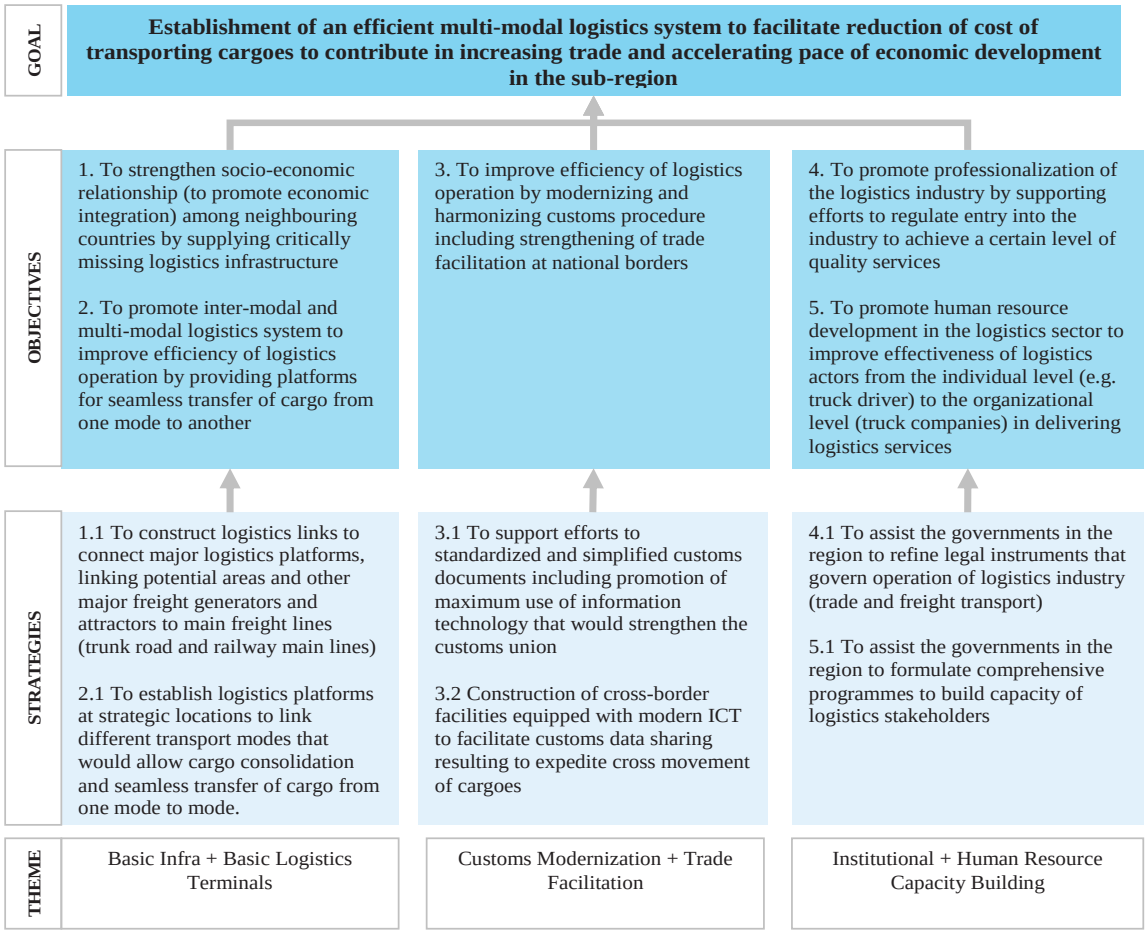
With that background, the overall goal of the logistics sector is the **"Establishment of an efficient multi-modal logistics system to facilitate reduction of the cost of transporting cargoes to contribute to increasing trade and accelerating the pace of economic development in the sub-region".** Based on the above goal, the following objectives are formulated:

- To strengthen socio-economic relationships (to promote economic integration) among neighbouring countries by supplying missing critical logistics infrastructure
- To promote inter-modal and multi-modal logistics systems to improve efficiency of logistics operation by providing platforms for seamless transfer of cargo from one mode to another
- To improve the efficiency of logistics operation by modernizing and harmonizing customs procedures including strengthening of trade facilitation at national borders
- To promote professionalization of the logistics industry by supporting efforts to regulate entry into the industry to achieve a certain level of service quality
- To promote human resources development in the logistics sector to improve the effectiveness of the logistics actors from the individual level (e.g. truck driver) to the organizational level (truck companies) in delivering logistics services

(6) Basic Strategies for Logistics Sector in WAGRIC Sub-Region

To realize the objectives enumerated above, the following strategies have to be deployed (see Figure 7.3.41 for the summary):

- To construct logistics links to connect major logistics platforms, linking potential areas and other major freight generators and attractors to main freight lines (trunk road and railway main lines)
- To establish logistics platforms at strategic locations to link different transport modes that would allow cargo consolidation and seamless transfer of cargo from one mode to another.
- To support efforts to standardize and simplify customs documents including promotion of maximum use of information technology that would strengthen the customs union
- Construction of cross-border facilities equipped with modern ICT to facilitate customs data sharing to expedite cross border movement of cargoes
- To assist the governments in the region to refine legal instruments that govern operation of the logistics industry (trade and freight transport)
- To assist the governments in the region to formulate comprehensive programmes to build the capacity of the logistics stakeholders



Source: JICA Study Team

Figure 7.3.41 Logistics Sector's Key Objectives and Strategies for WAGRIC Sub-Region

(7) Priority Projects for Logistics Sector in WAGRIC Sub-Region

The following priority projects are formulated in order to achieve the five objectives identified above:

- Priority Projects for Objective 1 "To strengthen socio-economic relationships (to promote

economic integration) among neighbouring countries by supplying missing critical logistics infrastructure"

