



Market research of high priority investment sectors in Côte d'Ivoire

Waste management report

May 2021

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High level overview of investment landscape in Côte d'Ivoire

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Context: JICA's market study aims to accelerate Japanese companies' business in CI and improve the investment environment

- The Africa-Japan Business Council was launched under the initiative of the 7th Tokyo International Conference on African Development (TICAD7) in August 2019 to improve the business environment in 7 African countries with the aim of increasing Japanese investment
- With this goal in mind, JICA has conducted a [study to promote investment](#) by Japanese companies in selected sectors in CI, and improve the overall investment environment
- As a result of high-level assessment, JICA has identified [agro-machinery/processing and waste management as two high priority sectors](#) and is conducting [detailed market research](#) with BCG that can be utilized by Japanese companies' business consideration in CI
- This report summarizes the output from the market research (including [size/growth, competitive landscape, regulatory landscape, value chain analysis, etc.](#)) which was done through extensive interviews with key market players & selected government agencies to [identify investment opportunities for Japanese companies in the waste management sector](#)

Approach: 14-week effort on overview of investment landscape, market research on the 2 high priority sectors, and synthesis



- Data analysis on FDI market trend analysis and health check
- Analyze relevant policy and IPA analysis

- Validate JICA's suggestion on the priority sectors
- Propose 2 sectors for market research
- Build alignment with JICA/JETRO on the sector prioritization

- Conduct desktop market research (e.g. market reports, data analysis)
- Conduct interviews with key market players & selected government agencies (mostly virtual but could be done in-person when necessary)
- Conduct interviews with Japanese companies interested in the 2 sectors
- Develop initial outputs from market research and share them with Japanese stakeholders (JICA/JETRO/EOJ and selected Japanese companies) for their comments
- Finalize the market research outputs based on inputs from the Japanese stakeholders

- Develop recommendation for JICA/GoJ to further promote FDI in the 2 sectors
- Develop final report



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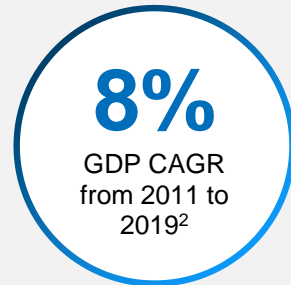
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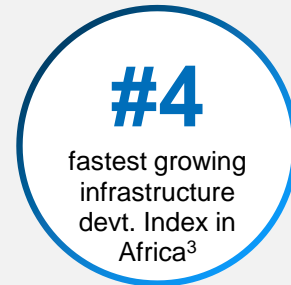
Cote d'Ivoire has a strong momentum and is rapidly becoming a leading player in the region



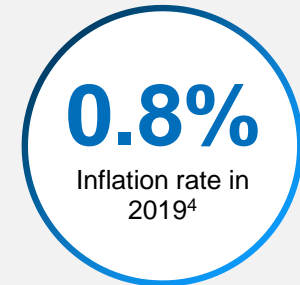
Climbing from 170th place (2010) to 110th place (2020) worldwide



Second fastest growing economy in Africa, and fastest in West Africa



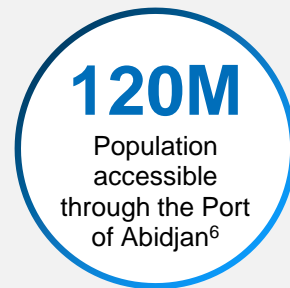
Significant investments to improve infrastructure (especially transport)



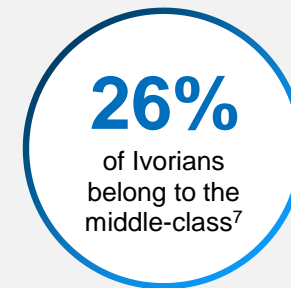
Stable CFA currency (fixed rate with the euro) keeps inflation rate low



Large volume of FDI mainly from France, with strong momentum from Morocco



Gateway to West Africa (including many landlocked countries) with the most modern port in the region



Growing middle-class (beyond the capital city) driven by GDP growth



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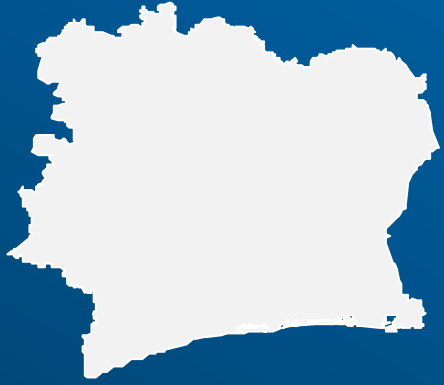
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4 key points from Côte d'Ivoire's investment environment health check analysis

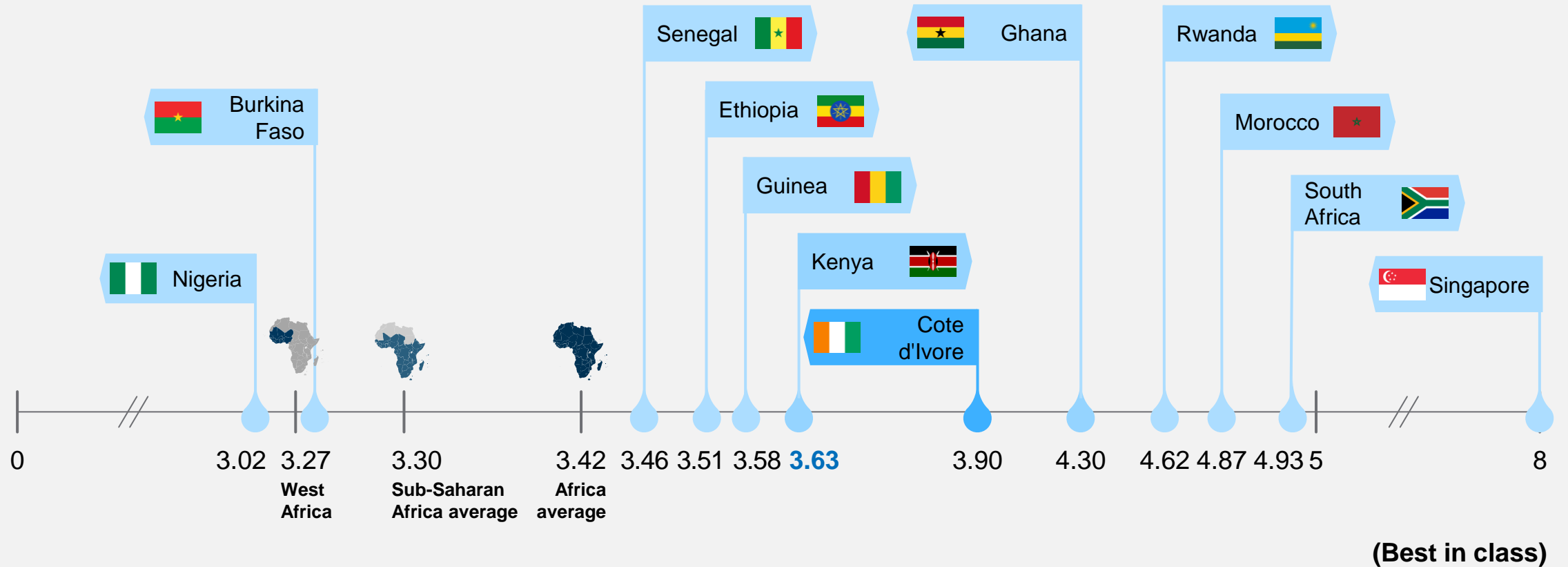
Côte d'Ivoire is performing relatively better than Kenya and Senegal but lagging behind regional front runner Ghana

They perform relatively well than peers **in market access and connectivity**

On the other hand, there are areas for improvement in **FDI incentives and talent and innovation**

Côte d'Ivoire is relatively better positioned to excel in **efficiency- seeking FDI compared to market-seeking FDI**

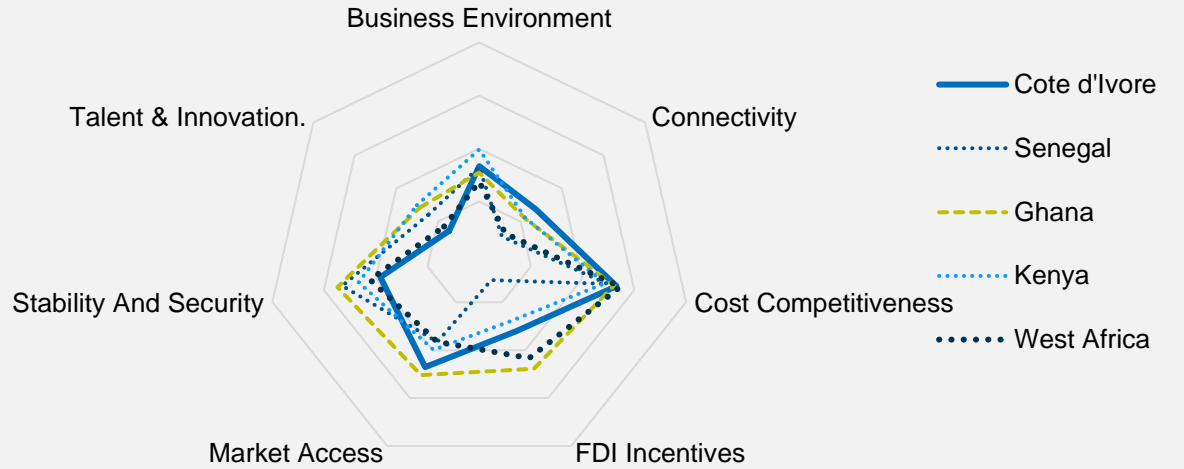
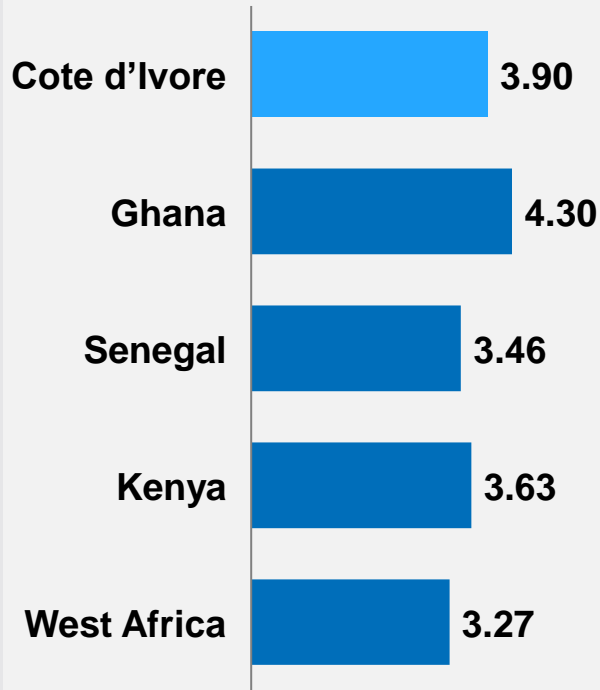
Investment environment health check vs. peers: Côte d'Ivoire performing well relative to African average but room to catch up with regional front runners



Scoring methodology explained on slide 15

Overall result: Côte d'Ivoire is performing relatively well overall though lags behind Ghana mainly in FDI incentives, talent and innovation and political stability

BCG Health Check Score (out of 8)

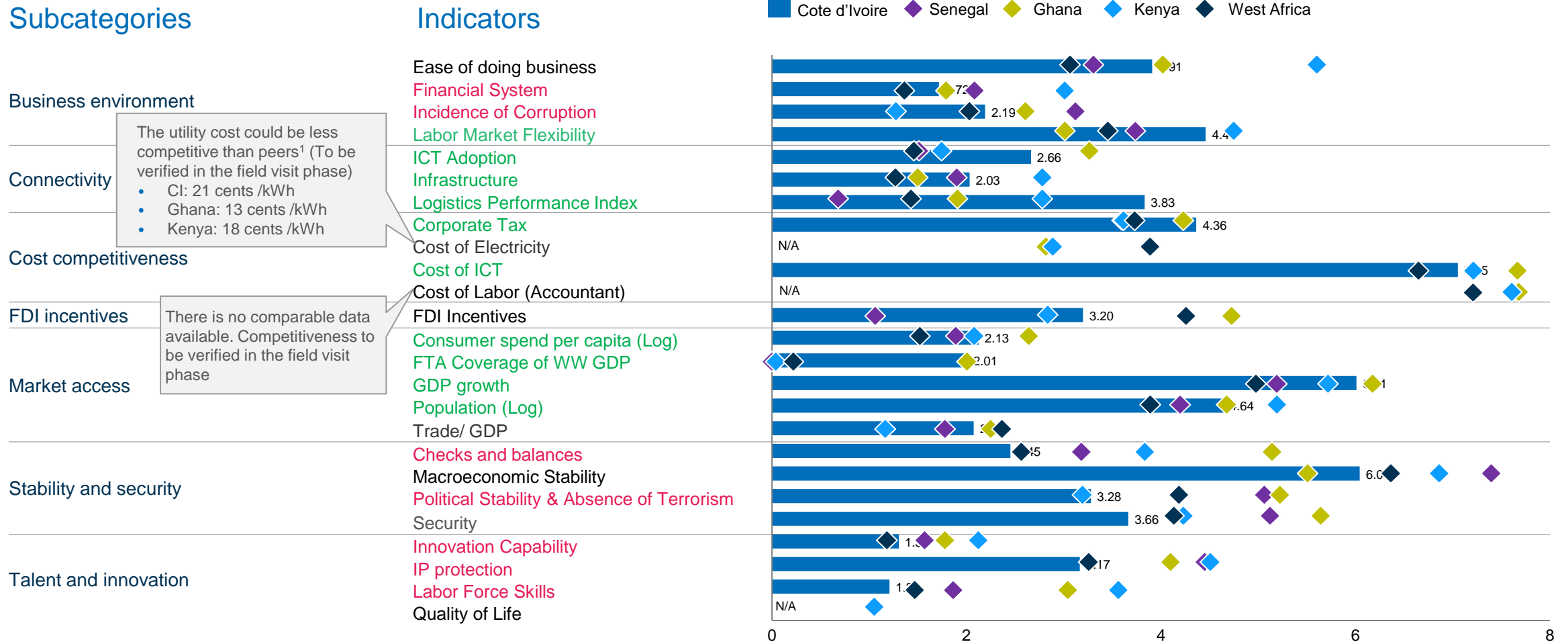


- ✓ **Good market access** due to relatively strong trade position in the region
- ✓ **Good connectivity** driven by competitive quality of infrastructure in energy and transport and strong Logistics Performance Index
- ✓ **High cost competitiveness** due to good transport infrastructure, low ICT cost and low corporate tax
- **Moderate conduciveness of business environment** driven by moderate ease of doing business rating and strong labor flexibility
- **Moderate political stability and security** due to weak checks and balances though they has been increased transparency and openness in governance
- ✗ **weak attractive FDI incentives** resulting from weaker regulatory measures
- ✗ **Lag in talent and innovation** driven by lower skilled labor force and low innovation capability

Note: FTA – Free Trade Agreement; WW – Worldwide
Source: Press search, BCG Analysis

Indicator breakdown: Côte d'Ivoire is behind Ghana and on a number of indicators but performs well in connectivity

Green: Major strengths
Red: Major weakness



The utility cost could be less competitive than peers¹ (To be verified in the field visit phase)

- CI: 21 cents /kWh
- Ghana: 13 cents /kWh
- Kenya: 18 cents /kWh

There is no comparable data available. Competitiveness to be verified in the field visit phase

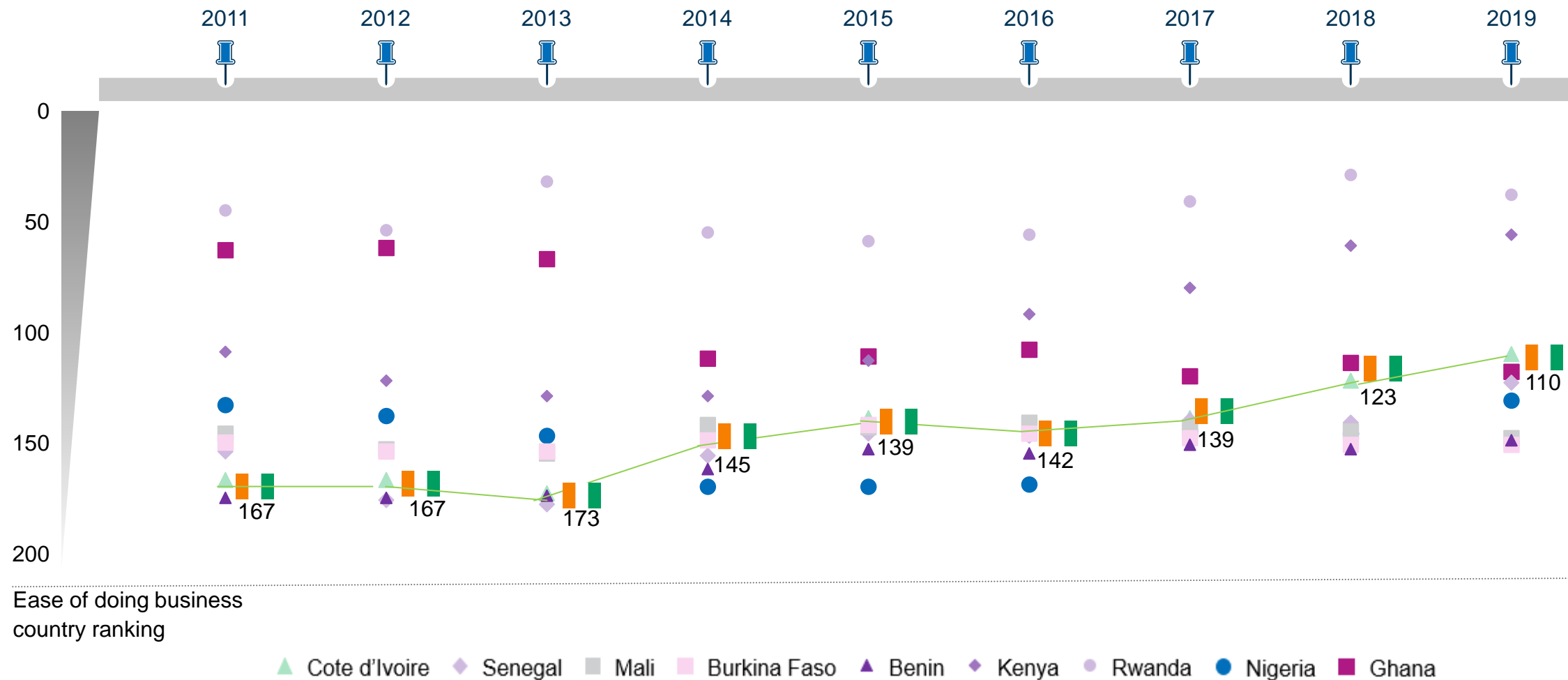
Note: FTA: Free Trade Agreement; WW: Worldwide; N/A: Sufficient data not available; Data for Quality of life unavailable for West African countries

1. The price of electricity for households and businesses as of September 2019 (Global Petrol Prices). Data for Senegal is not available

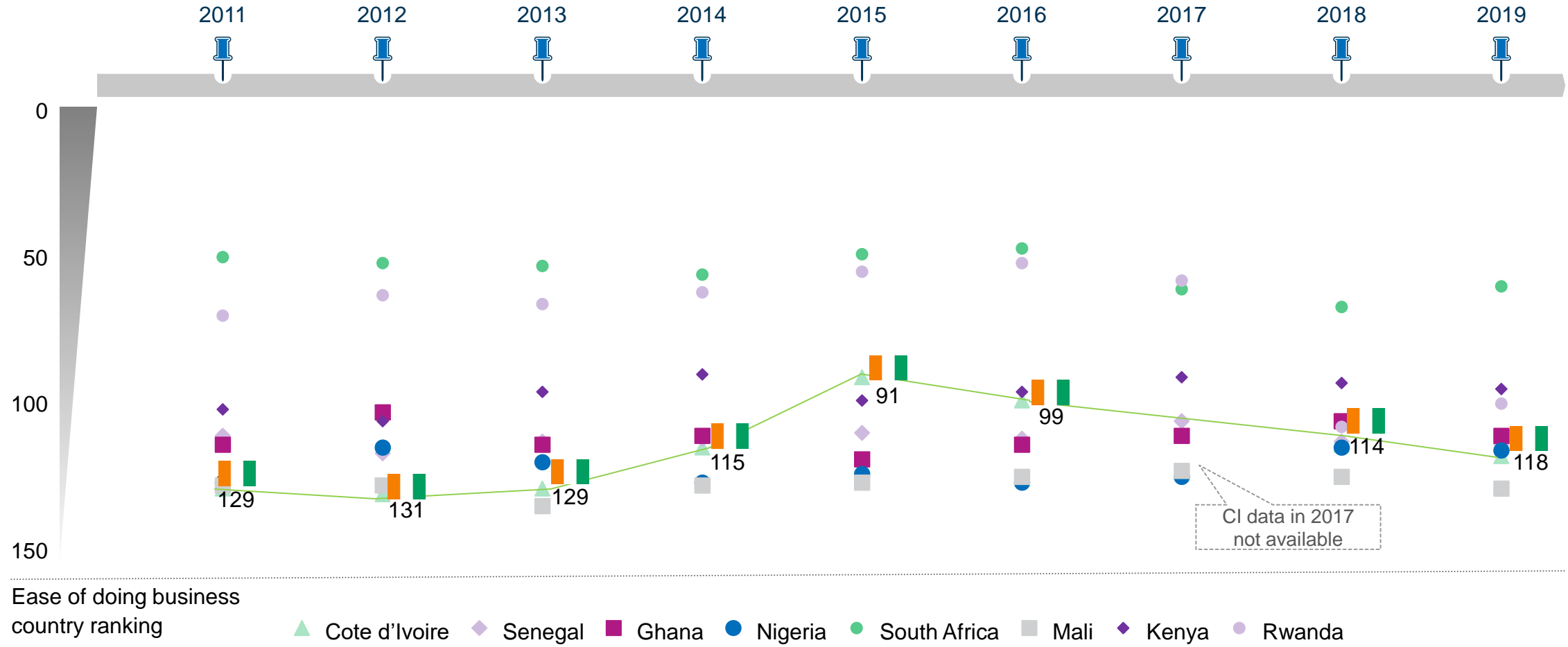
Source: Press search, Global Petrol Prices, BCG Analysis

Scoring methodology explained on page 15

Ease of Doing Business ranking: Cote d'Ivoire is gradually improving over the past 5 years. Major improvements have made in starting a business and resolving insolvency indicators



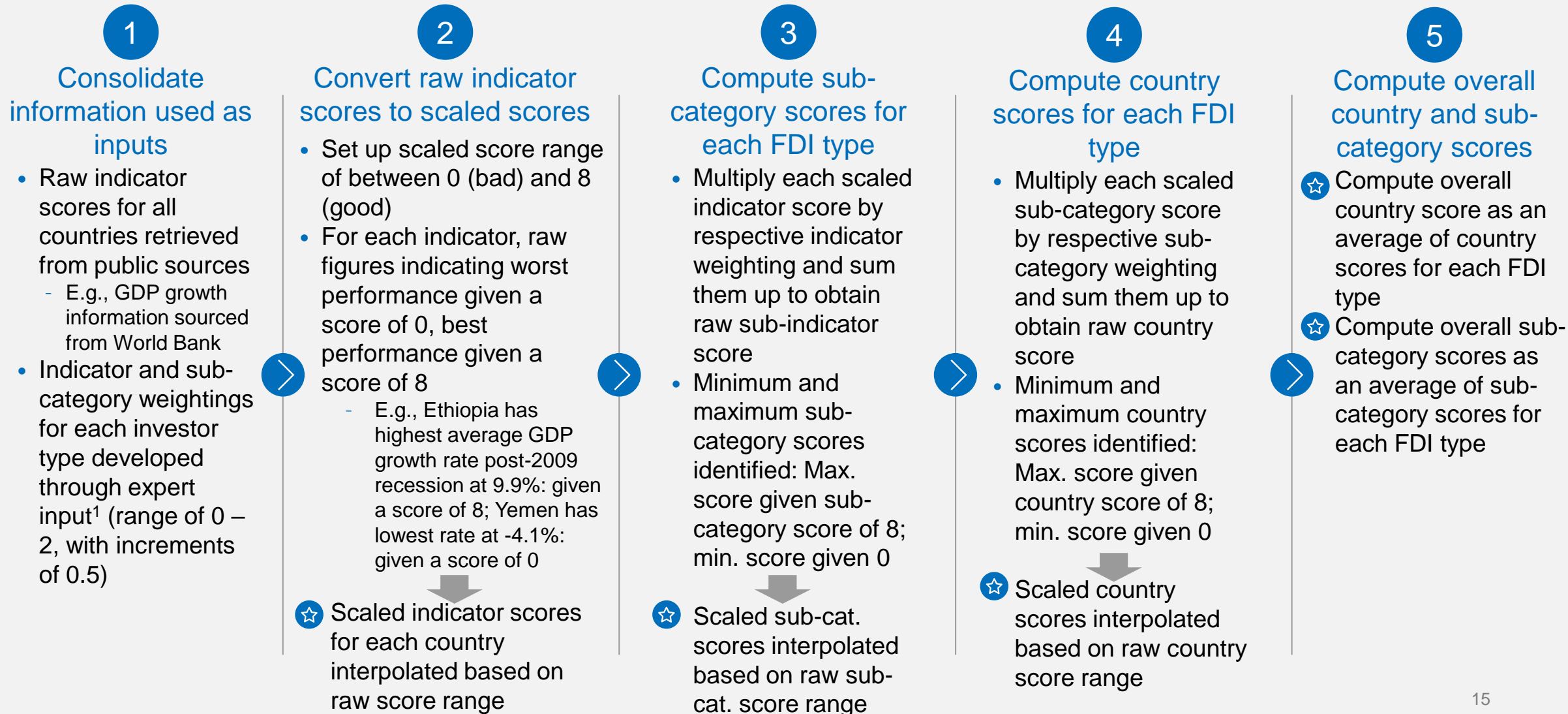
Global Competitive Index: Cote d'Ivoire has been gradually decreasing since 2015 due to comparatively poorer performance in education, institutions, infrastructure indicators etc.



Relative positioning and historical trend differs by index (e.g. East of Doing Business vs Global Competitive Index). It is important to capture real situation on the ground (to be verified in the field visit phase).

