

Supporting the Dual Goal of Poverty Reduction and Economic Growth in India

--New ODA Loans for Poverty Reduction, Economic Development and Environmental Projects--

1. Japan Bank for International Cooperation (JBIC; Governor: Kyosuke Shinozawa) signed today loan agreements for eight projects in the aggregate amount of up to 125.004 billion yen with the Government of India as an ODA loan package for fiscal year 2003. The aggregate amount increased 12.4% from fiscal year 2002.
2. Thirty-five percent of India's population of 1.1 billion live in absolute poverty, subsisting on less than one dollar a day. In fact, this number accounts for one-third of the world's poor population. India has thus enormous development needs, particularly infrastructure development. It was against this backdrop that the Government of India set forth in the Tenth Five-Year Plan (April 2002-March 2007) the goal of poverty alleviation through achieving equitable and sustainable growth. Given the size of the country and its population, India's exacerbating environmental problems in such areas as energy, water resources and air pollution have significant implications, with a direct bearing on global environmental issues. Currently, India is making strategic efforts to strengthen economic and trade ties with ASEAN member countries and other developing countries, including Brazil and South Africa, and to improve political and economic ties with neighboring China and Pakistan, thereby increasing its presence in the international community.
3. Japan has historical, cultural and religious ties with India. Furthermore, as India has emerged as a major player in the global IT market, its importance to Japanese firms has increased as they are increasingly looking toward India as a promising market for trade and investment.
4. Against this background, ODA loan agreements signed this year will support economic infrastructure development, poverty reduction and environmental improvement and protection. The characteristics of these projects are as follows:

(1) Developing Economic Infrastructure, Primarily in Power and Transport

The three power projects out of the eight total projects to be financed under these ODA loan agreements, the Purulia Pumped Storage Project (II), the Dhauliganga Hydroelectric Power Plant Construction Project (III) and the Umiam Stage II Hydro Power Station Renovation and Modernization Project, support efforts to reduce power shortages, which are a bottleneck to India's growth and economic reforms, and increase the efficiency of the power supply.

The Purulia Pumped Storage Project (II) aims at increasing the peak-hour power supply capacity in eastern India, particularly in the state of West Bengal (population: 80 million as of 2001), by constructing a pumped storage power plant with a capacity of 900 MW (225MWx4; nearly 2.7 times larger than power generated by Kuroyon Power Plant at Kurobe Dam), thereby alleviating the peak-hour power shortage (supply-demand gap: some 12% in fiscal year 2002) in West Bengal, as well as contributing to greater operational efficiency of the coal-fired power plant, from which power is procured for pumping.

The Dhauliganga Hydroelectric Power Plant Construction Project (III) aims at narrowing the supply-demand gap (8.4% in fiscal year 2003) in northern India (including Delhi, India's capital, and home to some 300 million people as of 2001), by constructing a run-of-the-river type power plant with a capacity of 280MW (70MWx4) in the state of Uttaranchal, near the border with Nepal.

The Umiam Stage II Hydro Power Station Renovation and Modernization Project aims at mitigating power shortage (the peak-hour supply-demand gap in 2003: 76MW) in the state of Meghalaya in northeastern India (population: 2.3 million as of 2001), whose major industry is alloy iron and others, by renovating a power plant (9MWx2; operation started in 1970) located in the state.

These projects will increase the power supply, boost industrial activities and increase employment as a result, and improve living conditions of populations in local communities through rural electrification and greater access to electricity for households, while accelerating reform in the power sector, which is an outstanding issue for the economy.

The Delhi Mass Rapid Transport System Project (V) consists of the construction of a 62-kilometer railway, which is the country's first mass rapid transit system made up of a subway as well as elevated and at-grade rail segments. Rail services have already started on a 21-kilometer portion to date. Upon opening the entire section (scheduled on September 2005), the system is expected to transport 2,250,000 passengers daily, a scale similar to that of the Tokyo Metropolitan Subway (Toei-Subway) today. This project is expected to improve the environment through a reduction in traffic congestion and vehicle emissions caused by urban traffic.