- Railway connection to Boankra Multi-Modal Inland Port in Ghana
- Railway connection to Blitta Multi-Modal Dry Port in Togo

- Priority Projects for Objective 2 "To promote inter-modal and multi-modal logistics system to improve efficiency of logistics operation by providing platforms for seamless transfer of cargo from one mode to another"
  - Ashaiman Truck Terminal in Ghana
  - Boankra Multi-Modal Inland Port in Ghana
  - Takoradi Logistics Platform (Ghana)
  - Ferkessédougou Multi-Modal Dry Port in Cote d'Ivoire
  - Anyama Multi-Modal Terminal
  - Logistics Platform at PK24 in Suburban Abidjan of Cote d'Ivoire
  - New Ouagadougou Multi-Modal Dry Port in Burkina Faso
  - Blitta Multi-Modal Dry Port in Togo
- Priority Projects for Objective 3 "To improve efficiency of logistics operation by modernizing and harmonizing customs procedures including strengthening of trade facilitation at national borders"
  - Expansion and modernization of Sahel Truck Terminal in Suburban Lomé in Togo
  - Enhancement of the current Single Window System
  - Promotion of single GPS tracking system (single GPS from port to final destination)
  - Promotion of increased application of ICT (Port, border, ICD)
  - Strengthening of customs intra-connection (within a country) and inter-connection (border to border)
  - Strengthening of Enforcement of Axle Load Control
  - Laleraba One Stop Border Post
  - Paga One Stop Border Post
- Priority Projects for Objective 4 "To promote professionalization of the logistics industry by supporting efforts to regulate entry into the industry to achieve a certain level of service quality"
  - Support Programme to Professionalize Logistics Industry
  - Support Programme to Facilitate Access to Finance (to Renew Fleet to Qualified Transporters)
  - Support Programme to Customs Modernization and Trade Facilitation along the Corridors
- To promote human resources development in the logistics sector to improve effectiveness of logistics actors from the individual level (e.g. truck driver) to the organizational level (truck companies) in delivering logistics services
  - Support Training Programme for Logistics Stakeholders (truck drivers, transport companies, etc.) to be more effective in delivering services
- Support Training Programme to Enhance Effectiveness of Government's Road Safety Programme

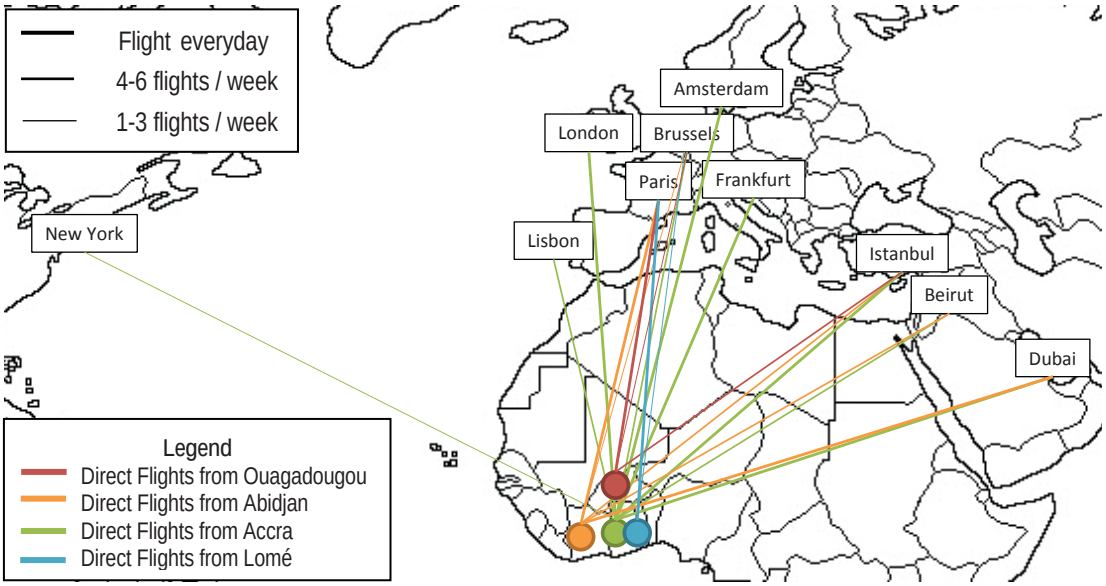
7.3.5 Sub-Regional Level Development Strategies for Air Transport Sector

(1) Present Situation of Air Transport Sector in WAGRIC Sub-Region

1) Existing Airports and Flights in WAGRIC Countries

WAGRIC countries are connected by several international long-distance flights, whose numbers are increasing. While the three Francophone countries are connected more strongly with Paris and

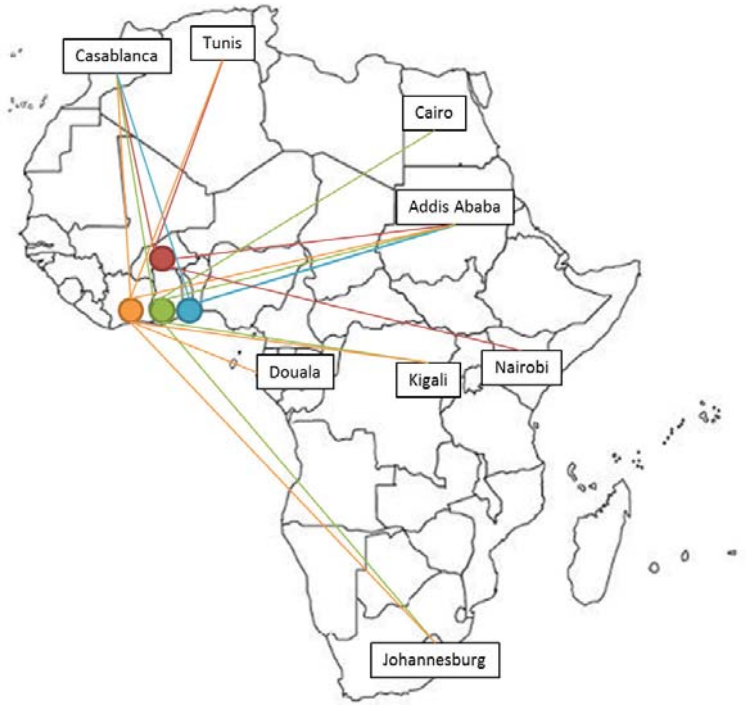
Brussels, Ghana has direct flights to other destinations in Europe, as well as within the USA. Côte d'Ivoire and Ghana are also connected with direct flights to destinations such as Beirut and Dubai in the Middle East.