Analysis approach: 5-step approach used to compute Health Check scores

☆ Output used in the analysis



1. Several experts (BCG senior advisors and topic experts) consulted to develop consensus on appropriate indicator and sub-category weightings for each FDI type



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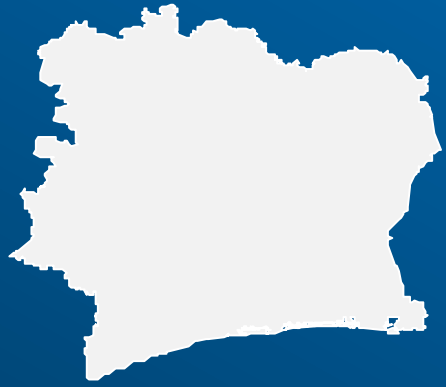
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5 FDI trends in Côte d'Ivoire

Positive growth trajectory in FDI post-civil war era but still susceptible to **occasional headwinds**

Europe is Côte d'Ivoire's largest investor, driven by **France**

Investments from **Africa growing**, driven by **Morocco**

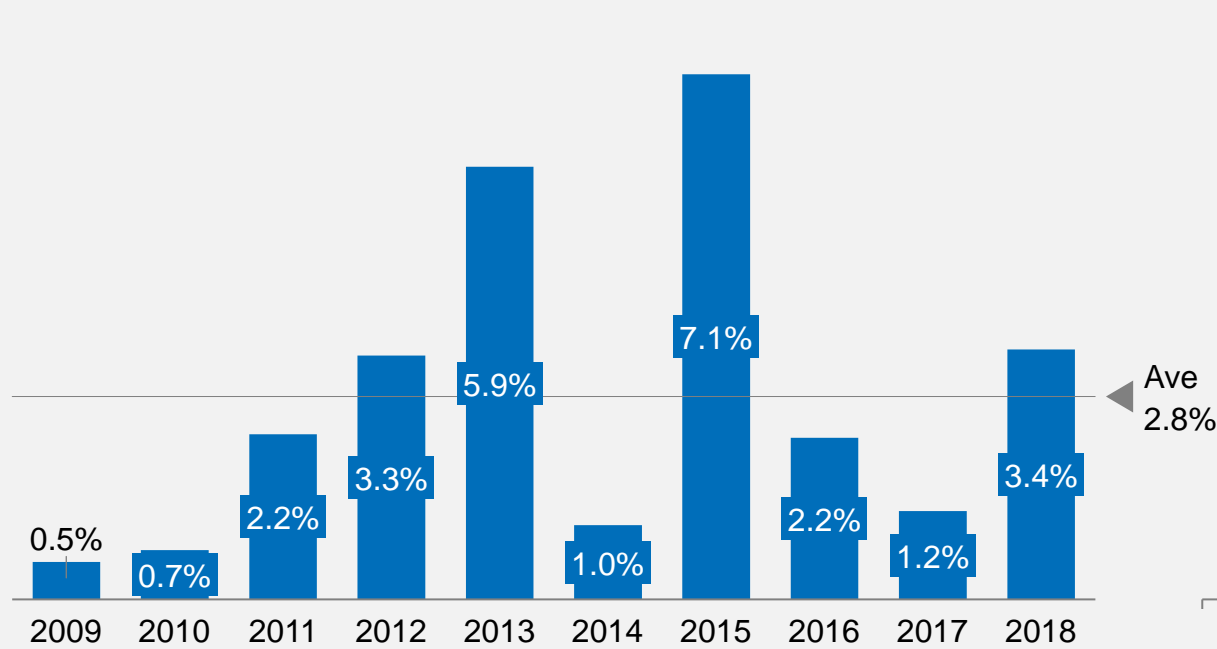
Real estate & transportation and warehousing key sectors driving FDI

Inconsistent Japanese FDI mainly focusing on **real estate**

Overview of FDI volume: Côte d'Ivoire has untapped potential to increase FDI in light of occasional strong performance in the last 10 yrs

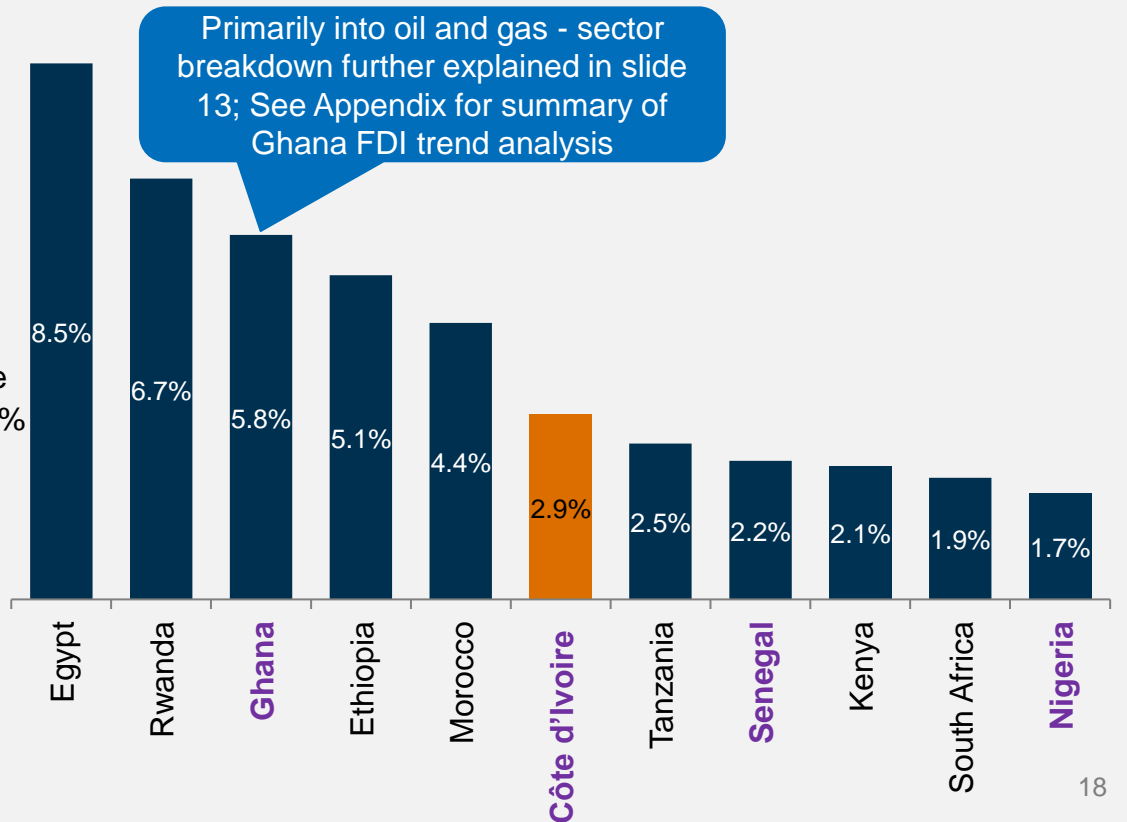
FDI as % of GDP historically generally below 4% with occasional spikes, modest recovery from '09 & '10 lows

FDI inflow as a percentage of GDP Côte d'Ivoire (%)



Côte d'Ivoire leading largest West African economies¹ in FDI attraction but lagging behind Ghana

5-Yr Weighted average Greenfield FDI as a % of GDP (2014 – 2018)



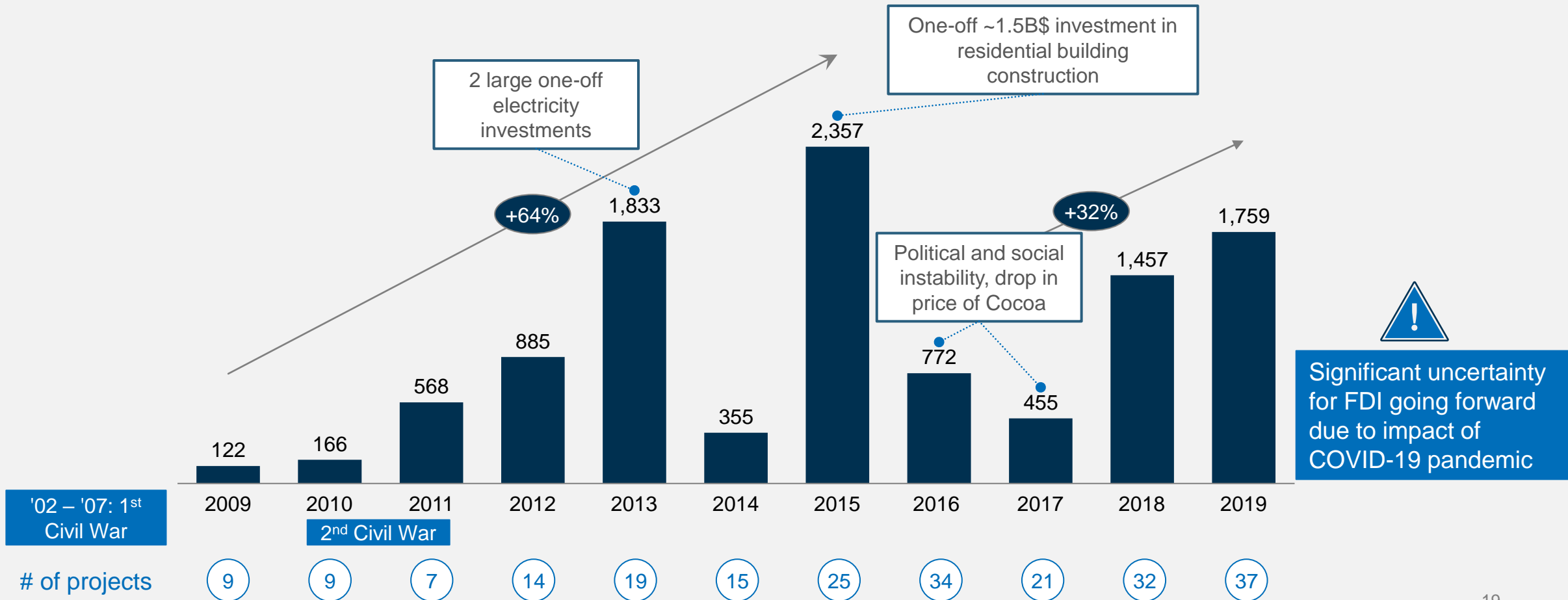
Note: CI = Côte d'Ivoire

1. The 4 largest West African economies are Nigeria, Ghana, Côte d'Ivoire and Senegal

Source: fDi Markets; World Bank; BCG Analysis

Historic FDI trend: Greenfield FDI inflows to Côte d'Ivoire grew from early 2010s after civil wars with occasional spikes

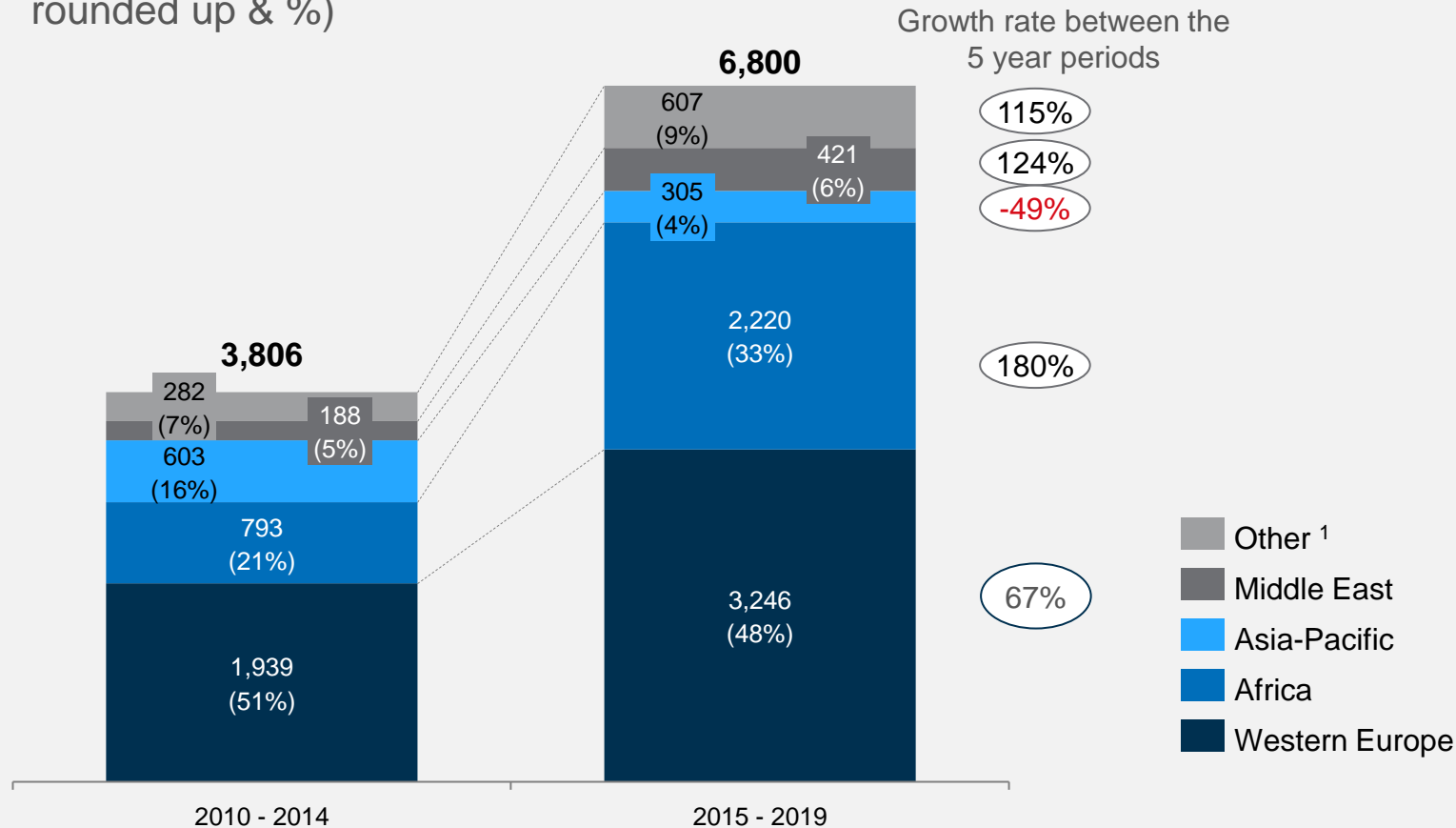
Total FDI inflow into Côte d'Ivoire (\$M value rounded up)



Source: fDi Markets; Press Search; BCG Analysis

Origin of FDI by region: Europe has remained Côte d'Ivoire's largest investor, but momentum increasing from Africa

Total greenfield FDI inflows by source region (\$M value rounded up & %)



Investments from Europe are **mainly driven by France**

Investments from African countries **mainly driven by Morocco** with consistent YoY investments since 2013

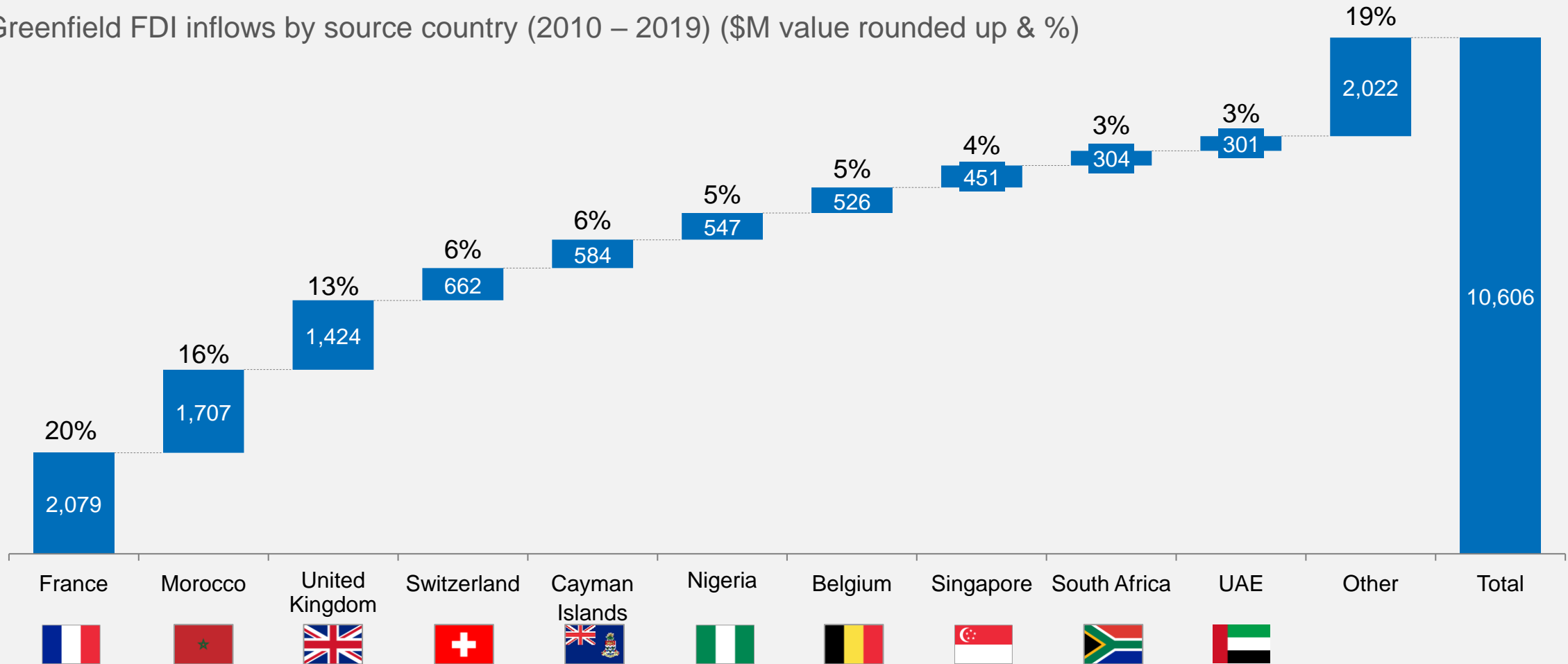
1. North America, Latin America & Caribbean and Emerging Europe

Note: YoY - year-on-year

Source: fDi Markets; BCG Analysis

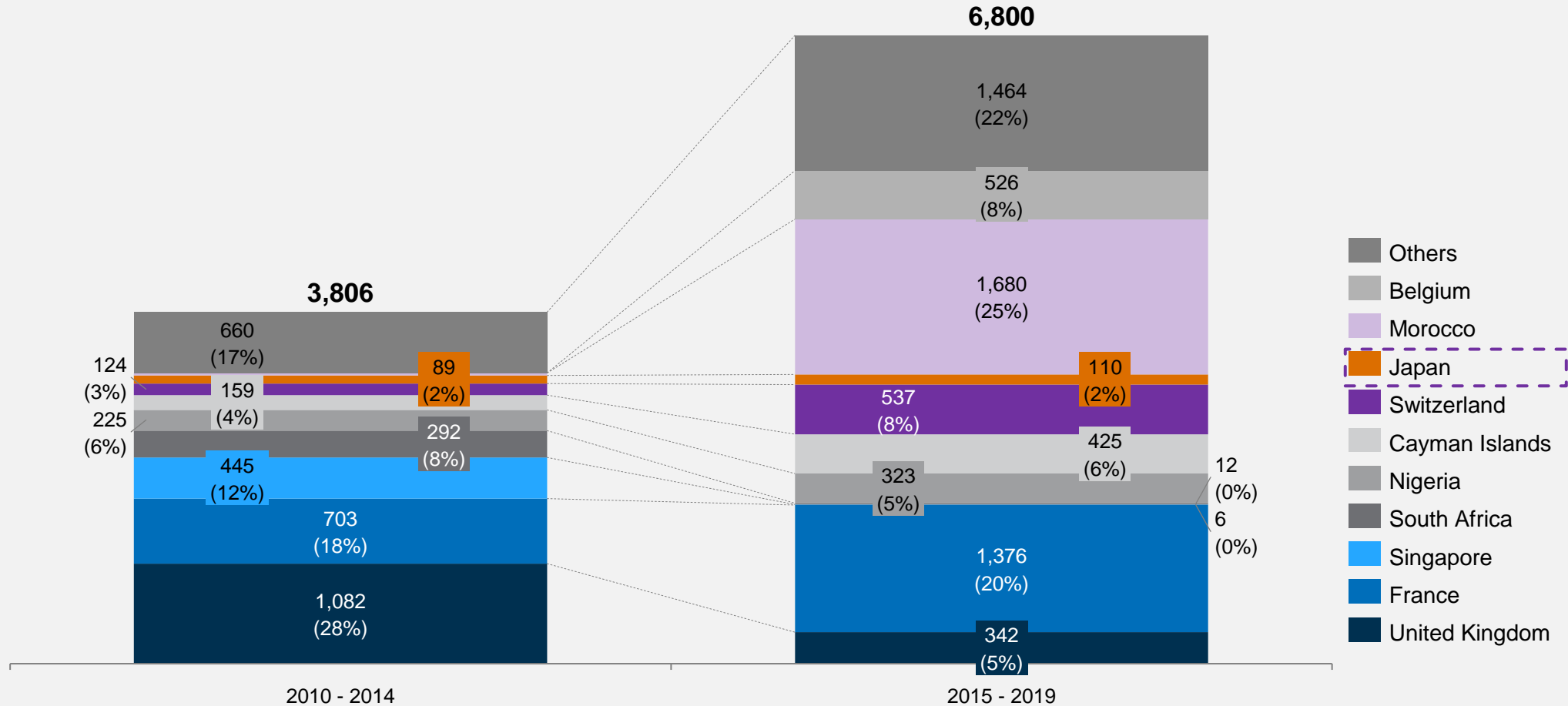
Origin of FDI by country (I / III): Top 10 investors account for ~81% of FDI inflow into Côte d'Ivoire over the last decade

Greenfield FDI inflows by source country (2010 – 2019) (\$M value rounded up & %)



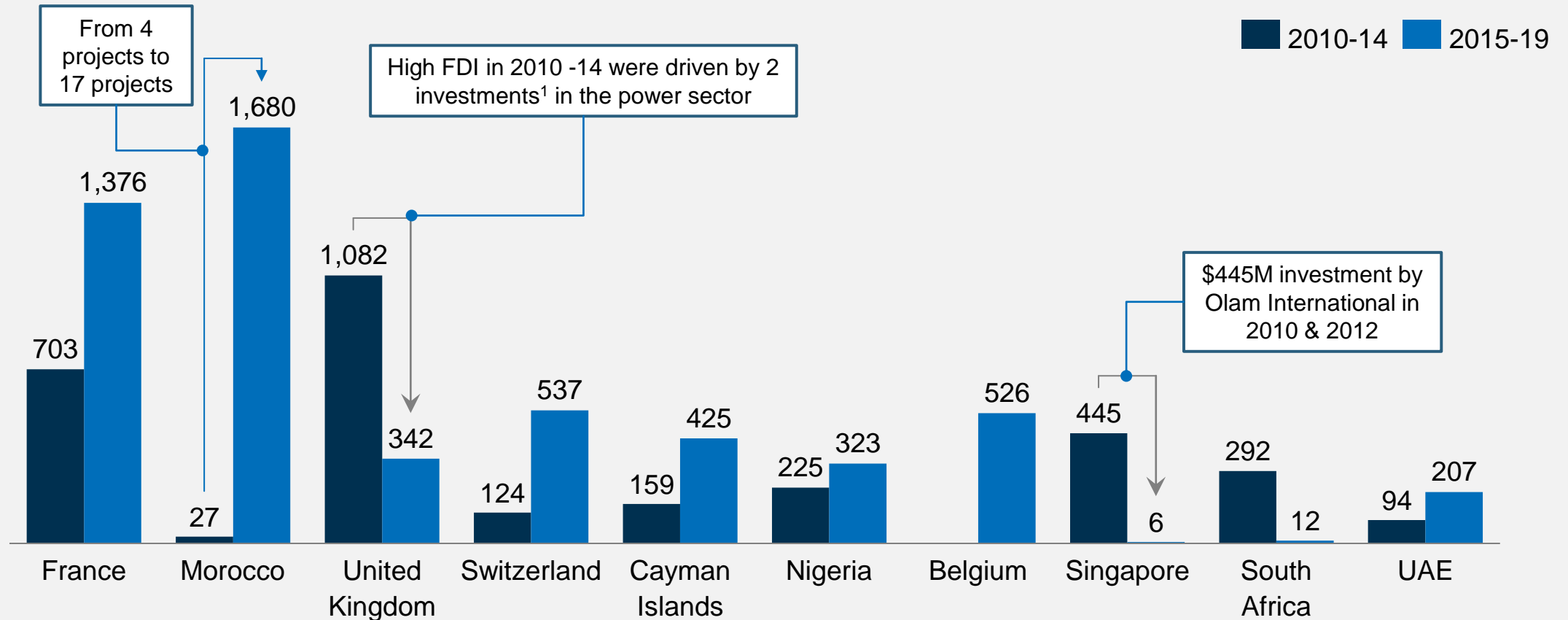
Origin of FDI by country (II / III): France & Morocco leading, taking over from UK & interest from others steadily increasing

Cumulative greenfield FDI inflows by source country (2010 – 2019) (\$M value rounded up)



Origin of FDI by country (III / III): Of the top 10 investors, Morocco is the largest grower in the last decade

Greenfield FDI inflows by source country (2010 – 2019) (\$M value rounded up)



Deep dive on French investments: Strong focus on investment in transport & logistics in the 2nd half of the decade, taking advantage of developing sector

Top 5 French investments in Côte d'Ivoire (2015 – 2019)

	Project year	Investing company	Destination city	Sub-sector	Activity	Jobs created	Investment (\$m)	Estimated?
1	2018	Bollore Transport & Logistics	Abidjan	Warehousing & storage	Logistics, Distribution & Transportation	823	493	Yes (jobs) / No (investment)
2	2019	BIOVEA Energie	Not specified	Biomass power	Electricity	62	223	Yes (jobs) / No (investment)
3	2018	Bollore Transport & Logistics	Abidjan	Warehousing & storage	Logistics, Distribution & Transportation	131	220	Yes
4	2017	Seafrigo	Abidjan	Freight/Distribution Services	Logistics, Distribution & Transportation	98	72	Yes
5	2017	Orange (France Telecom)	Abidjan	Wireless telecommunication carriers	Headquarters	194	50	Yes (jobs) / No (investment)

Deep dive on Moroccan investments: Focus zeroing-in on residential real estate investment in Abidjan

Top 5 Moroccan investments in Côte d'Ivoire (2010 – 2019)

	Project year	Investing company	Destination city	Sub-sector	Activity	Jobs created	Investment (\$m)	Estimated?
1	2015	Douja Promotion Groupe Addoha	Abidjan	Residential building construction	Construction	1,466	1,457	Yes
2	2016	Saada Cote d'Ivoire (B Group)	Abidjan	Residential building construction	Construction	712	12	Yes (jobs) / No (investment)
3	2016 (April)	Ciment d'Afrique (CIMAF)	San Pedro	Cement & concrete products	Manufacturing	120	60	Yes (jobs) / No (investment)
4	2018	Denia Snacks	Grand-Bassam	Food & Beverages - Grains & oilseed	Manufacturing	500	24	No
5	2016 (October)	Ciment d'Afrique (CIMAF)	Bouake	Cement & concrete products	Manufacturing	44	22	Yes (jobs) / No (investment)

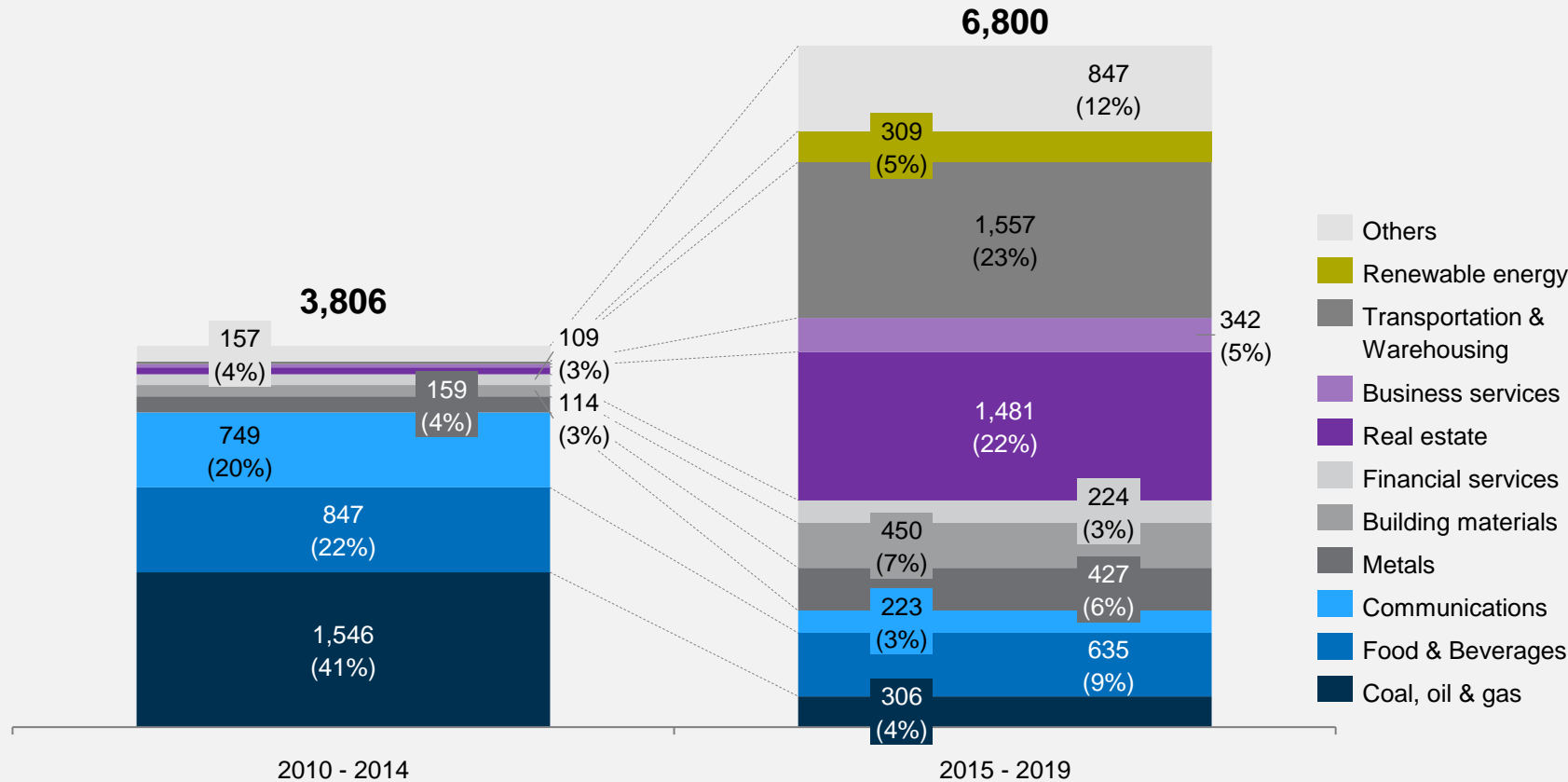
Deep dive on UK investments: Majority of investments focused on electricity generation especially in 1st half of the decade to increase electricity output

Top 5 UK investments in Côte d'Ivoire (2010 – 2019)

	Project year	Investing company	Destination city	Sub-sector	Activity	Jobs created	Investment (\$m)	Estimated?
1	2013	Aggreko	Abidjan	Fossil fuel electric power	Electricity	119	653	Yes
2	2011	Azito Energie (Globeleq Generation)	Abidjan	Fossil fuel electric power	Electricity	116	428	Yes
3	2019	Azito Energie (Globeleq Generation)	Abidjan	Fossil fuel electric power	Electricity	116	293	Yes
4	2016	Unilever	Abidjan	Food seasoning & dressing	Manufacturing	58	10	Yes (jobs) / No (investment)
5	2015	PCCI Group	Not specified	Business support services	Customer Contact Centre	428	4	No

Sector breakdown of FDI into CI: Significant FDI diversification occurring over time

Greenfield FDI inflows by sector (\$M value rounded up)