(2) Addressing Poverty Reduction through Agriculture, Irrigation and Afforestation

The Rengali Irrigation Project (II) aims at increasing agricultural production by constructing new irrigation facilities, which will benefit an area of approximately 30,000 ha (equivalent to half of Tokyo's 23-ward area) in the state of Orissa, eastern India, thereby boosting the income of some 40,000 farming households.

The Kurnool Cuddapah Canal Modernization Project (II) aims at increasing water efficiency and agricultural production by rehabilitating the aging irrigation system in the state of Andhra Pradesh, southern India, and by improving the present conditions where only approximately 50,000 ha is irrigated out of the approximately 110,000 ha planned command area (1.8 times larger than Tokyo's 23-ward area). Through additional irrigation of the remaining 60,000 ha, the income of some 110,000 farming households for the whole project command area will be improved.

In order to ensure project sustainability, both projects plan to collaborate with experts and NGOs in strengthening the capacities of the organizations set up by state governments to organize and invigorate irrigation associations.

The Integrated Natural Resource Management and Poverty Reduction Project in Haryana consists of afforestation of approximately 50,000 ha (equivalent to 80% of Tokyo's 23-ward area), water and soil conservation, poverty reduction activities, technical assistance and institutional capacity development in 800 villages (12% of the total number) in the state of Haryana (population: 21 million as of 2001), the neighboring state of the capital Delhi. The project is expected to create employment, increase income through the acquisition of income-generating skills, improve the social status of poor people by supporting self-help groups, supply forest products to the poor, increase production in livestock farming, and improve nutrition by securing access to water and by improving soil. Afforestation will be carried out in partnership with NGOs.

(3) Environmental Conservation

The Bisalpur Jaipur Water Supply Project (Transfer System) consists of the construction of a water supply system (360,000m³/day) for bringing water from a new surface water source to Jaipur city, the state capital of Rajasthan in northwestern India. The overall water supply system consists of the Transmission System (water intake, purification and transmission facilities) and the Transfer System (water supply and distribution facilities). This project will be co-financed with the Asian Development Bank (ADB), with JBIC supporting the Transfer System and the ADB supporting the Transmission System. The project is expected to improve the quality of water supplied in Jaipur city and its vicinity, thereby improving public health and living standards. (In 2011, the target year of this project, some 2.77 million residents will benefit from the project.) In addition, it will contain the declining trend in groundwater level by reducing the use of groundwater, on which the city is almost entirely dependent, for drinking water, and this will result in environmental conservation. The Integrated Natural Resource Management and Poverty Reduction Project in Haryana is also expected to contribute to environmental conservation by forest resource management activities, including afforestation as well as water and soil conservation.

(4) Advancing Knowledge Transfer

The projects cited above will also advance various forms of knowledge transfer and technical cooperation to improve project sustainability. In the Purulia Pumped Storage Project (II), the Total Quality Management (TQM) technique will be introduced as part of the support for the West Bengal State Electricity Board, the executing agency undertaking comprehensive reform in the power sector. In the Umiam Stage II Hydro Power Station Reconstruction and Modernization Project, similar support will be provided to the Meghalaya State Electricity Board for capacity enhancement, as it is undertaking power sector reform. In the Delhi Mass Rapid Transport System Project (V), technology transfer will take place from Japan with respect to "high speed train" with "enhanced frequency" services, safety control and operational management. In the Rengali Irrigation Project (II) and the Kurnool Cuddapah Canal Modernization Project (II), incentive schemes, such as microcredits for invigorating farmers' activities in Water Users Associations, will be introduced by drawing on the community participation initiative in the existing ODA loan-financed afforestation projects. Furthermore, because the Rengali Irrigation Project (II) will be implemented in an area that is designated as a "Malaria High Risk Area," the project will carry out recommendations of a study conducted for taking measures to avoid any increase of malaria infection risks in the project area. In the Integrated Natural Resource Management and Poverty Reduction Project in Haryana, a dialogue between villages will be promoted and improved training will take place for community participation based on a JBIC study that draws on actual experiences in implementing ODA loan-financed

afforestation projects in India. In addition, activities to increase the awareness of environmental conservation will be conducted in partnership with a Japanese NGO. In the Bisalpur Jaipur Water Supply Project (Transfer System), support will be provided for efforts to reform the water services sector, such as increasing efficiency in managing water supply projects and improving water tariffs in Rajasthan. Moreover, the transfer of the knowledge and experience held by Japanese municipalities will take place in partnership with experts from such municipalities that have successfully implemented such measures as saving water and reducing water leakage.

