JICA's 50 Years in Bangladesh
Toward Sonar Bangla









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This 50 year anniversary magazine is a compilation of the results of a survey contracted by JICA to a joint venture (PADECO Co.,Ltd and Ekmattra Entrepreneurs Ltd.), entitled "JICA Survey for Achievement of Japan Bangladesh 50 Years of Cooperation".

Logo commemorating 50 years of cooperation between Bangladesh and JICA

Description:

In the foreground on the right is the Bangladesh Independence Monument, and on the far left is Mt. Fuji, which represents both countries. A white road between them, signifying the path Japan and Bangladesh have followed and will continue to take them together.

A dove, symbolizing peace, flies over the sunset in the background, expressing further friendship in the future. The colors, red, white, blue, and green represents passion, purity, peace, friendship.


(Photo: JBCEA)


(Photo: Mika Tanimoto/JICA)


(Photo: Mika Tanimoto/JICA)


(Photo: JICA)


(Photo: JICA)


(Photo: Abir Abdullah)


(Photo: JICA)


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(Photo: Abir Abdullah)


(Photo: Abir Abdullah)

JICA's 50 Years in Bangladesh: Toward Sonar Bangla

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HAYAKAWA Yuho
Chief Representative
JICA Bangladesh office

Foreword

JICA's development cooperation in Bangladesh started from establishment of Japan Overseas Cooperation Volunteers Representative Office in Dhaka in March 1973. And now, we will celebrate 50 years anniversary in March 2023. The cooperation that started from dispatch of volunteers, has expanded to Technical Cooperation including dispatching expert and training in Japan, ODA Loan, Grant Aid and Public-Private partnership. Bangladesh, which has been an important partner of JICA, is placed as one of the top countries in JICA's portfolio now. The development that Bangladesh has achieved in the last 50 years is definitely impressive. We are truly proud to take the path together and have contributed to this prosperity.

JICA has been supporting wide range of projects in Bangladesh, from urban mega-projects such as the Dhaka MRT to small-scale projects in rural areas and volunteer activities. Also we have been covering the various sectors such as power and energy, transportation, urban development, private sector, governance, health, education, agriculture and rural development, disaster prevention and climate change.

The most fundamental and common principle for JICA in its supports is that Bangladeshi and Japanese people discuss together, work together and achieve concrete results together against difficult challenges. The trust built upon the efforts of each of us is the most significant outcome of the 50 years of development cooperation in Bangladesh.

There have been some sad incidents in the past. Here, we will never forget the will of victims of the terror attack in July 2016 and volunteers who fell in the middle of their ambitions and will remain fully committed to high-quality cooperation for developing of this country.

I hope that this booklet will provide an opportunity to look back on the history of cooperation between Bangladesh and Japan, and contribute to the brighter future for both countries.

早川 友歩

ITO Naoki
Ambassador Extraordinary and
Plenipotentiary of Japan
to the People's Republic of Bangladesh

Message

Japan and Bangladesh celebrated the 50th anniversary of establishing diplomatic relations in February 2022. In March 2023, JICA will also commemorate the 50th anniversary of development cooperation in Bangladesh. I am delighted to see that, to celebrate these milestones, JICA has issued a booklet to look back on its project history in Bangladesh.

The cooperative relationship between the two countries, which started with the dispatch of three volunteers, has dramatically expanded along with the rapid economic growth of Bangladesh. Now JICA provides yen loans to large-scale quality infrastructure projects such as Dhaka Metro, Extension of Airport Terminal and Matabari deep-sea port, that transform the nation. Today, Japan is the biggest development partner in Bangladesh, and Japanese companies are increasingly interested in exploring investment opportunities in Bangladesh. Undoubtedly, economic and development cooperation has promoted widely our partnership. I am confident that the relationship will evolve further.

At this important juncture, I believe it is worthwhile to recollect on the fruitful journey of our cooperation over the past 50 years and appreciate the pioneer spirits and individual efforts that have contributed to the current development prosperity across Bangladesh. Our responsibility is to achieve further success on the basis of what our forerunners have built and pass on their passion, hope, and trust to future generations.

I hope that this booklet will deepen the friendship and mutual understanding between peoples of Japan and Bangladesh.

伊藤 直樹

Map of Bangladesh

Division	8
District	64
Upazila	492
Union	4,571
City Corporation	12
Municipality	316

Statistical Yearbook of Bangladesh 2020

Our Mission, Vision and Actions

Mission

JICA, in accordance with the Development Cooperation Charter, will work on human security and quality growth.

Vision

Leading the world with trust

JICA, with its partners, will take the lead in forging bonds of trust across the world, aspiring for a free, peaceful, and prosperous world where people can hope for a better future and explore their diverse potentials.

Actions

1. Commitment: Commit ourselves with pride and passion to achieving our mission and vision.
2. Gemba: Dive into the field ("gemba") and work together with the people.
3. Strategy: Think and act strategically with broad and long-term perspectives
4. Co-creation: Bring together diverse wisdom and resources.
5. Innovation: Innovate to bring about unprecedented impacts.

Overview of Operations

#	Item	Amount
1	Technical Cooperation (1979—2020)	96,046 million yen
2	ODA Loan (1974—2020)	2,395.282 billion yen
3	Grant Aid (1977—2020)	139,084 million yen

Dispatch of Personnel

#	Item	Number of Personnel
1	Trainees and Foreign Students (1971—2019)	13,866
2	Japan Overseas Cooperation Volunteers (1973—)	1,284
3	JICA Experts (1962—2019)	4,921

JICA's Main Contributions

Power and Energy

01

① Develop **2,434 MW** of power generation capacity (12% of total capacity in Bangladesh)
② Construction and rehabilitation of more than **25,000 km** of power distribution lines
③ Construction and expansion of 109 substations for power distribution

Transport

02

① Construction of **134 bridges**, including 6 bridges over 500 meters in length: (1) Jamuna, (2) Paksey, (3) Rupsha, (4) Gumti, (5) Meghna and (6) Karuna bridges)
② Construction of the Jamuna Bridge reduced travel time (including waiting time for ferries) from **36 hours to 15 minutes**.
③ Three MRT projects (Line 6, Line 1, and Line 5 North) that are expected to carry 2 million passengers daily
④ MRT Line 6 to reduce the travel time between Uttara North and Motijheel from **105 minutes to 36 minutes**
⑤ Construction of airports at Dhaka (expected 12 million) and Chittagong (2 million), total **14 million passengers** per year
⑥ Completion of the **first national digital topographic map** (1/25000) in Bangladesh (2018)

Urban Development

03

① Reducing drainage time in Dhaka (drainage area) **from 7 days to 7 hours**
② Improvement of waste collection rate in Dhaka **from 44% to 80%**

Private Sector

04

① Introduction of one-stop services in special economic zones
② Introduction of the **Information Technology Engineer Examination (ITEE)**, a national qualification test developed in Japan
③ **186 graduates** (70% of graduates) found employment in Japan under the IT human resources development program "B-JET".

09

Disaster Prevention/ Climate Change

① Installation of **five weather radars** covering the entire country to reduce natural disasters damage
② Construction of **117 high-quality cyclone shelters**
③ Construction of **240 km of river embankments** as a flood countermeasure

08

Agriculture and Rural

① **Doubling of the rice harvest rate** through technical guidance by 489 experts
② **Improvement of varieties** of vegetables, fruits, and rice, including Tasaki radishes
③ Introduction of the participatory rural development (**Link Model**) and **nationwide dissemination** (64 prefectures and 215 counties)

07

Education

① Nationwide dissemination of the "**Lesson study**" method developed in Japan
② Revision of textbooks to enable the development of inquiry-based and problem-solving classes
③ **60,000 schools** received revised textbooks for elementary school
④ **39 million** students have benefited by the revised textbooks

06

Health

① Polio eradication and Filaria countermeasure by dispatching 205 JOCVs
② Construction of **417 community health clinics** for 2.5 million people
③ Improvement of **maternal and child health services** by establishing and expanding the Narsingdi model nationwide

05

Governance

① Introduction of small-scale infrastructure by **participatory development to 492** out of 496 upazilas nationwide
② Supports more than **2,800** participatory projects in various sectors like Fisheries, Livestock, Agriculture and Irrigation, Health and Welfare, and Education in 64 nationwide districts

Chapter 1
Bangladesh and Development Cooperation

Chapter 1: Bangladesh and Development Cooperation

1.1 Basic information

(1) General Information

General Information

Item	Content
Area	147,570km^2
Population	164.68 million (2020)
Capital	Dhaka
Ethnicity	Bengali: about 98%; Other ethnic minorities: about 2%
Language	Bengali
Religion	Muslims: about 90%; others (Hindus, Buddhists, Christians): about 10%

(Source: Ministry of Foreign Affairs of Japan)

1) General Information

Bangladesh, which means the "Land of Bengal" in the Bengali language, is bordered by India on the north and east, Myanmar on the southeast, straddles the Bay of Bengal to the south and faces the Indian Ocean. A large part of the country is in the delta along the Bay of Bengal, and half of the country is in the lowlands at an altitude of less than seven meters above sea level, making it susceptible to cyclones, floods, and other natural disasters. The eighth most populous country in the world, 160 million people live in a land area about 40% the size of Japan, or the size of Hokkaido and Tohoku combined. The population density is more than 1,200 people per square kilometer (about three times that of Tokyo's 23 wards), the highest in the world except for island nations and city-states.

A man working on a farm. (Photo: Abir Abdullah)

People boarding on a crowded train. (Photo: Abir Abdullah)

(2) Political System and Basic Diplomacy

Political Information

Item	Content
Form of Government	Republicanism
Ruler	President Md. Abdul Hamid (as of 2021)
Parliament	Unicameral system (General Assembly 350)
Major political parties	Two major political parties, Awami League and Bangladesh Nationalist Party (BNP)

(Source: Ministry of Foreign Affairs of Japan)

1) Political System

Bangladesh gained independence from the United Kingdom as a part of Pakistan in 1947, and then from Pakistan in 1971, when the current state was established. The political system is based on a parliamentary cabinet system, with

executive power vested in the Prime Minister. The president is designated as the head of state and commander-in-chief of the armed forces, and has the power to appoint the prime minister, ministers, and judges of the Supreme Court. The president is a symbolic figure who acts on the advice of the prime minister.

Since the transition to democracy in 1991, the two major political parties, the Awami League and the Bangladesh Nationalist Party (BNP), have alternated in power. The Awami League, the current ruling party, single-handedly won more than five-sixths of the seats in the general election held at the end of 2018. The president is Md. Abdul Hamid, and the prime minister is Sheikh Hasina. Prime Minister Sheikh Hasina is serving her fourth term as the Prime Minister (her third consecutive term since the 2008 elections).

2) Diplomatic Policy

The Father of the Nation, Bangabandhu Sheikh Mujibur Rahman, advocated all-round diplomacy under the slogan "Friendship with all nations without hostility." He had built friendly relations with India and other South Asian and Muslim countries, as well as major donor countries including Japan. In this consequence, Bangladesh became the member of global and regional cooperation organs like SAARC (South Asian Association for Regional Cooperation), BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation), SASEC (South Asian Sub-Regional Economic Cooperation), NAM (Non-Aligned Group (NAM), Organization of the Islamic Conference (OIC), and the Commonwealth. It has actively participated in UN peacekeeping operations, deploying 6,435 personnel, ranking first among all deploying countries (as of July 2021).

National Parliament House of Bangladesh (Photo: Abir Abdullah)

Celebrating Independence Day (Photo: Abir Abdullah)

(3) Economy

Economic Information

Item	Content
GNI (Atlas method)	$333.8 billion (2020)
GNI per capita	$2,030 (2020)
GDP growth rate	3.51% (2020)
Consumer Price Index growth rate	5.63%(as of Feb. 2021)
Exports	$38.7 billion (2020)
Main export items	Sewn products (including knitwear) (85.6%), textiles (2.3%), footwear products (2.2%), seafood (1.4%)
Imports	$59.9 billion (2020)
Main import items	Mineral and petroleum products (13.0%), cotton (2.7%), nuclear reactors and machinery (10.6%), iron and steel products (6.0%), electrical machinery (4.9%)

(Source: World Bank, Bangladesh Bank, Ministry of Foreign Affairs of Japan, Bangladesh Export Promotion Board, Bangladesh Bank)

1) Economic Growth

The economy of Bangladesh had been stagnant for many years after independence due to natural disasters, but in the 1990s it began to grow rapidly, supported by (1) increased exports of textiles and other products supported by abundant low-cost labor[1], (2) the participation of women in the labor market, and (3) increased productivity due to the shift from agriculture to manufacturing. The economy

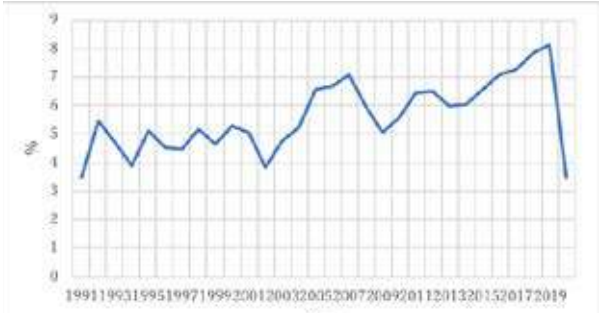
[1] The textile industry, which currently accounts for about 80% of exports, has been a key industry since the 1990s.

grew at an average rate of 4-5% per year throughout the 1990s and has maintained a high economic growth rate of about 6% on average from the 2000s to the present. Fiscal 2019 (July 2018-June 2019) saw a record high GDP growth rate of 8.15%. Although economic growth has slowed since then due to the impact of the spread of Covid-19, the economy has maintained the world's highest level of growth rate with 3.51% in FY2020 and 5.5% in FY2021 (preliminary figures from the Ministry of Finance).

Women working on a farm (Photo: Abir Abdullah)

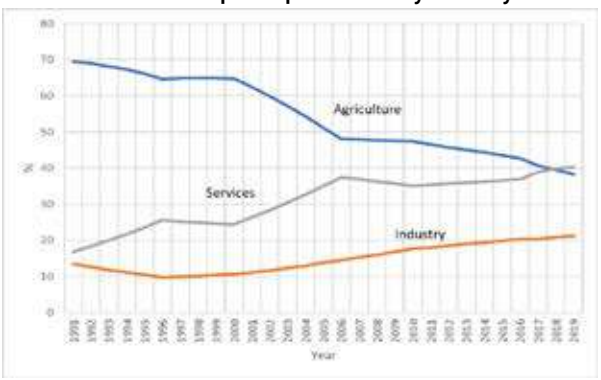
People working in the garment industry (Photo: Abir Abdullah)

Trends in economic growth



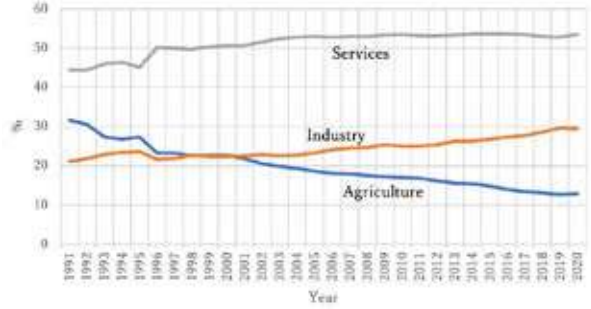
(Source: World Bank)

Trends in labor force participation rate by industry



(Source: World Bank)

Trends in GDP ratio by industry

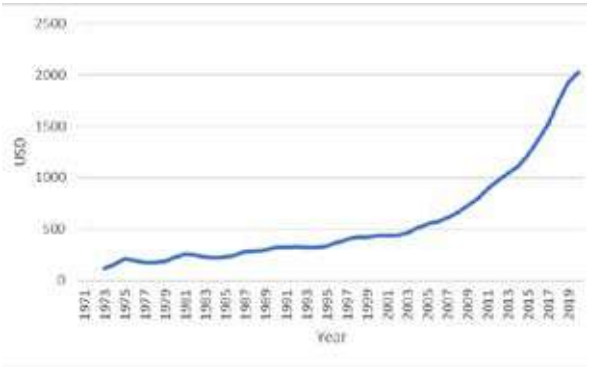


(Source: World Bank)

2) GNI per Capita and Comparison with Neighboring Countries

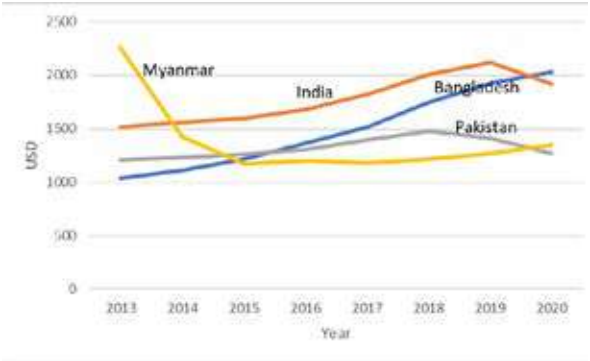
From $3-400 in the 1990s, Bangladesh's GNI per capita grew rapidly in the 2010s, reaching $2,030 in 2020. This not only surpasses Pakistan, but also India for the first time. In the World Bank's classification of national income groups based on GNI per capita, the country graduated from low-income status in 2015 and is now positioned as a lower-middle-income country.

Trends in GNI per capita



(Source: World Bank)

Comparison of GNI per capita with neighboring countries



(Source: World Bank)

3) Graduation from Least Developed Countries

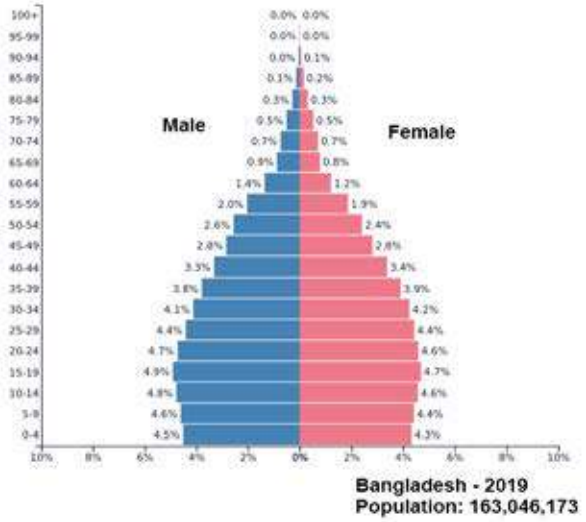
As a Least Developed Country (LDC), Bangladesh met the graduation criteria of GNI per capita, economic vulnerability, and human resource development status, and the UN General Assembly adopted a resolution for LDC graduation in November 2021. As a result, graduation is expected to occur in 2026 after a five-year transition period.

(4) Society

1) Population Structure and Employment

The country has a youthful demographic composition, with almost half (46%) of the population under the age of 24. On the other hand, a major challenge is to provide good job opportunities for the growing young population. Although the percentage continues to decline, 38% of the working population is still engaged in agriculture, forestry, and fisheries, and it is expected that the service sector, with its labor-intensive elements, will provide many employment opportunities in the future. In particular, the IT sector, which has been accelerating in recent years, has been identified as one of the national priority sectors known as "Digital Bangladesh."

Population structure by age



(Source: https://www.populationpyramid.net/)

2) Poverty Reduction and Regional Disparities

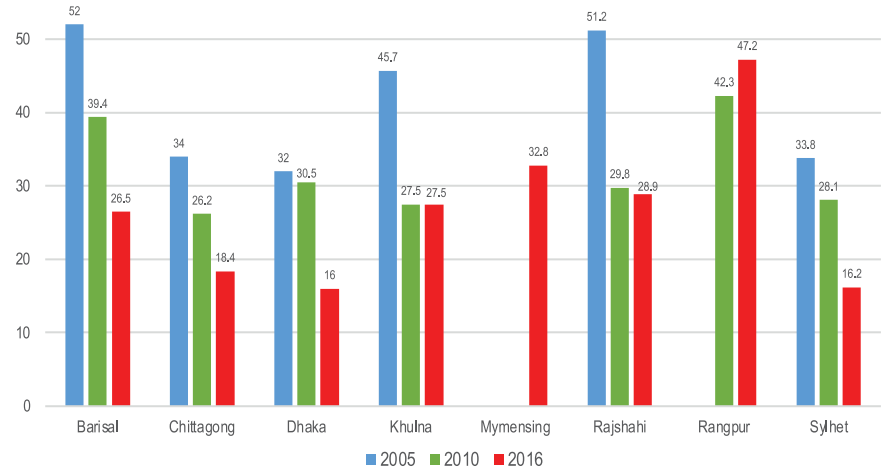
Bangladesh's GNI per capita exceeded $1,000 in 2013, and the poverty rate (the population below the national poverty level) decreased from 48.9% in 2000 to 24.3% in 2016. On the other hand, although the poverty rate by jurisdiction has been declining in all jurisdictions, the poverty rate in rural areas is higher than that in urban areas, and poverty reduction remains a major challenge. The Gini coefficient, which indicates the degree of income inequality, was 32.4 in 2016, compared to 33.4 in 2000, indicating that income inequality remains high, although there has been some improvement.

Trends in poverty rate since 2000

	2000	2005	2010	2016
Poverty rate	48.9%	40.0%	31.5%	24.3%
Extreme poverty rate	34.3%	25.1%	17.6%	12.9%
Gini coefficient	33.4	33.2	32.1	32.4

(Source: Preliminary Report on Household Income and Expenditure Survey 2016, Bangladesh Bureau of Statistics)

Poverty rate by region in Bangladesh



(Source: Bangladesh Poverty Assessment - Assessing a Decade of Progress in Reducing Poverty 2000-2010, World Bank and Bangladesh Economic Review 2017

3) Improving Social Development Indicators

The table below shows the trends of social development indicators in Bangladesh, with improvements in both the education and health sectors in the 2000s and 2010s.

The government of Bangladesh has linked the achievement of the SDGs with its policy goals and is working to improve the figures in the social sectors such as health and education.

Improvement in Social Indicators in Bangladesh

Indicators	2001	2011	2016	2017	2018	2019
Literacy rate (15 years old and over)[%]	47.5	58.8	72.8	72.9	73.9	74.7
Secondary education enrollment rate [%]	51.0	52.4	71.4	69.7	72.7	72.6
Birthrate	3.07	2.27	2.09	2.06	2.04	2.01
Life expectancy (female) [years]	66.6	71.7	73.7	74.0	74.3	74.6
Life expectancy (male) [years]	65.4	69.0	70.2	70.4	70.6	70.9
Life expectancy (total) [years]	66.0	70.3	71.8	72.1	72.3	72.6
Infant mortality rate (Per 1000 people)	60.3	36.8	29.3	28.0	26.7	25.6

(Source: World Bank)

4) Disaster Management and Climate Change

Bangladesh is one of the most vulnerable countries to natural disasters due to its unique geographical position which is exposed to climate-provoked hazards like floods, cyclone surges, windstorms, and earthquakes. Over the past 30 years (1985-2014), natural disasters have caused 170,000 deaths and affected more than 262 million people, and climate change-related disasters are becoming more severe.

People evacuating from a cyclone. (Photo: Abir Abdullah)

The government of Bangladesh has been working on disaster prevention for many years and has made progress in the development of early warning systems, shelters, and relief and support systems, and has achieved some success in reducing the number of deaths. Most recently, the government has been promoting climate change countermeasures and disaster management in the Delta Plan 2100 and the Eighth Five-Year Plan.

5) NGO Contributions to Social Services

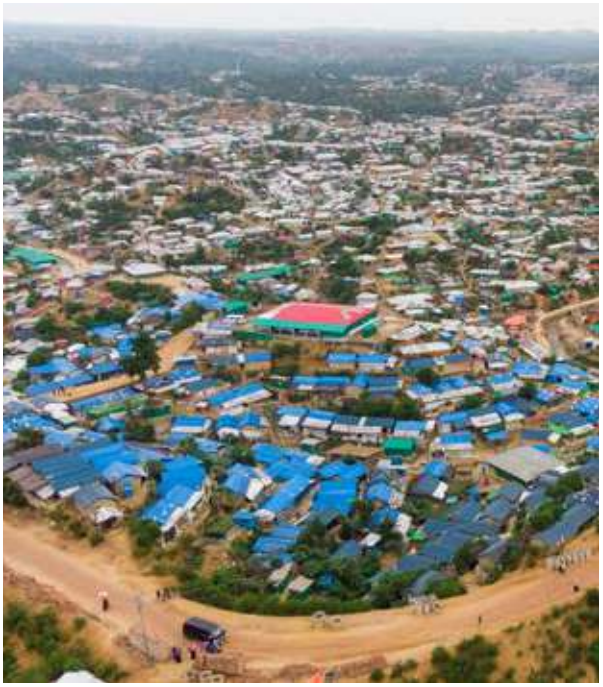
Bangladesh has been addressing the root causes of poverty by investing in human capital and increasing resilience to natural disasters. Among other things, non-governmental organizations (NGOs) have worked with the government to promote social services to communities. As a result, they have contributed to impressive progress in human development indicators. In particular, the introduction of micro-credit and community-based disaster management systems are widely known.

6) The Issue of Rohingya, Forcibly Displaced Myanmar Nationals (FDMN)

The Rohingya are Bengali Muslims who have been living in the border region of Bangladesh and Rakhine state in western Myanmar. In 1982, Myanmar's Nationality Law classified Rohingya as "foreigners" if they were not recognized as being descendants of residents who lived in Burma prior to 1823 .

With the increasing oppression of ethnic minorities in Myanmar, about 250,000 people first entered Bangladesh in 1978. In 2017, in the largest influx to date, 700,000 Rohingya arrived in Bangladesh and, as of November 2021, there were 913,000 Rohingya in Bangladesh, including several camps in Cox's Bazar, including at Kutupalong Camp, said to be the largest such camp in the world.

A girl playing in a refugee camp (Photo: Abir Abdullah)



Aerial photo of Rohingya Camp in Cox's Bazaar (Photo: Masud Al Mamun)

1.2 National Development Plan and Five-Year Plan of Bangladesh

The Bangladesh government's basic policy on development consists of the National Development Plan and the Five-Year Plan.

National Development Policy

Fiscal Year	Proposed plan name
2005-08	Unlocking the Potential: NSAPR-I
2009-11	Steps Towards Change: NSAPR-II
2010-21	Outline Perspective Plan for Bangladesh
2021-41	Second Perspective Plan–Vision2041 The goal is to become an upper-middle income country by 2031 and a developed country by 2041.

(Source: Compiled by the research team from information provided by the General Economics Division)

Five-Year Plan

Fiscal Year	Proposed plan name	Growth rate (target)	Growth rate (actual)
1973-78	The First Five-Year Plan	5.5	4.0
1978-80	The Second Five-Year Plan	5.4	3.8
1980-85	The Third Five-Year Plan	5.4	3.8
1990-95	The Fourth Five-Year Plan	5.0	4.2
1997-02	The Fifth Five-Year Plan	7.0	5.1
2011-15	The Sixth Five-Year Plan	7.3	6.3
2016-20	The Seventh Five-Year Plan	7.44	7.13
2021-2025	The Eighth Five-Year Plan	8.00	

(Source: Ministry of Planning, Bangladesh)

1.3 Relationship between Bangladesh and Japan

In 2014, Prime Minister Abe and Prime Minister Hasina announced a "Comprehensive Partnership" during their mutual visit. The number of Japanese companies operating in Bangladesh will be 324[1] as of 2021, with 984 Japanese residents and 17,463 nationals living in Japan.

Since independence, Bangladesh has pursued an all-round diplomacy, emphasizing stability in the South Asian region, and actively promoting economic cooperation in the region. Japan is the largest bilateral donor to Bangladesh and has maintained good relations with Bangladesh since independence.

1. JETRO Dhaka Office (2021)

Meeting between JICA President, Dr. Kitaoka and Prime Minister Sheikh Hasina (2019) (Photo: JICA)

Diplomatic events between Japan and Bangladesh

Year	Event
1972	Opening of Bangladesh Embassy in Tokyo
1972	Opening of Japan Embassy in Dhaka
1973	Prime Minister Sheikh Mujibur Rahman's visit to Japan
1978	President Ziaur Rahman's visit to Japan
1980	President Ziaur Rahman's visit to Japan
1985	President Ershad's visit to Japan
1989	President Ershad's visit to Japan
1990	President Ershad's visit to Japan
1990	Prime Minister Kaifu's visit to Bangladesh
1994	Prime Minister Khaleda Zia's visit to Japan
1997	Prime Minister Sheikh Hasina's visit to Japan
2000	Prime Minister Mori's visit to Bangladesh
2005	Prime Minister Khaleda Zia's visit to Japan
2010	Prime Minister Sheikh Hasina's visit to Japan
2014	Prime Minister Sheikh Hasina's visit to Japan, Prime Minister Abe's visit to Bangladesh
2016	Prime Minister Sheikh Hasina's visit to Japan
2019	Prime Minister Sheikh Hasina's visit to Japan

(Source: Ministry of Foreign Affairs of Japan)

Trade with Japan: Trade value (in millions of dollars)

	2015-16	2016-2017	2017-2018	2018-2019	2019-2020
Export	1,080	1,013	1,132	1,365	1,200
Import	1,644	1,735	1,870	1,846	1,720

(Source: Ministry of Foreign Affairs of Japan)

JOCV giving guidance (Photo: JICA)

Jamuna Multi-purpose Bridge (Photo: Masud Al Mamun)

Cyclone Shelter (Photo: JICA)

JOCV planting crops with locals (Photo: JICA)

40th Anniversary of JICA assistance celebrated at Bangladesh Agricultural University (Photo: JICA)

Prime Minister Sheikh Hasina visits a JICA-supported food warehouse. (Photo: JICA)

Main Products

Exports: sewn products, knitted products, leather and leather goods, shoes and hats.

Imports: steel, ships, nuclear reactor-related products, vehicles, machinery and electrical products, optical and precision instruments.[2]

Direct Investment from Japan (unit: million USD)

	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
Amount of investment	34.61	44.47	28.05	72.91	60.12

(Source: Ministry of Foreign Affairs of Japan)

1.4 ODA Overview

(1) Historical Event of JICA Bangladesh

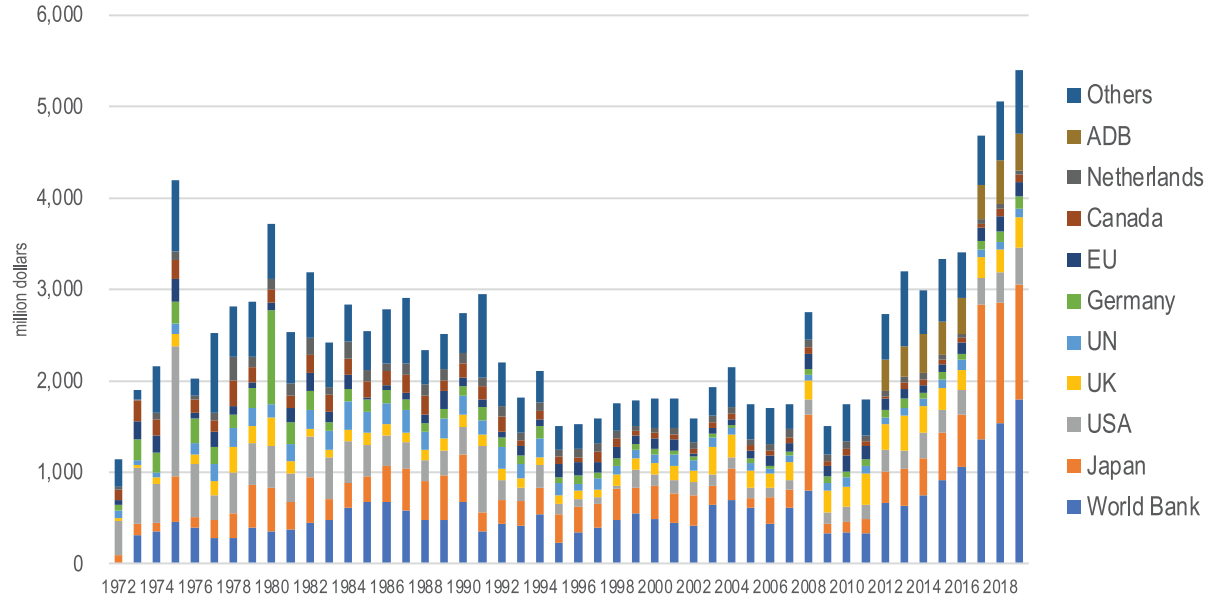
Year	Event
March 1973	Japan Overseas Cooperation Volunteers (JOCV) Dispatch Agreement concluded JOCV Representative office opened.
August 1973	Dispatch of JOCV.
April 1974	Overseas Technical Cooperation Agency (OTCA) office opened; renamed as Japan International Cooperation Agency (JICA) office in August
April 1988	JOCV representative office and JICA office merged
October 1988	Overseas Economic Cooperation Fund (OECF) representative office opened; renamed as Japan Bank for International Cooperation (JBIC) office in October 1999.
2002	Senior Japan Overseas Cooperation Volunteers Dispatch Agreement concluded.
2002	Technical Cooperation Agreement concluded.
October 2008	JICA office and JBIC office merged.
March 2023	50th anniversary of JICA-Bangladesh development cooperation

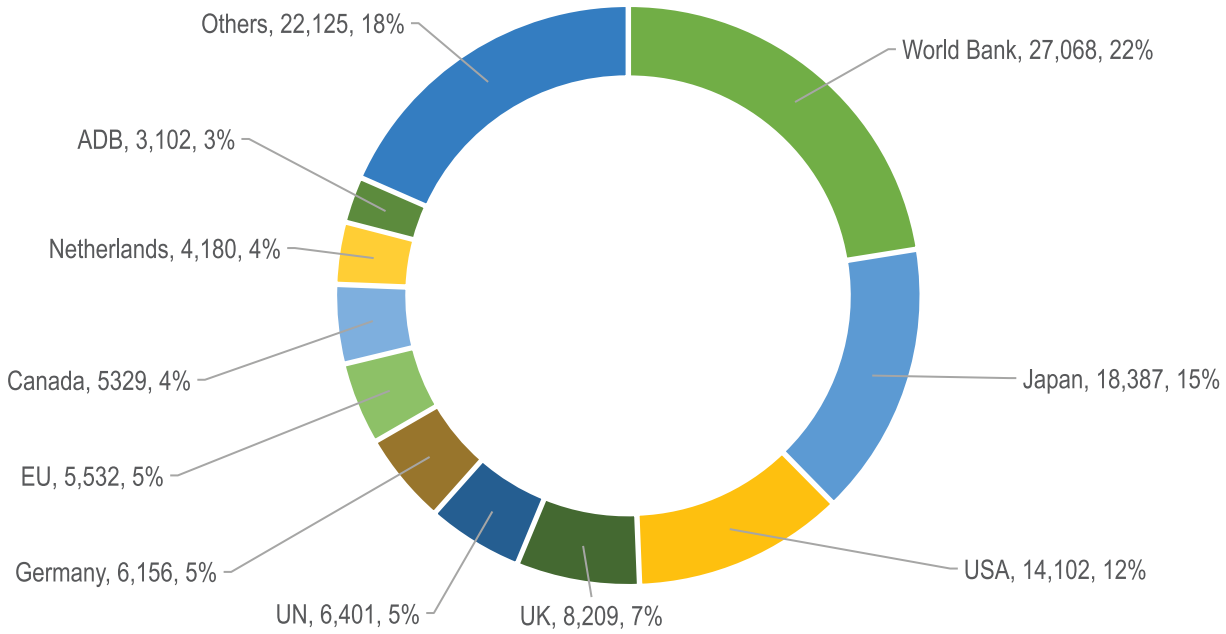
(Source: JICA)

2 Global Trade Atlas (2020)

(2) ODA Overview in Data

1) ODA to Bangladesh (total expenditure) by Donors



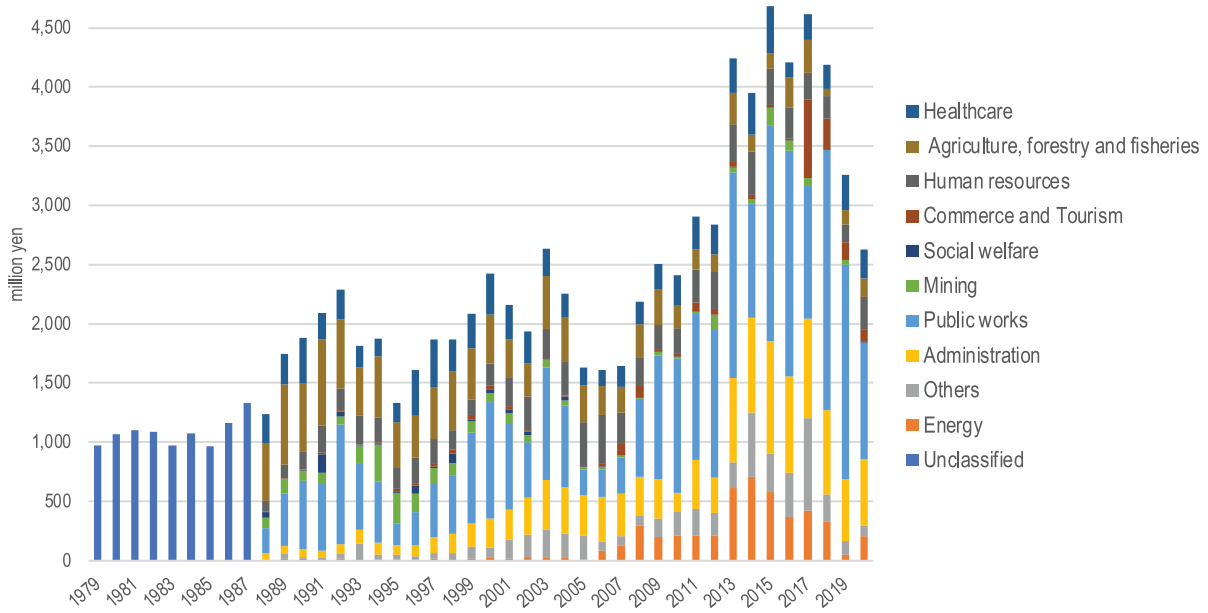


Data prior to 2011 from the Asian Development Bank is not included. (Source: OECD)

Cumulative ODA to Bangladesh since 1972 (total disbursement) is $120,595 million. The World Bank ranked first with 22% ($27,068 million), followed by Japan in second place with 15% ($18,387 million). It is followed by the USA (12%, $14,102 million), the UK (7%, $8,209 million), and the UN (5%, $6,401 million).

2) Technical Cooperation (Fiscal Year(FY) 1979-2020)

Cumulative Amount of Technical Cooperation by Fiscal Year

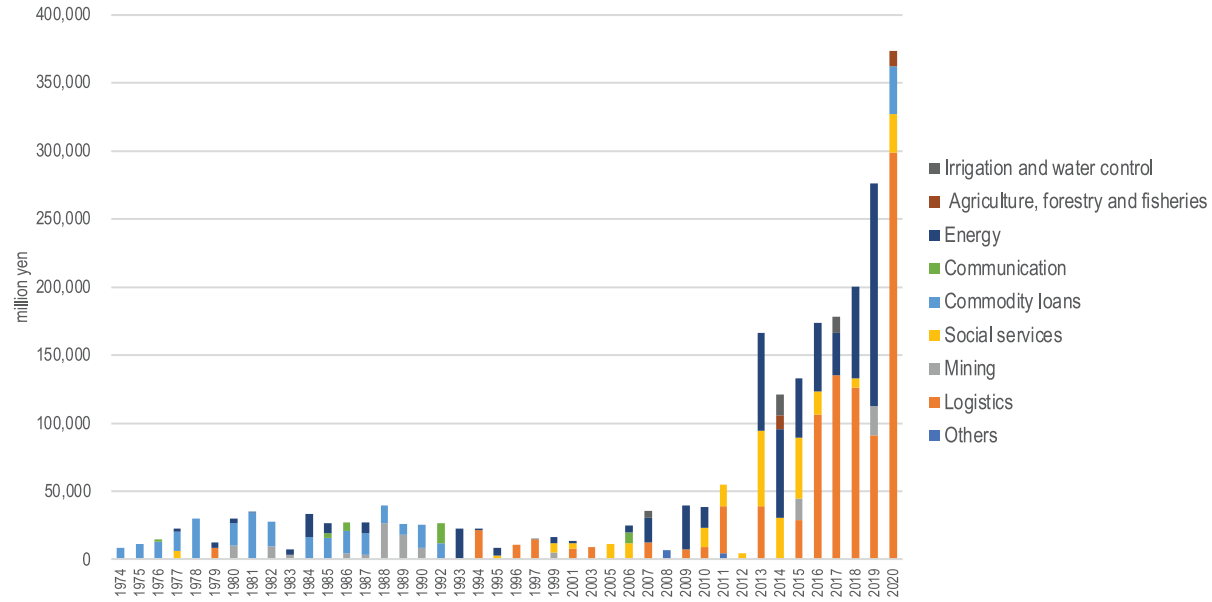


(Source: JICA)

The total of technical cooperation since FY1979 is 96,046 million yen. The data from FY 1988, which shows the results by field classification, indicates that more than half of the results are in these three fields: social welfare (28.455 billion yen, 30.8%), administration (11.375 billion yen, 12.3%), and agriculture, forestry, and fisheries (11.154 billion yen, 12.1%). These three fields account for more than half of the total amount.

3) ODA Loan Contribution (commitment) (Fiscal Year (FY)1974-2020)

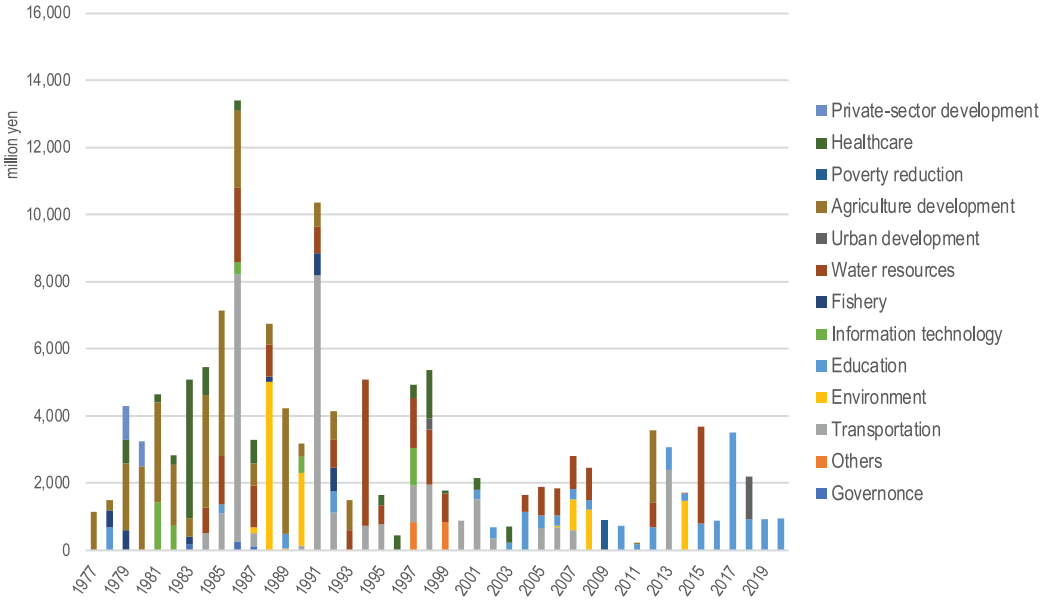
Cumulative ODA Loan by Fiscal Year



(Source: JICA)

The total amount of paid financial cooperation since FY 1974 is 2,395.282 billion yen (commitment amount base). Of this total, transportation accounted for the largest share (966,017 million yen, 40.3%), followed by electricity and energy (642,871 million yen, 26.8%) and commodity loans (297,110 million yen, 12.4%).

4) Grant Aid: Contribution (Fiscal Year (FY) 1977-2020)



(Source: JICA)

The total of grant aid that JICA has been involved in since 1977 in the form of surveys and promotion of implementation (E/N base, including projects implemented by the Ministry of Foreign Affairs before FY2008) is 139,084 million yen. The top sub-categories are agriculture development (31,338 million yen, 22.5%), transportation (31,172 million yen, 22.4%), and water resources (25,482 million yen, 18.3%).

Old 100 Taka Note and Old 5 Taka Coin of Bangladesh (Jamuna Multipurpose Bridge Project)

The Jamuna River runs north-south through the country of Bangladesh. The construction of a bridge connecting the east and west sides of the country has been a long-cherished dream since the country was founded. The Jamuna Bridge, which was adopted as the design for the country's banknotes and coins, is a multi-purpose bridge carries railroads, gas pipelines, and power transmission lines, and was supported by Japan with a yen loan totaling 21.562 billion yen in 1994.

Commemorative Stamp for the Dispatch of 1,000 JICA Overseas Cooperation Volunteers

A postage stamp was produced to commemorate the dispatch of 1,000 JICA Overseas Cooperation Volunteers to Bangladesh.
Clockwise from top right: 1) Polio vaccine, 2) Khepupara Weather Radar Station, 3) Vocational training, 4) Jamuna Multipurpose Bridge

(Photo: Mika Tanimoto/JICA)

Chapter 2
Accelerating Economic Growth

2.1 Power and Energy

1. Overview

JICA has been prioritizing the improvement of the power and energy sector since its inception in Bangladesh. In particular, the improvement of power generation, transmission and distribution have been the core of JICA's cooperation for Bangladesh, and JICA assisted in the achievement of such praiseworthy milestones as increasing the electrification rate from 32% in 2000 to 92% in 2019 and power generation capacity from 3,711 MW in 2000 to 20,383 MW in 2020.

JICA's support for power and energy sector

Sector	ODA Loan			TCP-DS
	Amount (Mil. Yen)	(%)	No.	No.
Power Subtotal	621,668	95%	34	6
(Generation)	446,987	68%	19	2
(Transmission)	93,248	14%	6	1
(Distribution/Rural Electrification)	34,234	5%	5	0
(Others)	47,199	7%	4	3
Gas	31,603	5%	3	1
Total	653,271		37	7

(Source: Edited by the survey team based on JICA information)

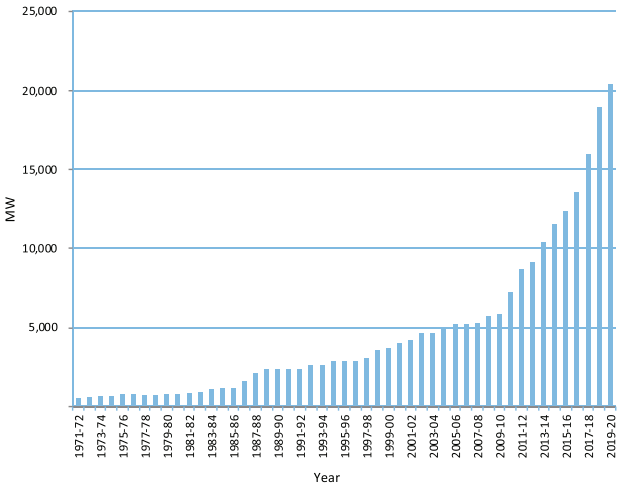
1.1 Until the Early—2000s

Immediately after the independence of Bangladesh, JICA started its cooperation to revamp the power infrastructures of the war-ravaged country. Up until the 1980s, JICA implemented development studies and ODA loan projects that contributed to improving the power generation and transmission capacity of the country.

In the 1990s, JICA provided ODA loans for two thermal power plants, Sylhet Combined Cycle Power Plant and Haripur Power Plant. Distribution and rural electrification projects were begun at the same time.

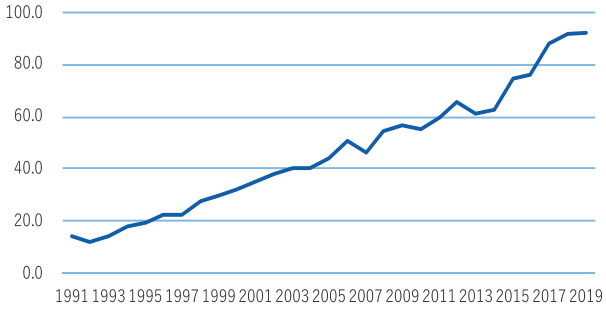
To tackle several challenges faced by the sector, namely to improve sector reliability, investment efficiency and effectiveness, service quality, and access to electricity,

Transition of Power Generation Capacity



(Source: Survey team based on World Bank)

Transition of Electrification Rate



(Source: Survey team based on BPDB)

the Government of Bangladesh began reforms including vertical separation of organizations and corporatization with the assistance of development partners. JICA actively participated in this process, and supported a) reforming related institutions, b) introducing Total Quality Management (TQM) to improve the operation and maintenance (O&M) system of power plants, and c) improving maintenance capacity, through the Special Assistance for Project Implementation (the former OECF/JBIC's study) and the dispatch of international experts. Moreover, the ODA


Rural Electrification Project (Photo: JICA)

loan for "Power Distribution and Efficiency Enhancement Project" contributed to rehabilitating the distribution network and enabled the installation of electricity meters and digitalization of the billing procedure in five cities. The result of those pilot projects was used as a reference for formulating the plans to reduce power system loss, which was one of the serious challenges of the sector.

1.2 From the Latter Half of the 2000s to the Present

In the latter half of the 2000s, JICA resumed full-scale support with this sector as one of its priority areas and, as the largest bilateral development partner, provided large-scale cooperation mainly through ODA loans.

(1) Power Sector

1) ODA Loans

Until the first half of the 2010s, in order to efficiently utilize the country's natural gas resources, ODA loans were provided for highly efficient power plants like "New Haripur Power Plant Development Project (412 MW)" (L/A signed in 2007) and "Bheramara Combined Cycle Power Plant Development Project (360 MW)" (L/A signed in 2013). In the mid-2010s, in response to the prospect of natural gas depletion, JICA provided ODA loans to the "Matarbari Ultra Super Critical Coal-Fired Power Project (1,200MW)" (L/A signed in 2014) to use low-cost imported coal. Also toward de-carbonization, "Renewable Energy Development Project" (L/A signed in 2013) has been implemented.

In this way, by diversifying primary the fuel source for power generation, JICA has contributed to improving the energy security of Bangladesh.

On the demand side, based on the country's first energy conservation master plan, which will be described later, JICA provided ODA loans to the "Energy Efficiency and Conservation Promotion Financing Project" (L/A signed in 2016) and the "Energy Efficiency and Conservation Promotion Financing Project (Phase 2)" (L/A signed in 2019). The projects aim at reducing power and energy consumption by promoting the introduction of energy-saving equipment.

To ensure a stable power supply, ODA loans have been provided for the power transmission/substation and distribution/rural electrification fields for a long time. In recent years, along with constructing power transmission lines and substations nationwide through the "National Power Transmission Network Development Project" (L/A signed in 2013), a lower loss and stable transmission network is being developed through the "Dhaka-Chittagong Main Power Grid Strengthening Project" (L/A signed in 2015) and through the transmission components of the "Matarbari Ultra Super Critical Coal-Fired Power Project" (L/A signed in 2014). Furthermore, under the "Dhaka Underground Substation Construction Project" (L/A signed in 2017), JICA is supporting the construction of underground substations in Dhaka.


New Haripur Power Plant (Photo: JICA)

In the distribution sub-sector, focusing on rural electrification, JICA provided ODA loans for "Area Coverage Rural Electrification Project (Phase IV-C)" (L/A signed in 1995), "Power Distribution and Efficiency Enhancement Project" (L/A signed in 1999), "Rural Electrification Project (Phase V-B)" (L/A signed in 2001), "Central Zone Power Distribution Project" (L/A signed in 2009) and "Rural Electrification Upgradation Project" (L/A signed in 2010).

2) Technical Cooperation

In addition to the ODA loans mentioned above, JICA supported the plan preparation and formulation of ODA loan projects for the entire sector through technical cooperation. Specifically, the formulation of "Power

Construction status of Matarbari Ultra Super Critical Coal-Fired Power Plant (Photo: JICA(MJVC))

Renewable Energy Development Project is a two-step loan in which companies and general farmers use ODA loan funds through local financial institutions. This photo shows a solar power generation facility mainly used for irrigation pumps. (Photo: JICA)

National Power Transmission Network Development Project (Photo: JICA)

System Master Plan 2010" (PSMP2010), which is the country's first power master plan, and its successor, "Power and Energy Sector Master Plan 2016" (PSMP2016), were supported by JICA's Development Study "Master Plan Study on Coal Power Development in Bangladesh" (2009-10) and its "Data Collection Survey for the Master Plan" (2015-16), respectively. Furthermore, in the field of energy conservation, the preparation of the country's first master plan was supported by "Project for Development of Energy Conservation/Efficiency Master Plan" (2014-15). The master plan stipulates the national energy conservation target and action plans. Regarding the formulation of the ODA loan projects, JICA conducted the Development Study or Preparatory Survey for Bheramara Combined Cycle Power Plant Development Project and Matarbari Ultra Super Critical Coal-Fired Power Project.

Vision of PSMP 2016

Vision 2041 :Energy and Power System Master Plan for Bangladesh	
Plan 1	Enhancement of imported energy infrastructure and its flexible operation
Plan 2	Efficient development and utilization of domestic natural resources (gas and coal)
Plan 3	Construction of a robust, high-quality power network
Plan 4	Maximization of green energy and promotion of its introduction
Plan 5	Improvement of human resources and mechanism related to the stable supply of Energy

(Source: JICA)

(2) Gas Subsector

In addition to electrical power, JICA also supports the natural gas sector, a valuable natural resource of the country. In the early days of the country's natural gas development, JICA supported the drilling and rehabilitation of its main gas field, Bakhrabad gas field, with two ODA loans in 1980 and 1994, respectively. More recently, JICA provided an ODA loan for the "Natural Gas Efficiency Project" in 2014 to provide equipment and facilities that contribute to the efficiency of natural gas supply and utilization. In particular, in the target areas where prepaid gas meters were introduced and a pay-as-you-go billing system was implemented, not only are household expenditures reduced but also gas usage has tended to decline. In addition, to enable stable and efficient gas infrastructure operation, JICA started the technical cooperation project "The Project for Gas Network System Digitalization and Improvement of Operational Efficiency in Gas Sector in Bangladesh" in 2020, supporting digitalization and operational improvement of the gas transportation network.

1.3 Private Sector Investment Finance (PSIF)

In recent years, JICA has also begun support for private businesses related to power and energy through PSIF. In 2017, JICA provided a loan to the independent power production investor for a high-efficiency gas-fired combine cycle power plant in Sirajganj. Another loan has been extended for a floating LNG storage and regasification unit (FSRU) offshore Moheshkhali situated in southeastern Bangladesh, the country's first natural gas (LNG) import facility, in order to improve the country's tight primary energy supply and demand situation.

1.4 Future Direction

In the 8th Five-Year Plan, the power shortage is cited as the biggest challenge for economic growth. In addition, the Power and Energy Sector Master Plan 2016 (PSMP2016) projects that domestic energy demand will increase about eight times from 2014 to 2041. As the vision toward 2041, the master plan lists the following points: (1) infrastructure development to utilize imported energy, (2) effective utilization of domestic gas and coal, (3) development of a robust and high-quality power network, (4) maximum utilization of green energy and promotion of its introduction, and (5) improvement of the mechanism for stable supply of human resources and energy.

Based on these points, JICA will continue to make the power and energy sector a priority support field. Through the use of PSIF, the scope of JICA's support includes (1) stable power supply, (2) strengthening of the imported energy infrastructure system including the legal system and organizational structure, and (3) efficient use of power and energy. In relation to the SDGs, Goal 7, "Ensure access to affordable, reliable, sustainable, and modern energy for all"; Goal 9, "Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation"; and Goal 13, "Take urgent action to combat climate change and its impacts" are kept in mind.

High-efficiency gas-fired power plant in Sirajganj (Photo: JICA)

As part of this direction, the "Integrated Energy and Power Master Plan Project" started in 2021. The project will formulate a master plan for 2050 that aims to achieve both low carbonization/de-carbonization and economic growth by combining energy development and electricity supply .

2. Achievements

(1) Sector in General

1) JICA has been providing comprehensive cooperation to the sector, from power generation primarily to transmission and distribution/rural electrification, thereby contributing to poverty reduction and economic growth in Bangladesh.

(2) ODA Loans

1) The total installed capacity of power plants constructed, expanded, and renovated under 19 loan agreements totaling more than 400 billion yen is 2,434 MW, which is 12% of the total capacity of the country.
2) With ODA loans to the distribution sub-sector centered on rural electrification, the construction and repair of approximately 25,000 km distribution lines and the construction and expansion of 109 distribution substations were carried out.
3) JICA is the first development partner to support loans to private companies for the introduction of energy-saving equipment through the ODA loan project "Energy Efficiency and Conservation Promotion Financing Project."

(3) Technical Cooperation

1) The Power System Master Plan 2010 (PSMP2010) and Energy Conservation/Efficiency Master Plan, the formulation of which were supported by JICA, are the country's first master plans in their respective fields.

3. Representative Projects

3.1 Natural Gas Efficiency Project (ODA Loan)

(Amount: 23,598 million yen, L/A signed on June 6, 2014)

Bangladesh's domestically produced natural gas, which is mainly used for power generation, industrial and commercial purposes, and in households, is driving the country's economic development. However, there has been a chronic natural gas supply-demand gap because of the growth in demand triggered by rapid economic growth and the limited supply due to the delayed development of

new gas fields. In addition, serious challenges include the unstable gas supply caused by delays in the development of gas-related facilities, the waste of gas due to the flat rate system, and improper collection of charges.

This project installs gas compressors, gas transmission pipes, and gas meters for the purpose of stable supply and efficient use of gas in seven districts of three divisions. Through this project, JICA intends to respond to the increasing demand for natural gas and aim for stable and efficient gas supply and utilization, thereby contributing to the economic development of the country.

According to a consumer survey in Dhaka's business area conducted by the executing agency, monthly gas consumption decreased by an average of 57% after introducing prepaid gas meters and shifting to the pay-as-you-go charge system. As a result, payments have decreased, so this project is not only highly appreciated by the residents, but also has the effect of curbing gas waste.

Prepaid gas meter introduced in Natural Gas Efficiency Project. Prepaid charge and download of consumed amount are done using IC cards. (Photo: JICA)

3.2 Bheramara Combined Cycle Power Plant Development Project (ODA Loan)

(For E/S, amount: 2,209 million yen, L/A signed on March 24, 2010)
(For construction, amount: 41,480 million yen, L/A signed on February 20, 2013)

In Bangladesh, a country divided into east and west by two large rivers, most of the power generation capacity is concentrated in the eastern region. Power shortages in the western region, where there are no large power plants, are compensated for by transmission from the eastern region. However, the demand for power transmission has been increasing in recent years, and the power supply in the western region, where there are many poor people, is unstable.

This project built a highly efficient gas combined cycle power plant (360 MW) in the western part of Bangladesh, where the power supply and demand is tight, thereby contributing to economic development and poverty reduction in the region where there is a high demand. The outline is as follows.
(1) The power supplied by this project accounted for about 5% of the total power demand in Bangladesh at that time.
(2) To develop a system for monitoring and control (Supervisory Control and Data Acquisition: SCADA) to manage the gas transportation network, aiming for efficient use of domestically produced natural gas, which is in short supply due to increasing demand, and for stable supply to power plants.
(3) To support the strengthening of human resources and organizational capabilities of North West Power Generation Co., Ltd. (NWPGCL), which was spun off from the Bangladesh Power Development Board (BPDB) in 2007, through consulting services, thereby contributing to the sector reform, the core of which is the separation of power generation, transmission, and distribution.
(4) To contribute to greenhouse gas (GHG) emission

Bheramara Combined Cycle Power Plant. (Photo: JICA)

reduction by introducing a highly efficient gas combined cycle system; the climate change mitigation effect (estimate of GHG emission reduction amount) is estimated to be about 360,000 tons per year in terms of CO2 equivalent.

3.3 Energy Efficiency and Conservation Promotion Financing Project (ODA Loan)

(For 1st Phase, amount: 11,988 million yen, L/A signed on June 29, 2016)
(For 2nd Phase, amount: 20,076 million yen, L/A signed on May 29, 2019)

In Bangladesh, since the demand for power and primary energy is rapidly increasing due to strong economic growth, the supply-demand gap is widening. The government has sought to strengthen the supply system by diversifying energy sources and increasing power generation facilities. However, increasing the supply is not enough to fill the supply-demand gap, and energy conservation to curb demand is indispensable.

This project encourages private companies to introduce energy-saving equipment, aiming to improve energy utilization efficiency, by providing low-interest two-step loans to the companies through the Infrastructure Development Company Limited (IDCOL) and the Bangladesh Infrastructure Finance Fund Limited (BIFFL), which are affiliated financial institutions of the Sustainable and Renewable Energy Development Authority (SREDA).

3.4 Moheshkhali Floating LNG Storage and Regasification Unit Operation Project (PSIF)

In Bangladesh, energy demand is rapidly increasing against the backdrop of strong economic growth, and an average annual growth rate of 5.3% is expected until 2040. In addition, domestic natural gas accounts for 74% (2015) of the country's power generation energy source, and the current forecast is that, by 2025, domestic gas supply capacity will be limited to 1,700 mmscfd[1] against domestic demand of approximately 3,100 mmscfd. As such, the supply-demand gap is expected to widen significantly, and natural gas imports have become the most important issue for improving energy supply.