Source: JICA Study Team based on search using Skyscanner web

Figure 7.3.42 Long-Distance International Flights Connected with WAGRIC Countries

The WAGRIC countries are all connected with some of the major hub airports in the African Continent, such as Addis Ababa, Nairobi and Casablanca. Côte d'Ivoire and Ghana are also connected with the other major hub airport in Johannesburg. It is not easy to get access to these WAGRIC countries from some African countries. Sometimes it is even easier and faster to fly via Europe due to the limited number of flights.

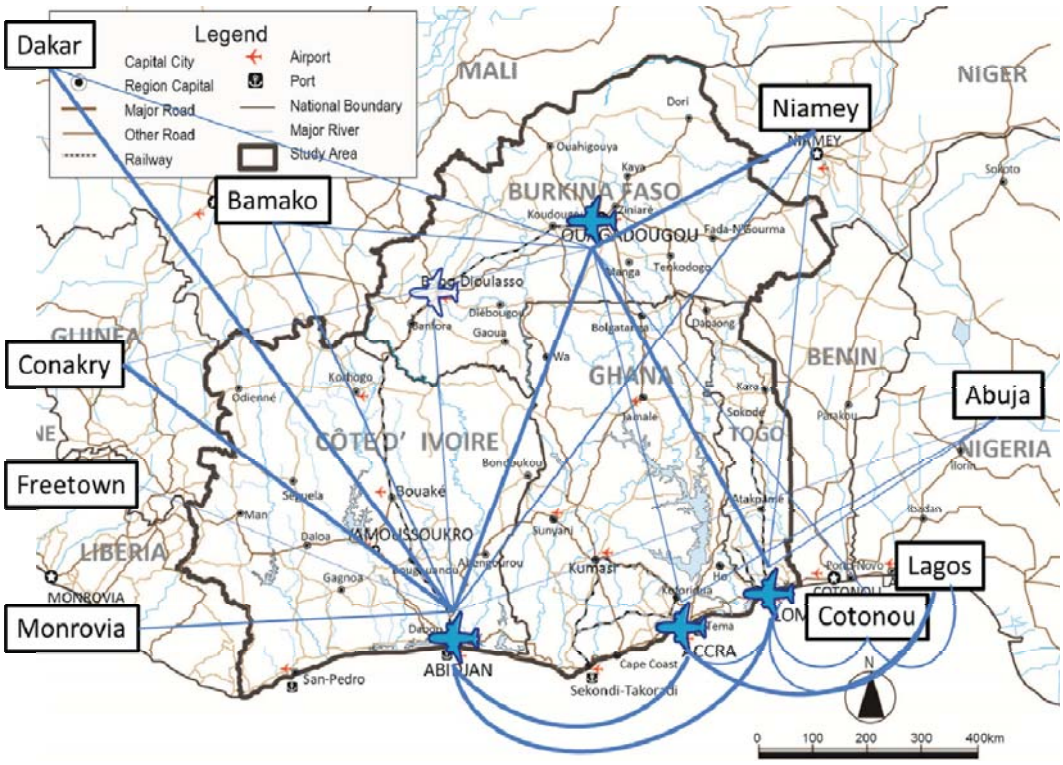


Source: JICA Study Team based on search using Skyscanner web

Figure 7.3.43 International Flights Connecting Major African Cities and WAGRIC Countries

The flights connecting the metropolitan areas along the Guinea Gulf are relatively well connected with more than one flight a day between some of the cities, such as Abidjan-Accra, Abidjan-Lomé and Accra-Lagos. On the other hand, connections between inland countries and coastal countries, as well as among inland countries, are not as frequent as coastal countries.

There are two major airports functioning as hub airports for sub-regional flights in the WAGRIC countries. The one is Felix Houphouet Boigny International Airport at Abidjan, and the other is Gnassingbé Eyadéma International Airport at Lomé



Source: JICA Study Team based on search using Skyscanner web

Figure 7.3.44 Sub-Regional Flights Connected to WAGRIC Countries

2) Air Flight Passengers in WAGRIC Countries

As of 2014, Kotoka International Airport at Accra had the largest number of passengers using commercial flights for both international and domestic passengers with a total of over 2.5 million passengers in one year.

Regarding transit passengers, Kotoka International Airport (Greater Accra) and Gnassingbé Eyadéma International Airport at Lomé both had around 170 thousand passengers in 2014. The sudden increase in the number of transit passengers at Gnassingbé Eyadéma International Airport (Lomé) shows that Lomé is becoming a hub airport.

On the other hand, Felix Houphouet Boigny International Airport (Greater Abidjan), which is the current major hub airport for sub-regional flights, only had 76 thousand transit passengers. However, since the situation in the country has become more stable, the number of flights to and from Abidjan have increased rapidly and the number of passengers using Felix Houphouet Boigny International Airport is assumed to be over 1.6 million in 2015. Air Côte d'Ivoire is also currently trying to increase the number of domestic flights in the country.