5. See the Appendix for the list of the projects to be financed by ODA loans.

(See Appendix)

Loan Amount and Terms

| Project Name | Amount (mil. yen) | Interest Rate (% per annum) | | Repayment Period/ Grace Period (years) | | Procurement |
|--|-------------------------|--------------------------------|-----------------------|---|-----------------------|-------------------|
| | | Project | Consulting Service | Project | Consulting Service | |
| Delhi Mass Rapid Transport System Project (V) | 59,296 | 1.3 | | 30^10 | | General Untied |
| Purulia Pumped Storage Project (II) | 23,578 | 0.75* | | 30/10 | | |
| Dhauliganga Hydroelectric Power Plant Construction Project (III) | 13,890 | 0.75** | | 30/10 | | |
| Rengali Irrigation Project(II) | 6,342 | 1.3 | | 30^10 | | |
| Kurnool Cuddapah Canal Modernization Project (II) | 4,773 | 1.3 | | 30^10 | | |
| Umiam Stage II Hydro Power Station Renovation & Modernization Project | 1,964 | 1.3 | | 30^10 | | |
| Bisalpur Jaipur Water Supply Project (Transfer System) | 8,881 | 1.3 | | 30^10 | | |
| Integrated Natural Resource Management and Poverty Reduction Project in Haryana | 6,280 | 0.75* | | 40/10* | | |
| Total | 125,004 | | | | | |

*JBIC's overseas economic cooperation operations apply lower interest rates to environmental projects to actively support developing countries' efforts in addressing environmental issues.

Delhi Mass Rapid Transport System Project (V)

a) Background and necessity of the project

Public transportation in India has become a problem in recent years. The country has embarked on a path of rapid industrialization accompanied by large influxes of people into the major cities and the increased use of personal vehicles, leading to severe traffic congestion. In addition, environmental problems have worsened due to such factors as increased emissions from the growing number of vehicles. In the future, it will be critical to study ways of preserving the environment, as the number of vehicles on the country's roads will inevitably rise.

India has long placed importance on its rail network for long distance transportation. Yet in Delhi, where the project is to be carried out, there is no rail network running within the city, nor is there any short-distance track connecting the suburbs to the city center. Residents are thus forced to rely on buses and private vehicles as their primary means of transport. (In Tokyo during 2001, 12.7% of commuters used buses, 15.9% used private vehicles, and 52.1% used trains. The respective rates for Delhi were 60.0%, 39.5% and 0.5%.) The growing number of private cars on the roads has resulted in chronic congestion. The situation demands the construction of a mass rapid-transport system on a large scale. This system must be reliable and efficient and capable of easing both traffic congestion and the pressures on the environment.

b) Purpose and description of the project

The project consists of the construction of 62 kilometers of underground, elevated and at-grade track as the first phase of a mass rapid-transport system that will eventually expand to 245 km. The project will help improve the level of convenience in the city and reduce environmental damage by reducing vehicle emissions. Rail services have already started on the 21kilometer portion to date. When the entire system becomes operational (planned for September 2005), it is expected to carry 2.25 million passengers a day, close to the same numbers as the subway systems of Tokyo and Osaka. (The respective figures for Tokyo's Toei Subway line in 2002 was 2.26 million passengers, and the figure for the Osaka Shiei Subway line was 2.37 million passengers.) Once completed, the system is expected to play a major role in Delhi by easing traffic congestion, reducing vehicle emissions and improving the city's level of convenience.

Japan Bank for International Cooperation (JBIC) has provided a cumulative 84.163 billion yen to date in four phases for the project (Phase 1 cost 14.76 billion yen; Phase 2, 6.732 billion yen; Phase 3, 28.659 billion yen; and Phase 4, 34.012 billion yen.)