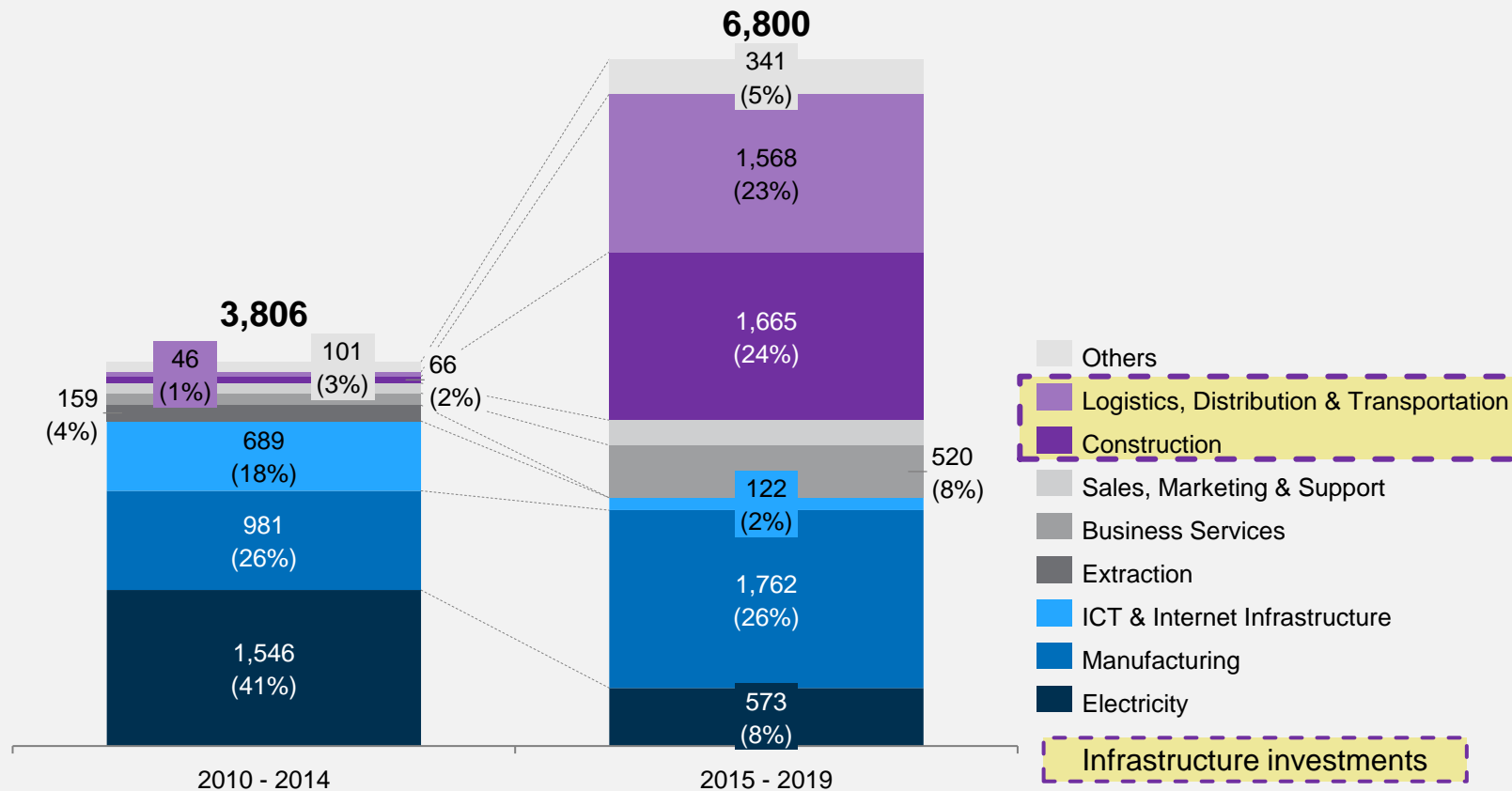


4 key sector trends:

- Significant growth in investment in **real estate** and **transportation & warehousing** in the 2nd half of the decade
- Strong investment in **coal, oil and gas** in 2011 and 2013 that has since reduced in consistency
- Consistent investment in **food and beverage & communication** sectors despite decline in share of FDI
- Potential growth in sectors such **renewable energy & business services** whose investment is picking up

Activity breakdown: Investments in infrastructure show strongest growth, share of FDI into manufacturing stagnant

Total Greenfield FDI inflows by activity (\$M value rounded up)



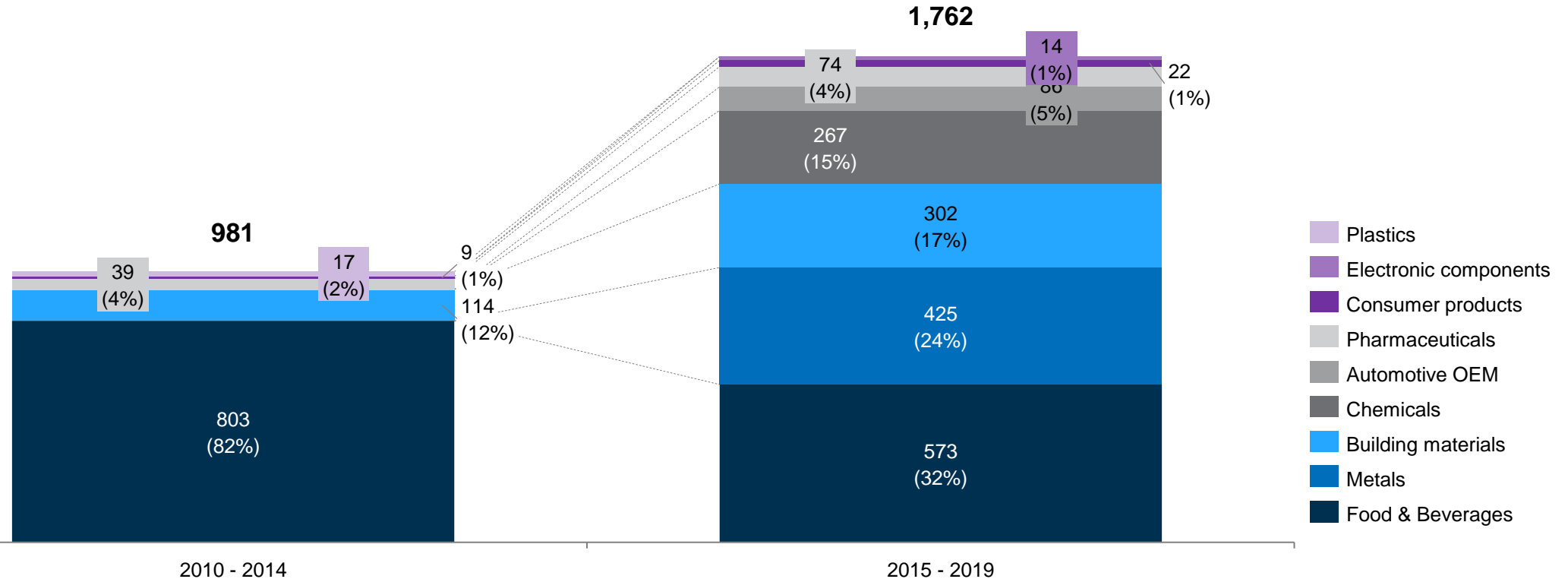
FDI inflows increasingly directed towards infrastructure:
 Construction (~25x growth) & Logistics and Transportation (~34x growth)

Despite stagnant share of total FDI, manufacturing FDI grew ~1.8x mainly due to growth in FDI towards metals, building materials and chemicals

Despite steep decline, investment in electricity moving towards renewables

Deep dive on manufacturing: Progressive diversification occurring with food & beverage production, metals and building materials leading the way

Investments in manufacturing in Côte d'Ivoire, \$M value rounded up & % (2010 – 2019)

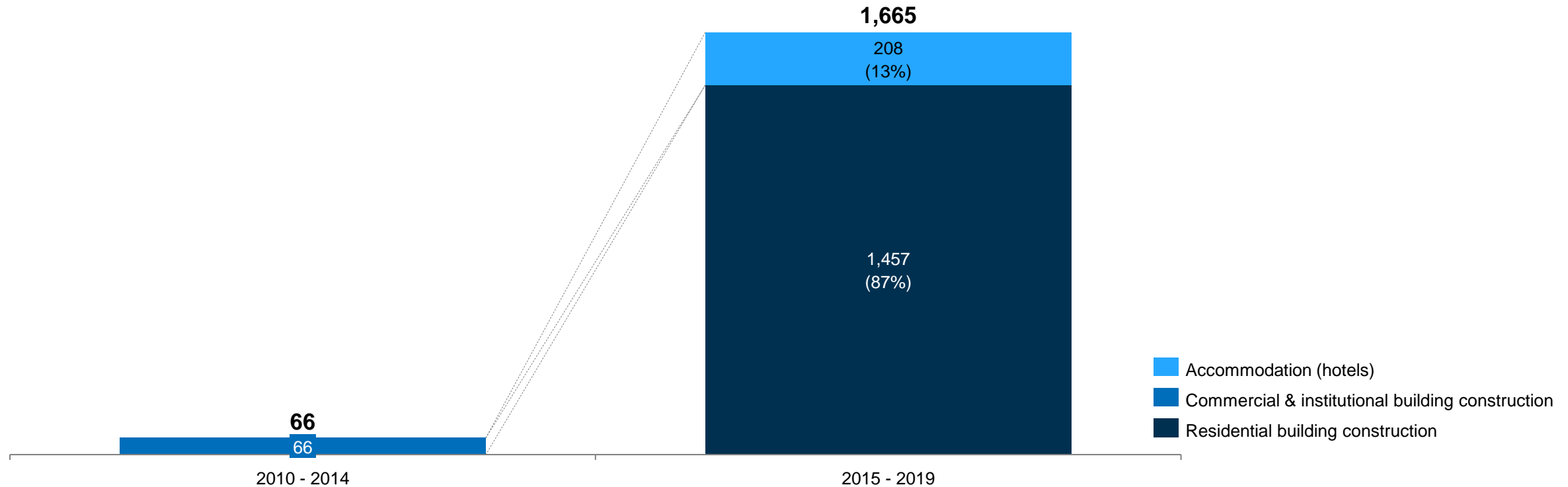


Key trends:

- **Food and beverage manufacturing** has been on the decline across multiple sub-sectors such as snack food (~77% decline, but # of smaller scale investments increased) and sugar & confectionary products (~13% decline)
- Significant growth noted in **building materials (cement)** and **pharmaceuticals manufacturing**; large one-off investments driving growth in **metals and chemicals**

Deep dive on construction: Significant growth in residential real estate arising from increasing urbanization

Investments in construction in Côte d'Ivoire, \$M value rounded up (2010 – 2019)

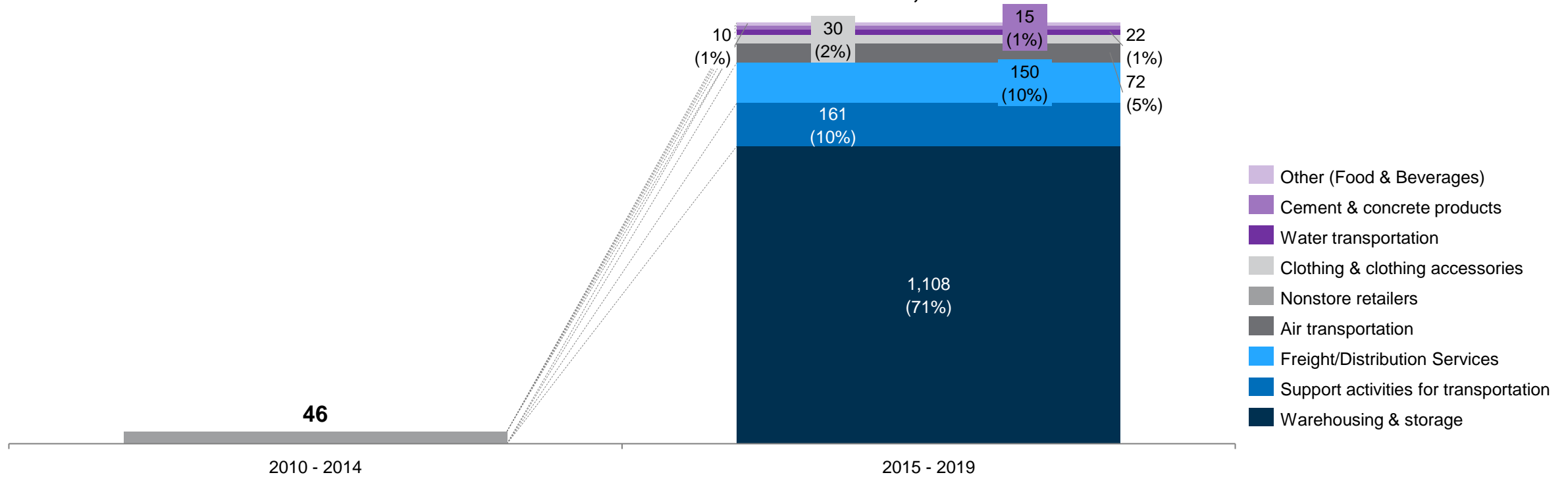


Key trends:

- **Significant investment in residential building construction** concentrated around the Abidjan area, potentially driven by increasing urbanization (from ~43% in 2000s to >50% in 2018) as pop. grows (2.6% in 2018); gov't committed to providing home financing

Deep dive on logistics sector: Substantial diversification occurring with FDI being mainly channeled into warehousing & storage for exports

Investments in logistics in Côte d'Ivoire, \$M value rounded up (2010 – 2019)



Key trends:

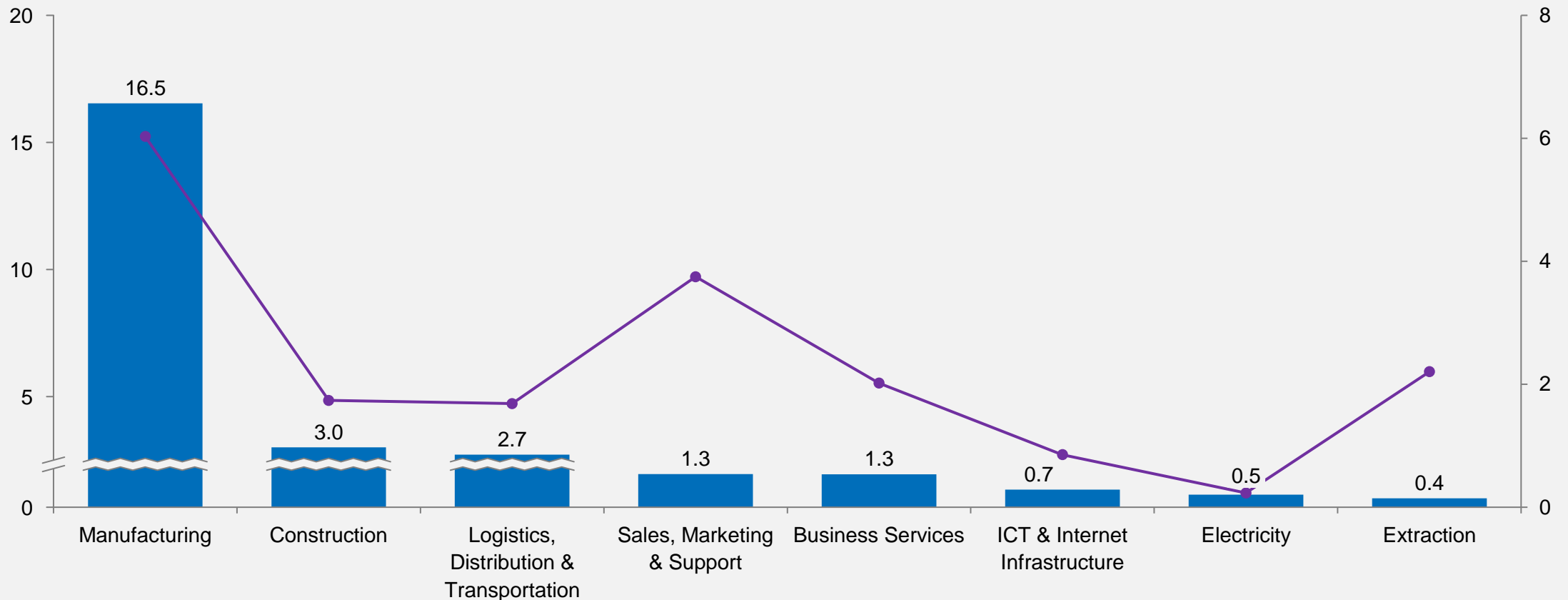
- **Considerable investment in warehousing & storage** being led by Bolllore Transport & Logistics (France) – primarily in support of cocoa processing & export – & Sea Invest (Belgium)
- **Establishment of CI's 1st fixed based operator¹** (Jetex) driving investment in support activities for transportation
- **Diversification of freight & distribution services** taking place to include air and sea freight, and set up of logistics parks

1. A fixed base operator is an organization granted the right by an airport to operate at the airport and provide aeronautical services
 Source: fDi Markets; Oxford Business Group; World Bank; Press Search; BCG Analysis

Job creation effect of FDI in Ivory Coast: Manufacturing activities have created the most jobs

Direct thousand jobs created per activity (2010-2019)

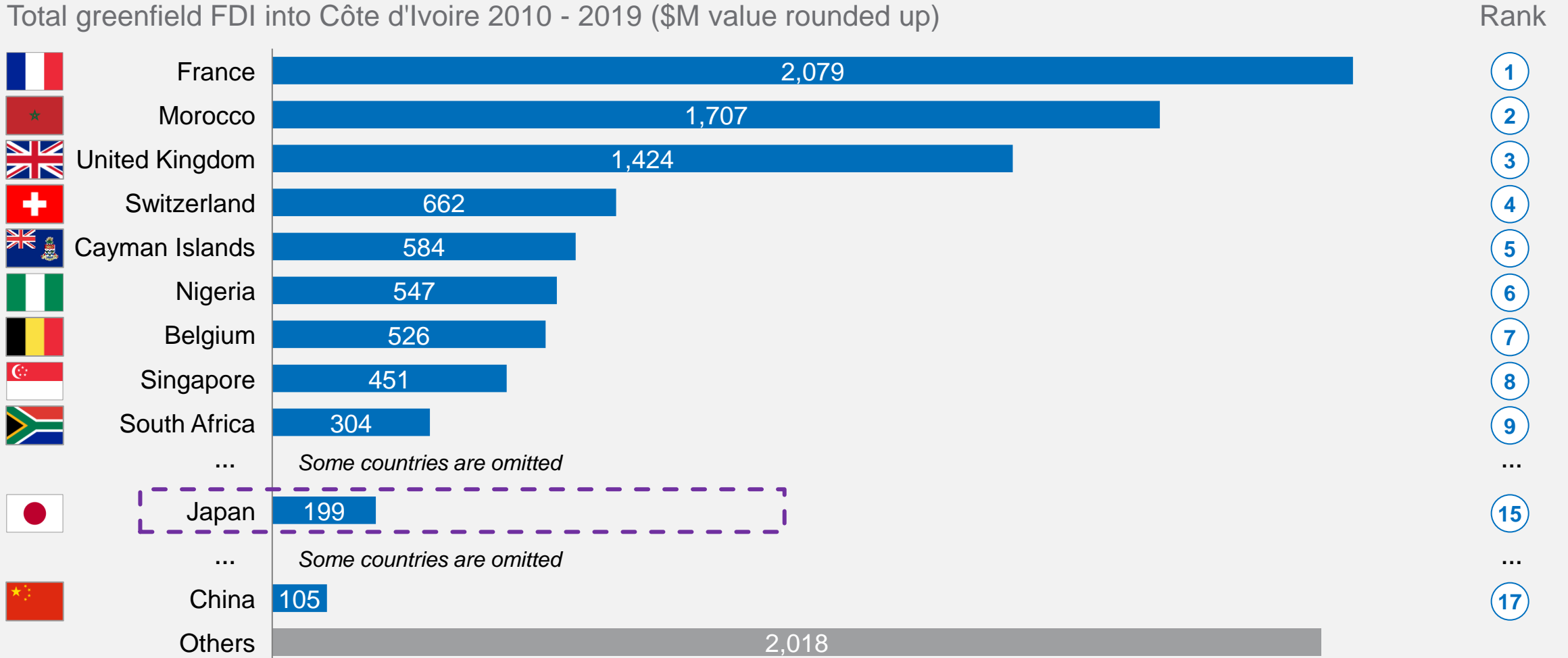
Number of direct jobs per \$1M invested (2010 – 2019)



Note: Applies to greenfield investment only and related to only direct jobs created from investment, not including indirect jobs created
 Source: fDi markets; BCG analysis

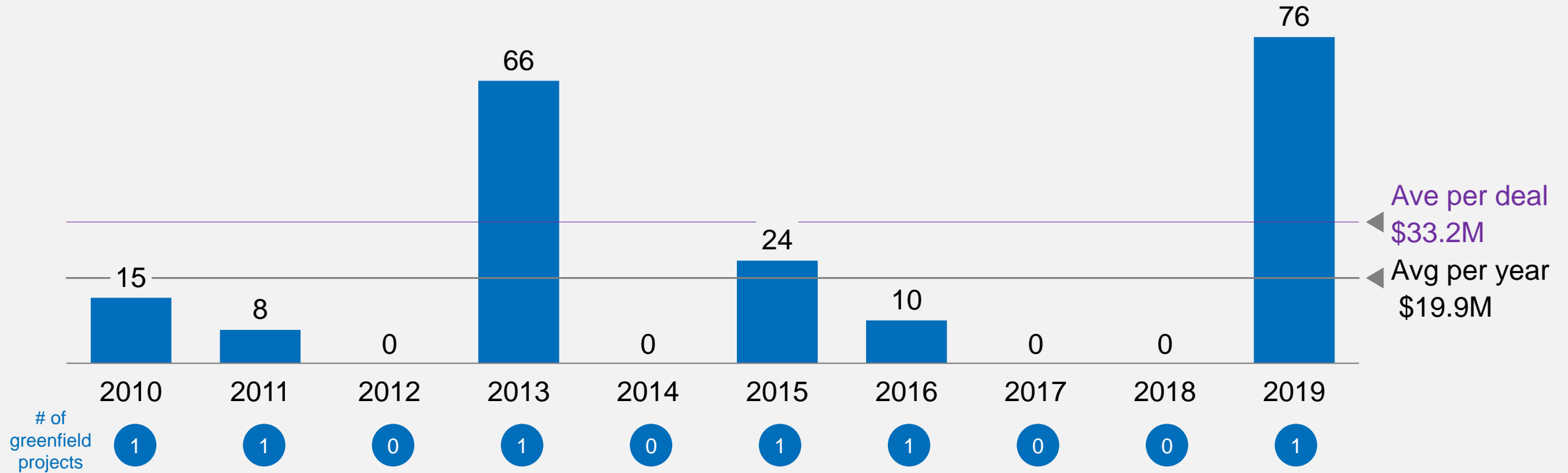
FDI to Côte d'Ivoire over past 10 yrs by country: Japan in 15th position for greenfield FDI

Total greenfield FDI into Côte d'Ivoire 2010 - 2019 (\$M value rounded up)



Historic shift of Jpn FDI: Total of 6 announced and executed projects

Japanese greenfield FDI into Côte d'Ivoire (2010 – 2019) (\$M value rounded up)



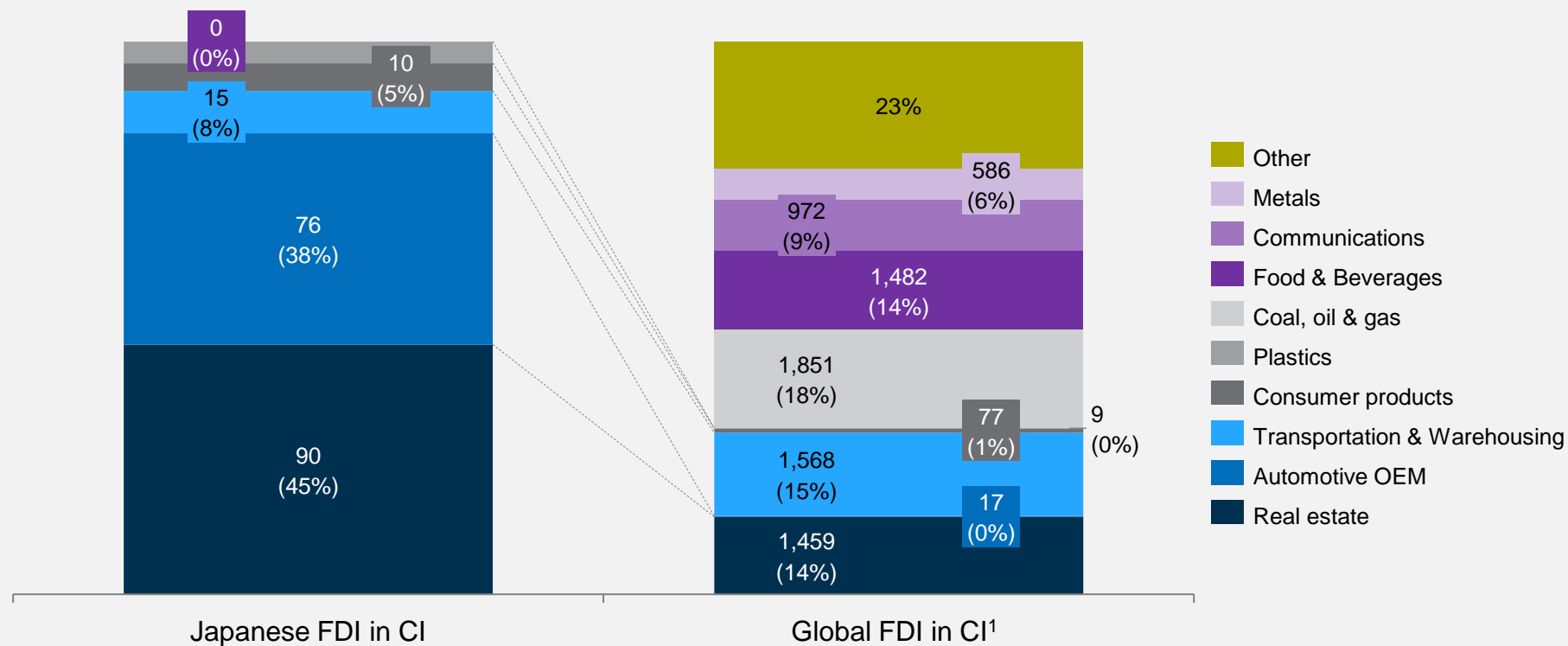
Regional breakdown of Jpn FDI: FDI concentrated in Abidjan & mainly in real estate and automotives

	Project year	Investing company	Destination city	Sub-sector	Activity	Jobs created	Investment (\$m)	Estimated?
1	2019	Toyota Motor	Abidjan	Automobiles	Manufacturing	947	76	Yes
2	2013	CFAO Group (Toyota Motor)	Abidjan	Commercial & institutional building construction	Construction	388	66	Yes (jobs) / No (investment)
3	2015	Mitsui & Co	Abidjan	Commercial & institutional building construction	Sales, Marketing & Support	14	24	Yes
4	2010	Mitsui OSK Lines (MOL)	Abidjan	Water transportation	Sales, Marketing & Support	10	15	Yes
5	2016	CFAO Group (Toyota Motor)	Abidjan	Consumer products	Manufacturing	259	10	Yes
6	2011	Ajinomoto	Abidjan	Plastics packaging materials & un-laminated film & sheets	Manufacturing	34	8	No

Sector comparison: Jpn FDI vs. global FDI in Côte d'Ivoire

Japanese FDI focusing on real estate & automotives

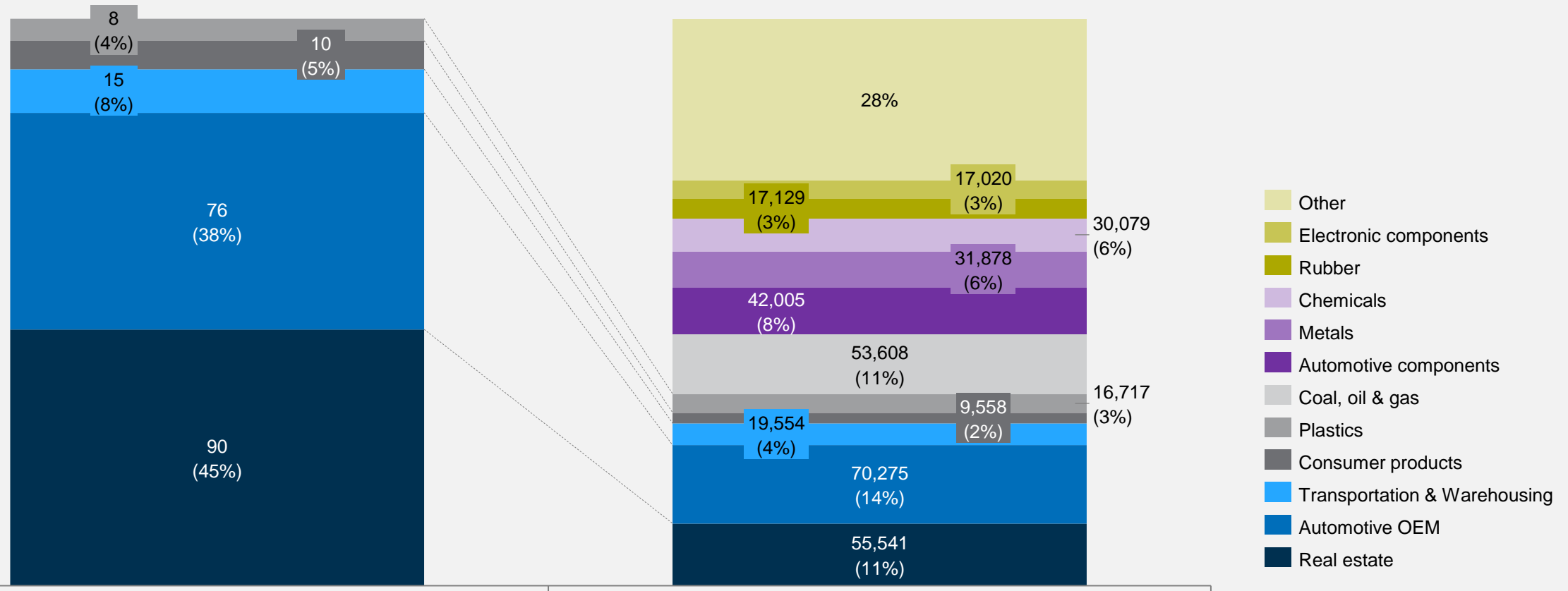
Japanese greenfield FDI in CI compared to Global greenfield FDI in CI, \$M value rounded up (2010 – 2019)



Global FDI in CI is more diversified with significant investments in coal oil & gas, food & beverages, communications etc.