Energy Efficiency and Conservation Promotion Seminar (Photo: JICA)

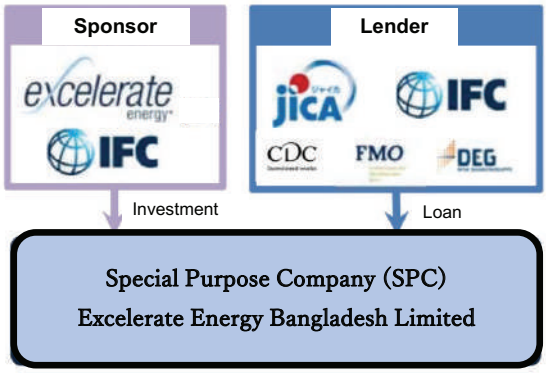
Spinning machinery installed by Energy Efficiency and Conservation Promotion Financing Project (Photo: JICA)

This project constructs and operates a floating storage and regasification unit (FSRU) off the coast of Moheshkhali in southeastern Bangladesh, as the country's first natural gas (LNG) import terminal. JICA provides to a local special purpose company (SPC) a part of the funding required for the project. An FSRU is characterized by a shorter construction period than similar facilities on land and is expected to contribute to the early improvement of the energy supply.


Diagram showing operation of Moheshkari Floating LNG Storage and Regasification Unit. (Photo: JICA)

[1]mmscfd: million standard cubic feet per day

Financial Scheme of Moheshkali Floating LNG Storage and Regasification Unit Operation Project



(Source: JICA)

Voices of consumers (users) of rural electrification projects

-Mr. Chunnu Miah, who runs an agricultural machinery shop in Tongibari Bazar, Munshiganj District

"Twenty years ago, there was no electricity in the area. At that time, there were no tractors and no electric motors.

Mr. Chunnu Miah (Photo: Survey team)

Girls studying under bright lamps (Photo: Survey team)

Now that we can use electric motors, we can irrigate the fields."

"There was no electricity in the house, either, and we used to light a lantern for study. Now that electricity is coming, children can study under bright lamps."

- Mr. Abul Hossain Munshi, who runs an agriculture business in Sonarong Village, Tongibari Upazila, Munshiganj District

"The supply of power has really changed our lives. In terms of business, shops and restaurants have begun to shine with electricity, and people can now go out at night with peace of mind. People who used to feel it was dangerous when walking on the road can now pass with peace of

Mr. Abul Hossain Munshi (Photo: Survey team)

mind, and it is now easier to find transportation in the event of a sudden illness or an emergency such as childbirth. A safe and comfortable life is now guaranteed."

- Beneficiary woman in Sonarong Village, Tongibari Upazila, Munshiganj District

This woman, who takes care of the family, was asked,

A shopping street that is bright and safe at night (Photo: Survey team)

"What makes you the happiest with electricity?" Although the answer might be a TV, a pump motor, or a lamp for children's study, her answer was "fans." Along with the above-mentioned "improvement of safety," it was a good opportunity to reflect on oneself as a person living a prosperous life in a developed country.

A beneficiary woman who says that she is happiest to be able to use fans (Photo: Survey team)

(Photo: JICA)

4. Project List

#	Scheme	Sector	Project Name	Year
1	ODA Loan	Power and Energy	Goalpara-Barisal Transmission Line Project	1977.01
2	Technical Cooperation	Power and Energy	Construction of Bheramana Barisal Transmission	1979.02
3	ODA Loan	Power and Energy	Power Generating Barge Project	1979.04
4	Technical Cooperation	Power and Energy	Kaptai Hydro Power Station Extension Project	1980.03
5	ODA Loan	Power and Energy	Bheramara-Faridpur-Barisal Transmission Line	1980.10
6	ODA Loan	Power and Energy	Bakhrabad Natural Gas Development Project	1980.12
7	ODA Loan	Power and Energy	Engineering Services for The Kaptai Hydro-Electric Power Plant Project	1981.08
8	ODA Loan	Power and Energy	Kaptai Hydro-Electric Power Plant Project	1983.01
9	ODA Loan	Power and Energy	Kaptai Hydro-Electric Power Plant Project (II)	1984.03
10	ODA Loan	Power and Energy	arge-Mounted Power Plant Project	1984.11
11	ODA Loan	Power and Energy	Gas Turbine Power Plant Construction Project	1985.10
12	ODA Loan	Power and Energy	Sylhet Combined Cycle Power Plant Construction Project	1987.08
13	ODA Loan	Power and Energy	Energy Sector Adjustment Loan	1990.10
14	ODA Loan	Power and Energy	Sylhet Combined Cycle Power Plant Construction Project (II)	1993.09
15	ODA Loan	Power and Energy	Haripur Power Plant Rehabilitation and Expansion Project	1993.09
16	ODA Loan	Power and Energy	Barge-Mounted Power Plant Rehabilitation Project	1993.09
17	ODA Loan	Power and Energy	Bakhrabad Natural Gas Development Project (II) (Including Feni)	1994.06
18	ODA Loan	Power and Energy	Area Coverage Rural Electrification Project (Phase IV-C)	1995.10
19	ODA Loan	Power and Energy	Power Distribution And Efficiency Enhancement Project	1999.07
20	ODA Loan	Power and Energy	Rural Electrification Project (Phase V-B)	2001.03
21	Technical Cooperation	Power and Energy	Power Sector Policy Advisor	2004.02
22	ODA Loan	Power and Energy	Grid Substations and Associated Transmission Lines Development Project	2006.06
23	Technical Cooperation	Power and Energy	Strengthening Management and Performance Standards in Power Sector of Bangladesh through Promotion of TQM	2006.10
24	ODA Loan	Power and Energy	New Haripur Power Plant Development Project	2007.12
25	Technical Cooperation	Power and Energy	The Study on Bheramara 450 MW Combined Cycle Power Station	2008.02
26	ODA Loan	Power and Energy	Central Zone Power Distribution Project	2009.03
27	ODA Loan	Power and Energy	New Haripur Power Plant Development Project (II)	2009.03
28	Technical Cooperation	Power and Energy	Power Policy	2009.08

#	Scheme	Sector	Project Name	Year
29	Technical Cooperation	Power and Energy	Master Plan Study on Coal Power Development in Bangladesh	2009.09
30	ODA Loan	Power and Energy	Rural Electrification Upgradation Project	2010.03
31	ODA Loan	Power and Energy	Bheramara Combined Cycle Power Plant Development Project (Engineering Services)	2010.03
32	Technical Cooperation	Power and Energy	Power Policy	2011.09
33	ODA Loan	Power and Energy	National Power Transmission Network Development Project	2013.02
34	ODA Loan	Power and Energy	Bheramara Combined Cycle Power Plant Development Project	2013.02
35	ODA Loan	Power and Energy	Renewable Energy Development Project	2013.03
36	Technical Cooperation	Power and Energy	Power Sector policy	2013.09
37	Technical Cooperation	Power and Energy	Project for Development of Energy Conservation/Efficiency Master Plan	2014.01
38	ODA Loan	Power and Energy	Matarbari Ultra Super Critical Coal-Fired Power Project (I)	2014.06
39	ODA Loan	Power and Energy	Natural Gas Efficiency Project	2014.06
40	Technical Cooperation	Power and Energy	Power Sector Policy	2014.09
41	ODA Loan	Power and Energy	Dhaka-Chittagong Main Power Grid Strengthening Project	2015.12
42	ODA Loan	Power and Energy	Matarbari Ultra Super Critical Coal-Fired Power Project (II)	2016.06
43	ODA Loan	Power and Energy	Energy Efficiency and Conservation Promotion Financing Project	2016.06
44	ODA Loan	Power and Energy	Matarbari Ultra Super Critical Coal-Fired Power Project III	2017.06
45	ODA Loan	Power and Energy	Dhaka Underground Substation Construction Project	2017.06
46	ODA Loan	Power and Energy	Matarbari Ultra Super Critical Coal-Fired Power Project (IV)	2018.06
47	ODA Loan	Power and Energy	Energy Efficiency and Conservation Promotion Financing Project (Phase 2)	2019.05
48	ODA Loan	Power and Energy	Matarbari Ultra Super Critical Coal-Fired Power Plant (V)	2019.06
49	Technical Cooperation	Power and Energy	Power and Energy Sector Policy	2019.08
50	Technical Cooperation	Power and Energy	The Project for Gas Network System Digitalization and Improvement of Operational Efficiency in Gas Sector in Bangladesh	2020.02

2.2 Transport

1. Overview

Bangladesh is divided by a myriad of small and medium-sized rivers in addition to the three major rivers the Padma, Jamuna, and Meghna. Connecting Bangladesh's land by constructing bridges and roads is one of the most serious challenges for the country's development. Also, for Bangladesh, which is achieving continuously high economic growth, there is an urgent need to improve the transportation function in the capital, Dhaka, in order to maintain that pace of growth. JICA has been providing large-scale support as the largest bilateral development partner of Bangladesh, with the transport sector including urban transport considered to be one of the priority areas to date.

1.1 Until the Mid—2000s: Mainly Building Bridges Unify the Land

Until the mid-1990s, mainly development studies (DSs) and grant aid were implemented. Among them, representative projects were the Meghna Bridge and Meghna-Gumti Bridge (now called Gumti Bridge) constructed on National Highway No. 1 connecting the Dhaka metropolitan area and Chattogram, the country's second largest city and well known as the commercial capital of the country. In each case, grant aid was provided based on the development study "Meghna, Meghna-Gumti Bridges Construction Project" conducted in 1984 (E/Ns for grant aid were concluded in 1986 and 1991). For Jamuna Bridge described below, the development study "The survey for bridge construction project over the Jamuna River" (1972-1976) was conducted immediately after independence.

Table. Breakdown of JICA's support for the transportation sector

Subsector	ODA Loan			Grant Aid			TCP-DS
	Amount	(%)	No.	Amount	(%)	No.	No.
Bridges	200,967	20%	10	40,716	85%	26	8
Roads	66,462	7%	5	633	1%	2	4
Railways	500,343	51%	12	0	0%	0	8
(Urban railways)	(358,730)	(36%)	(8)				(7)
Airports	168,101	17%	4	2,797	6%	2	2
Ports	41,700	4%	3	0	0%	0	3
Others	9,000	1%	1	3,992	8%	5	5
Total	986,573		35	48,138		35	30

(Source: Edited by the survey team based on JICA information)

(Note 1) The unit of amounts is one million yen.
(Note 2) Projects that cross subsectors were classified in consideration of their content (examples: "Railway" for Jamuna Railway Bridge, "(Urban) Railway" for TCPs related to urban transportation).

Cooperation for large-scale projects through ODA loans began in the mid-1990s. The first project in the transportation sector was the "Jamuna Multipurpose Bridge Project," the L/A of which was concluded in 1994 and which was opened on June 23, 1998, co-financed with the World Bank and the Asian Development Bank. The Jamuna River had become a bottleneck for east-west transportation in the country, hindering the transportation of agricultural products grown in the western breadbasket to the eastern consumption areas, while the western region could not benefit from economic infrastructure such as gas, electricity, and communications that were mostly located in the eastern region. As a result, the western region was left out of development. Under these circumstances, the plan to bridge the Jamuna River had been a long-cherished wish since the independence of Bangladesh in 1971, but the bridge over the "rampaging" Jamuna River not only required a large amount of funding, but was also technically difficult, resulting in its non-realization prior to that time.

Jamuna Multipurpose Bridge (Photo: Masud Al Mamun)

Pakshi Bridge (Photo: JICA)

Since that time, in particular, JICA has been focusing on the construction of bridges that connect the land divided by intricate rivers and that create not only economic benefits but also a sense of unity within the country and the people. ODA loans for the "Pakshi Bridge Construction Project" (L/A signed in 1995) and "Rupsha Bridge Construction Project" (L/A signed in 2001), and grant aid for "The Project for the Construction of Portable Steel Bridges for Rural Roads" (E/N signed in 1994), "The Project for Reconstruction of Small and Medium Bridges on Dhaka-Chittagong Highway" (E/N signed in 1997), "The Project for Improvement of Portable Steel Bridges for Feeder Roads" (E/N signed in 2000), "The Project for Improvement of Steel Bridges for Roads in Rural Areas" (E/N signed in 2001) and "The Project for the Provision of Portable Steel Bridges on Upazila and Union Roads" (E/N signed in 2005) were provided prior to and in the 2000s.

Rupsha Bridge (Photo: JICA)

A portable steel bridge connects rural villages! (Photo: JICA)

A representative project other than bridge projects is cooperation in the construction of Chattogram Airport. After conducting the development study "Development of Chattogram Airport" (1988-1989), ODA loans were provided to the "Chattogram Airport Development Project" (L/As signed in 1993 for E/S and in 1996 for construction), which was completed in November 2003. Currently, 2 million passengers per year are using the airport.

1.2 From the Mid—2000s: Diversifying Cooperation While Continuing Bridge Construction

(1) Bridge Construction and Maintenance Capacity Improvement

Priority has continued to be given to bridge construction to this day. During this period, ODA loans were provided for the "Eastern Bangladesh Bridge Improvement Project" (L/A signed in 2009), "The Kanchpur, Meghna and Gumti 2nd Bridges Construction and Existing Bridges Rehabilitation Project" (L/A signed in 2013), "Western Bangladesh Bridge

Kanchpur Bridge. (Photo: JICA)

Improvement Project" (L/A signed in 2015) and "Cross-Border Road Network Improvement Project (Bangladesh)" (L/A signed in 2016) including construction of a new bridge, Kalna Bridge. "The Kanchpur, Meghna and Gumti 2nd Bridges Construction and Existing Bridges Rehabilitation Project", which aims to increase the capacity of the bridges over National Highway No. 1 connecting Dhaka and Chattogram was completed in 2020 and started operation. For the Padma Multipurpose Bridge, which is longer than Jamuna Multipurpose Bridge, JICA conducted a development study "Feasibility Study of Padma Bridge in the People's Republic of Bangladesh" in 2003.

Regarding the operation and maintenance of bridges, JICA is also providing technical cooperation for the purpose of improving the bridge maintenance capacity of the Roads and Highways Department (RHD), Ministry of Road Transport and Bridges. While experts (road and bridge maintenance advisors) have been continuously dispatched since 1998, the technical cooperation project "Bridge

Meghna Bridge (Photo: JICA)

Gumti Bridge (Photo: JICA)

Opening ceremony at Meghna Bridge (Photo: JICA)

Conceptional drawing of Kalna Bridge (Photo: JICA)

Management Capacity Development Project" was also implemented from 2015 to 2018, to respond to the aging of many bridges constructed since the 1980s. In this project, the efficiency of bridge maintenance works was further improved in collaboration with 12 Japanese experts and counterparts of the Bangladesh side.

(2) Rural Roads

Since the second half of the 1990s, JICA has been cooperating with rural infrastructure projects (including rural roads) classified in the agricultural and rural development sector for the purpose of revitalizing economic activities in poor areas, reducing poverty, and reducing regional disparities. Specifically, the "Northern Rural Infrastructure Development Project" (L/A signed in 1999), "Greater Faridpur Rural Infrastructure Development Project" (L/A signed in 2001), "Eastern Bangladesh Rural Infrastructure Development Project" (L/A signed in 2005), "South Western Bangladesh Rural Development Project" (L/A signed in 2010), and "Northern Bangladesh Integrated Development Project" (L/A signed in 2013) were provided for with ODA loans, and Upazila roads and Union roads were improved (paving, etc.) and bridges and culverts were constructed. The total length of the supported Upazila roads and Union roads is about 3,500 km.

(3) Urban Transportation

Traffic congestion in Dhaka (Photo: JICA)

The capital, Dhaka, has a population of 20 million with a continuously high growth rate expected, and the density is also extremely high compared to the capitals of other countries (44,100 people/km2 (2016)). As a result of the heavy reliance on roads for urban traffic, increasing traffic demand has been causing chronic traffic congestion and air pollution, leading to deterioration of capital functions that are essential for sustainable growth. JICA's cooperation for urban transportation development was commenced in 2009 by the "Dhaka Urban Transport Network Development Study (DHUTS)" conducted until 2011, focusing on MRT (Mass Rapid Transit) Line 6, the country's first urban railway. Since then, JICA has recognized urban transportation as a priority field, and various means of financial and technical cooperation has been provided for both hardware and software.

Regarding financial cooperation on the hardware side, an ODA loan was provided for the "Dhaka Mass Rapid Transit Development Project" to construct MRT Line 6, based on the results of DHUTS, in 2013. Furthermore, MRT Line 1 and MRT Line 5 (North), which have been designated as priority routes as well as MRT Line 6 based on the revised

Test run status of MRT Line 6 (Photo: JICA)

STP described below, have been supported by ODA loans since 2017 and 2018, respectively.

The related technical cooperation supports are as follows.

1) Revision of Master Plan:

In August 2016, the technical cooperation project "Project on the Revision and Updating of Strategic Transport Plan for Dhaka" (2014-2016) revised the Dhaka urban transport master plan "Strategic Transport Plan (STP)" formulated in 2005 with the cooperation of the World Bank. The revised STP laid out the construction of five MRT routes and two bus rapid transit (BRT) routes as a public transportation network, transformed as a more railway-centric plan. In addition, from the viewpoint of city planning, building the public transportation network to the east and to the west was also planned with the aim of concentric development.

2) Legal Rules and Organization Development:
The technical cooperation project "Preparation of Rules and Regulations under Urban Mass Rapid Transit Act" (2013-2015) reorganized and prepared the legal framework including the Metrorail Act (Urban Railway Business Act), which is the basis of urban transportation, created a roadmap for building an efficient licensing system, and developed technical standards. With this project, an organizational relationship was developed among Dhaka Transport Coordination Authority (DTCA), Dhaka Mass Transit Company Limited (DMTCL) and other organizations that coordinate and implement urban transportation in Dhaka.

3) Building of a Common Fare Collection System:
JICA has been supporting the establishment and operation of a "clearing house system" that aims to standardize the fare collection system and the IC cards of multiple urban transportation systems in Dhaka (a system that distributes the fares collected using a common IC card to each transportation system according to passenger usage records). Passengers can pay the fares of multiple public transportation systems with a common card, which is expected to facilitate transfers and increase users' convenience. In addition, for transportation companies, toll collection is expected to be efficient, and the use of public transportation is promoted by improving the convenience of transfers.

Specifically, the pilot projects of the IC card fare collection system were conducted for Bangladesh Road Transport Corporation (BRTC) by the technical cooperation project "Project for Improving Fare System of Mass-transportation in Dhaka City Area through ICT" (2011-2012), and for Bangladesh Railway (BR) by dispatching individual experts (2013-2014) in charge of "Support for ICT utilization in the urban transport fare system in Dhaka". Based on these achievements and lessons learned, JICA has been implementing the technical cooperation projects "Project for Establishment of Clearing House for Integrating Transport Ticketing System in Dhaka City Area" (2014-2017) and "Project for Establishment of Clearing House for Integrating Transport Ticketing System in Dhaka City Area (Phase II)" (2020-2022). The projects are supporting the operational improvement of the existing IC fare collection system including the integration of MRT and city public transport fare systems, the establishment of a special purpose company to operate the clearing house, the formulation of operational strategies and the strengthening of operational organizational capabilities, aiming to promote the use of public transportation, including MRT.

4) Strengthening Road Traffic Management:
JICA supported the strengthening of the functions of the Dhaka Transport Coordination Authority (DTCA) regarding urban road traffic management by means of the technical cooperation project "Dhaka Integrated Traffic Management Project" (2014-2016). Specifically, the project established the Authority's coordination functions related to urban road traffic management, the advancement of intersection improvement technology and of the ability to collect and analyze road traffic information through the implementation of pilot projects, as well as the improvement of the ability to formulate road traffic regulations and safety measures.


IC card usage (Photo: JICA)

IC card (Photo: JICA)

5) Strengthening the Operational And Safety Management Capacity of Urban Railways
JICA is implementing the technical cooperation project "The Project on Technical Assistance for Mass Rapid Transit Safety Management System of Line 6" (2020-2022) to support the strengthening of operational and safety management capabilities for MRT Line 6, the country's first urban railway, with the aim of realizing safe and reliable urban railways.

(4) Promoting Modal Shift
As mentioned above, JICA has been mainly supporting bridges and urban transportation, but has also cooperated in promoting modal shift by strengthening the capacity of multiple transportation modes through the development of railways and airports. In recent years, JICA has provided

Dhaka Airport Terminal 3 construction site (Photo: JICA)

ODA loans for the "Jamuna Railway Bridge Construction Project" in 2018 and "Hazrat Shahjalal International Airport Expansion Project" to construct Terminal 3 at Dhaka International Airport in 2017, and is implementing the technical cooperation project "Project for Security Improvement of International Airports" to improve the aviation security capacity of the Civil Aviation Authority of Bangladesh (CAAB) in 2017-21. The Jamuna Railway Bridge and Dhaka International Airport Terminal 3 are currently under construction with the target of completion in 2024.

(5) Cartographic Capacity

Bangladesh's historic "Survey of Bangladesh (SoB)" originated in the British era but could not develop an accurate national map due to financial difficulties. JICA has been supporting the improvement of the cartography capacity of Bangladesh since 1992 through development studies, successive dispatches of experts, technical cooperation projects, and grant aid.

In the development study "Study on Urban Information Management for Greater Dhaka City" (2002-2004), a large-scale (1/5,000) topographic map of Dhaka was created, and its technology was transferred. Based on the results, the technical cooperation project "Bangladesh Digital Mapping Assistance Project" (2009-2013) enabled the technical staff of SoB to acquire sufficient skills to create digital maps with a scale of 1/5,000 and a smaller scale of 1/25,000. (The first 1/25,000 digital maps covering the entire country were completed in 2018.) Subsequently, JICA has been implementing the technical cooperation projects "Project for Strengthen the Capacity on Advanced Mapping of SoB for Building Digital Bangladesh" (2013-2019) and "Project for Establishment of National Spatial Data Infrastructure (NSDI) for Bangladesh" (2019-2022) to support establishment of digital map creation technology, strengthening of organizational capacity for building the National Spatial Data Infrastructure (NSDI), and the launch of a full-scale NSDI system. It aims for appropriate and efficient management and use of geospatial information by SoB and related government agencies.

In 2019, the agreement was concluded for the grant aid project "Project for the Densification of Global Navigation Satellite System Continuously Operating Reference Station Network and the Modernization of Tidal Stations in Bangladesh", which adds equipment for a global navigation satellite system, continuously operating reference station, and tide station (a facility to observe and record sea level

The digital mapping center built with the counterpart fund of debt relief grant by Japan. JICA's technical cooperation also provided training on both theoretical and technical aspects of digital cartography required for SoB staff. (Photo: JICA)

rise and fall). The project is expected to establish the digitization of geospatial information, which enables highly accurate and efficient surveying and map creation, and the base for its advanced utilization, leading to overall efficient development of infrastructure of the nation.

1.3 Future Direction

Under the current "National Transportation Network Improvement Program" of GOJ's Rolling Plan (Attachment of Country Assistance Policy), JICA will continue to support the building and efficiency of the national transport network (roads and bridges, railways, airports, ports, etc.), aiming for efficient movement of people and goods, balanced development of the land and further economic growth. With this direction, attention is paid to the realization of the BIG-B concept (covered in Chapter 5), improvement of regional connectivity, and rationalization of transportation modes.

Specifically, while implementing the ongoing loan projects for the airports and ports that serve as gateways to Bangladesh, JICA will also support the improvement of airport and seaport operations through technical cooperation projects. In addition, JICA will consider the possibility of supporting roads, bridges, and railways that contribute to improving regional connectivity, and provide the technical cooperation necessary to realize their safe, efficient, and sustainable operation.

In realizing the BIG-B concept, JICA will consider necessary support with options of collaboration with other development partners and private capital from the viewpoint of improving the efficiency of freight transportation from the Moheshkhali area to major consumption areas (Dhaka and Chattogram) and improving access from the neighboring Cox's Bazar.

JICA will continue to support the development of Dhaka's transportation network, based on the revised STP, Metrorail Act, and metro rail technical standards formulated with the support of JICA. Specifically, JICA will continue to support the development of three routes, MRT Line 1, Line 5 (North), and Line 6, and the improvement of Dhaka's urban transportation. Under such direction, JICA will actively utilize the strengths of Japanese technology in construction in narrow areas and in high-density operation.

In addition, JICA will provide comprehensive support such as organizational strengthening and human resource development for safe operation required in conjunction with urban railway operation, promotion of introduction of fare collection system using a common IC card, public transit-oriented development (TOD), etc., aiming to build and realize a more efficient and effective urban transportation system and urban development.

2. Achievements

(1) Bridge

1) Overall, 134 large and medium-sized highway bridges on highway were constructed with JICA's cooperation, including six large bridges (over 500 meters long) including the Jamuna, Pakshi, Rupsha, Gumti, Meghna, and Kalna bridges, of which four, namely the Jamuna, Paksey, Gumti, and Meghna bridges, are among the 10 longest bridges in Bangladesh, in support of bridge construction aimed at creating a sense of unity among the country and the people as well as economic benefits by connecting the land divided by intricate rivers.
2) The ferry, which was the only means of crossing the river before the construction of the Jamuna Bridge, had a waiting time of 8 to 48 hours (about 36 hours on average), and it took about two and half hours to cross the river. With the completion of the Jamuna Bridge, the crossing time was drastically shortened to just 12-18 minutes.
3) With the completion of Meghna Bridge, Gumti Bridge, and Kanchpur Bridge, the traffic volume increased by nearly 80% (77%: 206,748→365,000 vehicles/day) and, at the same time, the three bridges' transit time was shortened from 23 minutes to 5 minutes and the speed increased from 14 km/h to 61 km/h. And the time from Dhaka to pass over the three bridges has been reduced by more than an hour.

(2) Urban Transportation

1) Regarding support for urban transportation in Dhaka, JICA has been providing comprehensive support, starting with a feasibility study on and the provision of ODA loans for the country's first urban railways (MRT Line 6). Specifically, in addition to provision of ODA loans for MRT Line 1 and MRT Line 5 (North), technical cooperation has been provided in such fields as revision of the master plan, establishment of the legal system, improvement of the organizational structure of the coordinating/executing agencies in charge of urban transportation, and introduction of a common fare collection system using IC cards comprehensively.
2) On MRT Lines 6, 1, and 5, for which ODA loans have been provided, the travel time is expected to be shortened from 105 minutes to 36 minutes (between Uttara North and Motijheel on Line 6), from 117 minutes to 20 minutes (between Purbachal Terminal and Notun Bazar on Line 1) and from 122 minutes to 32 minutes (between Hemayetpur and Vatara on Line 5). Around 2 million people are expected to use these MRT lines every day.
3) In the revised Strategic Transport Plan (RSTP), more than 80% of the planned routes have already been implemented.
4) 12 million passengers per year are expected to use Dhaka International Airport and 2 million passengers per year are using Chattogram Airport.

(3) Cartographic Capacity
1) Assistance for the completion of the first national digital topographic map (1/25000 scale) in Bangladesh in 2018.

3. Representative Projects

3.1 Jamuna Bridge (Local Name: Bangabandhu Bridge) (ODA Loan)

(Jamuna Multipurpose Bridge Project— amount: 21,562 million yen, L/A signed on June 14, 1994)
(Jamuna Railway Bridge Construction Project (E/S)— amount: 2,464 million yen, L/A signed on June 29, 2016)
(Jamuna Railway Bridge Construction Project (Phase 1)— amount: 37,217 million yen, L/A signed on June 14, 2018)
(Jamuna Railway Bridge Construction Project (Phase 2)— amount: 89,016 million yen, L/A signed on August 12, 2020)

The Jamuna River, which runs through the center of Bangladesh, is one of the country's three major rivers and flows from north to south in a way that divides the country into east and west. Prior to bridge construction, the ferry, which was then the only way to cross the Jamuna River, operated in two sections upstream and downstream of the current bridge position. Its operation depends on the weather and the crossing time was over two hours. In addition, it was difficult to expand the ferry facilities due to the drastic changes in water level and river width depending on the dry and rainy seasons, and the trucks, which account for more than 60% of the vehicles crossing, had to wait 36 hours on average to board the ferry. For these reasons, the Jamuna became a bottleneck for east-west transportation, hindering the transportation of agricultural products cultivated in the western breadbasket to the eastern consumption areas, and the western region could not receive the benefit of economic infrastructure such as gas, electricity, communications that are mainly located in the eastern region and, therefore, the western region was left out of development. Under these circumstances, the plan to bridge the Jamuna had been a long-cherished wish of the people since the independence of Bangladesh in 1971. Since that time, JICA has been cooperating in planning, such as conducting the development study "The survey for bridge construction project over the Jamuna River" (1972-1976).

In 1994, the World Bank, the Asian Development Bank, and Government of Japan (through JICA) each decided to co-finance $200 million. To address technical difficulties, a panel of experts was set up and experts from all over the world were appointed, including Dr. Jamilur Reza Choudhury (covered in Chapter 4), Professor of Bangladesh University of Engineering and Technology (BUET), Dr. Fumio Nishino, Professor of Saitama University, and Tadahiko Nakao, Former President of the Civil Engineering Research Institute under the Ministry of Construction (at that time). The construction work began in October of the same year and was completed in June 1998. The width of the rampaging river at the bridge construction site was 10km, but by controlling the flow of the river with rectifying embankments (called "hard points"), the bridge length could be reduced to 4.8km. In addition, at the bridge point where the water surface rises and falls by nearly 8 meters, revetment embankments (called "guide bunds") with a height of over 10 meters and a length of more than 3 kilometers were constructed on each side.

According to the ex-post evaluation conducted by JICA, the traffic volume of buses and passenger cars/motorcycles in 1999 greatly exceeded the planned amount by 115.4% and 209.3%, respectively, and the total traffic volume also exceeded the planned amount by 29.7%. It was said that this is because the induced traffic volume increased significantly from the forecast at the time of planning due to the short and consistent crossing time. The river crossing time was shortened to about 12 to 18 minutes. Furthermore, according to the ex-post monitoring conducted in 2005 by JICA, the daily traffic volume continued to increase significantly from about 34,000 vehicles at the time of the ex-post evaluation to about 57,000 vehicles. In this way, the Jamuna Bridge has greatly contributed to revitalizing economic activities by facilitating logistics and correcting east-west disparities (reducing poverty in the west).

In order to respond to the increase in domestic railway demand and the opening of high-volume freight train service between eastern India and Dhaka, the Bangladesh

Rendering of the Jamuna Railway Bridge (the existing bridge on the right) (Photo: JICA)

West Guide Bund (revetment embankment) of Jamuna Bridge (Photo: JICA)

government decided to construct a railway bridge 300m upstream of the existing Jamuna Bridge. Then, JICA provided ODA loans for the "Jamuna Railway Bridge Construction Project" and the bridge construction commenced in 2020. The project aims to strengthen connectivity within South Asia, in addition to further revitalizing the economy.

3.2 Improvement of Bridge Maintenance Capacity (Technical Cooperation)

(Successive dispatch of individual experts (road bridge maintenance advisors))
(Technical cooperation project "Bridge Management Capacity Development Project" (2015-18))

The number of bridges and culverts in Bangladesh was 1,112 at the time of independence in 1971, but, because bridge construction has progressed rapidly since then, the number had increased to 18,356 by 2013. Under such circumstances, since 1998 JICA has continuously dispatched experts (road and bridge maintenance advisors) to the Roads and Highways Department (RHD), Ministry of Road Transport and Bridges, to support the improvement of bridge maintenance and management capabilities.

RHD carries out regular maintenance of bridges every year and regular patrols and inspections in line with the degree of damage. However, since the burden of post-maintenance for the collapse of an early damage to Bailey bridges (a type of emergency bridge) increased and it became necessary

Bridge maintenance field survey (Photo: JICA)

to deal with the aging of bridges that has increased rapidly since the 1980s, JICA carried out the technical cooperation project "Bridge Management Capacity Development Project" from 2015 to 2018. The project developed bridge maintenance manuals and bridge management and maintenance systems (BMMS), and trained RHD staffs in collaboration with 12 Japanese experts and Bangladesh officials, aiming to improve RHD's management system and enhance its bridge maintenance capacity. Also, JICA has given support to enable RHD engineers to study at a graduate school in Japan in order to obtain a master's degree in road bridge asset management.

3.3 Dhaka Airport Terminal 3 Under Construction (ODA Loan)

(Hazrat Shahjalal International Airport Expansion Project (Phase 1)— amount: 76,825 million yen, L/A signed on June 29, 2017)
(Hazrat Shahjalal International Airport Expansion Project (Phase 2)— amount: 80 billion yen, L/A signed on August 12, 2020)
Hazrat Shahjalal International Airport in Dhaka, which is used by about 75% of domestic and international passengers, can be said to be the gateway to the country. In Bangladesh, where high economic growth continues, the number of air passengers at the airport increased about 8% annually on average from 2006 to 2015 and, as such, airline demand is expanding rapidly. With this financial cooperation, the construction of the international passenger Terminal 3 and a cargo terminal, the procurement of airport security equipment (baggage inspection equipment, explosives detectors, etc.), the support to start services for the new passenger terminal, and so forth are now being implemented at the airport. In order to meet the rapidly increasing air travel demand, the project is aiming to contribute to the promotion of economic growth in Bangladesh by expanding the capacity and improving the convenience and safety of the airport. 12 million passengers per year are expected to use Terminal 3.

Rendering of Dhaka Airport Terminal 3 (Photo: JICA)

Inside of Terminal 3 (Photo: JICA)

Bangladesh's First Urban Railway

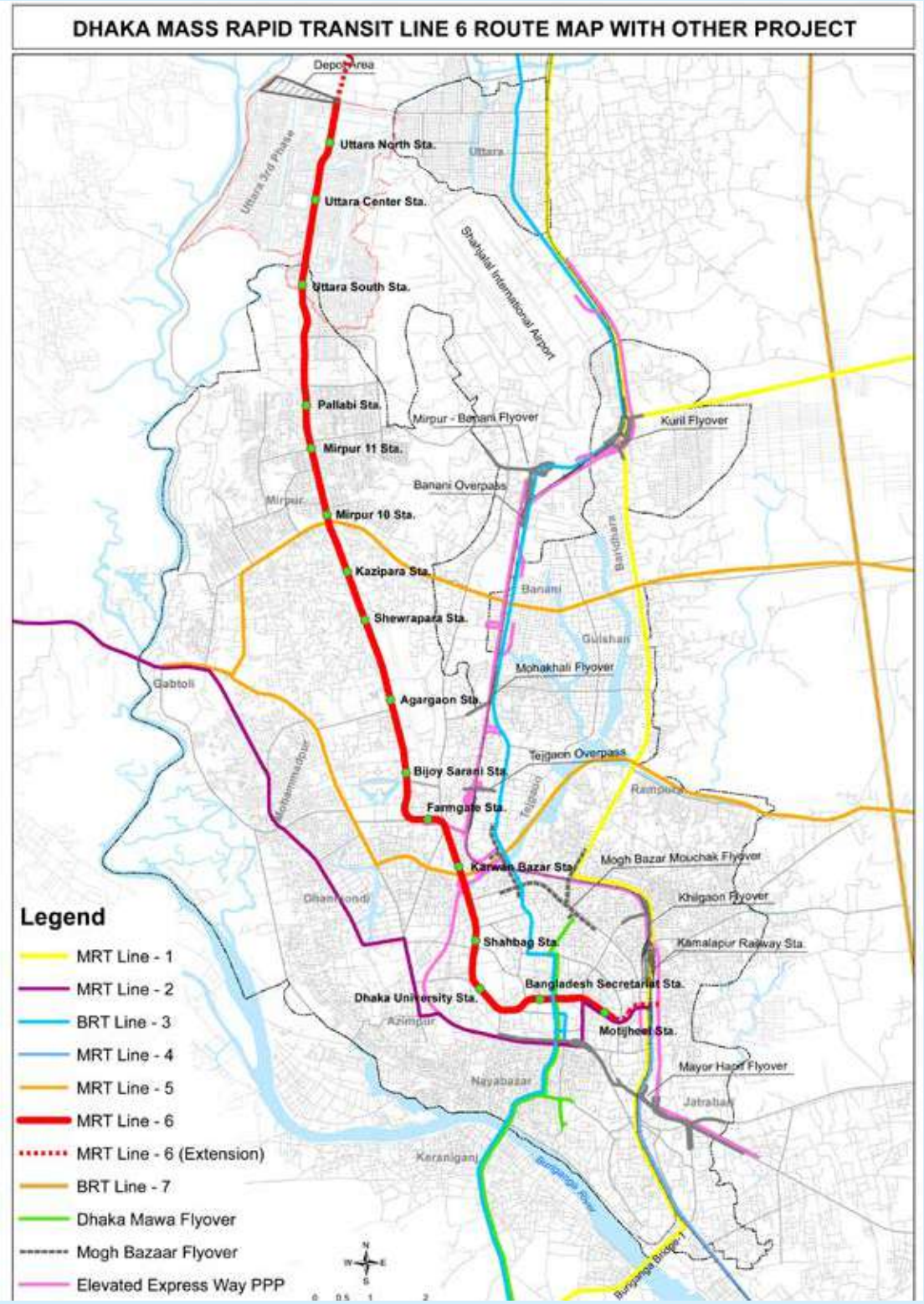
MRT is a big dream of Bangladeshi citizens. It is a proof of the development of Bangladesh, which has a history of suffering due to poverty and disasters, and MRT has been highly anticipated from the planning stage.

MRT has been introduced in various countries with the cooperation of JICA, and the development effect in a broad sense has been confirmed. It is said that the opening of the subway in neighboring India's Delhi has increased the momentum for citizens to maintain their beautiful train cars and beautiful stations, and has significantly reduced littering and spitting by citizens. In addition, through creating an environment where women can move safely and securely through the introduction of women-only cars, etc., it has greatly contributed to women's economic activities. Bangladesh's MRT is also not just a transportation network but was planned in anticipation of the development effect in a broad sense. It can be used to raise public awareness by posting videos and posters to enlighten about health and education at stations , places where people gather, too.

Mr. Watanabe, who was involved in the planning of this Bangladesh MRT, says, "Bangladeshi people say 'Amra gorib' (we are poor) whenever they open their mouths. No such thing. Breaking away from the spirit of 'Amra gorib,' people can take pride in their own country. MRT is such a symbol. I hope it will be a symbol that makes them feel proud of their country when they see MRT's stations, trains, and elevated tracks, and convey their pride to children."

MRT, a dream of Bangladeshi citizens. Towards the partial opening scheduled at the end of 2022, engineers are making their best efforts every day.

MRT Route Map



(Source: JICA)

4. Project List

#	Scheme	Sector	Project Name	Year
1	Technical Cooperation	Transport	Investigations for construction of the Gorai River bridge	1966.03
2	Technical Cooperation	Transport	Investigations for Jessore - Faridpur road construction project	1968.11
3	Technical Cooperation	Transport	Dacca-Faridpur Road construction project	1970.02
4	Technical Cooperation	Transport	The survey for bridge construction project over the Jumuna River	1972.11
5	ODA Loan	Transport	Shipping Reinforcement Project	1979.04
6	Grant Aid	Transport	Central Workshop Repair Maintenance of Transport Vehicles	1979.11
7	Grant Aid	Transport	Central Workshop Repair Maintenance of Transport Vehicles	1980.07
8	Technical Cooperation	Transport	Meghna, Meghna-Gumti Bridges Construction Project	1984.03
9	Technical Cooperation	Transport	Establishment of Railway Carriage and Wagon Manufacturing Plant	1984.11
10	Grant Aid	Transport	Meghna Bridge Construction Project	1985.04
11	Grant Aid	Transport	Road Improvement Project	1985.06
12	Grant Aid	Transport	Construction of Upazila Connection Roads	1985.06
13	Technical Cooperation	Transport	Development Project of Dhaka & Narayangani Ports	1986.01
14	Grant Aid	Transport	Construction of the Meghna Bridge	1986.10
15	Technical Cooperation	Transport	Vehicle maintenance	1987.06
16	Grant Aid	Transport	Construction of the Meghna Bridge	1987.08
17	Grant Aid	Transport	Improvement of Safety Services and Motor Transport Vehicles	1988.01
18	Grant Aid	Transport	Construction of the Meghna Bridge	1988.09
19	Technical Cooperation	Transport	Development of Chittagong Airport	1988.12
20	Technical Cooperation	Transport	Optimization of Capacity Utilization & Improvement of Performance of Chittagong Dry Dock	1989.04
21	Grant Aid	Transport	Construction of the Meghna Bridge	1989.07
22	Technical Cooperation	Transport	Development Project of Container Terminal at Dhaka-Narayangaj Port	1989.11
23	Grant Aid	Transport	Construction of the Meghna Bridge	1990.06
24	Grant Aid	Transport	The Project for the Construction of Meghna Gumti Bridge	1991.01
25	Grant Aid	Transport	The Project for the Construction of Meghna Gumti Bridge	1991.08
26	Grant Aid	Transport	Project for the Procurement of Construction Equipmennt for Cyclone rehabilitation	1992.04
27	Technical Cooperation	Transport	Study on the Geodetic Survey	1992.04
28	Grant Aid	Transport	The Project for the Construction of Meghna Gumti Bridge	1992.05

#	Scheme	Sector	Project Name	Year
29	Grant Aid	Transport	Project for the Establishment of the Permanent Seamen's Training School	1992.11
30	Grant Aid	Transport	The Project for the Construction of Meghna Gumti Bridge	1993.06
31	ODA Loan	Transport	Dhaka Port Development Project (Engineering Services)	1993.09
32	ODA Loan	Transport	Chittagong Airport Development Project (E-S)	1993.09
33	Grant Aid	Transport	The Project for the Construction of Meghna Gumti Bridge	1994.05
34	ODA Loan	Transport	Jamuna Multipurpose Bridge Project	1994.06
35	Grant Aid	Transport	The Project for the Construction of Portable Steel Bridges for Rural Roads	1994.10
36	Grant Aid	Transport	The Project for the Construction of Portable Steel Bridges for Rural Roads	1995.06
37	Grant Aid	Transport	The Project for the Construction of Meghna Gumti Bridge	1995.06
38	ODA Loan	Transport	Engineering Services for Construction of Paksey Bridge	1995.10
39	ODA Loan	Transport	Chittagong Airport Development Project	1996.08
40	ODA Loan	Transport	Paksey Bridge Construction Project (I)	1997.07
41	ODA Loan	Transport	Jamuna Bridge Access Roads Project	1997.07
42	Grant Aid	Transport	The Project for Reconstruction of Small and Medium Bridges on Dhaka-Chittagong Highway	1997.11
43	Grant Aid	Transport	The Project for Improvement of Revetment on the Bank of Meghna Bridge	1998.03
44	Grant Aid	Transport	The Project for Reconstruction of Small and Medium Bridges on Dhaka-Chittagong Highway	1998.05
45	Technical Cooperation	Transport	The Study on Construction of the Bridge over the River Rupsa in Khulna in the People's Republic of Bangladesh (Phase 1)	1998.07
46	Grant Aid	Transport	The Project for Supply of Cartgraphic Equipment	1998.12
47	Technical Cooperation	Transport	Road & Bridge Advisor	1999.01
48	Technical Cooperation	Transport	The Study on Construction of the Bridge over the River Rupsa in Khulna in the People's Republic of Bangladesh (Phase 2)	1999.06
49	Technical Cooperation	Transport/ Urban Development	Geodesy	1999.07
50	Grant Aid	Transport	The Project for Improvement of Portable Steel Bridges for Feeder Roads	2000.06
51	Technical Cooperation	Transport	Road and Bridge maintenance advisor	2001.01
52	Technical Cooperation	Transport	Road and Bridge maintenance advisor	2001.01
53	ODA Loan	Transport	Rupsa Construction Project	2001.03
54	Grant Aid	Transport	The Project for Improvement of Portable Steel Bridges for Feeder Roads	2001.06
55	Grant Aid	Transport	The Project for Improvement of Portable Steel Bridges for Feeder Roads	2001.06
56	Technical Cooperation	Transport	Study for Portable Steel Bridge construction on Feeder & Rural Roads in the People's Republic of Bangladesh	2001.06
57	Grant Aid	Transport	The Project for Improvement of Steel Bridges for Roads in Rural Areas	2001.08
58	Technical Cooperation	Transport/ Urban Development	Expert on Mapping Technology	2001.09

#	Scheme	Sector	Project Name	Year
59	Technical Cooperation	Transport/ Urban Development	Expert on Mapping Technology	2001.09
60	Grant Aid	Transport	The Project for Improvement of Steel Bridges for Roads in Rural Areas	2002.06
61	Technical Cooperation	Transport/ Urban Development	The Study on Urban Information Management for Greater Dhaka City	2002.11
62	Technical Cooperation	Transport	Road and Bridge Advisor	2003.01
63	Technical Cooperation	Transport	Road and Bridge Advisor	2003.01
64	ODA Loan	Transport	Paksey Bridge Construction Project (II)	2003.03
65	Technical Cooperation	Transport	Feasibility Study of Padma Bridge in the People's Republic of Bangladesh	2003.05
66	Technical Cooperation	Transport/ Urban Development	Mapping Technology	2003.08
67	Technical Cooperation	Transport	Road and Bridge Maintenance Advisor	2004.12
68	Technical Cooperation	Transport/ Urban Development	Improving of Digital Mapping System of SOB	2005.08
69	Grant Aid	Transport	The Project for the Provision of Portable Steel Bridges on Upazila and Union Roads	2005.11
70	Grant Aid	Transport	The Project for the Provision of Portable Steel Bridges on Upazila and Union Roads	2006.07
71	Technical Cooperation	Transport	Road and Bridge Maintenance Adviser	2006.12
72	Grant Aid	Transport	The Project for the Provision of Portable Steel Bridges on Upazila and Union Roads	2007.08
73	ODA Loan	Transport	Dhaka-Chittagong Railway Development Project	2007.12
74	ODA Loan	Transport	Eastern Bangladesh Bridge Improvement Project	2009.03
75	Technical Cooperation	Transport/ Urban Development	Bangladesh Digital Mapping Assistance Project	2009.07
76	Technical Cooperation	Transport	Road and Bridge Maintenance Advisor	2009.12
77	ODA Loan	Transport/ Urban Development	Chittagong City Outer Ring Road Project	2010.03
78	ODA Loan	Transport	Padma Multipurpose Bridge Project	2011.05
79	Technical Cooperation	Transport/ Urban Development	Project for Improving Fare System of Mass-transportation in Dhaka City Area through ICT	2011.08
80	Technical Cooperation	Transport	Road and Bridge Maintenance Advisor	2012.05
81	ODA Loan	Transport/ Urban Development	Dhaka Mass Rapid Transit Development Project （I）	2013.02
82	ODA Loan	Transport	Northern Bangladesh Integrated Development Project	2013.03

#	Scheme	Sector	Project Name	Year
83	ODA Loan	Transport	The Kanchpur, Meghna and Gumti 2nd Bridges Construction and Existing Bridges Rehabilitation Project (I)	2013.03
84	Technical Cooperation	Transport/ Urban Development	Preparation of rules and regulations under urban mass rapid transit act	2013.09
85	Technical Cooperation	Transport	Project for Strengthen the Capacity on Advanced Mapping of SOB for Building Digital Bangladesh	2013.10
86	Grant Aid	Transport	The Project for Improvement of Airport Safety and Security Systems	2014.03
87	Technical Cooperation	Transport/ Urban Development	Dhaka Integrated Traffic Management Project	2014.04
88	Technical Cooperation	Transport/ Urban Development	Project for Establishment of Clearning House for Integrating Transport Ticketing System in Dhaka City Area	2014.04
89	Technical Cooperation	Transport/ Urban Development	Project on the Revision and Updating of Strategic Transport Plan for Dhaka	2014.05
90	Technical Cooperation	Transport	Road and Bridge Maintenance	2014.09
91	Technical Cooperation	Transport	Bridge Management Capacity Development Project	2015.06
92	ODA Loan	Transport	Western Bangladesh Bridge Improvement Project	2015.12
93	ODA Loan	Transport/ Urban Development	Dhaka Mass Rapid Transit Development Project (II)	2016.06
94	ODA Loan	Transport	Cross-Border Road Network Improvement Project (Bangladesh)	2016.06
95	ODA Loan	Transport	Jamuna Railway Bridge Construction Project （E/S）	2016.06
96	ODA Loan	Transport	Hazrat Shahjalal International Airport Expansion Project (I)	2017.06
97	ODA Loan	Transport	Kanchpur Meghna and Gumti 2nd Bridges Construction ProjectII	2017.06
98	ODA Loan	Transport/ Urban Development	Dhaka Mass Rapid Transit Development Project (Line 1) (E/S)	2017.06
99	Technical Cooperation	Transport	Project for Security Improvement of International Airports	2017.12
100	ODA Loan	Transport	Matabari Port Development Project (E/S)	2018.06
101	ODA Loan	Transport	Jamuna Railway Bridge Construction Project (I)	2018.06
102	ODA Loan	Transport/ Urban Development	Dhaka Mass Rapid Transit Development Project (Line 5)(E/S)	2018.06
103	ODA Loan	Transport/ Urban Development	Dhaka Mass Rapid Transit Development Project (III)	2018.06
104	ODA Loan	Transport	Matarbari Port Development Project (I)	2019.05
105	ODA Loan	Transport/ Urban Development	Dhaka Mass Rapid Transit Development Project (Line 1) (I)	2019.05
106	Grant Aid	Transport	the Project for the Densification of Global Navigation Satellite System Continuously Operating Reference Station Network and the Modernization of Tidal Stations in Bangladesh	2019.06

#	Scheme	Sector	Project Name	Year
107	Technical Cooperation	Transport	Project for Establishment of national Spatial Data Infrastructure (NSDI) for Bangladesh	2019.07
108	Technical Cooperation	Transport/ Urban Development	Project for Establishment of Clearing House for Integrating Transport Ticketing System in Dhaka City Area (Phase II)	2020.01
109	Technical Cooperation	Transport	Axle Load Control on Major Highways Project	2020.06
110	ODA Loan	Transport	Jamuna Railway Bridge Construction Project (II)	2020.08
111	ODA Loan	Transport/ Urban Development	Dhaka Mass Rapid Transit Development Project (Line 5 Northern Route) (I)	2020.08
112	ODA Loan	Transport/ Urban Development	Dhaka Mass Rapid Transit Development Project (IV)	2020.08
113	ODA Loan	Transport	Chattogram Cox's Bazar Highway Improvement Project (E/S)	2020.08
114	ODA Loan	Transport	Hazrat Shahjalal International Airport Expansion Project (II)	2020.08
115	Technical Cooperation	Transport	The Project for Capacity Development of Managing and Controlling Overloaded Vehicles	2020.08
116	Technical Cooperation	Transport/ Urban Development	The Project on Technical Assistance for Mass Rapid Transit Safety Management System of Line 6	2021.01
117	Technical Cooperation	Transport	Road and Bridge Maintenance Advisor	2021.03


Activate Windows

2.3 Urban Development

1. Overview

For a long time, the industrial sector of Bangladesh was agriculture-based but, due to the swift changes in the industrial structure in recent years, urbanization has progressed rapidly with the development of second and third industries. Bangladesh has traditionally had a centralized administrative system and the municipalities were small both in scale and jurisdiction but, in 1978, the city of Dhaka became a city corporation and in 1990 the city of Chattogram followed. Now there are 12 city corporations with increased jurisdiction.

The population of Bangladesh in 2020 was 164.69 million, of which 64.81 million live in urban areas, and the urbanization rate continues to increase from the current 39.3%. Cities are expected to play a role as a place where citizens can live safely and comfortably, and as an engine for economic growth, with functions in various fields such as governance, transportation, medical care, education, industry, and commerce. An overview of the progress of economic and technical cooperation between Bangladesh and Japan in the urban development sector is described below.

1.1 Pre-2000s: Storm Water Management and Telecommunication Infrastructure

(1) Storm Water Management

In Bangladesh, vast stretches of the national territory are flooded every year during the rainy season from April to September. This poses a major obstacle to the socio-economic activity of large cities such as Dhaka where various functions are concentrated. As cooperation in this field, the development survey "Water Drainage System Improvement Project in Dhaka" (1985-1987) was implemented. For the three priority drainage areas in Dhaka, JICA supported the development of embankments, floodgates, pumping stations, drainage channel repairs and revetments, drainage pipes, and so on. In the additional development study "Greater Dhaka Protection Project (Study in Dhaka Metropolitan Area of Bangladesh Flood Action Plan)" (1990-1992), a flood control master plan for the Dhaka metropolitan area and the flood protection plan was formulated not only for hard aspects such as civil engineering work, but also for flood forecasting, warning, and evacuation systems.

Furthermore, as grant aid, the "The Project for the Improvement of the Storm Water Drainage System in Dhaka City" (first contract in 1993, second contract in 2007) was implemented, and a new Kalyanpur drainage pumping station was constructed (drainage capacity is 10 m3/sec). Also, the existing drainage channel was renovated, and special equipment for dredging sludge in the channel connected to the adjustment pond of the pumping station was provided. These supports have been helping to reduce the damage to the flood control priority area (H area) in Dhaka.

(2) Broadcasting and Telecommunication

For the residents in cities, communication infrastructure is also essential for living. Cooperation between the two countries in the field of broadcasting began with the "Radio Television Broadcasting Expansion Plan Survey" (1973) by JICA's predecessor, the Overseas Technical Cooperation Agency. Subsequently, the development studies "Television Studio Construction Project" (1977) and "Radio Broadcasting Center Construction Plan" (1979) were carried out, and various proposals and technology transfers were made for the development and expansion of the public television and radio management. In recent years, the technical cooperation project "Project for Capacity Building on Human Development Television (HDTV) Programmes" (2015-2019) has been implemented to promote the use of television in the fields of education and liberal arts.

In the telecommunication infrastructure field, JICA also cooperated to improve the telephone network. The ODA loan project in this field, "Greater Dhaka Telecommunications Network Improvement Project" (contract for Phase I in 1986, contract for Phase II in 1992) has significantly improved the quality and quantity of wired telephone systems. Many households and businesses responded that the digitization of telephones reduced disconnections, noise, crosstalk, and improved sound quality and international calls. In addition,

a loan project "Telecommunication Network Development Project (2006)" was implemented targeting both wired and mobile phones in Dhaka, Chattogram, and Khulna and their surrounding areas, and expanded the equipment related to domestic and international line connection and trunk line transmission.

1.2 Post 2000s: Environmental Management

(1) Water Supply

As the population is increasing rapidly in urban areas, water demand is also growing, and there is an urgent need to supply enough safe water to meet this demand. In the field of urban water supply, cooperation projects were implemented in Chattogram and Khulna. The cooperation between the two countries in the water supply project of Chattogram, which has continued since 2000, includes the water supply system from intake to distribution pipes and meters for each connection, as well as measures for non-revenue water reduction, collection of water charges, organizational development, and financial management. JICA and ADB co-financed "Khulna Water Supply Project" (from 2011 to 2019) which has been providing 110,000 m3/day of water to the city of Khulna. With the contribution of this project, Khulna WASA can regularly supply 70% of their covering area now and the dependency on ground water has been drastically reduced.

(2) Environmental Management (Waste and Sewerage Management)

Waste management is of concern to all citizens. Cooperation between the two countries has continued for a long time in this field. Regarding solid waste management, JICA has cooperated in Chattogram and especially in Dhaka for about 20 years. Japan applied many schemes for assistance such as development studies, technical cooperation projects, grant aid, loans, and Japan Overseas Cooperation Volunteers. Solid waste management in the Dhaka City Corporation has been implemented with comprehensive cooperation by linking many of these schemes.

Sewerage is necessary to properly manage black water generated in cities, and to protect the water quality and sanitary environment of rivers and waterways. In the sanitation field, the study "The Master Plan and Feasibility Study for the Development of Sewerage System in North Dhaka" (1996) was carried out, and it proposed sewerage plans including those for pipelines, pumping stations, and treatment plants, as well as institutional and financial systems. In addition to these, a detailed plan for the priority project was developed.

2. Achievements

(1) Water Supply

1) Chattogram's JICA water supply cooperation helped increase the number of contract customers from 31,481 in 2000 to 74,447 in 2021.
2) The amount of water distributed by the Chattogram WASA was 165,000 m3/day before December 2016. JICA's cooperation contributed to increasing this to 393,000 m^3/day (JICA contributed 143,000 m3) in March 2021 and will be 466,000 m^3 soon (JICA will contribute a further 143,000 m^3).

(2) Storm Water Management

1) The flood control priority drainage area (H area) was inundated for an average of 7 days in 2006, and this was reduced to less than 6 to 8 hours in 2013.

(3) Environmental Management (Waste Management)

1) The waste collection rate in Dhaka improved from 44% in 2004 to 80% in 2017.
2) By closing about 175 waste collection points in the city, the offensive odor and the scattering of garbage have been reduced.
3) By improving the solid waste disposal site to a well-managed type, the impact of offensive odors and sewage on the environment has been reduced.
4) Changing the fuel of waste collection vehicles from gasoline to CNG contributed to the reduction of carbon dioxide emissions. A total of 212 waste collection vehicles have been provided so far.

(4) Broadcasting / Communication

1) JICA's cooperation has contributed to the opportunity of many Bangladeshis to enjoy public broadcasting channels and watch cultural and educational programs.
2) A series of cooperative projects for telecommunication since the 1980s has improved the facilities of both landline and mobile phones, allowing more people to use telephone lines. It has contributed to the rapid spread of telephones.

3. Representative Projects

3.1 A Series of Cooperation on Solid Waste Disposal in Dhaka

(1) JICA's Long-Term Comprehensive Cooperation

Solid waste management is very important in a megacity like Dhaka with its population of over 10 million. The average amount of household waste discharged per capita in Dhaka is 0.43 kg, and the entire city waste needing treatment totals about 7,540 tons every day. Japan has

been cooperating in the field of solid waste management since 2000, combining various aid schemes for more than 20 years. Looking back on these years of cooperation, it is worth noting that the collaboration with residents was the key element of the successful cooperation, sincerely facing the changes of society, customs, culture, religion and public administration. The project has been working together as a good partner of the residents, aiming for comprehensive improvement of the solid waste collection, transfer, and disposal system.

(2) Study of Solid Waste Issue, Formulation of Master Plan and Implementation of Pilot Project

The solid waste management administration of Dhaka City Corporation had a problem with the low waste collection rate which caused a deterioration of public health. Only one-third of the solid waste generated in Dhaka was collected, and illegally dumped waste was odorous here and there in the city. A short-term expert dispatched in 2000 grasped the current situation of waste management in Dhaka City Corporation and conducted a needs analysis, which led to the subsequent development study "Solid Waste Management Study in Dhaka City" (2003-2006). In this survey, the "Clean Dhaka Master Plan" was created as a waste management guideline. This plan showed the targets and strategies that should be realized by 2015. Note that the Dhaka City Corporation was divided into the North Dhaka City Corporation and the South Dhaka City Corporation in 2011.

There are waste collection points or large metal containers in each community and, in many cases, solid waste from each household is carried to a designated place by a private contractor that undertakes primary collection. The waste gathered at the collection points was transported by the city's collection trucks to the final disposal sites. In the above development study, a pilot project was carried out with two selected wards in order to explore the public participation in solid waste management as well as information gathering. Waste management does not simply mean the collection and disposal by the government. To disseminate the waste collection service to every corner in a big city like Dhaka, it is important that the residents and the field staff of the City Corporation work together with strong sense of responsibility for the operation of a series of waste management systems. Japan Overseas Cooperation Volunteers were dispatched from 2006 to 2016 to encourage the participation of residents.

Messy waste collection point in previous days (Photo: Yachiyo Engineering Co., Ltd.)

The follow-up cooperation that the two countries had agreed on in advance with this study project was implemented based on the Clean Dhaka Master Plan. The solid waste disposal site also had various hygiene problems, but in 2006, the disposal site was expanded and improved with the debt reduction equivalency fund, and a sanitary landfill was introduced.

(3) Technical Cooperation Project to Realize the Master Plan

In 2007, JICA started the "Project for Strengthening of Solid Waste Management in Dhaka City" (2007-2013), which is technical cooperation to support the implementation of the "Clean Dhaka Master Plan" in earnest. In this cooperation, the project worked on "promotion of residents' participation," "improvement of collection/transportation," "improvement of disposal site," and "improvement of organization/finance" as a comprehensive approach to solid waste management.

By "promoting the participation of residents," it became possible to carry out "fixed-point collection on time" in some wards. It is a system in which residents put out waste at a fixed place on a fixed date and time, and a compactor (garbage truck) of the city corporation collects it. This enabled the removal of waste deposit points and containers from roads, improving the cityscape, hygiene, and odors. At that time, there were 90 wards in Dhaka City Corporation (currently there are 129 wards in North and South Dhaka City),

Community meeting in North Dhaka City (Photo: Yachiyo Engineering Co., Ltd.)

Current state of waste collection (Photo: Yachiyo Engineering Co., Ltd.)

and the cleaning supervisor in each ward manages the work of the cleaning staff. In the technical cooperation project, this cleaning supervisor was assigned as the responsible officer for the participation of the residents in each ward. The project has set up a ward cleaning office in each ward that functions as a contact point for residents. The project facilitated residents' setting up an organization called a community unit working group and raised the awareness of the residents with a series of meetings.

(4) Provision of solid waste collection vehicles and improvement of disposal sites

In addition to the above-mentioned participation of residents, proper deployment and operation management of collection vehicles on the city corporation side are indispensable for "improvement of collection and transportation." During the implementation of the technical cooperation project, grant aid titled "The Program for Improvement of Solid Waste Management in Dhaka City toward the Low Carbon Society (2009-2010)" was implemented to procure 100 waste collection vehicles and to construct a vehicle maintenance facility. "Low carbon" means reducing carbon dioxide (CO2) emissions by using CNG as fuel for collection vehicles and replacing old diesel vehicles with fuel-efficient ones. As a result, improving the ability to collect and transport solid waste and mitigating global warming can go together. Also, the program contributed to the improvement of serious air pollution. A series of support measures, including the maintenance of this equipment, has improved the solid waste collection rate. Furthermore, in 2018, an additional


Previous disposal site (insanitary disposal of open dumping) (Photo: Yachiyo Engineering Co., Ltd.)