Proceeds from the loans will be allocated to items including the construction of the underground rail system, procurement of train cars and consulting service fees.

The executing agency is the Delhi Metro Rail Corporation Limited (DMRC). Address: 3rd East Tower, N.B.C.C Place, Bishma Pitahmah Marg, Pragati Vihar, New Delhi, 110003, India.

Telephone: +91-11-2436-5202, Fax: +91-11-2436-5370.

2) Purulia Pumped Storage Project (II)

a) Background and necessity of the project

India faces a chronic power shortage that stems from its industrial development and improvements in its people's lives. Alleviating the inadequate electrical power supply throughout all of India is a matter of critical concern.

This project is to be implemented in the state of West Bengal, a major state in eastern India encompassing Kolkata, the country's third largest city. Growing industrialization has raised power demand on average from 5-6% annually during the past 10 years. As a result, peak demand during the 2002 fiscal year hit 3,854 MW, although supply was only 3,407 MW, a 12% shortfall. In addition, power generation is chronically unbalanced, as more than 95% of the electricity generated in the state of West Bengal is from thermal power.

The situation thus requires the construction of hydropower plants to narrow the shortfall during peak hours, and to provide a more balanced arrangement of power generation sources. What is more, the project would improve the operational efficiency of the thermal power plants by using the surplus power they generate at night for pumping and generating more power.

b) Purpose and description of the project

The project involves the construction of a pumped storage power plant with a total output of 900 MW (225MWx4; approximately 2.7 times the output of the Kuroyon Power Plant at the Kurobe Dam). The plant is to be located about 300 km northwest of Kolkata, on the Kistobazar River, in the Purulia district of the state of West Bengal (population 80 million as of 2001), and together with power transmission equipment, would greatly increase the area's ability to supply power during peak hours in eastern India, particularly in West Bengal, and would contribute to the economy by helping ease power shortfalls during peak hours and improve the operational efficiency of thermal power plants.

In addition, to increase the project's sustainability, the project adheres to proposals of the Special Assistance for Project Implementation (SAPI) concerning the West Bengal Transmission System Project (II), the same executing agency as for the Purulia Pumped Storage Project. This adds an institutional capacity building component (which introduces among other things an information-sharing structure and Total Quality Management [TQM]) for the consulting service work.

The project is now in its second phase. In Phase 1, JBIC provided 20.52 billion yen in February 1995.

The proceeds of the loan will be allocated to items including the procurement of the power plant's equipment, construction and consulting services.

The executing agency is the West Bengal State Electricity Board. Address: Vidhyut Bhavan, 5th Floor, Block-A, Bidhannagar, Kolkata, 700091, India.
Telephone: +91-33-2359-1951, Fax: +91-33-2358-1533

3) Dhauliganga Hydroelectric Power Plant Construction Project (III)

a) Background and necessity of the project

India faces a chronic power shortage that stems from its industrial development and improvements in its people's lives. Alleviating the inadequate electrical power supply throughout all of India is a matter of critical concern.

The demand for electric power supplied in northern India (including the capital of Delhi) has sharply increased due to rapid economic development and agricultural growth. In FY 2003, the power shortfall was 8.4% and is predicted to widen to 17.8% in FY 2005. The currently large shortfall will inevitably hamper economic growth, which stems from industrial activities and farm production.

Given this situation, there is a pressing need to reduce the electric power shortfall through the construction of a run-of-river type power plant to enhance the base load power supply.

b) Purpose and description of the project

The run-of-river type power plant on the Dhauliganga River in the Pitoragarh district of Uttarchanchal state, near the border with Nepal, is to have an output of 280 MW (70MWx4) (equal to about 84% of the output of the Kuroyon Power Plant at the Kurobe Dam). Its construction is aimed at contributing to economic growth in this northern region of India (in 2001, the population was some 300 million, including the capital of Delhi) by improving the regional power supply.

The project is now in its third phase. JBIC provided 5.665 billion yen in Phase 1 in January 1996., and 16.316 billion yen in Phase 2 in December 1997.