1. Global figures exclude Japanese FDI
 CI = Côte d'Ivoire; OEM = Original Equipment Manufacturing
 Source: fDi Markets; BCG Analysis

Sector comparison: Global FDI in CI vs. global Jpn FDI: Potential for Japanese FDI diversification leveraging existing strengths



1..Global figures exclude Japanese FDI into CI;
 OEM = Original Equipment Manufacturing;
 Source: fDi Markets; BCG Analysis

Major M&A by Jpn companies in CI: M&A not a prominent entry strategy, only 3 transactions recorded

	Direct M&A	Indirect M&A	
CI Target	Anadarko Petro-Block CI-103 ↑ Acquired 20%, deal value undisclosed	SGI Africaine De Bourse SA ↑ Acquired 40%, deal value undisclosed	Olam Cocoa Processing Cote d Ivoire ↑ Owns 100%
Acquiror	Mitsubishi Corp 	CFAO SA  ↑ Owns 100%	Olam International  ↑ Acquired 20% for \$1.1M
Acquiror parent	N/A	Toyota Tsusho Corp 	Mitsubishi Corp 
Transaction Year	2014	2019	2015



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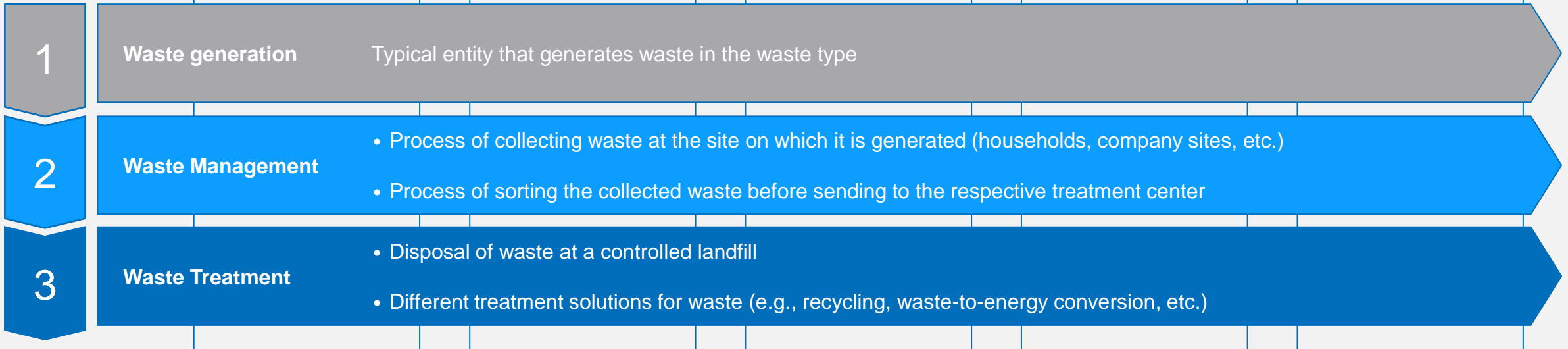
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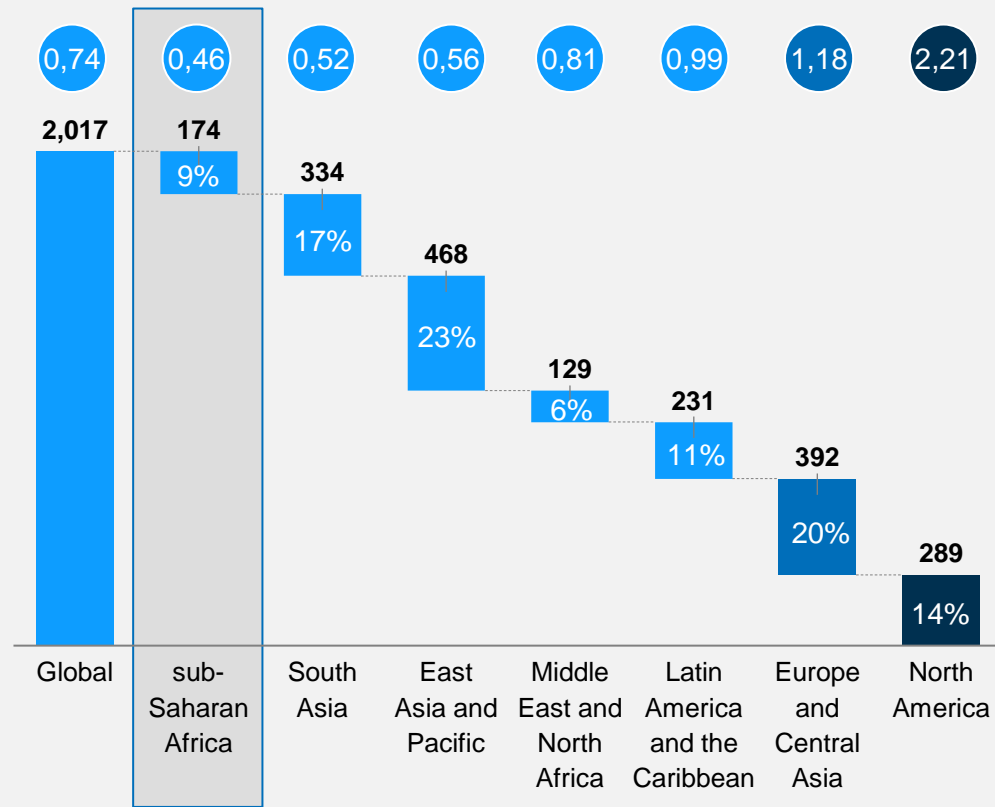
Waste management

There are typically 5 types wastes in the market that can be assessed under a 3-step value chain

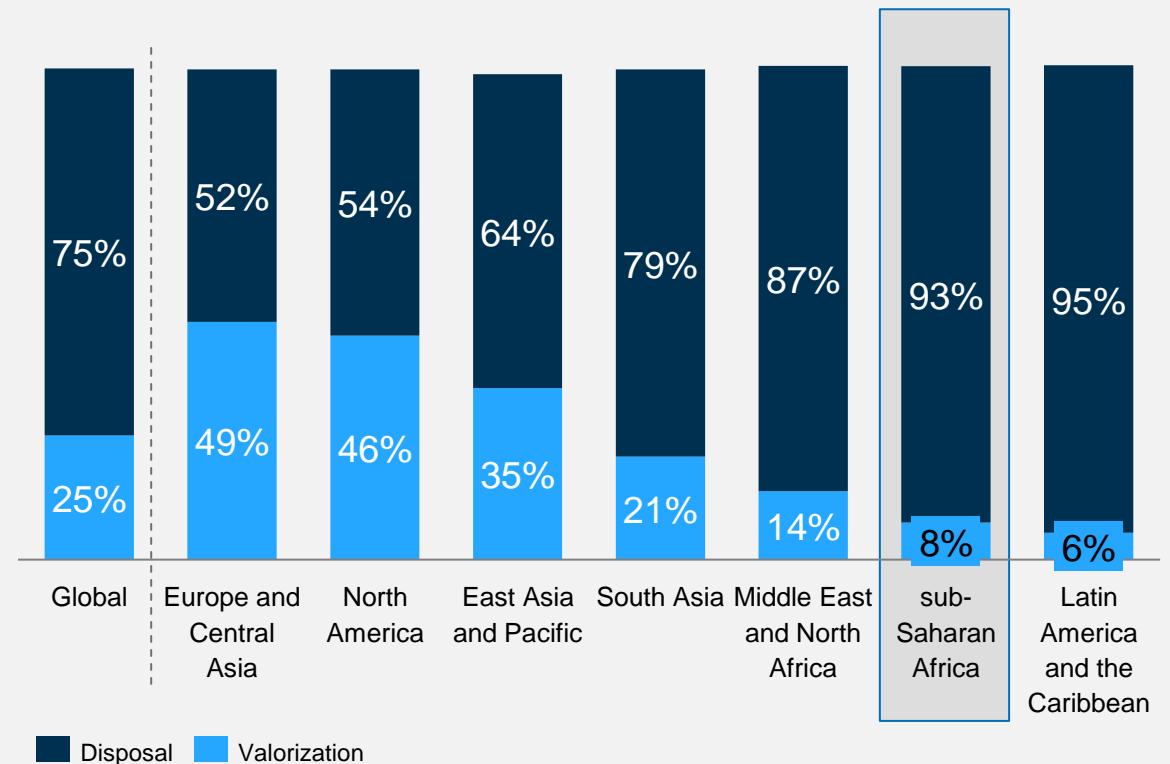


Sub-Saharan Africa represents 9% of waste produced globally and conducts very little valorization of waste

Solid waste¹ produced (M tons)



Waste disposal and valorization² by type of treatment³ (%)

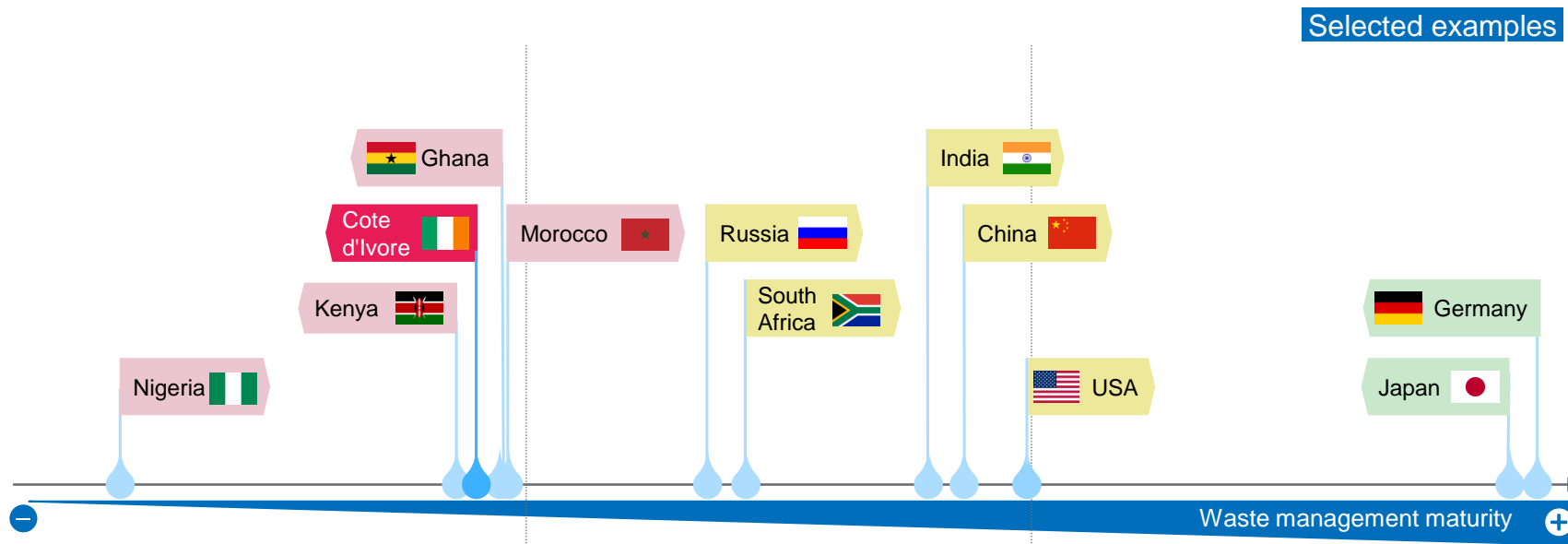


<1 <2 >2 Waste in kg per capita per day

1. Solid waste definition encompasses residential, commercial, and institutional waste. Industrial, medical, hazardous, electronic, and construction and demolition waste are not reported 2. All treatment received by waste other than simple disposal at a landfill 3. Sum may not be 100% as values are estimates

Côte d'Ivoire has low level of waste management maturity but is evolving due to recent investments in the sector

Countries distribution by level of waste management maturity



1 **Nascent markets** with little collection of waste nor sorting and a high prevalence of the informal sector

2 **Intermediary markets** which conduct a collection of waste and dispose it at a landfill with some valorization activities

3 **Advanced markets** with sophisticated collection, sorting and valorization of waste

Key recent government actions

The government has attracted private investment under PPP agreements for Municipal waste in 2017-2018

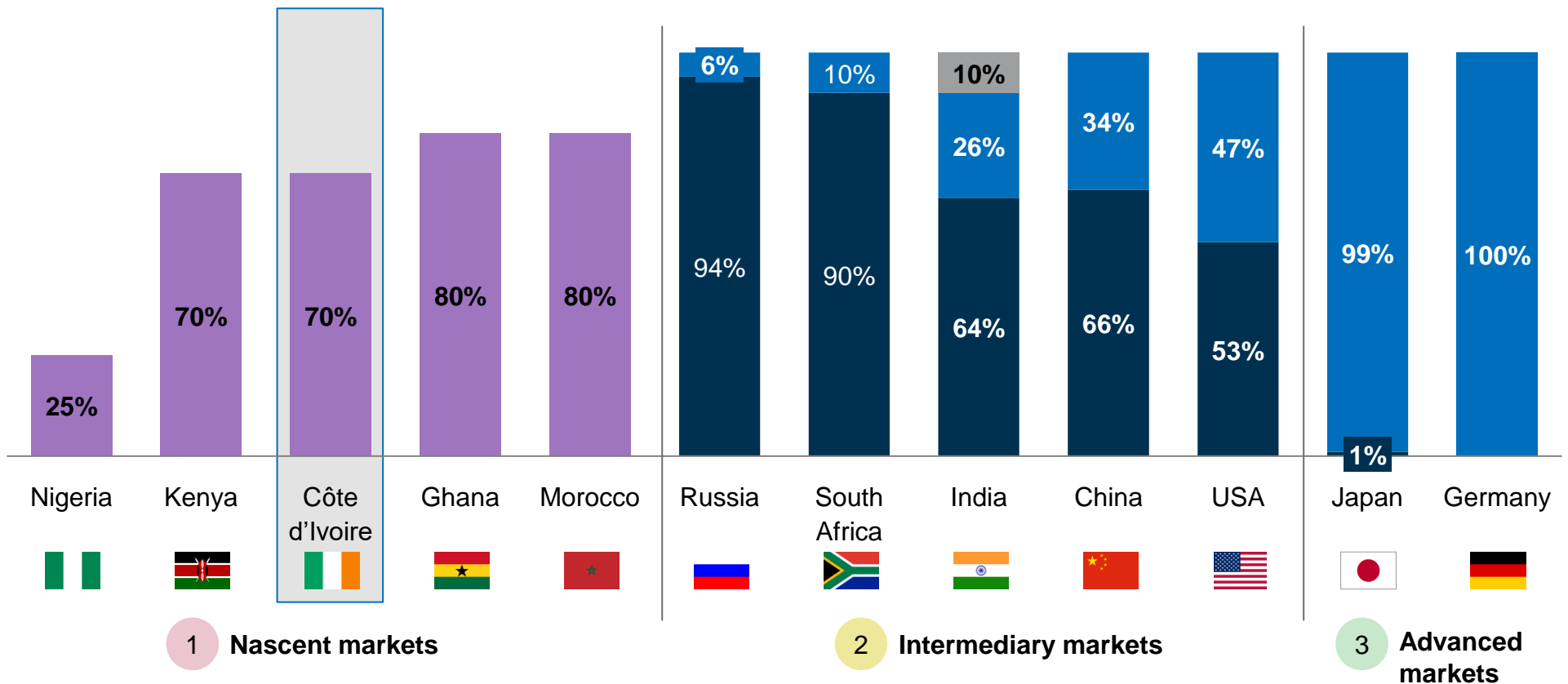
\$108M
Private investment to establish and operate the Collection of Municipal waste

\$80M
Private investment to establish and operate a state-of-the-art landfill

Note: Maturity measured using Municipal waste management as a proxy
Source: Expert interviews; BCG research; World Bank report – What a Waste 2.0 (2016 Data)

Most sub-Saharan Africa countries have low level of waste management maturity

Classification of countries by maturity depending on their waste collection rates (for nascent markets) and disposal type for (intermediary and advanced markets)



Source: Expert interviews; BCG research; World Bank report – What a Waste 2.0 (2016 Data); BCG Experience

Maturity assessment back-up: Example of nascent, intermediary and advanced markets

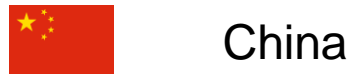
Selected examples

1 **Nascent markets:** Limited collection of waste and sorting, and a high prevalence of the informal sector



- Only 20-30% of municipal waste is collected in Nigeria
- Most of the waste is disposed in open dumps or through open incineration
- High prevalence of the informal sector in collecting activities

2 **Intermediary markets:** Conduct collection of waste and dispose it at a landfill with some valorization activities



- Waste is systematically collected from households
- Landfilling is the primary source of waste disposal (~70%) with some valorization activities happening (~30% of waste treated)

3 **Advanced markets:** Sophisticated collection, sorting and valorization of waste



- Waste is systematically collected from households
- Valorization is the primary source of how waste is treated (99%) with incineration being the main type

The government of Côte d'Ivoire has highlighted 3 main priorities for waste management

1

Improve the collection, transport and treatment of waste to reduce pollution in the urban centers

2

Reduce gas emissions by 2030 by 28% (including 2% from waste)

3

Transition to the circular economy with recovery and recycling of waste

Japanese companies have low presence in Côte d'Ivoire and highlighted some key challenges to address

Japanese companies in waste management sector are mainly **small to medium sized** companies, with **limited international presence** besides some activity in other Asian markets

Given their limited international presence, they **lack general business information** on the sector and experience operating in African markets (and specifically in Côte d'Ivoire)






The few companies with an interest in the market have highlighted a few key challenges

- **Unclear regulation** and very **low enforcement of existing one**
- **High import duty for equipment** (40% import duty for certain machinery)
- Lack of **systematic waste collection** (particularly industrial, and agriculture waste)
- **High prevalence of the informal sector** causing disputes

Implications for the market study

- 1 Develop a **comprehensive landscape** of the waste management sector in Côte d'Ivoire including **size and types of waste generated, regulation and competitive landscape**
- 2 Outline JICA's potential **support to the government to improve the sector's attractiveness** for foreign investment

Opportunities & challenges for waste management: Some potential across all waste types except construction & demolition waste

	 Municipal waste	 Medical waste	 Industrial waste	 Agriculture waste	 Construction & demolition waste
Opportunities for the private sector	<p>Abidjan</p> <ul style="list-style-type: none"> Potential to provide waste-to-energy equipment to existing landfill operator Remote possibility to operate the planned Attiekoi landfill funded by the World Bank¹ Potential to develop recycling and sorting facilities, or provide equipment for these facilities <p>Other cities</p> <ul style="list-style-type: none"> Potential to provide recycling equipment to planned facilities funded by the World Bank Remote possibility to operate planned facilities 	<ul style="list-style-type: none"> Potential to provide incinerators to large public and private healthcare facilities to improve treatment capacity Potential to address the government's plan to buy 29 incinerators for regional use by small-size facilities 	<p>E-waste: Partner with private player (SGS) to develop e-waste treatment solution using established tax funding scheme</p> <p>Automotive waste: Limited opportunities given lack of regulation and prevalence of the informal sector</p> <p>Other industrial waste: Other than the Attiekoi landfill, it presents limited opportunities given low enforcement of regulation</p>	<ul style="list-style-type: none"> Potential to develop waste-to-energy plant given large quantity of agriculture waste, and government's will to diversify its energy source 	<ul style="list-style-type: none"> Other than the Attiekoi Landfill, it presents limited opportunity given lack of specific regulation and government initiatives
Challenges	<p>Abidjan</p> <ul style="list-style-type: none"> Lack of a strong relationship with the current landfill operator Uncertainty around government purchasing price for waste-to-energy solutions 	<p>Large public healthcare facilities and government's plan</p> <ul style="list-style-type: none"> Unclear funding capacity from the government <p>Large private healthcare facilities</p> <ul style="list-style-type: none"> Low enforcement of existing regulation to drive demand 	<ul style="list-style-type: none"> E-waste: Uncertainty around e-waste project timeline Automotive waste: N/A Other industrial waste: N/A 	<ul style="list-style-type: none"> Complexity in logistics to capture all the waste from crops that are dominated by several small farmers (e.g., cocoa) 	<ul style="list-style-type: none"> N/A

1. Includes nonhazardous industrial waste and Construction and demolition waste

22 interviews conducted with Japanese companies & relevant government agencies

	Company / Government agency	Contact name	Contact info / e-mail address
	<i>[Confidential] 7 Japanese companies in Agro-machinery processing sector</i>		
	<i>[Confidential] 5 Japanese companies in Waste Management sector</i>		
Ministère de l'Agriculture et du Développement Rural	Conseil du Café-Cacao	<i>Coulibaly Wathami</i>	Contact info available upon request
	Conseil du Coton et de l'Anacarde	<i>Gue Simplicie</i>	
	Conseil Hévéa-Palmier à Huile	<i>Sabah Mohamed</i>	
	Chambre d'Agriculture de la Côte d'Ivoire	<i>Bella Kouassi Lago</i>	
Ministère du Commerce et de l'Industrie	Chambre de Commerce et d'Industrie de Côte d'Ivoire	<i>Kouakou Casimir</i>	
	Société Ivoirienne de Technologie Tropicale	<i>Dosso Lancine</i>	
MINEDD ¹	Centre Ivoirien Anti-pollution	<i>Kouadio Kouassi Gilbert</i>	
	Direction de l'économie circulaire	<i>Serge Kouadio</i>	
MINASS ²	Agence nationale de gestion des déchets (ANAGED)	<i>Konan Eddie</i>	
Other	CEPICI (Centre de Promotion des Investissements en Côte d'Ivoire)	<i>Franck Quenum</i>	



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Waste management

Municipal waste: Executive summary

Volume and type of waste:

- Côte d'Ivoire is the second largest municipal waste market in West Africa, generating around 4 million tons of municipal waste with 40% - 50% in Abidjan
- Abidjan presents high levels of organic waste (e.g., 66% of Municipal waste is organic waste)

Regulation and governmental actions:

- Regulation is properly applied in Abidjan as contract are in place for the collection and disposal of Abidjan's municipal waste with private sector players (Eco-Eburnie, Ecoti and Clean-Eburnie)
- There is currently no enforcement of regulation in other cities as no contract with operators have been established
- New World Bank funded project aims to establish PPP contracts for the collection and disposal of municipal waste in groups of 'secondary cities', as well as the valorization (recycling and waste-to-energy conversion) of waste in Abidjan

Waste management value chain and key players:

- In Abidjan, 80-90% of waste is currently collected by Eco-Eburnie and Ecoti and transported to the modern Kossihouen Landfill (built with an 80M USD investment to support advanced treatment features)
- The landfill operator, Clean-Eburnie, is currently testing waste-to-energy solutions with promising results and plans to scale up by 2022
- Aside from general municipal waste collection, several initiatives have arisen from the private sector focusing on plastic waste collection and valorization
- In the rest of the country, little to no collection of municipal waste is conducted with no existing adequate landfill for disposal

Potential opportunities for Japanese companies:

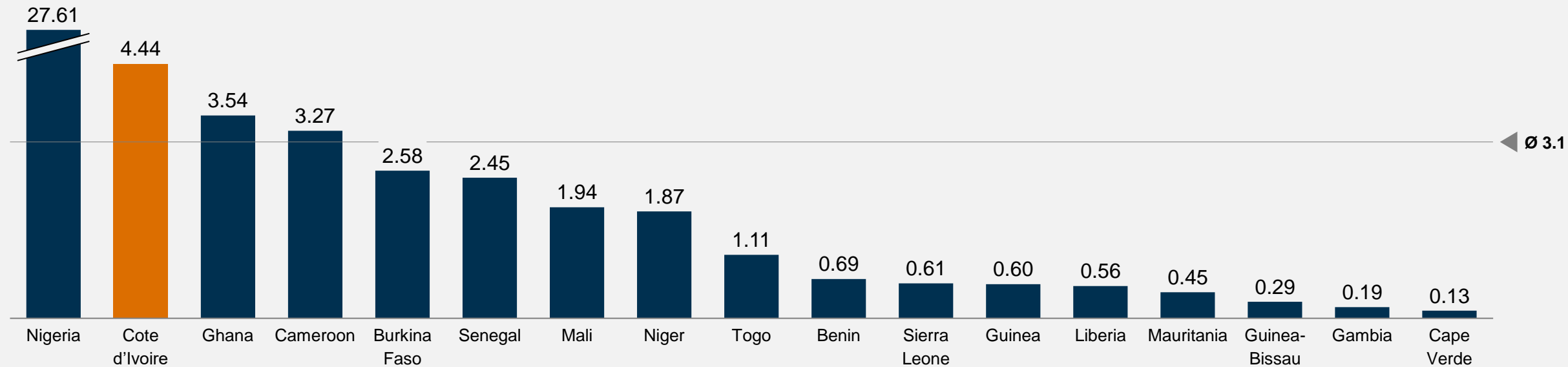
- Potential to provide equipment for waste-to-energy solution in partnership with Clean-Eburnie
- Leverage the World Banks credit of \$315M of which \$118M aimed at improving Solid Waste management in Côte d'Ivoire
 - Develop a facility for recycling and potential waste to energy conversion at a new disposal site: Attiekoi landfill with a capacity of ~600k tons of waste per year)
 - Implementing a disposal and valorization facility in intercommunal group of cities

Challenges for Japanese companies:

- Lack of strong relationship with current operators
- Uncertainty on government purchasing price for waster-to-energy

Côte d'Ivoire presents the second largest municipal waste market in West Africa

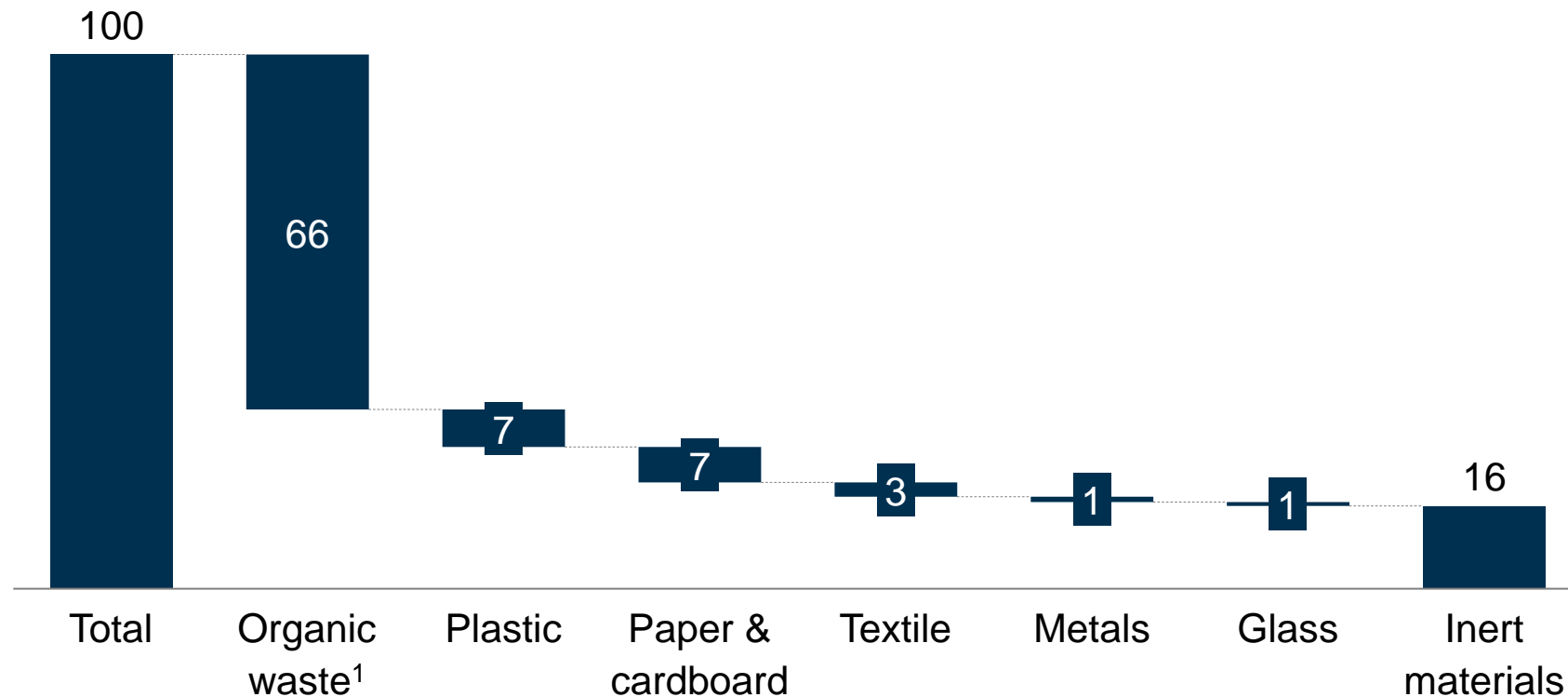
Total municipal waste volume for West African countries, in M tons per year



Note: Waste encompasses residential, commercial, and institutional waste.
 Source: World bank report: What a waste 2.0

Key focus for municipal waste are organic and plastic waste given their size and emphasis placed on them