Current disposal site (landfill with gas treatment) (Photo: Yachiyo Engineering Co., Ltd.)

112 waste collection vehicles were procured in the Dhaka region under the grant aid "The Project for Improvement of Solid Waste Management Equipment" (2015).

"Improving the disposal site" has been an important issue. The improvement from the open dump (unsanitary landfill) of the existing Matweil disposal site to the sanitary landfill and the construction of the new Amin Bazaar disposal site were financed mainly with debt reduction equivalent funds held by the Bangladeshi side. This financial obligation provided an opportunity for the Dhaka City Corporation to show strong total ownership of solid waste management.

(5) Institutional and Financial Improvement Necessary for Solid Waste Management

"Institutional and financial improvement" has also been a major issue. Up until 2007, the cleaning bureau oversaw road cleaning in the city, the transportation bureau oversaw waste collection and transportation as well as collection truck management, and the technical bureau was in charge of final disposal site management. Mutual communication and coordination were not sufficient. However, in 2008, the Solid Waste Management Bureau was established by the integration of bureaus, and the unification of waste administration has progressed. There are now waste management bureaus in both North and South Dhaka City Corporation. In addition, as part of organizational improvement, a series of measures have been taken for the improvement of the working environment of road cleaners.

Appropriate financial operation is necessary for sustainable solid waste management, and the current waste management budget for North and South Dhaka City Corporation is about 36.9 billion taka per year (FY2017 results, equivalent to about 50 billion yen). The need for financial improvement was also pointed out in the development study from 2003. Cooperation between the two countries has facilitated annual budget planning, equipment and facility asset valuations, financial reporting, and budget increases for the bureaus. Property taxes, which are the City Corporation's main source of revenue, amount to 7% of the real estate appraisal value, of which 2% is used for solid waste management. Strict tax collection is expected to be improved, resulting in an increase in this percentage.

(6) Continued efforts for a more comfortable urban environment

The ongoing technical cooperation project "Project for Strengthening of Solid Waste Management in Dhaka North City, Dhaka South City and Chattogram City" (2017-2022) has been supporting the formulation of the new master plan after the "Clean Dhaka Master Plan (2018-2032)." The master plan with 2032 as the target year has set the goal of promoting the 3Rs (reduce, reuse, recycle) with introduction of the intermediate treatment system. With the system, the final disposal amount is expected to be greatly

Cover of the new master plan (North Dhaka City Corporation)

(Photo: Yachiyo Engineering Co., Ltd.)

Cover of the new master plan (South Dhaka City Corporation)

(Photo: Yachiyo Engineering Co., Ltd.)

reduced. Furthermore, the master plan includes collection of classified waste and an "eco-town," which is an area of concentrated recycling industry activity.

Waste management is a necessary and sustainable activity given that people will continue to live in the city. The ongoing technical cooperation project is scheduled to be completed in May 2022. The Bangladesh side is making continuous efforts, with what they learned from the technology transfer up to now, to improve solid waste management and to achieve a more comfortable urban environment for the residents.

3.2 A Series of Cooperation Measures for the Water Supply of Chattogram City

(1) Issues of Water Supply in Chattogram City Corporation

In 1999, when cooperation in the field of water supply in Chattogram began, the city had a population of 2.5 million, but fewer than half the residents had access to tap water, and the water supply was often suspended due to insufficient water volume and pressure. It was an important role of the Chattogram Water and Sewerage Authority (CWASA), which has jurisdiction over waterworks, to properly manage the city water and increase the amount of water supplied in response to the ever-increasing population. However, there were various issues such as

Karnaphuli Water Purification Plant at present (Photo: NJS CO.,LTD.)

strengthening the institution, improving the capacity of staff, introducing water purification technology, maintaining and expanding aging equipment and the water distribution pipe network, taking measures against water leakage and illegal connection, and strictly collecting water charges. JICA has been supporting water system improvement in Chattogram for more than 20 years by combining various aid schemes toward the goal of "improving access to safe water."

(2) Securing Water Sources and Expanding Water Purification Plants

The first request for cooperation from the Bangladesh side was the expansion of the Mohara water purification plant. In response to this, the Japanese side conducted a project formation survey in 1997 and then conducted a development study "The Feasibility Study on the Extension and Expansion of Mohara Water Treatment Plant" (2000). This project drew up the Chattogram Water Supply Improvement Plan, which is a basic water supply plan for the entire city, not just one water purification plant.

In 2006, ODA loan for "The development of "Karnaphuli Water Supply Project" (2006) started. The first phase (Karnaphuli Water Supply Project) was completed in 2018. The second phase of the project, Karnaphuli Water Supply Project, Phase 2, started in 2013 and is currently ongoing. Due to the improvement of the supply capacity of the water treatment plant, the water failure time has decreased, and access to tap water by each household has become more convenient.

People waiting for water (Photo: JICA)

(3) Water Supply to the Poor

The expansion of the water purification plant has made it possible to partially supply water to slum residents, to help alleviate poverty. Communal faucets were installed in a part of the slum area where 40% of Chattogram's inhabitants live, improving the standard of living of the poor, who previously had no access to safe water. Traditionally, in slum areas, people shared manual wells or bought water from water trucks. In the medium to long term, the goal is to replace the communal faucets with a faucet in each house.

(4) Water Quality of Chattogram Water Supply

In Bangladesh, most of the drinking water comes from underground water, and the problem is deteriorating

Water Testing Laboratory at purification plant (Photo: NJS CO.,LTD.)

water quality caused by saltwater intrusion and arsenic pollution due to excessive pumping of underground water. Chattogram gives priority to using surface water for waterworks. However, in Chattogram, which is in a large delta area, river water quality is affected by seawater due to tide level fluctuations. Additionally, in the rainy season, river water may become extremely muddy, for which treatment is necessary. At the Karnaphuli Water Treatment Plant, a water intake facility has been constructed at a point where salt water does not enter, and chemical injection equipment has been introduced to treat muddy water. By coordinating water purification facilities adapted to natural conditions, the quality of the water coming out of the faucet at home is ensured.

The water purification plant must supply water continuously. At the plant, it is possible to switch to private power so that it can operate even in the event of a blackout. In addition, in the distribution area of the Karnaphuli water treatment plant, water is distributed by natural flow from the distribution reservoir. The water supply can be adjusted between distribution reservoirs; thus, the fail-safe system does not stop the water supply even in the event of a cleaning or accident.

(5) Reduction of Non-Revenue Water

From 2009, the "Project for Advancing Non-Revenue Water Reduction Initiative (PANI) of Chittagong WASA" was implemented as technical cooperation project supporting ODA loan. Non-revenue water means "water for which charges cannot be collected due to having leaked from water pipes or obtained by means of an illegal connection." Since the water supply business charges users for the supply of water, all the water from the water purification plant should be delivered to the faucets of each household without waste. However, according to a 2007 survey, it was estimated that 45% of the daily water supply of 192,000 m^3 was non-revenue water.

Measures to reduce non-revenue water include, 1) asset management using GIS for the water supply pipeline map, 2) flow control with divided water distribution areas, 3) improvement of leak examination technology, 4) improvement of leak repair technology, and 5) installation and proper maintenance of water meters. In the water distribution area of the Karnaphuli Water Purification Plant, 1) and 2) are being implemented now. Currently, when the water purification plant is fully operating, the water pressure is expected to rise and cause more water leakage. However, improvement of leak examination and repair technology will be able to reduce the quantity of non-revenue water.

(6) Collection of Water Charges

Water services are a public business that charges water users. It is desirable that the cost recovery rate be 100% or more, and it is certainly necessary to collect fees in order

JICA expert checking water meter (Photo: JICA)

to realize a profit. In the past, Bangladesh did not provide a water meter for each house, and the water charge was determined by the diameter of the connecting pipe to the house. For example, if you connected a pipe with a diameter of 10 mm, you paid a fixed amount every month according to that pipe diameter. Whether you didn't use the water at all that month, or even if you left the tap water running, the water charge would not change. Naturally, there was no incentive for people to save water. Chattogram has changed this by installing water meters. Nearly 90% of connections have meters installed, but if the meters are not inspected or replaced regularly, measurement of the water amount is not accurate. Therefore, repairing and replacing the meters is also an important task in order to increase the income of the Water and Sewage Authority, which is a water supply corporation. In addition to preventing water leakage and illegal connections as described above, it is also inevitable to collect charges from water users with certainty expert checking water meter.

(Photo: JICA/Suzuki Kaku)

(7) Human Resource Development for the Staff Members of Water-Related Organizations

In technical cooperation projects, technology is transferred from Japanese experts to Bangladeshi counterparts through practical activities. In addition to this, training is conducted in Japan and/or third countries. For the water supply cooperation of Chattogram, two training sessions were held in the Cebu Metropolitan Area in the Philippines, which is closer to the situation in Bangladesh than in Japan, and a total of 20 officers from the authority participated, to obtain practical knowledge of meter reading work, charge collection, customer service, water supply business management, etc.

4. Project List

#	Scheme	Sector	Project Name	Year
1	Technical Cooperation	Urban Development	The survey for Radio and TV	1973.2
2	ODA Loan	Urban Development	Dacca-Chittagong Microwave And Talibabad-Dacca	1976.11
3	Technical Cooperation	Urban Development	Television Studio Construction Project	1977.07
4	Equipment Provision	Urban Development	Equipment for TV broadcasting	1979.04
5	Grant Aid	Urban Development	The Establishment of the National Broadcasting House of Radio Bangladesh	1981.06
6	Grant Aid	Urban Development	Establishment of the National Broadcasting House of Radio Bangladesh	1982.08
7	Equipment Provision	Urban Development	Equipment for TV relay vehicles	1984.04
8	Grant Aid	Urban Development	Project fot the Improvement of Water Supply System in New District Towns	1985.02
9	Grant Aid	Urban Development	Improvement of Water Supply System in New District Towns	1985.06
10	ODA Loan	Urban Development	Greater Dhaka Telecommunications Network Improvement Project	1985.10
11	ODA Loan	Urban Development	Greater Dhaka Telecommunications Network Improvement Project	1986.07
12	Grant Aid	Urban Development	Improvement of Water Supply System in New District Towns	1986.09
13	Technical Cooperation	Disaster Prevention/ Climate Change Urban Development	Water Drainage System Improvement Project in Dhaka	1986.11
14	Grant Aid	Urban Development	Replacement of Medium-Wave Transmitter	1987.04
15	Grant Aid	Urban Development	Improvement of Water Supply System in New District Towns	1987.08
16	Grant Aid	Urban Development	Construction and Rehabilitation of the Sewerage System	1988.01
17	Technical Cooperation	Urban Development	Water supply	1988.03
18	Grant Aid	Urban Development	The Project for the Improvement of Water Supply System in New District Towns	1988.09
19	Grant Aid	Urban Development	Construction and Rehabilitation for the Sewerage of Dhaka City	1988.10
20	Grant Aid	Urban Development	Construction and Rehabilitation for the Sewerage of Dhaka City	1989.07
21	Equipment Provision	Urban Development	Broadcast equipment	1990.04
22	Technical Cooperation	Disaster Prevention/ Climate Change Urban Development	Greater Dhaka Protection Project (Study in Dhaka Metropolitan Area of Bangladesh Flood Action Plan)	1990.01
23	Grant Aid	Urban Development	The Project for the Improvement of the Storm & Water Drainage System in Dhaka City	1990.03
24	Grant Aid	Urban Development	Construction and Rehabilitation for the Sewerage of Dhaka City	1990.06
25	Grant Aid	Urban Development	The Project for the Improvement and Repalacement of Medium Wave Transmitter in Savar	1990.08
26	Grant Aid	Disaster Prevention/ Climate Change Urban Development	The project for the Improvement of the Storm Water Drainage System in Dhaka City	1990.09
27	Grant Aid	Disaster Prevention/ Climate Change Urban Development	The project for the Improvement of the Storm Water Drainage System in Dhaka City	1991.08
28	Grant Aid	Disaster Prevention/ Climate Change Urban Development	The project for the Improvement of the Storm Water Drainage System in Dhaka City	1992.05

#	Scheme	Sector	Project Name	Year
29	ODA Loan	Urban Development	Greater Dhaka Telecom. Network Improvement Project (II)	1992.05
30	Grant Aid	Urban Development	Project for Balancing Modernization,Rehabilitation and Expansion of the Chandnighat Water Treatment Plant	1993.09
31	Grant Aid	Urban Development	The Project for Balancing, Modernization, Rehabilitation and Expansion of the Chandnighat Water Treatment Plant	1994.09
32	Grant Aid	Urban Development	The Project for Balancing, Modernization, Rehabilitation and Expansion of the Chandnighat Water Treatment Plant	1994.09
33	Grant Aid	Urban Development	The Project for Balancing, Modernization, Rehabilitation and Expansion of the Chandnighat Water Treatment Plant	1994.09
34	Technical Cooperation	Urban Development	Broadcastiong Training (Tv Equipment)	1996.01
35	Technical Cooperation	Urban Development	The Master Plan and Feasibility Study for the Development of Sewerage System in North Dhaka	1997.03
36	Grant Aid	Urban Development	The Project for Supply of Equipment for Dhaka Television	1997.08
37	Technical Cooperation	Urban Development	Management & Operation of Water Works	1999.04
38	Technical Cooperation	Transport/ Urban Development	Geodesy	1999.07
39	Technical Cooperation	Urban Development	The Feasibility Study on the Extension and Expansion of Mohara Water Treatment Plant in the People's Republic of Bangladesh	2000.01
40	Technical Cooperation	Transport/ Urban Development	Expert on Mapping Technology	2001.09
41	Technical Cooperation	Transport/ Urban Development	Expert on Mapping Technology	2001.09
42	Technical Cooperation	Transport/ Urban Development	The Study on Urban Information Management for Greater Dhaka City	2002.11
43	Technical Cooperation	Urban Development	Urban Environmental Advisor	2003.04
44	Technical Cooperation	Transport/ Urban Development	Mapping Technology	2003.08
45	Technical Cooperation	Urban Development	Solid Waste Management Study in Dhaka City	2003.11
46	Technical Cooperation	Urban Development	Water Management and Development	2004.04
47	Grant Aid	Urban Development	The Project for Strengthening of Water Examination System	2004.09
48	Technical Cooperation	Transport/ Urban Development	Improving of Digital Mapping System of SOB	2005.08
49	ODA Loan	Urban Development	Telecommunication Network Development Project	2006.06
50	ODA Loan	Urban Development	Karnaphuli Water Supply Project	2006.06
51	Grant Aid	Disaster Prevention/ Climate Change Urban Development	The Project for the Improvement of the Storm Water Drainage System in Dhaka City (Phase II)	2007.02
52	Technical Cooperation	Urban Development	Project for Strengthening of solid waste management in Dhaka city	2007.02
53	Grant Aid	Disaster Prevention/ Climate Change Urban Development	The Project for the Improvement of the Storm Water Drainage System in Dhaka City (Phase II)	2007.06 (E/N)
54	Technical Cooperation	Urban Development	Strengthening Capacity for Water Quality Analysis and Monitoring System in Bangladesh	2009.03
55	Technical Cooperation	Transport/ Urban Development	Bangladesh Digital Mapping Assistance Project	2009.07
56	Technical Cooperation	Urban Development	Project for Advancing NRW reduction Initiative (PANI) of Chittagong WASA	2009.07
57	Grant Aid	Urban Development	The Programme for Improvement of Solid Waste Management in Dhaka City toward the Low Carbon Society	2009.08
58	ODA Loan	Transport/ Urban Development	Chittagong City Outer Ring Road Project	2010.03

#	Scheme	Sector	Project Name	Year
59	ODA Loan	Urban Development	Khulna Water Supply Project	2011.05
60	Technical Cooperation	Transport/ Urban Development	Project for Improving Fare System of Mass-transportation in Dhaka City Area through ICT	2011.08
61	ODA Loan	Transport/ Urban Development	Dhaka Mass Rapid Transit Development Project（I）	2013.02
62	ODA Loan	Urban Development	Karnaphuli Water Supply Project (Phase 2)	2013.03
63	Technical Cooperation	Transport/ Urban Development	Preparation of rules and regulations under urban mass rapid transit act	2013.09
64	Technical Cooperation	Urban Development	Project for Institutional Improvement and Advancing NRW reduction Initiative of Chittagong WASA(PANI-2)	2014.03
65	Technical Cooperation	Transport/ Urban Development	Dhaka Integrated Traffic Management Project	2014.04
66	Technical Cooperation	Transport/ Urban Development	Project for Establishment of Clearning House for Integrating Transport Ticketing System in Dhaka City Area	2014.04
67	Technical Cooperation	Transport/ Urban Development	Project on the Revision and Updating of Strategic Transport Plan for Dhaka	2014.05
68	ODA Loan	Urban Development /Governance	Inclusive City Governance Project	2014.06
69	Grant Aid	Urban Development	The Project for Improvement of Solid Waste Management Equipment	2015.05
70	ODA Loan	Transport/ Urban Development	Dhaka Mass Rapid Transit Development Project (II)	2016.06
71	Technical Cooperation	Urban Development	Project for Strengthening of Solid Waste Management in Dhaka North City, Dhaka South City and Chittagong City	2017.06
72	ODA Loan	Transport/ Urban Development	Dhaka Mass Rapid Transit Development Project (Line 1) (E/S)	2017.06
73	ODA Loan	Transport/ Urban Development	Dhaka Mass Rapid Transit Development Project (Line 5)(E/S)	2018.06
74	ODA Loan	Transport/ Urban Development	Dhaka Mass Rapid Transit Development Project (III)	2018.06
75	ODA Loan	Transport/ Urban Development	Dhaka Mass Rapid Transit Development Project (Line 1) (I)	2019.05
76	Technical Cooperation	Transport/ Urban Development	Project for E stablishment of Clearing House for Integrating Transport Ticketing System in Dhaka City Area (Phase II)	2020.01
77	ODA Loan	Transport/ Urban Development	Dhaka Mass Rapid Transit Development Project (Line 5 Northern Route) (I)	2020.08
78	ODA Loan	Transport/ Urban Development	Dhaka Mass Rapid Transit Development Project (IV)	2020.08
79	ODA Loan	Urban Development /Governance	Urban Development and City Governance Project	2020.08
80	Technical Cooperation	Transport/ Urban Development	The Project on Technical Assistance for Mass Rapid Transit Safety Management System of Line 6	2021.01

(Photo: Mika Tanimoto/JICA)

2.4 Private Sector

1. Overview

Japan's assistance in the field of private sector development began with its support for industrialization, including the development of the chemical fertilizer and heavy chemical industries after the independence of Bangladesh. As the government of Bangladesh began to emphasize the promotion of export industries and foreign direct investment (FDI) from the late 1980s, Japan has been providing a number of projects for infrastructure development for investment and export promotion. Support for IT human resource development has also been conducted, as information and communication technology was recognized as an important area of growth potential in the context of industrial diversification.

Bangladesh Special Economic Zone (Photo: JICA)

1.1 Pre—2000s

(1) 1970s

The First Five-Year Plan of Bangladesh (1973/74 to 1977/78), planned after independence in 1971, aimed at poverty reduction and economic growth through socialist economic programs. In January 1974, a Japanese Government Economic Mission, headed by the then Chairperson of the Japan Chamber of Commerce and Industry, was dispatched to Bangladesh to examine Japan's economic cooperation under the First Five-Year Plan and to make recommendations to the Japanese Government. Based on this, in the field of private sector development, projects were identified and implemented, including financial cooperation ("Development Loan Through Banking System" (1976), "Dhaka International Hotel Construction Project1" (1977)) and technical cooperation (Development Survey) ("Construction Project of Automobile Repair & Maintenance Workshop" (1977), "Development Plan of Small-Scale Industries" (1979), and "Replacement & Expansion of Kaninaphuri Rayon & Chemicals Ltd" (1979).

(2) 1990s

In the 1990s, "the study on Industrial Development of Chittagong Region" (1994) focused on Chittagong which has the largest seaport and international airport in Bangladesh and excellent industrial development centers including existing export processing zones, to promote economic and social development in Bangladesh. The study proposed the legalization and designation of a Special Industrial Development Region (SIDR) and the creation of a Special Economic Zone (SEZ) within the SIDR. In addition, as a strategic approach to industrialization, it proposed: (1) accelerating and focusing infrastructure development in line with the industrialization process; (2) deepening and strengthening the linkage between agriculture and industry, considering that food production and stable food supply are crucial to support industrialization; and (3) building the foundation for industrial development by promoting foreign direct investment. As a result, assistance for social infrastructure development continued, mainly in the form of financial assistance in the heavy chemical industry (e.g., construction and renovation of fertilizer plants in Jamuna and Ghorasal).

This was because the price of natural gas which Bangladesh has in abundance, was kept low as a government policy, and because the industrialization of Bangladesh was government-led and public-sector controlled, with much of the public investment in the industrial sector going into the production capacity of the chemical fertilizer industry and fostering the heavy chemical industry. The emphasis on the heavy chemical industry did not necessarily focus

[1] Dhaka International Hotel is now known as Pan Pacific Sonargaon Dhaka

on investment promotion, export promotion, or industrial deepening and growth, as the overriding goal was to increase agricultural productivity through increased production of agricultural inputs, and it did contribute indirectly to the agricultural sector, which was a major issue in Bangladesh at the time.

Looking at the whole industrial sector, the government shifted from an import substitution strategy to an export promotion strategy, which had been adopted since independence, and exports of ready-made garments and other sewn products expanded and became one of the major industries in Bangladesh.

1.2 2000s to the Present

(1) Economic Infrastructure Development Policy

The Japanese government's Country Assistance Plan for Bangladesh (2000) identified four strategic priority areas, and the focus of the private sector development area was "infrastructure development for investment promotion and export promotion." In this plan, the aim was to achieve economic growth through investment promotion and export promotion, with a focus on the development of economic infrastructure (electricity, transport, telecommunications, etc.). It also added the perspective of identifying and supporting industrial sectors that need to be nurtured to become more competitive internationally. Furthermore, the policy also included the development of institutional financial institutions by linking the dispatch of experts with financial cooperation, as it is essential to develop reliable intermediary financial institutions in order to consider two-step loans through ODA loans in a long-term perspective.

(2) Identification of Industrial Sectors

In the priority targets and sectors of the Country Assistance Plan for Bangladesh (2006), private sector development (including information and communication technology and tourism) in the context of economic growth was specified, and the policy was to concentrate assistance in three areas: (1) improvement of the trade and investment environment by encouraging the government to eliminate business impediments, (2) support for economic infrastructure which is a strength of Japan, and (3) support for human resource development in the private sector. A concern of the plan was the impact of the expiry at the end of 2004 of the multilateral textile agreement signed in 1974 on sewn products, and the need to diversify export industries to replace them. In line with this plan, economic infrastructure support has been provided through financial contributions to international organizations, and a development study, "The Study on Potential Subsector Growth for Export Diversification" (2006-2009), was undertaken to identify two sectors as having potential for export growth, one of which was the jute industry, and the other was the computer software industry.

In the tourism industry, volunteers were dispatched, but it was evaluated that it was difficult to implement the project due to the underdeveloped tourism resources and infrastructure in Bangladesh. Moreover, recognizing the importance of improving the access of SMEs to finance for industrial development, particularly in the manufacturing sector, "The Financial Sector Project for the Development of Small and Medium-sized Enterprises" (2011-2016) was implemented to provide medium- and long-term loans for capital investment to some 500 SMEs that had limited access to financial services.

(3) Improvement of the Investment Environment and the Development of Industrial Human Resources

Among the priority areas of the Country Assistance Policy (2012) was the description "accelerating economic growth that can benefit all citizens toward becoming a middle-income country," and it was decided (1) to promote the activities of the private sector that is the driving force for achieving high economic growth, (2) to support the improvement of the investment environment, and (3) to support the development of industrial human resources in order to attract and increase private investment. In terms of improving the investment environment, Bangladesh at that time was receiving foreign direct investment through the development of export processing zones, but this was not contributing to the expected development of domestic industry and employment growth. Then the government of Bangladesh has established the Bangladesh Economic Zones Authority (BEZA), which is responsible for the construction and management of new economic zones

Dhaka University students helping with the ITEE exam and test introduction (Photo: JICA)

ITEE classes (Photo: EKMATTRA ENTREPRENEURS LTD.)

(EZs). The Bangladesh government was planning to develop a business-friendly EZ that would incorporate the expertise of the private sector including Japanese companies, and this required the selection of candidate sites, development planning, and capacity development of BEZA staff. To this end, JICA implemented the "Project for Development Study and Capacity Enhancement of Bangladesh Economic Zone Development Plan Authority" (2015-2017). The outcome of the project has been handed over to (1) "Foreign Direct Investment Promotion Project" (Phase1: 2015-2029), and (2) Moheshkhali Matarbari Integrated Infrastructure Development Plan, the largest infrastructure development project in Bangladesh under the direct management of the Prime Minister's office. In the area of industrial human resource development, "The Capacity Building on ITEE Management Project" (2012-2015) was implemented to develop ICT specialists, and support was provided for the full-scale introduction of the ITEE as a national examination system to raise the skills of ICT specialists and to demonstrate their competence, as well as to improve the management capacity of ITEE-implementing organizations.

(4) Development of SEZs and ICT Human Resource Development

In the priority areas of the Country Development Cooperation Policy (2018), it is described: (a) achieving high economic growth that can benefit all citizens toward becoming a middle-income country, (b) promoting the private sector activities, which is the driving force for accelerating (c) supporting the improvement of the investment environment in order to attract and increase private investment, and (d) working extensively on human resource development,

Aerial view of a construction of an Economic Zone. (Photo: Survey Team)

which is the cornerstone of private sector growth. Under this policy, "the Project for Promoting Investment and Enhancing Industrial Competitiveness" (2017-2022) has been launched aiming to improve the investment environment in Bangladesh, more specifically (1) to promote the development of SEZs, (2) to promote linkages between foreign direct investment and domestic industries by supporting the formulation of industrial policies, and (3) to diversify and upgrade Bangladesh's industries. In order to promote foreign investment, the project supports the Bangladesh Investment and Development Authority, BEZA, and the Ministry of Industry in the introduction of a one-stop service for issuing various types of government permits and licenses in EZs, establishment of a center for such services, strengthening of BEZA's capacity to develop SEZs, and improvement of SEZ-related systems under Component 2. Among other things, the results related to the know-how of one-stop services and the capacity of BEZA to manage EZ operations are also being adopted in the "Foreign Direct Investment Promotion Project" (Phase 2: 2019-2025).

In the area of industrial human resource development, the light engineering industry and plastics industry were selected under Component 3 of the Project for "Promoting Investment and Enhancing Industrial Competitiveness", and training was conducted to strengthen the capacity of the Ministry of Industry, Bangladesh Industrial and Technical Assistance Center, and SME Foundation. In addition, "The Project for Skills Development of ICT Engineers Targeting the Japanese Market" (2017-2021) was implemented to develop human resources in the ICT industry.

2. Achievement

(1) Investment environment

1) Disbursement of JICA's first Equity Back Finance (EBF) ODA loan under the "Foreign Direct Investment Promotion Project" on 17 March 2020.
2) Support for the introduction of a one-stop service for issuing various permits and licenses in EZs
3) Strengthening of EZ operation management capacity for BEZA staff

(2) Industrial human resource development (ICT sector)

1) Number of B-JET graduates: 265 (1st to 8th terms)
2) The number of B-JET graduates employed by Japanese companies is 186, with a 70% employment rate (as of March 2021).
*Almost 100% employment rate, including employment in Bangladeshi companies (mainly Japanese IT companies)
3) 5,420 applicants for ITEE examinations, 2,632 candidates, 232 successful candidates (during the project period)
4) Introduction of Japan's Information Technology Engineers Examination (ITEE) as a national certification for IT skills in Bangladesh.
5) Establishment of an Industry-Government-Academia Collaboration Model "Miyazaki-Bangladesh Model"

3. Representative Projects

3.1 Human resources development for the ICT sector

(1) Toward the introduction of the Information Technology Engineers Examination (ITEE)

Bangladesh's economic growth has been driven by strong garment exports and remittances from overseas workers, but the country needs to develop alternative industries to the garment industry. Although the ICT and software industry is a priority sector and its market is expanding, there is a lack of systematic education and training in the industry, and no examination system has been established to objectively evaluate the ICT skills.

Aiming for further development of the ICT industry in Bangladesh, JOCV (Japan Overseas Cooperation Volunteers) who were dispatched to Bangladesh in the field of computer engineering took the lead in organizing a mock examination contest in 2010 and introduced the Information Technology Engineers Examination (ITEE), which was created in Japan. As a result, the need for the examination in Bangladesh was identified and the "Capacity Building on the ITEE Management Project" was implemented from December 2012 to December 2015. The project supported the full-scale introduction of the ITEE as a national examination system to enhance the skills and competency of ICT human resources, and to improve its management capacity.

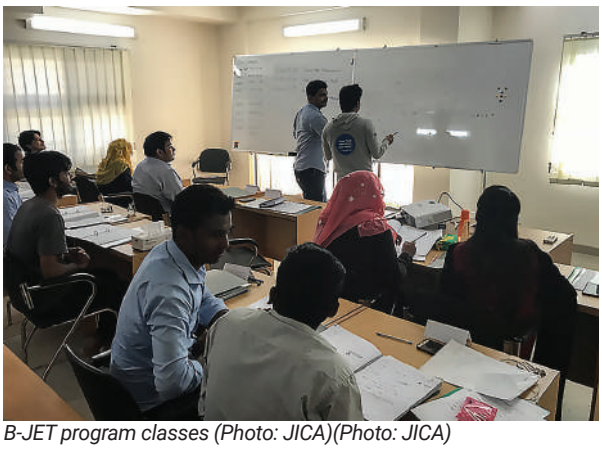
ITEE mock exam contest (Photo: Akihiro Shoji)

Though the project goal "introduction of national ITEE" was achieved in 2014, the examination was not widely recognized and used and graduates of the ITEE did not find employment. To this end, the "Project for Skills Development of ICT Engineers Targeting the Japanese Market" (2017-2021) was implemented to disseminate ITEE and strengthen the system for its effective use in human resource development. The project also aimed to improve the capacity of Bangladesh Computer Council (BCC) to promote ICT human resource development and to train ICT engineers who can work in the Japanese market.

(2) Bringing Bangladeshi IT human resources to the Japanese market

The above-mentioned project set up a training program named B-JET (Bangladesh-Japan ICT Engineers' Training), to support the process of placing Bangladeshi IT engineers in Japanese companies. The B-JET program is designed to train IT engineers to work for Japanese IT companies or for Bangladeshi IT companies with links to the Japanese market and includes Japanese language, IT skills, and business etiquette courses. A timetable has been set up to allow trainees to study from morning to evening, five days a week, for three months. The program was designed to train trainees who would be able to work in Japanese companies if they could complete the program, with a minimum attendance rate of 85% of lectures as a condition for completion. Also, strict rules on tardiness and absenteeism for trainees, reflecting the rules of local public high schools in Japan, were applied. This strictness may have caused some trainees to withdraw from the program; however, over 95% of trainees completed the program. Moreover, the trainees have commented that, thanks to the rigorous standards of the training, they have been able to adapt to the employment regulations of the Japanese companies where they have found work without any surprises. As a result, a total of 280 students completed the program from the first to the eighth terms, and 265 of them went on to work for Japanese companies, with 186 of them going on to work in Japan. The employment rate was almost 100% when including employment in Japanese IT companies in Bangladesh. The high quality of the program has been well received and has become a popular program in Bangladesh with application rates ranging from 81 to 133 times for the eight phases of training.

Extra-curricular activities (calligraphy) (Photo: Yuki Morishita)


B-JET program classes (Photo: JICA)(Photo: JICA)


Students learn about Japanese culture through shogi (Photo: JICA)

(3) Miyazaki-Bangladesh Model

B-JET is also known as a good example of an industry-government-academia collaboration model called the Miyazaki-Bangladesh Model which tackles the lack of job opportunities for ICT human resources in Bangladesh and the need for human resources in Japan. Miyazaki City, which is working to attract the IT industry, the University of Miyazaki, which is promoting the establishment of a center for Japanese language education, and local IT companies, which are actively seeking to recruit high-level ICT specialists from Bangladesh, have worked together to achieve results in the acceptance and retention of B-JET graduates. Miyazaki City has so far attracted three IT companies through the recruitment of B-JET graduates. It has also attracted companies that were considering moving to other cities to come to Miyazaki to recruit IT specialists. In addition, in a few cases the recruitment of B-JET graduates led to the establishment of companies in Bangladesh.

What were the factors behind the success of the Miyazaki model? A project expert recalls that this may be due to the effective influence of Bangladeshis being pro-Japanese, as well as the temperaments of the Miyazaki and Bangladeshi people being a good fit. When coming to Japan to start a new life, it is essential to get help from the locals in finding accommodation, signing up for utilities, shopping, and transportation. There are many companies in Miyazaki that are warmly welcoming B-JET students as part of their "Japanese family" and helping them with any problems they may have as they begin working. B-JET students are also able to express their gratitude for the support they receive and extend invitations to their homes for a home-cooked meal, building a relationship that goes beyond work. In addition, B-JET graduates are providing IT instruction at Miyazaki Kita High School to teach programming to the students there, to provide opportunities for cultural exchange and to give B-JET graduates time to get to know the local community. Since 2018, when this initiative was broadcast on Japanese TV in Miyazaki, B-JET graduates have been frequently featured in the media as excellent IT engineers in Miyazaki and are attracting attention as promising foreign human resources.

The B-JET program within the project ended in March 2021 but, from October 2021, a new B-JET is being implemented as a joint venture between North South University in Bangladesh and University of Miyazaki. This new B-JET is fully privately funded with the support of several Japanese companies.

Classes by Bangladeshi Japanese language teachers (Photo: JICA)

B-JET program students try origami. (Photo: Yuki Morishita)

"Onigiri" party with B-JET program students (Photo: Yuki Morishita)

3.2 Investment Environment

(1) Economic growth through foreign direct investment

Bangladesh achieved a steady economic growth rate of 5.24% in FY2020. For further economic growth, the country needs to break away from its dependence on the sewing industry, which currently accounts for about 80% of its exports, and develop highly competitive export industries such as manufacturing other than of sewn products. To achieve this, investment growth is essential, and the promotion of Foreign Direct Investment (FID) is strongly encouraged. JICA is implementing "Foreign Direct Investment Promotion Project (FDIPP)" from 2015 to 2025 to support the diversification and upgrading of industries in Bangladesh by promoting FDI mainly by Japanese companies through supporting the development of the Bangladesh Special Economic Zone (BSEZ) in Araihazar Upazila, Narayanganj.

(2) Development of Special Economic Zones in Bangladesh

This BSEZ is expected to attract Japanese manufacturing companies in the future with its high-quality infrastructure built through ODA loans and with a one-stop service center to expedite business licensing procedures. JICA also made its first Equity Bank Finance (EBF) ODA loan disbursement in March 2020 to a special purpose company (SPC) jointly established by Sumitomo Corporation, a Japanese developer, and the Bangladesh Economic Zones Authority (BEZA) through BEZA. The development work of embankments in the special zone were started in August 2020 and the development work of water treatment plants, sewage treatment plants, water distribution, electricity distribution and communication facilities, and roads in the zone have been underway since November 2021. Normally, official sales activities do not begin until after construction

Bangladesh Special Economic Zone Board (Photo: JICA)

has begun. However, more than 30 Japanese companies have already expressed interest in moving into the BSEZ as of August 2021, indicating that expectations for the project are high.

(3) The Bangladesh Special Economic Zone as a Flagship

SPC officials, who have been negotiating with the Bangladesh government on Special Economic Zone (SEZ) development for more than five years from before the launch of the FDIPP, are hopeful that the government of Bangladesh understands the importance of promoting FDI to encourage new industries in Bangladesh and are keen to work together with a sense of urgency. The name BSEZ was also offered by the Government of Bangladesh. The Government of Bangladesh has set a target of building 100 SEZs across the country in the future. Among them, BSEZ is recognized as the flagship and model case. This is the reason the name "Bangladesh Special Economic Zone" is adopted only for this site. A logo for the project was also created, combining the Japanese and Bangladeshi flags to signify a joint public-private project between Japan and Bangladesh. The SEZ is a platform for the acceptance of FDI to firmly create new industries to support the economy of Bangladesh's population, which is expected to reach 200 million in the future. "As 2022 will be the 50th anniversary of the friendship between Japan and Bangladesh, we must make this project a great success. I hope we will be able to say that this project was a turning point for the economy and industry of Bangladesh when we look back on 2022 in the future, and we are very proud of that." All stakeholders are of one mind.

The embankment (Photo: SUMITOMO CORPORATION)

Signing ceremony for Bangladesh SEZ Ltd (BSEZ) (Photo: SUMITOMO CORPORATION)

Secretary of BEZA and Sumitomo Corporation's partners (Photo: SUMITOMO CORPORATION)

BSEZ staff (Photo: SUMITOMO CORPORATION)

4. Project List

#	Scheme	Sector	Project Name	Year
1	ODA Loan	Private Sector	Development Loan Through Banking System	1976.11
2	Technical Cooperation	Private Sector	Construction Project of Automobile Repair & Maintenance Workshop	1977.02
3	ODA Loan	Private Sector	Dacca International Hotel Construction Project	1977.07
4	Technical Cooperation	Private Sector	Replacement & Expansion of Kaninaphuri Rayon & Chemicals Ltd.	1979.02
5	Technical Cooperation	Private Sector	Development Plan of Small-Scale Industries	1979.11
6	ODA Loan	Private Sector	Rehabilitation And Extension Of The Karnaphuli	1980.10
7	Technical Cooperation	Private Sector	Erection of Jute Pulp Mill	1981.09
8	ODA Loan	Private Sector	Chittagong Urea Fertilizer Project	1982.01
9	Equipment Provision	Private Sector	Car maintenance equipment	1983.04
10	ODA Loan	Private Sector	Chittagong Urea Fertilizer Project (II)	1983.01
11	ODA Loan	Private Sector	Chittagong Steel Mill Rehabilitation Project	1986.07
12	ODA Loan	Private Sector	Chittagong Urea Fertilizer Project (III)	1987.01
13	Equipment Provision	Private Sector	Car maintenance equipment	1988.04
14	ODA Loan	Private Sector	Jamuna Fertilizer Project	1988.11
15	ODA Loan	Private Sector	Maddhapara Hard Rock Mining Project (E-S)	1988.11
16	ODA Loan	Private Sector	Ghorasal Urea Fertilizer Factory Renovation Project	1988.12
17	ODA Loan	Private Sector	Chittagong Caustic Sida Plant Rehabilitation Project	1988.12
18	Equipment Provision	Private Sector	Car maintenance equipment	1989.04
19	ODA Loan	Private Sector	Jamuna Fertilizer Project (II)	1989.11
20	ODA Loan	Private Sector	Jamuna Fertilizer Project (III)	1990.11
21	Technical Cooperation	Private Sector	Investment Promotion	1991.08
22	Equipment Provision	Private Sector	Equipment for dyeing and printing	1992.04
23	Technical Cooperation	Private Sector	Investment Promotion	1993.10
24	Technical Cooperation	Private Sector	Industrial Development of Chittagong Region	1994.03
25	Technical Cooperation	Private Sector	Economic Cooperation Coordinator	1998.04
26	Technical Cooperation	Private Sector	Investment Promotion	1998.12
27	Technical Cooperation	Private Sector	Economic Development Plan Advisor	1999.01
28	ODA Loan	Private Sector	Energy Saving, Environmental Protection and Improvement of On-Stream Factor Of Ghorasal Urea Fertilizer Factory Project	1999.07
29	Technical Cooperation	Private Sector	Investment Promotion	2000.12

#	Scheme	Sector	Project Name	Year
30	Technical Cooperation	Private Sector	Two Step Loan Advisor	2001.03
31	Technical Cooperation	Private Sector	Two Step Loan Advisor	2001.03
32	Technical Cooperation	Private Sector	Economic Cooperation Advisor	2002.06
33	Technical Cooperation	Private Sector	The Study on Potential Subsector Growth for Export Diversification	2006.11
34	ODA Loan	Private Sector	Financial Sector Project for the Development of Small and Medium-sized Enterprises	2011.05
35	Technical Cooperation	Private Sector	Capacity Building on ITEE Management Project	2012.10
36	Technical Cooperation	Private Sector	Industrial Policy Advisor	2013.06
37	Technical Cooperation	Private Sector	Improvement in the investment climate	2015.02
38	Technical Cooperation	Private Sector	Project for Development Study and Capacity Enhancement of Bangladesh Economic Zone Development Plan Authority	2015.02
39	Technical Cooperation	Private Sector	Industry Promotion and Industrial Policy	2015.10
40	ODA Loan	Private Sector	Foreign Direct Investment Promotion Project	2015.12
41	Technical Cooperation	Private Sector	Project for Promoting Investment and Enhancing Industrial Competitiveness	2017.04
42	Technical Cooperation	Private Sector	The Project for Skills Development of ICT Engineers Targeting Japanese Market	2017.08
43	Technical Cooperation	Private Sector	Development Study towards Quality Industrial Growth and Economic Development	2017.09
44	ODA Loan	Private Sector	Foreign Direct Investment Promotion Project (II)	2019.05
45	Technical Cooperation	Private Sector	Advisor for Investment Climate Improvement	2020.02
46	Technical Cooperation	Private Sector	MIDI Policy Advisor	2022.03

Chapter 3
Overcoming Social Vulnerabilities

3.1 Governance

1. Overview

Only since 2000 has the governance sector been categorized in JICA's program in Bangladesh. However, as will be explained in the agriculture and rural development sector, this stems from the assistance for improvement of administrative services at the rural level, which began with research studies in the 1980s and continued with the establishment of the "Link Model" in the 1990s. "The Link Model" is an approach introduced through the Participatory Rural Development Project (PRDP), which was implemented under the agriculture and rural development sector, connecting the missing link between the government services delivery and local community through enhancing the capacity of Union Parishad, the lowest tier of local government institutions. This model aims to improve the quality and effectiveness of government services in Union and villages through a participatory approach among service providers, local residences, and Union Parishad, which contribute to enhancing the mutual trust and strengthening the bond between the government and the people, the most important factor of the good governance.

1.1 Post—2000s: Governance Improvement from Central to Local Level

(1) Focus of JICA's Assistance for Governance Improvement

According to a research report by JICA, "Governance Support in JICA: Building Democratic Institutions, Improving Administrative Functions, and Supporting the Development of Laws (2004)," governance is defined as "a system of government institutions for mobilizing, distributing, and managing a country's resources effectively and in a manner that reflects the will of the people, as well as a system of collaboration and decision-making among government, civil society, and the private sector." In 2006, governance was identified as a "priority goal/sector" in Japan's aid plan to Bangladesh.

Together with two other priority goals and sectors, "economic growth" and "social development and human security," the paper states that "improved governance is an essential condition for effective and efficient poverty reduction through economic growth and social development" and points out the need to improve human rights, democracy, law and order, and the judicial system. Furthermore, the government of Bangladesh has identified the promotion of local governance, anti-corruption, and anti-crime measures, improving the accessibility of the justice system to the poor, and strengthening sectoral governance as key issues in its Poverty Reduction Strategy Paper. In response, JICA began its support in the governance sector by focusing on the following three pillars.

Focus of JICA Governance Sector Assistance in Bangladesh

Target	Focus of Assistance
Central Level	Reform of the civil service system, police support and PRSP implementation and monitoring system
Sector Level	Promotion of sectoral reforms such as strengthening management autonomy and transparency of implementing agencies and development of regulatory frameworks through specific projects supported by JICA
Local Level	Establishment of an efficient local government system through the promotion of decentralization and capacity-building of the population to improve service delivery methods

(Source: Survey team based on JICA)

(2) Central Level

1) Human Resource Development Assistance for Civil Servants

The Project for Human Resource Development Scholarship/Japanese Grant Aid for Human Resource Development Scholarship (hereafter JDS), which started in 2006, is the first project that focuses on administrative capacity development in Bangladesh. JDS is a part of

the "100,000 Overseas Students Project" initiated by the Japanese government, and scholarships to Bangladeshi students started in 2002. Most of the students accepted as JDS recipients are Bangladesh civil servants who are candidates for senior management positions in central government ministries and agencies. In fact, many of the students who studied in Japan as JDS recipients are now working in important positions in the central government. One of the projects related to capacity building of Bangladeshi government officials is the "Project for Enhancing Capacity of Public Service Training", which was launched at the same time as the JDS. At that time, while the private sector was growing rapidly, there was an urgent need to improve services in the public sector, and the Bangladeshi government positioned the strengthening of training for civil servants as part of its efforts to promote civil service reform. The Government of Bangladesh, with the Bangladesh Public Administration Training Center (BPATC) as its counterpart, requested technical cooperation to strengthen the capacity of the BPATC to conduct Total Quality Management (TQM) training for civil servants, and the "Project for Enhancing Capacity of Public Service Training" was implemented in response to the request. The project developed and implemented an intensive TQM short-term course aimed at strengthening the organizational capacity of BPATC and improving the ability of instructors in the partner organization to conduct TQM training. It was also used to raise awareness of TQM, accumulate practical lessons, and enhance learning for both instructors and participants, which were all highly appreciated by the concerned stakeholders. The project was rated highly in terms of relevance, effectiveness, and efficiency in a five-point evaluation. The impact of the project was rated as moderate, as it would take time to see not only a change in awareness and Kaizen in the participants' workplaces, but also to see improvements in the entire organization. In terms of self-sustaining development, the project was rated "relatively high," as it is expected that the government will continue to allocate the necessary human resources and budget for TQM training after the project ends.

National Kaizen convention was held to introduce good practices in Kaizen with the participation of representatives from government agencies (Photo: JICA)

With the successful implementation of the first phase, the second phase of the project, titled "Project for Improving Public Services through Total Quality Management" was implemented from 2012-17. The project focused on the development of a system to support the implementation of Kaizen and/or Small Improvement Project (SIP) at the Upazila level, together with developing a system to implement TQM training. During the project period, more than 400 SIPs were implemented in 200 upazilas of 33 districts. The methodology of Kaizen/SIP was consolidated in the "Kaizen Field Handbook", and the essence of Kaizen TQM has been incorporated in one of the classes in the foundation training course that BPATC regularly offers to newly recruited Bangladesh civil servants.

Participants exercise planning Kaizen activity in TQM training (Photo: JICA)

2) Governance Improvement at the Central Level

In order to enhance accountability and transparency in all public institutions, which is one of the key elements to realize good governance, the government of Bangladesh approved the National Integrity Strategy (NIS) in 2012 and requested JICA to support its implementation. Subsequently, "NIS Support Project Phase 1" in 2014 started working together with the Cabinet Division to establish a framework if NIS implementation and monitoring, targeting all 59 ministries and divisions in the central government. Each ministry and division form an ethics committee with NIS focal points and develops an NIS work plan, which are quarterly monitored by the NIS Implementation Unit in the Cabinet Division. Phase 2 has been implemented since 2018, of which the focus is localizing the NIS at the district and Upazila levels by

promoting NIS-related tools on the ground, including a set of good governance polices such as Grievance Redress System, information disclosure, and public hearings.

Responding to the urgent needs being prioritized in different national policy documents, such as the Perspective Plan (2010-2021, 2021-2041) and Seventh and Eighth Five Year Plans, "Strengthening Public Investment Management System Project (SPIMS) Phase 1 and 2" has been implemented with the Planning Commission, aiming at contributing to more effective public investment management. Assisting the PIM Reform Wing, being set as a permanent unit within the Programming Division, a set of PIM Reform tools are developed and being introduced in two pilot sectors, the Local Government and Rural Development Sector and the Power and Energy Sector. PIM Reform tools are to improve the efficiency of the approval process for public investment projects, the so-called Development Project Proposal (DPP), as well as to strengthen the strategic linkage between development and revenue budgets with the perspective of multi-year financial management.

3) Access to Justice

Ensuring access to justice for all citizens is also an indispensable element of good governance, a firm basis of mutual trust between the government and the citizens. Addressing the need to reduce the huge case backlog, which involves more than a million cases, two phases of a three-year country-wide training program have been conducted since 2017. Through the training program, promotion of mediation system and improvement of case management has been focused on in collaboration

Stakeholders participate in SPIMS kick-off (Photo: JICA)

with the Ministry of Justice in Japan. Numerous officials from Ministry of Law, Justice and Parliamentary Affairs, including the honorable Minister, visited Japan for mutual learning.

4) Policy Research and Policy Capacity Building

At the central level, the policy research and formulation capacity of senior administrative officials is also attracting attention as a new issue. In response to the request from the Government of Bangladesh, in 2019 JICA started supporting the Bangladesh Institute of Governance and Management (BIGM), a higher education and research institute under the jurisdiction of the Ministry of Public Administration. The number of courses is planned to be expanded to 14 and a doctoral course established by 2023, and the BIGM is expected to become a center for the development of advanced human resources in policy research and formulation in Bangladesh.

In terms of support, JICA has started to improve the existing training facilities through grant aid titled "The Project for Improvement of Government and Management Research and Training Facilities". The plan is to improve facilities such as classrooms, laboratories, libraries, auditoriums, computer rooms, and administrative offices, and at the same time provide equipment related to the operation of the master's program. In addition, from 2021, a "Policy advisor for building Institutional Capacity" has been assigned to organize the mid-term plan, form a domestic network of JICA officials and training personnel, promote the establishment of a policy research network with universities and research institutions in Japan and ASEAN, and propose a direction for future JICA support.

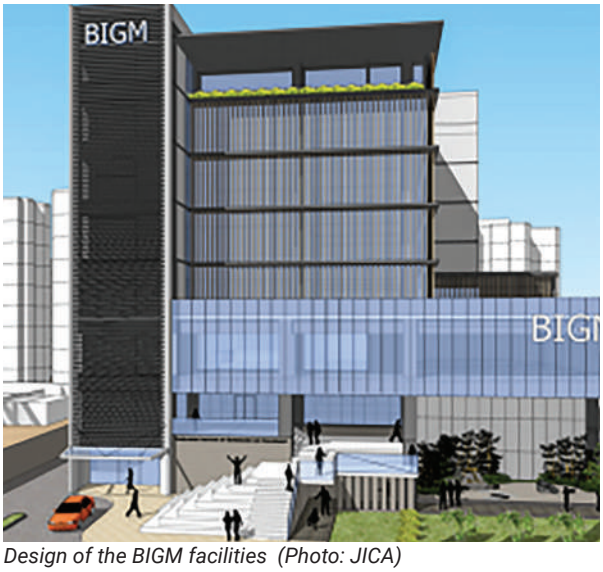
Quarterly monitoring meeting of NIS officers from all 61 ministries and agencies (Photo: Bangaldesh Cabinet Division)

(3) Governance Improvement at the Local Government Level

Promotion of good local governance with appropriate decentralization in the context of socio-economic conditions of Bangladesh is another important issue in the governance sector. Although sector-based support for local government institutions, such as solid waste management and water supply, have been continued since the 2010s, JICA extended its operations to improve both basic infrastructures and administrative capacity of different tiers of local governments.

Targeting municipalities (Pourashava), "The Northern Bangladesh Integrated Development Project (NOBIDEP)", launched in 2013, was the first project of its kind, having both infrastructure development and governance improvement components. Referring to the experiences gained through the Link Model, NOBIDEP strengthened the linkage between the service providers and the citizens of the target Pourashava, contributing to the improvement of transparency and accountability with increases of local tax revenues and more effective service delivery. "Strengthening Pourashava Governance Project" was implemented in parallel to strengthen the capacity development system for elective representatives and officers of Pourashava.

Similarly, the "Inclusive City Governance Project" and the "Capacity Development of City Corporation Project (C4C)" were implemented for the city corporations, and "the Upazila Governance Development Project (UGDP)" and "the Upazila Integrated Capacity Development Project (UICDP)" were implemented for the Upazila.
In these three tiers, JICA has combined both loan projects and technical cooperation projects: supporting infrastructure development and administrative capacity development of elected representatives and officials of local governments. It should be noted that national strategy for governance improvement for Pourashava, city corporations and Upazila Parishad are in place with technical support of JICA projects, of which implementation is mentioned in Eighth Five-Year Plan.



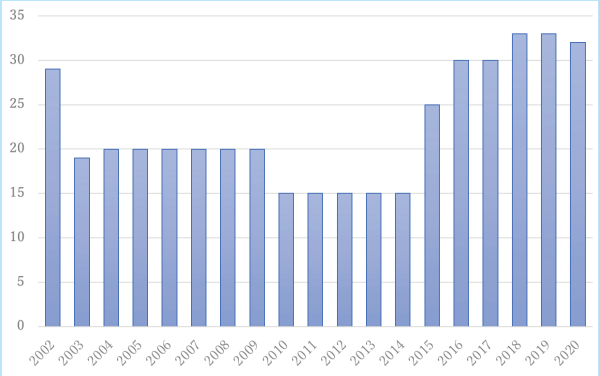
Design of the BIGM facilities (Photo: JICA)

2. Achievements

(1) Human Resource Development

1) The results of JDS students are shown in the figure: a total of 426 students have studied in Japan as of 2021, and at least 148 students have been active in more than deputy secretary's positions in Bangladeshi government agencies as determined through follow-up surveys.

Trend of the number of JDSs



(Source: JICA)

(2) Local Government Institutions

Packages of ODA loan and technical cooperation projects was implemented, covering in the city corporations, Pourashava, and Upazila, respectively. The total amount of the post-implementation program is about 66.5 billion yen.

Number of local governments supported by yen loans and technical cooperation

Local Government	Yen Loan	Technical Cooperation
City corporation	5 city corporations	4 city corporations
Pourashava	18 Pourashava (Northern Region)	8 Pourashava
Upazila	492 Upazila	65 Upazila

(Source: Survey team based on JICA)

3. Representative Projects

3.1 Upazila Governance and Development Project (UGDP) and Upazila Integrated Capacity Development Project (UICDP)

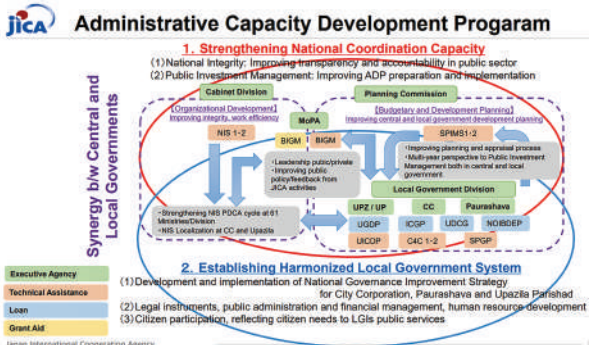
(1) Performance-based Budget Allocation

Assistance of the field of local governance is conducted under the package of ODA loans and technical cooperation projects. While technical

Stakeholder Meeting at Gazipur City Corporation (Photo: JICA)

Union Development Coordination Committee supported by UGDP (Photo: JICA)

Overview of JICA Governance Program in Bangladesh



(Source: JICA)

cooperation supports improvement in their governance/ administrative capacity, the infrastructure development of local governments are supported by ODA loans. As in the case of the projects targeting Pourashava and the city corporations, the financial assistance is managed as results-based. Specifically, each county's governance performance is assessed based on governance indicators, and those districts with the highest ratings receive finance.

As shown in the figure below, the UGDP is strengthening the administrative capacity of Upazila through five main activities.

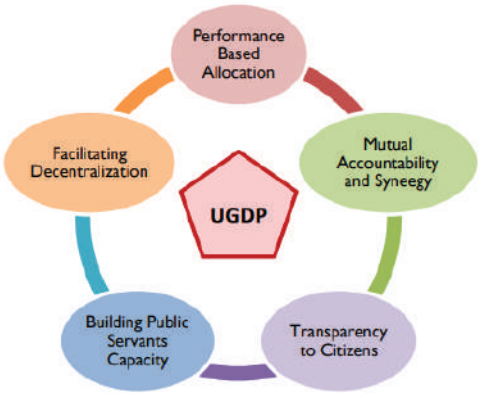
(a) Performance-based Allocation: a system in which the basic mandates of a Upazila as stipulated in the Local Government Act are set as performance indicators, and the achievement of these indicators is assessed on a yearly basis, with additional development project funds being provided to better-performing Upazila.

(b) Mutual Accountability and Synergy: seeking to improve mutual accountability between Upazila and the National Building Departments (NBDs) located in them.
(c) Transparency to Citizens: in order to improve transparency to citizens, through the Union Development Coordination Committee (UDCC), the activities of Upazila and NBDs are disseminated to the union level.
(d) Building Public Servants' Capacity: providing training and capacity building for Upazila officials and councilors
(e) Facilitating Decentralization: promoting the transfer of authority to Upazila. While the Local Autonomy Law stipulates the transfer of 17 implementing agencies, the transfer of personnel and budgetary authority has not yet completed.

(2) Institutional Capacity Development

The UICDP, which was implemented as a technical cooperation project carried out three major activities

UGDP Approach



(Source: JICA)

with the project objective of developing the foundation to improve the overall coordination capacity of Upazila.

Output 1: To strengthen the system in the areas of legal development, organizational reform, finance, development planning, and human resource development.

Output 2: A model of Upazila comprehensive development plans and related guidelines were prepared. The guidelines introduce the PDCA cycle of development planning, the position of Upazila development plans in the government plan, the five-year plan, and the methods and necessary forms. The guidelines were developed into a more practical document through a literature review and consultation workshops with relevant agencies.

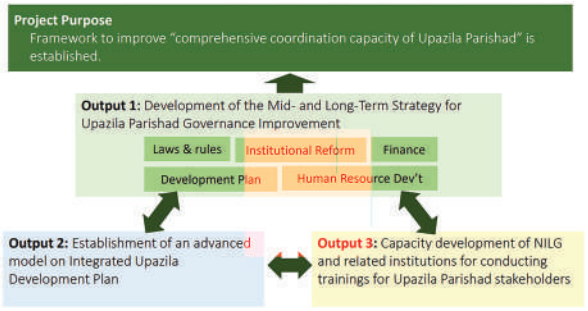
Output 3: The capacity of National Institute of Local Government (NILG) staff was strengthened in order to conduct training for Upazila officials. In the process, existing training plans and curricula were reviewed, a working group was established and a medium- to long-term training plan was developed.

(3) A Virtuous Cycle of Feedback from Citizens and Business Improvement

The UICDP has supported improving the administrative capacity of Upazila, especially improving accountability and transparency in the procedures from formulation to implementation. The UDGP, on the other hand, supported improving visible services to citizens by financing projects planned in accordance with manuals and guidelines prepared through technical cooperation.

When the visible improvement of services and the transparent procedures are realized by citizens, it will foster trust between Upazila and the citizens. And the feedback from the citizens (including complaints) and the responses to them will further improve the services and deepen the relationships between them. When such cases are shared widely among local governments and citizens, a ripple effect of improved governance is expected. Good practices have been observed not only in Upazila, but also in local cities (Pourashava) and city corporations, indicating the effectiveness of the package of a loan project and a technical cooperation project.

Overview of UICDP



(Source: JICA)

Resource mapping for the development of annual and five-year plans (Photo: JICA)

Development of center and public toilets for scheduled caste communities through Union Council and residents' initiatives (Photo: JICA)

3.2 The Project for Human Resource Development Scholarship (JDS)

(1) Gist and Achievements of JDS

Number of JDS Students in Each Country

Country	No. of JDS
Uzbekistan	345
Laos	420
Cambodia	444
Vietnam	639
Mongolia	346
Bangladesh	394
Myanmar	557
China	430
Philippines	361
Indonesia	120
Kyrgyzstan	210
Tajikistan	62
Sri Lanka	154
Ghana	65
Nepal	80
East Timor	8
Pakistan	17
Bhutan	10
Total	4662

(Source: Survey team based on JICA)

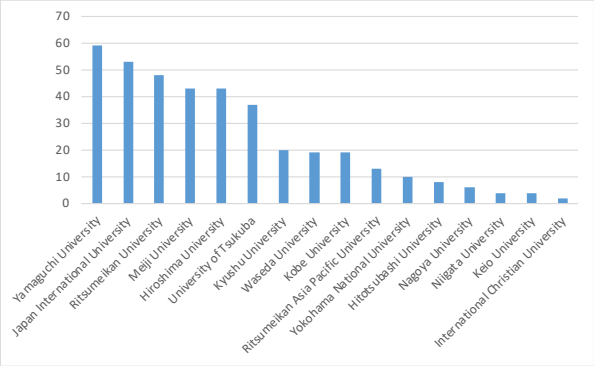
In the beginning, Bangladesh JDS received not only national government officials but also university teachers and NGOs but, since 2009, most of them are in the national government public service cadre. Young officials belonging to ministries of the Bangladesh Government such as the Ministry of Finance, Ministry of Planning, Ministry of Human Resources, and Ministry of Home Affairs are studying at graduate schools in various parts of Japan. The host universities vary from public universities such as Yamaguchi University, Tsukuba University, Hiroshima University, and Kobe University to private universities such as International University of Japan, Waseda University, Meiji University, and Ritsumeikan University. They major in economics, governance, public administration, international relations, international development, life and environmental sciences, law, engineering, and urban innovation. After returning to Bangladesh, their career paths also vary, but most of them continue to work as government officials.

(2) Activities of JDS Graduates and Their Contribution to the Strengthening of Japan-Bangladesh Friendship

It has been about 20 years since Japan started accepting JDS students from Bangladesh, and JDS has been accepting about 20 students every year, totaling 394 students up to 2019. JDS graduates are not only expected to play an active role in their workplaces as human resources with specialized knowledge after returning to their home countries, but also to contribute to the strengthening of friendly relations between the two countries as "people who understand Japan well." The interviews with three JDS graduates (covered in Chapter 4) indicate that the above goals have been achieved.