Ouagadougou Airport is also increasing its number of domestic passengers rapidly from less than 2 thousand in 2010 to almost 30 thousand in 2014.

To serve the increasing number of passengers, Kotoka International Airport is now constructing a third terminal which should be open in 2017. The new airport buildings at Gnassingbé Eyadéma International Airport and Felix Houphouet Boigny International Airport were also opened in 2016 and 2015 respectively. In addition to these new airport buildings and terminals, the international airports in the capital cities of all four countries also have plans for expanding or constructing a new international airport to serve the increasing number of passengers.

Table 7.3.17 Departure and Arrival Passengers per Year in the Four Major International Airports in WAGRIC Countries

		2010	2011	2012	2013	2014
Ouagadougou	Total	414,875	436,176	519,182	553,254	527,524
	International	346,360	373,496	439,472	453,295	422,949
	Domestic	1,806	1,949	2,858	7,892	28,844
	Transit	40,043	60,731	76,852	92,067	75,731
Abidjan	Total	894,413	634,314	940,097	1,138,519	1,267,579
	International	817,760	560,026	821,381	1,028,052	1,184,116
	Domestic	9,835	6,570	5,837	3,728	7,008
	Transit	66,818	67,718	112,879	106,739	76,455
Accra	Total	1,637,003	1,930,436	2,424,153	2,610,374	2,547,527
	International	1,387,045	1,585,602	1,726,051	1,669,603	1,650,520
	Domestic	132,480	199,073	543,379	778,466	719,234
	Transit	117,478	145,761	154,723	162,305	177,773
Lomé	Total	382,184	551,608	472,313	589,416	616,800
	International	318,475	470,984	417,672	499,194	446,688
	Domestic	0	0	0	0	0
	Transit	63,709	80,624	54,641	90,222	170,112

Source: ANAC of Burkina Faso, ANAC of Côte d'Ivoire, Ghana Airport Company Limited (GACL) and ANAC of Togo

3) Activities on Air Transport by UEMOA

The aeronautical department of UEMOA Commission made an agreement among the member countries called the Cooperative Development of Operational Safety and Continuing Airworthiness Programme (COSCAP) in 2002, and has provided aeronautical planning, implementation and supervision for member countries. In order to realize the agreed plans, UEMOA and its member countries have to realize the cooperation and deregulation of aviation of the countries, establishment of organizations for lease, maintenance and repair of aircraft, development of airports and material procurement, establishment of data bases regarding airports and aircraft and training systems.

(2) Issues of Air Transport Sector in WAGRIC Sub-Region

In order that the WAGRIC countries would become a more attractive investment destination, flight connectivity among the four countries is important. With more frequent and efficient flights, it would be easier and faster for business persons to access neighbouring markets for expanding their business.

The following issues are identified on air transport at the sub-regional level:

- There is a limited number of flights in a day within the sub-region for people traveling for business purposes.
- There are plans for expanding the capacity for future increasing air travel demand by constructing new international airports in Ouagadougou, Abidjan, Accra and Lomé, but these new airports are away from the current city centres. Therefore, it is important to keep the current airports for sub-regional and domestic flights.

(3) Future Prospects for Air Transport Sector in WAGRIC Sub-Region

The number of passengers using the airports in the WAGRIC countries has been increasing in the last few years. Especially the number of domestic passengers at Kotoka International Airport (Accra) and transit passengers at Gnassingbé Eyadéma International Airport (Lomé) has more than doubled in just five years. Felix Houphouet Boigny International Airport (Abidjan) will also increase the number of both domestic and transit passengers rapidly in the few years after Air Côte d'Ivoire increased the number of aircrafts in November 2015. Although the number of passengers is less than the other three airports, Ouagadougou Airport is also increasing the number of passengers.

As the number of middle income populations in each country increase, it is projected that the demand for air transport will also continue to increase. This will bring more business opportunities to the WAGRIC countries.

(4) Objectives for Air Transport Sector in WAGRIC Sub-Region

The objective for the air transport sector at the sub-regional level is to prepare for the increasing demand for air transport in the sub-region.

(5) Basic Strategies for Air Transport Sector in WAGRIC Sub-Region

The strategies for the air transport sector at the sub-regional level are as follows:

- To continue using the existing international airports for domestic and sub-regional flights even after the opening of new international airports in the outskirts of the metropolitan areas including Greater Abidjan, Greater Accra, Greater Lomé and Ouagadougou
- To develop new airport cities containing a variety of urban business functions, as well as logistics functions, in the areas surrounding the new international airports planned for the WAGRIC countries
- To prepare public transportation systems to connect domestic airports with new international airports
- To strengthen implementation of security measures against terror attacks, and at the same time, to eliminate any harassment which might disturb the comfort and peace of arriving passengers at the airports

7.3.6 Sub-Regional Level Development Strategies for Electricity Sector

(1) Present Situation of Electricity Sector in WAGRIC Sub-Region

1) Demand and Supply Balance of Electricity in WAGRIC Sub-Region

Among WAGRIC countries, Ghana, Burkina Faso, Côte d'Ivoire and Togo, it is a common tendency that the power demand is steadily growing at a rate of 5 to 15% per year in recent years. The development of power generation is highly required in response to this demand growth. Ghana and Côte d'Ivoire have far greater generation capacity compared to the remaining two countries, and it plays a role generating and exporting power to the neighbouring countries.

In 2014, the peak load in Ghana was 1,970MW and its generation capacity was 2,831MW, while the peak load in Côte d'Ivoire was 1,148MW and its generation capacity was 1,772MW. However, the reserve margins are not sufficiently secured in either country, and the dependable capacities are below the peak load considering generator stoppage due to necessary maintenance works and trouble shooting.