Breakdown of waste by type in Abidjan (%), 2019



1. Biodegradable waste, is a natural refuse type that comes from plants or animals.
Source: Expert interview; World bank

Plastic is the second largest waste type. Additionally, it receives a specific emphasis with several initiatives from the private sector on plastic waste management

- We will assess
- Overall municipal waste value chain
 - Specific plastic value chain

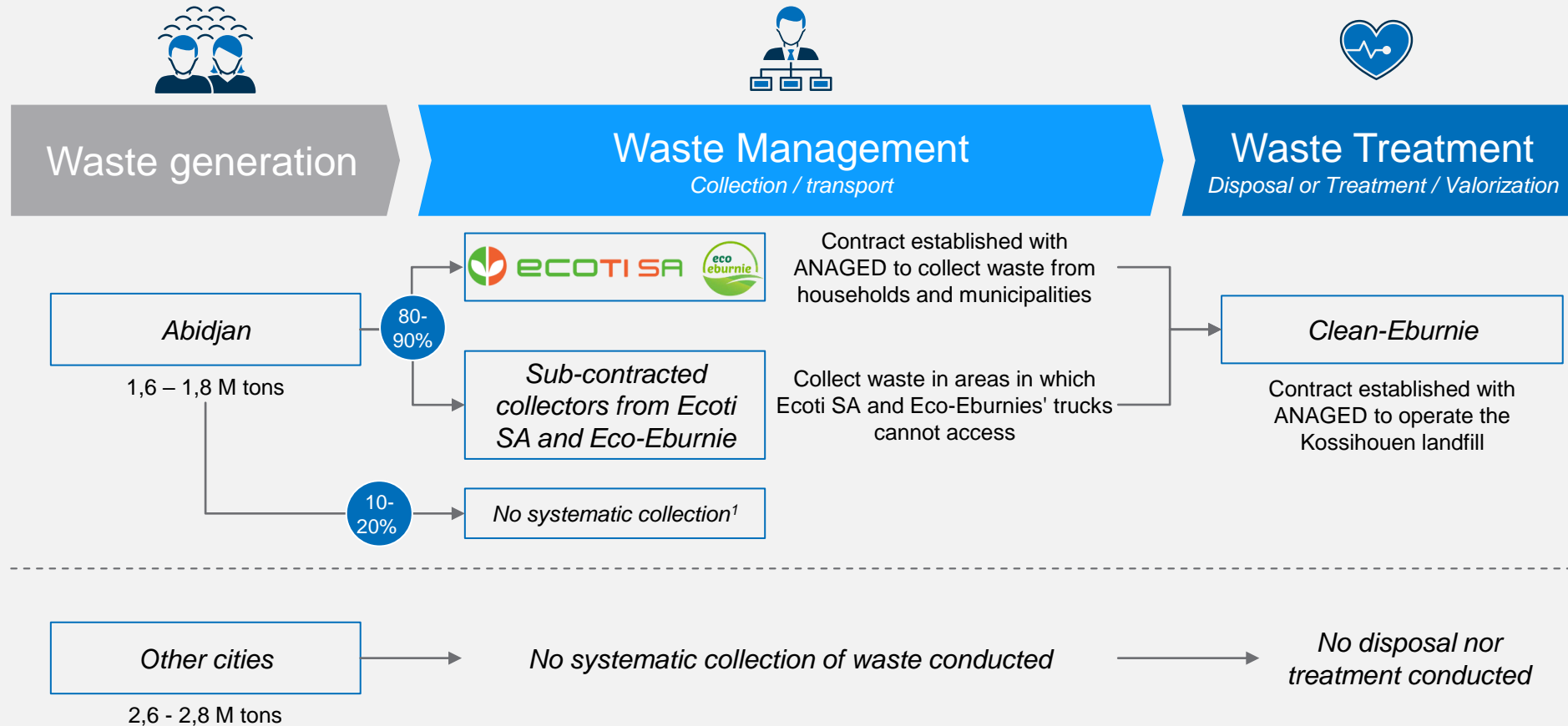
New municipal waste policy has been in place since 2018



Policy key points

- • Residents **pay a tax through their water bill** to fund collection service
- • **Collection and transport of Household and similar waste from waste generation areas to the Center for Recovery and Technical Landfill (CVET) in Kossihouen, and street cleaning** with street sweeping, weeding, cleaning and maintenance of gutters (project established with a private investment of 108M USD)
 - **ECOTI SA manages 1/3 of the Abidjan region municipal waste** (collects and transports solid household waste and cleans tracks in the municipalities of Abobo, Anyama, Bingerville, Cocody and Plateau)
 - **ECO-EBURNIE manages 2/3 of the Abidjan region municipal waste** (collection and transport of household solid waste and the cleaning of tracks in the municipalities of Adjamé, Attecoubé, Yopougon, Songon, Koumassi, Marcory, Port-Bouët and Treichville)
- • **Reception and ecological treatment of waste at CVET in Kossihouen**
 - CLEAN-EBURNIE ensures the exploitation of the Center of Valorization and Technical Landfill of Kossihouen (the landfill was established with a 80M USD private investment by MOTA-ENGIL and CLEAN BOR)

General municipal waste value chain: Abidjan's municipal waste management is well established while other cities are lagging behind



Governing bodies



MINASS: Ministry of Sanitation in charge of ensuring a safe and sanitary environment



ANAGED: Department within the ministry in charge of overseeing nonhazardous waste (incl. municipal waste)

- Established contract with private players for waste management in Abidjan
- No existing regulation specifying how waste should be treated

Stakeholders

1. The remaining waste is not collected, and ends up in open dump
Source: Expert Interview; JICA; BCG Analysis



Plastic waste value chain: Given the focus on plastic waste, some companies specialize in its collection and valorization in Abidjan



Governing bodies



MINASS: Ministry of Sanitation in charge of ensuring a safe and sanitary environment






ANAGED: Department within the ministry in charge of overseeing nonhazardous waste (incl. municipal waste)

- Established contract with private players for waste management in Abidjan
- No existing regulation specifying how waste should be treated

Stakeholders

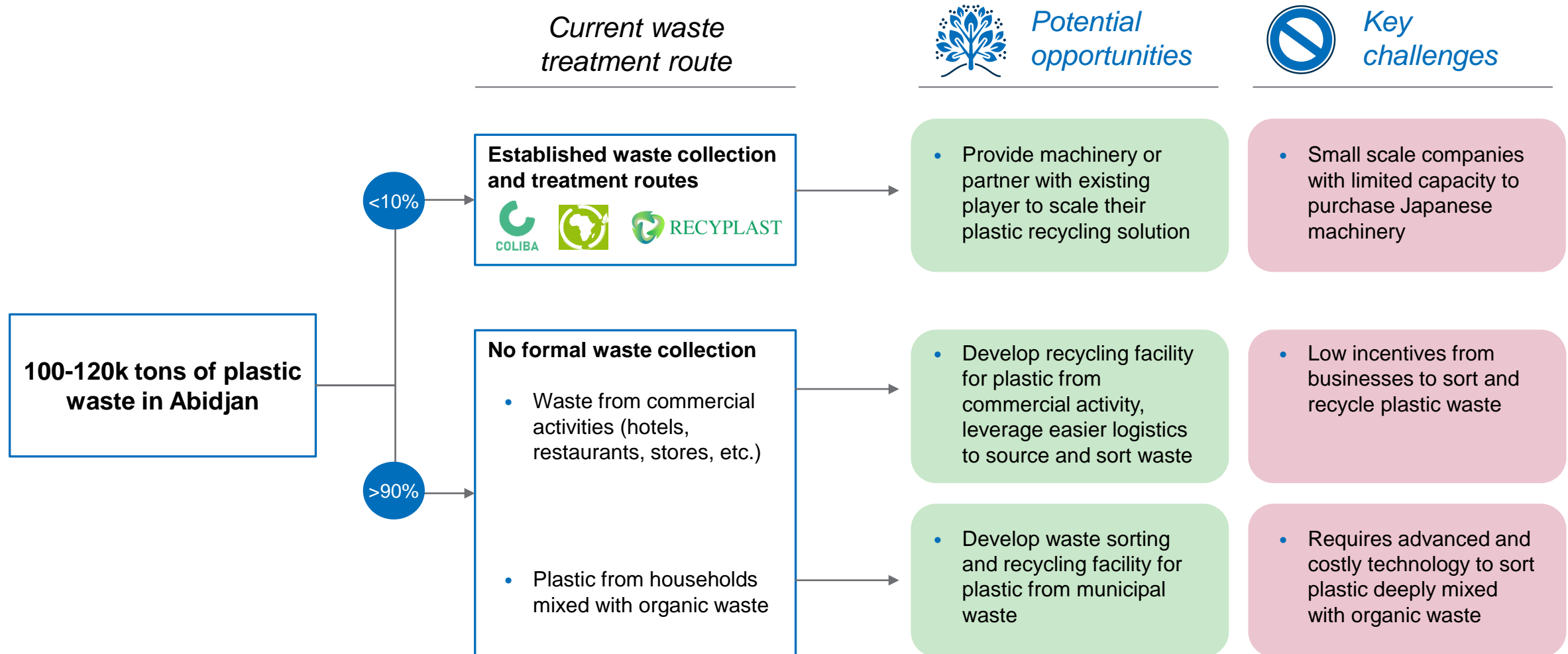


Several initiatives are being conducted in the plastic sector in Côte d'Ivoire

	Name of solution	Description	Step of value chain	Company / investors
	AfricWaste	Initiative to rely on the informal economy to set up a structured channel for collecting and recovering plastic waste	Collection	Veolia and PFO Africa
	Coliba	Start-up that provides a smart collection app for the collection of plastic waste	Collection	Coliba
	Recyplast	Company specialized in the recycling of plastic waste, from collection to the production of secondary raw materials	Collection, sorting and valorization	Recyplast
	"Tous pour une gestion responsable des plastiques"	Project established with ANAGED to collect 325 tons of plastic waste in Côte d'Ivoire (using app and collecting boxes)	Collection	Nestlé / ANAGED
	Association ivoirienne de valorisation des plastiques (AIVP)	Association regrouping private and public sector players to identify a sustainable solution for the management of plastic waste	Collection and valorization	Nestlé (among others)



Plastic waste presents potential opportunities to partner with existing players or develop sorting/recycling facility, but has several key execution challenges





Nestlé Cote d'Ivoire manufactures, and markets packaged consumer goods, incl. culinary products, instant coffee, dairy products

Case study of industrial company's initiatives: Nestlé



Main type of waste generated

- Organic waste
- Plastic waste

Main actions taken to tackle waste generated

- Pre-collection system and sorting at source in the factories
- Technical and financial support granted to start-ups for the recycling of plastic waste collected in Abidjan
- Currently Nestlé has reached its goal of zero waste to the landfill in its factories

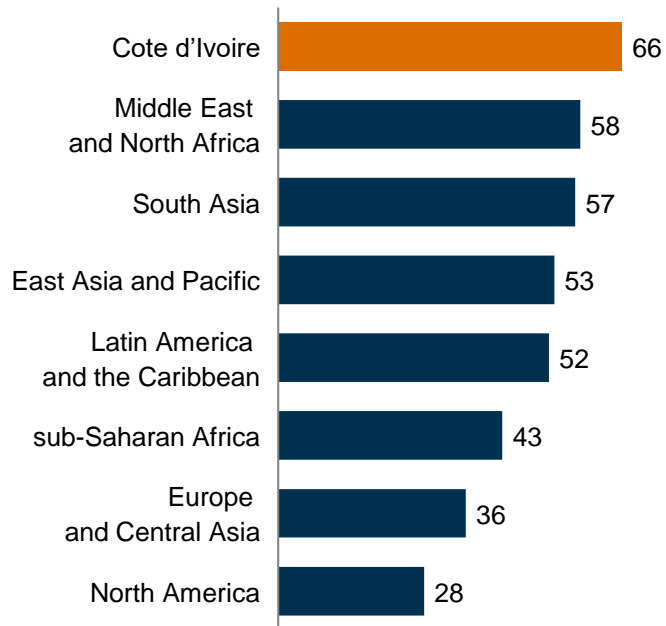
Other actions taken to promote waste management

- **Launched the project « Tous pour une gestion responsable des déchets plastiques » initially with ANAGED, then with Centre ivoirien anti-pollution (Ciapol) et la Direction de l'économie verte et la responsabilité sociétale des organisations (Devrso)** aimed at promoting the responsible use and recycling of plastic waste as a means of sustainable environmental protection. They will set up pilot plastic waste collection and recovery systems, evaluate these systems and analyze the relevance and viability of the economic models of these systems
- **Participates actively in the Association ivoirienne de valorisation des plastiques (AIVP).** The network of professionals with the mission to create a coordinated plastic waste management system and promote the circular economy to businesses and public authorities

Waste-to-energy is in test phase for municipal waste in Abidjan, being led by landfill operator

There are high levels of organic waste in Abidjan (suitable for w2e³ scheme)

Organic waste as a % of municipal waste in each region



Abidjan's municipal waste is collected and disposed of at a modern landfill

- There is a systematic waste collection by two operators (Eco-Eburnie and Ecoti)
- All the waste is disposed of at the modern landfill of Kossihouen which has infrastructure in place for waste-to-energy conversion
- The Kossihouen landfill operator, Clean-Eburnie has started to test waste-to-energy conversion with a plan to scale up by 2022

1. Organic waste composed of animal or vegetable waste 2. Additional detail in Agriculture section
3. Waste-to-Energy
Source: What a waste 2.0

Potential municipal Waste-to-energy opportunity in Abidjan

- 1 **Demand for energy:** The government has an objective to diversify its sources of energy
 - Government agreed to buy energy from SIFCA's agri waste-to-energy plant²
- 2 **Key consideration for this solution:** The Landfill operator's is already undergoing testing of the waste-to-energy solutions
 - Potential waste-to-energy solution must be done in partnership with the landfill operator

Planned landfill in Abidjan and WM project in secondary cities provide opportunity for Japanese companies

Project denomination

Urban Resilience and Solid Waste Management Project (P168308)

Key partners for Waste mgt.



Amount of funding and period

- **Total funding: \$ 315M** focus
 - **\$ 124M for Improvement of solid waste management infrastructures and services**
 - \$ 181M for Flood risk mitigation infrastructure and services
 - \$ 10 M for Project management

Period: 06/2020 – 10/2026

Overview

The World Bank approved a credit for a project to improve Solid Waste Management (SWM) in targeted municipalities and reduce vulnerability to flooding in selected urban areas

Objectives of the SWM component

Fund development of waste management facilities and services in Abidjan and 2 selected intercommunal groups of "secondary" cities (**\$ 118M allocated to these components**; \$ 6M allocated to general improvement to the sector, incl. strengthening governance, institutional capacity, and citizen engagement)

New PPP agreements with private operators will be put in place for the waste collection and management of disposal sites from this project (players not yet identified)

- **Abidjan:**
 - **Conduct collection of nonhazardous waste types not included in current municipal waste collection contracts from Ecoti and Eco-Eburnie:** nonhazardous industrial, construction, medical, etc.
 - **Develop a facility for recycling and potential waste to energy conversion at a new disposal site: Attiekoi** landfill with a capacity of ~600k tons of waste per year
 - **Improve collection of municipal waste in adjacent areas:** Grand-Bassam, Sikensi, and Dabou
- **Other cities:**
 - Implement collection of municipal waste for each intercommunal group
 - Implement a disposal and valorization facility in each intercommunal group (incl. transfer center)
 - Group 1 (Center): Toumodi, Yamoussoukro, Tiebissou, Djebonoua, and Bouaké
 - Group 2 (North): Korhogo, Sinématiali, Ferkessédougou, and Ouangolodougou
- The project aims to provide **an additional 1.35 million people** with access to improved SWM services, and **7 additional SWM facilities (including transfer centers)** by 2026, among other goals

Opportunities for Japanese waste management companies

- Provide waste treatment equipment for Attiekoi landfill (incl. recycling and waste-to-energy conversion), partnering with MINASS and private player who will co-finance (up to \$12M), build and operate the facility
- Provide equipment for the disposal and treatment (incl. recycling, reuse, etc.) of waste at the facilities in the 2 intercommunal groups
- Operate the Attiekoi landfill in Abidjan and/or the other cities' landfills



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Waste management

Medical waste: Executive summary

Volume and type of waste:

- Medical waste in Côte d'Ivoire represents ~9k tons with 40% of the country's waste concentrated in the city of Abidjan
- Medical waste is mainly composed of hazardous waste (64%): sharp and infectious waste
- Public sector facilities are the main producer of medical waste in the country (66%)

Regulation and governmental actions:

- In 2009, the government established a legal text to frame medical waste management with clear guidelines:
 - Specify the different categories of sanitary waste and the color of containers to be used, and
 - Specify the treatment techniques for the different categories of medical waste
- Currently the regulation is not fully enforced

Waste management value chain and key players:

- In Abidjan, medical waste is adequately sorted and stocked in large healthcare facilities, but disposal remains a challenge for hazardous waste:
 - Hazardous waste is treated on-site by large public healthcare facilities which possess incinerators (4 out of 6) or poorly disposed of by small public and large private healthcare facilities which do not dispose incinerators on-site
 - Non-hazardous waste is adequately collected by municipal waste operators and disposed of in the municipal landfill
- In the rest of the country, collection and disposal of all medical waste is largely informal (open dumps, open incineration) as there is a lack of infrastructures
- There are 2,600+ healthcare facilities in Côte d'Ivoire accounting for 9K-10K beds. Less than 100 facilities have 50+ beds and ~30% of beds are in Abidjan

Potential opportunities for Japanese companies:

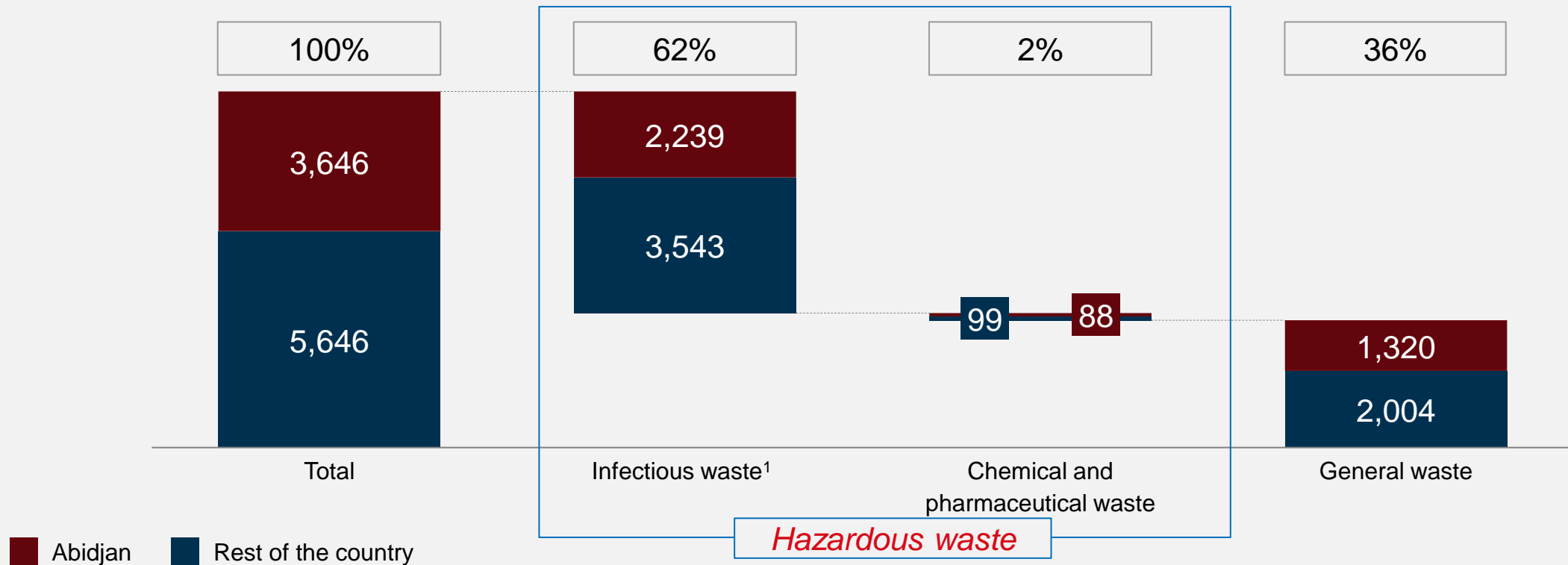
- Provide incinerators to large public and private healthcare facilities
- Address the government's plan to buy 29 incinerators for regional use by small-size facilities

Challenges for Japanese companies:

- Unclear funding capacity from the government to acquire incinerators
- Low enforcement of regulation regarding the treatment of hazardous waste
- Low capacity to transport hazardous waste from point of production to point of treatment
- Lack of trained personnel to ensure adequate service/maintenance of incinerators

Medical waste is 64% hazardous and 36% nonhazardous with ~40% of total produced in Abidjan

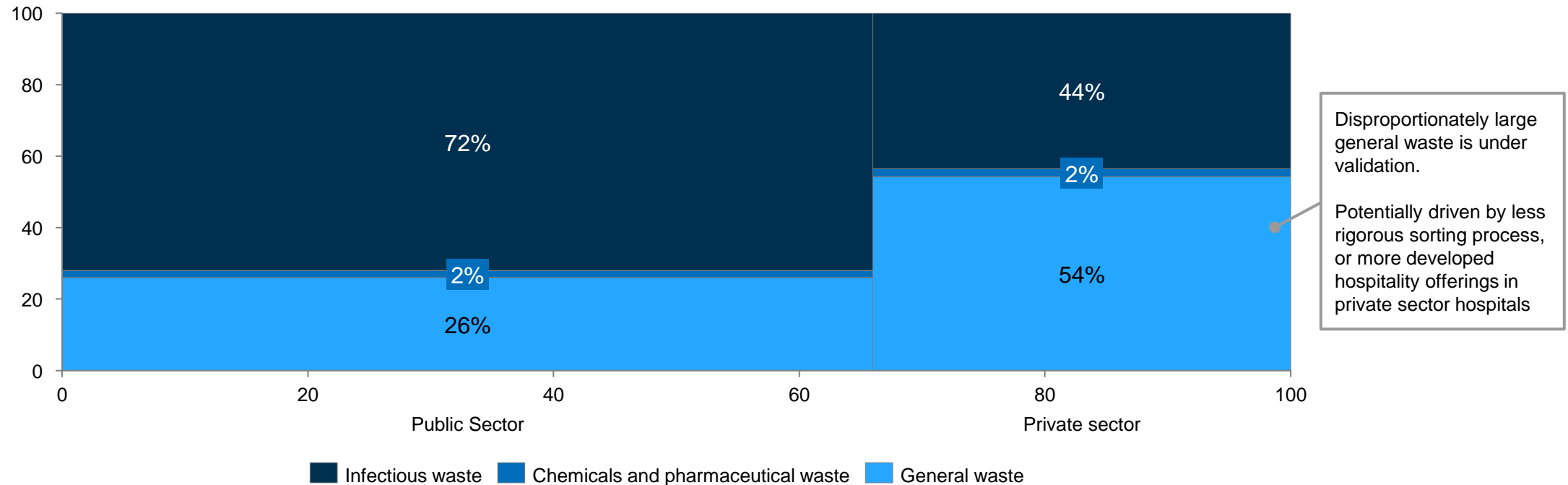
Breakdown of medical waste size in Côte d'Ivoire (in tons)



1. Cultures and stocks of microorganisms and biologicals; blood products; pathological wastes; animal carcasses, body parts, bedding and related wastes; isolation wastes; any residue resulting from a spill cleanup; and any waste mixed with or contaminated by infectious medical waste, sharps 2. Waste similar to household/Municipal waste
 Source: Medical waste management National plan 2016-2020

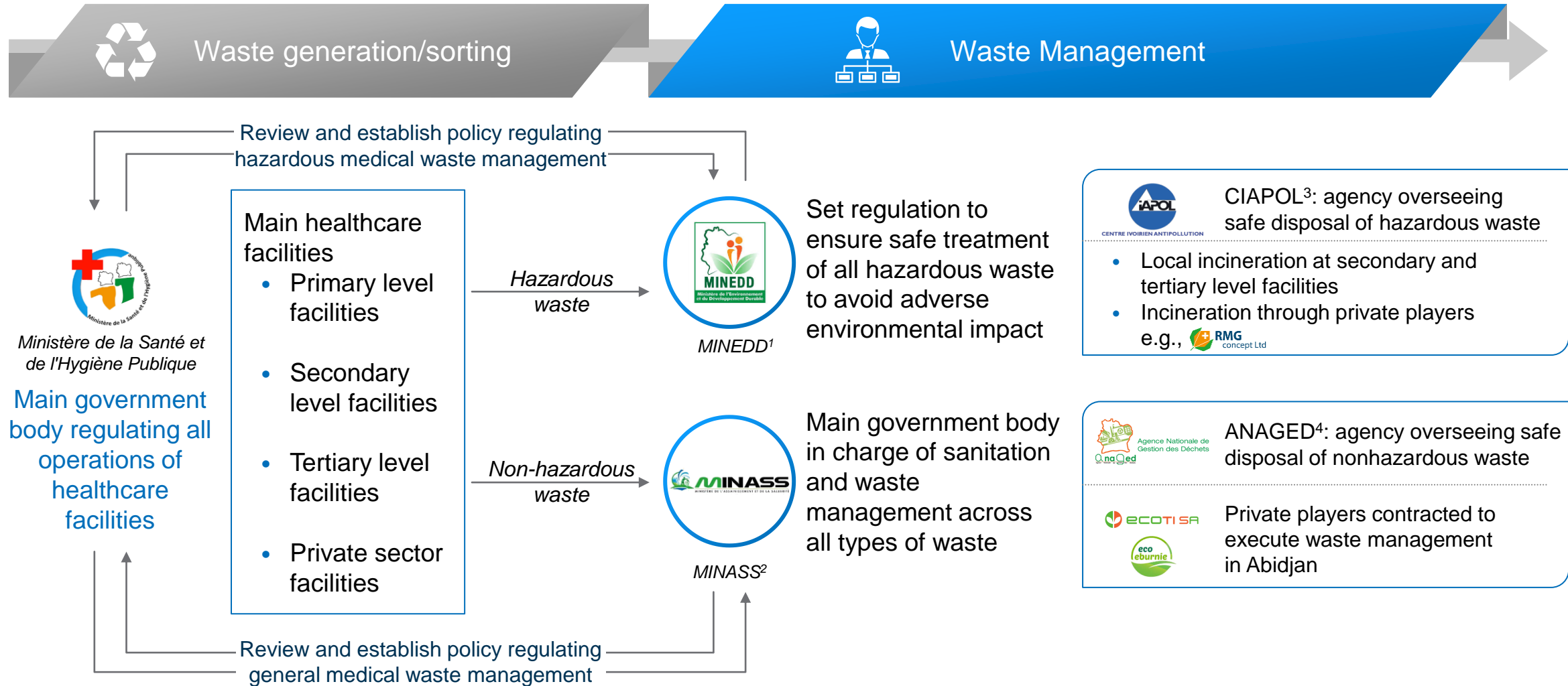
Cote d'Ivoire has more public healthcare facilities, with ~2/3 medical waste coming from the public sector

Breakdown of medical waste size in public and private sector in Côte d'Ivoire (% of waste)



1. Cultures and stocks of microorganisms and biologicals; blood products; pathological wastes; animal carcasses, body parts, bedding and related wastes; isolation wastes; any residue resulting from a spill cleanup; and any waste mixed with or contaminated by infectious medical waste 2. Waste similar to household/Municipal waste
Source: Medical waste management National plan 2016-2020

Three key government agencies share jurisdiction over the medical waste management sector



1. MINEDD: Ministère de l'Environnement et du Développement Durable 2. MINASS: Ministère de l'Assainissement et de la Salubrité
 3. CIAPOL: Centre Ivoirien Anti-Pollution 4. ANAGED: Agence Nationale de Gestion des Dechets

In 2009, a legal text was released to frame medical waste management...