According to the graduates interviewed, by living in Japan for a long period of time and completing their master's programs (and some doctoral programs), the students who studied in Japan through JDS not only acquired specialized knowledge and skills, but also learned and acquired many things through daily life and interaction with people in Japan. An alumni association of JDS graduates has also been formed, which has produced leaflets about JDS, held pick-up parties for new JDS students, and held a photo contest of photos taken in Japan.

University-accepted JDS and the number of achieving students



(Source: JICA)

It is also said that the human resources who are familiar with both Japan and Bangladesh, such as JDS students who studied in Japan and many JOCVs who stayed in Bangladesh for a long time can be further utilized for the development of both countries. Considering these comments, it can be said that the impact of JDS is worthy of high praise.

4. Project List

#	Scheme	Sector	Project Name	Year
1	Grant Aid	Governance	Improvement of the Mail Vans and Motor Vehicles	1988.05
2	Grant Aid	Education/ Governance	The Project for Human Resource Development Scholarship	2001.11
3	Grant Aid	Education/ Governance	The Project for Human Resource Development Scholarship	2002.08
4	Grant Aid	Education/ Governance	The Project for Human Resource Development Scholarship	2003.06
5	Grant Aid	Education/ Governance	The Project for Human Resource Development Scholarship	2004.01
6	Grant Aid	Education/ Governance	The Project for Human Resource Development Scholarship	2004.05
7	Grant Aid	Education/ Governance	The Project for Human Resource Development Scholarship	2004.05
8	Grant Aid	Education/ Governance	The Project for Human Resource Development Scholarship	2005.05
9	Grant Aid	Education/ Governance	The Project for Human Resource Development Scholarship	2005.05
10	Grant Aid	Education/ Governance	The Project for Human Resource Development Scholarship	2006.06 (E/N)
11	Technical Cooperation	Governance	Project for Enhancing Capacity of Public Service Training	2007.01
12	Grant Aid	Education/ Governance	The Project for Human Resource Development Scholarship	2007.06 (E/N)
13	Grant Aid	Education/ Governance	The Project for Human Resource Development Scholarship	2008.05 (E/N)
14	Grant Aid	Education/ Governance	The Project for Human Resource Development Scholarship	2010.06
15	Technical Cooperation	Governance	Aid coordination (Support to establish local governance institution)	2010.08
16	Grant Aid	Education/ Governance	The Project for Human Resource Development Scholarship	2011.07
17	Technical Cooperation	Governance	Project for Improving Public Services through Total Quality Management	2012.02
18	Grant Aid	Education/ Governance	The Project for Human Resource Development Scholarship	2012.07
19	Technical Cooperation	Governance	The Project for Developing Inclusive City Government for City Corporations	2012.10
20	Technical Cooperation	Governance	Local Governance	2012.11
21	Grant Aid	Education/ Governance	The Project for Human Resource Development Scholarship	2013.07
22	Technical Cooperation	Governance	Strengthening Public Investment Management System Project	2014.02
23	Technical Cooperation	Governance	Strengthening Pourashava Governance Project	2014.02
24	Grant Aid	Education/ Governance	the Project for Human Resource Development Scholarship	2014.05
25	ODA Loan	Urban Development /Governance	Inclusive City Governance Project	2014.06
26	Technical Cooperation	Governance	National Integrity Strategy Support Project	2014.09
27	Grant Aid	Education/ Governance	The Project for Human Resource Development Scholarship	2015.07
28	ODA Loan	Governance	Upazila Governance and Development Project	2015.12

#	Scheme	Sector	Project Name	Year
29	Technical Cooperation	Governance	Project for Capacity Development of City Corporations	2016.01
30	Grant Aid	Education/ Governance	The Project for Human Resource Development Scholarship	2016.05
31	Technical Cooperation	Governance	Local Government Advisor	2016.11
32	Grant Aid	Education/ Governance	the Project for Human Resource Development Scholarship (three-year cycle)	2017.08
33	Grant Aid	Education/ Governance	the Project for Human Resource Development Scholarship	2017.08
34	Technical Cooperation	Governance	Upazila Integrated Capacity Development Project	2017.09
35	Grant Aid	Education/ Governance	the Project for Human Resource Development Scholarship	2018.06
36	Technical Cooperation	Governance	National Integrity Strategy Support Project Phase 2	2019.01
37	Technical Cooperation	Governance	Project for Capacity Enhancement of Bangladesh Police	2019.01
38	Technical Cooperation	Governance	Advisor on Local Governance	2019.04
39	Grant Aid	Education/ Governance	the Project for Human Resource Development Scholarship	2019.06
40	Technical Cooperation	Governance	Strengthening Public Investment Management System (SPIMS) Project Phase 2	2019.08
41	Grant Aid	Education/ Governance	the Project for Human Resource Development Scholarship	2020.07
42	ODA Loan	Urban Development /Governance	Urban Development and City Governance Project	2020.08
43	Technical Cooperation	Governance	Policy advisor for building Institutional Capacity	2021.03
44	Technical Cooperation	Governance	Advisor on Local Governance	2022.01

3.2 Health

1. Overview

In the health sector, family planning, maternal and child health, and infectious disease control have been recognized as priority issues since the beginning of development cooperation. A wide range of approaches has been taken to tackle these issues, including technology transfer through the dispatch of experts and Japan Overseas Cooperation Volunteers (JOCVs), human resource development through training in Japan, the provision of equipment and materials, the establishment of mechanisms to contribute to the improvement of health services, and infrastructure development through ODA loans, technical cooperation, and grassroots and private-sector cooperation. During this period, the infant mortality rate was significantly reduced from 99.6 deaths per thousand live births in 1990 to 25.1 by 2018, and the maternal mortality rate from 370 to 140, and the country was considered an overachiever of the United Nations' Millennium Development Goals (MDGs). Achievements related to the reduction of HIV/AIDS, malaria, and other diseases, the eradication of polio, and the end of visceral leishmaniasis (kala-azar) are highly appreciated. At present, JICA is also contributing to the fight against non-communicable diseases, which caused about 67% death of total death of Bangladesh (WHO).

1.1 Pre—2000s: Family Support Plan for Improvement of Maternal and Child Health Services

(1) From Family Planning Support to Medical Technology Transfer

JICA's assistance to the health sector began with family planning which was an important issue after independence, and cardiovascular disease which was a serious health problem at that time. The support to the Institute of Cardiovascular Diseases, which began in the 1970s with "the Family Planning" project (1976) and continued until the late 1980s at the request of the Bangladeshi government in 1976, consisted mainly of the provision of equipment through grant aid and related technical assistance. In particular, the project for "Cardiovascular Diseases Control" (1979) has been implemented for a total of seven years as technical cooperation. In addition to technology transfer, facilities were set up and equipment was provided through grant aid. Through these interventions, the numbers of inpatients and outpatients to the Cardiovascular Research Institute have tripled and doubled, respectively. Also, the number of open-heart surgery cases reached 100 in 1985, which is regarded as a major achievement of the project since there were no cases before the project.

(2) Improving Maternal and Child Health Services through Human Resource Development

Since the 1990s, JICA has been providing assistance in the field of maternal and child health at the request of the Bangladesh government. The first assistance in this field was to improve the maternal and child health training centers. The training facility was renovated, and equipment was provided through grant aid titled "The Project for Improvement of Maternal and Child Health Training Institute". At the same time, clinical services and training functions were strengthened through the "Reproductive Health Human Resource Development Project". The equipment provided in the project was used appropriately, and maintenance after completion of the project was also done on a self-help basis. Through this project, the training center has been transformed to a national-level high-quality training institution. The center that initially offered only five

Maternal and Child Health Training Institute
(Photo: PADECO. Co.Ltd.,)

Midwife training (Photo: JICA)

training courses and accepted about 400 trainees per year has continued to provide training for about 1,700 trainees (fiscal year 2010/11) since the project ended.

In this field, ODA loan "Maternal, Neonatal and Child Health (MNCH) and Health System Improvement" (2015), "Health Services Strengthening Project"(2018) and technical cooperation "Project for Strengthening Health System through Organizing Communities"(2017) supported to construct 417 Community Health Clinics for 2.5 million people to date.

1.2 Narsingdi Model and Human Resource Development

(1) Improving Maternal and Child Health Services through Community Involvement

Improvements in maternal and child health services continued to be supported by the "Safe Motherhood Promotion Project" (SMPP Phases 1 and 2), which was initiated in 2006. In Narsingdi district, the project organized community-based maternal support groups and established mechanisms to strengthen linkages between pregnant women and maternal/child health service delivery facilities, which was highly acclaimed as the Narsingdi Model. SMPP-2 addressed quality management (TQM), improved services at the union/community level and provided consistent support from the central government to the local governments.

To summarize Phases 1 and 2, at the central level, the project strengthened the capacity of information analysis, and shared and disseminated good practices through documentation and manualization. At the district and Upazila levels, the project supported hospital service improvement through the introduction of 5S/Kaizen/TQM[1].

Expert interviews community group. (Photo: JICA)

Activity of community group (Photo: JICA)

At the local community level, a core team consisting of "community clinics", "community groups" and "community support groups" was organized (as part of the core team strategy) and improved facilities and their services[2]. In addition, at the policy level, the project was incorporated into national policies such as the third-sector program "Health Population & Nutrition Sector Development Program (HPNSP) 2011-16", which led to a nationwide rollout under the government's initiative.

(2) Addressing Non-communicable Diseases As an Emerging Issue

At the time when the third-sector program HPNSP (2011-16) was being implemented, the disease structure in Bangladesh was changing along with economic growth,

1 Based on the experience of Phase 1, 5S/Kaizen/TQM was supported for full-scale implementation in Phase 2.

2 The Community Support Group (CSG) is a system that evolved from CmSS, which was also supported by the SMPP. CmSS is a community-driven system to create an environment where people can receive necessary maternal and child health services (especially in emergencies). It was introduced by Care Bangladesh in 1998 and has since been promoted by other donors and the government. The local-level activities of SMPP Phase 1 were outsourced to CARE Bangladesh, and the knowledge of CmSS is being utilized.

and non-communicable diseases such as cardiovascular diseases and cancer, along with maternal and child health issues, were recognized as serious problems, accounting for 67% of all deaths (WHO, 2015). Therefore, the fourth phase of HPNSP 2017-22, which targets universal health coverage, aims to further improve maternal and child health services, and promote community and citizen participation, while requiring a system to provide appropriate testing, diagnosis, and treatment services for early detection and treatment of non-communicable diseases.

Considering this background, a technical cooperation project titled "Project for Strengthening Health System through Organizing Communities (SHASTO)" was launched in 2017 with the aim of contributing to HPNSP 2017-22 following the SMPP. Building on previous maternal and child health initiatives, the project aims to improve non-communicable disease services and maternal protection services together in association and nationally, by integrating these services, strengthening hospital management to improve the quality of hospital services, and assisting prevention activities for non-communicable diseases in collaboration with community support groups and the dissemination of good practices.

(3) Contribution of Japan Overseas Cooperation Volunteers in the Health Sector

The Japan Overseas Cooperation Volunteers (JOCV) started dispatching health sector volunteers in the 1980s, and 201 volunteers have been dispatched so far In particular, EPI (Expanded Program on Immunization) volunteers have been instrumental in the eradication of polio in Bangladesh (the WHO declared polio eradicated in the Southeast Asia region in March 2014). This success, and the contribution to the fight against filariasis which has dramatically advanced to the point of near eradication in Bangladesh, are noteworthy and led to the awarding of the JICA President's Award in 2015.

Support for the Expanded Program on Immunization(EPI) (Photo: JICA)

JOCV conducting polio vaccination promotion activities (Photo: JICA)

In the second phase of the SMPP, the community development JOCVs supported the revitalization of community clinics promoted by the government and the activities of residents' groups, and the JOCV nurses supported the introduction of 5S, Kaizen and TQM in medical facilities. In this way, the JOCV made a significant contribution at the field level.

(4) Support for Human Resources Development

The development of human resources in the health sector, especially nurses, is also an urgent issue. According to WHO data as of 2020, the number of nurses and midwives per 10,000 people was 4.1, which is extremely low compared to the global average of 37.6. The Bangladeshi government created a new employment quota in 2013 with a total of about 8,000 slots, but only 4,000, or half of that number, were hired, and the remaining 4,000 vacancies remained needing to be filled. In addition, while aiming to fill the number of nursing positions, ensuring the quality of nurses was also an important issue.

A lecture at a nursing college (Photo: JICA)

In response to this serious situation regarding medical human resources, JICA implemented the "Project for Capacity Building of Nursing Services" (2016) and supported the Dhaka Nursing College and Dhaka Medical College, which play a central role in nursing human resource development. The project aimed to improve the quality of the bachelor's program in nursing by strengthening the management of nursing education, faculty capacity building, and the ability to manage field practice. Through the establishment of an academic committee, an effective system in which faculty members can share the responsibility for teachers' capacity building and manage

Participants of the Training in Japan of "Nursing Service Human Resource Development Project"(Photo: JICA)

the quality of education was realized. Also, the field training guidance manual was prepared and effective student field training was conducted in collaboration with Dhaka Medical College Hospital. These interventions contributed to the improvement of education quality for the nursing bachelor degree.

(5) Research Project in Health Sector

Neglected Tropical Diseases (NTDs) are infectious diseases that have received less attention and have not been adequately addressed compared to the three major infectious diseases, HIV/AIDS, tuberculosis, and malaria. Leishmaniasis, one of the NTDs, is a zoonosis caused by the protozoan parasite leishmania and transmitted by the blood-sucking insect, the sand fly. In 2011, JICA started "Project for Research and Development of Prevention and Diagnosis for Neglected Tropical Diseases, especially Kala-Azar" as the program called Science and Technology Research Partnership for Sustainable Development (SATREPS). This project, which ran until 2016, supported research on understanding the reality of kala-azar and its complications, developing rapid diagnostic methods, and identifying and surveying the distribution of insect vectors, enabling more accurate and rapid diagnosis at the Surya Kanta Kala-azar Research Center (SKKRC). In 2019, the incidence of kala-azar disease was reduced to less than 1/10,000, and the disease was eradicated. For this achievement, the Ministry of Health of Bangladesh awarded the project in 2019.

(6) Private Investment in the Health and Medical Sectors

In 2018, JICA signed an agreement with Ship Achi Medical Service Limited (SAMSL), established in Bangladesh by the Japanese company Green Hospital Supply Corporation (GHS), to support the expansion and operation project of East West Medical College Hospital. In recent years, non-communicable diseases such as vascular diseases, cancer, and diabetes account for 67% of all diseases in Bangladesh due to changes in lifestyle including diet. On the other hand,

East West Medical College Hospital (Photo: JICA)

the development of medical facilities and human resources to cope with these diseases is limited. This project is aimed at providing high-quality medical services by utilizing Japanese hospital management know-how.

2. Achievements

(1) Maternal and Child Health

1) The Narsingdi model, which is being rolled out nationwide, has contributed to the improvement of maternal and child health care indicators in previously underserved rural areas. This approach is also contributing to the emerging issue of non-communicable disease control.

2) A total of 205 JOCV members have been working extensively in the health sector and have provided support in collaboration with ongoing technology transfer projects. Particularly noteworthy are their contributions to the control of infectious diseases such as polio and filariasis

(2) Medical Technical Transfer

1) A total of 978 individuals in the health sector were trained in Japan, contributing to the transfer of medical technology for the treatment of cardiovascular diseases and the improvement of the quality of maternal and child health and nursing services.
2) By 2021, 530 health sector experts have been dispatched to Bangladesh to conduct surveys and technology transfer.
3) Contribution to the end of visceral leishmaniasis (kala-azar).

(3) Facility and Equipment

1) 417 Community health clinics for 2.5 million people are constructed.
2) Overseas investment in East West University Hospital has contributed to the provision of more-advanced medical services.
3) Facilities were installed and equipment provided for maternal and child health care and health system improvement as shown in the table below.

Maternal, Neonatal and Child Health (MNCH) and Health System Improvement Project

Dhaka Medical College and Hospital	
Imaging Diagnostics Center Construction	7
Imaging Diagnostics Equipment	7
Imaging Equipment Training	7
Dhaka Nursing College	
Academic Building and Students Dormitory	7
Utensils for Students	7
Equipment for Practicum	6
District Hospital	
Medical equipment	6
Community Clinics in hard to reach area	300

(Source: JICA)

Health Services Strengthening Project

Community Clinic	
Reconstruction	116
Upazila Health Complex	
Upgrade	6
Reconstruction	2
Urban Dispensary Upgrade	16
Equipment	
NCD equipment for District Hospital	20
Screening Community Clinic	2273
Laboratory equipment for Urban Dispensary	16

(Source: JICA)

3. Representative Projects

3.1 Safe Motherhood Promotion Project

(1) Narsingdi Model

The Safe Motherhood Promotion Project (SMPP) was a project to support the improvement of services by moving beyond human resource development in training centers to the field of services.

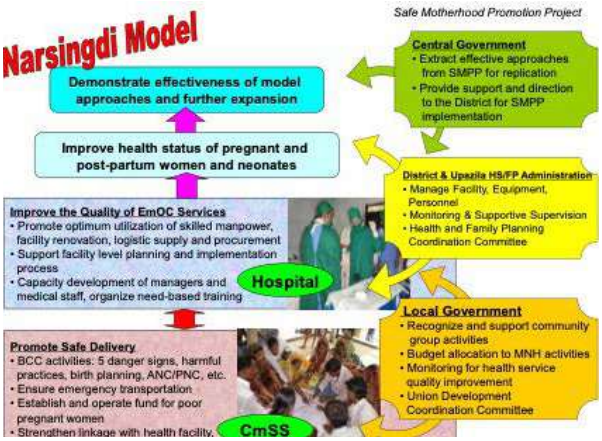
According to the final report of this project, the SMPP was implemented with the overall goal of "Approaches of Maternal and Neonatal Health (MNH) extracted from the Project are standardized and applied to other districts" and with the project goal of "Health status of pregnant and postpartum women and neonates improves in the target district." There are three outputs of the SMPP and two of them were integrated as the Narsingdi model: (1) the maternal and child health services at the district and Upazila levels (activities related to Output 2, "Service delivery systems for safe delivery are strengthened in the target districts") and the system for implementing community-level maternal health, and (2) child health activities utilizing community health facilities (community clinics) (activities related to Output 3, "Community support for female students and newborns to access obstetric and newborn care is promoted").

The Community Support System (CmSS), which was introduced as a community-level activity of the SMPP, was implemented by outsourcing to CARE Bangladesh which has experience in community-level activities. As many as 80 out of 151 which is equivalent to 53% of the CmSS groups were able to continue their activities autonomously and 40% achieved a standard level of activities. Regarding the linkage between the government and the community that provides public services to the residents, the Union Coordinating Committee Meeting introduced by the Participatory Rural Development Project (explained in agriculture and rural development sector in Chapter 3) was used to link the Union Council with the CmSS and there have been cases where maternal and child health services have been improved under the initiative of Union Councils.

In the second phase of the SMPP, the capacity of relevant institutions was strengthened in order to promote the Narsingdi model developed in the first phase in line with the national policy, the Health, Population and Nutrition Sector Development Program (HPNSP 2011-2016). Specifically, the SMPP2 will: (1) identify good practices related to maternal, newborn and child health and integrate

them into the national strategy and guidelines; (2) develop mechanisms to monitor and support the expansion of the application of good practices and ensure that the applied

Concept of Narsingdi Model



(Source: JICA)

good practices are functional; and (3) develop a maternal and newborn health intervention package under the Upazila Health System. Almost all the outcomes set in the second phase of the SMPP have been achieved.

(2) Achievements of SMPP

SMPP has contributed to the improvement of maternal and newborn health, which is described as its overall goal. The results of these activities were highly evaluated by the Bangladeshi government and incorporated into the national policy. In addition, this project not only established such a


CmSS, a community-based support program for maternal care (Photo: JICA)

system, but also helped the local residents involved in the project address "maternal and newborn deaths" which they had believed to be unmanageable, and to gain confidence that they could overcome the problem through mutual assistance. This confidence and realization led to the manifestation of the potential of the community to work


Rickshaws provided to community groups by the Union Council for emergency transport (Photo: JICA)

as volunteers. The fact that good examples of improved maternal and child health services through community-government collaboration are shared at the central government level, and that such efforts are spreading across the country, contributing to the improvement of maternal and child health services in Bangladesh as a whole, is worthy of recognition for its sustainability, efficiency, and impact.

A report on the activities at the Upazila level (Photo: JICA)

Policy-level support in the Ministry of Health and Family Welfare (Photo: JICA)

(3) Indicators and Achievements

Indicators and Achievements in SMPP 2nd Phase

Indicator	Achievement
More than 70% of all hospitals implementing TQM in Satkhira and Narsingdi districts will achieve 5S in the area of maternal, newborn, and postpartum health services	At the time of end evaluation, according to the project documents, 5S was implemented in 75% of the hospitals in Satkhira and Narsingdi districts that implemented 5S-Kaizen-TQM.
Percentage of Community Support Group(CSGs) functioning in Satkhira district be at least 70%.	According to project documents, the percentage of CSGs functioning in Satkhira district is 82%.
The percentage of women with complications receiving emergency obstetric care services in Kalaroa Upazila of Satkhira district will be more than 80%.	At the time of the exit evaluation, the percentage of women with complications who received emergency obstetric care services in Kalaroa Upazila of Satkhira district was 80.9%.
The percentage of births to skilled birth attendants, that is, community skilled birth attendants, mid-level nurses with midwifery training (Senior Saff Nurse (SSN) / Family Welfare Volunteer (FWV)), university graduates (Bachelor of Medicine & Bachelor of Surgery (MBBS) doctors), in Kalaroa Upazila of Satkhira district will be more than 50%.	At the time of the exit assessment, the proportion of births by skilled caregivers in Satkhira district increased to 54.8% (baseline 37.4%). Similarly, in Kalaroa Upazila of Satkhira district, the rate increased to 68.1% (baseline 45.6%).
The number of hospitals implementing the TQM pilot will be expanded from the initial four.	At the time of the exit evaluation, 106 hospitals had adopted 5S-Kaizen-TQM activities in Bangladesh.

(Source: Survey team based on final report of SMPP)

3.2 Project for Capacity Building of Nursing Services

(1) Perceptions of Issues Related to Human Resources in the Health Sector

As mentioned above, indicators related to maternal and child health have improved remarkably with donor support including that of JICA. At the same time, however, the shortage of professional human resources in the health sector has become an important issue for all health services in Bangladesh. To address this shortage of medical personnel in Bangladesh, the "Nursing Service Human Resource Development Project" was implemented for about five years from 2016 to 2021.

This project aimed to improve the quality of education in the bachelor's program in nursing. The Dhaka Nursing College and Dhaka Medical College are recognized as the core educational institutions for the development of nursing human resources, and the project has received cooperation from the Hyogo Prefectural Nursing Association, University of Hyogo, Kobe University, Kobe Red Cross Hospital, and Kansai Medical University in the preparation and implementation of the project. In this project, Bangladeshi administrative officials, nursing faculty members, and hospital nurses were invited to Japan, where they received nursing education, practical training in neighboring areas, and training in nursing administration, thereby contributing to the development of human resources in the field of nursing.

(2) Contribution of Dr. Hiroko Minami, President, Kobe College of Nursing

One of the characteristics of this project is that the nursing human resource development was carried out through the cooperation of the Hyogo Prefectural Nursing Association, educational institutions, and hospitals in the Kansai area. Dr. Hiroko Minami has contributed not only to the skills of nurses in postwar Japan, but also to the improvement of their status, and has been a leading figure in nursing education, serving as president of the International Nursing Association. At the start of this project, Dr. Minami said, "I would like to use my experience to help Bangladesh achieve in 20 years what it took Japan 70 years to achieve." Dr. Minami visited Bangladesh four times, including during the preparation period of the project, and met with Prime Minister Sheikh Hasina in 2013 and 2016 to directly propose the development of bachelor's degree nurses and the improvement of the status of nurses.

Dr. Minami visits Bangladesh (Photo: JICA)

Dr. Hiroko Minami received the JICA President's Award for her achievements in the nursing service human resource development project.

(Photo: Mika Tanimoto/JICA)

(Photo: Mika Tanimoto/JICA)

4. Project List

#	Scheme	Sector	Project Name	Year
1	Technical Cooperation	Health	Family Planning	1976.03
2	Technical Cooperation	Health	Cardiovascular Diseases Control	1979.02
3	Grant Aid	Health	Project for the Strengthening of the function of the Institute of Cardiovascular Diseases	1979.08
4	Grant Aid	Health	Prpject doe Expansion of Fire Brigade Anbulance Service	1982.06
5	Grant Aid	Health	Project for Improvement of Medical Equipment of Dhaka National Medical Institute Hospital	1983.03
6	Grant Aid	Health	Construction of the General Hospital in Narayanganj	1983.10
7	Grant Aid	Health	Establishment of the Pharmaceutical Centre for Manufacturing Essential Drugs in Borgra	1984.01
8	Grant Aid	Health	Project for the Improvement of Equipment of Dhaka Dental College	1984.04
9	Grant Aid	Health	Construction of the General Hospital in Narayanganj	1984.05
10	Grant Aid	Health	Project for the Improvement of Medical Equipment for the Upazila Health Complex and the District Hospital	1985.02
11	Grant Aid	Health	Construction of the General Hospital in Narayanganj	1985.06
12	Grant Aid	Health	Improvement of Medical Equipment for the Institute of Cardiovascular Diseases	1986.09
13	Grant Aid	Health	Improvement of Medical Equipment for Bangladesh Institute of Research and Rehabilitation Diabetes,Endocrine and Disorders and the Related Facilities of the National Tuberculosis and Leprosy Control Programme	1988.05
14	Technical Cooperation	Health	Pilot Project on Control of Rheumatic Fever & Rheumatic Heart Diseases	1988.11
15	Equipment Provision	Health	Medical equipment	1990.04
16	Grant Aid	Health	The Project for the Eradication of Poliomyelitis	1995.11
17	Grant Aid	Health	The Project for the Eradication of Poliomyelitis	1996.09
18	Grant Aid	Health	The Project for the Eradication of Poliomyelitis (Phase 2)	1997.08
19	Grant Aid	Health	The Project for Improvement of Maternal and Child Health Training Institute	1998.05
20	Grant Aid	Health	The Project for Improvement of Maternal and Child Health Training Institute	1998.05
21	Grant Aid	Health	The Project for Improvement of Maternal and Child Health Training Institute	1998.05
22	Grant Aid	Health	The Expanded Programme on Immunization Plan for Neonatal Tetanus Elimination and Control of Measles	1998.11
23	Technical Cooperation	Health	Human Resources Development in Reproductive Health	1999.09
24	Grant Aid	Health	The Expanded Programme on Immunization Plan for Neonatal Tetanus Elimination and Control of Measles	2000.03
25	Grant Aid	Health	The Project for Support to Strengthening of Emergency Obstetric Care Service	2002.04
26	Grant Aid	Health	The Project for Support to Strengthening of Emergency Obstetric Care Service	2003.06
27	Technical Cooperation	Health	Safe Motherhood Promotion Project	2006.07
28	Technical Cooperation	Health	Health and HRD Advisor	2010.01

#	Scheme	Sector	Project Name	Year
29	Technical Cooperation	Health	Project for Research and Development of Prevention and Diagnosis for Neglected Tropical Diseases, especially Kala-Azar	2011.06
30	Technical Cooperation	Health	Safe Motherhood Promotion Project(Phase 2)	2011.07
31	Technical Cooperation	Health	Health Advisor	2012.01
32	ODA Loan	Health	Maternal, Neonatal and Child Health Improvement Project (Phase 1) (Health, Population and Nutrition Sector Development Program)	2012.01
33	ODA Loan	Health	Maternal, Neonatal and Child Health (MNCH) and Health System Improvement Project	2015.12
34	Technical Cooperation	Health	Project for Capacity Building of Nursing Services	2016.01
35	Technical Cooperation	Health	Project for Strengthening Health Systems through Organizing Communities	2017.07
36	ODA Loan	Health	Health Services Strengthening Project	2018.06
37	ODA Loan	Health	COVID-19 Crisis Response Emergency Support Loan	2020.08

3.3 Education

1. Overview

After independence in 1971, the government of Bangladesh nationalized primary education and established a plan to aim for full enrollment in primary education. In 1990, free and compulsory primary education was established by law, making five years of primary education compulsory. Since then, with the support of 27 donors including JICA, access to primary education has made dramatic progress. The net enrollment rate in primary education increased from 60.5% in 1990 to 86.7% in 2002 and to about 98% in 2018.

Classroom at an elementary school (Photo: PADECO Co., Ltd)

1.1 Pre—2000s: Education Infrastructure Development and Sector-Wide Approach

(1) Education Infrastructure Development through Grant Aid

In the 1970s and 1980s, JICA's support for the education sector was provided mainly through grant aid for the development of educational infrastructure. In the 1970s and 1980s, support for the construction of educational facilities related to agriculture, such as "Project for the Expansion of the Bangladesh Agricultural Institute" (1978), "The Establishment of Bangladesh College of Agricultural Sciences" (1981), and "Construction of the Agriculture Training Centre for Women" (1986), as well as "Project for the Completion of Educational Broadcasting Facilities" (1978), "Project for the Improvement of Scientific Educational Equipment for Universities" (1989), and "The Project for the Development of Library and Physical Infrastructures for the Institute of Postgraduate Studies in Agriculture" (1990) were implemented.

(2) Establishment of a Coordination Mechanism between the Government and Development Partners

Until the 1990s, many development partners provided individual project-based assistance, but the government of Bangladesh and its development partners agreed to adopt the Sector Wide Approach (SWAp), a form of assistance in which development partners and the government share common policies and pool development funds, for more efficient and effective assistance.

Since 1998, the government of Bangladesh, in collaboration with its development partners, international aid agencies, has been implementing the Primary Education Development Program (PEDP) (1998-2003), a sub-sectoral program

Bangladesh Agricultural University (Photo: JICA)

for primary education, and the Second (1998-2003), the Second Primary Education Development Program (PEDP2) (2004-2009), the Third Primary Education Development Program (PEDP3) (2011-2016), and now the Fourth Primary Education Development Program (PEDP4) (2018-2023).

1.2 Post 2000s: Support Focusing on Primary Education

(1) Support for the Revision of the Science and Mathematics Curriculum in Primary Education

Japan has been supporting the implementation of the PEDP in the field of basic education since 2004 through the technical cooperation "Strengthening Primary Teacher Training on Science and Mathematics (2004-2010)" and "Strengthening the Capacity of Teacher Training in PTIs to Improve Classroom Teaching" (2010-2017), as well as through several rounds of grant aid "Grant Aid for Poverty Reduction Strategies". Through these support measures, the Government of Bangladesh has been working to improve the quality of education in a comprehensive manner by revising the curriculum and textbooks for math and science, developing reference books for elementary school teachers, and improving teacher training.

Educational package materials for teachers developed by JICA technical cooperation project (Photo: PADECO Co., Ltd)

(2) Development of Education Package and Nationwide Deployment

The technical cooperation "Strengthening Primary Teacher Training on Science and Mathematics" (2004-2010) supported the PEDP2 "Improving Quality in Schools and Classrooms", which aimed to (1) develop teaching packages for teachers, (2) improve learning among teachers, and (3) improve learning among children.

With the National Academy for Primary Education (NAPE) and the Primary Teacher Training Institute (PTI) as the main collaborating institutions, we developed a reference book for math and science teachers that incorporates inquiry-based and problem-solving lessons. The TP was developed by NAPE and PTI. The TP was distributed by the government of Bangladesh to PTIs, teacher training centers, and elementary school across the country using the PEDP2 Pool Fund.

In addition, individual experts were dispatched to the DPE under the Ministry of Primary and Mass Education (MOPME) to coordinate with PEDP2 and make policy recommendations. At the field level, we dispatched Japan Overseas Cooperation Volunteers (JOCV) (science and mathematics teachers) to work with the technical cooperation project, and initiatives were developed to improve the quality of basic education widely from the central government level to the field level.

(3) "Lesson Study" of Japanese origin

In recognition of this cross-sectional support for primary education from the ministry level to the field level, the government of Bangladesh requested further technical cooperation from Japan.

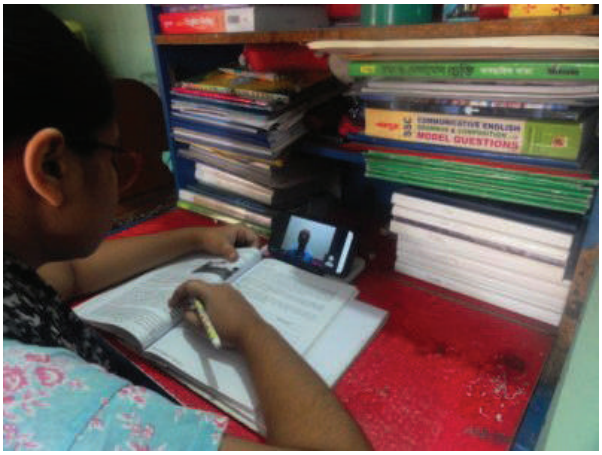
In response to this request, Japan launched "Strengthening the Capacity of Teacher Training in PTIs to Improve Classroom Teaching" (2010-2016) with the aim of contributing to the improvement of the "quality of education", which is a priority issue in the primary education sector in Bangladesh, by establishing and rolling out inquiry-based and problem-solving classes nationwide based on the TP developed in the previous phase.

The main activities include: (1) revising and modifying elementary school science and mathematics curricula, textbooks, and instructional materials; (2) improving science and mathematics classes; and (3) introducing "Lesson Study" and media strategies aimed at raising the awareness of those involved in implementing new teaching methods.

(4) Distance Learning Support by COVID-19 Countermeasures

As a result of various efforts to achieve the Millennium Development Goals (MDGs) and the Sustainable Development Goals (SDGs) of "Education for All", significant progress has been made in the quantitative aspect of education, including an increase in the net enrollment rate to 98%.On the other hand, the quality of education remains an issue, as there are still many children who do not meet the academic standards of their grade level. To resolve these issues, the "JICA Support Program 3 for Strengthening

Online class amid the pandemic: A scene from a TV class produced by JICA's technical cooperation project (Photo: PADECO Co., Ltd)



Online class amid pandemic: A student participates in a class with his smartphone (Photo: PADECO Co., Ltd)

Mathematics and Science in Primary Education Project" (2019-2023) has been launched to support the revision of elementary science and mathematics curricula, textbooks, and instructional materials for teachers, the revision of teacher education curricula and materials, and the systematization of continuous professional development for in-service teachers. During school closures due to the spread of COVID-19, JICA has been supporting the development of digital teaching materials that can be used not only in printed form but also for training in an online format.

In addition, in response to the spread of the new coronavirus, MOPME has formulated the COVID-19 Response and Recovery Plan (May 2020) and requested donor support for the activities listed in the plan.

In response to this request, the project has produced video content for math lessons for grades 1-5, which is now being aired on the national TV station (Sangsad TV, a sub-channel of BTV).

1.3 Recent Support: Technological Education

(1) Human Resource Development and Collaboration with Private Organizations to Support Economic Growth

Japan's assistance in the field of education in Bangladesh has focused on primary education, but in 2019 Japan launched the "Project for Improvement of Technical Education for Industrial Human Resources Development" (2019-2024) to improve the teaching of electrical, electronic, mechanical, and computer subjects at pilot engineering colleges in Bangladesh and to strengthen cooperation with industry. The project also started to develop engineering human resources to support the economic growth of Bangladesh by improving courses in electricity, electronics, machinery, and computer subjects at pilot schools of engineering colleges in Bangladesh and by strengthening cooperation with industries.

In the private sector, KUMON has conducted a preparatory survey for a project to improve the quality of education in collaboration with NGOs, and the Japan-Bangladesh Cultural Exchange Association (JBCEA), a grassroots organization, has supported the establishment of a sustainable school lunch model with the participation of residents.

Classroom scene at a BRAC Kumon pilot school (Photo: PADECO Co., Ltd)

Students with the textbooks revised by the JICA technical cooperation project (Photo: PADECO Co., Ltd)

2. Achievements

(1) Primary Education

1) Number of teachers trained with textbooks developed with JICA technical assistance: 70,000.
2) Number of elementary schools to which the revised textbooks were distributed: 60,000; number of beneficiaries (teachers: 270,000; students: 13,700,000).
3) Introduction of educational guidance and practices originating in Japan (e.g., dramatization of class research, and building cooperative relationships between schools and families using contact books).
4) In 2010, when it was rare for foreigners to be involved in the revision of an elementary school textbook or curriculum in a country, this was the first case of support for the revision of an elementary school textbook or curriculum.
5) The competency-based curriculum aims not only at the acquisition of knowledge but also at the utilization of the acquired knowledge.
6) The textbooks and teacher's manuals were improved to enable the development of inquiry-based and problem-solving learning that allow students to use their abilities and learn in the classroom.

3. Representative Projects

3.1 Technical Assistance Project for Math and Science of Primary Education (Nationwide Development of Lesson Study)

(1) Introduction of Lesson Study and Its Ingenuity

At the beginning of the Technical Cooperation Project on Science and Mathematics Education, NAPE and PTI focused on improving teacher training in elementary schools, including strengthening teacher training capacity in parallel with the development of teaching packages. One of the activities at the field level promoted by the project was the dissemination of the "Lesson Study" method. Lesson Study is a method in which teachers collaborate with their colleagues to observe, discuss, and examine each other's classes, and then implement the improvements on their own. The Lesson Study is said to have originated in Japan and has been a part of Japanese educational practice since the Meiji era (1868-1912), functioning as a place for teachers to improve themselves. In Bangladesh, while improvements were seen in quantitative aspects such as the school enrollment rate, there was no trend of improvement in qualitative aspects such as the completion rate, so class research was introduced with the aim of


Classroom scene after applying Study Lesson: Students actively discussing with class research (Photo: PADECO Co., Ltd)

A scene from the drama Rupantar Kotha (actor Aly Zaker plays the role of the drama navigator) (Photo: PADECO Co., Ltd)

A scene from the drama Rupantar Kotha (where students have the opportunity to learn not only in the classroom but also through outdoor activities). (Photo: PADECO Co., Ltd)

Practice on Lesson Study: Teachers gather to discuss the content of the class. (Photo: PADECO Co., Ltd)

improving the quality of classes among teachers. However, it was very difficult to change the teachers' thinking in a short period of time. Therefore, in order to change the mindset of not only teachers but also other people involved in the project, and to disseminate the process of class improvement, the environment surrounding it, and the fostering of school culture throughout the country, the project used the widely accepted television media in Bangladesh to produce a school-based drama, "Rupantar Kotha" ("Story of Change"), in which the main character is

Practice on Lesson Study: The teacher in the foreground is giving a lesson to his colleagues, which is being recorded for later reflection on his own teaching methods. (Photo: PADECO Co., Ltd)

a teacher who strives to improve the classroom. Series 1-5 of "Rupantar Kotha" were developed. Of these, Series 1 and 2 were televised nationally.

(2) Nationwide Deployment

As a result, Lesson Study began to be introduced in the pilot schools of the project and, later, thanks to the efforts of the DPE Training Division, the Lesson Study methodology quickly spread across the country when it was incorporated into the in-service teacher training activities that had already been institutionalized at the county level and school clusters across the country. By the end of the project (Phase 2), the teachers themselves were able to recognize their own areas for improvement through the class research, and behavioral changes were confirmed in that they sought support from other teachers to overcome their weaknesses.

Subsequently, Lesson Study spread to other elementary schools in the vicinity of the pilot school. The presence

Practice on Lesson Study: Providing a mock lesson to students (Photo: PADECO Co., Ltd)

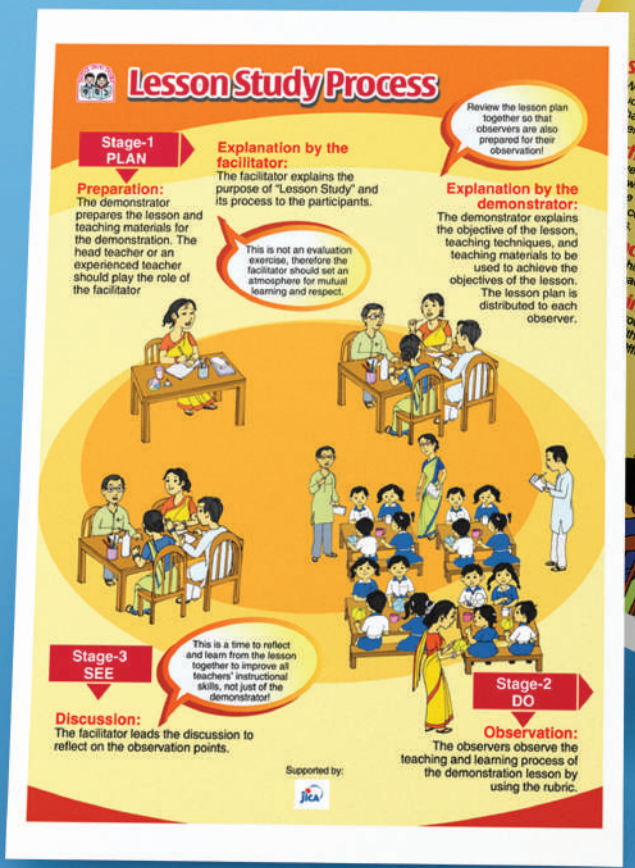
of Japan Overseas Cooperation Volunteers (JOCV) (elementary school teachers) was instrumental in this horizontal expansion. At the suggestion of the JOCV who had been dispatched to PTI in various areas, a few volunteers organized a caravan to spread Lesson Study across the country and expanded the activities. These activities led to the development of Lesson Study Week, an annual event organized by the cooperative team members.

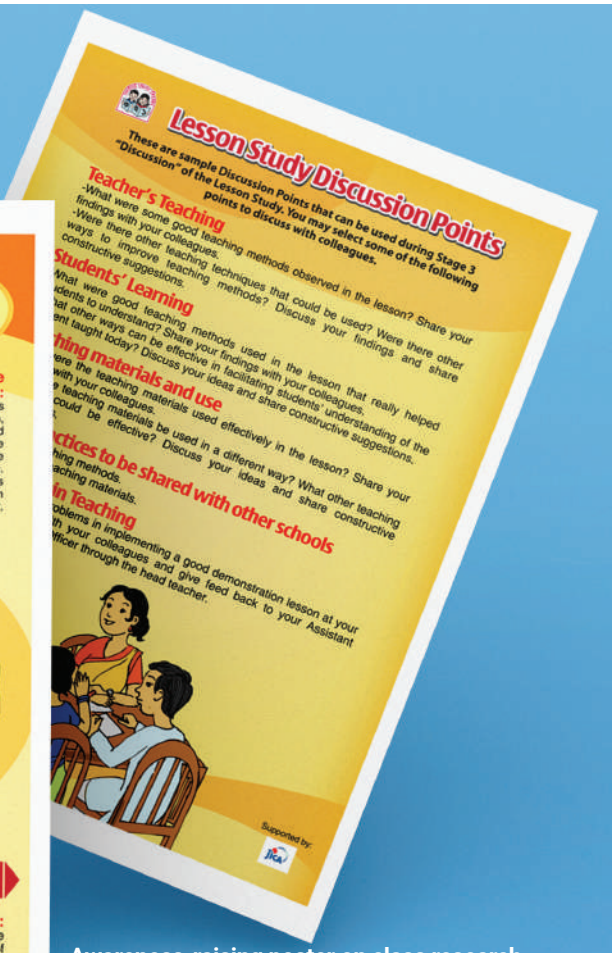
(3) Spillover Effects

The cooperating team members working in the Rashahi area conducted a survey on the Lesson Study activities conducted in the surrounding elementary schools, wrote a paper in English, and had an opportunity to present it at the World Association of Lesson Studies (WALS) held in Indonesia in 2014. I also had the opportunity to present my research at the World Association of Lesson Studies conference in Indonesia in 2014. After that, the WALS conference was held in the UK in 2016, where project members participated and gave a presentation on the lessons learned from the dissemination of lesson study in Bangladesh to the world.

According to the status confirmation survey to measure the awareness of class research, among the various surveys to measure the project's achievements, only about 1% of the schools answered that they knew about class research. However, because of the same survey conducted about a year after the nationwide implementation of class research, about 70% of the schools answered that they knew about class research and about 55% of the schools answered that they had conducted class research, which greatly contributed to the dissemination of the project's class research.

Awareness-raising poster on class research (explaining the implementation of the PDCA cycle)





Awareness-raising poster on class research (explanation of the discussion points of class research)

(Source JICA)

(Photo: Mika Tanimoto/JICA)

(Photo: Mika Tanimoto/JICA)

4. Project List

#	Scheme	Sector	Project Name	Year
1	Grant Aid	Education	Project for the completion of educational broadcasting facilities	1978.09
2	Grant Aid	Euducation/ Agriculture and Rural Development	Project for the expantion of the Bangladesh Agricultual Institute	1978.09
3	Grant Aid	Euducation/ Agriculture and Rural Development	The Establishment of Bangladesh College of Agricultural Sciences	1981.06
4	Technical Cooperation	Euducation/ Agriculture and Rural Development	Institute of Postgraduate Studies in Agriculture Project	1985.07
5	Grant Aid	Education	Construction of the Agriculture Training Centre for Women	1986.04
6	Grant Aid	Education	Project for the Improvement of Scientific Educational Equipment for Universities	1989.08
7	Technical Cooperation	Euducation/ Agriculture and Rural Development	Institute of Postgraduate Studies in Agriculture Project Phase Ⅱ	1990.07
8	Grant Aid	Euducation/ Agriculture and Rural Development	The Project for the Development of Library and Physical Infrastruct-ures for the Institute of Postgraduate Studies in Agriculture	1990.12
9	Equipment Provision	Education	Equipment for technical training	1993.04
10	Technical Cooperation	Education	Employment Promotion	1994.04
11	Technical Cooperation	Education	Vocational Training	1996.04
12	Technical Cooperation	Education	Primary Education Advisor	1999.12
13	Technical Cooperation	Education	IDEAL Project	2000.02
14	Technical Cooperation	Education	Development of an NFE/Non-Formal Education Academy	2001.03
15	Technical Cooperation	Education	Development of an NFE/Non-Formal Education Academy	2001.03
16	Technical Cooperation	Education	Primary Education Advisor	2002.12
17	Technical Cooperation	Education	Primary Education Advisor	2004.08
18	Technical Cooperation	Education	Strengthening Primary Teacher Training on Science and Mathematics	2004.10
19	Technical Cooperation	Education	Primary Education Advisor	2009.01
20	Technical Cooperation	Education	Strengthening the capacity of teacher training in PTIs to improve classroom teaching	2010.11
21	Grant Aid	Education	The Poverty Reduction Efforts	2011.09
22	Technical Cooperation	Education	Primary Education Advisor	2012.01
23	Grant Aid	Education	the poverty reduction efforts	2012.12
24	Technical Cooperation	Education	Primary Education Advisor	2013.01
25	Technical Cooperation	Education/Others	Project for Capacity Building on Human Development Television (HDTV) Programmes	2015.03

#	Scheme	Sector	Project Name	Year
26	Grant Aid	Education	The Third Primary Education Development Programme	2016.02
27	Grant Aid	Education	the Third Primary Education Development Programme	2016.02 /2017.02
28	Technical Cooperation	Education	Primary Education Advisor	2017.10
29	Grant Aid	Education	The Fourth Primary Education Development Programme	2018.12
30	Technical Cooperation	Education	Project for Improvement of Technical Education for Industrial Human Resources Development	2019.03
31	Technical Cooperation	Education	JICA Support Program 3 for Strengthening Mathematics and Science in Primary Education Project	2019.04
32	Grant Aid	Education	The Fourth Primary Education Development Programme	2020.08
33	Technical Cooperation	Education	Education Advisor	2021.05

3.4 Agriculture and Rural Development

1. Overview

Development assistance for agriculture and rural development began soon after Bangladesh's independence and, from the beginning, technical assistance was provided by experts and Japan Overseas Cooperation Volunteers (JOCVs). In addition to rice cultivation, for which Japan has advanced technology, the introduction of new varieties of rice and horticultural crops and the improvement of storage capacity through the construction of storage warehouses have greatly contributed to ensuring food security in Bangladesh. Another important outcome of the project was the development of infrastructure and assistance for the establishment of Water Management Cooperative Association, including large-scale irrigation and drainage projects to improve agricultural productivity, and the development of reservoir irrigation to encourage the use of surface water instead of excessive dependence on groundwater. In the field of rural development, as well as agricultural technical assistance, experts and JOCVs have been working at the rural level since the beginning of independence. The "Link Model," which started as action research in the 1980s and developed through technical cooperation, contributed to the improvement of administrative services by connecting the rural public service with village social organizations. Regarding water supply, which was an important issue in rural areas, the model contributed to the provision of safe water by providing consistent support from infrastructure support such as the installation of wells to improve water supply service capacity

1.1 Agricultural Development

(1) Agricultural Extension Service

In the early days of the Liberation, the key issue in the agriculture and rural development sector was to increase food production and ensure food security. It was one of the major issues even before the Liberation. Thus, in 1956, four young experts were sent to East and West Pakistan, respectively, under the Colombo Plan. In 1960, an agreement was signed to establish an Agriculture Extension Training Institute in Tejgaon near Dhaka, which later became the Farm Mechanization Training Center (FMTC).

From that year on, agricultural experts were dispatched to the Pakistan Academy for Rural Development (PARD, which later became Bangladesh Academy for Rural Development, or BARD) in Cumilla District, where a total of 30 experts provided direct technical guidance to local farmers until 1970. They had provided direct technical guidance to local farmers, contributing to the spread of rice cultivation techniques such as regular-row planting, as well as weeding and tilling equipment called "tauchiguruma" and foot paddy threshers. Since the independence of Bangladesh, while providing food aid programs to address the famine and food shortages caused by the War of Independence and the 1974 floods, Japan has supported Bangladesh in three major areas: agricultural technology development, technology dissemination, and agriculture-related infrastructure development.

The Department of Agricultural Extension (DAE) under the Ministry of Agriculture is responsible for technical extension, initiated mainly with the support of FMTC, which had been supported since the time of East Pakistan. FMTC was reorganized as the Central Extension Research and Development Institute (CERDI) in 1976, and has been providing ongoing support, starting with the dispatch of experts to strengthen the organization of extension, horticulture cultivation, irrigation, agricultural machinery, and a wide range of other agricultural technologies, as well as the dispatch of JOCVs. In 2013, as an independent organization under the Ministry of Agriculture, the National Agriculture Training Academy (NATA) was established by reorganizing CERDI to disseminate agricultural technologies not only to DAE extension workers but also to other public and private institutions.

1) Contribution of JOCV in Agricultural Extension Service

In the field of agricultural technology dissemination, the contribution of the JOCV is also worthy of special mention. The first three JOCV members dispatched in 1973 were all assigned in agricultural fields. Since then, until the early 1980s, most of the volunteers were engaged in agriculture, forestry, fisheries, and other related activities.

Many of the JOVC members have contributed to increased yields and crop diversification through improved rice and vegetable varieties and technological dissemination. In addition to the agriculture sector, JOVC members have also been sent to work in the livestock, fishery, and forestry sectors. As for agriculture-related occupations, with the spread of irrigation using pumped water, agricultural machinery and agricultural civil engineering members have also been dispatched. Although the activities of the JOCV were basically carried out independently, they have not only been linked with the above-mentioned projects for the development and dissemination of agricultural technologies, but also their activities and achievements have been carried on by subsequent JOCV members. Therefore, it can be said that JOCVs have played an important role in long-term assistance for agricultural and rural development.

JOCV chatting with villagers (Photo: JICA)

JOCV interviewing a woman in the village (Photo: JICA)

(2) Agricultural Technology Development

In the area of agricultural technology development, "Citrus and Vegetable Research" was implemented in two phases over a period of six years from 1977 to 1983, and it supported activities that contributed to increased production of citrus and vegetables in particular. The Ministry of Agriculture and the Bangladesh Agricultural Research Institute (BARI) was the implementing agencies, and the Japanese side dispatched experts to train human resources and transfer technology.

In 1983, when the horticultural research project was just completed, the facilities of Agriculture University were constructed under the umbrella of BARI with Japanese grant aid. Later, in view of the difficulty in finding jobs for undergraduates at Agriculture University and the need to improve the basic level of graduates, the plan was changed to provide postgraduate education, and support began in 1985 as the "Institute of Postgraduate Studies in Agriculture (IPSA) Project". The first phase of the IPSA project was implemented from 1985 to 1990, and the second phase from 1990 to 1995. In 1998, IPSA was reorganized from a graduate school under the jurisdiction of the Ministry of Agriculture to the Bangabandhu Agricultural University under the jurisdiction of the Ministry of Education. After-care cooperation was implemented to complement the achievements of the IPSA project, and the further strengthening of teaching and research activities by repairing and updating the equipment already provided, providing spare parts, and deploying short-term experts for two years from 1999.

Administrative building of BSMRAU (Photo: JICA)

(3) Agricultural Infrastructure Development

1) Support for Strengthening Food Storage Capacity

From the perspective of food security, not only the production of food, but food storage capacity had become

Hydroponics in action (Photo: JICA)

Equipment provided to the laboratory. (Photo: JICA)

a priority issue. Bangladesh, which had not achieved food self-sufficiency, was susceptible to crop failures caused by natural disasters and fluctuations in the supply-demand balance caused by food prices. Since the government of Bangladesh in addition to distributing food to the poor through the public food distribution system also distributed food in the event of natural disasters and adjusted market prices, so strengthening the food reserve capacity was an urgent issue after independence. In response to these challenges, Japan supported the construction of food storage facilities from 1977 to 1986, for a total storage capacity of 115,000 tons.

Other donors such as the World Bank, the European Union, the Asian Development Bank, and the United Nations Development Program have also supported the strengthening of food storage capacity. However, the need to further strengthen this capacity was recognized when the country depleted its public grain food stock after suffering severe damage from Cyclone Sidr in 2007. In response to this situation, a project to strengthen food storage capacity was launched in 2012 and completed in 2017. The project initially proposed the construction of rice storage silos, but later a multi-story air-conditioned warehouse was constructed to ensure the maximum storage capacity within the budget. In addition, in order to reduce the cost of electricity for storage operations, a solar power generation system installed on the rooftop supplies electricity to the storage facility constructed in this project and to the silos on the site.

2) Irrigation and Drainage Infrastructure Development

In terms of support for increasing food production, the irrigation and drainage infrastructure project was an important pillar that contributed to the expansion of

Equipment provided to the laboratory. (Photo: JICA)

Panoramic view of the food warehouse constructed under the Food Reserve Capacity Enhancement Plan (2012). (Photo: JICA)

Ramp to access the second floor of the food storage (Photo: JICA)

Pallet storage in a food storage facility (Photo: JICA)

planting area. For example, in Narayanganj and Narsingdi districts, half the land was flooded during the rainy season and suffered drought during the dry season. In the 45,000-hectare irrigation, drainage, and flood protection area of this district, a demonstration unit of the polder system with pump and drainage facilities was constructed on about 1,300 hectares at the southern end of the district under the "The Project for the construction of terminal irrigation facilities in Narayanganj-Narshingdi Area (1981-84)," a grant of 8.4 million yen.

In this area, many farmers benefited from the drainage of excess water during the rainy season and the withdrawal of water during the dry season, which enabled them to grow crops. In addition, "The Project for the Construction of the Narayanganj-Narshingdi Irrigation Facilities (grant assistance of 33.43 million yen)" was implemented in 1989-91 to address the partial failure of the flood defense embankments caused by the nationwide flooding in 1987. This project enabled the construction of flood barriers surrounding 3,000 hectares and the construction of irrigation and drainage facilities, which not only enabled two- and three-season rice cultivation in the area, but also contributed to the conversion of rice cultivation from indigenous to high-yielding varieties, increased yields, and diversified products. In addition, in Rangpur District in the north, a study of irrigation and drainage projects, for which feasibility studies have been conducted three times since the 1960s, is being carried out in the southern part of Kurigram District.

In areas where irrigation services are not available through large-scale irrigation facilities, irrigation using groundwater will spread rapidly along with shallow- and deep-well pumps. In particular, the area planted with dry-season crops (Boro rice), where rain and surface water are scarce, expanded, and high-yielding varieties were introduced at the same time, resulting in a threefold increase in rice yields between 1990 and 2015. At the same time, the decline in groundwater levels due to excessive groundwater use has become a serious problem. To address this issue, LGED, which oversees rural infrastructure development, is the implementing agency of "the Small-Scale Water Resource Development Project (Phase 1: 2007-2016, Phase 2: 2017-23)", which uses sluices and drainage facilities to regulate the volume of water in rivers during the rainy season, constructs reservoirs to store surface water, and promotes its use during the dry season when water is scarce. During the 20 years from 1996 to 2016, which is the period of these irrigation- and drainage-related projects with LGED as the implementing agency, nine individual experts from the Rural Development Bureau of the Ministry of Agriculture, Forestry and Fisheries (until 2001, the Bureau of Structural Improvement) have been dispatched to support the agricultural infrastructure development projects by LGED.


Sluice gate constructed by the Small Scale Water Resource Development Project (Photo: JICA)


Water User's Association Office constructed by the Small Scale Water Resource Development Project (Photo: JICA)

Irrigation canal constructed by the Small Scale Water Resource Development Project (Photo: JICA)

Irrigation canals constructed by the village committee project (Photo: JICA)

1.2 Rural Development

(1) Model Building and Dissemination of Rural Development

Rural development has also been implemented as part of other sectors such as agriculture, health, and rural infrastructure, but "the Model Rural Development Plan (MRDP)" was the first to provide comprehensive support for rural development. In 1986, the Ministry of Local Government, Rural Development and Cooperatives (LGRD&C) requested the Japanese government to assist the Ministry's Local Government Engineering Department (LGED) in the development of rural infrastructure, including the construction of rural roads, markets, elementary schools, training centers, and the installation of low-head pumps, and BRDB in the implementation of rural development projects that contribute to the strengthening of rural cooperative organizations and the resulting improvement of livelihoods and poverty reduction.

This project was launched in Cumilla District, the birthplace of the Cumilla Model, one of the models for rural development in Bangladesh. A total of 2.467 billion yen in grant aid was provided from FY 1991 to FY 1994, and as technical cooperation, a group of JOCV members was dispatched in July 1993 (18 members), and a long-term expert was dispatched in 1995 (one member) and continued until 1999.

Concurrently with the Model Rural Development Programme, the Joint Study on Agriculture and Rural Development (JSARD), a joint research project of Kyoto University, Bangladesh Agricultural University, and BARD, was conducted from 1986 to 1990 under BRDB as the counterpart and, its second phase, the Joint Study Rural Development Extension (JSRDE) was conducted from 1992 to 1995.

A woman makes a bamboo chair with PRDP support. (Photo: JICA)

The "Link Model" developed through these research and pilot activities, which connects traditional village organizations and institutions with rural administration, was later implemented in pilot activities in several unions by the Participatory Rural Development Project (PRDP) from 2000 to 2004. Based on the results obtained from the pilot activities, the second phase of the PRDP was implemented from 2005 to 2010, covering one Upazila each from Cumilla, Tangail, and Meherpur. After the completion

of PRDP-2, some of the activities were taken over by BRDB and are still being implemented as PRDP-3.

Rural development expert conducting a site visit for the PRDP. (Photo: JICA)

(2) Rural Water Supply

In addition to agriculture, livelihood improvement, and infrastructure, another important issue in rural areas is the supply of safe water for the health of the people who live there. The issue of rural water supply has been addressed since the early stage of rural development, including the installation of wells in rural development projects. JICA and Japan have been contributing to the improvement of water supply services and addressing the arsenic problem by strengthening the capacity of the Department of Public Health Engineering (DPHE).

Regarding the problem of arsenic contamination in Bangladesh, since the discovery of arsenic exceeding the Bangladesh standard (0.05 mg/l) in 1993, arsenic mitigation measures have been taken in the contaminated areas. In response to this, JICA conducted the Study on Groundwater Development for Northwestern Areas in People's Republic of Bangladesh (1999-2002) in three western districts including Jashore, where arsenic contamination is particularly serious, to clarify the current situation. Then, together with the Asian Arsenic Network, an NGO in Miyazaki Prefecture that has been working on the arsenic problem in Japan, JICA implemented the "Mobile Arsenic Center" system in Jashore district as a Development Partner Project (2002-2004), in which a group of experts established an alternative water source, conducted educational activities, and provided medical support. Based on the experience of this development partner project, "Project for Sustainable Mitigation for Arsenic Contamination under the Integrated Local Government System" was implemented with the project goal of "implementing sustainable arsenic contamination control measures led by local residents with the support of government agencies."


Water Quality Testing Central Laboratory Room (Photo: JICA)

From 2015 to 2021, "Project for Improvement of Total Management Capacity of Department of Public Health Engineering on Rural Water Supply and Sanitation" strengthened the DPHE's capacity to manage rural water supply services. Specifically, activities were carried out with the following outcomes: preparation of comprehensive technical guidelines, establishment of information management system, preparation of medium- and long-term plans, improvement of capacity for water source development and selection of water supply facilities, and establishment of monitoring system for operation status and water quality of existing water supply facilities.


Exterior view of the regional laboratory for water quality testing (Photo: JICA)

2. Achievements

(1) Agriculture

1) A total of 489 experts were dispatched to the agriculture and rural development sector, contributing to the doubling of the yield of rice, the staple food in Bangladesh, by 2000, and to the improvement of vegetable and fruit varieties and cultivation techniques. Some of the vegetables became official varieties, among which "Tasaki Daikon" and Kangkong are now grown all over the country.
2) A total of 192 short- and long-term experts were sent to establish Institute of Postgraduate Study in Agriculture (IPSA) (now Bangabandhu Sheikh Mujibur Rahman Agricultural University). Sixty percent of the graduates are working as researchers in BARI and BRRI. The project supported the construction of irrigation and drainage facilities and other infrastructure, contributing to the expansion of arable land area and the stabilization of agricultural production.
3) In terms of post-harvest handling, the project has made a significant contribution to food security, especially through the construction of 116 food storage facilities, expanding the total storage capacity to 140,000 tons.