On the other hand, Togo and Burkina Faso, which are electrically positioned downstream of the power system covering the targeted four countries, do not have sufficient power sources to cover their peak demand and have to depend partly upon the imported power supplied through interconnection lines. It is difficult for Burkina Faso even to develop its own competitive power generation capacities due to its geographical constraints. Therefore, it is substantially meaningful for the power leading countries (Ghana and Côte d'Ivoire) to mainly work on development of power generation and to export power to Burkina Faso and Togo and other neighbouring countries. Also, it would be important for Burkina Faso and Togo which do not have large system capacities, to seek the possibility of developing renewable energy, whose capacities are not larger than conventional type of power generation and which contribute to the environmental protection and saving energy, in order to improve self-sufficiency in the power system. Table 7.3.18 shows the demand and supply balance for each country of WAGRIC.

Table 7.3.18 Demand and Supply Balance of Electricity in WAGRIC Countries in 2014

Country	Ghana	Côte d'Ivoire	Burkina Faso	Togo
Peak Load [MW]	1,970	1,148	209	203
Generation Capacity*	2,831 (T:1,248, H:1,580, R:2.5)	1,772 (T:1,168, H:604)	130.5 (T:113, H:17.5)	185 (T:120, H:65)

*Note: T=Thermal, H=Hydro, R=Renewable
Source: Documents Provided by GRIDCo, CI-Energies, SONABEL, and CEB

2) Establishment of Inter-Connection Lines in WAGRIC Sub-Region

In response to the shortage of power sources, each country is currently proceeding with the development of power plants and making an effort to attract private investment to construct power plants. Simultaneously, not only power generation development, but also the development of transmission lines and substations are significant to fully transmit the power produced by many power plants. It is indispensable to develop transmission lines and substations with sufficient capacity so as to deliver the power produced by the power plants. Also, in order to realize the integration of power grids among ECOWAS member countries for future power trading, the establishment of interconnection lines is planned. Some projects for the plan have been implemented gradually at several points on the national borders, in accordance with national and regional development plans by power companies, such as GRIDCo and CI-Energies in cooperation with the West African Power Pool (WAPP) that is composed of members of power utilities of ECOWAS countries. Figure 7.3.45 shows the current status of power grids covering ECOWAS countries. According to GRIDCo, the construction work for a 330kV transmission line between Kumasi and Bolgatanga called the "Backbone Line", which will be extended to Burkina Faso, was just initiated in September 2016. As a result, it is expected that the capacity for power trading between Ghana and Burkina Faso would be improved and that power system stability would be reinforced in the sub-region if this work for interconnection lines was completed. Thus, as the first step to solve the power shortage, it would be one of the significant solutions to establish inter-connection lines as soon as possible and to establish the relationship of interdependency for power supply.

Source: WAPP Website

Figure 7.3.45 Power Grids covering ECOWAS Countries

(2) Issues on Power Supply in WAGRIC Sub-Region

Based on the findings obtained in the study (as summarized above), the following issues are considered critical:

- Chronic shortage of dependable capacities of power plants caused by trouble, fuel shortage, water shortage, unstable fuel supply, etc.
- Insufficient capacities of transmission lines and substations that cannot fully transmit the power generated by prospective power plans, as well as existing power plants
- Frequent load shedding caused by power shortage in WAGRIC countries, especially in Ghana and Burkina Faso
- Costly fuel procurement and high electric rates in inland countries, such as Burkina Faso
- Power outage attributed to aged power facilities
- Low electrification rate (Ghana: 76% (2013), Côte d'Ivoire: 26% (2014), Burkina Faso: 18% (2013), Togo: 28% (2013))[2]

(3) Future Prospects for Electricity Sector in WAGRIC Sub-Region

Since the GDP of WAGRIC Sub-Region is expected to grow at over 7% per year, and GDP per capita is also expected to increase at over 4% per year, the demand for electricity is considered to increase rapidly.[3] At the same time, economic sectors of WAGRIC Sub-Region is considered to be activated targeting at sub-regional markets. The economic sectors' demand for electricity is considered to increase larger than households' demand for electricity. In coastal areas, Abidjan-Lagos Economic Corridor would accumulate a variety of economic sectors including manufacturing and service industries. A larger volume of middle-income populations would concentrate in the coastal economic corridors, especially in metropolitan areas.

It is anticipated that the power system of the sub-region is upgraded in accordance with transmission line reinforcement plans prepared by power companies and also with inter-connection development plans formulated by WAPP. Simultaneously, since further development of power generation is being planned in WAGRIC countries, additional power will be available in the near future. Consequently, the power system will be improved to some extent.

(4) Sub-Regional Level Objectives for Electricity Sector

Considering power supply needs in response to sub-regional development, the objectives for the electricity sector are set up as follows:

- To ensure stable power supply in order to support sub-regional socio-economic development by development of power generation and reinforcement of transmission facilities
- To promote the improvement of electrification rates