2009 Decree areas of action (among others)

- **Specify the different categories of sanitary waste**
 - General waste (similar to municipal waste);
 - Infectious waste (anatomical waste, sharps, etc.)
 - Pharmaceutical & chemicals (vaccines, reactants, etc.)
- **Specify the color of containers to be used**
 - Black for general waste
 - Red for anatomical waste (in infectious waste)
 - Yellow for the remaining waste
 - Sealed container with a symbol for radioactive waste
- **Address treatment techniques for medical waste**
 - General waste must be disposed as municipal waste
 - Infectious and pharmaceutical & chemicals must be incinerated

... but some key challenges still impact the medical waste sector



Key challenges

- **Lack of means to transport waste to treatment facility** (no equipment nor specialized companies)
- **Lack of infrastructure to treat the waste:** Hazardous waste ends up in the Kossihouen landfill with municipal waste in Abidjan
- **Communication of new regulatory texts to healthcare facilities is not done effectively:** 60% of people in charge of health care facilities are not familiar with the texts regulating the healthcare waste sector and the waste management plan

Medical waste opportunity will be assessed under 3 types of healthcare facilities



Large public healthcare facilities

- Higher number of incinerators compared to other facilities
- Potential opportunity to provide high-capacity incinerators to Univ. Hospitals



Small public healthcare facilities

- No formal collection or treatment of hazardous waste
- Government plans to acquire incinerators for regional usage may be a potential opportunity



Large private healthcare facilities

- Adequate sorting of waste but few incinerators on-site
- Increase enforcement is needed to create opportunity to supply incinerators

Hazardous medical waste value chains significantly vary depending on the type of health facilities



Non-exhaustive

4 of the 6 largest hospitals have incinerators – large capacity is required

Public Healthcare facilities	# beds	Incinerators
CHU ¹ ANGRE	250	✗ (waste disposal unclear)
CHU BOUAKE	268	✓ 1 incinerator (15 kg / h)
CHU COCODY	363	✓ 1 incinerator (15 kg / h)
CHU TREICHVILLE	420	✗ (waste disposal unclear)
CHU YOPOUGON	373	✓ 1 incinerator (30 kg / h)
ICA ²	71	✓ 1 incinerator (120 kg / day)
Total	1 745	

Doesn't include 82 General Hospitals³ and 17 Regional Health Centers which account for a total of 5 237 beds

1. University hospitals 2. Institut de Cardiologie d'Abidjan

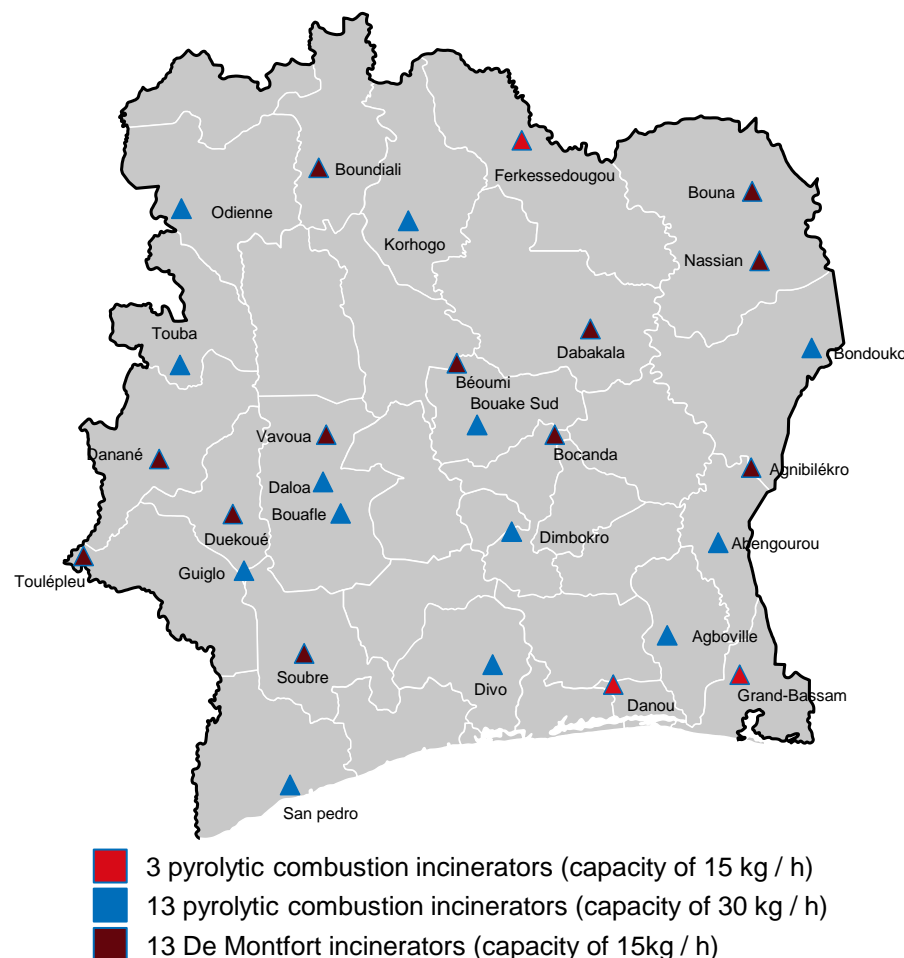
Source: 2018 Annual report on the health situation; Medical waste management national plan (2016 – 2020); Government website⁶⁹

Given the critical lack of infrastructure for small healthcare facilities...

...the government plans to acquire several incinerators for regional usage

- Medical waste is poorly sorted and stocked
- Collection service is not established which creates a challenge for smaller facilities to transport waste to a point of treatment
- Disposal of all medical waste is largely informal (open dumps, open incineration) as there is a lack of infrastructures (14 incinerators in rest of the country)

Incinerators planned by the government by type per region



~3x
Incineration capacity increase vs. current state

\$1,3M
Defined budget to acquire the 29 incinerators

50
of vehicle to acquire to improve collection of waste

Only one large private hospital possesses incinerator, stronger enforcement may be needed to drive demand

Only one large private hospital in Abidjan possesses a medical waste incinerator

Non-exhaustive

Private Healthcare facilities	# beds (estimate)	Incinerators
Polyclinique Sainte Anne-Marie (PISAM)	> 50	✓
Groupe Medical du Plateau (GMP)		✗
Polyclinique des Deux-Plateaux		✗
Polyclinique Médicale FARAHA		✗
Polyclinique internationale Hôtel Dieu Abidjan (PIHDA)		✗
Polyclinique Les Graces		✗
Polyclinique centrale Abobo		✗
Polyclinique internationale de l'Indénié		✗
Polyclinique Avicenne		✗

Stronger enforcement of the regulatory text may be needed to create opportunity for incinerator providers

Clear regulatory guidelines in place...

- “ Treatment techniques for medical waste:
- Infectious and pharmaceutical & chemicals must be incinerated
 - General waste must be disposed as municipal waste

...But low compliance, particularly in treatment/incineration

Adequate sorting and stocking of waste, but lack of systematic incineration driven in part by low enforcement:

- Sharps (~5% of medical waste) are sent for incineration at a private incinerator operator (e.g., RMG)
- Remaining hazardous waste (~40% of waste) is usually mixed with general waste (~55% of waste) and sent to the municipal waste landfill¹

Note: Arrêté N°131/MSHP/DGHP/DRHP

1. Based on limited information available; % of total is based on waste composition for private sector hospitals

Source: Medical waste management National plan 2016-2020; Management des déchets médicaux et risque biologique à l'hôpital universitaire de Cocody, Côte d'Ivoire



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Industrial waste: Executive summary



E-waste:

Volume and type of waste:

- 30k tons of e-waste generated per year (3rd in West Africa), mainly Computer and telecommunications equipment (e.g., computers, cell phones, printers)

Regulation and governmental actions:

- Decree establishes a framework for environmentally sound management of e-waste
 - As the official government partner, SGS¹ has been collecting an eco-levy on all electrical equipment and tires producers and importers since 2018

Waste management value chain and key players:

- E-waste is mixed with other municipal waste and disposed of in the municipal landfill, or informally (e.g., open dumps, open incineration)
- International players have initiated projects to collect and raise awareness on e-waste treatment (i.e., MTN)

Potential opportunities for Japanese companies:

- Partner with private player (SGS) to develop e-waste treatment solution using established tax funding scheme

Challenges for Japanese companies:

- No sorting of e-waste making it difficult to retrieve among other waste
- No system in place to collect industrial e-waste
- The effectiveness of eco-levy & SGS operation remains uncertain for now



Automotive waste:

Volume and type of waste: Used tires represent ~280k tons in Abidjan

Waste management value chain and key players: Automotive waste located in scrapyards and small garage mechanics, or incinerated in open dumps

Regulation and governmental actions: No major regulation addressing automotive waste (except for used tires which align to e-waste regulation)

Potential opportunities for Japanese companies: Limited opportunities given lack of regulation and prevalence of the informal sector

Challenges for Japanese companies:

- Complex logistics to collect waste from scrapyards and small garages
- No current legislation enforces proper management of automotive waste
- Batteries used to exhaustion – can only be used for recycling (not reused)



Other industrial waste:

Waste management value chain and key players: Industrial waste is usually incinerated in open dumps

Regulation and governmental actions: Code de l'environnement identifies sanctions for companies poorly disposing of environmentally harmful waste

Potential opportunities for Japanese companies: Other than the Attiekoi landfill assessed in the Municipal waste section, there is limited opportunity

Challenges for Japanese companies:

- Low to no enforcement of the Code de l'environnement
- Lack of infrastructures to dispose of industrial waste

Industrial waste will be assessed under 3 types of waste



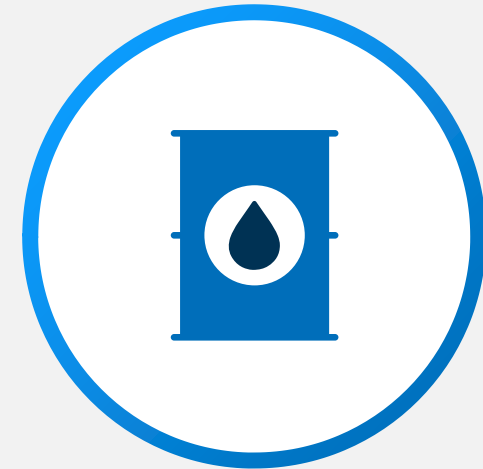
E-waste

- ~30 k tons of waste generated every year
- Potential to partner with private player (SGS) to develop e-waste treatment solution using established tax funding scheme



Automotive waste

- ~279k tons of used tires in Abidjan
- Limited opportunities given lack of regulation and prevalence of the informal sector



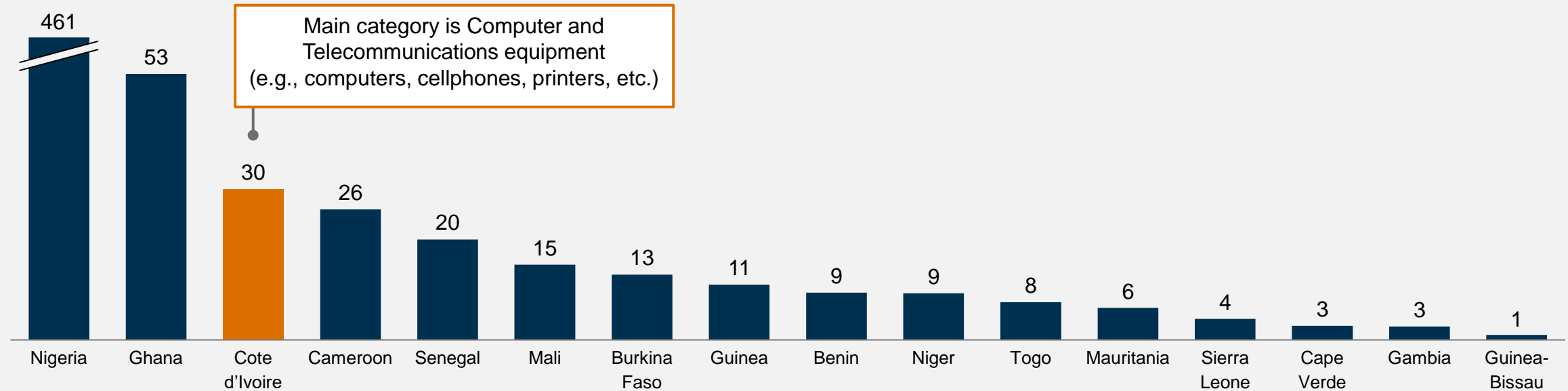
Other industrial waste

- Limited regulation in the market and low enforcement of the existing one
- Limited opportunities given low enforcement of regulation



Côte d'Ivoire presents a relatively large e-waste market in West Africa

E-waste generated for West African countries, in k tons



Note: Liberia not counted as there is a lack of data
 Source: Global E-waste monitor 2020



Despite newly introduced regulation, no formal collection and treatment system in place for e-waste



E-waste from household

30k tons

Private players (incl. MTN) have small projects to install e-waste collection bins

- Despite regulation in place, no collection system for e-waste (except small projects)
- E-waste from households is typically mixed with municipal waste

Clean-Eburnie

E-waste from households is typically disposed of at the municipal landfill

Governing bodies

- MINASS**
Ministry of Sanitation in charge of ensuring safe & sanitary environment
- QnaQed**
Agence Nationale de Gestion des Déchets
Department within MINASS in charge of overseeing nonhazardous waste
- MINEDD**
Ministry of Environment and sustainability
- APOL**
CENTRE IVOIRIEN ANTIPOLLUTION
Department within MINEDD in charge of overseeing hazardous waste
 - *E-waste regulation introduced in 2017*



Multinational mobile telecommunications company that provides services to consumers and businesses. It also sells telecommunications equipment

Major industrial players lead initiatives to raise awareness on e-waste treatment

MTN

Main initiatives to support e-waste management

- Launched campaigns to collect and recycle e-waste as well as raise the public's awareness about the need to collect and recycle electrical and electronic waste
- The campaigns focus on computer and telecommunications equipment

Campaigns' timeline and key actions taken

2015: Launched a campaign with Ericsson to drive the awareness and collection of (e-waste) in Abidjan. Citizens disposed off their old phones, computers and other electronic equipment in a container which will also serve as an education and awareness center. The waste was then conducted to an Ericsson-approved recycling partner in South Africa

2019: Launched a campaign with the supermarket Prosuma and the recycling company Ewa-Paganetti to rid its customers of their electrical and electronic waste within twelve months

2020: Launched the 3rd edition of its "E-waste" campaign in Abidjan. They distributed boxes for the collection of E-waste to companies and disposed of deposit sites installed in agencies and shopping centers for Private individuals.

Key impact of the initiative

+100

Tons of e-waste collected in Côte d'Ivoire since the start of the initiative



Recent steps taken by the government could present opportunity in e-waste management

2017

- Government released a **specific regulation** establishing an **eco-levy** for producers and exporters to fund e-waste management initiative

2018

- Government established a contract with **SGS**¹ to collect eco-levy and ensure proper management of e-waste and used tires. The project has 3 phases with 2 of them already on-going:
 - ✓ **Identification and registration of all electrical and electronic equipment (EEE) and tires**
 - ✓ **Collection of an eco-levy** on all equipment from manufacturers and importers (ranging from \$0,17 to \$17 per unit depending on the product³)
 - ✗ **Construction and establishment of collection centers and treatment units** for e-waste and used tires



Potential opportunity to partner with private players
on e-waste treatment solution

1. Société Générale de Surveillance is the world's leading inspection, verification, testing and certification company

2. SGS evaluating partnership with SAR (Société Africaine de Recyclage) on collection center 3. More detailed information on the rate per unit at the appendix starting page 111

Source: Expert Interview; JICA; BCG Analysis

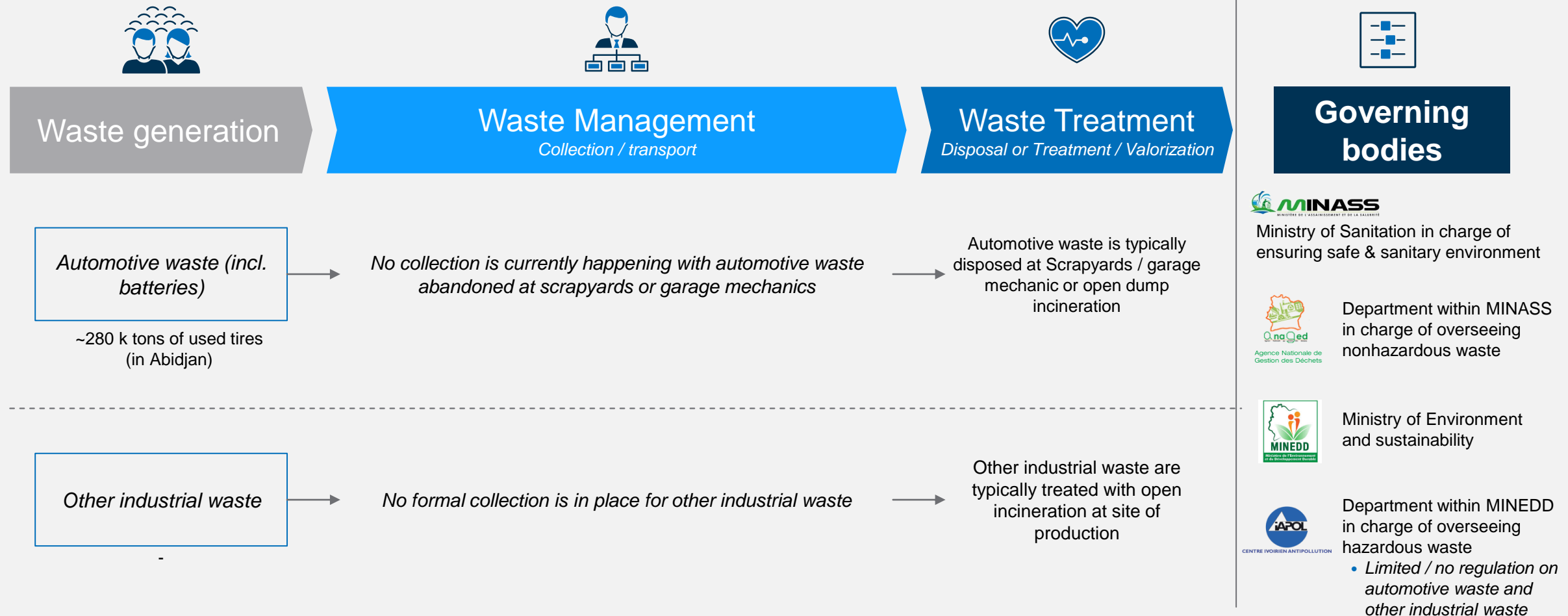


Back-up: Classification of e-waste across 10 key categories

- 1 Large appliances (e.g., refrigerator, washing machine, etc.)
- 2 Small appliances (e.g., vacuum cleaner, toaster, etc.)
- 3 Computer and telecommunications equipment (e.g., computers, cellphones, printers, etc.)
Most relevant category to focus in Côte d'Ivoire
- 4 Consumer equipment (e.g., TVs, music equipment, etc.)
- 5 Lighting equipment (e.g., lamps)
- 6 Electrical and electronic tools (except large stationary industrial tools) (e.g., Drills, Saws, Sewing machines, etc.)
- 7 Toys, leisure and sports equipment (e.g., consoles, toys, etc.)
- 8 Medical devices (excluding all implanted or infected products) (e.g., Radiotherapy equipment, Dialyzers, etc.)
- 9 Monitoring and control instruments (e.g., Smoke detectors, Heat regulators, Thermostats)
- 10 Automatic dispensers (e.g., ATMs, Automatic dispensers for bottles or cans, etc.)



Automotive waste (incl. batteries) and other industrial waste are not formally collected and treated





The government has defined several projects for automotive waste (incl. batteries), but little was conducted

	Actions to be taken by the government in different action plans		Est. date of conclusion		Completion status
1	The management of used tires is regulated by a specific text	➤	2015	➤	Not completed
2	The management of garage waste is regulated by a specific text	➤	2015	➤	Not completed
3	Develop and implement a waste management system for car parts	➤	2017	➤	Not completed
4	Develop and implement a waste management system for used tires	➤	2017	➤	In 2018, the government identified SGS and SAR as the players to ensure the management of e-waste and used tires
5	Elaboration of a decree on the management, treatment and disposal of automotive waste and used tires (specifically)	➤	2020	➤	Not completed
6	Organization and implementation of collection, treatment and disposal of automotive waste and used tires (specifically) in Abidjan, Bouaké, Yamoussoukro, San Pedro, Daloa and Korhogo	➤	2023	➤	Not completed



Despite efforts in e-waste and used tires, the country still faces several challenges in other industrial waste

Main challenges identified in industrial waste

- 1 No regulation** has been developed to address other types of industrial waste
 - There is no regulatory text outlining the guidelines for adequate treatment and disposal of industrial waste
 - *Code de l'environnement* (from 1996) is the only current document, highlighting sanctions to companies who fail to properly dispose of their waste (and harm the environment)
- 2 Low to no enforcement** of the *Code de l'environnement* as companies dispose of their waste in open dumps or open incineration
- 3 Lack of infrastructures** to dispose of industrial waste
 - No industrial landfill is in place

Main actions on-going to improve the sector

- CIAPOL is currently implementing a mandatory semi-annual filling on companies to track the waste they generated and how it was treated
- Nonhazardous industrial waste is included in the World Bank project to be collected under a waste collection contract in Abidjan¹

1. Additional details about World Bank project on Page 67



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Agriculture waste: Executive summary

Volume and type of waste:

- The country generates **over 15 million tons of Agriculture waste¹** per year (0,6 tons per capita vs. 0,24 for Africa and 0,55 for Asia)

Waste valorization opportunities and key players:

- Cocoa, palm oil and sugar (~50% of total waste) are the **most favorable waste type for waste-to-energy** based on the **volume/accessibility of waste**, and the **demand for the waste-to-energy product**
 - **SODEN is currently building a plant** to leverage cocoa pods under a waste-to-energy solution with an investment of ~280M USD
 - **SIFCA is currently building a plant** to leverage palm oil waste-to-energy solution with an investment of ~107M USD
 - **No major project with sugar waste** identified, but the market structure (2 major industrial groups) simplifies the logistics of waste collection and presents an opportunity

Regulation and governmental actions:

- **No major regulation** specifically addressing agriculture waste. However, the government has stated an interest in diversifying its energy source, and even reached an agreement with SIFCA to purchase energy their biomass power plant

Potential opportunities for Japanese companies:

- **Potential to supply waste-to-energy equipment** to players currently building plants
- **Build and operate own waste-to-energy plant** given large quantity of agriculture waste, and government's support for waste-to-energy solutions

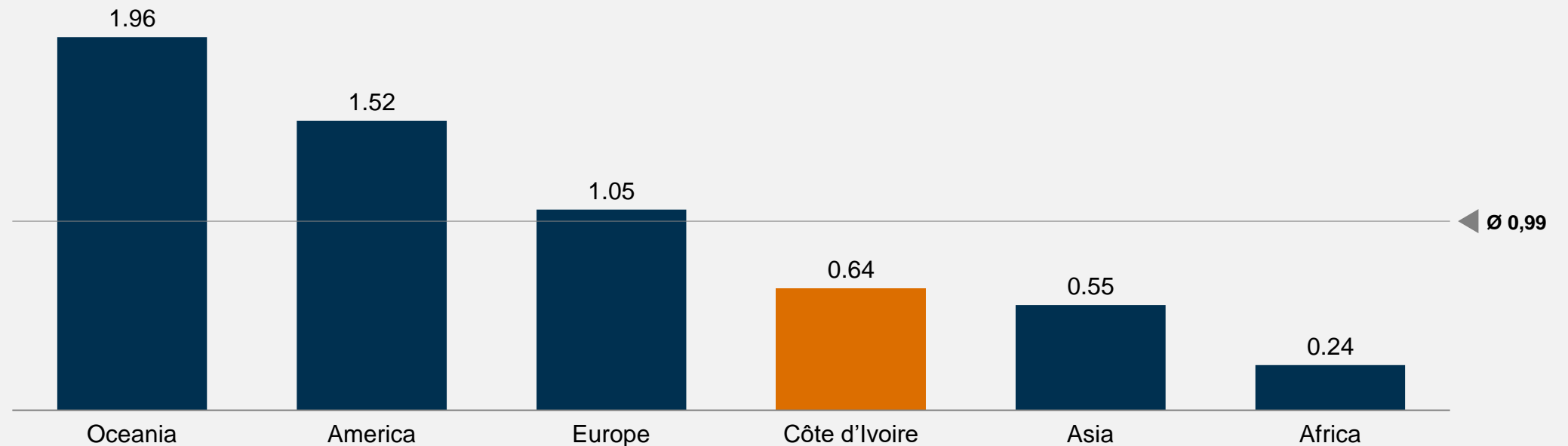
Challenges for Japanese companies:

- No major challenges have been identified **for an equipment manufacturer** but **complexity in logistics for an operating company** to collect waste from crops with several small producers (i.e., cocoa)

1. Including waste produced at farming/production site and waste produced from agri-processing

Côte d'Ivoire generates high levels of waste, more waste per capita than its peers and Asian countries

Tons of agriculture waste generated per capita for Côte d'Ivoire and each continent (tons per million)



Waste-to-energy solution poses strongest opportunity and fit for Japanese companies given the type of crops & required technical complexity

Level of technical complexity for each type of waste valorization

'Relatively simple solution: lower fit for Japanese companies'

Key opportunities to assess

Crop	Type of waste	Estimated qty of waste (tons)	Electricity (biomass, bioenergy)	Ethanol (biofuel, pharmaceutical alcohol)	Human feed (juice, jelly, liquor, etc..)	Construction material (thermal isolation)	Compost / biochar	Fertilizer	Animal feed or bedding
Cashew nut	Shell	63 000	✓						
	Apple	6 000 000			✓				✓
Cocoa	Pods	4 360 000	✓				✓		
	Shell	43 760					✓		
Palm oil	Fruit	1 812 000	✓					✓	✓
Cotton	Stems, Seeds and hulls	900 000		✓					✓
Rice	Rice hulls	762 700	✓			✓	✓	✓	✓
Sugar	Bagasse	600 000	✓				✓		✓
	Molasses	80 000		✓				✓	
	Scum	60 000						✓	
Corn	Corn cob	80 000					✓		✓
	Stems & leaves	400 000	✓						✓
Coffee	Husks	128 000	✓				✓		
	Used coffee grounds	18 350	✓					✓	
Mango	Loss post-harvest	70 000					✓		
	Loss post transformation and consumption	63 000					✓		
Rubber tree	Seeds	65 000						✓	
Total		15 505 810							

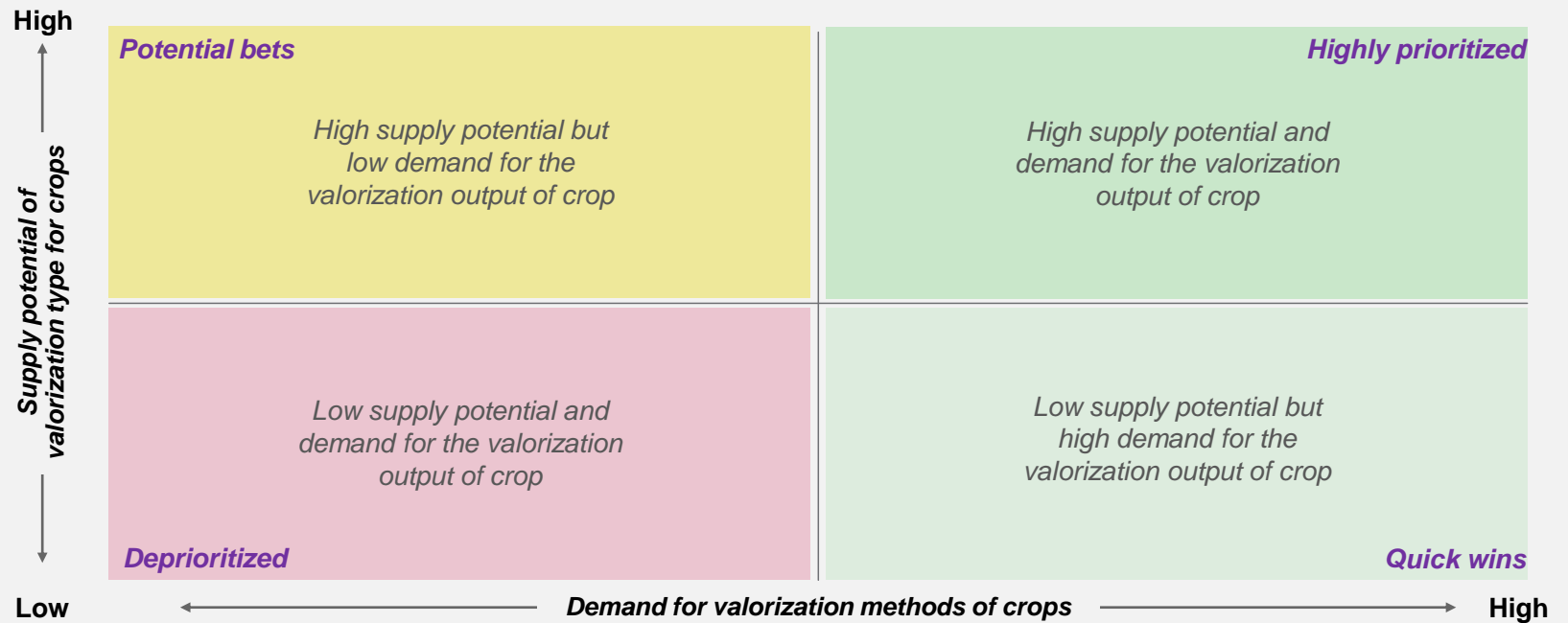
<500k 500k-1M >1M Tons of waste

Prioritization: 2 key criteria to determine priority opportunity

Sectors are prioritized based on **supply and demand potential** for Japanese companies