(2) Rural Development

1) Through the Rural Development Action Research initiated in the mid-1980s, the "Linkage Model" was developed and piloted by the PRDP. Since then, the PRDP has been implemented by the government with the support of other donors, and has been active in all 64 districts, 215 Upazilas, and 650 unions.

(3) Dispatched Personnel

1) A total of 366 Japan Overseas Cooperation Volunteers (JOCVs) were dispatched to the agriculture and rural development sector to help increase agricultural productivity, improve rural livelihoods, and develop rural infrastructure.
2) A total of 1,421 Bangladeshi experts trained by JICA scheme, contributed to technology development, extension and rural development in the agricultural sector.
3) The number of experts dispatched in total: 489

3. Representative Projects

3.1 Agricultural Technology Dissemination Support Program

(1) Breeding of Citrus and Vegetable Crops at Bangladesh Agricultural Research Centre

Japan's contribution to the development and dissemination of agricultural technology in Bangladesh deserves special mention for its face-to-face support, including the dispatch of Japanese experts and JOCVs to the field from the time of Bangladesh's independence. The first three members of the JOCVs were dispatched to Bangladesh in 1973, soon after the country's independence. In the same year, the FAO issued a report on Bangladesh in which it recommended that the Bangladeshi government establish an agency for increasing fruit and vegetable production to improve the deficiency in vitamin intake among the people and, in 1975, the Japanese government was requested to provide "diagnostic cooperation for surveying the current status of citrus improvement and vegetable seed multiplication projects and planning improvement measures." As mentioned above, "Citrus and Vegetable Research "(1977) was initiated in response to this request.

The Citrus and Vegetable Research Project was supported for a total of six years, three years in the first phase (1977-80) and three years in the second phase (1980-83). During this period, in addition to the team leader, experts in citrus, vegetables, and business coordination were assigned (total number of assigned experts: 10). In addition to these long-term experts, a total of 10 short-term experts have been deployed in 10 sectors (3 in the citrus sector, 4 in the vegetable sector, and 3 in other facility-related sectors). In the meantime, 18 experts from Bangladesh were dispatched to Japan as trainees.

This project aimed to increase production of citrus and vegetables by developing superior varieties. In the citrus sector, problems with disease and poor growth caused by the characteristics of Bangladeshi soil were observed, and although problems were identified, countermeasures could not be established by the end of the project. On the other hand, in the vegetable sector, good varieties of eggplant, radish, watermelon, cabbage, purple vine, and leafy greens for rainy season cultivation (Kangkong, Hawtorn, Wakegi, Kai lan and Chinese cabbage) were developed and registered with the National Seed Board.

(2) Establishment of a Graduate School of Agriculture and Support for Research

In 1983, after the completion of the Citrus and Vegetable Research Project, the Agricultural College located in Dhaka was relocated to Joydebpur, where BARI and other agricultural research institutes are located. Then, the Bangladeshi government requested technical cooperation in all aspects of research and education, with the College of Agriculture as the Bangladesh Agricultural Graduate School. In response to this request, JICA, in cooperation with the Ministry of Education, Culture, Sports, Science and Technology and Kyushu University, held discussions with BARI and decided to implement the "Institute of Postgraduate Studies in Agriculture Project." It is noteworthy that this project is being implemented under the leadership of Japan and in cooperation with the three countries of Japan, the United States, and Bangladesh.

In the Institute of Postgraduate Study in Agriculture (hereafter IPSA) project, technical cooperation includes advisory service in three areas: "research planning and implementation of research conducted by instructors," "research guidance for students by instructors," and "training of young researchers and technicians." The IPSA has eight master's degree programs: (1) Agronomy, (2) Crop Science, (3) Genetics and Plant Breeding, (4) Plant Pathology, (5) Soil Science, (6) Insect Science, (7) Horticultural Science, and (8) Agricultural Extension.

In addition, United States Agency for International Development (USAID) provided support for curriculum development and social sciences (agricultural economics). The five years of the IPSA project from 1984 to 1989, were the first phase, and the six years from 1990 to 1995, were the second phase. In the first phase, 24 long-term experts and 34 short-term experts were dispatched, and 10 trainees and three foreign students were accepted. In addition, grant aid was used to construct and renovate facilities necessary for research (administration building, library, auditorium, laboratories, classrooms, student dormitories, cafeteria, medical office, etc.) and to provide equipment including precision instruments for experiments and other research.

(3) Strengthening of Facilities and Equipment and Improvement of Research Capabilities

In the second phase, long-term experts and short-term experts were dispatched and the total value of equipment provided was 113 million yen, which is a very substantial investment compared to other agricultural education and research institutions. In addition, computers and related equipment and management systems have been installed in the information processing room by JICA and USAID, and the policy of using computers to manage not only research and experiments but also personnel, equipment management, library information, and student management has been improved.

Research areas were addressed in seven departments including the applied botany department. The number of research papers published in Phase 2 amounted to 256 and have been submitted to international journals; during the IPSA project period, most of the in-service teachers have had opportunities to train and study in Japan, and their research level has improved, indicating that they have reached an international level of education.

As mentioned above, in the agricultural sector, especially in the area of technology development and its transfer, assistance was started soon after independence, many Japanese experts were dispatched to the field, and technology transfer has been carried out through direct interaction with Bangladeshi experts. Particularly in the development of superior varieties of crops, new varieties have been developed and registered through this technical assistance, which have contributed to increased food production and improved nutrition in Bangladesh. In addition, the IPSA project has contributed to the training and capacity building of experts involved in breeding and cultivation technology development, thus strengthening the technological foundation of the agricultural sector.

3.2 Model Building of Participatory Rural Development

(1) From Problem Recognition in Rural Development to Rural Development Model Planning

In addition to technology development and technology transfer support in the agricultural sector, many Japanese experts and JOCVs have been involved in projects related to rural development that have contributed to the dissemination of agricultural technology, improvement of livelihoods in rural areas, and infrastructure development in general. This is one of the areas where we have been providing face-to-face and long-lasting support to many Bangladeshis, not to mention counterpart staff. The main approach in rural development was to take over the approaches to rural development that had been accumulated in Bangladesh since the time of East Pakistan, to improve them through pilot activities in the field, and to develop new approaches with local people for wider dissemination.

Rural development support can be said to have started with the dissemination of agricultural technology by the first JOCV dispatched in 1973, but it was not until the 1980s

that support as a project began. Specifically, two projects were launched in Comilla District, where the model for rural development in Bangladesh was formed. One is the "Model Rural Development Project (MRDP)", which was planned in 1988-89 and implemented from 1991 to 1999, and the other is the "Participatory Rural Development Project (PRDP)", which was proposed as a link model through the JSARD and JSRDE rural development studies and was experimentally implemented from 2000 to 2009.

The MRDP basically follows the approach of the Cumilla model developed and implemented during the East Pakistan era and is based on the Upazila Central Cooperative Association (UCCA), which is a county-level association of cooperatives organized at the village level. The UCCA is a county-level association of cooperatives organized at the village level. It comprehensively implements basic rural infrastructure development and livelihood improvement activities through technical guidance, which are generally implemented separately by vertical divisions within the ministry, and organically combine the two projects/ supports. For this purpose, not only were experts assigned to the BRDB, the implementing agency, but also cooperative teams were assigned at the UCCA level to link the two support projects. However, this support was largely made possible by JICA's grant aid and technical cooperation, and its sustainability has been questioned.

(2) From Rural Development Joint Research with Kyoto University to PRDP

On the other hand, the JSARD/JSRDE, which was being implemented in parallel to the MRDP implementing agencies, was not dependent on such external support or cooperatives, but was looking at an approach that would connect traditional village leadership with the Upazila and the Union. Villages generally have multiple leaders who work to solve village problems, sometimes by utilizing village resources and sometimes by talking to the government through the union council. By connecting these village mechanisms with the government, the aim was to understand the problems of the village and provide services efficiently with the cooperation of the villagers. This was later called the "Link Model" and was implemented in the PRDP. In the Link Model, a village committee is set up in the village, a Union Coordination Committee (UCC) in a union, which is the rural administrative organization, and an Upazila Development Coordination Committee (UDCC) in the Upazila to link the village, Union, and Upazila Parishad. Through this linkage, village problems are absorbed by the Upazila and services are delivered to the village. Union Development Officers will be assigned to the Unions to coordinate the preparation of meetings and other activities. This mechanism was highly appreciated by the counterpart, BRDB, and the Link Model Planning Cell was established within the BRDB, with a plan to roll out the model nationwide with a government budget. The BRDB launched PRDP-3 in July 2015, with activities in all 64 provinces, 215 counties and 650 unions. The Union Coordination Committee Meeting (UCCM) successes were so well received that the Union Development Coordination Committee (UDCC) was gazetted and became an official activity recognized by the government. While the activities have been expanding, the lack of sufficient Upazila Development Officers (UDOs) to support the UCCM and UDCC has been an issue since JICA support ended. The BRDB will continue to urge the government to deploy UDOs and to promote participatory rural development throughout the country through UCCM and UDCC.

Tasaki Radish

At the Central Agricultural Research and Development Institute (CERDI), Mr. Tasaki, who was dispatched as a long-term expert in the vegetable section, improved the South China radish, which was recognized as a suitable variety in a wide area including the sub-sector of BARI, and the variety was named and registered as "Tasaki San Mula" by the National Seed Board and is now grown nationwide.

Dissemination of New Breeds

JICA implemented the Poultry Management Technology Improvement Project (November 1997-October 2002) and the Small-scale Poultry Technology Dissemination Project (December 2006-December 2011) with the Bangladesh Livestock Research Institute (BLRI) as the counterpart agency. One of the outcomes of Phase 1 was the technology transfer of breed improvement. As a result, for the first time, BLRI succeeded in breeding a local chicken suitable for the climate of Bangladesh. The breed was named "Shuvra" and was handed over to Prime Minister Hasina in September 2011. In 2014, "Shorna" was released based on the same breed, and the results of the technology transfer have been widely disseminated.

Breed-improved chicken (Photo: JICA)

Popularization of Mushroom Cultivation

JICA dispatched three JOCVs and one expert between 1980 and 1990. They contributed to the dissemination of tissue culture technology, which is the foundation of mushroom cultivation in Bangladesh, and to the establishment of the Mushroom Centre (Mushroom Centre, now under the Horticulture wing, Department of Agricultural Extension, Ministry of Agriculture, located in Savar Upazila, Dhaka District). The Mushroom Centre was handed over by Ambassador Yoshitomo Tanaka to Bangladesh in 1985 to the Deputy Secretary of the Ministry of Agriculture of the Government of Bangladesh, and is still contributing to the development of mushroom cultivation in Bangladesh by inheriting the transferred technology.

Mr Abdur and Mr Kojima was working together in 1987 (Photo: JICA)

(Photo: Kaku Suzuki/JICA)

(Photo: Mika Tanimoto/JICA)

4. Project List

#	Scheme	Sector	Project Name	Year
1	Technical Cooperation	Agriculture and Rural Development	Central Extension Resources Development Institute	1975.03
2	Technical Cooperation	Agriculture and Rural Development	Narayanganj-Narsingdi Irrigation Project	1977.03
3	Grant Aid	Agriculture and Rural Development	Expansion of the capacity for food grain storage Construction of storehouses for food grains	1977.06
4	Technical Cooperation	Agriculture and Rural Development	Citrus and Vegetable Research	1977.11
5	Grant Aid	Euducation/ Agriculture and Rural Development	Project for the expantion of the Bangladesh Agricultual Institute	1978.09
6	Grant Aid	Agriculture and Rural Development	Fisheries Research Project	1978.09
7	Equipment Provision	Agriculture and Rural Development	Agricultural equipment	1979.04
8	Grant Aid	Agriculture and Rural Development	Expansion of the capacity for food grain storage Construction of storehouses for food grains	1979.08
9	Grant Aid	Agriculture and Rural Development	Motorisation of country fishing boats	1980.01
10	Grant Aid	Agriculture and Rural Development	Expansion of the Capacity for Food Grain Strage	1980.09
11	Equipment Provision	Agriculture and Rural Development	Starch manufacturing equipment	1981.04
12	Grant Aid	Agriculture and Rural Development	Agricultural Machinery Improrement Project	1981.01
13	Grant Aid	Euducation/ Agriculture and Rural Development	The Establishment of Bangladesh College of Agricultural Sciences	1981.06
14	Grant Aid	Agriculture and Rural Development	The Project for the construction of terminal irrigation facilities in Narayanganj-Narshingdi Area	1981.10
15	Grant Aid	Agriculture and Rural Development	The Project for the construction of dormitories of the Central Extension Resource Development Institute	1982.06
16	Grant Aid	Agriculture and Rural Development	Project for the expansion of the capacity for food grain storage	1982.08
17	Grant Aid	Agriculture and Rural Development	Fish net machine supply project	1983.10
18	Grant Aid	Agriculture and Rural Development	Establishment of the Rice Seed and Genetic Resources Laboratory of the Bangladesh Rice Research Institute	1983.11
19	Equipment Provision	Agriculture and Rural Development	Soil fertilizer research equipment	1985.04
20	Grant Aid	Agriculture and Rural Development	Aid for Increased Food Production	1985.01
21	Technical Cooperation	Euducation/ Agriculture and Rural Development	Institute of Postgraduate Studies in Agriculture Project	1985.07
22	Grant Aid	Agriculture and Rural Development	Construction of the Foodgrain Storages	1986.02
23	Technical Cooperation	Agriculture and Rural Development	Strategy of Agricultural and Rurl Development	1986.05
24	Grant Aid	Agriculture and Rural Development	Increase of Food Production	1986.06
25	Grant Aid	Agriculture and Rural Development	Construction of the Foodgrain Storages	1986.09
26	Equipment Provision	Agriculture and Rural Development	Mushroom cultivation equipment	1987.04
27	Grant Aid	Agriculture and Rural Development	Increase of Food Production	1987.04
28	Technical Cooperation	Agriculture and Rural Development	Mushroom cultivation	1987.06
29	Technical Cooperation	Agriculture and Rural Development	North Rajshahi Irrigation Project	1987.07
30	Grant Aid	Agriculture and Rural Development	Rehabilitation Project for the Terminal Irrigation Facilities in Narayanganj-Narshingdi Area	1988.01
31	Technical Cooperation	Agriculture and Rural Development	Soil,Agronomy And Crop Physiology	1988.04

#	Scheme	Sector	Project Name	Year
32	Grant Aid	Agriculture and Rural Development	Increase of Food Production	1988.05
33	Grant Aid	Agriculture and Rural Development	The Whole Rehabilitation Project for the Terminal Irrigation Facilities in Narayanganj-Narshingdi Area	1988.09
34	Technical Cooperation	Agriculture and Rural Development	Rural Development	1988.10
35	Technical Cooperation	Agriculture and Rural Development	Model Rural Development Project for Human & Daudkandi Upazila	1988.10
36	Grant Aid	Agriculture and Rural Development	Project for the Improvement of Plants, Processing Units and Related Facilities of Bangladish Fisheries Development Corporation	1988.12
37	Grant Aid	Agriculture and Rural Development	The Project for the Construction of the Narayanganj-Narshingdi Irrigation Facilities	1989.02
38	Grant Aid	Agriculture and Rural Development	The Project for the Construction of the Narayanganj-Narshingdi Irrigation Facilities	1989.08
39	Technical Cooperation	Agriculture and Rural Development	Kurigram Irrigation & Flood Control Project (North Unit) Port	1989.08
40	Grant Aid	Agriculture and Rural Development	Increase of Food Production	1989.12
41	Grant Aid	Agriculture and Rural Development	The Project for the Construction of the Narayanganj-Narshingdi Irrigation Facilities	1990.06
42	Technical Cooperation	Euducation/ Agriculture and Rural Development	Institute of Postgraduate Studies in Agriculture Project Phase Ⅱ	1990.07
43	Technical Cooperation	Agriculture and Rural Development	Model Rural Development Project Phase Ⅱ･FCDI	1990.09
44	Grant Aid	Euducation/ Agriculture and Rural Development	The Project for the Development of Library and Physical Infrastructures for the Institute of Postgraduate Studies in Agriculture	1990.12
45	Equipment Provision	Agriculture and Rural Development	Rice soil fertilizer research equipment	1991.04
46	Grant Aid	Agriculture and Rural Development	The Project for the Construction of the Narayanganj-Narshingdi Irrigation Facilities	1991.08
47	Grant Aid	Agriculture and Rural Development	Model Rural Development Project for Homna and Daudkandi Upazila	1991.12
48	Technical Cooperation	Agriculture and Rural Development	Kurigram Irrigation & Flood Control Project (South Unit)	1991.12
49	Grant Aid	Agriculture and Rural Development	Project for the Establishment of Fish Landing, Preservation and Distribution Facilities at Monoharkhali	1992.02
50	Technical Cooperation	Agriculture and Rural Development	Agricultural Economics	1992.03
51	Grant Aid	Agriculture and Rural Development	Project for the Supply of Irrigation and Cultvation Equipment to Cooperative Farmers of the Cyclone and Tidal Bore Affected Areas	1992.04
52	Technical Cooperation	Agriculture and Rural Development	Rural Development	1992.06
53	Technical Cooperation	Agriculture and Rural Development	Community Development	1992.06
54	Grant Aid	Agriculture and Rural Development	Project for the Establishment of Fish Landing, Preservation and Distribution Facilities at Monoharkhali	1992.07
55	Grant Aid	Agriculture and Rural Development	Model Rural Development Project for Homna and Daudkandi Upazila	1992.08
56	Technical Cooperation	Agriculture and Rural Development	Rural Development Planning	1993.01
57	Technical Cooperation	Agriculture and Rural Development	Avian Production And Animal Health	1993.04
58	Grant Aid	Agriculture and Rural Development	Model Rural Development Project for Homna and Daudkandi Thana	1993.07
59	Technical Cooperation	Agriculture and Rural Development	Soil,Agronomy And Crop Physiology	1993.08
60	Technical Cooperation	Agriculture and Rural Development	Rural Development	1993.11
61	Technical Cooperation	Agriculture and Rural Development	Community Development	1994.05
62	Technical Cooperation	Agriculture and Rural Development	Rural Development Experiment(Rural Development)	1994.08
63	Technical Cooperation	Agriculture and Rural Development	Agricultural Economics	1994.10
64	Technical Cooperation	Agriculture and Rural Development	Horticulture (Vegitable Cultivation)	1995.07

#	Scheme	Sector	Project Name	Year
65	ODA Loan	Agriculture and Rural Development	Rural Development Credit Program (Grameen Bank)	1995.10
66	Technical Cooperation	Agriculture and Rural Development	Rural Development Advisor	1996.02
67	Technical Cooperation	Agriculture and Rural Development	Rural Infrastructure Development Engineering	1996.06
68	Technical Cooperation	Agriculture and Rural Development	Soil And Plant Nutrition	1997.05
69	ODA Loan	Agriculture and Rural Development	Engineering Services For Narayanganj-Narsingdi Flood Protection And Irrigation Project	1997.07
70	Technical Cooperation	Agriculture and Rural Development	Poultry Management Techniques Improvement Project	1997.11
71	Grant Aid	Agriculture and Rural Development	The Food Aid	1998.03
72	Technical Cooperation	Agriculture and Rural Development	Rural Development Advisor	1998.04
73	Technical Cooperation	Agriculture and Rural Development	Rural Development Techniques	1998.08
74	Technical Cooperation	Agriculture and Rural Development	Rural Development Advisor With Participation of Rural People	1999.04
75	Technical Cooperation	Agriculture and Rural Development	Water Management and Development	1999.05
76	Technical Cooperation	Agriculture and Rural Development	Agricultural Planning	1999.07
77	ODA Loan	Agriculture and Rural Development	Northern Rural Infrastructure Development Project	1999.07
78	Grant Aid	Agriculture and Rural Development	The Food Aid	2000.03
79	Technical Cooperation	Agriculture and Rural Development	Participatory Rural Development Project	2000.04
80	Technical Cooperation	Agriculture and Rural Development	Study on Groundwater Development for Northwestern Areas in People's Republic of Bangladesh	2000.05
81	Technical Cooperation	Agriculture and Rural Development	Rural Infrastructure Development	2000.10
82	Technical Cooperation	Agriculture and Rural Development	Arsenic Contamination Advisor (Community-baced Water Management)	2000.10
83	Technical Cooperation	Agriculture and Rural Development	Arsenic Contamination Advisor (Arsenic Analysis & Removal)	2000.12
84	Technical Cooperation	Agriculture and Rural Development	Study for Rural Development Focusing on Flood Proofing	2000.12
85	ODA Loan	Agriculture and Rural Development	Greater Faridpur Rural Infrastructure Development Project	2001.03
86	Technical Cooperation	Agriculture and Rural Development	Women in Development	2001.04
87	Technical Cooperation	Agriculture and Rural Development	Rural Development Technical Advisor	2002.06
88	Technical Cooperation	Agriculture and Rural Development	Arsenic Mitigation Advisor to DPHE	2002.11
89	Technical Cooperation	Agriculture and Rural Development	Rural Development Engineering Center Set-up Project	2003.01
90	Technical Cooperation	Agriculture and Rural Development	Participatory Rural Development Advisor	2003.04
91	Technical Cooperation	Agriculture and Rural Development	Arsenic Mitigation Advisor to LGD	2004.07
92	Technical Cooperation	Agriculture and Rural Development	The Master Plan Study on Small Scale Water Resources Development for Poverty Alleviation through Effective Use of Surface Water	2004.07
93	Technical Cooperation	Agriculture and Rural Development	Arsenic Mitigation Advisor to DPHE	2004.11
94	ODA Loan	Agriculture and Rural Development	Eastern Bangladesh Rural Infrastructure Development Project	2005.03
95	Technical Cooperation	Agriculture and Rural Development	Rural Infrastructure Development Advisor	2005.06
96	Technical Cooperation	Agriculture and Rural Development	Participatory Rural Development Project (PRDP-2)	2005.06
97	Technical Cooperation	Agriculture and Rural Development	Project for Sustainable Mitigation for Arsenic Contamination under the Integrated Local Government System	2005.12
98	Technical Cooperation	Agriculture and Rural Development	Poultry Technology Development and Dissemination Project	2006.12

#	Scheme	Sector	Project Name	Year
99	Technical Cooperation	Agriculture and Rural Development	Strengthening of Activities in Rural Development Enginieering Center(RDEC) Project(Phase 2)	2007.09
100	ODA Loan	Agriculture and Rural Development	Small Scale Water Resources Development Project	2007.12
101	Technical Cooperation	Agriculture and Rural Development	Rural Infrastructure Development Technical Advisor	2008.06
102	Grant Aid	Agriculture and Rural Development	The Food Aid Programme	2009.07
103	ODA Loan	Agriculture and Rural Development	South Western Bangladesh Rural Development Project	2010.03
104	Technical Cooperation	Agriculture and Rural Development	Rural Infrastructure Development Technical Advisor	2011.09
105	Grant Aid	Agriculture and Rural Development	Improvement of the Capacity of Public Food Storage in the People's Republic of Bangladesh (Detailed Design)	2012.02
106	Grant Aid	Agriculture and Rural Development	Improvement of the Capacity of Public Food Storage in the People's Republic of Bangladesh	2012.06
107	Technical Cooperation	Agriculture and Rural Development	Rural Infrastructure Development	2012.09
108	Technical Cooperation	Agriculture and Rural Development	Capacity Development Project for Participatory Water Resources Management through Integrated Rural Development	2012.10
109	Grant Aid	Agriculture and Rural Development	the Project for Ground Water Investigation and Development of Deep Ground Water Source in Urban and Rural Areas	2013.02
110	Technical Cooperation	Agriculture and Rural Development	Rural Infrastructure Development Advisor	2013.03
111	Technical Cooperation	Agriculture and Rural Development	The Project for Capacity Development of Management for Sustainable Water Related Infrastructure	2013.07
112	ODA Loan	Agriculture and Rural Development	Small and Marginal Sized Farmers Agricultural Productivity Improvement and Diversification Financing Project	2014.06
113	Technical Cooperation	Agriculture and Rural Development	Rural Infrastructure Development & Management Advisor	2014.09
114	Technical Cooperation	Agriculture and Rural Development	Project for Improvement of Total Management Capacity of Department of Public Health Engineering on Rural Water Supply and Sanitation	2014.12
115	Technical Cooperation	Agriculture and Rural Development	Integrated Rural Development	2016.09
116	ODA Loan	Agriculture and Rural Development	Small Scale Water Resources Development Project (Phase 2)	2017.06
117	Technical Cooperation	Agriculture and Rural Development	Project for developing inclusive insurance program for sustainable poverty reduction	2019.03
118	ODA Loan	Agriculture and Rural Development	Food Value Chain Improvement Project	2020.08
119	Technical Cooperation	Agriculture and Rural Development	Fisheries Livelihood Enhancement Project in the Costal Area of the Bay of Bengal	2021.01
120	Technical Cooperation	Agriculture and Rural Development	The Market-oriented Agriculture Promotion Project for Smallholder Horticulture Farmers through Multi-stakeholder Partnerships	2021.02
121	Technical Cooperation	Agriculture and Rural Development	Rural Urban Development Advisor	2021.03

3.5 Disaster Prevention/Climate Change

1. Overview

Bangladesh is one of the countries that are most vulnerable to natural disasters such as floods, cyclone surges, windstorms, and earthquakes. As much as 80% of the country's land area is less than 9 meters above sea level, and it suffers from major cyclones and floods every year. In the 30 years since 1970, there have been 171 major disasters, including a cyclone in 1970 that killed more than one million people and a major flood in 1988 that inundated about 70% of the country.

1.1 Pre—2000s: Emergency Assistance to Cyclones

(1) JICA's Assistance for Natural Disasters

Since the 1970s, Japan has provided disaster relief and reconstruction assistance for cyclone damage through commodity loans and other means, beginning with emergency disaster relief.

In the 1990s, Japan provided support for urban flood control infrastructure, including the "Greater Dhaka Protection Project (Study in Dhaka Metropolitan Area of Bangladesh Flood Action Plan)" (1990) and the "The project for the Improvement of the Storm Water Drainage System in Dhaka City" (3 Phases in1990-1992) as part of urban flood control measures.

(2) Cyclone Countermeasures

"Project for the Construction of Multipurpose Cyclone Shelters" (1993) started as grant aid from 1993 in six phases, and 117 shelters had been constructed by 2010. By constructing multipurpose cyclone shelters along the coast of the Bay of Bengal, the lives of 60,000 people and a good academic environment for around 50,000 students were ensured.

In addition, five meteorological radars constructed by grant aid covering the entire country have made it possible to obtain information on Norwester storms coming from the northwest and tropical cyclones coming from the south. Some of the weather observation radars were out of service for a while due to age and lack of spare parts, but they are now functioning well after renovation and replacement. Also the meteorological satellite image receiving equipment and communication lines have been upgraded, and officers at Bangladesh Meteorological Department (BMD) responsible for meteorological observations and issuing warnings have been given training to strengthen their capabilities, thereby improving the accuracy of cyclone monitoring and forecasting, as well as the ability to warn and provide evacuation advisories to residents.

Damage left by Cyclone Sidr in 2007 (Photo: JICA)

1.2 Post 2000s: Flood Response and Earthquake Resilience Response

(1) Flood Response

Support for major flood control on international rivers began after 2000. Bangladesh is located downstream of three international rivers, the Padma, Jamuna (Brahmaputra), and Meghna, and is therefore at high risk of flooding, with an average of 20% of the country's land area being inundated every year. In addition, land loss due to riverbed and channel changes and riverbank erosion is a serious threat to the livelihoods and social activities of the people. Along the three major rivers, the Bangladesh government and donors have been constructing dikes and

embankments, but these were not well planned without serious consideration of the highly complex morphology of the rivers in Bangladesh. Moreover, due to inadequate construction and maintenance, damage caused by breaches has occurred repeatedly.

JICA dispatched a river management advisor to the Bangladesh Water Development Board (BWDB). In addition, "The Project for Capacity Development of Management for Sustainable Water Related Infrastructure" (2013-2016) was implemented to strengthen the capacity on the design, construction, and maintenance of river structures such as embankments.

Currently under the ODA Loan "Haor Flood Management and Livelihood Improvement Project" (2014-2023), JICA

Embankment breached due to cyclone damage (Photo: JICA)

is supporting the rehabilitation and construction of flood control facilities and rural infrastructure, and agricultural and fishery activities in the low-humidity areas called the Haor region that are submerged during the rainy season in the upper basin of the Meghna River. About 240 km of embankments along rivers have been developed through this project.

(2) Seismic Risks Reduction

Bangladesh is also vulnerable to earthquakes. Although Dhaka and other cities in Bangladesh are undergoing rapid urbanization, urban planning and building design ensuring earthquake resistance have not been carried out. As the case of the collapse of the Rana Plaza building under its own weight in April 2013 shows, the vulnerability of many existing buildings makes the risk of and damage from seismic disasters even greater, and countermeasures are urgently needed. Therefore, JICA has been promoting technical capacity building of public engineers through technical cooperation "Project for Capacity Development on Natural Disaster-Resistant Techniques of Construction and Retrofitting for Public Buildings" since 2011, and now

Dhaka City: Many buildings do not meet earthquake resistance standards. (Photo: JICA)

about 1,000 government and private-sector engineers are able to conduct seismic assessment, seismic retrofit design, seismic construction, supervision, and maintenance of buildings. JICA and the Public Work Department (PWD) focuses not only on the seismic retrofitting of critical public buildings, but also on improving the safety of economically important private buildings, such as garment factories.

1.3 Support in Recent Years: Capacity Building by ODA Loans

In recent years, aiming to develop cross-ministerial disaster prevention plans and guidelines and to enhance horizontal coordination mechanisms among disaster prevention-related ministries and agencies, JICA dispatched Sector Coordination Advisor to the Ministry of Disaster Management and Relief (MoDMR). In addition, an ODA loan "Disaster Risk Management Enhancement Project"(2016) is being provided to strengthen the government's capacity

Receiving technical guidance from a Japanese expert (Photo: JICA)

for comprehensive disaster risk management, specifically (a) rehabilitating and reconstructing infrastructure damaged by past natural disasters, (b) providing the necessary information transmission equipment and relief supplies immediately after a disaster, and (c) establishing a mechanism for rapid rehabilitation and reconstruction in the event of a disaster

2. Achievements

(1) Cyclone Response

1) A total of 117 multipurpose cyclone shelters have been constructed along the coast of the Bay of Bengal, and the early built shelters are still in good condition, although they are about 30 years old. During ordinary times, the shelters are used as elementary schools or public meeting facilities.

2) Five meteorological radars cover the entire country of Bangladesh to monitor storms from the northwest and cyclones from the Bay of Bengal and, since all five radars were supported by Japan, they can be operated interchangeably through unified communication standards.

3) By providing support to the BMD counterpart organization, such as strengthening the meteorological observation capability of its officers and installing meteorological observation instruments, the BMD can obtain more accurate meteorological information and post it on its website, thereby contributing to the early forecasting and issuing of warnings in the event of disastrous weather. The project has also contributed greatly to improving the public's confidence in BMD.

(2) Flood Response

1) Construction of 240 km of river embankments has been implemented to reduce flash floods and other flood risks.

2) Manuals and guidelines have been prepared for sustainable infrastructure design, construction, and supervision.

(3) Earthquake Resilience Response

1) The first design manual, construction supervision manual, and guidelines for public building considering seismic evaluation, retrofitting and earthquake-proofing were prepared.

2) The first seismic retrofitting of public buildings was conducted.

3. Representative Projects

3.1 Combination of Radars and Shelters

(1) Cyclone and Floods

Bangladesh is one of the most disaster-prone countries in the world. During the monsoon season from June to September, heavy rains fall every year, causing flood inundation mainly on the three major rivers. During the pre-monsoon season of April and May and the post-monsoon season of October and November, the country is subject to flash floods caused by heavy rains, as well as tropical cyclones originating in the Bay of Bengal, Norwester storms, and tornadoes. The socio-economic structure of Bangladesh, with its large number of poor people and heavy dependence on agriculture, is extremely vulnerable to disasters caused by these natural phenomena.

In response to this situation, the Japanese government and JICA have implemented the development of weather observation radar and the construction of multipurpose cyclone shelters through grant aid.

(2) Establishment of Meteorological Radars

As such, weather phenomena are a matter of life and death, and the role of the Bangladesh Meteorological Department (BMD), the country's sole provider of weather information, is extremely important. In order for the BMD to contribute more to mitigate the damage caused by natural disasters, JICA supported the installation of meteorological radars and other disaster prevention infrastructure and facilities. By implementing technical cooperation such as "Development of Human Capacity on Operation of Weather Analysis and Forecasting" (2009) , the meteorological radar observation network of five meteorological radar systems provided by Japan (some radars have been refurbished and replaced due to age) have been strengthened and have contributed greatly to mitigating the damage caused by meteorological disasters

List of Meteorological Radars Installed by Japanese ODA

#	Site	Completion Year (Restored year)	Roles
1	Rangpur	1999	Monitoring of storms (Norwesters) moving in from the northwest
2	Moulvibazar	2000	Monitoring of rainfall as a cause of flash floods and flooding in Indian boarder.

3	Dhaka	1988(2007)	Observed 80% of the land area
4	Khepupara	1988(2009)	Monitoring cyclones approaching from the Bay of Bengal
5	Cox's Bazar	2009	Monitoring cyclones approaching from the Bay of Bengal

(Source: Survey team based on JICA)

In Cox's Bazar District, the installation of a meteorological radar has contributed to the improvement of cyclone information and warnings, and to the quality of meteorological forecasting by utilizing the latest and most-detailed data. In Maulvibazar District, the radar has made it possible to observe rainfall in the mountainous areas of India and all over Bangladesh, which was not possible before the installation of the radar.

(3) Construction of Cyclone Shelters

Floods and cyclones are the most damaging natural disasters in the country. In the past, cyclones have caused storms and tsunamis that have taken a high toll on lives, livestock, and property, especially in highly hazardous areas such as coastal areas. In 1970, 300,000 people lost their lives, and 140,000 died in 1991. In July 1993, a master plan for multipurpose cyclone shelters, the "Multi-Purpose Cyclone Shelter Programme", was developed in cooperation with UNDP and the World Bank. Japan has built 117 cyclone shelters since 1993, and they are still functioning

Khepupara weather radar (Photo: JICA)

Providing hands-on operation training on the weather radar (Photo: JICA)

in good condition after more than 30 years. The UNDP's Comprehensive Disaster Management Programme Phase II (CDMPII) study identified Japanese cyclone shelters as the most robust.

The shelters were also used as elementary school during ordinary times, contributing to reducing the shortage of classrooms in elementary school and improving the learning environment.

Cyclone shelter, which functions as school during normal times (Photo: JICA)

List of Cyclone Shelters Built by Japanese ODA

#	Project Name	Year of Compilation	Number of Shelters
1	The Project for Construction of Multipurpose Cyclone Shelters (Phase 1)	1993	10

2	The Project for Construction of Multipurpose Cyclone Shelters (Phase 2)	1994	15
3	The Project for Construction of Multipurpose Cyclone Shelters (Phase 3)	1995	15
4	The Project for Construction of Multipurpose Cyclone Shelters (Phase 4)	1999	21
5	The Project for Construction of Multipurpose Cyclone Shelters(Phase 5)	2006	20
6	The Programme for Construction of Multipurpose Cyclone Shelters in the Area Affected by the Cyclone Sidr	2010	36

(Source: Survey team based on JICA)

For example, the shelters developed by "The Project for Construction of Multipurpose Cyclone Shelters (Phase V)" (2004) could accommodate 38,655 people when Cyclone Sidr hit in 2007, compared to the planned evacuation population of 37,156 for the entire target area.

Overview of the cyclone shelter (Photo: JICA)

3.2 Building Safety

(1) Vulnerability of Buildings

Bangladesh is a country with a high frequency of cyclones and floods as well as a high risk of earthquake damage. It is located in the Himalayan region, one of the most earthquake-prone regions in the world. Major earthquakes such as the Great Indian Earthquake of 1897 are said to occur every 100 years in the region. However, more than 3,000 public buildings were built according to pre-1993 building code standards among the approximately 5,000 public buildings that should be resilient to earthquakes, making them vulnerable when a serious earthquake hits.

(2) Reinforcing Public Buildings by Improving Repair Capacity

In view of this, the "Project for Capacity Development on Natural Disaster-Resistant Techniques of Construction and Retrofitting for Public Buildings" (2010-2015) was implemented to strengthen the capacity of the staff of PWD, in regard to design and rehabilitation methods, reinforcement of buildings, and quality assurance of buildings to withstand natural disasters. Through the project, test construction of seismic retrofitting and structural tests were conducted in public buildings. The total number of human resources trained during the project period was 1,000, including those inside and outside PWD (650 Class 1 and 350 Class 2 engineers). In addition, six manuals, including one on seismic diagnosis, were prepared in cooperation with PWD for the training. Currently, "Building Safety Promotion Project for Disaster Risk Reduction (BSPP)" is being implemented as the second phase.

(3) Strengthening the Earthquake Resistance of Private Construction through ODA Loans

Although human resources for reinforcing and renovating public buildings have been trained through the above-mentioned project, there are still many private buildings in the cities that do not meet the building standards. The Dhaka Metropolitan Area and Chittagong (now Chattogram) district are the two largest cities in Bangladesh, with 15% of the total population concentrated there. In 2013,

Training on seismic strengthening of buildings (Photo: JICA)

a tenant building housing a sewing factory collapsed, causing 1,135 casualties, as illegal construction has also become a problem. “Urban Building Safety Project”, an ODA loan project launched in 2015, aims to strengthen building safety in urban areas of Bangladesh by providing two-step loans to promote earthquake-proofing of private and public buildings through two-step loans from the Ministry of Finance to participating financial institutions. By strengthening the building safety of urban areas, the project is making a significant contribution to overcoming the social vulnerability of these areas by reducing disaster damage.

Building reinforced for earthquakes: Yellow steel bars are braces for anti-seismic reinforcement.(Photo: JICA)

(Photo: JICA)

(Photo: Md. Iqbal Hossain)

4. Project List

#	Scheme	Sector	Project Name	Year
1	Grant Aid	Disaster Prevention/Climate Change	Project for Strengthening of Fire Fighting Facilities	1984.04
2	Technical Cooperation	Disaster Prevention/Climate Change Urban Development	Water Drainage System Improvement Project in Dhaka	1986.11
3	Grant Aid	Disaster Prevention/Climate Change	Replacement of Weather Surveillance Radars	1987.02
4	Grant Aid	Disaster Prevention/Climate Change	Improvement of the Fire Fighting and Rescue Equipment	1987.04
5	ODA Loan	Disaster Prevention/Climate Change	Emergency Commodity Loan	1989.03
6	Technical Cooperation	Disaster Prevention/Climate Change Urban Development	Greater Dhaka Protection Project (Study in Dhaka Metropolitan Area of Bangladesh Flood Action Plan)	1990.01
7	Grant Aid	Disaster Prevention/Climate Change Urban Development	The project for the Improvement of the Storm Water Drainage System in Dhaka City	1990.09
8	Technical Cooperation	Disaster Prevention/Climate Change	Northwest Regional Study (Bangladesh Flood Action Plan No.2)	1991.01
9	Grant Aid	Disaster Prevention/Climate Change Urban Development	The project for the Improvement of the Storm Water Drainage System in Dhaka City	1991.08
10	ODA Loan	Disaster Prevention/Climate Change	Commodity Loan For The Cyclone Disaster Relief	1992.01
11	Grant Aid	Disaster Prevention/Climate Change	THE PROJECT FOR PROCUREMENT OF G. I. SHEET FOR POST CYCLONE REHABILITATION	1992.04
12	Grant Aid	Disaster Prevention/Climate Change Urban Development	The project for the Improvement of the Storm Water Drainage System in Dhaka City	1992.05
13	Grant Aid	Disaster Prevention/Climate Change	Project for the Establishment of Microwave Link for Meteorology	1992.11
14	Grant Aid	Disaster Prevention/Climate Change	Project for the Construction of Revetment on the Bank of Meghna River	1992.12
15	Grant Aid	Disaster Prevention/Climate Change	Project for the Construction of Multipurpose Cyclone Shelters	1993.08
16	Grant Aid	Disaster Prevention/Climate Change	The Project for the Construction of Multipurpose Cyclone Shelters (Phase 2)	1994.09
17	Technical Cooperation	Disaster Prevention/Climate Change	Data Acquisition / Coordinator	1995.11
18	Grant Aid	Disaster Prevention/Climate Change	The Project for the Construction of Multipurpose Cyclone Shelters III	1996.01
19	Grant Aid	Disaster Prevention/Climate Change	The Project for Improvement of Weather Warning Services Related to Natural Disasters	1997.08
20	Grant Aid	Disaster Prevention/Climate Change	The Project for Supply of Equipment and Materials for Flood Disaster Relief	1999.06
21	Grant Aid	Disaster Prevention/Climate Change	The Project for the Construction of Multipurpose Cyclone Shelters (Phase 4)	1999.08
22	Technical Cooperation	Disaster Prevention/Climate Change	The Feasibility Study for Upgradation and Expansion of Data Communication / Transmission Network of Flood Forecasting and Warning Service	2002.11
23	Grant Aid	Disaster Prevention/Climate Change	The Project for Construction of Multipurpose Cyclone Shelters (Phase V)	2003.11
24	Grant Aid	Disaster Prevention/Climate Change	The Project for Construction of Multipurpose Cyclone Shelters (Phase V)	2004.06

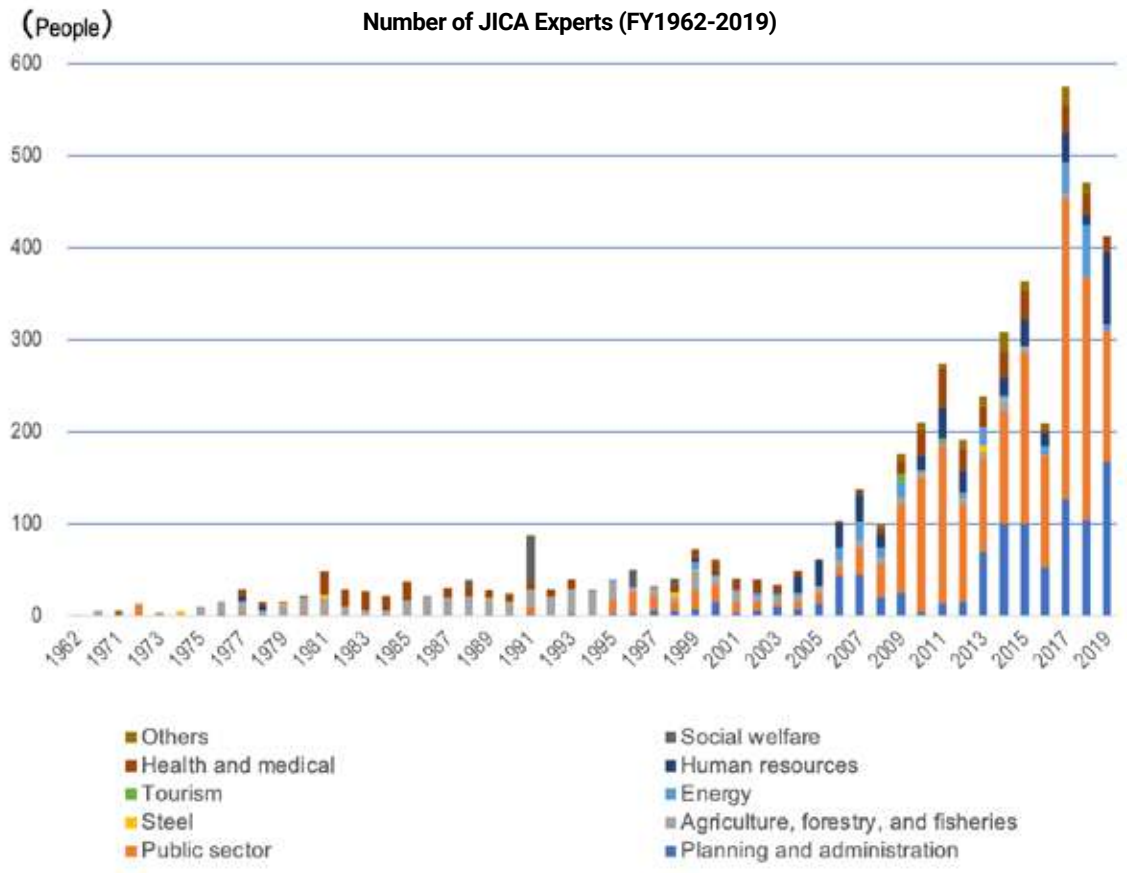
#	Scheme	Sector	Project Name	Year
25	Grant Aid	Disaster Prevention/Climate Change	The Project for the Improvement of the Meteorological Radar System at Cox's Bazar and Khepupara	2005.07
26	Grant Aid	Disaster Prevention/Climate Change	The Project for the Improvement of the Meteorological Radar System at Cox's Bazar and Khepupara	2006.06
27	Grant Aid	Disaster Prevention/Climate Change Urban Development	The Project for the Improvement of the Storm Water Drainage System in Dhaka City (Phase II)	2007.02
28	Grant Aid	Disaster Prevention/Climate Change	The Project for the Establishment of the Meteorological Radar System at Moulvibazar	2007.06 (E/N)
29	Grant Aid	Disaster Prevention/Climate Change Urban Development	The Project for the Improvement of the Storm Water Drainage System in Dhaka City (Phase II)	2007.06 (E/N)
30	ODA Loan	Disaster Prevention/Climate Change	Emergency Disaster Damage Rehabilitation Project	2008.02
31	Grant Aid	Disaster Prevention/Climate Change	The Programme for Construction of Multipurpose Cyclone Shelters in the Area Affected by the Cyclone Sidr	2008.06 (E/N)
32	Technical Cooperation	Disaster Prevention/Climate Change	Development of Human Capacity on Operation of Weather Analysis and Forecasting	2009.09
33	Technical Cooperation	Disaster Prevention/Climate Change	Advisor on River Management	2010.09
34	Technical Cooperation	Disaster Prevention/Climate Change	Project for Capacity Development on Natural Disaster-Resistant Techniques of Construction and Retrofitting for Public Buildings	2011.03
35	Technical Cooperation	Disaster Prevention/Climate Change	Research Project on Disaster Prevention/Mitigation Measures against Floods and Storm Surges	2014.06
36	ODA Loan	Disaster Prevention/Climate Change	Haor Flood Management and Livelihood Improvement Project	2014.06
37	Technical Cooperation	Disaster Prevention/Climate Change	Integrated Water Resource Management	2014.09
38	Grant Aid	Disaster Prevention/Climate Change	Project for Improvement of Meteorological Radar System in Dhaka and Rangpur (Detailed Design)	2015.03
39	Technical Cooperation	Disaster Prevention/Climate Change	Disaster Management Sector Coordination	2015.06
40	Grant Aid	Disaster Prevention/Climate Change	The Project for Improvement of Meteorological Radar System in Dhaka and Rangpur	2015.06
41	ODA Loan	Disaster Prevention/Climate Change	Urban Building Safety Project	2015.12
42	Technical Cooperation	Disaster Prevention/Climate Change	Building Safety Promotion Project For Disaster Risk Reduction (BSPP)	2016.02
43	ODA Loan	Disaster Prevention/Climate Change	Disaster Risk Management Enhancement Project	2016.06
44	Technical Cooperation	Disaster Prevention/Climate Change	The Project for Technical development to upgrade structural integrity of buildings in densely populated urban areas and its strategic implementation towards resilient cities	2016.08
45	Technical Cooperation	Disaster Prevention/Climate Change	Disaster Management Sector Coordination and Project Implementation	2018.06
46	Grant Aid	Disaster Prevention/Climate Change	the Project for Improvement of Rescue Capacities in the Coastal and Inland Waters	2018.08
47	Technical Cooperation	Disaster Prevention/Climate Change	Integrated Water Resource Management Advisor	2019.06
48	Technical Cooperation	Disaster Prevention/Climate Change	Disaster Risk Reduction Sector Coordination Advisor	2019.08
49	Technical Cooperation	Disaster Prevention/Climate Change	Project for Planning Capacity Enhancement and Establishment of a Technology Adaptation Cycle on Comprehensive Nodi (River) Management	2020.09
50	Technical Cooperation	Disaster Prevention/Climate Change	The Project for Capacity Enhancement on Formulation and Implementation of Local Disaster Risk Reduction Plan	2020.12

Chapter 4
Connecting and Expanding our Bonds

4.1 JICA Experts

JICA dispatches Japanese experts to developing countries as technical cooperation to transfer necessary technology and knowledge to public officials and engineers in the partner country, as well as to collaborate in the development, awareness-raising, and dissemination of locally adapted technology and systems.

The total number of experts dispatched (as of fiscal 2019) has reached 4,921. The largest percentage of the experts dispatched to Bangladesh (2,045, 41.6%) are in the public sector, followed by those in planning and administration (974, 19.8%), health and medical care (530, 10.8%), agriculture, forestry, and fisheries (496, 10.1%), and human resources (392, 8.0%). In terms of the fiscal year, the annual number of experts exceeded 100 in the mid-2000s, and in recent years the number has been around 400-500.



(Source: Survey team based on JICA)

4.1.1 JICA Expert Mr. Bokuro Urabe

Supporting the unsung heroine and hero with steady and tenacious cooperation!

(1) Importance of Maps

A map is a form of fundamental information that is indispensable for various policies such as infrastructure development, city planning, disaster prevention, and the promotion of various industries. Although it does not stand out in people's lives, it is an "unsung heroine/hero" that is indispensable for the development of the country.

Although Bangladesh has a historic division for surveying (Survey of Bangladesh (SoB)) that originated in the British colonial era, it has not been possible to make an accurate national map due to financial difficulties, etc. In response, JICA has been supporting SoB's ability to create maps through development studies, successive dispatch of experts, technical cooperation projects, and grant aids since 1992.

(2) Various Hardships

Experts dispatched from Japan have faced various difficulties and hardships but have overcome them with ingenuity. For example,

a) Many roads in low and flat Bangladesh are submerged and cannot be passed through in the rainy season. There was an idea to make two types of maps, one for the rainy season and the other for the dry season. Finally, it was decided to develop new geographical signs to indicate roads that aren't submerged and can be passed through even in the rainy season.

b) In Japan, painted wooden signs are placed on the ground to indicate geographical positions for aerial photographs. However, in Bangladesh, white bags filled with sand had to be placed on the ground because wooden signs might be taken away and used as firewood by local people. In addition, part-time guards were assigned to prevent the bags from being moved. Still, this couldn't completely prevent cows from trampling the signs.

Expert Bokuro Urabe, who has been involved in this cooperation since 2009 and is currently the chief advisor of the technical cooperation project "Project for Establishment of National Spatial Data Infrastructure (NSDI) for Bangladesh" dispatched from the Geospatial Information Authority of Japan, grinned as he said, "When I explained the usefulness of digital maps, I was told that it wasn't a map if it wasn't printed on paper."

(3) Changing Mindset of Staff

The most important challenge was to change the mindset of the SoB staff. Since the British colonial era, the maps of SoB have been used solely by the military, and it was unthinkable to use the maps for national development. Nevertheless, the experts cultivated trust with SoB staff and advanced steadily by patiently and persistently advocating the significance. One of the Experts' counterparts, SoB's Director Howlader, said, "We didn't know anything. The Japanese Experts were kind and friendly enough to teach us one by one. I'm just grateful."

Expert Bokuro Urabe says, "Bangladeshis are willing to repeat detailed tasks and do steady work with patience. If they understand the purpose, they will do their best to do what they can."

SoB's ability to create and maintain digital maps has improved. However, it is meaningless unless this is effectively utilized for national development. Expert Bokuro Urabe is continuing to work on strengthening SoB's service functions so that maps can be fully utilized by other ministries and private companies.

Expert Urabe and his counterpart Hawrada in front of Geodetic Control Point Pillar (Photo: Survey team)

Expert Urabe giving technical guidance of accurate position measurement (Photo: Bokuro Urabe)

Expert Urabe giving guidance of survey work. (Photo: Bokuro Urabe)

In front of a sign (a white bag filled with sand) to measure the position on aerial photographs (Photo: Bokuro Urabe)

4.1.2 JICA Expert Mr. Akihiro Shoji

Developing IT Human Resources in Bangladesh by JOCV Computer Technology Volunteers

(1) IT Human Resource Development Activities Started by Japan Overseas Cooperation Volunteers

Mr. Akihiro Shoji has been one of the key players in supporting and advancing the development of IT human resources in Bangladesh.

Mr. Shoji was sent to Bangladesh in March 2008 as a member of the JOCV computer technology volunteers. He was posted to a regional center of the Bangladesh Computer Council (BCC) to teach computer skills to college students and other young people in the region. After working for some time, Mr. Shoji understood the potential of Bangladeshi IT professionals, but felt that there was a lack of immediate IT competencies.

At the time, there were Western private qualifications in Bangladesh to certify IT competence, but the high cost of the examinations meant that few people were able to take them, and many IT professionals were unable to measure or prove their IT competence. Mr. Shoji, in collaboration with other IT volunteers who were in Bangladesh started working to introduce the Information Technology Engineers Examination (ITEE), a national qualification in Japan, to Bangladesh in order to serve as a target for young people who want to become IT engineers and to verify that they are skilled IT professionals who can work both in Bangladesh and internationally.

At the joint seminar for IT human resources development in March 2009 (Photo: Akihiro Shoji)

ITEE Seminar and Mini Mock Exam at Dhaka University, November 2009 (Photo: Akihiro Shoji)

(2) Toward the Introduction of a National ITEE Examination

Mr. Shoji and other IT volunteers conducted an IT human resource development seminar in March 2009 to discuss the issue of IT human resource development in Bangladesh with Bangladeshi universities and private companies, which led to the introduction of the ITEE qualification examination. Mr. Shoji's stay in Bangladesh as a JOCV member ended in March 2010, and he returned to Japan, leaving the other IT volunteers who had worked with him in charge. The IT volunteers who followed in his steps organized a successful mock examination called the ITEE Contest in October 2010. This success led to the implementation of the "Capacity Building on ITEE Management Project" (December 2012 - December 2015), JICA technical cooperation project to introduce the ITEE examinations, and Mr. Shoji was returned to the BCC as an expert in this project. During the project period, Mr. Shoji worked with other project experts and the BCC to conduct two ITEE trial examinations. They also supported Bangladesh to become the formal member of the IT Professional Examination Council (ITPEC) and it was approved in September 2014. The official accession

Examination at the ITEE competition in October 2010 (Photo: Akihiro Shoji)

Mr. Shoji (far right) at the ITPEC Annual Delegates Meeting in August 2019 (Photo: Akihiro Shoji)

of Bangladesh to the ITPEC enables the common Asian standardized examinations to be conducted in Bangladesh, and the examinations conducted in Bangladesh and in Japan to be mutually recognized.

(3) for Future IT Human Resource Development in Bangladesh

The achievements of the ITEE project have been passed on to a subsequent technical cooperation project, "the Project for Skills Development of ICT Engineers Targeting Japanese market" (August 2017 - January 2022), which continues to try to use the ITEE to develop practical human resources.

Mr. Shoji has devoted the last 14 years to this effort since he started his career as a JOCV member in 2008, and this is how he describes his desire to develop IT human resources in Bangladesh.

"Bangladesh has a population of over 160 million and is growing rapidly, with an increasing number of young people and seemingly vibrant urban areas. However, although the number of young people has increased, universities and the labor market have not grown dramatically enough to absorb the huge increase in the number of young people. Fewer than 20% of young people go to university and the entrance examinations are still very tough. The job market is as fierce as the entrance exams, with many university graduates failing to get the job they wanted. If you look at the individual young people, you can see a talent that is second to none in other middle-income or developed countries. That's why ITEE has set a standard that needs to be surpassed. Then they can learn some of the missing skills through B-JET and grow to be a professional engineer whom the Japanese market has been able to fully appreciate. I believe that investing in today's youth is an investment in the future."

Lecture at ITEE seminar at North South University, January 2020 (Photo: Akihiro Shoji)

"I hope that those who continue to study hard will be valued and have equal opportunities for employment. I also have a hope that by cultivating an environment where Bangladeshi youths want to go to Japan and work with Japan, Japan may eventually be helped by Bangladesh's highly qualified human resources."

Exchange of Poems between the JOCV Members and the then-Minister of Science, Information and Communication Technology of Bangladesh, Mr. Osman

At 11:00 am on 7 October 2009, I, a JOCV member at that time, and my colleague, Ms. Takae Konuma together with Mr. Toda, the Chief Representative of JICA Bangladesh Office, were in the Minister's Office of the Ministry of Science, Information and Communication Technology of Bangladesh, facing Mr. Yafes Osman, the Minister of Science, Information and Communication Technology of Bangladesh, and the Secretary General of the Ministry. We wanted to convey directly to the Ministry's top officials the advocacy that the IT JOCV members were doing to

Meeting with Minister Osman and exchange of poems (1) (Photo: Akihiro Shoji)

Meeting with Minister Osman and exchange of poems (2). (Photo: Akihiro Shoji)

Mr. Shoji and his colleague, Ms. Konuma, who wrote a poem (Photo: JICA)

develop a benchmark for human resource development in Bangladesh.

After a passionate speech by Mr. Toda, I explained the current activities of the project. Then, Ms. Konuma said, "And one last thing, if I may," and she started reading a poem in Bengali. Bengali poetry (kobita), which is different from other countries' poetry in a way, contains a very traditional Bengali cultural element and has been much loved by the intellectual people in the country since ancient times. However, this did not mean that she simply wished to read poetry; in fact, we knew from a local intellectual that the Minister was fond of poetry. We planned to meet the Minister one day, and to convey our feelings through poetry.

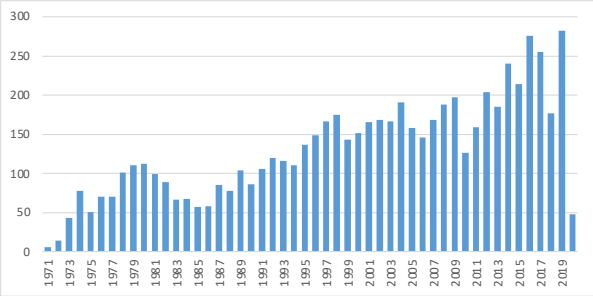
Ms. Konuma's poem was about building a bridge between Bangladesh and Japan. Minister Osman was surprised to hear a Japanese person reading a poem in Bengali, but as he listened, his face gradually became serious. After Ms. Konuma had finished reading her poem, there was silence, and everyone was waiting to see the Minister's reaction. As Ms. Konuma and I looked at each other and began to wonder if we had composed the poem badly, Minister Osman said: "I never expected to receive a kobita from you. It is wonderful. I would like to respond to your wish with my kobita," and he improvised a poem about expanding the bridge between Bangladesh and Japan so that many people can cross over. The Minister's office was filled with cheers and excitement. Of course, the Minister was not only in a good mood but also immediately instructed the formation of a working group to look into the suggestions made by IT JOCV members.

ITEE was now officially being considered as a benchmark for IT human resource development in Bangladesh.

4.2 Knowledge Co-Creation Program (KCCP) and Scholarship

JICA provides training in Japan and other countries (known as KCCP) as part of its technical cooperation program for human resources who will play a central role in developing countries. Japan has achieved its own development by selecting and applying foreign knowledge and technology, based on the existing culture. The training in Japan is a form of technical cooperation in which people from developing countries can learn the unique experiences of Japan by exposing themselves to Japanese society and organizations.

Number of Training Personnel Dispatched by Year



(Source: JICA)

In addition to KCCP, the Project for Human Resource Development Scholarship/Japanese Grant Aid for Human Resource Development Scholarship (JDS), a grant aid program to improve administrative capacity by providing the scholarship to executive candidates mainly from central government ministries and agencies is also being implemented in Bangladesh. The scholarship program started in 2006, and a total of 426 people have studied in Bangladesh as of 2021.

4.2 1 Interviews with Former JDS Scholars

(1) Objective of JDS

The purpose of the JDS is to "accept outstanding young government officials and others who are expected to become future leaders in the target countries as international students at Japanese graduate schools and, upon their return to their home countries, to play active roles in the planning and implementation of social and economic development plans as human resources with the expertise gained during their studies." Most of the Bangladeshi students studying in Japan as JDS students are also young government officials, and after returning to Bangladesh, many of them are not only working in key government positions but also applying what they have learned in Japan to their work and daily lives in Bangladesh. Ms. Neelima Akhter, Mr. Harun Iqbal Abdullah, and Mr. Arif Mohammed Hasan were invited to introduce the impact of the JDS program.

(2) Life in Japan

JDS international students will be living and studying at universities throughout Japan. Many of them are actively learning Japanese and can communicate fluently in Japanese. They learn the basics of the language through Japanese language training provided by the Japan International Cooperation Center (JICE), and gradually acquire the language through interaction with local residents, dormitory and apartment managers, and university faculties and students. Some of them even spare time to actively create opportunities to interact with Japanese people and acquire extremely high communication skills in two years. For example, Mr. Arif Mohammed Hasan spent most of his time interacting with Japanese people on weekdays and even on holidays. At one point, he was invited by local residents to participate in social activities, introducing Bangladesh to elementary school classes and traveling around Japan, literally learning the Japanese language and culture. Similarly, Mr. Iqbal enjoyed his life in Japan, interacting with many Japanese people so that he was known to many of people not only at the university but also in the neighborhood. Ms. Neelima, who studied at Waseda University in Tokyo, initially had few opportunities to interact with Japanese people due to the urban environment, but she overcame the language and cultural barriers by interacting with her landlady where she was staying by chatting over tea, watching Bangla movies and so on. Since their return to Bangladesh, the students have been actively practicing the behaviors they acquired in Japan in their daily life, such as keeping their home, office, and public spaces clean and being punctual, and passing these practices on to their colleagues.