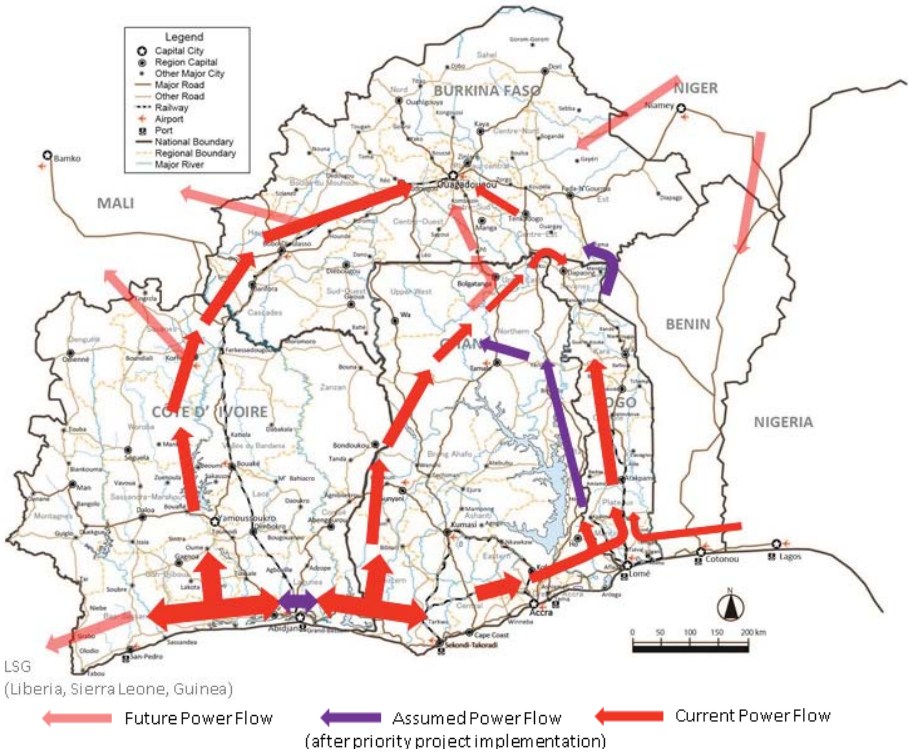
(5) Basic Development Strategies for Electricity Sector in WAGRIC Sub-Region

- At the sub-regional level, prior to further development of power generation, it is a top priority to establish transmission lines and distribution lines which enable power generated by power plants to be fully transmitted to power consumers. Considering the power balance in WAGRIC countries, it is necessary to establish inter-connection lines among WAGRIC countries to enable the electricity flow pattern shown in Figure 7.3.46.
- In response to the progress of the transmission line reinforcement, the generation development is required in consideration of adequate generation types, geographical nature, fuel procurement methods and so on. Especially in rural areas, it might be effective to establish off-grid power

[2] Source: Electricity Business in Overseas Countries Issued by JEPIC (Japan Electric Power Information Center Inc.), West Africa Policy Notes Issued by AfDB (African Development Bank)
[3] See Chapter 6 for Future Socio-Economic Framework of WAGRIC Sub-Region.

systems at first by using diesel generators and renewable energy, such as solar power and mini-hydro power, and then, to convert to on-grid power systems by extending distribution lines.

- Furthermore, it is important to develop inter-connection lines with Non-WAGRIC countries, such as Mali and Liberia for realization of a larger integrated and more stable power system within the WAPP.



Source: Prepared by JICA Study Team based on the Data Provided by GRIDCo, CIE, etc.

Figure 7.3.46 Future Power Flow in the Power System of WAGRIC Countries

(6) Priority Projects for Electricity Sector in WAGRIC Sub-Region

In order to promote corridor development as proposed by the WAGRIC master plan, it is desirable to establish power transmission lines to supply the power along major international corridors. Accordingly, the following development projects for interconnection lines are recommended including power generation development projects:

- Project for Development of Interconnection Line between Kompienga (Burkina Faso) – Porga (Benin)
- Lougah Hydro Power Plant Development Plan Project in Côte d'Ivoire.
- Project for Development of 330kV Interconnection Line between Côte d'Ivoire and Ghana
- Project for Development of 330kV/161kV Eastern Corridor Transmission Line in Ghana

7.3.7 Sub-Regional Level Development Strategies for Water Resources Sector

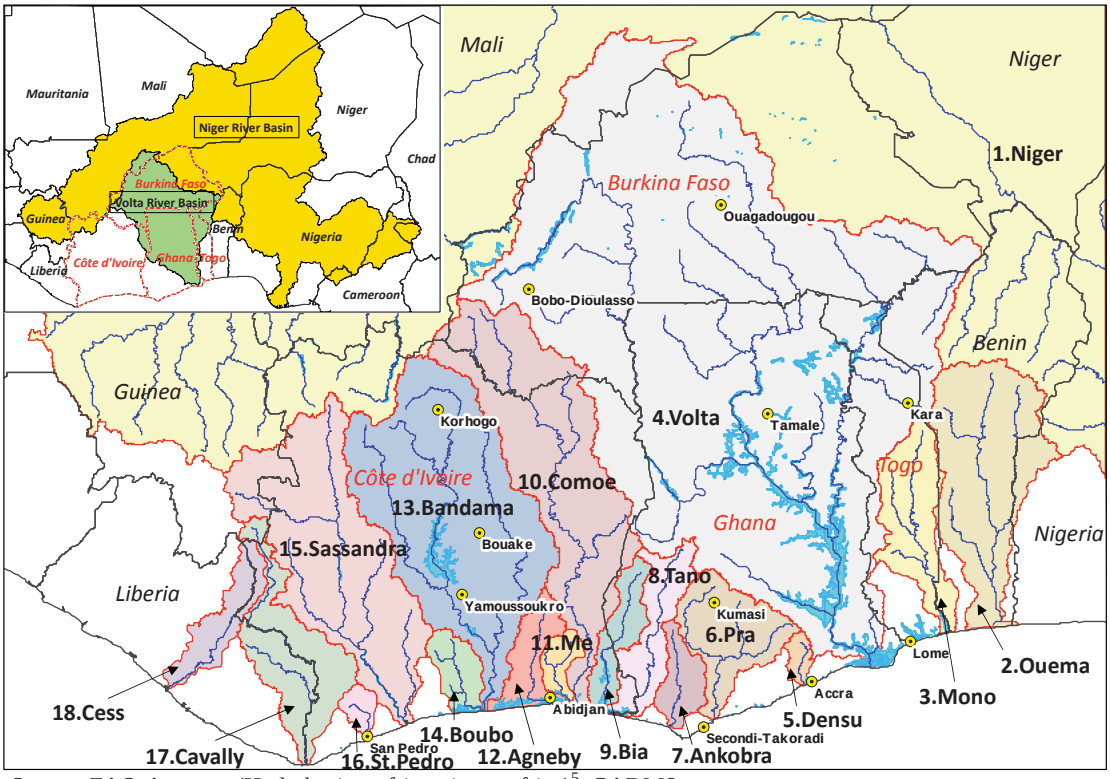
(1) Rivers and River Basins in WAGRIC Sub-Region

There are 18 major rivers and river basins which cover the four target countries (Burkina Faso, Ghana, Togo and Côte d'Ivoire)[4] (see Figure 7.3.47 and Table 7.3.19). Among these, ten are international river basins, whose drainage area is shared by multiple countries. The largest river basin is the Niger River basin, followed by the Volta River basin.