Supply potential of valorization type for crops

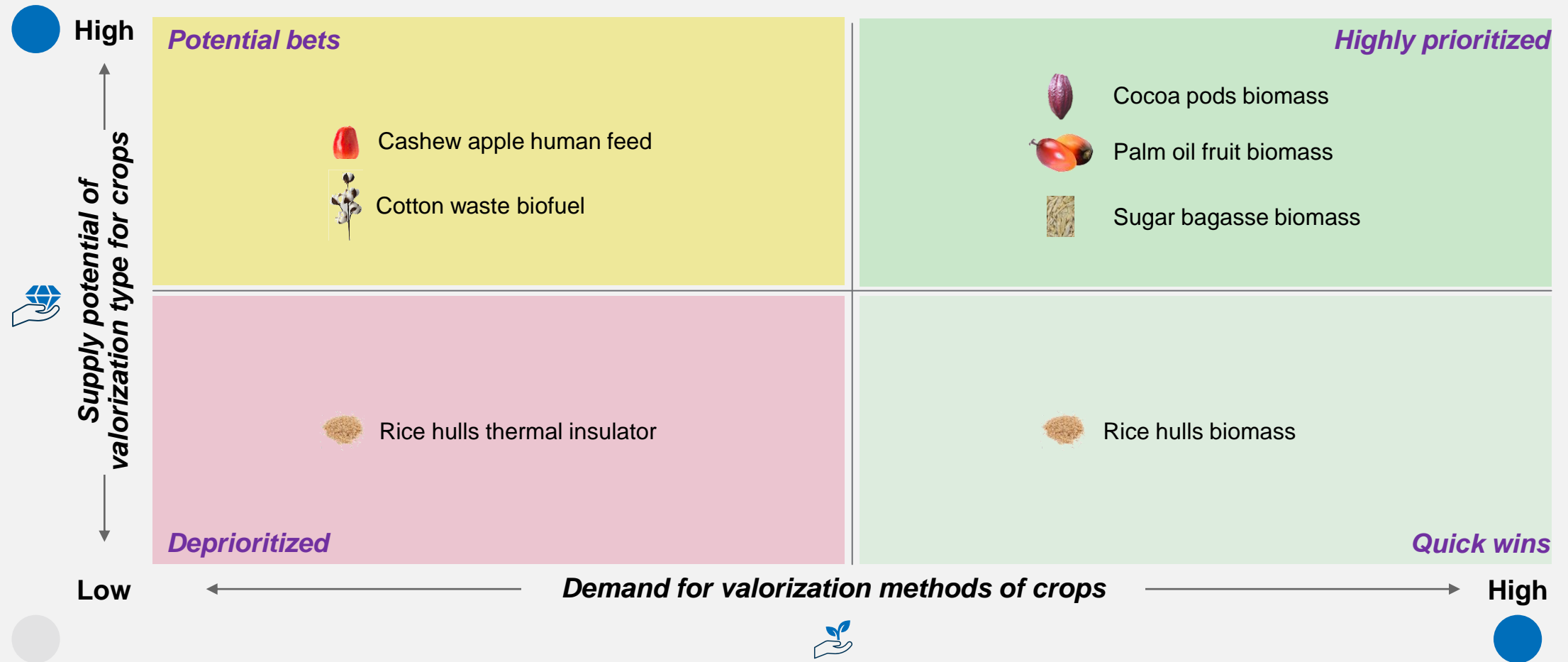
- 1 **Size of waste generated by crop (tons)**
- 2 **Collection of waste is done easily (i.e., logistics)**



Demand for valorization methods of crops

- 1 **Waste treatment addresses a priority issue in the country (e.g., carbon emissions)**
- 2 **Demand for valorization of waste's output**

Palm oil, cocoa and sugar waste are the main ones to prioritize for their waste-to-energy solutions



Crop prioritization: Analysis of crop valorization positioning (I/II)

Crop and valorization	Supply potential of valorization type for crops		Demand for valorization methods of crops	
	Size of waste generated by crop (tons)	Collection of waste is done easily (i.e., logistics)	Addressability of priority issue in the country	Demand for valorization of waste's output
Cocoa pods biomass (electricity)	+ 4 million MT	Market fragmented with many small producers. Need to deliver incentives for the farmers to also regroup the cocoa pods at the cooperative level	Delivering electricity through biomass allows to address the current priority to diversify energy sources	Project underway to deliver a waste-to-energy plant from cocoa waste
Oil palm fruit biomass (electricity)	+ 1,5 million MT	Market dominated by 4 large industrial players which concentrate +80% of the production	Delivering electricity through biomass allows to address the current priority to diversify energy sources	Project underway to deliver a waste-to-energy plant from oil palm waste (agreement with the government is already established)
Sugar bagasse biomass (electricity)	+ 600k MT	Market dominated by 2 large industrial players which do the production and transformation	Delivering electricity through biomass allows to address the current priority to diversify energy sources	There is demand for electricity but given the scale of sugar waste, consumption would be rather localized
Rice hulls biomass (electricity)	+700k MT	Market fragmented with many small processing factories which dispose of the waste	Delivering electricity through biomass allows to address the current priority to diversify energy sources	There is demand for electricity but given the scale of rice waste, consumption would be rather localized

Crop prioritization: Analysis of crop valorization positioning (II/II)

Crop and valorization	Supply potential of valorization type for crops		Demand for valorization methods of crops	
	Size of waste generated by crop (tons)	Collection of waste is done easily (i.e., logistics)	Addressability of priority issue in the country	Demand for valorization of waste's output
Cotton waste biofuel	+900k MT	Market dominated by 5 large industrial players	Biofuel is less pollutant than fossil fuel, addressing the Government willingness to reduce carbon emission	<ul style="list-style-type: none"> • Need of government subsidy to ensure that biofuel is cheaper than fossil fuel to drive demand • Consumers may potentially need an adapter to use biofuel
Cashew apple human feed	+ 7 million MT	Market fragmented with many small producers. Requires awareness from farmers to collect cashew apples and complex logistics to gather waste from cooperatives	Valorization of cashew apples doesn't address any specific issue in the country	Projects were conducted in order to raise awareness on apple cashew consumption and valorization but so far demand is fairly limited
Rice hulls thermal insulator	+700k MT	Market fragmented with many small from processing factories which dispose of the waste	Thermal insulator doesn't address any specific issue in the country	Construction industry can profit from recycled materials if costs are lower

Agriculture waste-to-energy presents opportunity as there is a high level of waste and support from the govt.

Significant on-going projects and government support

On-going major waste-to-energy project

- **Several players are building waste-to-energy plants**
 - **SIFCA** a major agro-industrial group is leveraging its **palm oil waste** to convert it to energy
 - **\$107M investment** for a plant to be operational by 2021
 - **SODEN** a local company in the energy field is leveraging **Cocoa waste** to produce energy
 - **\$280M investment** (FS¹ funded with USTDA grant) for a plant to be operational by 2023-2025

Support from the government

- Government intends to **diversify its sources of energy**
 - Government **reached agreement on energy purchase price** from the plant SIFCA is building

Two potential plays for Japanese players

- 1 **Play as an operator for Waste-to-Energy with own plant**
 - Logistics to collect waste for some crops is complex as they are dominated by several small farmers (e.g., cocoa, rice)
- 2 **Partner with player currently building / operating a Waste-to-Energy plant and provide equipment**





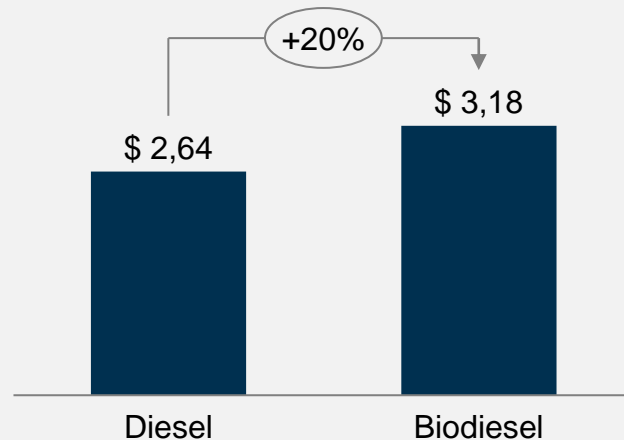
Agriculture waste biofuel is a potential opportunity, but the higher cost and limited quantity of suitable agriculture waste could present significant challenges



Cost

Biodiesel is priced ~20% higher than standard diesel and may require government subsidies to be viable

Diesel and biodiesel prices (\$ per gallon, 2021)



Additionally, consumers may need a converter to use some biofuels in their vehicles, further increasing cost



Quantity

There is a limited quantity of agriculture waste suitable for biodiesel solution in Cote d'Ivoire

- Only Cotton waste (900k tons) and sugar molasses (80k tons) are commonly used for agriculture waste biofuel solutions
- For other crops, the biofuel transformation process uses the crop itself as input (e.g., palm fruit, sugarcane); use of the waste as input is less common



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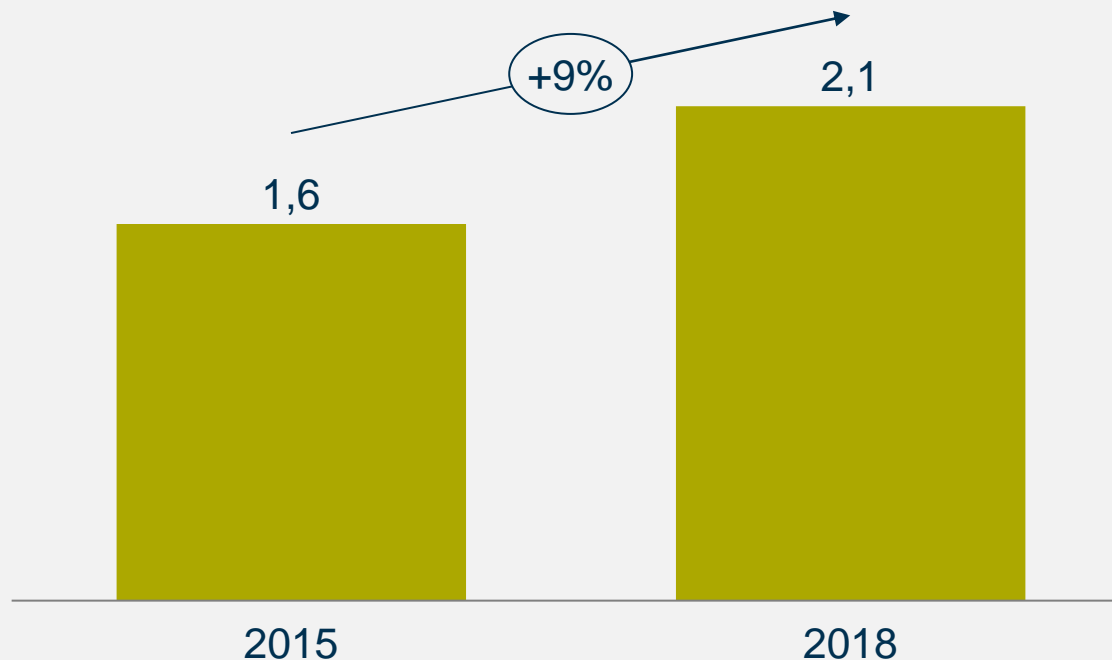
 Construction & demolition waste

Appendix

Waste management

The construction industry has been growing fast but its waste is currently not treated in Côte d'Ivoire

Construction GDP growth (in \$Bn)



1. Soil, mortar, non-hazardous inerts
Source: Oxford Business Group; BCG Experience

Main construction & demolition waste composition

Inerts¹, wood, metal, plastic, paper, glass, concrete, dirt, bricks, tiles

Construction & demolition waste treatment in Côte d'Ivoire

- Construction companies generate C&D Waste
- Most waste is left at site with no collection nor treatment ongoing
- No regulation currently exists in the market

Several initiatives are starting but the government needs to further support the sector to accelerate C&D waste management

Key initiatives taken to improve Construction & demolition waste management

- **Construction & demolition waste** is set to be collected in Abidjan under the World Bank project¹
- **In recent years, a few large companies have undertaken projects** to raise awareness on the need to treat C&D waste (i.e., 18-month project Kôrylé, undertook by Neo-eco, Bouygues bâtiment international, Backacia and Valame with the support from the French government under the FASEP program)

In addition to the projects and to improve the sector's waste management, the government must establish regulatory texts addressing how waste should be treated and disposed of

1. Additional details about World Bank project on Page 67
Source: Interviews; Press Research



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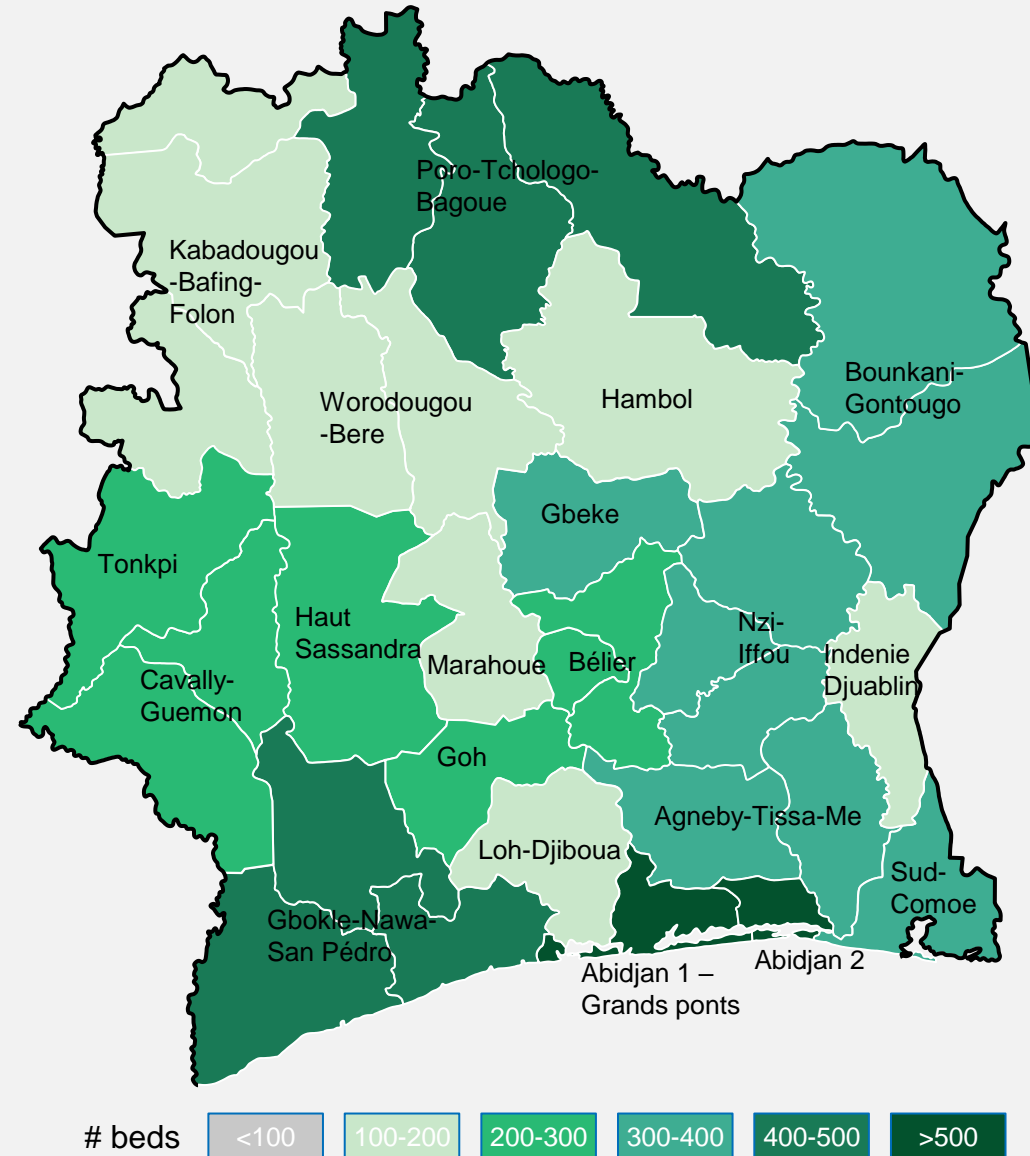
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Construction & demolition waste

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Number of hospital beds by region (data covers public sector hospitals only)



Abidjan is the region with the highest bed concentration in Côte d'Ivoire

There are +6 700 beds in +100 public healthcare facilities

Facility description	# of private sector facilities		# of public sector facilities		# of beds (public sector facilities)	
	Abidjan	Rest of country	Abidjan	Rest of country	Abidjan	Rest of country
Primary level facilities: Healthcare facilities that provide curative, preventive, educational and promotional services	12	115	268	2084	<i>Not available</i>	<i>Not available</i>
Secondary level facilities: Healthcare facilities for cases that cannot be managed at the primary level and require more advanced technical capacity for diagnosis and treatment	3	14	14	87	706	4531
Tertiary level facilities: Healthcare facilities that deal with cases that cannot be handled by the secondary level and have a strong technical requirement for diagnosis, treatment. Also, they conduct training and research.	<i>N/A</i>	<i>N/A</i>	5	1	1477	268
Large private sector facilities with high degree of specialization and strong technical capacity for diagnosis and treatment (e.g., PISAM ⁴ , CIMA ⁵)	+14	<5	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>
Total	~30	130+	287	2172	2183	4799

1. General hospitals (at city level) 2. Regional healthcare centers 3. University hospitals 4. Polyclinique Internationale Sainte Anne-Marie 5. Centre d'imagerie médicale d'Abidjan
Source: 2018 Annual report on the health situation

Repartition of healthcare facilities across sanitary districts (I/V)

	Etablissements sanitaires de premier contact ¹ (ESPC)				Hopitaux Généraux ² (HG)			Centres Hospitaliers Régionaux ³ (CHR)	Total Hôpitaux De références HG et CHR (Public, Private, Religious)	Centres hospitaliers universitaires ⁴ (CHU)	Total healthcare facilities Level 1 and 2 (ESPC, HG, CHR)	Total healthcare facilities (ESPC, HG, CHR et CHU)	Number of beds
	Rural Public	Urban Public	Private, religious	Total ESPC	Public	Private, religious	Total HG						
ABIDJAN 2	21	118	7	146	9	2	11	0	11	3	157	160	425
ABOBO EST	0	30	3	33	1	0	1	0	1	0	34	34	120
ABOBO OUEST	0	15	1	16	1	1	2	0	2	0	18	18	28
ANYAMA	13	7	0	20	1	1	2	0	2	0	22	22	89
COCODY-BINGERVILLE	4	19	3	26	2	0	2	0	2	2	28	30	35
KOUMASSI-PORT-BOUET-VRIDI	4	29	0	33	2	0	2	0	2	0	35	35	126
MARCORY-TREICHVILLE	0	18	0	18	2	0	2	0	2	1	20	21	27
ABIDJAN 1-GRANDS PONTS	55	74	5	134	5	1	6	0	6	1	140	141	281
ADJAME-PLATEAU ATTECOUBE	0	20	0	20	1	0	1	0	1	0	21	21	24
DABOU	20	6	1	27	1	1	2	0	2	0	29	29	152
GRAND LAHOU	14	5	0	19	1	0	1	0	1	0	20	20	39
JACQUEVILLE	15	2	0	17	1	0	1	0	1	0	18	18	31
YOPOUGON EST	0	16	2	18		0	0	0	0	0	18	18	0
YOPOUGON OUEST-SONGON	6	25	2	33	1	0	1	0	1	1	34	35	35
AGNEBY-TIASSA-ME	99	42	0	141	7	1	8	1	9	0	150	150	378
ADZOPE	20	7	0	27	1	0	1	0	1	0	28	28	65
AGBOVILLE	23	12	0	35	0	0	0	1	1	0	36	36	74
AKOUBE	12	6	0	18	2	0	2	0	2	0	20	20	50
ALEPE	12	8	0	20	1	0	1	0	1	0	21	21	90
SIKENSI	9	2	0	11	1	0	1	0	1	0	12	12	12
TIASSALE	23	7	0	30	2	1	3	0	3	0	33	33	87
BELIER	75	33	2	110	4	1	5	1	6	0	116	116	245
DIDIEVI	13	4	0	17	1	0	1	0	1	0	18	18	19

1. First contact healthcare facilities 2. General hospitals (at city level) 3. Regional healthcare centers 4. University hospitals

Source: 2018 Annual report on the health situation

Repartition of healthcare facilities across sanitary districts (II/V)

	Etablissements sanitaires de premier contact ¹ (ESPC)				Hopitaux Généraux ² (HG)			Centres Hospitaliers Régionaux ³ (CHR)	Total Hôpitaux De références HG et CHR (Public, Private, Religious)	Centres hospitaliers universitaires ⁴ (CHU)	Total healthcare facilities Level 1 and 2 (ESPC, HG, CHR)	Total healthcare facilities (ESPC, HG, CHR et CHU)	Number of beds
	Rural Public	Urban Public	Private, religious	Total ESPC	Public	Private, religious	Total HG						
TIEBISSOU	20	3	0	23	1	0	1	0	1	0	24	24	37
TOUMODI	22	7	1	30	2	0	2	0	2	0	32	32	109
YAMOISSOUKRO	20	19	1	40	0	1	1	1	2	0	42	42	80
BOUNKANI-GONTOUGO	140	56	6	202	6	1	7	1	8	0	210	210	318
BONDOUKOU	42	21	4	67	1	0	1	1	2	0	69	69	131
BOUNA	31	15	2	48	1	1	2	0	2	0	50	50	68
NASSIAN	9	3	0	12	1	0	1	0	1	0	13	13	20
TANDA	58	17	0	75	3	0	3	0	3	0	78	78	99
CAVALLY-GUEMON	102	29	1	132	5	1	6	1	7	0	139	139	251
BANGOLO	15	5	0	20	1	0	1	0	1	0	21	21	41
BLOLEQUIN	8	2	1	11	1	1	2	0	2	0	13	13	14
DUEKOUE	28	8	0	36	1	0	1	0	1	0	37	37	65
GUIGLO	18	4	0	22	0	0	0	1	1	0	23	23	71
KOUIBLY	23	5	0	28	1	0	1	0	1	0	29	29	28
TOULEPLEU	10	5	0	15	1	0	1	0	1	0	16	16	32
GBEKE	69	40	0	109	2	1	3	0	3	1	112	113	57
BEOUMI	22	6	0	28	1	0	1	0	1	0	29	29	35
BOUAKE NORD-EST	8	4	0	12	0	0	0	0	0	0	12	12	0
BOUAKE NORD-OUEST	14	17	0	31	0	0	0	0	0	1	31	32	0
BOUAKE-SUD	8	8	0	16	0	1	1	0	1	0	17	17	0
SAKASSOU	17	5	0	22	1	0	1	0	1	0	23	23	22
GBOKLE-NAWA-SAN-PEDRO	163	27	0	190	5	1	6	1	7	0	197	197	412
BUYO	15	3	0	18	1	0	1	0	1	0	19	19	30
GUEYO	10	1	0	11	1	0	1	0	1	0	12	12	50
MEAGUI	27	4	0	31	0	0	0	0	0	0	31	31	0

1. First contact healthcare facilities 2. General hospitals (at city level) 3. Regional healthcare centers 4. University hospitals

Source: 2018 Annual report on the health situation

Repartition of healthcare facilities across sanitary districts (III/V)

	Etablissements sanitaires de premier contact ¹ (ESPC)				Hopitaux Généraux ² (HG)			Centres Hospitaliers Régionaux ³ (CHR)	Total Hôpitaux De références HG et CHR (Public, Private, Religious)	Centres hospitaliers universitaires ⁴ (CHU)	Total healthcare facilities Level 1 and 2 (ESPC, HG, CHR)	Total healthcare facilities (ESPC, HG, CHR et CHU)	Number of beds
	Rural Public	Urban Public	Private, religious	Total ESPC	Public	Private, religious	Total HG						
SAN-PEDRO	21	6		27	0	0	0	1	1	0	28	28	156
SASSANDRA	28	4		32	1	1	2		2	0	34	34	59
SOUBRE	44	3		47	1	0	1	0	1	0	48	48	76
TABOU	18	6		24	1	0	1	0	1	0	25	25	41
GÔH	88	21	2	111	2	0	2	1	3	0	114	114	270
GAGNOA	66	15	2	83	1	0	1	1	2	0	85	85	237
OUME	22	6	0	28	1	0	1	0	1	0	29	29	33
HAMBOL	31	15	0	46	3	1	4	0	4	0	50	50	195
DABAKALA	13	8	0	21	1	0	1	0	1	0	22	22	48
KATIOLA	9	4	0	13	1	1	2	0	2	0	15	15	113
NIAKARAMADOUGOU	9	3	0	12	1	0	1	0	1	0	13	13	34
HAUT SASSANDRA	74	26	3	103	3	0	3	1	4	0	107	107	205
DALOA	31	13	3	47	1	0	1	1	2	0	49	49	105
ISSIA	20	9	0	29	1	0	1	0	1	0	30	30	57
VAVOUA	23	4	0	27	1	0	1	0	1	0	28	28	43
INDENIE DJUABLIN	36	29	23	88	2	0	2	1	3	0	91	91	180
ABENGOUROU	16	20	15	51	0	0	0	1	1	0	52	52	106
AGNIBILEKROU	15	6	7	28	1	0	1	0	1	0	29	29	62
BETTIE	5	3	1	9	1	0	1	0	1	0	10	10	12
KABADOUGOU-BAFING-FOLON	72	27	3	102	4	0	4	2	6	0	108	108	180
MINIGNAN	18	7	0	25	1	0	1	0	1	0	26	26	12
ODIENNE	33	10	2	45	2	0	2	1	3	0	48	48	123
TOUBA	21	10	1	32	1	0	1	1	2	0	34	34	45
LÔH-DJIBOUA	78	26	3	107	3	0	3	1	4	0	111	111	193
DIVO	31	13	1	45	0	0	0	1	1	0	46	46	106
FRESCO	12	2	1	15	1	0	1	0	1	0	16	16	16

1. First contact healthcare facilities 2. General hospitals (at city level) 3. Regional healthcare centers 4. University hospitals

Source: 2018 Annual report on the health situation

Repartition of healthcare facilities across sanitary districts (IV/V)

	Etablissements sanitaires de premier contact ¹ (ESPC)				Hopitaux Généraux ² (HG)			Centres Hospitaliers Régionaux ³ (CHR)	Total Hôpitaux De références HG et CHR (Public, Private, Religious)	Centres hospitaliers universitaires ⁴ (CHU)	Total healthcare facilities Level 1 and 2 (ESPC, HG, CHR)	Total healthcare facilities (ESPC, HG, CHR et CHU)	Number of beds
	Rural Public	Urban Public	Private, religious	Total ESPC	Public	Private, religious	Total HG						
GUITRY	7	5	1	13	1	0	1	0	1	0	14	14	18
LAKOTA	28	6	0	34	1	0	1	0	1	0	35	35	53
MARAHOUÉ	59	13	2	74	2	0	2	1	3	0	77	77	131
BOUAFLE	29	5	1	35	0	0	0	1	1	0	36	36	64
SINFRA	5	6	1	12	1	0	1	0	1	0	13	13	34
ZUENOULA	25	2	0	27	1	0	1	0	1	0	28	28	33
NZI-IFFOU	99	33	3	135	7	0	7	1	8	0	143	143	350
BOCANDA	17	7	0	24	1	0	1	0	1	0	25	25	48
BONGOUANOU	30	8	2	40	3	0	3	0	3	0	43	43	105
DAOUKRO	19	2	0	21	1	0	1	0	1	0	22	22	61
DIMBOKRO	11	9	1	21	0	0	0	1	1	0	22	22	74
M'BAHIKRO	13	3	0	16	1	0	1	0	1	0	17	17	42
PRIKRO	9	4	0	13	1	0	1	0	1	0	14	14	20
PORO-TCHOLOGO BAGOUE	137	47	6	190	4	3	7	1	8	0	198	198	458
BOUNDIALI	33	13	0	46	1	2	3	0	3	0	49	49	59
FERKESSEDOUGOU	17	3	1	21	1	1	2	0	2	0	23	23	136
KORHOGO 1	45	20	3	68	0	0	0	1	1	0	69	69	203
KORHOGO 2	24	2	1	27	0	0	0	0	0	0	27	27	0
OUANGOLODOUGOU	8	6	1	15	1	0	1	0	1	0	16	16	20
TENGRELA	10	3	0	13	1	0	1	0	1	0	14	14	40
SUD-COMOE	67	25	56	148	6	4	10	1	11	0	159	159	341
ABOISSO	34	10	31	75	2	3	5	1	6	0	81	81	180
ADIAKE	20	5	2	27	2	0	2	0	2	0	29	29	71
GRAND-BASSAM	13	10	23	46	2	1	3	0	3	0	49	49	90
TONKPI	90	37	3	130	3	0	3	1	4	0	134	134	245
BIANKOUMA	21	10	0	31	1	0	1	0	1	0	32	32	24

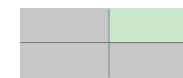
1. First contact healthcare facilities 2. General hospitals (at city level) 3. Regional healthcare centers 4. University hospitals

Source: 2018 Annual report on the health situation

Repartition of healthcare facilities across sanitary districts (V/V)

	Etablissements sanitaires de premier contact ¹ (ESPC)				Hopitaux Généraux ² (HG)			Centres Hospitaliers Régionaux ³ (CHR)	Total Hôpitaux De références HG et CHR (Public, Private, Religious)	Centres hospitaliers universitaires ⁴ (CHU)	Total healthcare facilities Level 1 and 2 (ESPC, HG, CHR)	Total healthcare facilities (ESPC, HG, CHR et CHU)	Number of beds
	Rural Public	Urban Public	Private, religious	Total ESPC	Public	Private, religious	Total HG						
DANANE	15	8	0	23	1	0	1	0	1	0	24	24	50
MAN	30	14	3	47	0	0	0	1	1	0	48	48	137
ZOUAN-HOUNIEN	24	5	0	29	1	0	1	0	1	0	30	30	34
WORODOUGOU-BERE	58	21	2	81	2	0	2	1	3	0	84	84	122
MANKONO	36	9	2	47	1	0	1	0	1	0	48	48	40
SEGUELA	22	12	0	34	1	0	1	1	2	0	36	36	82
TOTAL CI	1613	739	127	2479	84	17	101	17	118	5	2597	2602	5 237
TOTAL EPN (Etablissements publics nationaux)													5 237
CHU_ANGRE													250
CHU_BOUAKE													268
CHU_COCODY													363
CHU_TREICHVILLE													420
CHU_YOPOUGON													373
ICA ⁵													71

1. First contact healthcare facilities 2. General hospitals (at city level) 3. Regional healthcare centers 4. University hospitals 5. Institut de Cardiologie d'Abidjan
 Source: 2018 Annual report on the health situation



Ivorian agro-industrial group specialized in three fields: oil palm, sugar cane and natural rubber.