Having a casual talk with the Supervisor (Photo: Neelima Akhter)

In terms of academics, the JDS program not only provides the students with PCs and other equipment necessary for their studies, but also teaches how to use them. The higher the position of a Bangladeshi civil servant, the fewer opportunities there are to operate a PC by themselves, so some students have difficulty in producing documents on a PC in the beginning. In the study room, they learned not only with Japanese students, but also with students from other countries with diverse backgrounds, which gave them opportunities to learn that they could not get in their own country.

In the graduate school classes, in addition to receiving guidance from their supervisors in lectures and doing exercises, they learned through hands-on research unique to Japan, which has become a great source of inspiration for them later in their career. For example, Ms. Neelima said that she was impressed by the lectures on infrastructure development, land expropriation procedures and site visits, which she learned about using Narita Airport as a case study, and the overall structure of the precision machinery manufacturing industry, which she learned through a visit to the factory of a Sony subcontractor. In the students' research, they are tackling specific questions that are directly related to their work in their home countries, with guidance from instructors of different specialties. For example, since Mr. Iqbal worked on debt management, he analyzed the similarities and differences in debt management concepts and methods among Japan, a high-income country, Malaysia, a middle-income country, and Bangladesh, a low-income country, as case studies, and clarified how debt management should be tailored to each country's circumstances. Mr. Arif said that he majored in science and engineering as an undergraduate but did not enjoy it that much, so he joined the economics department in Japan and conducted comparative research on administrative reform in Japan and Bangladesh. He learned the fun of economics in Japan and was able to engage in research with passion.

Group photo with Japanese Professors and Colleagues at JICE (Photo: Arif Mohammed Hassan)

(3) Contribution to Bangladesh Development

Most of the JDS graduates have returned to their home countries and are now working in important government positions. For example, Ms. Neelima is currently working as an Additional Secretary (Urban Transport) in the Ministry of Road Transport and Bridges where she is involved with metro-rail projects financed by JICA. While working under the Prime Minister's Office she had been involved in the launch of the BIG-B (The Bay of Bengal Industrial Growth Belt) initiative and the Matarbari development supported by the Japanese government as part of the initiative. Mr. Arif has worked as a commercial attaché at the Embassy of Bangladesh in Japan and is currently working as a Japan Focal Point at the Bangladesh Economic Zone Authority (BEZA), where he continues to play an important role in coordinating with JICA, JETRO, and the Japanese private sector. Mr. Iqbal, who is working as Additional Secretary at the Ministry of Environment, Forest and Climate Change, has been active in the international arena, having worked in debt management before joining the Bangladesh Mission to the United Nations in New York.

Mr. Iqbal rejoicing at his graduation (Photo: Harun Iqbal Abdullah)

(4) Activities of the Alumni Association

JDS alumni are not only contributing to the development of Bangladesh by holding important positions in the Bangladesh government but are also contributing to the friendships between Japan and Bangladesh in both the public and private sectors. In fact, many JDS alumni belong to the alumni association, which is organized by JDS alumni, and they are very active in sharing their experiences in Japan, holding farewell parties for newly dispatched JDS, preparing leaflets, and holding a photo contest titled "Sugoi (Amazing) Japan." In the future, they are also considering academic seminars and publication of best practices. The three interviewees are also actively involved in alumni activities, and Mr. Iqbal has served two terms as the president of the alumni association.

Banner of photo contest "Sugoi Japan"

(Source: Harun Iqbal Abdullah)

Life in Japan (Photo: Neelima Akhter)

Ms. Neelima Akhter (Photo: Neelima Akhter)

Ms. Neelima
Message to the future JDS students
JDS Scholarship is one of the top opportunities to explore Japan. Not only the academic knowledge, but also the life in Japan will change your traditional mind set. JDS life will help you to make your life IT-friendly, calm and clean for the future. Please utilize your knowledge gained in Japan for your country.

Message to Japan
Dear Japan,
You are the long-trusted friend of Bangladesh; also, Japan is one of the top development partners of our country. You extended your hands for the infrastructure development for our country. This time I would request you to address the unemployment issue and skill development for the educated but unemployed people. Be friends of Bangladesh for all the time.

Mr. Arif Mohammed Hassan (Photo: Survey Team)

Mr. Arif
Message to the future JDS students

It will change your life in good way. It can be a wonderful opportunity for you to learn academic knowledge. Knowledge you gain outside of books is more important. It will change your life forever in a positive way. Hope you will learn of the beautiful country and people, so many things in Japan. You can bring it back to Bangladesh and replicate the good things in Bangladesh.

Message to Japan
For long we had relied on Japanese assistance. With your help, we are standing in 2021, 50 years independence. We can proudly say that we no longer need assistance but friendship, just stand beside us, just walk shoulder to shoulder. Bring and make Bangladesh prosperous and, in the process, the economies of both Bangladesh and Japan. If we get a stronger relationship in the economy, then both economies will benefit.

We do not need any more assistance but want friendship.

Mr. Harun Iqubal Abudullah (Photo: Mr. Harun Iqubal Abudullah)

Mr. Iqbal
Message to JDS fellows currently studying in Japan

Congratulations as you are studying Japan.
Japan excels in many ways including economic and human resource development and technological innovation. Hard-working Japanese people with their perseverance and technological orientation are contributing significantly in making the world a better place for the people who are under-privileged.

Enjoy your stay, and enjoy Japanese culture and the amazing nature to the fullest. Bring back your experience and use it for our development when you return and surely that will contribute to building a better Bangladesh.

4.2.2 Interview with JICA Alumni Association of Bangladesh(JAAB) President

(1) Activity of JAAB

The JICA Alumni Association of Bangladesh was established in November 1979 with the hope to build a link between the ex-participants after returning to their home country. As of November 2021, the Association has a total number of 2097 members. To enhance its various activities, the Association has formed an Executive Committee consisting of 29 members. Dr. Md. Mozammel Haque Khan, Honorable Commissioner, Bangladesh Anti-Corruption Commission is the current President of the Association.

The Association is engaged in various types of activities as follows:

SN	Activity
1	Consultancy work given by JICA Bangladesh office
2	Formation of JICA Alumni Association of SAARC Countries (JAAFSC)
3	Formation of Sunshine Research and Development Centre (SRDC)
4	Formation of JAAB Village Co-operative Society Ltd.
5	Encouraging the meritorious students of JAAB members
6	Free medical camp
7	Publication of yearly magazine "Sunshine" and newsletter containing the yearly activities
8	Arranging seminars/workshops
9	Arrangement of ikebana (Japanese flower arrangement) courses
10	Management of JAAB website (www.jaabd.org)

(Source: Survey team based on JAAB)

(2) Interview with Dr. Md. Mozammel Haque Khan

The following is the interview with Dr. Md. Mozammel Haque Khan, Honorable Commissioner, Bangladesh Anti-Corruption Commission, who is the current president of the Association.

In regard to JAAB activities, please tell us a memorable story.

I have some fond memories of H. E. Izumi, Ambassador of Japan, and Mr. Takatoshi Nishikata, Chief Representative of the JICA Bangladesh office, on 14th May 2018 on the occasion of the installation ceremony of JAAB at the Bangabandhu Convention Centre. We enjoyed the various cultural programs for a long time and shared some of our experiences.

Ikebana Training program on 4 February 2020 organized by JAAB (Photo: JAAB)

Mr. Naoki Matsumura, JICA Expert attended a seminar and medical health camp at Madaripur district and visited my village home. He gave a speech on behalf of JICA at the seminar fluently in the Bengali language and the participants enjoyed it very much. I found Naoki very friendly and a very nice person with a pleasant personality.

Please tell us how you view 50 years of cooperation between Japan and Bangladesh

JICA started a long, gratifying friendly relationship beginning

Dr. Md. Mozammel Haque Khan (far right) (Photo: Survey team)

with its inception in 1973 immediately after Japan formally recognized the newly independent nation in early 1972. JICA is the largest development partner of Bangladesh cooperating in almost every socio-economic sector throughout the country through technical cooperation, ODA loans, human resources development, grant aid, and dispatching Japanese volunteers. The assistance policy of JICA to Bangladesh is to achieve the level of a middle-income country by accelerating sustainable economic growth addressing social vulnerability. I am very happy to mention that the United Nations recently declared the transition of Bangladesh from the LDC countries on the eve of the 50-year celebration of JICA in Bangladesh.

The completion of the megaproject "Bay of Bengal Industrial Growth Belt (BIG-B)," the ongoing Matarbari Ultra Super Critical Coal-fired Power Plant, and the ongoing Dhaka Mass Rapid Transit Development Project (MRT) will transform Bangladesh into a middle-income country very soon.

By celebrating 50 years of friendship, please send a warm message to the Japanese people.

I feel honored and privileged to extend my heartfelt greetings on behalf of JAAB to all the members of JICA and Japanese people on the occasion of the 50th anniversary of JICA in Bangladesh and am happy to know that JICA Bangladesh is going to publish a special magazine on the occasion. Finally, I wish for an everlasting friendly relationship between Japan and Bangladesh and the success of the 50-year celebration of JICA in Bangladesh and for JAAB to be a part of it. JAAB wishes to involve more to utilize the experience and expertise of the members in the future activities of JICA to build a better Bangladesh.

The installation ceremony of JAAB was held on 14th May 2018 at Bangabandhu International Conference Center (Photo: JAAB)

4.3 Japan Overseas Cooperation Volunteers

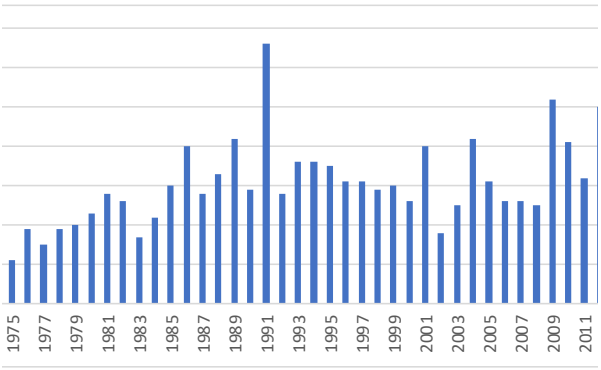
JICA's volunteer programs, mainly the Japan Overseas Cooperation Volunteers (JOCVs), support the activities of citizens who have high aspirations and are willing to voluntarily cooperate for the economic and social development and reconstruction of developing countries. Based on the needs of developing countries, Japanese citizens who have the appropriate skills, knowledge, and experience, and who wish to "make use of their skills for the people of developing countries," are recruited, trained, and dispatched. The dispatched JOCVs stay close with local people in a developing country and contribute to solving problems in that country from the same perspective.

The dispatch of JOCVs to Bangladesh began in 1973, just after the country's independence, and the total number of participants has reached 1,284. Since the beginning, more than 10 members have been dispatched every year and, since the late 1980s, 30 to 50 members have been dispatched each year.

In terms of activity field, agriculture (289 members, 23%) is the most common, followed by vocational training (214, 17%), health (183, 14%), and sports (119, 9%). The "Others" category, which accounts for a quarter of the total, covers a wide range of fields, including broadcasting, construction, inventory management, physical education, Japanese language teaching, environment, cooking, tourism, business management, youth activities, and community development advisors (other than rural development and health), according to the requests of the Bangladesh government.

The dispatch of the former Senior Volunteers began in 2004, and the total number of participants has reached 20. The largest number of volunteers was in the field of human resources (9), followed by commerce and tourism (5), and planning and administration (3).

The Number of JOCV Dispatch by Year



(Source: Survey team based on JICA)

JOCV Classification by Profession

(Source: Survey team based on JICA)

In the next section two representative cases are highlighted: the infection control (cooperation to eradicate polio) and the rural development (empowerment of rural women).

4.3.1 Infection Control

Cooperation to Eradicate Polio

(1) Overview

JICA is cooperating in medical and health care all over the world, with infectious disease control as one of the priority areas, and many JOCV members have been dispatched. They did not simply take measures against infectious diseases in their assigned countries. JOCV made various technical transfers to the government officials and health volunteers of the host countries by working together so that one day they can manage the issues without external support. JOCV supported the improvement of administrative capacity, including the ability to formulate policies, establish systems, and manage the systems.

In Bangladesh, as many as 68 JOCV members were dispatched between 1999 and 2015, especially for polio control in the field of infectious disease control. This disease, which was once called "infantile paralysis," is a disease transmitted via excrement and other routes. If a child is affected, the limbs are paralyzed, and the disorder remains. There is no effective treatment. Therefore, it is important to prevent infection by vaccination. Experts have also been dispatched to Bangladesh from the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF), but the activities of JOCV members who speak the local language and travel to remote areas are important and showed a clear difference from the other experts. Therefore, they raised awareness of vaccination and steadily conducted monitoring activities to ensure that vaccinations were being carried out correctly.

Regarding polio eradication, the Japanese government provided polio vaccines, freezers, refrigerators, and cold boxes, which had a synergistic effect with the activities of the JOCV team. Because of the national vaccination campaign from 1995, no infected persons were reported from 2001 in Bangladesh. And, five years later, the relevant authority discussed termination of polio vaccination. However, poliovirus infections reoccurred. Subsequently, the tasks of the dispatched JOCV members were to prevent the recurrence of polio and, based on field investigations, to monitor whether the once-eradicated polio was properly controlled. The young Japanese volunteers continued their work with great patience. Currently, only two countries in the world have reported polio outbreaks, namely Afghanistan and Pakistan.

Polio seminars for mothers are all delivered in Bengali
(Photo: JICA)

This time, five members who took measures against polio in Bangladesh (Ms. Toshiko Takahashi, 2nd batch 2001; Ms. Rie Ozaki, 3rd batch 2004; Mr. Shingo Takahashi, 3rd batch 2009; Mr. Daisaku Miyake, 2nd batch 2010; and Mr. Takashi Izumida, Senior Volunteer 2003) provided information, which is summarized below.

(2) Steady Efforts to Eradicate Polio

1) Persuasion and Training for Residents about Polio Measures

To help people understand the importance of vaccination, JOCV volunteers requested not only general residents like mothers but also other stakeholders to come to seminars. Stakeholders included local doctors, shamans, midwives, NGO field workers, schoolteachers, PTA (Parent Teacher Association) members, students, cooperative members, Union Council members, influential people in the area, and religious leaders called Imam. In particular, the persuasion of the villagers from Imam had a great effect.

The seminar topics included, for example, an expanded vaccination program (EPI: Expanded Program on Immunization) for six diseases that can be prevented by vaccination (diphtheria, pertussis, tetanus, polio, measles, and tuberculosis), and examination to determine whether the disease is polio or not from the symptoms of patients. The latter is called the AFP (Acute Flaccid Paralysis) test. Through these interactions with the villagers, the JOCV members made various improvements. For example, the

A JOCV member explaining polio to a male group
(Photo: Toshiko Takahashi)

A JOCV member dispensing oral vaccine to children (Photo: JICA)

date of the polio vaccine simultaneous campaign was initially announced in the Gregorian calendar, but it was decided to add the date of the Bengali calendar, which is familiar to the general public. Thanks to these efforts, the vaccination rate has improved, and the polio oral vaccine (OPV3) vaccination rate reached 93% in 2009, up from 62% in 1991.

2) Difficulty of Vaccination for All the Target Children

All children must take the polio vaccine four times, but the births of some children were not registered, which means they "do not officially exist." Furthermore, often parents were busy with their work, and there was a case of a five-year-old child taking its small siblings by the hand to the vaccination venue. The JOCV members gave detailed advice to local field workers, such as keeping accurate records of vaccination for each child and controlling the temperature of vaccines. They shared information on problems they found among the officers of the Health Department. The activities of JOCV members visiting remote areas gradually influenced local officers, and the managers of the health departments of districts and upazilas began to visit the fields.

JOCV get information in the local Bengali language (Photo: Toshiko Takahashi)

The polio volunteers were dispatched in a group, which generated a big advantage. Although they usually work separately, they keep in touch with each other to exchange information and sometimes work together. What left an impression on one member was that the JOCV members dispatched in the group gathered in the field and cooperated with WHO personnel to conduct a field survey on vaccination status. This had an effect that could not be obtained by one person's activities, and it was also a good occasion to learn new field research skills. A member was greatly motivated by this experience and later worked for UNICEF to implement measures against children's illnesses.

3) Steady Activities without Polio Outbreaks

One senior JOCV acted as a coordinator for polio countermeasures from 2003 to 2005. This coincides with the period when there were no polio-infected persons in Bangladesh from 2001 to 2006. The Government of Bangladesh has declared polio vaccine no longer needed and ended the polio vaccine mass administration campaign. The next goal was to focus on measles control. During this time, JOCV members traveled around the villages to train the villagers and support routine immunization.

Many of the general JOCV members were new to Bangladesh and to living abroad, while senior JOCVs had these experiences and were assigned to the site with that experience and knowledge. Since the JOCV members of the polio countermeasures were dispatched in the group, the senior JOCVs were active as group leaders and advisors. Some senior JOCV members are still involved in international cooperation after their term.

At one point, a child suspected of having polio was discovered in Cox's Bazar in the south, and a polio simultaneous administration campaign was quickly carried out. It turned out that the child came from a neighboring country. In an island country like Japan, it is possible to carry out waterfront operations by strengthening quarantine at seaports and airports, but it is difficult to completely control the infection if the country is located on a continent.

4) What JOCV Members Could Do Because They Were Foreigners

What the JOCVs did was to visit and monitor the vaccination stations in the village as supervisors, that is, to provide technical guidance and advice to health workers, and to carry out educational activities for the villagers with teaching materials they had prepared. What did they do with the problems they found in the field? The JOCVs brought discussions to local supervisors, staff of other organizations such as WHO and UNICEF, and sometimes to the level of the ministry for sharing the issues. In Bangladesh, since hierarchical relationships remain strong, it is difficult for lower officers to point out problems to their bosses. Therefore, voices in the field hardly reached the central level. To complement this, JOCV members used their advantage as foreigners to convey the voice of the field to local and central executives as much as possible.

The ideas of young Japanese people were also applied to create teaching materials for educational activities. Seminar activities for children cannot be the same as those of for adults. Some members worked with their counterparts to create animations that were easier for children to understand to improve their knowledge of infectious diseases, vaccinations, and health.

Kind Villagers, Friendly Children

In the village, the JOCV members who visited were often welcomed with pleasure and invited to tea and meals. Foreigners are rare in the villages they visited, so children often talked to them and followed them for fun. Foreigners who speak Bengali were very rare, so the villagers even more listened carefully to what the volunteers tried to tell them. Since the previous volunteers had built up good relations with locals, new volunteers could start their activities with the trust of villagers. Many JOCV members were dispatched to take measures against polio for years. By taking over the activities of their predecessors, a multi-layered effect was demonstrated. This could not be achieved by one volunteer.

Mothers and children group welcoming a JOCV member (Photo: JICA)

The task of the JOCV members is to transfer technology for polio measures and help children. Of course, at first, they went to the site with the sense of "I will teach them well" and "I will help them well," but many ex-volunteers gave thanks for "being taught" and "being helped."

Living Environment of the Volunteers

A volunteer was assigned to a rural area. He often suffered from power blackouts and from diarrhea. Although he was careful about food and drink, parasites such as Giardia invaded his body. However, a local colleague lived near his apartment and took care of him for dinner and so on. This environment greatly improved his local language skill because he was immersed so deeply in local life. Still, he remembers fondly that even though he became very confident with his Bengali skill, he sometimes could not understand what local people said in their strong rural accent.

Many volunteers also struggled with transportation when trying to get around to the village vaccination stations. Public transportation was not well developed as in Japan, and they could not always use a car. They had to go to places where rickshaws or auto rickshaws (three-wheel taxis) were used, and then walk. The roads in the unpaved village were muddy during the rainy season, and the feet of the JOCV members became very muddy. Villagers appreciated the efforts of the volunteers to visit their community amid such difficulty.

4.3.2 Rural Development

Empowerment of Rural Women

(1) Background

In 1973, when the Japan Overseas Cooperation Volunteers (JOCVs) were dispatched to Bangladesh for the first time, the technical fields of the initial members were rice cultivation, horticultural, and agricultural machinery. After that, even though dispatching to the agricultural field continued, gradually the support field turned from agriculture to rural communities. In 1981 for the first time, female JOCVs were dispatched to rural women's unions, and activities from a female perspective began. These includes kitchen gardens and nutrition improvement. Household budgets are controlled by men and because of lack of economic power, the position of females in the home and in the community was low. Consequently, it has been difficult for rural women to take the initiative in improving their lives.

How can rural women secure their income? In rural Bangladesh, there is a traditional quilting embroidery called "Nakshi Kantha" with a history of more than 1000 years. At that time, a JOCV member took note of this and tried to train producers of handicrafts. The Bangladesh Rural Development Board (BRDB) considered that the production and sale of handicrafts would be effective for the income generation of rural women. And then JOCV members in the fields of handicrafts and clothing were requested of Japan. Initially, a large NGO was relied on to sell handicrafts, but due to the activities of senior JOCVs dispatched in 1989, a handicraft shop, Karu Palli ("handicraft village" in Bengali) was opened in the building of BRDB. Activities of JOCV included not only sales but also product development proposals and guidance based on marketing information in urban areas. In 2010, after an interval of a few years, a Senior Volunteer and JOCVs were dispatched to this shop to support business analysis and management, quality control, and improvement of customer service. About 50 JICA volunteers have been involved in the Karu Palli project since its opening and have contributed to improving the income and status of rural women.

Nakshi kantha embroidery used for interior items
(Photo: Mieko Magami)

This section describes two ex-JOCV members: Ms. Mieko Magami (Iino), who was fascinated by the Nakshi Kantha embroidery and is still involved in it as manager of the fair-trade association Roshun in Japan, and Ms. Yuko Tanaka (Shiba), who was involved in the operation of the Karu Palli handicraft store.

(2) Improving the Livelihood of Rural Women Using Handicrafts

Ms. Mieko Magami (JOCV 3rd batch in 1982, field of home arts)

1) Bangladeshi Traditional "Nakshi Kantha"

In Bangladesh, Ms. Magami had been engaged in a female development program for three years starting in 1983 in the Sharsha upazila of Jashore, southwestern Bangladesh. There, she was one of the three JOCV members with three areas of expertise (livestock, vegetables, and home arts). She investigated the villages and found that there was a significant problem with hygiene and nutrition. Even though she tried to disseminate knowledge about nutrition, and she held cooking seminars, rural poverty disturbed the improvement progress of people's nutrition.

Unexpectedly at that time, Ms. Magami found that rural Bangladeshi women do traditional Nakshi Kantha embroidery for their family. The Jashore district, where she was assigned, happened to be a production center of the high-quality traditional embroidery. Can these items contribute to the income generation of rural women?

2) Rural Women Training to Improve Product Quality

In order to sell handicrafts, it is necessary to target wealthy

Rural female leaders who participated Dhaka training in 1983
(Photo: Mieko Magami)

urban people and ensure the quality of the products. Ms. Magami planned a two-week training course for 16 rural women in the capital city of Dhaka but, initially, their husbands, brothers, fathers, grandfathers and even uncles objected. Ms. Magami persuaded all these conservative rural people to allow the training in Dhaka for the 16 women. This training enabled them to become leaders who disseminate high-quality Nakshi Kantha skills. This confirmed the basis of the rural livelihood improvement program. The success of these 16 women led to the subsequent request for JOCV members in the handicraft field. The cooperation of female leaders, counterparts of BRDB, and local nutrition experts led to sustainable activities.

3) Work on Improving Nutrition In Bangladesh Even After Her Return

Ms. Magami, who had been working on improving nutrition in rural areas of Bangladesh for three years, realized that good results cannot be expected in a short period of time. Then she decided she would help the rural community of Bangladesh for a longer term. After returning to Japan, she continued to support Bangladesh's nutritional improvement as a Japanese NGO. For example, Ms. Magami made educational materials with pictures of seasonal cooking ingredients and menus that even poor families could easily use. In 2010 her NGO provided a school lunch in the Sharsha Upazila of Jashore district.

4) Start of Association to Sell Crafts of Bangladesh

Ms. Magami and her husband are now selling Nakshi Kantha embroidery in Japan as their full-time jobs. In Bangladesh, eight full- and part-time staff members are employed and about 500 Nakshi Kantha embroidery makers are engaged. Her husband, Mr. Shinji Magami, was also a JOCV member dispatched in the same batch to Bangladesh. Mr. and Mrs. Magami have been involved in social development in the Sharsha Upazila for 40 years, starting with the activities of the JOCV team.

Ms. Magami is engaged in local activities even now. (Photo: Mieko Magami)

Since the supported women use their income for their children and their families, it was effective in improving their family nutrition, building a body that does not get sick, improving the living environment such as toilets, and increasing educational opportunities. It also contributed to the succession of Nakshi Kantha embroidery art, which is an important cultural heritage of Bangladesh.

(3) Operation of the Karu Palli Handicraft Shop" of the BRDB

Ms. Yuko Tanaka (Shiba) (JOCV 2nd batch in 1991, field of handicrafts)

1) Difficulty in Making Good-Selling Products by Rural Women

A few years after the Karu Palli handicraft shop was opened at BRDB, Ms. Shiba was dispatched as a volunteer in the handicraft field to operate the store and provide technical guidance on Nakshi Kantha embroidery. The rural women could not do high-quality embroidery in the beginning. If it's a hobby classroom, a so-so product may be praised as "well done." However, for business purposes, the details must be checked and a strict comment made if it is thought that the item can't be sold. Livelihood improvement cannot be realized without seriousness.

2) Capable Bangladeshi Women

In the past, rural women often could not receive sufficient education due to their economic condition and being female. These women, who did not have the opportunity to show their potential, grew up as leaders of the Village Women's Handicraft Association because of their encountering JOCVs. Among the 16 women that Ms. Magami first trained, Ms. Anjali and Ms. Halima are such persons of talent. At the beginning, JOCV members accompanied them; however, later they alone took a bus for eight hours from the village to Dhaka to sell their handicrafts to Karu Palli. Ms. Shiba recalls that this must have been a big

Ms. Onjori (left) has been active as female leader for nearly 40 years since Ms. Magami met her. (Photo: Mieko Magami)

adventure requiring great courage considering the social situation at that time.

Also, Ms. Khurshida, who was the leader of the Handicraft Union in the northwestern Pabna district, is an excellent woman to remember. As a leader of many women, she keeps detailed records of her work, which worked significantly in ordering and delivery.

3) Issues of the Karu Palli Handicraft Shop

The Karu Palli handicraft store was planned to be completely transferred to the BRDB from the JOCV team in two years, but that was not progressing. In addition, the purpose of establishing Karu Palli was to "exhibit and sell crafts made by union members (i.e., rural women) of the BRDB, and return profits to rural development," but 50% of the products handled were clothes made by the affiliated workshops. Less than 20% of the clothes were made by rural women and the remaining were purchased from other companies.

4) Difficulty of Shop Management at Government Offices

A sense of public administration alone might not be sufficient for the management of business of Karu Palli, even though it is in the BRDB. To secure excellent human resources, the salary of staff and working conditions must be considered flexibly. A financial plan for purchasing products must be required. Vacancies of managers and designers must not be accepted. These issues were the weak points of Karu Palli. Also, for customers who come to the store, the JOCV members were also "Japanese clerks." They served customers, handled personal orders from Japanese people, and were willing to deliver. Ms. Shiba and her colleagues worked hard to increase the sales of Karu Palli as much as possible.

5) Karu Palli and Ms Shiba after Her Assignment

Fourteen years later, in 2007, Ms. Shiba came back to live in Dhaka. When she went to Karu Palli, it was as in her old memories. However, the transfer of management had been completed, and the store was operated by Bangladeshi people only. The shop had been accepted by local customers and survived as a long-established store. For first time she felt that her two years were surely rewarded.

Discussing deliverables with a colleague of handicraft JOCV (Photo: Yuko Tanaka)

Explaining to the staff about the improvements of the popular embroidery coaster (Photo: Yuko Tanaka)

Discussing product design with sales staff at the shop (Photo: Yuko Tanaka)

Small Conflicts and Exchanges of the Two Cultures

The JOCV members were thrown into the Bangladeshi environment from their comfortable lives in Japan. Naturally, Ms. Magami and Ms. Shiba experienced various shocks, confusion, irritations, and gratitude.

1) Bengali-speaking JOCV Member

The program of the Japan Overseas Cooperation Volunteers aims to allow each member to live in harmony with the local community and transfer technology. The local allowances for the members are also kept low, which makes it impossible to live as a rich foreigner. Of course, if they can't speak the local language, they will have trouble with their work and life. The members are trained in Japan for three months before being dispatched, and this training allocates much time for learning Bengali language.

Especially the people of Bangladesh place great

importance on their Bengali language. Just as the first Nobel laureate in Asia is Bengali's great poet Rabindranath Tagore, the artistic world of poetry, literature and drama that developed in Bengali is deep and rich. This is strongly rooted in the daily lives of the Bengali people, who have a great attachment to and pride in their native Bengali. Even though the level of Bengali of the JOCV members is poor at the beginning, local people exaggeratedly appreciate and encourage them.

In Bangladesh, there are far more people who can speak English than in Japan, and English alone may be sufficient for daily life. However, speaking Bengali dramatically influences the emotions and attitudes of the local people, and the amount and content of information that can be exchanged with the people changes extremely. With their skills and efforts to use Bengali, JOCV members have been accepted warmly by the locals.

2) Clothing, Food and Shelter to Survive

Senior members of JOCV advised their juniors that female members in Bangladesh should dress as the locals do so that they would not stand out as foreigners. The "shalwar kameez" is a combination fashion of a dress worn over pants, with the chest covered with a long scarf, and the "sari" is a piece of cloth more than 5 meters long worn over the underwear. Since the sari is more formal dress, JOCV members often wore them when serving customers in Karu Palli.

Finding a house can be difficult in both the city and the countryside. At that time, there were few apartments in Dhaka where single women could live, and even more so in rural areas, so a Japanese living environment could not be expected. Some JOCV members said that they had a hard time finding their own house due to their poor Bengali language skills soon after their arrival. Even in the city, many members have lived a life in which water is pumped from wells, kitchen fuel is firewood, and electricity is not stable.

Food was another problem. Considering nutrition, it is best to cook for oneself, but firstly, it was difficult to secure cooking materials. In those days, there were few supermarkets in rural areas and, even in Dhaka, there were no small packs of food items that were convenient for cooking. The JOCVs could go to butchers, fish shops, greengrocers, etc., and negotiate prices each time to buy a quantity that could not be eaten by oneself. Cooking became a stressful task. Local colleagues often helped JOCV members at such times. They invited JOCVs to a supper called a "dawat." In rural areas, JOCV members often appreciated the dinner at their colleague's house.

Craft shop "Karu Palli" in 2022. (Photo: PADECO. Co.Ltd.,)

Often only curry is available as an everyday dish for the JOCV members. The rice and river fish harvested from the rich Bengal territory, as well as various curry dishes made with vegetables, beans, eggs, meat, etc., are very delicious. The adaptability of the JOCV members was so great that, a while after arriving, the only thing that came to mind when hungry was curry.

3) "Interfering" Bangladeshi people

It was the local sense of privacy that confused the JOCV members who grew up in Japan. In Bangladesh, even when people meet for the first time, they always ask about their family, income, and the price of what they wear. They asked, "How much did you pay for it?" and often go on, "It was too expensive; it wasn't a good purchase." They are just innocent in this kind of conversation. They cannot "respect privacy" and keep a dry relationship. However, they never leave people in trouble. JOCV members were often saved by the "interference" of the local people.

It is difficult to understand and overcome the differences between the societies and cultures of the two countries in a couple of years. The JOCV members had a lot of hard times, and also good times supported by the locals. After living there for some years, Bangladesh became a part of their life and their sentiments towards Bangladesh are not simple "likes and dislikes." So far, around 1,300 JOCV members have been dispatched from Japan, many of whom may consider Bangladesh to be their second homeland.

4.4 JICA Partnership Program

Grassroots Cooperation

The JICA Partnership Program is a project in which JICA entrusts the proposing organization with the implementation of international cooperation activities proposed by Japanese NGOs/CSOs, local governments, universities, private companies, and other organizations that have the will for international cooperation, based on the knowledge and experience they accumulated through their past activities, under the cooperative relationship between JICA and the organization. It is intended to provide detailed cooperation at the grassroots level to meet the diversifying needs of developing countries. Especially in recent years, in addition to contributing to developing countries, it is expected that the experience gained through the implementation of grassroots technical cooperation projects will be useful in resolving issues faced by Japanese local communities and revitalizing local communities.

The JICA Partnership Program can take the following three forms:

(1) Support Type: Targeted at NGOs and other organizations that have little experience in supporting developing countries and regions.

(2) Partner Type: For NGOs and other organizations that have been providing support to developing countries and regions for at least two years.

(3) Local Government Type: Local governments or organizations recommended by local governments are eligible.

The JICA Partnership Program in Bangladesh started in 2002, and the total number of projects is 31. The following table shows the breakdown by sector by type. The largest number of projects (11) was in the health and medical sector, followed by agriculture and rural development (8), and disaster prevention and climate change (7).

Breakdown of JICA Partnership Program by Sector by Type (Number and Ratio of Projects)

Sector Type	Health and Medical	Agriculture and Rural Development	Disaster Risk Reduction and Climate Change	Education	Private Sector	Others	Total
Support	5	0	0	2	0	0	7
Partner	6	5	5	1	0	0	17
Local Government	0	3	2	0	1	1	7
Total	11	8	7	3	1	1	31
Ratio	35%	26%	23%	10%	3%	3%	100%

(Source: Survey team based on JICA)

4.4.1 Shapla Neer

Disaster Prevention Assistance in Cyclone-Prone Areas

(1) Activity of Shapla Neer

Shapla Neer works with people in Bangladesh and Nepal, as well as in Japan. By partnering with local NGOs, Shapla Neer works to support socio-economically underprivileged people such as street children, working children, widows, elderly, and disabled. The name "Shapla Neer" means "House of Water Lilies" in Bengali, and the organization has been working in Bangladesh since 1972, just after the country gained independence. Its main activities include:

Member of Shapla Neer (The woman at left is Ms. Uchiyama, the interviewer) (Photo: Shapla Neer)

1) building disaster-resilient communities, 2) protecting children's rights, and 3) building a society where people can live together through fair trade. In 1972, more than 50 Japanese youth volunteers were dispatched to Bangladesh as part of the Agricultural Service for Reconstruction, and later formed the Help Bangladesh Committee (HBC), which became the starting point of Shapla Neer. In 1974, Shapla Neer established its Dhaka office, formed a jute handicraft production cooperative, and began what are now called fair trade initiatives. Since 2000, Shapla Neer has also been supporting street children and girls who work as service workers

Girls working as servers studying at the center (Photo: Shapla Neer)

(2) Background of the Collaboration with JICA Partnership Program

In early 2000, the JICA Bangladesh office had a rural development project using an approach of community development with the participation of local residents, and Shapla Neer applied this approach in order to find an affinity with the local activities, which was the main reason for the collaboration. Shapla Neer has been involved in four JICA partnership programs, one for rural development and three for disaster risk reduction, which are both classified as community development projects.

1) Rural Development

Since 1989, Shapla Neer has been working directly in Ishwarganj Upazila but, in 2001, the project was launched as a "JICA Development Partner Project" through a tripartite collaboration between JICA and the local government of Bangladesh. The project was linked with the partnership program because it is necessary to advance the linkage between the local government and the local people's organizations to activities that include measures for the extremely poor and vulnerable.

2) Disaster Risk Reduction

In Bangladesh, which is hit by floods and cyclones every year, it was essential to provide not only hardware support, such as the construction of cyclone shelters, but also software support so that each community can prepare for and respond to disasters daily. Therefore, as the activities of Shapla Neer focused on a group of young people, which led us to collaborate with the partnership program to develop communities that take into consideration the presence of people who need assistance during disasters through the initiative of these young people.

(3) List of Partnership Programs

The following table outlines the list of partnership programs implemented by Shapla Neer.

List of Projects implemented by Shapla Neer

	Program Name	Purpose	Period
1	Participatory Integrated Rural Development Project	Improving the livelihood of the poor in Ishwarganj	August 2004 - July 2007

2	Cyclone Disaster Resilient Community Development Project	Development of a model for a community-based approach for disaster risk reduction in cyclone-prone areas	February 2010 - March 2012
3	The Community Development Project for Disaster Risk Reduction through Adolescent's Initiatives	Developing a model for a community-based approach to flood disaster risk reduction with the help of youths	Outline of the project
4	The Project for Mobilizing and Organizing Humanitarian Operations and Risk Reduction Activities in Disaster Prone Coastal Areas (MOHORA)	Disaster prevention and mitigation activities in line with disaster prevention and mitigation plans formulated based on an appropriate assessment of the local situation, and the practice of cooperation among the three helps (self-help, mutual-help, and public-help)	October 2017 - June 2021

(Source: Survey team based on JICA)

(4) Afterwards

In the Bagerhat district, which is the target area of "The Project for Mobilizing and Organizing Humanitarian Operations and Risk Reduction Activities in Disaster Prone Coastal Areas (MOHORA)," Shaplar Neer has been working there since the Cyclone Sidr disaster in 2007, and realizing the awareness of disaster preparedness has increased over the past 10 years. However, when Shaplar Neer provided emergency support immediately after the disaster in Koyra Upazila, Khulna, which was hit by Cyclone Anfang in May 2020, we found out that the local disaster management committee was not functioning properly. Therefore, we are planning to expand the geographical area of our activities to promote awareness of disaster preparedness, fully utilizing our knowledge and experience in the past.

Students make presentations in a disaster prevention contest. (Photo: Shapla Neer)

Human Story

In the "The Project for Mobilizing and Organizing Humanitarian Operations and Risk Reduction Activities in Disaster Prone Coastal Areas (MOHORA)," we planned events that residents could enjoy, and local junior high school students held exhibitions and performances to convey disaster prevention knowledge. I was impressed by the change in the awareness of local adults toward children through this event. This event was modeled after the "Bosai Koshien" or disaster prevention contest held in Japan and participated in by students. In normal schools, there are few opportunities for students to make presentations but, through this contest, the children freely shared their opinions and made presentations in front of many people. The residents and people from the local government were surprised to see the power of the children and listened attentively to their presentations. One of the initial goals of this project was to raise awareness of disaster prevention in each household through the ideas of the children, but the children's impressive presentations stimulated the awareness of the adults and led to an increase in disaster prevention awareness in the entire community. This was an unexpected result for us.

Students acting in a play as part of an activity to raise awareness of disaster prevention (Photo: Shapla Neer)

Tomoko Uchiyama,
Country Director
Shapla Neer Bangladesh Office

4.4.2 Asia Arsenic Network

Toward Safe Water

(1) Arsenic Problems and the History of the Asia Arsenic Network

The Asia Arsenic Network (AAN) was formed based on the support for the victims of pollution caused by the mass production of arsenous acid at the Toroku mine in Takachiho Town, Miyazaki Prefecture, Japan. The Toroku mine produced highly poisonous arsenic acid in the middle of a narrow valley village from 1920 to 1962, and many residents and workers suffered from health problems. In the 1960s, serious pollution problems arose in Japan and four major pollution lawsuits were filed. A local teacher investigated and announced the presence of the arsenic pollution buried in Toroku, which was widely covered by the media and, in 1973, the Environment Agency (now the Ministry of the Environment) designated Toroku as a pollution disease (chronic arsenic poisoning) area. In 1974, the "Association for the Protection of Victims of Mining Damage in Toroku, Matsuo" was formed to support the lawsuit filed by patients against the final mining concession holder. After the trial ended in a settlement at the Supreme Court in 1990, the members of the "Mamoru Kai (Association)" learned that there were regions throughout Asia suffering from arsenic contamination and they formed the Asia Arsenic Network in 1994.

Mr. Kawahara at the project site in Bangladesh (Photo: Asia Arsenic Network)

(2) Activities of the Asia Arsenic Network in Bangladesh

Arsenic contamination has been a problem in many parts of Asia since the 1980s. The cause of this problem is the excessive pumping of groundwater for drinking and agricultural purposes, which has caused arsenic deposits in river basins to dissolve into the groundwater. The country with the most serious arsenic contamination is Bangladesh. After independence in 1971, the government and international cooperation agencies promoted tube wells as a means of securing safe drinking water and, by the late 1990s, about 97% of households were using tube wells. The first case of arsenic poisoning in Bangladesh was discovered in 1993.

It was in 1996 that AAN began its activities in Bangladesh. A preliminary survey was conducted in Bangladesh, hoping to apply the experience of Toroku to other Asian countries suffering from arsenic contamination. Shamta Village in Sharsha Upazila in the southwestern part of the country was selected as a pilot project site and, for three years from 1997, activities were carried out with the support of the Toyota Foundation. A group of experts visiting arsenic-contaminated areas together was formed as a "mobile arsenic center" to conduct arsenic awareness raising, water quality testing using field kits, setting up alternative water sources, and providing medical support to arsenic poisoning patients.

Arsenic contaminated tube well is colored in red after the testing by field kit (Photo: Asia Arsenic Network)

When JICA started its development partnership program in 1999 to work on proposals from NGOs, AAN applied and was selected for the "Integrated Approach for Mitigation of the Arsenic Contamination of Drinking Water in Bangladesh," which takes a comprehensive approach to arsenic contamination, and implemented it in Sharsha Upazila for three years from January 2002. In this project, the following four activities were carried out with the goal of "helping villagers secure safe water and voluntarily manage and operate alternative water sources": (1) establishment of arsenic control committees at the local government (union/ward) level to promote active involvement, (2) formation of user associations of alternative water sources to implement community-based arsenic control, (3) implementation of the supply of drinking water by alternative water sources by the arsenic control committees at the request of residents,

and (4) identification and treatment guidance of arsenic poisoning patients by mobile arsenic centers. Then, from 2005 to 2008, AAN was the implementing organization of JICA's "Project for Sustainable Mitigation of Arsenic Contamination under the Integrated Local Government System" with the Government of Bangladesh. The project involved the Department of Public Health Engineering and the Union Council of Sharsha and Chaugachha Upazilas and aimed to implement community-based arsenic control measures, including the installation and maintenance of alternative water sources suitable for the community, and the improvement of arsenic poisoning symptoms through nutritious diets and medication. In addition, a grassroots technical cooperation project, the "Project on the Improvement of Health Damage and Poverty by Arsenic Contamination in Abhaynagar Upazila, Jashore District" was implemented to reduce the incidence of arsenic patients and provide support to them. In order to ensure the sustainable use of the alternative water sources installed in the project, a "Project on capacity building for drinking water supply service by Local Government (Union)" was implemented, and a new system was established in which water monitors are assigned to the Union Council to check the operation status of the water sources and to repair and maintain them.

Community meeting held by Mobile Arsenic Center (Photo: Asia Arsenic Network)

(3) Achievements and Outcome and Thereafter

AAN's activities over the years have resulted in the establishment of alternative water sources in arsenic-contaminated areas and the establishment of a management system by community organizations, as well as collaboration with local governments and medical institutions to ensure the sustainability of the system. Furthermore, by assigning water monitors, maintenance services that cannot be realized by the government were achieved. Mr. Kawahara, one of the founders of AAN and a former board member, says, "In the end, people realized that they would drink water from the alternative water source installed by AAN because it was not only safe but also tasty." By providing "good-tasting water," local residents are able to independently maintain and operate the alternative water sources set up by AAN with the support of the government. In recent years, we have focused on non-communicable diseases, which have become a serious issue in Bangladesh, and analyzed the factors that contribute to non-communicable diseases based on WHO guidelines. The project supports the establishment of prevention awareness, health checkup and guidance services, and data management systems. In addition, in order to reduce the use of groundwater in agriculture, activities are being implemented to promote dry-season field cultivation of beans, rapeseeds, and vegetables, rather than dry-season rice cultivation, which uses large amounts of groundwater irrigation (using Japanese NGO Collaborative Grant Aid).

Alternative water source established in Gadkari village where arsenic is contaminated. (Photo: Asia Arsenic Network)

(4) Friendship

AAN has been working to develop the expertise of Bangladeshi staff to be able to play a fundamental role in arsenic control. At the center of this effort is Mr. Shamim Uddin, who has been working for AAN since 2001 as a water quality technician. At the time, Mr. Shamim went door to door to households that had installed household arsenic removal equipment in areas with high levels of arsenic contamination, not only to check the condition of the equipment but also to repeatedly explain the importance of arsenic removal to the villagers. Ms. Tamiko Ishiyama, who traveled around the village with Mr. Shamim, recalls, "The water is safe, free of arsenic, bacteria, and other harmful substances, tastes good, and is enjoyed by the villagers." Mr. Shamim, a "human-oriented chemist," was a major factor in AAN's ability to provide such high-quality water

to the villagers (AAN Bulletin YUI, published December 1, 2002).

Mr. Shamim then underwent training at the Miyazaki Environmental Science Association for about nine months starting in 2004, where he received instruction on how to be a technician, how to collect samples, how to use the latest equipment, and how to analyze water and soil. After his training in Miyazaki Prefecture, Mr. Shamim focused more

Mr. Shamim is testing water and children are observing his work (Photo: Asia Arsenic Network)

on field-oriented work. He went on to complete his PhD at Kyushu University and is now contributing not only to safe water supply, but also to sustainable food production by promoting water conservation practices in agriculture and investigating arsenic contamination of soil and crops. Currently, he is expanding his activities as the program director of AAN Bangladesh.

4.5 JICA's Private Sector Partnership

SME/SDGs Business Support

JICA's Private Sector Partnership (SME/SDGs Business Support) is a proposal-based project by Japanese private companies that aims to create a win-win relationship between partner countries that want to utilize Japan's technologies, products, and know-how to solve their problems and Japanese private companies that want to enter the markets of the countries. The project is designed to contribute to sustainable development goals (SDGs) and, at the same time, contribute to regional development and revitalization in Japan.

As for the SME/SDGs Business Support Project in Bangladesh, 46 proposals have been adopted as of the end of fiscal 2019, including those from its predecessor, the "SME Overseas Development Support Project" and the "Survey on Problem-Solving Businesses in Developing Countries (SDGs Business)." In terms of classification, environment and energy has the highest number of proposals (10 proposals, 22%), followed by water purification and water treatment (8 proposals, 17%), healthcare (6 proposals, 13%), and agriculture (5 proposals, 11%).

Breakdown of SME and SDGs business support projects for Bangladesh

Year of adoption / Sector classification	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total	Ration
Environment / energy	1	1	1	2	2	1	1	0	0	1	10	22%
Water purification/ water treatment	1	3	1	0	1	1	0	0	0	1	8	17%
Health And Medical care	0	1	2	0	1	0	1	0	0	1	6	13%
Agriculture	0	1	0	0	1	0	1	1	1	0	5	11%
Education	0	0	0	2	2	0	0	0	0	0	4	9%
Disaster prevention / disaster measures	0	0	0	2	0	2	0	0	0	0	4	9%
Vocational training / industrial development	0	0	2	0	0	1	0	0	0	0	3	7%
Waste Management	0	0	1	0	1	0	0	0	0	1	3	7%
Financial Services	0	0	1	0	0	0	0	0	0	0	1	2%
Other Services	0	0	0	1	1	0	0	0	0	0	2	4%
Total	2	6	8	7	9	5	3	1	1	4	46	100%

(Source: Survey team based on JICA)

4.5.1 KUMON

Bringing KUMON Method to All of Bangladesh

(1) KUMON and Its Challenges to Developing Countries:

Kumon Institute of Education Co., Ltd. (hereafter KUMON), is an organization that conducts research and development of learning materials and their production, carries out research on instructional techniques and, as a franchisor, establishes and operates centers for math and reading (Japanese, English, Portuguese, Chinese, etc.). As of September 2021, KUMON had 3.67 million learners and is operating in more than 50 countries and regions around the world.

Group photo with KUMON and BKL members (Mr. Inoue, the fourth from the right in the back row, is the interviewee) (Photo: KUMON)

Since KUMON operates mainly through franchised centers, its customers are primarily middle-income, relatively well-off people, and it has been unable to provide learning opportunities for low-income people. For various reasons, including country risk, it has been difficult for KUMON to proceed with the business targeting low-income people in developing countries on its own.

(2) Background for Applying to JICA's Base of Pyramid (BOP) Business

It all started with a phone call from Mr. Fazle Hasan Abed, the late Chairperson of BRAC, the Bangladeshi NGO, who visited Japan in 2013 and wanted to visit KUMON to discuss education. BRAC has been providing educational programs for the poor in Bangladesh for many years and has contributed to the improvement of the literacy rate in the country by providing quality education in a non-compulsory, non-formal way.

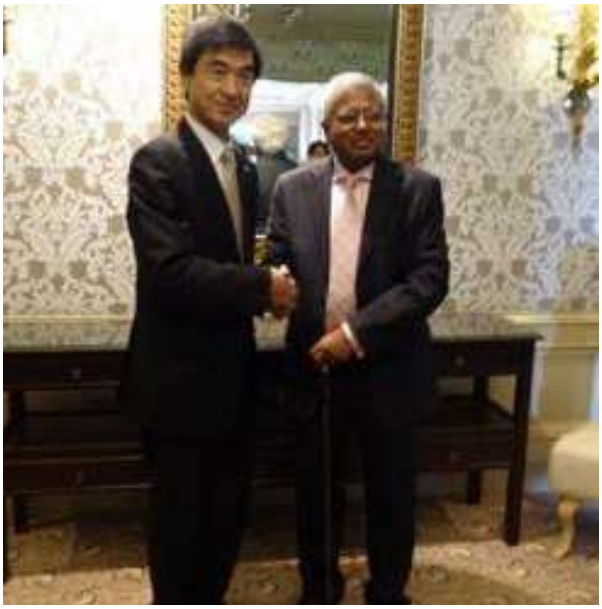
Against this background, KUMON had been warming up to the idea of the possibility of BOP business in Bangladesh by cooperating with BRAC. However, at the time, KUMON was inexperienced in developing sustainable businesses targeting the poor in developing countries and needed the support of experts. Therefore, in 2013, KUMON applied for JICA's Preparatory Survey on BOP business and was selected to conduct pilot activities with JICA's support.

(3) Result and Achievement

The purpose of the "Preparatory Survey on BOP business on Improving Quality Education through Partnership with NGOs" was to develop a business model that would contribute to improving the quality of education, the retention rate, and the dropout rate, which are major issues in Bangladesh, by providing the KUMON method of learning in cooperation with BRAC, an international NGO.

The project was to develop a model and to verify the effectiveness of the model. As one of the measures to verify the effectiveness of the program, a randomized controlled trial (RCT) was conducted in 17 BRAC schools (about 500 students) where the KUMON method was piloted for eight months. As a result, improvements of cognitive and non-cognitive abilities were scientifically proved. In addition there were some good cases; for example, students were able to calculate arithmetic problems faster and more accurately without using their fingers. This led to an agreement with BRAC to proceed with the study of a sustainable model by opening KUMON centers as the next stage.

(4) After JICA's Project



BRAC President Sir Abed and former President Tsunoda (Photo: KUMON)

After the pilot activities and research for JICA's project, the first two centers directly operated by BRAC in the country were opened in the capital city of Dhaka in 2017. There, it was confirmed that the KUMON method is acceptable to the middle- and high-income market and, in 2019, BRAC, BRAC Kumon Limited which was established by BRAC and Kumon signed a tripartite licensing agreement. As of September 2021, approximately 400 students are studying KUMON method at the directly operated centers, and preparations are underway for the future development of franchise centers and the introduction of the KUMON method into BRAC schools.

Classroom at BRAC School (Photo: KUMON)

Human Story

We cannot talk about the establishment of KUMON centers in Bangladesh without mentioning Late Chairperson of BRAC Sir Fazle Hasan Abed KCMG, who passed away in December 2019. I heard that Mrs. Abed came to know about the KUMON method when her relative was a KUMON instructor in New York. When Mr. Abed came to Japan in 2013, he visited KUMON and said, "I would like to do social business with Japanese educational companies," and that's when the collaboration began. After a pilot experiment at BRAC schools through JICA's project, Mr. Abed highly evaluated that "children who studied the KUMON method began to think for themselves," which led to the opening of directly-operated KUMON centers in Dhaka.

When he came to Japan for the 60th anniversary celebration of KUMON in 2019, he shared his vision of opening Kumon centers throughout Bangladesh. In his later years, even on his sickbed, he asked, "How's Kumon?" and paid attention to the status of the Kumon center's project until the end. Inheriting this will, Mrs. Abed is now strongly supporting this project.

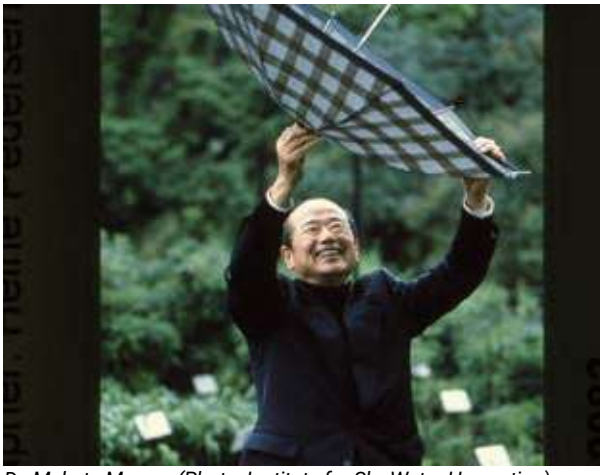
Katsuyuki Inoue, Managing Director, Kumon Institute of Education

A classroom at BRAC Kumon (Photo: KUMON)

Interaction between teachers and students at BRAC Kumon (Photo: KUMON)

4.5.2 Institute for Sky Water Harvesting

Social Business of Rainwater Tanks Brings Safe Drinking Water to All People



Dr. Makoto Murase (Photo: Institute for Sky Water Harvesting)

(1) Encounter between AMAMIZU and Bangladesh

Dr. Makoto Murase, CEO of the Institute for Sky Water Harvesting and Director of People for Rainwater (NPO), is working on a social project in Bangladesh to save lives by utilizing rainwater. When he was an employee of the Sumida Ward municipal office in Tokyo, he invented and worked to popularize rainwater harvesting, which is the effective method to utilize rainwater as a local water resource and disaster prevention measure to prevent urban flooding. He also took the initiative to install rainwater tanks during the construction of the Ryogoku Kokugikan (Sumo Stadium) and Tokyo Sky Tree.

He focused his attention on Bangladesh as a country where he could make international contributions based on this experience. For a long time, villagers in rural areas of Bangladesh have been fetching water from ponds and using it for drinking. However, the pond water was not clean, and many people died of severe diarrhea caused by pathogenic contamination. As a result, UNICEF and other donors recommended that the pond water be replaced with well water, and the water source was changed. It is estimated that 8.6 million wells have been dug. However, it has become clear that many of the wells that were thought to be safe were contaminated with harmful arsenic, and there are concerns about chronic arsenic poisoning due to long-term consumption of the water. Noting that Bangladesh is a region blessed with abundant rainfall, Dr. Murase decided to effectively utilize rainwater that does not contain arsenic or salt and is not contaminated by pathogenic microorganisms in order to solve this serious drinking water crisis, and he launched a social project to utilize rainwater around 2000.

(2) Background of applying for the JICA Public-Private Partnership

Dr. Murase, who was the secretary general of People for Rainwater (NPO) at the time, received a grant from a private environmental foundation to install rainwater tanks of various capacities in collaboration with local NGOs. However, as the grant period was only a maximum of three years, the project could no longer be sustained only by relying on the grant. In addition, the beneficiaries of the donated tanks tended to feel that they had been assigned to the project, and ownership often did not work well. Moreover, the donations did not include funds for monitoring and maintenance after the tanks were installed, so it was not uncommon for problems with the gutters and tanks to go unrepaired, as a result, eventually fall into disrepair.

In order to promote the use of rainwater in a sustainable manner, Dr. Murase came up with the idea of producing, selling, and installing rainwater tanks, which were not previously available in Bangladesh. He started to work with NGOs that support this idea to develop a household rainwater tank (4.5-ton concrete ring tank) that can cover the drinking water needs of a family of six throughout the year. In 2008, the project began selling and installing rainwater tanks. Although the project was successful, a new problem emerged. Since only the wealthy were able to purchase these tanks, in order to provide safe drinking water to all people by utilizing rainfall, which was the original purpose of the project, it became necessary to develop and promote low-cost tanks that are affordable to everyone. Therefore, in 2010, Dr. Murase established the Institute for Skywater Harvesting and started a social business project for rainwater tanks (BOP Business Partnership) targeting low-income people with support from JICA.

(3) Social Business Utilizing Rainwater Tank in Bangladesh

In rural Bangladesh, there is a long history of collecting rainwater in unglazed jars called “MOTKA” for drinking. Although MOTKA are low-cost, they have a maximum capacity of about 100 liters, which is too small to last through the dry season, and they are also fragile. Therefore, Dr. Murase came up with the idea of manufacturing and selling low-cost rainwater tanks that overcome the weaknesses of MOTKA. Dr. Murase focused on low-cost mortar jars (600 liters capacity) that were popular in the northeastern part of Thailand and sent Bangladeshi masons to Thailand to transfer the technology to Bangladesh. The rainwater tank

(initially made of mortar, but later improved and now made of ferro-cement) completed through the technology transfer has a capacity of 1,000 liters and is named "AMAMIZU." In 2012, the Institute for Skywater Harvesting set the selling price of AMAMIZU at 4,600 taka, and a pilot project was launched to sell it for 4,300 taka, including materials for rain gutters and movable inflow pipes, transportation, and installation. As a result, 200 units were installed and 97% of the funds were collected within one year.

AMAMIZU Production site (Photo: Institute for Sky Water Harvesting)

(4) Latest Development

Following the success of the private-sector collaborative pilot project, Dr. Murase established Skywater Bangladesh Ltd. in 2013, and began mass production of AMAMIZU at a production plant he opened in Morrelganj Upazilla, Bagerhat District. In addition to 4,600 AMAMIZUs, the company has installed 300 concrete ring tanks (4.5 tons) as well as 12 large concrete block tanks (mainly 50 tons) at Morrelganj Health Complex and seven schools that serve as cyclone shelter in Chittagong. Currently, a concrete block tank (100 tons)is under construction in two schools in Cox's Bazar host community, which has camps of Rohingya refugees (Forcibly Displaced Myanmar Nationals).

Human Story

If I had not met Mr. Wahid Ullah, who was concerned about the serious drinking water crisis in his country and wanted to do something about it, I don't think the social project for skywater harvesting would have come to fruition. I first met him 20 years ago as an interpreter and coordinator for a travel agency, where he supported my activities. Later, he started his own travel agency and also started a local company, Skywater Bangladesh (SBL), with me. It was Mr. Wahid who arranged for the dispatch of Bangladeshi masons to Thailand as part of JICA public-private partnership project. The masons sent to Thailand are now the core of the Skywater activities in Bangladesh.

There is another Japanese person I would like to mention in connection with the bond of natural water. He is Mr. Kiyoshi Sato, one of Japan's leading rainwater harvesting architects. I have worked with him for nearly 40 years on rainwater utilization projects in Japan and abroad. Without his technical support, the rainwater harvesting social project in Bangladesh would not have been successful. Many of the roots of rain in Japan come from Bangladesh. Japan and Bangladesh are connected by the same monsoon sky. Myself, Mr. Sato, and Mr. Wahid are the "AMAMIZU Trio" in monsoon Asia. They are my best friends in my AMAMIZU life.

Makoto Murase CEO, Institute for Sky Water Harvesting

Installation of AMAMIZU (Photo: Institute for Sky Water Harvesting)

AMAMIZU Trio (Photo: Institute for Sky Water Harvesting)

4.5.3 Grameen Euglena

The Essence of Social Business (Mung Bean Business in Bangladesh)

(1) Background of Euglena Co., Ltd.

The establishment of Euglena Co., Ltd. began with Mr. Mitsuru Izumo's visit to Bangladesh, where he saw malnourished children, and his desire to provide nutritious and well-balanced food to poor children. After returning to Japan from Bangladesh, he paid attention to euglena, a microalgae with rich and well-balanced nutrients, and succeeded in mass cultivation of euglena, which had been considered almost impossible until then. In 2005, he established Euglena Co., Ltd. and has been involved in the production and sales of health foods and cosmetics that utilize the diverse nutrients of euglena.

(2) Activities of Euglena in Bangladesh

In 2014, the Euglena Genki Program was launched in Bangladesh, the country that inspired the euglena mass cultivation, to distribute cookies containing euglena to poor children free of charge. The program aims to increase the number of people who eat euglena-containing foods on a daily basis to one million, but providing free euglena-containing foods to one million people every day requires a large amount of funds. While expanding the provision of free euglena food, Euglena began to consider a profitable business through general sales to the middle- and high-income class, which is increasing in line with Bangladesh's economic growth. As part of this effort, it conducted a "Preparatory Survey for BOP business on Nutritious Euglena Cookie" as part of JICA's BOP Business Partnership Promotion Project.

Around the same time, Euglena acquired shares in Grameen Yukiguni Maitake and started a mung bean production and sales business under the name of Grameen Euglena. This business was originally initiated in Bangladesh by Grameen Euglena President Mr. Satake (then of Yukiguni Maitake Co., Ltd.), who was concerned about the soaring import prices of mung beans, for which Japan relies almost exclusively on imports, and the fact that the country depended on China for more than 90% of its mung beans. He created a business plan as a social business that also aims to improve the income of the BOP population in Bangladesh, and established a local joint venture company, Grameen Yukiguni Maitake, in July 2011 with Dr. Muhammad Yunus of the Grameen Group, who was motivated by the business idea. Then, with the support of JICA, they conducted "Preparatory Survey on BOP Business on Development of Production Systems for Green Mungbean", where producers were organized, and test cultivation was conducted.