The proceeds of the loan will be allocated to civil engineering work and the procurement and installation of electrical equipment.

The executing agency is the National Hydroelectric Power Corporation Limited (NHPC). Address: NHPC Office Complex, Sector-33, Faridabad, 1210003, Haryana, India.
Telephone: +91-129-2277-640, Fax: +91-129-2277-640.

4) Rengali Irrigation Project

a) Background and necessity of the project

Orissa state in eastern India is the country's second poorest state after Bihar state. Its major economic activity is farming, accounting for nearly 30% of the state's production and employing about 70% percent of its working population. Yet less than 30% of Orissa's farmland is irrigated, with the rest of the area being rain-fed.

However, rainfall in the central region of the state, where the project is located, is inconsistent, with the rainy season occurring from June to September. This leads to a serious problem for crop cultivation during the dry season in areas lacking irrigation systems. Furthermore, the poverty rate in the project area is higher than the state average and agricultural yields are typically poor.

Given these circumstances, it has become extremely critical to increase the farmers' incomes through the use of irrigation facilities to expand agricultural production, and to achieve efficient water use through crop diversification. The state government has fully recognized the necessity of this project among other irrigation projects, and has made it a priority to have it completed as early as possible.

b) Purpose and description of the project

The project is to construct new irrigation facilities on the Brahmani River region in Orissa state, with the goal of raising farmers' incomes through increased agricultural production. About 30,000 ha of land (equal to about half the total land area of Tokyo's 23 wards) will benefit from the project. To help ensure the project's sustainability and effectiveness, an incentive scheme, based on past similar experiences with afforestation projects under JBIC's ODA loan assistance, will be adopted to stimulate the activities of the Water Users Association and provide assistance to strengthen the state organization that promotes the organizing of Water Users Associations. Furthermore, as the project will be implemented in an area that is designated a "Malaria High Risk Area," the project will carry out the recommendations of a study conducted for taking measures to avoid any increase of malaria infection risks in the project area. The irrigation works will be carried out in concert with the State Health Department, in consideration of the comprehensive improvement in the lives of the people living in the region.

The project is now in its second phase. In phase 1 in December 1997, JBIC provided 7.76 billion yen.

The proceeds of the loan will be allocated to items including the procurement of equipment and materials for irrigation-related facilities, civil engineering, technical assistance and consulting services.

The executing agency is the Department of Water Resources (DoWR), State Government of Orissa. Address: Rajiv Bhawan, Bhubaneswar, 751001, India. Tel.: +91-674-2536764, Fax: +91-674-2402446.

5) Kurnool Cuddapah Canal Modernization Project (II)

a) Background and necessity of the project

Hyderabad, capital of the southern Indian state of Andhra Pradesh (AP), is becoming known as India's next IT city after Bangalore and steady economic growth is expected for it in the future. On the other hand, AP also has a prosperous agricultural sector, with nearly 30% of the state's production consisting of agricultural output, and nearly 70% of the working population belong to the agricultural sector. However, less than 50% of its farmland is irrigated, with the rest being rain-fed.

The southwestern region of AP, where the project is located, is an arid belt and one of the driest regions in India, after the desert area in western India. Efficient water use in this region is essential. The canal that connects the Kurnool region and the Cuddapah region was originally built in the 1860s for navigation purposes. The canal (total length of the main canal: 306 km) was converted into an irrigation system in the 1930s. After more than 70 years of use, the aged facilities cannot supply water efficiently and water is not being fully supplied to the extreme ends of the system, as the facilities were originally design to do. As a result, only 50,000 ha out of a planned 110,000 ha of land is irrigated at present.