It aims to produce bioelectricity by burning biomass from oil palm waste under the project Biokala

Key partners



Objectives

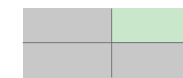
- Construction of 5 thermal power plants using the biomass potential of the SIFCA Group
- Electricity production: 150 to 200 MW within 10 years (1,000 to 1,500 Gwh per year) – (would represent 7% of Energy consumption of 2030)
- Sell energy produced to the Ivorian State (Independent Power Producer)
- Operational launch of the project in 2015

Key project milestones

- 2021: The project is set to be completed
- 2019: Biokala, EDF and Meridiam signed a concession agreement with the Ivorian government for the largest biomass power plant in West Africa. The plant will cost \$ 215M and has the support of AFD (Agence Française de Développement) which lend ~\$ 107M to SIFCA to develop its activities¹
- 2017: Signing of a tariff agreement between the State of Côte d'Ivoire, Biokala and EDF on the transfer price of the energy produced by the biomass plant

Initiatives being
conducted by private
companies (I/II)

1. SIFCA intends to use part of this loan to fund the plant



Société des
Energies
Nouvelles

SODEN specializes in biomass.

It is currently developing projects to create energy out of biomass and intends to use waste from different crops

Key partners



USTDA

U.S. TRADE AND DEVELOPMENT AGENCY

Divo biomass central

- Construction of an electricity central in Divo to use cocoa waste to generate electricity
- Plant is expected to be operational by 2023-2025 with an investment of \$ 280M
- Received a grant support from USTDA of \$ 1M to conduct a feasibility study (concluded in March 2020)
- The plant is supposed to produce 60 to 70 MW (Ivory Coast disposes of 2200 MW currently)

Future projects

- 12 projects in pipeline (incl. Electricity plants from cocoa waste plant from cotton waste, cereal waste, cashew tree wood and mangos)

Initiatives being
conducted by private
companies (II/II)



Government agency focused on Agriculture and rural areas to improve living conditions in through the professionalization of farmers and professional agricultural organizations



*Global company with sales of trucks, buses, engines & services
It plans to establish factories to generate biofuel from agriculture waste*

Key partners



Swedfund



Initiatives being conducted by the public sector in partnership with the private sector

Objectives

- Develop a plant to produce biofuel by 2021 with a ~\$ 4M investment and a plant to produce biomethane by 2023 with a ~\$ 16M investment
 - Utilize rubber tree waste for biofuel production
 - Utilize banana, cassava and animal waste to generate biomethane

Key project milestones

- 2021e: Launching of the operation of the biofuel plant
- 2020: Signature of an agreement between Scania, Anader and Lono to define next steps in the plant operationalization
- Project study has been conducted under a \$ 725k financing from Scania and Swedfund



Palmci, SIPEF-CI, Dekel Agrivision and Palmafrique are the key industrial players in the palm oil market

	Organized players with cooperatives and own farming for producing palm oil				Others (Small industrial groups and small farmers)
Production of palm fruit (tons)	1 403 928	290 000	176 019	130 435	359 761
Waste generated (tons)	1 104 504	217 500	138 370	100 435	226 281
% of total waste	62%	12%	8%	6%	13%
Waste treatment	Conducting a valorization of its palm oil waste under waste-to-energy solution	No specific project regarding waste management in Cote d'Ivoire (existing solutions in other markets)	Project to establish a factory to convert palm waste to energy (currently in stand-by)	No specific project regarding waste management	Low awareness for waste management which ends up burned, transformed as animal food or left at production site

Note: Production of major groups include farmers production that are bought by the groups; Palmafrique and others' figures are estimated from Palm oil production with a ratio of 23%
Source: Palmci 2019 Annual report; SIPEF-CI Website; Dekel Agrivision 2019 Annual report; Palmafrique website; IndexMundi 2020; Interviews; BCG Analysis



Eco-levy rates collected by SGS (1/26)

HS Code	Product Description	Unit price - USD
401110	New tyres, rubber - Types used for passenger cars	7,77
401120	New tyres, rubber.- Types used for buses or trucks	16,64
401130	New tyres, rubber.- Types used for aerial vehicles	16,64
401140	New tyres, rubber.- Types used for motorcycles	7,77
401150	New tyres, rubber. - Types used for bicycles	3,33
401161	New tyres, rubber. - Other, spiked, chevron or similar: - Types used for agricultural and forest vehicles and machinery	16,64
401162	New tyres, rubber. - Others, with spikes, rafters or the like: Types used for civil engineering and industrial handling vehicles and equipment, for rims with a diameter of 61 cm or less	7,77
401163	New tyres, rubber. - Others, with spikes, rafters or the like: Types used for civil engineering and industrial handling vehicles and equipment, for rims larger than 61 cm in diameter	16,64
401169	New tyres, rubber. - Other	-
401192	New tyres, rubber. - Other - Types used for agricultural and forestry vehicles and machinery	16,64
401193	New tyres, rubber. - Other - Types used for civil engineering and industrial handling vehicles and equipment, for rims with a diameter of 61 cm or less	7,77



Eco-levy rates collected by SGS (2/26)

HS Code	Product Description	Unit price - USD
401194	New tyres, rubber. - Other - Types used for vehicles and civil engineering and industrial handling, for rims with a diameter of more than 61 cm	16,64
401199	New tyres, rubber. - Other -Others	16,64
401211	Retreaded tyres: Types used for passenger cars	7,77
401212	Retreaded tyres: Types used for buses or trucks	16,64
401213	Retreaded tyres: Types used for aerial vehicles	16,64
401219	Retreaded tyres: -- Other	16,64
401220	Used tyres	16,64
401290	Other	16,64
820150	One-handed pruners and shears	1,66
820330	Metal shears and similar tools	3,60
820411	Fixed aperture	1,66
820540	Screwdriver - Other tools and hand tools	1,66
821410	Paper cutters, letter openers, scrapers, pencil cutters and their blades	1,66
830300	Safes, armoured doors and compartments for vaults, safes and security cassettes and similar items, in base metals.	3,60
841370	Other centrifugal pumps - Other pumps; liquid elevators:	1,66

Note: Unit Price – USD calculated using an exchange rate of EUR-USD of 1,21



Eco-levy rates collected by SGS (3/26)

HS Code	Product Description	Unit price - USD
841451	Table, floor, wall, roof or window ceilings, electric motor built with a power of no more than 125W	3,60
841459	Other	3,60
841510	"split-system" of wall or window type, forming a single body	9,43
841581	With refrigeration device and thermal cycle inversion valve	9,43
841583	Without refrigeration devices,	9,43
841810	Combinations of refrigerators and conservative freezers with separate exterior doors, household-type refrigerators:	9,43
841821	A compression	9,43
841829	Other	9,43
841830	Freezer-conservative furniture of the chest type, with a capacity not exceeding 800 L	9,43
841840	Freezer-conservative furniture of the weapon type, with a capacity not exceeding 900 L,	9,43
841850	- Other furniture for the preservation and display of products, incorporating equipment for cold production - Other materials, machinery and appliances for the production of cold; heat pumps:	9,43
841869	Other. - Parties:	9,43
841920	Medical-surgical sterilizers or dryer laboratories:	9,43
841981	For preparing hot drinks or cooking or heating food - Others: Other, non-electric, for food industries:	9,43

Note: Unit Price – USD calculated using an exchange rate of EUR-USD of 1,21



Eco-levy rates collected by SGS (4/26)

HS Code	Product Description	Unit price - USD
842111	Skimming machine	9,43
842112	Laundry spinners	9,43
842121	For filtration or water purification	9,43
842122	For filtration or purification of non-water drinks	9,43
842211	Household type	1,66
842219	Other.	1,66
842230	Machines and appliances to fill, close or label bottles, boxes, bags or other containers; machines and devices to capsule similar bottles, jars, tubes and containers, machines and gas-enhancing beverages	1,66
842310	Weighing persons, including baby scales; household scales	0,72
842320	Continuous weighing switches on carriers.	0,72
842330	Constant weighing swings and scales and toggles or baggy swings. - Other weighing devices and instruments:	0,72
842381	With a litter of no more than 30 kg	0,72
842382	With a range greater than 30 kg but not exceeding 5,000 kg	0,72
842389	Other.	0,72



Eco-levy rates collected by SGS (5/26)

HS Code	Product Description	Unit price - USD
842489	Mechanical devices to spray, disperse or spray liquid or powdered materials; fire extinguishers, even charged;..... - Other	0,72
842790	Other trolleys	9,43
843069	Other	3,60
843143	Parts of drilling or drilling machines of nº 8430.41 or 8430.49	3,60
843210	Ploughs - Horses, scarifiers, growers, drains, hoes, wears and hoes:	1,66
843311	Motor, whose cutting device rotates in a horizontal plane	1,66
843319	Other	1,66
843680	Other machines and appliances - Parts:	9,43
843880	Other machines and appliances	1,66
843930	Machines and appliances for finishing paper or cardboard- Parts:	1,66
844010	Machines and devices	1,66
844110		9,43
844331	Machines that perform at least two of the following functions: printing, copying or transmitting faxes, capable of being connected to an automatic information processing machine or a network	1,66
844400	Machines for spinning, of, stretching, texturing or slicing synthetic or artificial textile materials	1,66



Eco-levy rates collected by SGS (6/26)

HS Code	Product Description	Unit price - USD
844610	For fabrics no more than 30 cm wide - For fabrics larger than 30 cm wide, shuttles:	1,66
844621	Motorized	1,66
844629	Other	1,66
844630	For fabrics that are more than 30 cm wide, without shuttles	1,66
844711	With a cylinder with a diameter of no more than 165 mm	9,43
844712	With a cylinder with a diameter of more than 165 mm	9,43
844720	Straight hosiery trades; sewing-knitting machines	9,43
844790	Other	9,43
845011	Fully automatic machines	9,43
845012	Other machines, with built-in centrifugal spinner, of	9,43
845019	Other	9,43
845020	Machines with a unit capacity expressed in dry linen weights exceeding 10kg	9,43
845110	Dry cleaning machines - Drying machines:	9,43
845121	A unit capacity expressed in dry linen weights not exceeding 10 kg	9,43
845129	Other	9,43
845210	Household sewing machines, other sewing machines:	1,66

Note: Unit Price – USD calculated using an exchange rate of EUR-USD of 1,21



Eco-levy rates collected by SGS (7/26)

HS Code	Product Description	Unit price - USD
845221	Automatic units	1,66
845229	Other	1,66
845610	Operating by laser or other beam of light or photons, of	1,66
845910	Slide machine units - Other drilling machines:	9,43
845921	Digitally controlled, of	9,43
845929	Other - - Other boring and milling machines:	9,43
845931	Digitally controlled	9,43
845939	Other	9,43
845940	Other machines to be upgraded, of - Milling machines, console:	9,43
845951	Digitally controlled, of	9,43
845959	Others, of - Other milling machines:	9,43
845961	Digitally controlled, of	9,43
845969	Other	9,43
846090	Other	9,43
846150	Sawing or cutting machines, of	3,60
846221	Digitally controlled, of	9,43

Note: Unit Price – USD calculated using an exchange rate of EUR-USD of 1,21



Eco-levy rates collected by SGS (8/26)

HS Code	Product Description	Unit price - USD
846229	Other, of - Shearing machines, other than combined punching and shearing machines:	9,43
846231	Digitally controlled, of	9,43
846239	Other, of - Punching or gnawing machines, including combined punching and shearing machines:	9,43
846241	Digitally controlled, of	9,43
846249	Others, of - Others:	9,43
846291	Hydraulic presses	9,43
846299	Other	9,43
846593	Machines to grind, sand or polish	1,66
846721	Drills of all kinds, including rotary punchers	3,60
846722	Saws and chainsaws	3,60
846789	Others - Parts	3,60
846810	Hand-guided torches	0,72
846900	Typewriters other than printers at 84.43; machines for word processing.	0,72
847010	- Electronic calculators that can operate without an external energy source and handheld machines with a function..... - Featuring a printing part	1,66
847021	Featuring a printing part	1,66



Eco-levy rates collected by SGS (9/26)

HS Code	Product Description	Unit price - USD
847029	Other	1,66
847030	Other calculating machines	1,66
847050	Cash registers	1,66
847090	Other	1,66
847130	With, under one envelope, at least one central unit of and, whether or not they are combined, an entry unit and an exit unit	1,66
847141	With, under one envelope, at least one central unit of and, whether or not they are combined, an entry unit and an exit unit	1,66
847149	Others, in the form of systems	1,66
847150	Treatment units other than those of 8471.41 or 8471.49, which may include one or two of the following units under one envelope: memory unit, input unit and output unit.	1,66
847160	Entry or exit units, which may have memory units under the same envelope	1,66
847170	Memory units	1,66
847180	Other automatic information processing machine units	1,66
847190	Other	1,66
847290	Other	1,66

Note: Unit Price – USD calculated using an exchange rate of EUR-USD of 1,21



Eco-levy rates collected by SGS (10/26)

HS Code	Product Description	Unit price - USD
847330	Parts and accessories of No. 84.71	0,72
847431	Cement and appliances to spoil cement	3,60
847621	Featuring a heating or refrigeration device	9,43
847629	- Other - Other machines:	9,43
847681	Featuring a heating or refrigeration device	9,43
847689	Other	9,43
847780	Other machines and appliances	9,43
847960	Evaporation devices for air freshening - Other machines and appliances:	9,43
848180	Other faucet items and similar organs	1,66
850131	Power not exceeding 750 w	0,72
850211	Power not exceeding 75 w	9,43
850440	Static converters	1,66
850610	Manganese oxide	0,17
850630	Mercury oxide	0,17
850640	Silver oxide	0,17
850650	Lithium	0,17

Note: Unit Price – USD calculated using an exchange rate of EUR-USD of 1,21



Eco-levy rates collected by SGS (11/26)

HS Code	Product Description	Unit price - USD
850660	Air-zinc driven	0,17
850680	Other batteries and batteries	0,17
850690	Parts	0,17
850710	Lead, types used to start piston engines, of	7,77
850720	Other lead batteries	7,77
850730	Nickel-cadmium driven	7,77
850740	Nickel-iron driven	7,77
850750		7,77
850760	Other vacuum cleaners	7,77
850780	Other accumulators, of	7,77
850811	With a power of no more than 1,500 W and whose tank volume does not exceed 20l	0,72
850819	Other	0,72
850860	Other vacuum cleaners	0,72
850940	Food grinders and mixers; fruit press and vegetable press	1,66
850980	Other devices	1,66
851010	Razors	0,72

Note: Unit Price – USD calculated using an exchange rate of EUR-USD of 1,21



Eco-levy rates collected by SGS (12/26)

HS Code	Product Description	Unit price - USD
851020	Clippers	0,72
851220	- Other lighting or visual signage - Acoustic signalling devices.	1,66
851310	Lamps	1,66
851511	Irons and soldering guns	3,60
851519	- Other - Machinery and appliances for welding metals by resistance:	3,60
851521	Fully or partially automatic	3,60
851529	Other - Machines and devices for welding metals with arc or plasma jet:	3,60
851531	Fully or partially automatic	3,60
851539	Other	3,60
851580	Other machines and appliances	3,60
851610	Water heaters and electric heaters..... - Electrical appliances for heating premises, the floor or for similar uses:	0,72
851621	Accumulation radiators	0,72
851629	Other - Electrothermic devices for hairdressing or for drying hands:	0,72
851631	Hairdryer	0,72
851632	Other devices for hairdressing	0,72



Eco-levy rates collected by SGS (13/26)

HS Code	Product Description	Unit price - USD
851633	Hand-drying appliances	0,72
851640	Electric irons	0,72
851650	Microwave ovens	0,72
851660	Other ovens; stoves, stoves, of, grills and roasters. - Other electrothermic devices:	0,72
851671	Devices for making coffee or tea	0,72
851672	Toaster	0,72
851679	Other	0,72
851680	Heating resistance	0,72
851711	Wireless wire-to-handset telephone stations	1,66
851712	Phones for cell phones and other wireless networks	1,66
851718	Other - Other devices for transmitting or receiving voice, images or other data, including devices for communication in a wired or wireless network	1,66
851761	Base stations	1,66
851762	Devices for receiving, converting and transmitting or regenerating voice, images or other data, including switching and routing devices	1,66
851769	Other	1,66



Eco-levy rates collected by SGS (14/26)

HS Code	Product Description	Unit price - USD
851810	Microphones and their media	0,72
851821	Unique speaker mounted in its enclosure	0,72
851822	Multiple speakers mounted in the same enclosure	0,72
851829	Other	0,72
851830	Headphones and headphones, even combined with a microphone, and sets or assortments consisting of a microphone and one or more speakers	0,72
851840	Electric audio-frequency amplifiers.	0,72
851850	Electrical sound amplification devices	0,72
851920	Devices that use the introduction of a coin, banknote, bank card, token or other means of payment	0,72
851930	Turntables	0,72
851950	Telephone answerers - Other devices:	0,72
851981	Using magnetic, optical or semiconductor support	0,72
851989	Other	0,72
852110	With magnetic stripe	0,72
852190	Other	0,72
852290	Other	0,72

Note: Unit Price – USD calculated using an exchange rate of EUR-USD of 1,21



Eco-levy rates collected by SGS (15/26)

HS Code	Product Description	Unit price - USD
852321	Cards with a magnetic track	0,72
852329	Other	0,72
852341	Discs, tapes, storage devices retain semiconductor-based data, "smart cards" and other media for recording sound or for similar recordings..... - - - - Not registered	0,72
852349	Discs, tapes, storage devices retain semiconductor-based data, "smart cards" and other media for recording sound or for similar recordings, Other	0,72
852351	Storage devices that are based on semiconductor-based data	0,72
852352	« Smart cards"	0,72
852359	« Smart Cards" - Others	0,72
852380	Discs, tapes, storage devices retain semiconductor-based data, "smart cards" and other media for recording sound or for..... - Other	0,72
842511	Palans - Motorized	0,72
852550	Emission devices	0,72
852560	Emission devices incorporating a receiving device	0,72
852580	Television cameras, digital cameras and camcorders	0,72



Eco-levy rates collected by SGS (16/26)

HS Code	Product Description	Unit price - USD
852691	Radio navigation devices	0,72
852712	Pocket radio cassettes	1,66
852713	Other devices combined with a sound recording or reproduction device.	1,66
852719	Other	1,66
852721	Combined with a sound recording or reproduction device	1,66
852729	Others - Others:	1,66
852791	Combined with a sound recording or reproduction device	1,66
852792	Not combined with a sound recording or reproduction device but combined with a watch machine	1,66
852799	Other	1,66
852841	Types exclusively or primarily intended for an automatic information processing machine of No. 84.71.	9,43
852851	Types exclusively or primarily intended for an automatic information processing machine of No. 84.71.	9,43
852861	Types exclusively or primarily intended for an automatic information processing machine of No. 84.71.	9,43
852871	Not designed to incorporate a display device or video screen	9,43



Eco-levy rates collected by SGS (17/26)

HS Code	Product Description	Unit price - USD
852872	Others, in color	9,43
852873	Others, in black and white or other monochromes	9,43
852990	Other	0,72
853110	Electrical warnings for theft or fire protection and similar devices	0,72
853120	Indicator panels incorporating liquid crystal or light-emitting diode devices	0,72
853180	Other devices	0,72
853650	Other switches, sectioners and switches - Sockets for lamps, plugs and power sockets:	3,60
853710	- For a voltage not exceeding 1,000 V.....	1,66
853720	For a voltage exceeding 1,000 V	1,66
853810	Tables, panels, consoles, desks, cabinets and other supports of No. 85.37, devoid of their devices	0,72
853921	Halogens, tungsten	0,17
853922	Others, with a power of no more than 200 W and a voltage exceeding 100 V	0,17
853929	Other -Lamps and discharge tubes, other than ultraviolet rays:	0,17
853931	Fluorescent, hot cathode	0,17
853932	Mercury or sodium steam lamps; metal halide lamps	0,17



Eco-levy rates collected by SGS (18/26)

HS Code	Product Description	Unit price - USD
853939	Others - Ultraviolet or infrared lamps and tubes; arc lamps:	0,17
853941	Arc lamps	0,17
853949	Other	0,17
854011	In colour	13,31
854012	In black and white or other monochromes	13,31
854020	Tubes for television cameras; image converters or intensifiers; other photocathode tubes	13,31
854040	Graphic data visualization tubes, in color with a phosphoric point spacing screen of less than 0.4 mm	13,31
854060	- Other cathode tubes - Microwave tubes, of, excluding grid-controlled tubes:	13,31
854370	Other machines and appliances	1,66
900211	Goals -- For cameras, projectors or cameras or cinematographics 'enlargement or reduction	0,72
900510	Binoculars	0,72
900651	Aimed through the lens, for rolls rolls no more than 35 mm wide	0,72
900810	Still image projectors; magnification or reduction cameras.	1,66
901010	Devices and equipment for the automatic development of photographic films, motion pictures	1,66



Eco-levy rates collected by SGS (19/26)

HS Code	Product Description	Unit price - USD
901110	-Stereoscopic microscopes	3,60
901320	-Lasers, other than laser diodes	0,72
901410	-Compasses, including navigation compasses	0,72
901580	Instruments and devices of geodesy, topography, the; rangefinders. - Other instruments and devices	0,72
901600	Scales sensitive to a weight of 5 cg or less, with or without weight.	1,66
901730	Micrometers, sliding feet, calibers and gauges	0,72
901811	Electrocardiographs	0,17
901813	Magnetic resonance visualization diagnostic devices	0,17
901814	Scan devices	0,17
901819	Electrodiagnostic devices: - Other	0,17
901820	Ultraviolet or infrared devices	0,17
901831	Seringues, with or without needles	0,17
901832	Metal tubular needles and suture needles	0,17
901839	Seringues, needles, catheters, cannulas and similar instruments: - Other	0,17
901841	Dental towers, even combined on a common basis with other dental equipment	0,17
901849	Other instruments and appliances, for dental art: -Other	0,17

Note: Unit Price – USD calculated using an exchange rate of EUR-USD of 1,21



Eco-levy rates collected by SGS (20/26)

HS Code	Product Description	Unit price - USD
901850	Other ophthalmology instruments and devices	0,17
901890	Other instruments and devices	0,17
901910	Mechanotherapy devices; massage machines; psychotechnical devices	1,66
901920	Equipment for ozonotherapy, oxygen therapy, aerosol therapy, resuscitation breathing apparatus and other respiratory therapy devices	1,66
902110	Orthopaedic or fracture items and devices	1,66
902140	Devices to facilitate hearing for the deaf, excluding parts and accessories	1,66
902150	Cardiac stimulators, excluding parts and accessories	1,66
902190	Orthopaedic items and devices, including medical-surgical belts and bandages, infirmity. - Other	1,66
902212	Tomography devices driven by an automatic information processing machine	9,43
902213	X-ray machines, even for medical, surgical, dental or veterinary use, including X-ray or radiotherapy devices :- Other, for dental art	9,43
902214	X-ray machines, even for medical, surgical, dental or veterinary use, including X-ray or radiotherapy equipment - Other, for medical, surgical or veterinary use	9,43
902219	X-ray machines, even for medical, surgical, dental or veterinary use, including X-ray or radiotherapy devices -- For other uses	9,43



Eco-levy rates collected by SGS (21/26)

HS Code	Product Description	Unit price - USD
902221	Devices that use alpha, beta or gamma radiation, even for medical, surgical, dental or veterinary use, including radiophotograph or radiotherapy devices -- for medical, surgical, dental or veterinary use	9,43
902229	Devices using alpha, beta or gamma radiation, even for medical, surgical, dental or veterinary use, including radiophotograph or radiotherapy devices: for other uses	9,43
902230	X-ray tubes	9,43
902290	Other, including parts and accessories	9,43
902410	-Metal testing machines and devices	9,43
902480	- Other machines and appliances	9,43
902511	Thermometers and pyrometers, not combined with other instruments - A liquid, direct reading	0,72
902519	Thermometers and pyrometers, not combined with other instruments - Other	0,72
902580	Densimeters, areometers, liquid scales and similar floating instruments, thermometers, pyrometers, barometers, hygrometers and psychrometers, recorders or not, even combined with each other. -- Other instruments	0,72
902610	Instruments and devices for measuring or controlling the flow, instruments and devices of No. 90.14, 90.15, 90.28 or 90.32 - For the measurement or control of the flow or level of liquids	0,72
902620	Instruments and devices for the measurement or control of the flow, instruments and devices of No. 90.14, 90.15, 90.28 or 90.32. - For the measurement or control of pressure	0,72



Eco-levy rates collected by SGS (22/26)

HS Code	Product Description	Unit price - USD
902680	Instruments and devices for measuring or controlling flow, instruments and devices of No. 90.14, 90.15, 90.28 or 90.32. - Other instruments and devices	0,72
902710	- Gas or smoke analyzers	1,66
902720	-Chromatographs and electrophoresis devices	1,66
902730	Spectrometers, spectrophotometers and spectrographs using optical radiation	1,66
902750	Other instruments and devices using optical radiation	1,66
902780	- Other instruments and devices	1,66
902810	Gas, liquid or electricity meters, including meters for calibration. - Gas counters	0,72
902820	Gas, liquid or electricity meters, including meters for calibration. 9028.10 -Gas counters 9028.20 -Liquid counters	0,72
902830	Gas, liquid or electricity meters, including meters for calibration. 9028.10 -Gas counters - Electricity meters	0,72
902910	Tower or production counters, taximeters, path-travelled totalizers, pedometers and similar meters	0,72
902920	Speed indicators and tachymeters; Strobes	0,72
903010	Instruments and devices for measuring or detecting ionizing radiation	0,72
903020	- Oscilloscopes and oscillographs	0,72



Eco-levy rates collected by SGS (23/26)

HS Code	Product Description	Unit price - USD
903031	Multimeters, without a recorder	0,72
903032	Multimeters, with recorder	0,72
903033	Others, without a recorder	0,72
903039	Others, with recorder	0,72
903040	Other instruments and devices, specially designed for telecommunications technology	0,72
903082	Other instruments and devices - For the measurement or control of discs or semiconductor devices	0,72
903084	Other instruments and devices -- Others, with recorder	0,72
903089	Other instruments and devices -- Others	0,72
903110	-Machines to balance mechanical parts	3,60
903120	-Test benches	3,60
903141	Other optical instruments and devices - For the control of discs or semiconductor devices or for the control of masks or crosshairs used in the manufacture of semiconductor devices	3,60
903149	Other optical instruments and devices - Others	3,60
903210	-Thermostats	0,72
903220	Manostats	0,72

Note: Unit Price – USD calculated using an exchange rate of EUR-USD of 1,21



Eco-levy rates collected by SGS (24/26)

HS Code	Product Description	Unit price - USD
903281	Other instruments and devices - Hydraulic or pneumatic	0,72
903289	Other instruments and devices - Hydraulic or pneumatic 9032.89 -- Other	0,72
910111	Wristwatches, electrically running, even incorporating a time counter. -- A mechanical display only	0,72
910211	Wristwatches, electrically running, even incorporating a time counter. -- A mechanical display only	0,72
910310	Wakes and clocks, watch-moving. - Electrically operating	0,72
910511	Awakenings -- Electrically functioning	0,72
910521	Pendules and clocks, murals -- electrically functioning	0,72
910591	Other. -- Electrically operating	0,72
910610	Pointing clocks; time stamps and horocators	0,72
920710	Musical instruments whose sound is produced or must be amplified by electrical means, of. - others	1,66
920790	Musical instruments whose sound is produced or must be amplified by electrical means, of. - -Keyboard instruments, other than accordions	1,66
920890	Music boxes, orchestrions, barrel organs..... – Other	3,60
920999	Music boxes, orchestrions, barrel organs, - Others	1,66



Eco-levy rates collected by SGS (25/26)

HS Code	Product Description	Unit price - USD
940210	Dentist chairs, hair salon chairs and similar chairs, and their parts	9,43
940320	Other furniture and their parts. - - - Other metal furniture	9,43
940510	-Lights and other electrical lighting fixtures to hang or attach to the ceiling or wall, excluding those of the types used for lighting public spaces or roads	1,66
940520	-Bedside lamps, office lamps and indoor streetlights, electric	1,66
940530	Electric garlands of types used for Christmas trees	1,66
940540	- Other electric lighting fixtures	1,66
940560	Billboards, illuminated signs, light indicator plates and similar items	1,66
950300	Tricycles, scooters, pedal cars and toys with similar wheels; prams and strollers for dolls; dolls; Other toys models and similar models for entertainment, animated or not; puzzles of all kinds.	0,72
950310	Tricycles, scooters, pedal cars and toys with similar wheels; prams and strollers for dolls; dolls; Other toys models and similar models for entertainment, animated or not; puzzles of all kinds.	0,72
950410	Consoles and video game machines, items for board games, including motor or motion games, billiards, special tables for casino games and automatic bowling games, of.	0,72
950430	Video game consoles and machines, board game items, - Other games that work by the introduction of a coin, banknote, bank card, token or any other m	0,72



Eco-levy rates collected by SGS (26/26)

HS Code	Product Description	Unit price - USD
950450	Consoles and video game machines, items for board games, - Consoles and video game machines, other than those of 950430.	0,72
950490	Consoles and video game machines, items for board games, including motor or motion games, billiards, special tables for casino games and automatic bowling games, of. -other	0,72
950590	Holiday, carnival or other entertainment items, including magic and surprise items. - - - Others	0,72
950691	Items and materials for physical culture, gymnastics, paddling pools. - Items and equipment for fitness, gymnastics or athletics	1,66
950699	Items and materials for physical culture, gymnastics, athletics, other sports or outdoor games, not referred to or included elsewhere in this Chapter; swimming pools and wading pools. - -- Others	1,66
960340	Brushes and brushes to paint, brush, varnish or similar pads and rollers to paint	1,66
961380	Lighters and lighters, of, even mechanical or electrical, and their parts other than stones and wicks. - - - Other lighters and lighters	0,72

Unused Slides