Children received euglena cookie cookies through GENKI the Genki program (Photo: Grameen Euglena)

(3) Achievements, Outcome, and thereafter

The mung bean production and sales project has revealed various issues from the experimental production and sales. At the production stage, it was difficult to attract growers, and yields were not stable due to regional circumstances and disasters. There were also issues such as the refusal of contract farmers to sell mung beans when market prices soared. In addition, the procedures to obtain production certification from the Agricultural Extension Service of the Ministry of Agriculture and export permission from the Ministry of Commerce would not have been possible without the cooperation of JICA, JETRO, and the Embassy of Japan. As a result of the preparatory survey, it became clear that the project is expected to contribute to the improvement of livelihoods of poor producers and that the business plan is expected to be profitable in the third year after the start of the project.

Over the five years since the start of the project, including the study period, the company was able to export 1,000 tons of mung beans in 2018, enough to supply 20 million meals of bean sprouts sold in Japanese supermarkets. This also means that Bangladesh has earned 300 million

Mung beans before harvesting (Photo: Grameen Euglena)

Mung beans produced by Grameen Euglena.
(Photo: Grameen Euglena)

Bean sprouts produced by Grameen Euglena
(Photo: Grameen Euglena)

yen in foreign currency, making it the fourth largest exporter of agricultural products. The mung bean business is not only growing as a profitable business, but also has great significance as a social business. The business started with 100 growers, but now 10,000 growers are participating. Each producer earns an additional $200 per year, which contributes to poverty reduction. In addition, in 2019, the Japanese government and the United Nations World Food Programme (WFP) decided to implement a grant aid program with a total grant amount of 550 million yen, "a program using mung bean cultivation to assist Bangladesh farmers in improving their livelihoods and to provide food aid to Rohingya refugees," and Grameen Euglena will be a business partner. In this project, approximately 2,000 small-scale farmers will be able to improve their livelihoods through mung bean cultivation, and Rohingya (Forcibly Displaced Myanmar Nationals) will be provided with nutritionally balanced food. This project is expected to ease the friction between the host communities and Rohingya, which tends to become more serious the longer they are hosted in Bangladesh, as it will benefit the Bangladeshi people who are hosting the camps and can support Rohingya at the same time. Furthermore, while the WFP's food is generally supplied from overseas, mung beans are locally produced and consumed, which reduces the cost of procurement and thus helps to reduce the burden on the food aid side. Euglena is already supplying 1 million servings of mung beans per year and, from 2022 in collaboration with the WFP, it plans to contract with 7,000 producers to supply 5 million servings of mung beans. This activity has been so well received that another 500 million yen of grant aid will be provided in 2022.

Briefing session for mung bean producers
(Photo: Grameen Euglena)

Mung bean farming. (Photo: Grameen Euglena)

The results of this "Mung Bean Project" have been highly appreciated not only in Bangladesh but also in Japan, so that the project was awarded the "Japan SDGs Award Grand Prize" on December 24, 2021.

Human Story

Many people have been involved in the success of the mung bean business but, among them, the encounter with Dr. Mohammed Yunus of Grameen Bank was a major turning point. The first encounter was during a Grameen Bank study tour program that Mr. Satake, the representative of the company, personally participated in. While learning about the Grameen Bank's business, he came up with the idea of a mung bean business based on his experience with Yukiguni Maitake, the company he was working for at the time, and introduced the idea of a mung bean production business to a Grameen Bank executive he met during the program, and then received an unexpected proposal to speak directly to Dr. Yunus. Once Mr. Satake returned to Japan, he carefully elaborated the presentation material and explained the profitability of the business and its contribution to development issues in the limited time of 30 minutes. Dr. Yunus showed a strong interest in the business plan, and the meeting went beyond the planned 30 minutes,

Postharvest handling of mung beans (Photo: Grameen Euglena)

taking up about an hour and a half for discussion. He also asked Mr. Satake to come back the next day and meet with him again. By the time of the meeting, Dr. Yunus had prepared and proposed a joint venture agreement between Yukiguni-Maitake and Grameen Krishi Foundation. This led to the establishment of Grameen Euglena (then Grameen Yukiguni-Maitake), with Dr. Yunus as chairman and Mr. Satake as president. Among the many companies in the Grameen Group, Grameen Euglena is the only one where Dr. Yunus himself serves as chairperson, which is why he puts so much effort into this business. Mr. Satake continues to meet with Dr. Yunus on an almost monthly basis and is currently working on the business under his guidance. It can be said that Grameen Euglena was born and grew to this level because of Mr. Satake's encounter with Dr. Yunus.

Dr. Yunus and Mr. Satake. (Photo: Grameen Euglena)

Distribution of mung beans for Rohingya refugees (Photo: Grameen Euglena)

4.5.4 ONODA Inc.

An SME in Toyohashi City of Aichi Prefecture Ignites the energy-saving mindset of Bangladeshi people with prepaid gas meters made in Japan!

(1) Background

Since gas meters were not installed in Bangladesh and gas in ordinary households was charged at a flat rate, it was difficult to encourage consumers to moderate their use of domestic natural gas. It was said to be troublesome to re-light the stove only when necessary, or the cooking stove was left on all day to keep the kitchen warm in the cold season. For Bangladesh, where natural gas must be imported because the supply of domestically produced gas has been unable to keep up, efficient use of gas has become an urgent issue. The shift to a pay-as-you-go system, in which billing is based on the amount of gas consumed and gas meters are installed to materialize it, was indispensable.

(2) Project Summary

Under these circumstances, ONODA Inc., the head office of which is in Toyohashi City, Aichi Prefecture, was adopted by JICA in the public-private partnership program in July 2014 and implemented the "Private Sector for Disseminating Japanese Technology for Pre-Paid Gas Meter." Specifically, with the cooperation of the Titas Gas Transmission and Distribution Company Limited (TGTDCL), which is responsible for gas distribution in Dhaka, ONODA introduced high-performance prepaid gas meters (PGMs) made in Japan on a trial basis in 200 households to demonstrate their effectiveness and analyzed the energy-saving effect when shifting to a pay-as-you-go system.
With widespread recognition of the effectiveness of Japanese-made PGMs through this program, ONODA received an order for a prepaid gas meter installation contract in January 2017, which is an important component of the "Natural Gas Efficiency Project" supported by a Japanese ODA Loan, in which 200,000 PGMs and 60,000 PGMs were installed in Dhaka and in Chattogram, respectively. As a result, the Bangladesh government has made a major shift to a pay-as-you-go system for gas tariff collection.

With the introduction of Japanese-made PGMs, Bangladeshi society has begun to change. According to a consumer survey conducted by TGTDCL in the target area of the loan project in Dhaka, when PGMs were introduced and the pay-as-you-go system was adopted, monthly gas consumption decreased by an average of 57% after the transition, as a result, the amount of payment has also decreased. The ODA Loan Project is highly appreciated by the residents, which also leads to the residents' gas-saving behavior.

Interview of Mr. Shigeyoshi Onoda, President of ONODA Inc.

Q: What made you decide to move into Bangladesh?
Mr. Onoda: About 10 years ago, when I visited Bangladesh, which I had not been involved with until then, with the recommendation of a Bangladeshi acquaintance, I found out that the waste of gas in ordinary households was a serious problem, and the installation of gas meters became an urgent issue. Therefore, I applied for JICA's public-private partnership scheme, thinking that we could introduce high-performance PGMs made in Japan.

Q: Did you have a hard time in this country that you were involved with for the first time?
Mr. Onoda: I was very surprised that gas was leaking in most homes. Therefore, when installing PGMs, we also repaired gas leaks. Through such work, we were able to build a friendly relationship with the residents. I was even told by residents outside of the installation area, "Please install a PGM for me, too."

Q: What was the secret to success?
Mr. Onoda: I think the reason why we won the trust of the locals was that we focused on training local staff, not only installing the high-quality Japanese products. In addition to technical guidance, we made our staff aware that they are handling dangerous materials, and we thoroughly reformed their mindset at the installation site by introducing 5S (Sort, Set, Shine, Standardize and Sustain). It is not easy to reform people's mindsets, but we did it persistently through the morning assembly every day and so on. As a result, we have continued to record no accidents.

Sometimes I failed, too. For example, due to my lack of awareness, I received protests to pay the bonus before Eid. I learned that it is very important to understand local customs properly, and I try not to repeat the same mistakes thereafter.

Q: What do you think about your contribution to the development of Bangladesh?
Mr. Onoda: I think we are contributing to Bangladesh's economy and to building industrial infrastructure through reducing the amount of natural gas used in ordinary households, improving safety by preventing gas leaks based on Japanese standards, and improving the profitability of gas companies by transferring the saved gas to commercial facilities and factories.

We also employ 150 people locally. Even in the COVID-19 pandemic, employment adjustments are not made, and salary levels are maintained. We believe that the people are important resources and a part of the company, considering we will further expand and develop our business in the future. We would like to strengthen the trust relationship more than ever and work as a team to rise to the challenge of even bigger goals.

Q: What are your thoughts on future business development?
Mr. Onoda: Currently, we have received an additional order for 120,000 units and are installing them. We are also aiming to participate in further installations in the future and proceeding with business development in other countries. Moreover, we are working with various companies and connect to our business, the good relationships with residents that we have built through the gas meter installation business. I am very much impressed by the achievements of Bangladesh over the past ten years, and recognize that this country still has great potential. I would like to continue to contribute to the prosperity of Bangladesh.

(Interviewed in November 2021)

Mr. Md. Hussain Ahammad, who has been working for 10 years since the establishment of the Dhaka branch. "I have learned that working at ONODA and working sincerely leads to the realization of my dreams. I strongly feel it is rewarding to be involved in a project that contributes to the efficient use of natural gas, which is a valuable resource in my country," he says with a smile. (Photo: ONODA.inc)

ONODA.inc President Shigeyoshi Onoda (Photo: ONODA.inc)

Group photo of local staff. The uniforms, which are proof of the training, now are a symbol of status and help to improve the motivation to work.(Photo: ONODA.inc)

Installation scene of prepaid gas meter (Photo: ONODA.inc)

4.6 Bangladesh Distinguished Person

Fifty years of cooperation between Japan and Bangladesh have been conducted with many contributions from Bangladesh people as well as Japanese. In this section, some of the distinguished Bangladesh contributors are introduced. The first is the late Prof. Chowdhury, Vice Chancellor of Asia Pacific University, who received the JICA Recognition Award in 2013; the second is Dr. Rahman of the Yamagata Dhaka Friendship General Hospital, who received the JICA President's Award in 2020; the third is Mr. Iqbal, who has been assigned to the JBIC/JICA Bangladesh office; the fourth is Mr. Emran, who has been assigned to the JICA Bangladesh office; and the fifth is Dr. Mahmood, also assigned to the JICA office as an advisor.

4.6.1 Professor Jamilur Reza Chowdhury

Not only an engineer but also a researcher, educator, and scientist, Professor Jamil Reza Chowdhury was an integral part of JICA cooperation, especially in infrastructure projects. He was involved in many projects as a civil engineer for more than 25 years, including the Chittagong Airport and Dhaka Mass Rapid Transit Project, and chaired the expert committee for the Jamuna Bridge in particular. In recognition of these achievements, JICA presented Professor Chowdhury with the JICA Recognition Award in 2013 in honor of his contributions. Professor Chowdhury passed away on April 28, 2020. We sincerely pray for his soul and here reintroduce the article that was published in 2014 at the JICA website.

"Find professional satisfaction in difficulties" JICA Recognition Award to Dr. Jamilur Reza Choudhury (Vice Chancellor of Asia Pacific University)
October 27, 2014
Long-awaited Jamuna Multipurpose Bridge

Jamuna Multipurpose Bridge was opened in 1998. The bridge is 4.8 km long and crosses the Jamuna River, which divides the nation into two parts.

Before the bridge was completed, there had been only ferries to go across the river. People had to wait for hours, sometimes for days, to go to the other side. The river also blocked logistics, electricity and gas, which were necessary for daily life and economic development. The bridge, therefore, had been a big dream for the people in Bangladesh.

Dr. Jamilur Reza Choudhury (Photo: JICA)

"It was not easy to construct the bridge over the Jamuna River," Dr. Jamilur Reza Choudhury, 71 years old , said. Dr. Choudhury, Vice Chancellor of Asia Pacific University in Dhaka, was the chairman of Panel of Experts for the Jamuna Bridge Project.

No important development project in Bangladesh has been implemented without the involvement of Dr. Choudhury, including many JICA assisted projects. JICA awarded him the "JICA Recognition Award" in 2013 to express JICA's gratitude for his cooperation and long-standing contribution to JICA's activities. He also advised in planning, design, progress monitoring, quality control, and contract management for the Chittagong Airport, advised on the Dhaka Mass Rapid Transit Development Project, and more.

Among his many accomplishments, the Jamuna Bridge project is still one of the most impressive works for Dr. Choudhury. "Jamuna River is a meandering and braided river. The soil is very soft, and it is eroded within a few days, so, to construct the bridge, we needed to train the river."

The project was unprecedented, and so was the budget. For example, they needed to use iron piles 3.5m diameter and 80m long, which were imported from South Korea, and stones to strengthen the soil were imported from Indonesia. According to Dr. Choudhury, the government of Bangladesh established a "Jamuna levy" for this project. "The amount of money each one paid might be small, but so many people participated in constructing the bridge. It showed how high their expectations were for this bridge," he said.

On the day the bridge was almost completed, there was a ceremony of crossing the bridge for the first time. "I was one of the first people to go across the bridge. I thought that our dream came true then." Thirty years had passed since the first study on the Jamuna Bridge had been done.

Catching up with the latest technology
"I have been living in the same house in Dhaka for 62 years," Dr. Choudhury said with a smile. He was the advisor to or member of most of the major infrastructure projects in this country. With his high reputation, he was invited to participate in projects in other countries, too, and he might have been able to live in affluence in other countries.

"Yes, I had chances to work abroad and might have been able to get a bigger house. But I did not want to leave Bangladesh. I studied here in this country and that money for my education came from taxpayers here. I received so much benefit from the education, so I have to return something to my country."

"In addition," he said, "I was able to join in many difficult engineering projects in Bangladesh. I found professional satisfaction here and am so glad to serve the nation."

Dr. Choudhry is also a good teacher. He memorized all the names of his students and could recall even a student of 40 years ago. Thus, he is welcomed everywhere he goes by his former students. In Japan, one of his former students said that he would be more than happy to offer his room to his teacher, and he would stay with his friends. In Nepal, he was welcomed by around 200 Nepalese students who had studied at Bangladesh University of Engineering and Technology (BUET).

"Developing countries need professionals in various categories. We need lots of good engineers," he said. "But technology grows rapidly. The engineers need to keep up with global development even though they are working in developing nations. You have to try to understand what's happening in the other countries. Nowadays, you can use the internet to catch up on the latest technology. It is much easier."

Jamuna Multipurpose Bridge. Around 11,000 vehicles cross the bridge every day. Trains, electricity, gas also go across the river on the bridge. (Photo: Masud Al Mamun)

On the other hand, in contrast to catching up on the latest technology, he emphasized the importance of facing the reality of a developing country. He said, "Visiting project sites is extremely important for engineers to study. There is no substitute."

For the year of 2013, the JICA Recognition Award went to four non-Japanese experts in Bangladesh, Thailand, Viet Nam, and Indonesia, while JICA has been conducting its development projects in more than 170 countries around the world.

A big pile 3.5m in diameter used for constructing the Jamuna Bridge is in the park near the bridge.(Photo: JICA)

4.6.2 Dr. Md. Ekhlasur Rahman and Yamagata-Dhaka Friendship General Hospital

Aiming to train doctors and nurses who are committed to patients

(1) Studying at Yamagata University School of Medicine

In Dhaka, the capital of Bangladesh, there is the Yamagata Dhaka Friendship General Hospital. The chairman of the hospital, Dr. Ekhlasur Rahman, studied medicine and healthcare in Japan at Yamagata University School of Medicine and Yamagata Saisei Hospital and then returned to Bangladesh. In recognition of his contribution to the improvement of medical treatment techniques and services and training of doctors and nurses in his home country, Yamagata Dhaka Friendship General Hospital was awarded the International Laureates (Organizations) in the 16th JICA President Award (FY2020).

While most young medical doctors in Bangladesh go to study in the United States or the United Kingdom after graduating from medical school, Dr. Rahman received a scholarship from the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) to study at the Yamagata University Graduate School of Medicine, Japan in 1992. During his study, Dr. Rahman was very surprised and impressed by the very well-structured training system for young doctors in the Japanese medical field. In Bangladesh, young doctors are assigned to clinics and hospitals in rural areas but, because there are few experienced doctors in rural areas to supervise them and the level of medical care between rural and urban areas varies greatly, young doctors do not have the chance to be trained and improve their skill. On the other hand, young doctors in Japan gain experiences in large hospitals, such as university hospitals, before being transferred to clinics and hospitals, so patients can receive the same quality treatment in rural areas as in cities. Dr. Rahman was inspired to bring this system back to Bangladesh and to create an environment for training medical professionals and providing high-quality medical services in Bangladesh.

With professors and colleagues from Yamagata University School of Medicine (Photo: Ekhlasur Rahman)

(2) The Establishment of the Yamagata Dhaka Friendship Hospital and Its Treatment Policy

Dr. Rahman's supervisor and mentor, the late Dr. Yoshihiko Oshima, then a professor at Yamagata University School of Medicine, and Dr. Makoto Hamasaki, then of Yamagata Saisei Hospital, who recognized Dr. Rahman's excellence and his desire to contribute to his home country, helped to establish the Yamagata Dhaka Friendship Hospital in Dhaka in 1997.

Since 1999, Dr. Rahman has been working as a medical advisor to the JICA Bangladesh office, providing support 24 hours a day, 7 days a week, 365 days a year to the JICA Overseas Cooperation Volunteers, experts, office staff and their families stationed in Bangladesh. Despite the lack of adequate medical equipment and supplies, he is dealing with a wide range of illnesses and injuries, including surgical operations, infectious diseases such as dengue fever, and mental health care. Amid the spread of COVID-19, the hospital has taken on the responsibility of providing consultation and diagnosis for health concerns to all in the Japanese community.

(3) Working together with Ms. Reiko Kobayashi, a Nurse Who Works Closely with Patients

Since 2012, Ms. Kobayashi has been Dr. Rahman's right-hand nurse, working closely with him to treat patients and train future medical professionals. Ms. Kobayashi, who has been working closely with Dr. Rahman for more than 10 years, says, "Patients put so much trust in him that they say they are cured of half their illnesses just by looking at

Dr. Rahman and Ms. Kobayashi treating a patient (Photo: Ekhlasur Rahman)

his face. This is because Dr. Rahman is always there for his patients and treats them with the utmost care. As a nurse, I would like to continue to be the link between Dr. Rahman and his patients to ensure smooth treatment and follow-up, so I have asked Dr. Rahman to keep me here as long as I am fit enough to move on."

(4) A Vision for the Future of Healthcare in Bangladesh

Yamagata Dhaka Friendship Hospital, which started with 18 beds, started its operations in its new location in Dhaka in December 2019 as Yamagata Dhaka Friendship General Hospital, a new hospital applying Japanese hospital management system. The hospital has expanded to 50 beds and has a dedicated Japanese inpatient floor for the Japanese resident in Bangladesh, many of whom rely on Dr. Rahman, and Japanese inpatient meals prepared by staff trained by Ms. Kobayashi.

Dr. Rahman told what his goals are for the future. "I think the most important attitude is to always put yourself in the patient's shoes and ask yourself what kind of treatment you would want if you were being treated. I also believe that doctors should be able to listen carefully to their patients and think together about what treatment is best for them. I learned this philosophy from the late Professor Oshima and Professor Hamasaki when I was studying at Yamagata University, and I value it very much. It may take time, but I would like to disseminate everything I have learnt from my teachers to improve my Bangladesh colleagues from this hospital. For this purpose, I would like to organize more workshops and training for doctors, nurses and other health professionals."

Yamagata Dhaka Friendship General Hospital (Photo: Ekhlasur Rahman)

Japanese food served to Japanese inpatients - Nutritional balance and colour of the food is carefully considered. (Photo: Reiko Kobayashi)

Japanese food served to Japanese inpatients - Japanese soba noodles are another popular dish.(Photo: Reiko Kobayashi)

With colleagues from Yamagata Dhaka Friendship General Hospital (Photo: Ekhlasur Rahman)

4.6.3 Mr. Md. Zafar Iqbal

An Interview

Mr. Md. Zafar Iqbal (Photo: Survey team)

Mr. Md. Zafar Iqbal joined the Bangladesh Civil Service in the Administration cadre in 1989, has been serving in the Bangladesh Civil Service in different capacities for last 29 years. He worked as Sr. Assistant Secretary, Deputy Secretary and Joint Secretary in the Economic Relations Division (ERD), Ministry of Finance and Ministry of Public Administration. Taking leave from his government service, he worked in JBIC during 2002-2008 as Senior Program Manager. Later he also worked in JICA as Senior Program Manager during 2008-2010.

The following is an interview with Mr. Md. Zafar Iqbal.

During your time at JBIC/JICA, what skills or knowledge were useful for your work in the JICA office?
I was able to bridge between the Bangladesh government and Japanese government with my good communication skills. I have worked for ERD, and I understand what they want to request from bilateral donors. At the same time, stationed in the JBIC/JICA office, I was able to grasp what is happening in the real field and the needs of beneficiaries and what the Japanese government was trying to support. Thus, I was able to coordinate with both ERD and JBIC/JICA for smooth operations.

What were your responsibilities while in JBIC/JICA?
I was responsible for overseeing JBIC/JICA's ongoing projects in the transportation sector, water and sanitation sector, and telecommunication sector. In particular, I was in charge of transportation sector projects like Pakshi Bridge, Rupsha Bridge, Jamuna Bridge Access Road Project and Chittagong City Outer Road. My responsibility was to monitor the project progress, disbursement, meeting with counterparts, etc. In addition to that, I maintained close liaison with ERD, Finance Division, and Ministry of Law on behalf of JICA for ODA loan signing, and some legal documentation.

Do you have a memorable episode you can tell us about?
Mr. Onishi, Mr. Uchida, and Mr. Hamada were my bosses when I was there. Even back then, the traffic in Dhaka was bad and totally unpredictable when we had a meeting outside, so we used to travel a few hours in advance. In the office, I did not have much chance to talk with the Chief Representative because he was busy all the time, but in the car during the traffic jam, we exchanged a lot of information, and we deepened our friendship by talking about work and personal matters.

When I visited Japan, Mr. Onishi, Mr. Uchida, and Mr. Hamada all welcomed me and we had a nice reunion after a long time.

Any memorable episodes about projects?
I visited the sites several times during the construction of the Pakshi bridge, but since it is far from Dhaka, I would spend 2-3 days for each visit. We had meetings with the local contractors to check the progress, but sometimes we had a lot of arguments. I remember that we spent several days together, had meals together, and went for walks in the neighborhood during breaks, which established a good relationship.

How do you review 50 years of cooperation?
I have the impression that the level of trust in Japan is very high for the people of Bangladesh. In addition to Japan, Bangladesh receives aid from other countries, and everyone is impressed by the high quality of what Japan provides. The people of Bangladesh know that projects supported by Japan are always completed with high quality.

Message to Japanese people
I am very pleased with the 50-year bond between Japan and Bangladesh. Bangladesh will never forget the support from Japan. Bangladesh is about to join the ranks of middle-developed countries because of Japan's support for infrastructure development and economic development. Now it is time for Bangladesh to return the favor to Japan. I sincerely hope that Japan and Bangladesh will continue their friendly relationship for a long time to come.

During the interview (Photo: Survey team)

4.6.4 Mr. Md. Emran

An Interview

Mr. Md. Emram (Photo: Survey team)

Mr. Md. Emran has served more than 30 years as a government officer of Bangladesh. He worked at Economic Relations Division (ERD), Ministry of Civil Aviation and Tourism and other relevant authorities. He served as additional secretary of Ministry of Civil Aviation and Tourism from 2017 and retired in 2019. He was assigned to JICA Bangladesh from 2001 to 2006 as Economic Cooperation Advisor.

Please talk about the reason you were assigned to JICA.
While I was serving in ERD, I had a chance to study in Japan for one year from 1999-2000, in a JETRO METI post-graduate program called the IDEAS (Institute of Developing Economies Advanced School) program. After I returned from studying in Japan, one of my colleagues recommended to work for JICA. At that time JICA was celebrating 30 years of cooperation and JICA was looking for personnel who could review it from the perspective of the Bangladesh side, and that is how I was assigned to JICA.

What was the significance of the 30-year anniversary?
I was one of the members involved in publishing the 30-year booklet and we reviewed all the milestones by decade, such as the 1970s being the years of the agriculture sector and dispatching JOCV, the 1980s the years of infrastructure projects, and the 1990s the years of human resource development. Then this reflection of 30 years inspired us what is the next step, and I was able to facilitate to lead to the signing of the Technical Agreement in 2002.

Please talk about your personal episode while in JICA.
As previously mentioned, I studied in Japan, and I suddenly saw one of my classmates in JICA Bangladesh. In the IDEAS program, there were 25 colleagues divided into 12 international participants and 13 Japanese. One of the Japanese was called Hagiwara-san. One fine morning while working at the Bangladesh office, I suddenly saw Hagiwara-san in the office. It was such surprise and I came to know that he became an international development consultant after graduation, and was assigned to the Bangladesh office. We spent about a year working together on a rural development project. We even spent time together with our family members having dinner and so on.

Please tell us about your memories of the chief representative back then.
One day I was called by chief representative, Sakamoto-san and said, "Please teach me about different aspects of national budget." And I was hesitant to teach this to my boss but he wanted to learn more about the Bangladesh national budget, so I held a presentation session about national budget for Sakamoto-san and other colleagues. I was scared during the Q&A session because there were a lot of questions from the audience including Sakamoto-san.

Did you face any difficulties working in JICA office?
Japanese time management was very strict, and I was a bit surprised and had to get used to it at the beginning. I used to work 9:00-17:00 in the Bangladesh government office but in JICA office almost all officers work longer hours. I learned from them that they commit to their assignment and work hard.

How do you view the 50-year relationship between Japan and Bangladesh?
Japan has been always with Bangladesh after gaining independence and is very dependable. My personal view of our relationship is that Japan as well as JICA have become very popular even in rural areas and villages. Another point is that Japanese assistance is unique compared to that of other donors in the sense that they plan very well in detail. They conduct feasibility studies and detail design studies before implementing a project. At first glance it takes a long time, but in the long run it is effective, and Japan's assistance benefits more people.

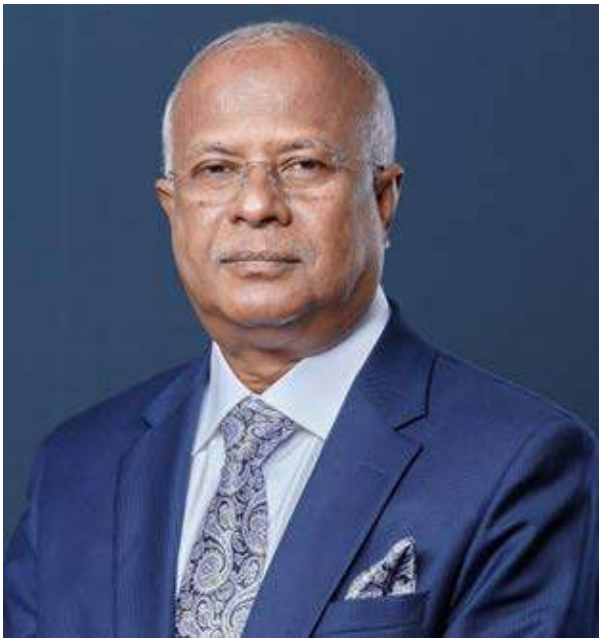
Any message to the Japanese people?
Our heart-to-heart relationship with Japanese people has been continuing for a long time. I always recognize Japanese support since our liberation in 1971. If I have a chance to work with Japanese for a project, I would be happy to work. During my study in Japan, I was selected to give a speech at a Valentine's Day event, and I made the

Group photo at the time of working at the JICA office (second from the left) (Photo: Survey team)

speech that if I were given the option to have a second home country, I would say Japan is my second home country. Again today, I would like to mention and emphasize "Japan is my second home country".

4.6.5 Dr. Iqbal Mahmood

An Interview



Dr. Iqbal Mahmood (Photo: Dr. Iqbal Mahmood)

Dr. Iqbal Mahmood is the current Professor of the School of Business, Fareast International University in Dhaka and former Chairman of the Anti-Corruption Commission in Bangladesh. He served the government for more than 30 years in various high positions such as Senior Secretary of ERD, Secretary of Ministry of Public Administration, Ministry of Communications & Railways, and Ministry of Posts & Telecommunications. He was seconded to JICA Bangladesh as the Advisor from October 2004 to March 2005.

What do you see as the characteristics of Japanese cooperation?

Japan as the single largest donor of Bangladesh attaches high importance to the development initiatives of Bangladesh. My impression is that Japanese cooperation aims at capacity development of Bangladeshi human resources, especially in the field of infrastructure. From the view of the Bangladesh government, the way of its assistance such as loans and grants are not so conditional, and this was very much appreciated.

Can you tell me about memorable JICA activities in Bangladesh?

I can remember a technical assistance project under which there was an innovative approach of creating a democratic institution called the Union Development Coordination Committee (UDDC) for better accountability of the leadership at the grassroots level. The project also selected leaders on the basis of local reputation like natural or traditional leadership, which might be an alternative to democracy based on the adult franchise. This kind of leadership actually works better in rural areas of Bangladesh. Furthermore, public servants working in Union levels are supposed to gather before the committee on a particular date to explain the problems and prospects of their public service delivery. This committee provides opportunities for general public participation in the project and they could also provide matching funds for a project, which gives a sense of oneness among stakeholders during the project design and implementation phases.

I also remember a day when Bangladesh and Japan signed a Debt Relief Grant Assistance (DRGA) agreement under which Bangladesh got a colossal amount of debt relief.

How do you feel about the friendship between Bangladesh and Japan for 50 years?

Japan is the single largest development partner of Bangladesh. Japan has been providing assistance from the very inception of the country in 1971 after its bloody liberation war. I do not find any single sector where there is no Japanese assistance. The quality of Japanese projects is unparalleled and the quality of Japanese goods we import is unmatched.

The history of our friendship with Japan is known to all in Bangladesh. In my humble opinion, our friendship will continue to grow in the days to come.

Could you give any message to the citizens?

Bangladesh and Japan have a historical friendship with common cultural similarities. Let the great friendship continue in future based on mutual benefit and understanding.

(Photo: JICA / Suzuki Kaku)


Royal Coach

Chapter 5
Transforming Bangladesh

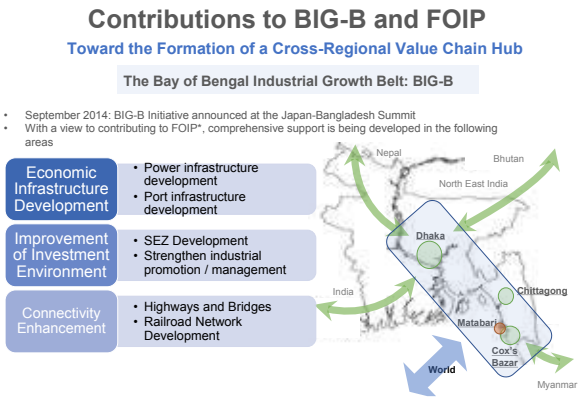
5.1 BIG-B Initiatives

What is BIG-B initiative?

Bangladesh is located on the Bay of Bengal, part of the Indian Ocean, midway between South Asia and Southeast Asia. As the world economic power shifts to the Indo-Pacific region, this geographical advantage is expected to play an important role for Bangladesh's regional and inter-regional relations. In May and September 2014, Prime Minister Abe and Prime Minister Sheikh Hasina visited each other and announced a "Japan-Bangladesh Comprehensive Partnership" to develop bilateral relations, one of the contents of which is the Bay of Bengal Industrial Growth Belt (BIG-B) initiative.

Specifically, the BIG-B initiative aims to create an industrial cluster from Dhaka to Cox's Bazar via Chattogram, and to transform the region as the hub of the international value chain. Since 2014, ODA loans have been provided to contribute to the realization of the BIG-B concept, and since the area covered by the BIG-B concept (Dhaka, Chattogram, and Cox's Bazar) is geopolitically important, it is expected to contribute not only to the promotion of economic growth but also to the enhancement of connectivity between South and Southeast Asia, regional stability, and the promotion of the Free and Open Indo-Pacific Initiative (FOIP).

The following is a list of projects related to the BIG-B initiative that are currently underway:



Area	Sector	Project
Economic infrastructure development	Power infrastructure development	» Moheshkhali Matarbari Integrated Infrastructure Development » Matarbari Ultra Super Critical Coal-Fired Power Plant » Matarbari Port Development Project
	Port infrastructure development	
Improvement of investment environment	Special Economic Zone Development	» Foreign Direct Investment Promotion Project
	Strengthen industrial promotion and special zone management	
Connectivity enhancement	Highways and Bridges	» 2nd Kanchpur, Meghna and Gumti Bridge Construction Project and Existing Bridges Rehabilitation Project » Western Bangladesh Bridge Improvement Project » Cross-Border Road Network Improvement Project » Chattogram – Cox's Bazar Highway Improvement Project » Jamuna Railway Bridge Construction Project
	Railroad Network Development	

(1) Economic Infrastructure Development

Economic infrastructure development, the first of the three pillars of the BIG-B initiative, is focused on the southern Chittagong region and includes power and port

Sirajganj high-efficiency gas-fired power generation project (Photo: JICA)

infrastructure development. "Moheshkhali Matarbari Integrated Infrastructure Development (MIDI)" is a symbolic development project of the economic infrastructure.

Moheshkhali Matarbari Integrated Infrastructure Development

JICA conducted a land-use planning study as part of the comprehensive development of the southern Chittagong region (September 2018 - July 2019) and proposed the concept of a "Bay of Bengal Industrial Growth Hub" (BIG-Hubs) consisting of three hubs centered on the port of Matarbari: (1) logistics, (2) power and energy, and (3) waterfront industries. The development of southern Chittagong is led and managed by the Moheshkhali Matarbari Integrated Infrastructure Development Initiative (MIDI) Coordination Committee and the MIDI Secretariat (MIDI Cell) established under the Prime Minister's Office. In order to build an appropriate development management system centered on the MIDI Coordination Committee, JICA experts are being dispatched to the MIDI Secretariat from 2020 (initially to BEZA).

Other notable projects include the "Matarbari Ultra Super Critical Coal-Fired Power Plant" and the "Matarbari Port Development Project".

1) Matarbari Ultra Super Critical Coal-Fired Power Project (To be completed in 2026)

In the face of the expected decline and depletion of domestically produced natural gas, the "Matarbari Ultra Super Critical Coal-fired Power Project" (L/A signed in 2014), a highly efficient and environmentally friendly project that utilizes imported coal, will address the rapidly increasing demand for electricity associated with economic growth, as well as the issues of energy security and energy source diversification. The project consists of a power plant with two 600 MW units (total 1,200 MW), a deep-sea shipping channel (18.5 m (MSL), 14.3 km) that can be navigated by large cargo ships carrying imported coal, a high-voltage transmission line (between Matarbari and Chittagong), electrification around the site, and community roads. The power plant itself is currently under construction and is expected to be operational by the end of 2024. The project will not only supply electricity to the entire country, but also contribute to the development of the Matarbari-Moheshkhali area by enhancing the power transmission and distribution facilities and improving the convenience of the surrounding residents.

Project site under construction (Photo: JICA)

2) Matarbari Port Development Project (To be completed in 2025)

Chittagong Port, which handles 98% of Bangladesh's containerized cargo, has seen its cargo trade performance increase from 1.34 million TEUs (20-foot container equivalent[1]) (2010) to 2.35 million TEUs (2016), already exceeding its designed cargo handling capacity (1.75 million TEUs). Moreover, the demand for containerized cargo is expected to increase to 9.85 million TEUs by 2040. Therefore, the development of a new port is an urgent task. While the current water depth in the Chittagong Port is 7.5 to 9.5 meters, the depth of the project area in Matarbari (320 km from Dhaka) is 16 meters. Construction of the multipurpose deep-water port and access road that is essential for the use of the port in Matarbari will enable the expansion of the cargo handling volume, to cope with the rapidly increasing demand for cargo and also to accept larger vessels.

A large ship docked at Matabari port (Photo: JICA)

(2) Improvement of Investment Environment

To improve the investment environment, the second of the three pillars of the BIG-B initiative, JICA dispatched an expert to the Prime Minister's Office in 2015 and established a working group with the participation of more

[1] TEU (twenty-foot equivalent unit) is an approximate unit of cargo capacity used to indicate the loading capacity of container ships and the number of cargoes handled at container terminals.

than 20 relevant ministries and agencies to discuss ways to improve the investment environment in Bangladesh. In addition, the government is launching special economic zones by developing industrial parks and expediting government license approvals, in order to attract foreign direct investment from Japan and other countries

1) Foreign Direct Investment Promotion Project (To be completed in 2025)

The project has been in progress since 2015 with the aim of promoting foreign direct investment in Bangladesh by improving the poor investment environment characterized by limited access to finance, lack of infrastructure, and cumbersome administrative procedures, through the implementation of development projects such as the development of economic zones (EZs) for Japan and the provision of project funds. In order to promote PPP projects between Japanese companies and the government, equity-backed financing is provided for the establishment of special purpose companies (SPCs). The project is designed to respond to the need to increase the value addition of the country's manufacturing industry and to foster export-competitive industries by developing basic infrastructure that will directly benefit foreign companies entering the country, such as access roads, electricity, and gas supply. It will also contribute to developing the country's manufacturing and other industries with high added value.

(3) Connectivity Enhancement

The third pillar of the BIG-B initiative, fostering connectivity, is expected to contribute to the promotion of economic growth, the strengthening of connectivity between South and Southeast Asia, regional stability, and the promotion of the Free and Open Indo-Pacific Initiative (FOIP), as the region (Dhaka-Chittagong-Cox's Bazar) is of geopolitical importance. The following are some of the projects related to the strengthening of domestic and international linkages.

1) The Kanchpur, Meghna and Gumti 2nd Bridges Construction and Existing Bridges Rehabilitation Project (completed in January 2020)

The 2nd Kanchpur, Meghna, and Gumti Bridges eliminated bottlenecks on the economic corridor National Highway No. 1 (NH1), which connects the Bangladesh capital city of Dhaka and the country's second largest city, Chattogram. NH1 is a core national highway that carries approximately 80% of the domestic freight and passenger traffic, and drives economic development of the country as a whole. In recent years, however, the traffic volume has dramatically increased, and the constant traffic congestion hinders the road logistics. What is worse, there were growing concerns about the bridges of NH1 being damaged by overloaded vehicles and having insufficient earthquake resistance. Therefore, rehabilitating and strengthening such existing bridges, as well as constructing new second bridges to increase the traffic capacity, were urgent needs. "The Kanchpur, Meghna and Gumti 2nd Bridges Construction and Existing Bridges Rehabilitation Project" has boosted the safety and earthquake resistance of the existing Kanchpur, Meghna, and Gumti bridges located on NH1, and doubled the traffic capacity of each river crossing point through the construction of new second bridges at each location. This project increases the average traffic volume from the current approximately 60,000 to 70,000 vehicles per day to approximately 120,000 to 140,000 vehicles per day, which is expected to eliminate traffic congestion and stimulate economic activity by reducing the bridge crossing time by 80%. Of the three existing bridges that are targeted in this project, the Kanchpur bridge was constructed in the days of East Pakistan before Bangladesh independence, but the Meghna and Gumti bridges were built much later in the 1990s; all three bridges were similarly rehabilitated with Japanese bridge technology. Known as the Japan-Bangladesh Friendship Bridges now, the Meghna and Gumti bridges were built as symbols of Japanese support for Bangladesh and are loved by the people of Bangladesh.

2) Western Bangladesh Bridge Improvement Project (To be completed in 2023)

The country's road network, especially the national highways and major regional roads that connect to the border of India and as well as to Nepal and Bhutan and to Export Processing Zones (EPZs) and Special Economic Zones (SEZs), is a very important road network that contributes to domestic and international economic activities. However, about 40% of the approximately 3,800 bridges located on national highways, major regional highways, and divisional highways nationwide are said to have structural defects or major damage that make them impassable due to aging, lack of maintenance, or initial defects. In fact, some of the damaged bridges are impassable during the rainy season (about two months), while others are difficult for large and heavy cargo vehicles to pass through, making them bottlenecks for distribution. In addition, there are missing links in the routes connecting some export processing zones and special economic zones, which are divided by rivers. This project supports the replacement and repair of bridges and the construction of approach roads in the western region. This will ensure the safety of local bridges and improve the efficiency of transportation, thereby contributing to the revitalization of the local economy and the correction of regional disparities.

Bridges constructed in connection with connectivity enhancement (Photo: PW-02Contractor)

3) Cross-Border Road Network Improvement Project (To be completed in 2022)

The South Asian region is aggressively promoting economic liberalization and other reforms and is attracting attention as an economic market zone with high potential, especially in India and Bangladesh. Bangladesh has India, Myanmar, Nepal, and Bhutan as its neighbors, and is in an important place to connect these countries. Therefore, the development of an international corridor is expected to contribute to the stability and economic development of not only Bangladesh but also the entire region. However, many sections of the network are not functioning well as international corridors due to inefficient customs clearance and border procedures as well as deteriorated and inadequate roads and bridges in the country and around the border, which are obstacles to passenger and cargo transportation. This project aims to promote trade with neighboring countries by improving the transportation and logistics network between major cities through the construction of a major international road network.

4) Chittagong – Cox's Bazar Highway Improvement Project (To be completed in 2027)

National Highway Route1 from Dhaka to Cox's Bazar via Chittagong, as described above, is regarded as the most important arterial road connecting major cities of the country. However, some parts of Route 1 such as in southern Chittagong are a one-lane road. Furthermore, especially in the urban areas, the road is narrow, the shoulders are not wide enough, and rickshaws (bicycle cabs) and cars ply the same lane. As a result, travel speed is reduced and traffic safety is deteriorated. In addition, after the opening of Matarbari Port, Route 1 will become a key point for cargo transportation from the port to Chittagong and Dhaka. To stimulate cargo demand at the port, it is essential to ensure smooth transportation from the port to Dhaka and Chittagong, which are the largest consumption and production areas. This project will contribute to smooth traffic and improve traffic safety by constructing flyovers and bypass roads at the bottlenecks in the Chittagong-Cox's Bazar section of NH1.

Conceptional drawing of Kalna Bridge (Photo: JICA)

Kalna Bridge Under Construction (Photo: Tekken-AML-YBC JV)

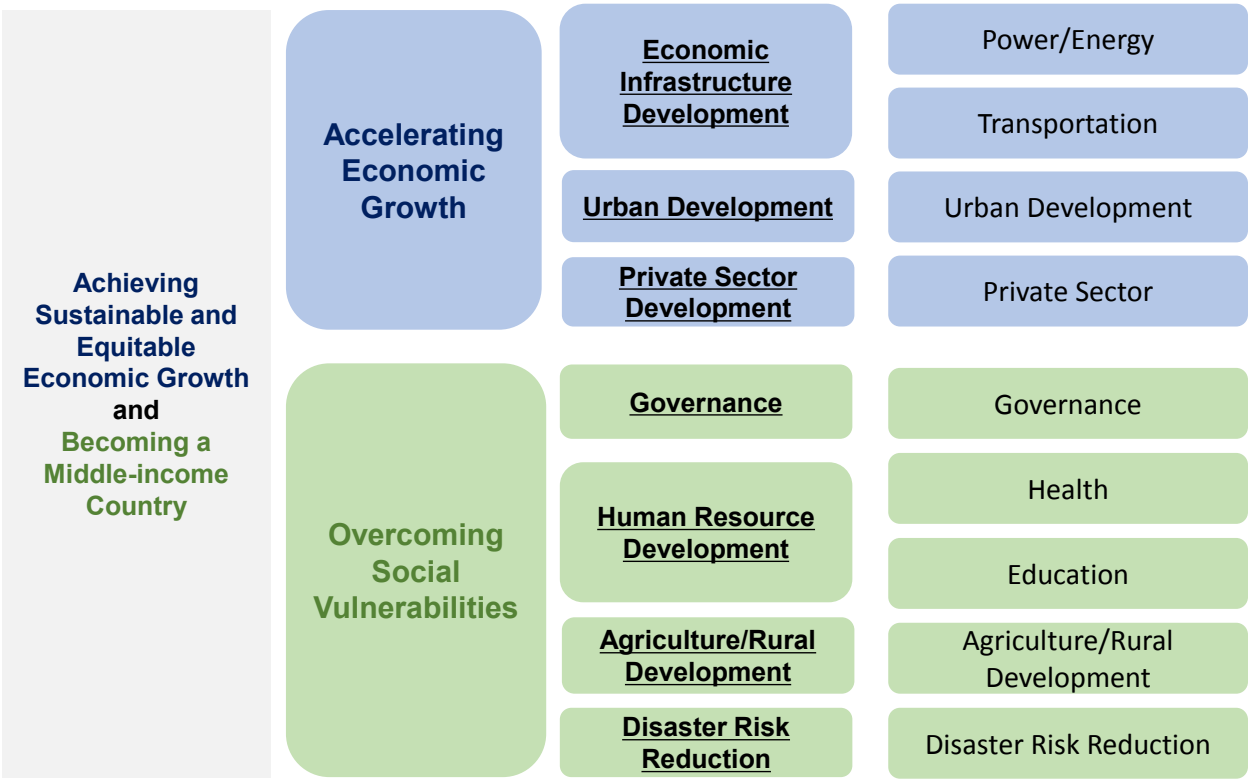
Meghna Bridge (Photo: OSJI Joint Venture)

Meghna Bridge (Photo: OSJI Joint Venture)

5.2 On-going Projects in Each Sector

In order to provide comprehensive support for economic growth and poverty reduction, JICA continues to assist in the areas of economic development and social development as shown in the following figure.

Japan's Policy on Development Cooperation with Bangladesh



(1) Power and Energy

Challenges	» Necessity of a feasible diversified energy supply plan addressing depletion of domestic gas reserves and supply » Development of power sources and securing of energy resources responding an expected eight-fold increase in electricity demand from 2014 to 2041 » Environmental consideration for new power sources and energy sources, including imports, efficiency improvement, and power quality improvement
Future directions	» To support new power sources such as thermal power generation and renewable energy from the perspective of climate change and the expected depletion of domestic natural gas. » To support the appropriate maintenance and management, renewal of existing power generation, transmission, and distribution facilities, as well as energy conservation in industrial and consumer sectors on both the supply and demand sides. » To support the electricity quality improvement (frequency and voltage) from a medium-term perspective and address issues such as strengthening the organization and improving management capabilities in line with the progress of sector reform
On-going projects	» The Integrated Energy and Power Master Plan Project » The Project for Gas Network System Digitalization and Improvement of Operational Efficiency in Gas Sector in Bangladesh

1) The Integrated Energy and Power Master Plan Project (June 2021 – January 2024)

Bangladesh is now in a phase to review the long-term plans for the power and energy sector, formulate an integrated national energy development policy, and implement more concrete and effective measures to realize a low-carbon society. In this context, JICA is pursuing the "3E+S" concept, which is to ensure "Energy Security", "Economic Efficiency", and "Safety", while focusing on the "Environment" under this project.

2) The Project for Gas Network System Digitalization and Improvement of Operational Efficiency in the Gas Sector in Bangladesh (February 2020 – February 2023)

JICA conducted a study on the power sector in 2018 and recommended that it is extremely important to systematize and integrate the management and operation of network infrastructure assets, especially gas-related facilities (gas fields, LNG import receiving facilities, pipelines, compressors, etc.) and power facilities (power supplies, transmission lines, substations, etc.) Based on the results of this study, this project is under way with the aim of digitalizing the gas network system in order to improve the efficiency of gas supply business operation and planning, and to enhance the reliability and safety of the system.

Sirajganj high-efficiency gas-fired power generation project (Photo: JICA)

(2) Transport

Challenges	» Serious traffic congestion due to rapid growth of population and economic activity in the Dhaka metropolitan area » Necessity to expand the airport capacity and improve the operation of the international airport due to the rapid expansion of passenger and cargo transportation
Future directions	» To support reducing traffic congestion and improving the urban environment through the public transportation development in the Dhaka metropolitan area » To continue the support for the road sector (bridges and highways) and expansion of airport functions.
On-going projects	» The Project on Technical Assistance for Mass Rapid Transit Safety Management System of Line 6 » Data Collection Survey on Kamalapur Station Area Redevelopment » Hazrat Shahjalal International Airport Expansion Project

1) The Project on Technical Assistance for Mass Rapid Transit Safety Management System of Line 6 (January 2021 – July 2023)

This project will support the Dhaka Mass Transit Company Limited, which is responsible for the operation and maintenance of urban railways, including the MRT Line 6, to establish an operational safety management system within the organization that is being applied in Japanese railway companies. By supporting the Dhaka Mass Transit Company Limited, the project aims to realize safe and reliable urban railways. This project will also contribute to SDGs Goal 11 "Make cities inclusive, safe, resilient and sustainable" by promoting the shift from private transportation such as private cars to public transportation in the Dhaka metropolitan area. Specific activities include dispatching a team of experts and providing training to the Dhaka Mass Transit Company Limited, preparing safety-related manuals and regulations, and supporting the establishment and implementation of a safety management system.

2) Hazrat Shahjalal International Airport Expansion Project (April 2020 - April 2024)

The number of air passengers at Hazrat Shahjalal International Airport in Dhaka has increased by an average of about 8 percent per year between 2010 and 2018. The airport is used by about 75 percent of all domestic and international passenger aircraft departures and arrivals in the country and plays an important role as a backbone infrastructure supporting the country's fast-growing economy. The number of international passengers at the airport is expected to exceed the annual passenger throughput limit of the existing international passenger terminal of 8 million as of 2020 and reach 20 million by 2035. In addition, air cargo volume is expected to reach the maximum annual air cargo handling capacity of the existing cargo terminal building (approximately 420,000 tons) as of 2020. This project will contribute to the promotion of the country's economic growth by expanding the airport's capacity, improving convenience and safety, and meeting the rapidly increasing demand for air travel through the construction of an international third passenger terminal and a cargo terminal at the airport.

Automatic ticket vending machines to be installed on MRT (Photo: JICA)


International Terminal 3 under construction (Photo: JICA)

(3) Urban Development

Challenges	» Limited economic infrastructure such as transportation networks and living infrastructure such as water and sewerage systems » Increasingly serious urban environmental issues such as water shortages, waste management, and air and water pollution. » Need for timely planning, infrastructure investment, and other measures for the maintenance and management of urban infrastructures.
Future directions	» To continue to support the improvement of administrative services such as water supply and sanitation, waste disposal, etc. » To develop infrastructure such as water supply and sewerage systems for smooth economic activity and for improved living environments in Dhaka, Chattogram (formerly Chittagong) and other regional cities.
On-going projects	» Project for Strengthening of Solid Waste Management in Dhaka North City, Dhaka South City and Chittagong City » Karnaphuli Water Supply Project (Phase 2) » Data Collection Survey for the Water Resources of Southern Chattogram Region

1) Project for Strengthening of Solid Waste Management in Dhaka North City, Dhaka South City and Chittagong City (June 2017 – May 2022)

Japan has provided comprehensive capacity building support for solid waste management in Dhaka, and the city's solid waste collection rate has improved significantly. Also, Chattogram is facing a challenge of establishing a solid waste management system. In this project, JICA supports the preparation of a master plan and extension of solid waste management system in Dhaka. In Chattogram, JICA supports 3R, public awareness activities, and the appropriate management of waste collection vehicles provided by the financial assistance of Japan.

Cleaning in Dhaka City (Photo: Mika Tanimoto/JICA)

2) Karnaphuli Water Supply Project (Phase 2) (October 2012 – March 2025)

Chattogram, the second largest city in Bangladesh, is the country's largest commercial city with the largest seaport, and recognized as the industrial center of Bangladesh. However, the city's water supply and other infrastructure have not kept pace with the recent population growth, and only about 47% of the population had access to improved water supply before the projects (Phase 1 & 2). It was also acknowledged as an obstacle to attracting future investment and to promoting industrial development. This project will support the maintenance of aging distribution pipelines in the city. This will enable the supply of safe water to an additional 650,000 people, helping to improve the living environment of residents and promote economic activity.

The Karnaphuli Water Treatment Plant under construction (Photo: JICA)

(4) Private Sector

Challenges	» Underdeveloped business and investment environment with limited foreign direct investment (doing business ranking 168th of 190 nations[1]) » Limited human resources and small and medium-sized enterprises as the foundation for industrial development
Future directions	» To improve the investment environment as one of the three pillars of the BIG-B initiative » To support the improvement of policies, systems, administration, and implementation capacity in relation to investment, trade, and industrial development, with the expectation of more Japanese companies investing in Bangladesh » To support the development of Special Economic Zones (SEZs) that will contribute to the further promotion of economic relations between Japan and Bangladesh, and for the strengthening of SEZ management capacity, including one-stop services
On-going projects	» Foreign Direct Investment Promotion Project » Project for Promoting Investment and Enhancing Industrial Competitiveness

1) Foreign Direct Investment Promotion Project (2) (April 2019 - April 2025)

Bangladesh has achieved an average economic growth of more than 6 percent in recent years. The driving force behind the growth is the garment industry, which accounts for about 80 percent of the country's exports. To achieve sustainable economic growth, however, Bangladesh needs to break away from its high dependence on exports of garment products, increase the added value of other manufacturing industries, and develop industries that are highly competitive for exports. To this end, the promotion of foreign direct investment with high competitiveness will be effective. This project aims to improve the issues of investment environment such as inadequate financial access, insufficient infrastructure, and cumbersome administrative procedures, by developing a special economic zone for Japan.

2) Project for Promoting Investment and Enhancing Industrial Competitiveness (April 2017-May 2022)

This project aims to strengthen the linkage between foreign direct investment and domestic industry in Bangladesh by (1) improving the business environment, (2) promoting the development of special economic zones that contribute to investment promotion, and (3) strengthening the implementation system for industrial promotion, thereby contributing to the diversification and upgrading of domestic industry in Bangladesh.

Project site under construction (Photo: JICA)

[1] World Bank Report (https://www.doingbusiness.org/content/dam/doingBusiness/country/b/bangladesh/BGD.pdf)

(5) Governance

Challenges	» Weak governance in terms of "quality of regulation," "rule of law," and "corruption" » Limited transparency and planning in government services » Inconsistency between policy priorities and budget allocations » Administrative system that does not easily reflect the people's voice and vertically segmented administration with a centralized system » Limited coordination among ministries, and the weak service delivery system and tax collection capacity of local governments
Future directions	» Strengthen the capacity of relevant ministries and agencies with a view to building up linkage between the central and local governments, particularly in support of policy formulation and implementation of various policies. » At the central level, JICA will work on the promotion of the rule of law by improving the transparency and accountability of public administration and the public investment management through the realization of the National Integrity Strategy. » At the local level, JICA will work on enhancing the administrative capacity of each local government (City Corporation, Municipality, and Upazila), improving administrative services, and developing infrastructure to realize "collaboration" between residents and local governments.
On-going projects	» National Integrity Strategy Support Project » The Project for the Improvement of Governance and Management Research and Training Facilities » Advisor on Policy Issues for Strengthening BIGM

1) National Integrity Strategy Support Project Phase 2 (January 2019 – June 2022)

In Bangladesh, with its rapid economic growth, it is essential for the government to promote better governance and prevent corruption by strengthening accountability and transparency to promote harmonious economic growth and social development. To this end, JICA has been supporting the establishment of a framework for government agencies to effectively implement the National Integrity Strategy (NIS). JICA continues to implement various measures to promote accountability and transparency, which are highly relevant to the NIS. In addition, to further promote the NIS, it will be necessary to roll it out to local governments and implementing agencies under the ministries. This project aims to strengthen the NIS implementation system through the preparation of an improvement plan for NIS implementation and the capacity building of the implementation units led by the Cabinet Office.

Giving an orientation of the project (Photo: JICA)

2) The Project for the Improvement of Governance and Management Research and Training Facilities (March 2021-July 2024)

In December 2021, a Grant Agreement (G/A) of up to 2.429 billion yen was signed for "The Project for the Improvement of Governance and Management Research and Training Facilities". This project will improve the human resource development environment in Bangladesh by constructing facilities for public policy research and the training of senior government officials and private sector executives at the Bangladesh Institute of Governance and Management (BIGM), thereby contributing to the improvement of the government's policy formulation capacity and the collaboration between the public and private sectors. The project will contribute to Goal 8 (Decent work and economic growth) and Goal 16 (Peace, justice and strong institutions) of the SDGs.

Rendering of Governance Management Institute (Photo: JICA)

(6) Health

Challenges	» The need to strengthen and improve maternal and child health and health systems to achieve universal health coverage (UHC) » Addressing non-communicable diseases (NCDs), which account for 60% of all deaths
Future directions	» Cooperate in the field of non-communicable diseases to support the transformation of the disease structure. » Train nurses to support the provision of the quality healthcare services. » Make active use of Japanese technology and knowledge in the fields of Japanese-style medical facilities and its management, community health service, maternal and child health service.
On-going projects	» Health Services Strengthening Project » Project for Capacity Building of Nursing Services (Phase 2)

1) Project for Capacity Building of Nursing Services (Phase 2) (February 2022 – January 2026)

In Bangladesh, the quality of public health care services is inadequate, and a quantitative shortage of health personnel, who are important players in health care services, remains as serious issue in the overall health system. Even though the government has established a long-term human resource development strategy for nursing, it has not yet been fully implemented. This cooperation focuses on the bachelor's program in nursing and supports the improvement of the quality of education for nurses.

2) Health Services Strengthening Project (April 2018 - August 2026)

As a result of the Bangladesh government's efforts to raise the quality of health care, the Millennium Development Goal targets such as the under-five mortality rate, HIV infection rate, and mortality rate due to malaria have been achieved and the maternal mortality rate has also improved significantly.

On the other hand, the number of deaths caused by non-communicable diseases (NCDs) is increasing due to changes in food habits and lifestyles. However, the number of primary health care facilities and services is not sufficient. This cooperation supports the improvement of the service quality at primary and secondary health care facilities (equipment and training to strengthen the NCD inspection system, and expansion and renovation of facilities), the strengthening of the inspection system, and renovation of clinics in urban and rural areas. In this way, the project is contributing to the peoples' health, especially NCDs for the urban poor in Dhaka.

Practical exercises (Photo: JICA)

(7) Education

Challenges	» Primary education: Although there have been improvements in the number of classrooms and teachers, there are still issues such as securing sufficient class time, improving the quality of teachers and human resources in training institutions. » Technical education: Graduates face difficulties in securing their jobs because technical education institute teaching methods don't match the actual demand of the industries.
Future directions	» Primary education: to support improvement in the quality of primary education by applying specific achievements and advantages in Japan and abroad. » In the area of technical education: to support the improvement of the quality of technical education by utilizing the knowledge of technical colleges that supported Japan's rapid economic growth from the perspective of fostering industrial human resources to support economic growth.
On-going projects	» JICA Support Program 3 for Strengthening Mathematics and Science in Primary Education Project » Project for Improvement of Technical Education for Industrial Human Resources Development

1) Project for Improvement of Technical Education for Industrial Human Resources Development (February 2019 – March 2024)

The importance of developing high-quality human resources to support economic growth is fully recognized in Bangladesh. However, the availability of secondary and tertiary education that can provide technical education for acquiring high skills is limited. The country's technical education is divided into four major programs, and there are 49 public polytechnic institutes across the country that offer a four-year engineering diploma. Although those institutes focus on the acquisition of medium-level technical skills, graduates face difficulties finding appropriate jobs because they have not acquired basic and practical skills in the fields required by the industry, and many of the teachers have limited experience in practical technical education. In this cooperation, the model polytechnic institutes are improving practical training content and teaching materials in the fields of electricity, electronics, machinery, and computers, as well as strengthening cooperation with companies. As a result, an educational model has been developed, contributing to the human resource development that meet the needs of industry.

Classroom preparation for Trial ToT (instructor training) (Photo: JICA)

(Photo: Mika Tanimoto/JICA)

(8) Agriculture and Rural Development

Challenges	» Low productivity on limited arable land and the need to diversify and add more value to agricultural products » Inadequate infrastructure in rural areas (roads, markets, etc.), lack of refrigerated storage facilities, and restrictions on the number of processed products due to lack of funds for food processing companies
Future directions	» To support poverty reduction, the reduction of urban-rural disparities and food security » To strengthen value chains through diversification and value addition of agricultural products, and improve access to safe water
On-going projects	» Small-Scale Water Resource Development Project (Phase 2) » Food Value Chain Improvement Project » Fisheries Livelihood Enhancement Project in the Coastal Area of the Bay of Bengal » The Project for Strengthening the Inspection, Regulatory and Coordinating Function of the Bangladesh Food Safety Authority » The Market-oriented Agriculture Promotion Project for Smallholder Horticulture Farmers through Multi-stakeholder Partnerships

1) Food Value Chain Improvement Project (June 2020 – November 2026)

Bangladesh's economic growth has been driven by the garment industry, which accounts for 80% of the country's exports. However, in order to achieve sustainable growth, it is necessary to develop export-oriented industries other than the garment industry and diversify export products. Under such circumstances, the country's agriculture, which accounts for 13 percent of GDP and half of the total number of workers, is expected to grow as an export industry by expanding the production of processed foods. However, the country's agriculture and food processing industries lack sufficient processing equipment and storage facilities such as refrigerators, freezers, and warehouses, and the productivity of raw materials is low. Therefore, it is necessary to improve the food value chain from production and processing to sales. This project aims to improve access to finance and strengthen the capacity of agricultural and food processing enterprises by providing low-interest medium- to long-term loans to agricultural and food processing enterprises through local financial institutions, as well as technical assistance in business management, food processing, and food safety management.