The geological condition is widely occupied by pre-mesozoic except for some coastal areas and part of the Niger River basin. The average annual rainfall varies from 500mm/yr to more than

4 J.D.Milliman and K.L.Farnsworth: River Discharge to the Coastal Ocean, A Global Synthesis, 2013

2,000mm/yr. The runoff rate, which is the ratio of runoff volume to precipitation, is in the 10-20% range.



Source: FAO-Aquastat (Hydrobasins_africa, rivers_africa)[5], GADM6

Figure 7.3.47 Major Rivers and River Basins around WAGRIC Countries

Table 7.3.19 Major River Basins around WAGRIC Countries

	River Basin	Drainage Area (km²)	Geology	Mean Annual Precipitation (mm/yr)	Mean Runoff (BCM/yr)	Runoff Rate (%)	Share of Drainage Area (%)				
							BF	GN	CI	TG	Others
1	Niger	2,136,800	PreMes	662	160.0	0.11	4		1		NI 27, ML 26, NR 23, AL 8, GU 4, CA 4, BE 2, CH 1, MA 1
2	Ouema	52,600	PreMes	1,117	5.7	0.10				1	BE 90, NI 9
3	Mono	24,200	PreMes	1,173	4.9	0.17				89	BE 11
4	Volta	411,000	PreMes	988	40.0	0.10	42	41	3	7	ML 4, BE 4
5	Densu	2,700	PreMes	1,292	0.3	0.09		100			
6	Pra	23,200	PreMes	1,513	4.2	0.12		100			
7	Ankobra	8,500	CenS/M	1,637	2.3	0.17		100			
8	Tano	16,900	PreMes	1,545	2.8	0.11		88	12		
9	Bia	11,200	PreMes	1,550	2.4	0.14		59	41		
10	Comoe	78,100	PreMes	1,154	7.9	0.09	23	3	73		ML 1
11	Me	4,800	PreMes	1,551	1.5	0.20			100		
12	Agneby	11,100	PreMes	1,460	1.5	0.09			100		
13	Bandama	98,800	PreMes	1,189	9.7	0.08			100		
14	Boubo	8,200	PreMes	1,447	Na	na			100		
15	Sassandra	75,100	PreMes	1,474	10.0	0.09			89		GU 11
16	St.Pedro	3,300	PreMes	1,538	Na	na			100		
17	Cavally	29,500	PreMes	2,047	13.0	0.22			55		LI 40, GU 5
18	Cess	12,500	PreMes	2,277	Na	na			18		LI 82

Note: Country Name: BF=Burkina Faso, GN=Ghana, CI= Côte d'Ivoire, TG=Togo, LI=Liberia, GU=Guinea, ML=Mali, BE=Benin, NI=Nigeria, NR=Niger, CA=Cameroon, AL=Algeria, CH=Chad, MA=Mauritania, Geology: PreMes=Pre-Mesozoic, CenS/M=Cenozoic Sedimentary/Metamorphic

Source: Drainage area: FAO-Aquastat (Hydrobasins_africa)[3], Geology: Milliman and Farnsworth (2013)[2], Average Annual Rainfall: Average from 1950 to 2000, WorldClim[7], Average Runoff: For Densu, Pra, Ankobra, Tano IWRM plans by Water Resources Commission of Ghana[8,9,10,11]. For others, Milliman and Farnsworth (2013)[2].

[5] FAO: Aquastat, thttp://www.fao.org/nr/water/aquastat/countries_regions/SEN/index.stm.
[6] Global Administrative Area (GDM), http://www.gadm.org/
[7] Hijmans, R. J., S. E. Cameron, J. L. Parra, P. G. Jones and A. Jarvis, 2005. Very high resolution interpolated climate surfaces for global land areas. International Journal of Climatology 25: 1965-1978. Available from http://www.worldclim.org/.
[8] WRC, IWRM plan in Densu river basin, 2007.

(2) Water Resources Potential in WAGRIC Countries

According to FAO-Aquastat[2], the estimated water resources potential in the four countries is presented[12] in Table 7.3.20 and Table 7.3.21. Among the four countries, Côte d'Ivoire has the highest water resources potential in terms of both absolute volume and volume per capita. Burkina Faso has only about 800m³/person/yr for the water resources potential per capita at 2013, whereas Côte d'Ivoire has more than 4,000m³/person/yr. The water resources in Ghana strongly rely on an external water source which is mainly generated by the Upper Volta in Burkina Faso. Ghana's dependency on the Upper Volta is about 46% of the total water resources potential.