Given these circumstances, it has become extremely important to modernize the irrigation facilities in order to increase the local people's incomes by expanding agricultural production to the planned design through securing irrigation water to the region and establishing appropriate cropping programs. The state government has fully recognized the necessity of this project among other irrigation projects, and has made it a priority to have it completed as early as possible.

b) Purpose and description of the project

The project aims to increase the income of farmers by expanding production through the modernization of the aged irrigation system between Kurnool and Cuddapah. The project will increase the efficiency of water use and rectify the unequal distribution of water. By providing additional irrigation to roughly 60,000 ha of land, a total of 110,000 ha of land will be benefited (about 1.8 times the total land area of Tokyo's 23 wards). In addition, to help ensure the project's sustainability and effectiveness, an incentive scheme, based on past similar experiences with afforestation projects under JBIC's ODA loan assistance, will be adopted to stimulate the activities of the Water Users Association and provide assistance for strengthening the state organization that promotes the organizing of Water Users Associations.

This project is in its second phase. In phase 1 in January 1996, JBIC provided 16.049 billion yen.

The proceeds of the loan will be allocated to items including the procurement of materials related to irrigation facilities, civil engineering, technical assistance and consulting services.

The executing agency is the Irrigation and Command Area Development, State Government of Andhra Pradesh. Address: A.P. Secretariat Hyderabad, 500 022, India. Tel./Fax: +91-40-23450857.

6) Umiam Stage II Hydro Power Station Renovation and Modernization Project

a) Background and necessity of the project

India faces a chronic power shortage that stems from its industrial development and improvements in its people's lives. Alleviating the inadequate electrical power supply throughout all of India is a matter of critical concern.

This project will renovate and modernize the Umiam Stage II Hydro Power Station, located in the northeastern Indian state of Meghalaya (having a population 2.3 million, as of 2001). The state government of Meghalaya had issued an industrial policy in 1997 and industries such as ferroalloy, steel and cement have been rapidly expanding. As for ferroalloy, Meghalaya supplies 75% of India's demand for the metal. As a result of this rapid industrialization, the peak power demand from the industrial sector reached 145 MW of the total demand of 260 MW in June 2003. However, the state's total capacity is only 185 MW and many of its power stations are old, including the Umiam Stage II Hydro Power Station, which was constructed over 30 years ago and has aged significantly. In recent years, the station has experienced frequent accidents and its efficiency has become low.

Given this situation, there is a pressing need to renovate this power station in order to contribute to the stable power supply of the state.

b) Purpose and description of the project

The project aims at renovating the turbines and generators of Umiam Stage II Power Station (9MWx2; commissioned in 1970), located in the Umiam River basin, to meet the growing electricity power demand in the state of Meghalaya. The project will contribute to promoting industrial development and improving the standard of living in the state.

In addition, to increase the project's sustainability, the project will incorporate the recommendations of the Special Assistance for Project Implementation (SAPI) for the West Bengal Power Transmission Project (II) to achieve an organizational-strengthening component (which introduces among other things an information-sharing structure and Quality Control [QC] activities). This is expected to contribute to the capacity building of the executing agency, the Meghalaya State Electricity Board ("MeSEB"), for improved and efficient operations.

Furthermore, studies will be carried out and recommendations will be posed for MeSEB's Human Development Center for more comprehensive internal training of its engineers and staff.

As a related project, JBIC has also provided ODA assistance (1.7 billion yen: February 1997) for the upgrading of the Umiam Stage I Hydro Power Station (36 MW), located upstream of this project.

The proceeds of the loan will be allocated to items including the procurement and installation of materials required for the power plant's upgrade and consultancy services.

The executing agency is the Meghalaya State Electricity Board. Address: Lum-Lingshai, Short Round Road, Shillong, Meghalaya, 793001, India. Telephone: +91-364-2590610, Fax: +91-364-2590355.

7) Bisalpur Jaipur Water Supply Project (Transfer System)

a) Background and necessity of the project

India has made water supply a national priority. Under the country's Tenth Five-Year Plan (2002-2007), all cities and rural communities are to have complete access to drinking water. In addition, the National Water Policy adopted in 2002 advocates making the supply of drinking water a priority rather than water for irrigation or industry.

Given these circumstances, 97% of the water supply is dependent on groundwater in Jaipur city, state capital of Rajasthan, and the drawing of the city's groundwater has exceeded its annual recharge capacity. The situation has become serious, as parts of the region have been depleted of groundwater. Furthermore, the city faces a health problem over its water. The water contains high levels of nitrate nitrogen due to penetration from the soil. This causes diarrhea and methemoglobinemia [1] among city residents because the facilities to hold and drain wastewater are inadequate in the city.