A mango processing plant (Photo: JICA)

2) The Project for Strengthening the Inspection, Regulatory and Coordinating Function of the Bangladesh Food Safety Authority (May 2021-April 2026)

In Bangladesh, the monitoring system of the food contamination is inadequate, and the situation of health hazards is not accurately understood. There are also concerns about the health effects of food contamination, such as detected levels of heavy metals like cadmium and lead in rice, vegetables, and fish sold in the country that exceed the tolerable daily intake. In addition to domestic consumption, processed food products are exported to more than 144 countries around the world, and exports are expected to increase in the future. In response to the growing importance of food safety, the country's government enacted the Food Safety Act in 2013 and established the Food Safety Agency (BFSA) in 2015. However, there are issues such as unclear division of roles between the BFSA and related agencies, lack of coordination between the central and local governments, insufficient capacity of food safety inspectors and non-standardized inspection methods, and insufficient awareness-raising activities for food safety stakeholders (food businesses and the public). This cooperation will strengthen BFSA's inspection, regulation, and coordination functions related to food safety through activities to: (1) enhance the management system for food safety inspections, (2) establish a food safety monitoring and supervision system, (3) strengthen the coordination system of food inspection laboratories, and (4) raise awareness of food safety among consumers to implement BFSA's food safety administration.

A-grade posters awarded to restaurant owner (Photo: JICA)

(9) Disaster Prevention/Climate Change

Challenges	» Limited coordination among relevant agencies regarding budget allocation and planning capacity even though the Disaster Management Act is in place » Limited earthquake-resistant buildings/structures especially in urban areas » Limited capacity and mechanisms among related agencies for issuing early warning against natural disasters
Future directions	» To promote understanding of disaster risks, to strengthen disaster risk governance, and promote pre-investment to reduce economic and human losses from natural disasters, considering SDGs, the Sendai Framework for Disaster Reduction, Delta Plan 2100 » Deterrence and Mitigation: To strengthen hydrological disaster preparedness and to enhance building safety » Preparedness: To strengthen evacuation mechanism by applying the proper early warning system » "Emergency Response" and "Recovery and Reconstruction": To contribute to the smooth implementation of post-disaster efforts
On-going projects	» Haor Flood Management and Livelihood Improvement Project » Disaster Risk Management Enhancement Project » Project for Planning Capacity Enhancement and Establishment of a Technology Adaptation Cycle on Comprehensive Nodi (River) Management » The Project for Improvement of Meteorological Radar System in Dhaka and Rangpur

1) Project for Planning Capacity Enhancement and Establishment of a Technology Adaptation Cycle on Comprehensive Nodi (River) Management (November 2020 – November 2024)

Bangladesh has a variety of rivers with different characteristics, including large network rivers with repeated channel fluctuations and short, steep small and medium-sized rivers. The country is located in a delta formed by three international rivers and is prone to frequent meteorological and hydrological disasters such as cyclones and flash floods. However, the government's countermeasures to date have focused on temporary or short-term responses after a disaster occurs, and it has not been able to consider integrated river management and flood control plans that match the characteristics of the rivers. In addition, there are issues such as poor construction and maintenance of river structures such as levees due to lack of technology and financial and human resources. In this cooperation, JICA aims to establish a systematic control and planning management for various rivers by developing knowledge tools for the installation and maintenance of structures in accordance with the characteristics of the rivers in the country, acquiring knowledge and know-how through these tools, and introducing a method for formulating a comprehensive river development and management plan.

2) The Project for Improvement of Meteorological Radar System in Dhaka and Rangpur (April 2015 – September 2024)

Due to its geographical characteristics, Bangladesh is prone to natural disasters such as floods and cyclones. The Meteorological Department oversees meteorological observation and forecasting in Bangladesh, and its observations in Dhaka and Rangpur play a particularly important role in protecting the metropolitan area from meteorological disasters. However, as the system is aging, it is causing problems in meteorological observation and forecasting, such as operational stoppages due to breakdowns and degradation of observation accuracy. In this cooperation, the existing meteorological radar systems in Dhaka and Rangpur are being upgraded to meteorological Doppler radar systems, and the construction of two meteorological radar towers is being supported. This will enable the stable provision of highly accurate meteorological observations and forecast information in the country's meteorological radar observation network and contribute to the mitigation of damage caused by meteorological disasters.

Dhaka meteorological radar station (Photo: JICA)

Appendix

1. Project List (Others)

#	Scheme	Sector	Project Name	Year
1	ODA Loan	Others	First Commodity Loan	1974.03
2	ODA Loan	Others	Second Commodity Loan	1975.04
3	ODA Loan	Others	Third Commodity Loan	1976.05
4	ODA Loan	Others	Commodity Loan (IV)	1977.05
5	ODA Loan	Others	Commodity Loan (V)	1978.01
6	ODA Loan	Others	Commodity Loan (VI)	1978.09
7	ODA Loan	Others	Commodity Loan (VII)	1980.01
8	ODA Loan	Others	Commodity Loan (VIII)	1981.04
9	ODA Loan	Others	Commodity Loan (IX)	1981.10
10	ODA Loan	Others	Commodity Loan (X)	1982.10
11	ODA Loan	Others	Commodity Loan (XI)	1984.03
12	ODA Loan	Others	Commodity Loan (XII)	1985.10
13	ODA Loan	Others	Commodity Loan (XIII)	1986.07
14	ODA Loan	Others	Commodity Loan (XIV)	1987.08
15	ODA Loan	Others	Commodity Loan (15)	1988.11
16	ODA Loan	Others	Commodity Loan (XVI)	1990.02
17	ODA Loan	Others	Commodity Loan (XVII)	1990.11

2. Project List (JICA Partnership Program (Grassroots Cooperation))

Support Type

No.	Sector	Project Name	Year
1	Health	Rural Sanitation Improvement and Waste Resource Recycle Project	2006
2	Health	Model project for an improvement on oral health care in rural area in Bangladesh	2007
3	Health	Oketani method training enhancement project	2011
4	Health	Project for Improvement of Water and Health Environment in Paikgacha Area	2014
5	Health	Health Promotion for Regional People by Oral Health Care Specialists	2015
6	Education	Establishment of Sustainable School Meal Project Model by Community Participation	2015
7	Education	Training Project for In-Service Teachers to Promoting Thinking Skills Using Revised Textbooks at Primary Education in Bangladesh	2016

Partner Type

No.	Sector	Project Name	Year
1	Agriculture and Rural Development	Participatory Integrated Rural Development Project	2003
2	Disaster Prevention/ Climate Change	The Community Development Project for Disaster Risk Reduction through Adolescent's Initiatives	2008
3	Health	Model Project for Community-Health Improvement through Total Sanitary and Hygiene Education at Primary School	2008
4	Disaster Prevention/ Climate Change	Cyclone Disaster Resilient Community Development Project	2009
5	Health	Project on the improvement of health damage and poverty by arsenic contamination in Abhaynagar upazila, Jessore district, Bangladesh	2009
6	Health	Expansion of Eco-san toilets and Establishment of a Business Model of Human excreta resources in the Bangladesh rural area	2009
7	Agriculture and Rural Development	Income Generation Project for Farmers at the BoP using ICT	2009

8	Health	Project on capacity building for drinking water supply service by Local Government (Union)	2010
9	Disaster Prevention/ Climate Change	Community Capacity Development Project for Disaster Risk Reduction by Community Radio	2011
10	Health	Project for Awareness Raising and Capacity Building on Appropriate Management of Eco-san Toilets in Rural Areas in Bangladesh	2012
11	Agriculture and Rural Development	Support to establish a new society of BOP farmers by using the power of ICT	2013
12	Disaster Prevention/ Climate Change	The project for mobilizing and organizing humanitarian operations and risk reduction activities in disaster prone coastal areas (Mohora)	2015
13	Disaster Prevention/ Climate Change	Urban Community Disaster Prevention	2015
14	Health	Bangladesh Oketani-Method Strengthening Project	2017
15	Agriculture and Rural Development	Project for Livelihood Improvement for Enhancing Resilience in Host Communities in Cox's Bazar (LIFE)	2018
16	Agriculture and Rural Development	Practice and Dissemination of Disaster-Resistant Climate Change-Adaptive Agriculture in Haor, Bangladesh	2020
17	Education	Structure Building Project for Spreading Community Participatory Sustainable School Meal in Collaboration Between Upazila and NGO	2020

Local Government Type

No.	Sector	Project Name	Year
1	Agriculture and Rural Development	Self-support Program in Bangladesh Countryside Area	2002
2	Others	Human Resource Development for Environment NGO	2002
3	Agriculture and Rural Development	Self-support Program in Bangladesh Countryside Area	2003
4	Agriculture and Rural Development	Self-support Program in Bangladesh Countryside Area	2004
5	Disaster Prevention/ Climate Change	Combating Global Warming through the Achievement of Environmental Protection-Oriented Society	2006

6	Disaster Prevention/ Climate Change	Asia NGO Disaster Prevention Training	2006
7	Private Sector	Miyazaki-Bangladesh ICT Human Resource Development	2020

3. Project List (JICA's Private Sector Partnership (SME/SDGs Business Support))

#	Year	Scheme	Sector	Project Name
1	2012	Needs Survey	Education	Needs Survey on Introduction of Technology and Products of Japanese Small and Medium Enterprises in the Area of Vocational Training and Industrial Development
2	2013	Needs Survey	Disaster Prevention/ Climate change	Needs Survey on Construction of Disaster-Regilient Informarion Sharing Based Community
3	2013	Needs Survey	Others	Needs Survey on The Transfer of Japanese Autoclaving Food-processing Technology for the Reduction of Postharvest Losses
4	2014	Needs Survey	Others	Needs Survey on Environment, Energy,Waste Management,Health, and Education
5	2015	Project Formulation Survey (Private Sector)	Energy/Transport	Feasibility Survey for solving the traffic problems of Dhaka metropolitan area by utilizing the electric tricycle (E-trike)
6	2019	Project Formulation Survey (Private Sector)	Energy/Transport	Verification Survey with the Private Sector for Disseminating Japanese Technologies for Non-fired Solidification Brick Manufacturing Process
7	2012	Project Formulation Survey (Private Sector)	Urban Development	Project Formulation Survey on Development for Package of Medical Waste Treatment System
8	2019	Project Formulation Survey (Private Sector)	Urban Development	SDGs Business Model Formulation Survey with the Private Sector for Establishment of Efficient and Hygienic waste storage system in Bangladesh
9	2012	Project Formulation Survey (Private Sector)	Agriculture and Rural Development	Feasibility Study of Small-Scale Water Supply Project in Bangladeshi Rural Areas
10	2014	Project Formulation Survey (Private Sector)	Urban Development	Feasibility Survey for Dhaka Water Supply and Sewerage Improvement
11	2019	Project Formulation Survey (Private Sector)	Urban Development	SDGs Business Model Formulation Survey with the Private Sector for Introduction of Water Recycling Technology for Textile Dyeing Industry
12	2016	Project Formulation Survey (Private Sector)	Agriculture and Rural Development	Feasibility Survey for Livelihood Improvement of Farmers Through Establishment of Production and Processing Techniques of Highly Value-added Moringa Oleifera
13	2012	Project Formulation Survey (Private Sector)	Health	Preparatory Survey for BOP business on Nutoritious Euglena Cookie
14	2013	Project Formulation Survey (Private Sector)	Education	Project Formulation Survey on the Utilization of Pen Set with Voice for Educational Project
15	2014	Project Formulation Survey (Private Sector)	Education	Verification Survey with the Private Sector for Disseminating Japanese Technologies for the use of e-learning system compatible with poor communication environment, for the courses of the ITEE
16	2013	Project Formulation Survey (Private Sector)	Disaster Prevention/ Climate change	Project Formulation Survey on Flood Observation System with Solar Power and Smart Phone Controling to Improved Water Disaster Management
17	2015	Project Formulation Survey (Private Sector)	Disaster Prevention/ Climate change	Feasibility Survey for Introducing Unbound Granular Pavement Technology with Reproduced Base Course Material for Road Construction in Dhaka
18	2015	Project Formulation Survey (Private Sector)	Disaster Prevention/ Climate change	Feasibility Survey for Establishing the Community Disaster Preparedness by Utilising a Water Purification System Loaded on a Bicycle
19	2014	Verification Survey (Private Sector)	Others	Verification Survey with the Private Sector for Disseminating Japanese Technologies for Non-fired Solidification Brick Manufacturing Process
20	2015	Verification Survey (Private Sector)	Education	Feasibility Survey for the use of e-learning system, compatible with poor communication environment, for the courses of the Information Tec hnology Engineer Examination (ITEE)
21	2013	SME Partnership Promotion Survay	Power/Energy	Survey on Business for Sales of Pico-solar and Related Products for Off-grid Lowest-income People in Bangladesh
22	2016	SME Partnership Promotion Survay	Others	Survey on Introducting flat plug resin for producing non-fired bricks
23	2014	SME Partnership Promotion Survay	Others	Survey on Collection and Metal Recycling Business of e-waste (SME Partnership Promotion)
24	2015	SME Partnership Promotion Survay	Urban Development	Survey on securing drinking water using natural ingredient during a flood
25	2012	SME Partnership Promotion Survay	Agriculture and Rural Development /Education	Survey on Improvement for Transportation of Agricultural and Fisheries Product from Producing Areas to Consumption Areas
26	2019	SME Partnership Promotion Survay	Health	Small and Medium-Size Enterprise (SME) Partnership Promotion Survey for Home Medical Care Service with the Portable Ultrasound Scannerin
27	2014	Preparatory Survey (PPP Infrastructure Projects)	Power/Energy	Preparatory Survey for the Consutuction and Operation of Imported Coal Transshippment Terminal Project in Matarbari Area
28	2010	Preparatory Survey (BOP Business Promotion)	Power/Energy	Preparatory Survey on CDM business by introduction of energy micro utility system in rural areas in Bangladesh

#	Year	Scheme	Sector	Project Name
29	2011	Preparatory Survey (BOP Business Promotion)	Power/Energy	Preparatory Survey on BOP Business on Light Weight Flexible Panels
30	2012	Preparatory Survey (BOP Business Promotion)	Others	Preparatory Survey on BOP business on Non-firing Solidified Brick Technology
31	2010	Preparatory Survey (BOP Business Promotion)	Others	Preparatory Survey on BOP business on rainwater tanks with microcredit system
32	2011	Preparatory Survey (BOP Business Promotion)	Others	Preparatory Survey on BOP Business on Safe Water Supply in Bangladesh
33	2011	Preparatory Survey (BOP Business Promotion)	Others	Feasibility Survey for Establishing the Community Disaster Preparedness by Utilising a Water Purification System Loaded on a Bicycle
34	2011	Preparatory Survey (BOP Business Promotion)	Power/Energy	Preparatory Survey on BOP business on mini desalination system operated by wind power generator and solar panel
35	2011	Preparatory Survey (BOP Business Promotion)	Agriculture and Rural Development	Preparatory Survey on BOP Business on Development of Production Systems for Green Mungbean
36	2014	Preparatory Survey (BOP Business Promotion)	Others	Preparatory Survey for BOP business on Soft-shell Mangrove Crab Farming
37	2011	Preparatory Survey (BOP Business Promotion)	Health	Preparatory Survey on BOP business on improving maternal and child nutrition through locally-developed foods
38	2012	Preparatory Survey (BOP Business Promotion)	Health	Preparatory Survey on BOP business on skin-care products for women in rural areas
39	2014	Preparatory Survey (BOP Business Promotion)	Health	Preparatory Survey for BOP business on Nutoritious Euglena Cookie
40	2013	Preparatory Survey (BOP Business Promotion)	Education	Preparatory Survey on BOP business on Improving Quality of Education through Partnership with NGOs
41	2014	Preparatory Survey (BOP Business Promotion)	Education	Preparatory Survey for BOP business on E-learning for Secondary Education and Vocational Training
42	2012	Preparatory Survey (BOP Business Promotion)	Others	Preparatory Survey on BOP business on development of micro life insurance
43	2013	Collaboration Program Private Sector	Power/Energy	Collaboration Program with the Private Sector for Disseminating Japanese Technology for Pre-Paid Gas Meter
44	2017	Verification Survey (SDGs Business)	Agriculture and Rural Development	Feasibility Survey for SDGs Business on Sweet Potato Production, Processing and Marketing for Improvement of Small Scale Farmers' Income and Reduction of Postharvest losses
45	2018	Verification Survey (SDGs Business)	Agriculture and Rural Development	Feasibility Survey for SDGs Business on Molinga Production, Processing and Marketing to Improve the Income of Farmers
46	2016	Verification Survey (SDGs Business)	Health	Feasibility Survey for SDGs Business on Medical Check-up to Improve Access to Health Services

4. Project List (Private Sector Investment Finance)

#	Sector	Project Name	Type	Year
1	Private Sector	Bangladesh KAFCO Fertilizer Project	Investment	1990.7
2	Power/Energy	Sirajganj Combined Cycle Power Plant Project	Loan	2017.3
3	Power/Energy	Moheshkhali Floating Storage and Regasification Unit Operation Project	Loan	2017.6
4	Health	East West Medical College and Hospital Project	Investment	2018.7

5. Cooperation Policy (February, 2018)

Country Development Cooperation Policy for the People's Republic of Bangladesh
February, 2018

1. Purpose of Development Cooperation

Bangladesh is an Islamic country with moderate democracy located at the junction of South Asia and Southeast Asia, and plays an important role in the stability and economic development of the South Asian region. In recent years, Bangladesh's GDP has been growing at an annual rate of more than 6%, attracting attention as a potential production base following China and Vietnam, and as a new market of 160 million people, and Japanese companies are also expanding their operations into the country. However, Bangladesh is still a least developed country with a poverty-stricken population of about 40 million, or about 30% of its population. The country faces challenges such as the need to strengthen governance, underdevelopment of basic infrastructure such as electricity and transportation, and vulnerability to natural disasters such as cyclones and floods, all of which are factors that hamper the country's economic and social development.

The assistance of Japan to Bangladesh will enhance the good bilateral relations between the two countries, which have been supported by the strong pro-Japanese sentiment since the independence of Bangladesh, and will lead to the strengthening of cooperative relations in the international arena. As Bangladesh is located at a geopolitical key point surrounded by China, India, and ASEAN, it will contribute to the strengthening of connectivity between South and Southeast Asia and the expansion of economic relations such as trade and investment in the future, and will also contribute to the promotion of the "Free and Open Indo-Pacific" Strategy.

Furthermore, Japan's assistance to Bangladesh in achieving the Sustainable Development Goals (SDGs) will contribute not only to the stable development of the South Asian region, but also to the peace and stability of the international community, and is therefore highly necessary for Japan's foreign policy.

2. Basic policy of Japanese ODA (Overall Goal)

Accelerating sustainable and equitable economic growth and removing poverty in order to become a middle-income country

The Government of Bangladesh, in its Seventh Five-Year Plan (2016-2020), has focused on "GDP Growth acceleration, employment generation and rapid poverty reduction", "A broad-based strategy of inclusiveness with a view to empowering every citizen to participate full and benefit from the development process" and "A sustainable development pathway that is resilient to disaster and climate change; entails sustainable use of natural resources; and successfully manages the inevitable

urbanization transition" in order to achieve a middle-income country level of living for all citizens by 2021.

Under the "Comprehensive Partnership" agreed at the Japan-Bangladesh Summit Meeting in 2014, Japan will support Bangladesh's efforts to revitalize economic activities and overcome social vulnerabilities in a bid to boost the country's growth and poverty eradication through sustainable and equitable growth with equity.

3. Priority Areas (Subsidiary Goals)

(1) Accelerating economic growth for the benefit of all citizens toward a middle-income country

The Government of Japan will support the acceleration of sustainable economic growth through cooperation based on the "Bay of Bengal Industrial Growth Belt (BIG-B)" concept, while giving due consideration to the poor, in order to achieve the "a middle-income country by 2021" set as a policy goal by the Government of Bangladesh.

The Government of Japan will contribute to the improvement of regional connectivity by promoting the efficient move of people and goods through the development of high quality transportation and traffic infrastructure in accordance with international standards, while paying attention to the diversification of transportation systems. In addition, in order to solve the serious shortage of electricity and energy, which is the most serious obstacle to economic development, a stable supply of electricity and energy will be ensured through the construction of power plants and transmission and distribution networks.

Furthermore, in the pursuit of promoting the activities of the private sector, which is the driving force for achieving high economic growth, and in a bid to attract and increase private investment, we will support the improvement of the investment environment and engage extensively in human resource development, which is the foundation for the growth of the private sector.

(2) Overcoming social vulnerabilities

The Government of Japan will contribute to the achievement of the SDGs related to poverty, hunger, education, health, gender, and water and sanitation.

For education, we will contribute to improving the quality of primary education, improving technical education, and promoting research and development in the field of science and technology. As for healthcare, we will contribute to the achievement of universal health coverage by improving the quality of public health services, especially maternal and child health and non-communicable disease control, and by supporting the strengthening of

comprehensive health systems through capacity building of health administration, including the development of human resources for health and the establishment of community-based health support systems.

We will also provide support for disaster prevention and measures to tackle climate change, focusing on disaster forecasting and warning, earthquake disaster mitigation, and river management, as well as for improving living conditions and livelihoods in rural areas.

4. Points to be considered

(1) In view of the active coordination among relevant donor countries and organizations in Bangladesh, Japan makes efforts to improve the effectiveness of bilateral assistance through close cooperation with donor countries and organizations.

(2) Actively introduce innovative approaches, such as partnerships with new businesses that aim to both, economic growth and social issues such as the environment and poverty. We will also consider the utilization of Japan's technological resources in the formation of projects.

(3) In order to improve governance, which has been an issue in the past, we will ensure that government functions are strengthened and administrative services are improved in all areas of assistance.

(4) In the implementation of above support, the greatest attention will be paid to ensure the safety of those involved, and the necessary security measures will be taken.

Annex: Rolling Plan

6. Rolling Plan (2020)

Country Assistance Policy (Atttachment)

Rolling Plan for the People's Republic of Bangladesh

AS of April 2020

Basic Policy (Purpose)	Accelerating sustainable and equitable economic growth and getting out of poverty to become a middle-income country

Priority Area 1 (Target)	Accelerating economic growth towards a middle-income country, in which all citizens can benefit	
	Current Status and Challenges Bangladesh's international competitiveness in the infrastructure sector is ranked 111th out of 137 countries (Global Competitiveness Report 2017-18). In particular, the most urgent issues to be addressed are the significant improvement of electricity and energy supply (expansion of capacity and efficiency), the expansion of transportation and traffic networks that support logistics, and the renewal of related infrastructure, which are serious obstacles to economic and industrial activities. The government of Bangladesh has recognized the development of economic infrastructure as one of the most important issues in its Seventh Five-Year Plan and is working on its national development. In a joint statement at the time of the mutual visit of the two Prime Ministers in 2014, the two governments agreed to cooperate in the realization of the Bay of Bengal Industrial Growth Belt (BIG-B) initiative, which focuses on the development of economic infrastructure, improvement of the investment environment, and enhancement of connectivity. Since that time, various cooperation projects have been implemented. (1) Electricity and energy supply: With the recent economic development, the demand for electricity is expected to increase by approximately eight times from the 2014 to 2041, therefore, the development of power sources and securing energy resources is an urgent issue. As domestic natural gas, which used to be the largest energy source, is being exhausted.It is necessary to develop new sources of power and energy, including imports, improve the efficiency of use, and enhance the quality of electricity, while giving due consideration to the environment. (2)Transport and Traffic Network: Domestic passenger and cargo transport is hampered by insufficient transport capacity in the main routes and railroads, including the economic corridor connecting the capital Dhaka with the tourist city of Cox's Bazar via the international port city of Chattogram, regular congestion in urban areas, insufficient pavement on local roads, and deterioration of existing infrastructure. It is necessary to support the construction, maintenance, and safe use of transportation infrastructure in overall, taking into account industrial development plans and urban development plans. In addition, capacity building in the fields of roads, railroads, ports, and aviation is an urgent issue to enhance connectivity between South Asia and Southeast Asia. Currently, geospatial information required for infrastructure development and disaster prevention in general is being promoted. In the future, as national land development accelerates, it will be necessary to increase the density of geodetic reference point networks, to outsource surveying, and to utilize satellites and the Internet.	Policy for addressing development challenges Among the three pillars of the BIG-B concept, we will further promote cooperation to realize "development of economic infrastructure" and "improvement of connectivity. We will also contribute to development through the utilization of Japanese technologies for mutual benefit. In providing support for the development of new infrastructure and the strengthening of maintenance and management in power and energy, transportation, and traffic networks, we will take into account the needs of related fields and give appropriate consideration to the environment. (1) Electricity and energy supply: In the face of the expected depletion of domestic natural gas in the near future, we will support the development of new power sources, such as fire power generation, and the promotion of the use of renewable energies in consideration of climate change, in order to diversify and stabilize the supply of electricity and energy. (2) In addition, in order to improve the efficiency of power and energy utilization on both the supply and demand sides, we will support the appropriate maintenance and renewal of existing power generation, transmission and distribution facilities, as well as energy saving in industry, consumers and other sectors. Furthermore, the quality of electricity (frequency and voltage) will be improved from a medium-term perspective. Through these efforts, we will also address the soft issues of strengthening the organisation and improving management capacity in line with the progress of sector reform. GOAL 7 (AFFFORDABLE AND CLEAN ENERGY) of SDGs GOAL 9 (INDUCTRY, INNOVATION AND INFRASTRUCTURE) of SDGs GOAL 11 (SUSTAINABLE CITIES AND COMMUNITIES) of SDGs

Program	Program Summary	Project	Scheme	Schedule JFY 2019	JFY 2020	JFY 2021	JFY 2022	JFY 2023	JFY 2024	Assistance Amounte (100 million Yen)	Note
	Development of new power sources and improvement of substation, transmission and distribution facilities will be promoted in order to meet the increasing demand for electric power and ensure a stable supply of electric power. In addition, support for energy diversification will be provided in order to satisfy the shortage of domestic natural gas supply. Support will be provided for strengthening management capability and maintenance and management systems, and the utilization of Japanese expertise in energy conservation and other areas.	The Integrated Energy and Power Master Plan Project	[TCDP]								
		Power & Energy Sector Advisor	[EXP]								
		Bheramara Combined Cycle Power Plant Development Project (E/S)	[LA]							22.09	
		Bheramara Combined Cycle Power Plant Development Project	[LA]							414.80	
		Matarbari Ultra Super Critical Coal-Fired Power Project (I)(II)(III)(IV)(V)	[LA]							3,005.02	
		The Project for Capacity Development for Operation and Maintenance (O&M) of Thermal Power Stations	[TCP]								

Development issue 1-1 (Objective) Economic infrastructure development	Stable Supply of Power and Energy Programs (Strengthening Program)		National Power Transmission Network　Development Project	[LA]							187.36	
			Dhaka-Chittagong Main Power Grid Strengthening Project	[LA]							437.69	
			Dhaka Underground Substation Construction Project	[LA]							204.77	
			Enegy Efficiency and Cnservation Promotion Financing Project	[LA]							119.88	
			Enegy Efficiency and Cnservation Promotion Financing Project (Phase 2)	[LA]							200.76	
			Data Collection Survey for Regional Grid Integration in BBIN (Bangladesh, Bhutan, India and Nepal)	[Data collection survey]								
			Natural Gas Efficiency Project	[LA]							235.98	
			The Project for Gas Network System Digitalization and Improvement of Operational Efficiency in Gas Sector in Bangladesh	[TCP]								
	National Transportation Network Improvement Program (Strengthening Program)	To promote efficient mobility of people and goods in the national transport and traffic network, the project will support the road (trunk roads and bridges) and railway sectors. In the field of roads, the project will develop a network of highways in and around Dhaka city and major regional cities to promote domestic logistics to the cities, and in the field of urban railways, the project will continue to support the introduction of Bangladesh's first urban railway in Dhaka city. In the field of ports and harbours, such as the development of an international deep-sea port as a gateway to Bangladesh and the expansion of the capital airport will be undertaken in order to improve the efficiency of mobility of people and goods and to promote logistics with neighbouring countries.	The Kanchpur, Meghna and Gumti 2nd Bridges Construction and Existing Bridges Rehabilitation Project （I）(II)	[LA]							816.75	
			Western Bangladesh Bridge Improvement Project	[LA]							293.40	
			Cross-Border Road Network Improvement Project (Bangladesh)	[LA]							286.98	
			The Project for Capacity Development of Managing and Contorlling Overloaded Vehicles	[TCP]							4.86	
			Road and Bridge Maintenance Adviser	[EXP]							0.51	
			Chittagong City Outer Ring Road Project	[LA]							90.96	
			The Preparatory Survey for Chattogram-Cox's Bazar Highway Improvement Project	【Preparatory Survey】							2.56	
			Jamuna Rail way Bridge Construction Project (E/S)	[LA]							24.64	
			Jamuna Rail way Bridge Construction Project (I)	[LA]							372.17	
			Data collection survey on improvement of logistics between India and Bangladesh	[Data Collection Survey]								
			Dhaka Mass Rapid Transit Development Project (I)(II)(III)	[LA]							1,653.19	Also mentioned in the Urban Development Program
			Dhaka Mass Rapid Transit Development Project (Line 1) （E/S)	[LA]							55.93	Also mentioned in the Urban Development Program
			Dhaka Mass Rapid Transit Development Project (Line 1) (I)	[LA]							505.21	Also mentioned in the Urban Development Program
			Dhaka Mass Rapid Transit Development Project (Line 5) (E/S)	[LA]							73.58	Also mentioned in the Urban Development Program
			Project for Establishment of Clearing House for Integrating Transport Ticketing System in Dhaka City and Adjacents districts (Phase II)	[TCP]							3.90	Also mentioned in the Urban Development Program
			The Project on Technical Assistance for Mass Rapid Transit Safety Management System of Line 6	[TCP]							2.56	Also mentioned in the Urban Development Program
			The Project for Development of Policy and Guidelines for Transit Oriented Development along Mass Transit Corridors	[TCDP]							3.10	Also mentioned in the Urban Development Program

			Data Collection Survey on Kamalapur Station Area Redevelopment	[Data Collection Survey]								Also mentioned in the Urban Development Program
			Dhaka Integrated Traffic Management Project	[TCP]							4.49	Also mentioned in the Urban Development Program
			Preparatory Survey on the Matarbari Port Development Project	[PS]							4.89	
			Matarbari Port Development Project (E/S)	[LA]							26.55	
			Matarbari Port Development Project(I)	[LA]							388.66	
			Project for Capacity Development on Operation, Maintenance and Management in Matarbari Port	[TCP]							3.41	
			Hazrat Shahjalal International Airport Expansion Project (I)	[LA]							768.25	
			The Project for Security Improvement of International Airports	[TCP]							5.09	
			The Project for Improving Ground Handling Capacity of Hazrat Shahjalal International Airport	[TCP]							1.95	
			Project for Strengthen the Capacity on Advanced Mapping of SOB for Building Digital Bangladesh	[TCP]							1.66	
			The Project for the Densification of Global Navigation Satellite System Continuously Operating Reference Station Network and the Modernization of Tidal Stations in Bangladesh	[GA]							12.58	
			The Project for Establishment of National Spatial Data Infrastructure (NSDI) for Bangladesh	[TCP]							1.48	
			Training on Road and Bridge Maintenance	[TR]							0.03	

Development issue 1-2 (Objective)

Private Sector Development

Current Status and Challenges.

In recent years, the country has been maintaining a relatively high economic growth rate (7-8%), but in order to achieve the national goal of "becoming a middle-income country by 2021" and "Becoming a developed country by 2041", it is necessary to continue to keep the same level of high growth. To achieve this, it is essential to shift from the current economic structure that is over-dependent on exports of garment products and overseas remittances of workers. Therefore, it is necessary to diversify industries by fostering competitive industries, especially manufacturing.To foster a competitive manufacturing industry, it is crucial to transfer technology and knowledge from developed countries. In order to do, the challenge is to improve the systems, policies, administration, and implementation capacity that support the promotion of investment and other activities. At the same time, the development of industrial human resources, which is the basis for industrial development, and the fostering of subsidiary industries, including small and medium-sized enterprises, are also essential.

Policy for addressing development challenges.

Among the three pillars of the BIG-B initiative, cooperation will be further promoted to "improve the investment environment". We will support the improvement of policies, systems, administration, and implementation capacity related to investment, trade, and industrial development, with the aim of increasing investment, diversifying industries, strengthening competitiveness, and supporting Japanese companies' business operations in Bangladesh. The support will be provided for the development of Economic Zones (EZ) that will contribute to the further promotion of economic relations between Japan and Bangladesh, support for the strengthening of the capacity to operating EZ, including one-stop services, and support for the training of industrial human resources necessary for the entry of Japanese companies. We are also working on fostering the industry and strengthening the competitiveness of small and medium-sized enterprises (SMEs) that support the foundation of the manufacturing industry, encouraging Japanese SMEs to invest in Bangladesh, and supporting the promotion of BOP business and social business.

GOAL 8 (DECENT WORK AND ECONOMIC GROWTH) of SDGs
GOAL 9 (INDUCTRY, INNOVATION AND INFRASTRUCTURE) of SDGs

Program	Program Summary	Project	Scheme	Schedule JFY 2019	JFY 2020	JFY 2021	JFY 2022	JFY 2023	JFY 2024	Assistance Amounte (100 million Yen)	Note
Private Sector Development Programs	It will support the promotion of investment from overseas including Japanese companies, the diversification of industries, policy and institutional improvements aimed at strengthening competitiveness, the improvement of the investment environment in terms of infrastructure, the development of industrial human resources, and the development of supporting industries. It will also support the use of Japanese SME technology and the promotion of social business.	Foreign Direct Investment Promotion Project (I) (II)	[LA]							369.72	
		Project for Promoting Investment and Enhancing Industrial Competitiveness	[TCDP]							18.27	
		The Project for Skill's Development of ICT Engineers Targeting Japanese Market	[TCP]							5.30	
		Advisor for Investment Climate Improvement	[EXP]								

Development issue 1-3 (Objective) Urban Development	Current Status and Challenges. In the Dhaka metropolitan area, where economic activities are concentrated, as well as in Chattogram, an international port city, and other regional cities, economic infrastructure such as transportation networks and social infrastructure such as water supply and sewerage systems are significantly undevelped to cope with the rapidly growing population and economic growth in recent years. As a result, urban environmental issues such as over capacity of transportation, power and water shortages, insufficient waste management, air and water pollution, etc have been getting more serious. In addition, capacity development of governmental authorities who are responsible to provide urban public services are underway and thus such infrastructures are insufficiently managed. To face this situation, timely planning and investment to the infrastructures are required.			Policy for Addressing Development Challenges For the purpose of promoting smooth economic activities and improvement of people's living environment in Dhaka, the capital city, and Chattogram, the second largest city, and other local cities, which are the core of economic growth, we will support to develop infrastructures such as urban transportation networks and systems, water supply and sewerage systems, and improve the quality of administrative services in water supply, rainwater drainage and solid waste management with due consideration to the urban poor. GOAL 6 (CLEAN WATER AND SANITATION) of SDGs GOAL 11 (SUSTAINABLE CITIES AND COMMUNITIES) of SDGs								
	Program	Program Summary	Project	Scheme	Schedule JFY 2019	JFY 2020	JFY 2021	JFY 2022	JFY 2023	JFY 2024	Assistance Amounte (100 million Yen)	Note
	Urban Development Program (Strengthening Program)	Support comprehensive urban planning and accordingly provide assistance for development of urban transport networks and transport systems in Dhaka and Chittagong, etc. Secondly, Improve water supply services as a foundation of industries and human life by supporting improvement of water supply systems, strengthening the capacity of water supply utilities, and reducing non-revenue water. Lastly, support improvement of solid waste management by strengthening collection and transportation capacity, expansion and building new disposal sites, and strengthen operation and management capacity.	Dhaka Mass Rapid Transit Development Project (I)(II)(III)	[LA]							1,653.19	Also mentioned in theNational Transportation Network Improvement Program
			Dhaka Mass Rapid Transit Development Project (Line 1) (E/S)	[LA]							55.93	Also mentioned in theNational Transportation Network Improvement Program
			Dhaka Mass Rapid Transit Development Project (Line 1) (I)	[LA]							505.21	Also mentioned in theNational Transportation Network Improvement Program
			Dhaka Mass Rapid Transit Development Project (Line 5) (E/S)	[LA]							73.58	Also mentioned in theNational Transportation Network Improvement Program
			Project for Establishment of Clearing House for Integrating Transport Ticketing System in Dhaka City and Adjacents districts (Phase II)	[TCP]							3.90	Also mentioned in theNational Transportation Network Improvement Program
			The Project on Technical Assistance for Mass Rapid Transit Safety Management System of Line 6	[TCP]							2.56	Also mentioned in theNational Transportation Network Improvement Program
			The Project for Development of Policy and Guidelines for Transit Oriented Development along Mass Transit Corridors	[TCDP]							3.10	Also mentioned in theNational Transportation Network Improvement Program
			Data Collection Survey onKamalapur Station Area Redevelopment	[Data Collection Survey]								Also mentioned in theNational Transportation Network Improvement Program
			Chittagong City Outer Ring Road Projec	[LA]							90.96	Also mentioned in theNational Transportation Network Improvement Program
			Dhaka Integrated Traffic Management Project	[TCP]							4.49	Also mentioned in theNational Transportation Network Improvement Program
			Dhaka Road Traffic Safety Project	[TCP]							4.80	
			Karnaphuli Water Supply Project (Phase 2)	[LA]							348.47	
			Khulna Water Supply Project	[LA]							157.29	
			Data Collection Survey for the Water Resources of Sounthern Chattogram Region	[Data Collection Survey]								
			Project for Capacity Development of City Corporations	[TCP]							6.90	
			Inclusive City Governance Project	[LA]							306.90	
			Urban Development and City Governance Project	[LA]							282.17	Also mentioned in theAdministrative Capacity Building Programs
			Preparatory Survey on Southern Chattogram Regional Development Project	[PS]								
			Project for Strengthening of Solid Waste Management in Dhaka North City, Dhaka South City and Chittagong City	[TCP]							5.18	
			Data Collection Survey on Introducing Incineration System in North and South Dhaka City	[Data Collection Survey]								

			Introduction of Water Recycling Technology for Textile Dyeing Industry	[SDGs-BMFS]								0.45	
			Grant Assistance for Grass -roots Human Security Projects	[GCGA]								0.10	

Priority Area 2 (Target)	Overcoming Social Vulnerability

Current Status and Challenges

(1) Health
In the MDGs, a dramatic improvement have been seen in the under 5 years old mortality rate in particular, and the average life expectancy has exceeded 70 years old for both men and women. However, the neonatal mortality rate (20 per 1,000 birth, 2016) and maternal mortality rate (176 per 100,000 births, 2015) remain high, and further measures are needed. In addition, non-communicable diseases (NCDs) such as cardiovascular diseases and cancer account for about 60% of all deaths due to changes in dietary habits and lifestyles, increased smoking, and other factors. Nontheless, the environment for the early detection and treatment of NCDs in public health services is not sufficiently developed, and it is desirable to strengthen measures to respond to changes in disease trends. In terms of public expenditure on the health sector, 2.6% of GDP was allocated to the health sector in 2015, while the rate of out-of-pocket expenses in total healthcare expenditure was as high as 72% (2015). In order to achieve Universal Health Coverage (UHC), where everyone can access quality health services with affordable price they, it is necessary to strengthen the health system, including the expansion of the quantity and quality of health workers and medical facilities that support the provision of health services, and financial support such as introduction of social security systems for the poor whose house incomes are squeezed by childbirth and daily injuries and illnesses.
(2) Education
The primary education enrollment rate has improved from 87.2% (2005) to 98% (2016). In line with this, the completion rate of up to grade 5 has improved from 52.1% (2005) to 80.9%. However, the country is far from achieving SDG Goal 4. Although there has been some improvement in the number of classrooms and teachers, there are still many challenges to be addressed, such as ensuring sufficient class time, improving teacher quality, and lack of capacity and human resources in training institutions. The current Fourth Primary Education Development Program of the Government of Bangladesh (PEDP4, 2018-2022) focuses on improving the quality education.
Technical education is also facing challenges due to several reasons such as curriculum not in line with the needs of industry resulting to difficulty in graduates to find a job. Stable economic growth is leading the recent increase in demand for higher education, especially in universities. It has been regarded that uplift of the level of research and development as well as science and technology are also important.

Policy for addressing development challenges

(1) Health
With the aim of achieving SDG Goal 3, we will continue to participate in the SWAPs framework and contribute to the strengthening of health systems by utilizing the results of our cooperation to date. Specifically, we will start cooperation in the field of non-communicable diseases as well as maternal and child health, which we have supported for a long period through technical cooperation, and to respond to the shift in disease trends and develop human resources for nursing to support the supply of healthcare services. In these areas, we will employ Japanese technologies and knowledge that have been fostered by experiences in Japan. Moreover, we will provide loans together with technical cooperation that enables to upgrade and replicate the knowledge and models developed through technical cooperation.
(2) Education
In order to achieve Goal 4 of the SDGs, we will cooperate to improve the quality of primary education and technical education, taking advantage of Japan's concrete achievements in contributing to the other countries.
In primary education, as sector-wide approach is applied in Bangladesh, Japan will align with it and and will provide support for policy formulation and implementation, as well as for quality of education in science and mathematics. With regard to technical education, from the perspective of fostering industrial human resources to support economic growth, we will utilize the Japan's knowledge in colleges of technology that supported Japan's rapid economic growth, and provide cooperation that contributes to improving the quality of technical education. We will also examine the way to respond to the increasing demand for higher education that accompanies economic growth, and to improve the level of science and technology as well as research and development, which are the foundations for further economic growth.

GOAL 1 (NO POVERTY) of SDGs
GOAL 3 (GOOD HEALTH AND WELL-BEING) of SDGs
GOAL 4 (QUALITY EDUCATION) of SDGs

	Program	Program Summary	Project	Scheme	Schedule JFY 2019	JFY 2020	JFY 2021	JFY 2022	JFY 2023	JFY 2024	Assistance Amounte (100 million Yen)	Note
Development issue 2-1 (Objective) Capacity Development	Health System Strengthening Program	Utilizing the long experience in supporting maternal and child health and responding to change in disease trend in Bangladesh,we will improve health services by strengthening the training of nursing personnel and measures against NCDs. Furthermore, we will contribute to the strengthening of health systems in a comprehensive manner by participating in sector-wide approaches. Specifically, we support the sector with a focus on maternal and child health and NCDs, and administrative capacity development at the central and provincial, the improvement of the quality of health services at public health facilities, the development of human resources for health, and community health from the perspective of enhansing health system.	Maternal, Neonatal and Child Health (MNCH) and Health System Improvement Project	[LA]							175.20	
			Health Services Strengthening Project	[LA]							65.59	
			Project for Capacity Building of Nursing Services	[TCP]							4.30	
			Project for Capacity Building of Nursing Services Phase II	[TCP]							4.19	
			Project for Strengthening Health Systems through Organizing Communities	[TCP]							4.76	
			Bangladesh Oketani-Method Strengthening Project	[GGHSP]							0.31	
			Health Promotion for Regional People by Oral Health Care Specialists	[GGHSP]								
			Feasibility Survey for SDGs Business on Medical Check-up to Improve Access to Health Services	[SDGs-FS]								
			Grant Aid for Japanese NGO's Projects	[JNGA]							0.69	

			Grant Assistance for Grass -roots Human Security Projects	[GGHSP]							0.22	
	Improving the Quality of Education Programs	Aiming to achieve SDG Goal 4, in primary education, while providing budget support in the framework of the sector-wide approach, Japan will utilize its experience and achievements in cooperation to support the improvement of teacher training methods and teaching materials, curriculum revision, and other measures to improve the quality of education, and apply such achievements to policy level as well as to disseminate them on the field level. In the area of technical education, in light of industrial needs, we will support the implementation of practical education, improvement of teaching materials and enhancement of teachers' abilities to improve the quality of education.	Long Term Primary Education Advisor	[EXP]								
			Long Term Education Advisor	[EXP]								
			JICA Support Program 3 for Strengthening Mathematics and Science in Primary Education Project	[TCP]							3.32	
			The Fourth Primary Education Development Programme 2019	[GA]							5.00	
			Training Project for In-Service Teachers to Promoting Thinking Skills Using Revised Textbooks at Primary Education in Bangladesh	[GGHSP]								
			The Project for Improvement of Technical Education for Industrial Human Resources Development	[TCP]							3.39	
			Preparatory Survey on the Project for Modernization of Polytechnic Institutes	[PS]								
			Project for Capacity Building on Human Development Television (HDTV) Programmes	[TCP]							4.79	
			Innovative Asia 2017	[TR]								
			Innovative Asia 2018	[TR]								
			Innovative Asia 2019	[TR]								
			Innovative Asia 2020	[TR]							0.14	
			Human Resources Development in Science, Technology and Innovation (JFY2020)	[TR]								
			Grant Aid for Japanese NGO's Projects	[JNGA]							0.69	
			Grant Assistance for Grass -roots Human Security Projects	[GGHSP]							0.10	

	Current Status and Challenges In Bangladesh efficient and effective administrative services has not fully outreached to the nation based on the needs of the people, and according to the World Governance Indicators (WGI), the level of governance is among the lowest in South Asia in the indicators of six areas e.g. quality of regulations, rule of law, corruptions etc. It has been recognized that poor transparency and planning of administrative services, inconsistency between policy priorities and budget allocations, an administrative system that does not reflect the needs of the people, vertical administration due to the centralized system, lack of coordination among ministries and agencies, and weaknesses in the service providing system and tax collection capacity of local governments are the challenges to be tackled. Under these circumstances, the government of Bangladesh has set the improvement of governance as one of the priority issues in its Seventh Five-Year Plan (2016-2021). In October 2012, the government adopted "the National Integrity Strategy", a strategy document for improving governance, and has stated that it will intensively focus on this issue.	Policy for addressing development challenges Strengthen the capacity of relevant ministries and agencies with a view to interlinking the central and local governments, and support policy formulation and implementation of various policies of the Government of Bangladesh, particularly on good governance. At the central government level, rule of law will be promoted by improving the transparency and accountability of public administration and strengthening public investment management through the realization of "the National Integrity Strategy". At the local level, support will be provided to improve the livelihood of local governments (core cities, provincial cities, Upazilas) by enhancing their administrative capacity, improving administrative services, and developing infrastructure to realize "collaboration" between residents and local governments. GOAL 17 (PARTNERSHIPS FOR THE GOALS) of SDGs

	Program	Program Summary	Project	Scheme	Schedule						Assistance Amounte (100 million Yen)	Note
					JFY 2019	JFY 2020	JFY 2021	JFY 2022	JFY 2023	JFY 2024		
Development issue 2-2 (Objective) Administrative Capacity Building	Administrative Capacity Building Programs	In the central government, enhancement of its administrative framework and policy-making capacity to ensure the delivery of appropriate government services to the citizens will be supported. In detail, accountability of public administration will be improved by supporting the implementation of the National Integrity Strategy (NIS), supporting civil service training institutions and improving the establishment of appropriate planning processes for development project budgets, strengthening public safety and security, and facilitating the rule of law. In the local governments, Upazilas, Paulshavas and City Corporations will be supported to improve their capacity to implement administrative services by improving their planning capacity, improving their work processes, and strengthening the capacity of their staff to realize "collaboration" between residents and local governments.	Strengthening Public Investment Management System (SPIMS) Project Phase 2	[TCP]							3.59	
			National Integrity Strategy Support Project Phase 2	[TCP]							3.67	
			The Project for Strengthening Crime Prevention Capacity of Bangladesh Police	[TCP]							4.20	
			Japanese Grant Aid for Human Resource DevelopmentScholarship (JDS) 2015	[GA]							3.15	
			Japanese Grant Aid for Human Resource DevelopmentScholarship (JDS) 2016	[GA]							3.93	
			Japanese Grant Aid for Human Resource DevelopmentScholarship (JDS) 2017	[GA]							4.44	
			Japanese Grant Aid for Human Resource DevelopmentScholarship (JDS) 2017	[GA]							3.45	
			Japanese Grant Aid for Human Resource DevelopmentScholarship (JDS) 2018	[GA]							4.33	
			Japanese Grant Aid for Human Resource DevelopmentScholarship (JDS) 2019	[GA]							4.29	
			Preparatory Survey on the Project for Human Resource Development Scholarship	[PS]								
			Advisor on Local Governance	[EXP]								
			Inclusive City Governance Project	[LA]							306.90	
			Project for Capacity Development of City Corporations	[TCP]							6.90	
			Preparatory Survey on Urban Development and Governance Project	[PS]								
			Urban Development and Governance Project	[LA]							282.17	Also mentioned in the Urban Development Program
			Northern Bangladesh Integrated Development Project	[LA]							205.56	
			Upazila Integrated Capacity Development Project	[TCP]							5.05	
			Upazila Governance and Development Project	[LA]							147.25	
			Advisor on Policy Issues for Strengthening BIGM	[EXP]								
			Preparatory Survey on the Project for the Improvement of Governance and Management Reserch and Training Facilities	[PS]								
			Enhancement of Court Mediation and Case Management System	[TR]								

			Capacity Building of the Members of the Subordinate Judiciary	[TR]									
			Legal and Judicial Human Resources Development (JFY2019)	[TR]									
			Legal and Judicial Human Resources Development (JFY2020)	[TR]									
			SDGs Global Leader	[TR]									
			Economic and Social Development Programme (Public Safety Field)	[GA]								10.00	
			Economic and Social Development Programme (Public Safety Field)	[GA]								5.00	
			Financial Administration Training in the New Emerging Countries	[FSA-TA]									

Current Situation and Challenges. Steady economic growth and urbanization in recent years have led to a shift of the working population from agriculture, forestry, and fisheries to other sectors. However, still 70% of the total population lives in rural areas, and 47.5% of the national working population is engaged in agriculture, forestry, and fisheries. The poverty rate has improved to 24.3% in 2016. Whereas, 85% of the poor live in rural areas, and reducing poverty and disparities through agriculture and rural development is an key agenda for the country. The country has achieved 100% self-sufficiency in rice, which is a major staple food in the country. However, considering decreasing farmers, agricultural lands and effects of climate change, to achieve the food security in the nation, it is necessary to make efforts to diversify crops and adding values to the products. The National Agricultural Extension Policy (2012) emphasized the importance of ensuring the safety of agricultural products, and in 2015, the Food Safety Agency was established to strengthen food safety management and inspection systems. However, there are many challenges in adding value to agricultural products, such as inadequate infrastructure in rural areas in terms of roads, markets, etc., lack of cold storage facilities, and constraints on the amount of manufactured processed products due to lack of funds for food processing companies. Furthermore, small and marginal farmers, who are the main agricultural producers are still facing difficulties in purchasing agricultural machineries, etc., and are unable to sufficiently improve the productivity of cultivable land and diversify their crops. In terms of water, both drinking and agricultural water rely on groundwater. About 30% of the population does not have access to safe water due to problems such as arsenic contamination of groundwater, lowering of the water table, drying up of water sources, and prolonged periods of saline intrusion in rivers during the dry season.	Policy for addressing development challenges Support will be provided for poverty reduction, including the reduction of urban-rural disparities, food security, strengthening of value chains through diversification and value addition of agricultural products, and improving access to safe water. In detail, development of irrigation and water supply facilities, roads, rural infrastructure to improve access to cities will be supported through provision of loans and technical assistance to small and marginal farmers. It will thereby aim to add value to agricultural products, including food safety by improving and diversifying the productivity of agricultural products and supporting agribusiness enterprises to develop facilities for food processing and cold storage and to foster logistics. We will also work to promote the implementation of private-sector collaborative projects that make use of production and processing technologies of Japan that take safety into account. GOAL 1 (NO POVERTY) of SDGs GOAL 6 (CLEAN WATER AND SANITATION) of SDGs GOAL 12 (RESPONSIBLE CONSUMPTION AND PRODUCTION) of SDGs

Program	Program Summary	Project	Scheme	Schedule JFY 2019	JFY 2020	JFY 2021	JFY 2022	JFY 2023	JFY 2024	Assistance Amounte (100 million Yen)	Note
Development issue 2-3 (Objective) Aguriculture and Rural Development	In response to the increase in domestic demand due to population growth, we will work on strengthening the value chain in order to increase the production volume and improve the quality of agricultural products and processed products. Specifically, technical assistance and improvement of financial access for farmers and agribusiness enterprises will be provided to promote the production of diversified and high value-added agricultural products and processed products. The project will also strengthen the capacity to develop and maintain agricultural infrastructure such as local roads, markets, irrigation and water supply facilities. This will improve the production and transportation efficiency of agricultural products. It will also strengthen the capacity to secure and maintain water sources to ensure access to safe water.	Project for Improvement of Comprehensive Management Capacity of DPHE on Water Supply	[TCP]							9.28	
		Northern Bangladesh Integrated Development Project	[LA]							205.56	
		Small and Marginal Sized Farmers Agricultural Productivity Improvement and Diversification Financing Project	[LA]							99.30	
		Small Scale Water Resources Development Project (Phase 2)	[LA]							118.53	
		Advisor for Agro Processing Industry Development Policy Formulation and Implementation of Action Plan	[EXP]								
		The Market-oriented Agriculture Promotion Project for Smallholder Horticulture Farmers through Multi-stakeholder Partnerships (Bangla-SHEP)	[TCP]							2.64	
		Rural Urban Development Advisor	[EXP]								
		Preparatory Survey on Southern Chattogram Regional Development Project	PS								
		Preparatory survey on Food Value Chain Improvement Project	[PS]							1.00	

	Agriculture and Rural Development Programs		Data collection survey on food hygiene and food safety	[Data collection survey]									
			The Project for Strengthening the Inspection, Regulatory and Coordinating Function of the Bangladesh Food Safety Authority	[TCP]								3.67	
			Fisheries Livelihood Enhancement Project in the Costal Area of the Bay of Bengal	[TCP]								5.40	
			Fisheries Development Advisor	[EXP]									
			Nutrition sensitive food systems	[TR]									
			Project for developing inclusive insurance program for sustainable poverty	[TCP]								6.40	
			Project for Improvement of Water and Health Environment in Paikgacha area	[GCGA]									
			Study on producing and processing sweet potatoes for increasing revenue of small farmers and decreasing post harvest loss	[SDGs-BMFS]									
			Study on producing and processing Moringas for increasing revenue of farmers	[SDGs-BMFS]									
			The Project for Livelihood Support to Bangladeshi Smallholder Farmers and Food Assistance to Displaced People from Myanmar (WFP)	[GA]								5.57	
			Economic and Social Development Programme	[GA]								5.00	
			Grant Aid for Japanese NGO's Projects	[JNGA]								0.49	
			Grant Aid for Japanese NGO's Projects	[JNGA]								2.44	

	Current Situation and Challenges. Bangladesh is one of the most vulnerable countries to natural disasters such as floods, cyclone surges and windstorms, and earthquakes. Over the past 30 years (1985-2014), natural disasters have caused 170,000 deaths and affected more than 262 million people, and climate change-related disasters are becoming more intense (Source: Emergency Events Database: EM-DAT). The country has been working on disaster risk reduction for many years, and has made progress in developing early warning systems, shelters, and relief and support systems, and has achieved some success in reducing the number of deaths. The country has stated disaster risk reduction as a priority sector for national development, and is addressing disaster management to mitigate climate change in the Seventh Five-Year Plan (formulated in November 2015) as well as addressing the development challenges of the four priority actions agreed upon in the Sendai Framework for Disaster Reduction under the SDGs. Under the Disaster Management Act (passed in September 2012), which is the highest level of disaster management legislation, the current National Disaster Management Plan (enacted in 2010) will be revised in 2019. On the other hand, despite the existence of higher-level plans, there is a lack of coordination among relevant agencies and a lack of budget and planning capacity. In addition, there is a delay in earthquake resistance due to rapid urban development, and the development of infrastructure for wind and flood damage and facilities necessary for early-warning is an issue.	Policy for addressing development challenges. Based on the priority actions of the Sendai Framework for Disaster Reduction, the objectives of the Framework are to enhance understanding of disaster risks, strengthen disaster risk governance, promote pre-investment to reduce economic and human losses from natural disasters, and build back better after disasters. By supporting investment in disaster prevention in advance of possible future disasters, the damage will be reduced, leading to efficient recovery and sustainable growth. Utilizing Japan's technology and experience, cooperation will be provided to strengthen the implementation capacity of each process in the disaster management cycle of prevention and mitigation, advance preparation, emergency response, and recovery and reconstruction, focusing on water-related disasters, earthquake disasters, and preparedness for disaster response. From the viewpoint of "deterrence and disaster mitigation," cooperation will be provided to strengthen disaster countermeasures for rivers and enhance the safety of buildings. From the viewpoint of "pre-disaster preparedness", we will strengthen the evacuation system based on pre-warning, and from the viewpoint of "emergency response" and "recovery and reconstruction", we will cooperate to contribute to the smooth implementation of post-disaster measures. GOAL 11 (SUSTAINABLE CITIES AND COMMUNITIES) of SDGs GOAL 13 (CLIMATE ACTION) of SDGs

Program	Program Summary	Project	Scheme	Schedule JFY 2019	JFY 2020	JFY 2021	JFY 2022	JFY 2023	JFY 2024	Assistance Amounte (100 million Yen)	Note
Development issue 2-4 (Objective)	Integrated efforts will be made for disaster prevention and climate change. In view of "prevention and mitigation," the government will support the construction of river embankments and the strengthening of the earthquake resistance of public and private buildings, as well as the improvement of	Research Project on Disaster Prevention/Mitigation Measures against Floods and Storm Surges	[TCP]							2.72	
		Disaster Risk Reduction Sector Coordination Advisor	[EXP]								
		Expert for Integrated Water Resource Management	[EXP]								

(Objective) Disaster prevention/climate change measures	Disaster prevention/ climate change measures programs	systems and regulations, and the development and dissemination of technologies to achieve these goals. In view of "advance preparation," the government will improve the early warning system and strengthen community disaster mitigation. From the viewpoint of "emergency response, recovery and reconstruction", disaster risk governance, including coordination among relevant organizations, will be strengthened.	Haor Flood Management and Livelijood Improvement Project	[LA]							152.70	
			Disaster Risk Management Enhancement Project	[LA]							169.96	
			The Project for Improvement of Rescue Capacities in the Coastal and Inland Waters	[GA]							27.29	
			The Project for Capacity Enhancement on Formulation and Implementation of Local Disaster Risk Reduction Plan	[TCP]							4.20	
			Project for Planning Capacity Enhancement and Establishment of a Technology Adaptation Cycle on Comprehensive Nodi (River) Management	[TCP]							4.89	
			Disaster Risk Reduction (DRR) Leaders Capacity Development for the Sendai Framework Implementation (JFY2019)	[TR]								
			Project on Promoting Building Safety For Disaster Risk Reduction	[TCP]							9.27	
			The Project for Technical development to upgrade structural integrity of buildings in densely populated urban areas and its strategic implementation towards resilient cities	[TCP]							3.45	
			Urban Building Safety Project	[LA]							120.86	
			The Project for Improvement of Design and Construction Quality for Resilience of Private Buildings	[TCP]							4.35	
			The Project for Improvement of Meteorological Radar System in Dhaka and Rangpur	[GA]							37.99	
			Disaster Risk Reduction (DRR) Leaders Capacity Development for the Sendai Framework Implementation (JFY2020)	[TR]								
			Project to build cyclone-resilient communities and people	[GCGA]								
			Grant Aid for Japanese NGO's Projects	[JNGA]							1.80	
Priority Area 3 (Target)	Others											
	Program	Program Summary	Project	Scheme	Schedule JFY 2019	JFY 2020	JFY 2021	JFY 2022	JFY 2023	JFY 2024	Assistance Amounte (100 million Yen)	Note
Development issue 3-1 (Objective) Others	Others		Capacity building project to strengthen facilities and husbandry management in zoos	[TR]								
			Establishing a sustainable school meal model with community involvement	[GCGA]								
			Grassroots support projects by organising through international labour-management networks etc.	[MHLW-TA]								
			Data Collection Survey on Cyber Security	[Data Collection Survey]							0.18	

【Legend】
1. Technical Cooperation
[TCP] = Technical Cooperation Project, **[TCDP] = Technical Cooperation for Development Planning (and Development Study)**, **[EXP] = Expert**, [TEXP] = Third-country Expert, [CTR] = Country-based Training, [TTR] = Third-country Training, [EQ] = Equipment, [TR] = Issue-based Training / Training Program for Young Leaders, , [xx-TA] = Technical Assistance implemented by organizations other than MOFA and JICA, [STC] = Science and Technology Cooperation on Global Issues, [JOCV] = Japan Overseas Cooperation Volunteers, [SV] = Senior Volunteers

2. Financial Cooperation
[LA] = Loan Aid (ODA Loan), [GA] = Grant Aid (other than specific grant aid schemes listed below), [NPGA] = Non-Project Grant Aid, [GGHSP] =Grant Assistance for Grass -roots Human Security Project, [JNGA] = Grant Aid for Japanese NGO's Projects, [CGA] = Cultural Grant Aid, [GCGA] = Grassroots Cultural Grant Aid, [ML] = Multilateral Cooperation

3. Other terms
[PS] = Preparatory Survey, [DD] = Detailed Design

4. Lines
Solid Line = Schedule
Dash Line = Tentative Schedule

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