Table 7.3.20 Water Resources Potential in the WAGRIC Countries

	Burkina Faso		Côte d'Ivoire		Ghana		Togo	
	Annual Volume (BCM/yr)	Share / Ratio (%)	Annual Volume (BCM/yr)	Share / Ratio (%)	Annual Volume (BCM/yr)	Share / Ratio (%)	Annual Volume (BCM/yr)	Share / Ratio (%)
Total Water Resources Potential *1	13.5	*(100.0)*	84.1	*(100.0)*	56.2	*(100.0)*	14.7	*(100.0)*
Internal Production	12.5	*(92.6)*	76.8	*(91.3)*	30.3	*(53.9)*	11.5	*(78.2)*
External Source (Surface Water)	1.0	*(7.4)*	7.3	*(8.7)*	25.9	*(46.1)*	3.2	*(21.8)*
Water Balance of Internal Production								
Precipitation	205.1	*(100.0)*	434.7	*(100.0)*	283.1	*(100.0)*	66.3	*(100.0)*
Total Production*2	12.5	*(6.1)*	76.8	*(17.7)*	30.3	*(10.7)*	11.5	*(17.3)*
Surface Water	8.0	*(3.9)*	74.0	*(17.0)*	29.0	*(10.2)*	10.8	*(16.3)*
Groundwater	9.5	*(4.6)*	37.8	*(8.7)*	26.3	*(9.3)*	5.7	*(8.6)*

Note: BCM=Billion Cubic Meter, (*1) Renewable water resources are regarded as water resource potential. (*2) The groundwater that is finally drained as base flow of surface water is not counted as total production, because it has been counted as groundwater potential.

Source: FAO-Aquastat[2]

Table 7.3.21 Water Resources Potential per Capita in the WAGRIC Countries

	Burkina Faso		Côte d'Ivoire		Ghana		Togo	
Total Water Resources Potential *1 (BCM/yr)	13.5		84.1		56.2		14.7	
Total Population (10^3)	16,935	[2013]	20,316	[2013]	25,905	[2013]	6,817	[2013]
Total Water Resources Potential per Person (m³/person/yr)	797	[2013]	4,142	[2013]	2,169	[2013]	2,156	[2013]

Source: FAO-Aquastat[2]

The total reservoir capacity for each of the four countries is summarized in Table 7.3.22. In Burkina Faso and Côte d'Ivoire, the total reservoir capacity is almost half of the surface water potential. Ghana has much larger reservoir capacity than the surface water potential. This is because of the existence of Volta Lake, the world's largest man-made lake.

Table 7.3.22 Total Reservoir Capacity and Turnover Rate

	Burkina Faso		Côte d'Ivoire		Ghana		Togo	
Total Surface Water Potential (BCM/yr)	9.0		81.3		54.9		14.0	
Total Reservoir Capacity (BCM)	5.3	[2011]	37.2	[2010]	161.0	[2015]	1.7	[2010]
Turnover Rate of Reservoir (/yr)	1.7	[2011]	2.2	[2010]	0.34	[2015]	8.2	[2010]

Source: Ghana: WRC, Others: FAO-Aquastat[2]

(3) Regional Integration of Water Resources

The process of Integrated Water Resources Management (IWRM) in West African countries started at the West African ministerial conference on IWRM in 1998, which resulted in the following:

- Adaptation of the West African Regional Plan of Action of Integrated Water Resources

[9] WRC, IWRM plan in Ankobra river basin, 2009.
[10] WRC, IWRM plan in Pra river basin, 2012.
[11] WRC, IWRM plan in Tano river basin, 2012.
[12] There may be different estimations of water resources potential in some countries. Since the estimate by FAO-Aquastat uses a unified definition and methodology for the four countries, it is used here for general comparison purposes.

Management; and

- Creation of a permanent framework of IWRM coordination and monitoring (PFCM) within the ECOWAS region.

The PFCM consists of the following:

- The ministerial follow up committee;
- The technical committee of experts, involving the national focal points and representatives of regional basin organizations;
- The regional collaborative council on water resources; and
- The water resources coordination centre (WRCC), executive body of PFCM.

ECOWAS, in collaboration with UEMOA and CILSS, under a common initiative based on a partnership between these three institutions, developed and adopted in 2008 the West Africa Water Resources Policy (WAWRP).

General objective of WAWRP is "To contribute to poverty reduction and sustainable development by advising the Community and its Member States on water resources management, reconciling economic development, social equity and environmental protection."

The specific objectives are as follows:

- To foster development of community guidelines in terms of water management,
- To support harmonization and integration of national and regional water related policies;
- To encourage governments to develop frameworks for water management nationally and in trans-national boundary basins in West Africa by taking into account economic development, social equity and environmental protection.

(4) Issues on Water Resources in WAGRIC Sub-Region

According to WAWRP, the following are recognized as major issues on water resources management in order to meet sub-regional socio-economic development goals in a sound environment:

- How to seek better knowledge of surface and underground water resources;
- How to promote efficient use of water to support socioeconomic development in the sub-region;
- How to prevent crises concerning the preservation of water resources and related ecosystems;
- How to implement participatory management mechanisms for better water governance at the sub-regional level; and
- How to ensure financial sustainability in the water sector.

(5) Future Prospects for Water Resources Sector in WAGRIC Sub-Region

Since corridor development promotes economic activities on both sides of national borders along international corridors, it is expected that water use and environmental degradation would accelerate in related river basins. The issues stated in Section 7.2.7 (4) will be more significant together with further corridor development. Further effort would be required for promoting sub-regional integration for water resources management.

(6) Objectives for Water Resources Sector in WAGRIC Sub-Region

Referring to the West Africa Water Resources Policy (WAWRP), the sub-regional level objective of water resources management and development in the present study is set as follows:

- Well-functioning integrated management of water at the sub-regional level in order to meet sub-regional socioeconomic development goals in a sound environment.

(7) Basic Strategies for Water Resources Sector in WAGRIC Sub-Region

The sub-regional level basic strategies to support the objective are proposed as follows:

- Reviewing and implementation of action plans for the implementation of WAWRP;
- Promotion of information sharing on water resources; and
- Further activation of the existing river basin authorities, such as Volta Basin Authority (VBA) and establishment of a river basin authority in each of the other trans-national boundary river basins related to the WAGRIC countries considering the lessons learned from VBA.