Therefore, there is an urgent need for the development of new surface water sources, and for the facilities that will maintain the water supply. These measures would ensure adequate 24-hour service and safe drinking water to respond to the water-related health problems among residents.

b) Purpose and description of the project

The project is to serve Jaipur city in the northwestern Indian state of Rajasthan. Construction and upgrading of equipment handling raw and purified water, and its transport and distribution from the Bisalpur Dam, located 120 km to the city's southwest, will be carried out. The project is to deal with a projected increase of the city's population until 2017 and the resulting increase in water demand, reduce the groundwater abstraction to sustainable limits and improve the city's public health standard by limiting the use of the groundwater. Jaipur city, with a population of 2.77 million in 2011, will be able to supply 480,000 cubic meters of water per day. The figure is close to that of Fukuoka (460,000 cubic meters per day), a city with a population of 1.35 million (2001 figure). The project consists of two systems: JBIC will support the Transfer System (water supply and distribution facilities), while the Asian Development Bank is expected to co-finance the project to support the Transmission System (water intake, purification and transmission facilities).

To make the project highly sustainable, it will be carried out in collaboration with knowledge transfer from Japanese local municipalities that have been successful in dealing with water conservation and leakage, through a planned JBIC study for water sector reforms.

The proceeds of the loans are to be allocated to the procurement of equipment for the Transfer System, civil works and consulting services.

The executing agency is Public Health Engineering Department, State Government of Rajasthan. Address: Government Secretariat, Jaipur, State of Rajasthan, 302-005, India. Tel.: 91-141-2222053

8) Integrated Natural Resource Management and Poverty Reduction Project in Haryana

a) Background and necessity of the project

India has a relatively low level of forest cover, with 20% percent of its land area covered by forests, compared with the world average of 30%, while the rate of forest per person is no more than one-sixth the global average. Also, deforestation is spreading, as India's populations of both people and livestock rise every year while rapid economic growth promotes urbanization and industrialization. In addition, the forests do not function well to provide fuel, fodder, fruit and other products, thus worsening the living standards of the scheduled castes and tribes that have traditionally lived in forested areas.

The project's site is the state of Haryana, where the forest cover is 4%, accounting for one-fifth the national total. When roadside and other trees are included, the rate rises to 8%, although the rate is still the second lowest in terms of forest/tree cover. Furthermore, most of the existing forests are not dense, and thus they are not highly functional. The project aims at fulfilling the urgent needs of expanding forest areas and raising the density of the existing forests.

b) Purpose and description of the project

The purpose of the project is to regenerate forests in an ecologically sustainable manner in 800 villages (12% of total villages in the state) having a population of 21 million in the state of Haryana, the northern neighboring state of Delhi, as well as to improve the living standards of the people living near the forest. It will thereby contribute to long-term natural conservation and social development in the region.

Under the project, afforestation of approximately 50,000 ha (equivalent to 80% of Tokyo's 23 wards) with the participation of the local inhabitants shall be carried out. Also, to secure the sustainability of forests, poverty alleviation activities that provide an alternative income source for the people dependant on forests will be provided through measures such as vocational training. Technical assistance and capacity building of the executing agency and project recipients are included in the project. Under the activities of institutional capacity building, environmental education is to be carried out as part of an awareness program in association with Japanese NGOs, focusing on the forests. The project is expected to improve the natural environment, improve hydrology, living standards of the poor, etc.

The proceeds of the loan will be allocated to items including afforestation, poverty-reduction activities, technical assistance and institutional capacity building.

The executing agency is the Forests Department, the State Government of Haryana. Address: Van Bhawan, Sector-6, Panchkula, 134109, India. Tel.: 91-172-2565-398, Fax: 91-172-2563-988.

[1] Nitrate nitrogen metabolizes into nitrite nitrogen in the body, and the nitrite nitrogen oxidizes the hemoglobin in the blood. Hemoglobin, which lacks the ability to transport oxygen, is altered. As a result, the body's power to supply oxygen is lowered.