Global Environment

Natural Conservation/Environmental Management (Pollution Control)/Water, Disaster Prevention

A joint effort with local people to protect the forests of the Amazon (The Project for Sustainable Use of Forest Resources in Estuary Tidal Floodplains in Amapa, Brazil)

Overview of the Global Environment Field

Trends in Environmental Cooperation

At the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992, the seriousness of environmental issues was widely recognized throughout the world. The agenda 21 was adopted as guidelines for an approach to global environmental issues, and achievement of sustainable development was determined as a common global goal. The United Nations General Assembly Special Session (UNGASS) was held in June 1997, five years later, and the Millennium Development Goals (MDGs) adopted at the UN Millennium Summit, which was held subsequently in September 2000, advocated "to ensure environmental sustainability."

In the disaster risk reduction area, under the basic policy that societies resilient to disasters bring about sustainable economic growth, the Yokohama Strategy was formulated at the World Conference on Disaster Reduction held in 1994. In January 2005 the 2nd World Conference on Disaster Reduction was held in Kobe to sum up the ten-year activities, including the Yokohama Strategy, and create a new strategy.

For Japan, environmental issues in developing countries are recognized as important issues that have a serious impact not only on the developing countries concerned but also on the international community, and interventions regarding environmental issues through ODA have been emphasized. At the UNCED the Japanese government announced the increase and reinforcement of its environmental ODA from ¥900 billion to ¥1 trillion within five years starting in 1992, and subsequently announced the Kyoto Initiative (assisting developing countries in combating global warming) at the 3rd Conference of the Parties to the United Nations Framework Convention on Climate Change (COP3) in December 1997. Also the Medium-term Plan on ODA issued in August 1999 specifies environmental conservation as one of the primary issues, and refers to the proactive promotion of the Kyoto Initiative and more consideration for the environment when implementing development assistance.

In September 2002, the Japanese government announced the Environmental Conservation Initiative for Sustainable Development (EcoISD) at the World Summit on Sustainable Development in Johannesburg, designating (1) efforts to address global warming; (2) pollution control; (3) fresh water issues; and (4) conservation of natural environment as priority areas.

At the subsequent summit, 3R (reduce, reuse and recycle) was taken up as a Japanese initiative in addition to global warming and was recognized as an important task.

As for the disaster risk reduction area, at the 2nd World Conference on Disaster Reduction in January 2005 the Japanese government announced its commitment to cooperate in disaster risk reduction suitable to stages such as preparedness, emergency relief, and subsequent rehabilitation and reconstruction assistance. Utilization of advanced disaster risk reduction techniques cultivated through Japan's past experience in disasters was expressed.

JICA's Response

JICA has been building concrete plans in the environment sector based on these basic principles and action plans. However, its past efforts took various forms of aid and crossed over several sectors. JICA established the Global Environment Department on April, 2004, to build a system that allows consistent effective and efficient operation, from identification of issues to formulation and implementation of projects, in order to address complicated environmental problems in developing countries. In addition, "Guidelines for Environmental and Social Considerations" targeting all the projects was formulated and implemented in fiscal 2004.

Recently, biodiversity conservation, desertification control, and global warming prevention measures, acid rain control, preventive measures for earthquakes and other disasters have become major issues. To address these complicated environmental issues, JICA extensively implements cooperation for global environment problems based on a conventional approach consisting of (1) natural conservation; (2) environmental management (pollution control); and (3) water, disaster prevention. At the same time, JICA accumulates know-how in the global environmental conservation field to develop and implement more effective aid methods.

Natural Conservation

Overview

Human societies have developed by enjoying a wide variety of blessings from nature, including forests, lakes, marshes, and the ocean, and by tapping into the natural environment. However, in recent years, the natural environment has rapidly deteriorated due to excessive utilization of natural resources, threatening the foun-

dations of existence for future generations. Such degradation, combined with poverty and starvation, could lead to serious social problems such as regional conflicts. Therefore, it is time for human beings to reconsider a relationship with nature to build and develop a society living in harmony with the environment.

JICA's Efforts

Considering nature conservation as an important area of international cooperation, JICA has actively provided assistance in line with its objective to achieve harmony between nature and human activities.

As its specific goals, JICA implements cooperation for sustainable use of natural resources, biodiversity conservation, and rehabilitation of degraded land (Figure 3-7).

Sustainable Use of Natural Resources

With regard to sustainable use of natural resources, JICA's cooperation can be divided into two types. One is **support for sustainable use of natural resources by communities**. In the regions where the people overuse natural resources for their living, thereby deteriorating the natural environment, JICA provides cooperation with the aim of improving the incomes and living situations of residents and conserving the natural environment. In these regions, people rely on natural resources for their livelihood. Therefore, sustainable use of natural resources, which offer livelihood sustenance, is essential to protect the life of the people, instead of using them up. JICA provides support to enhance people's capacity to manage natural resources and to establish a system to appropriately manage the natural resources so that the people can protect and use their own resources continuously.

Figure 3-7 The Objective of Cooperation in Nature Conservation

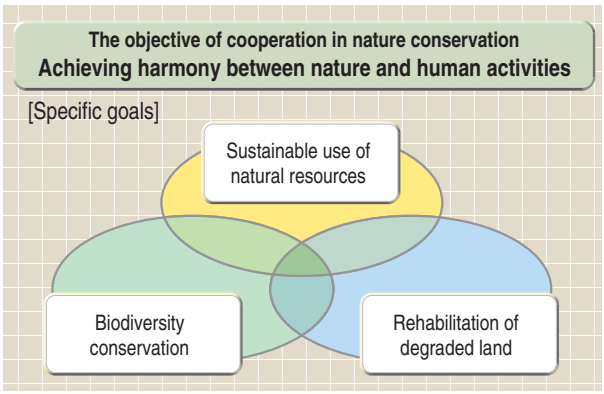
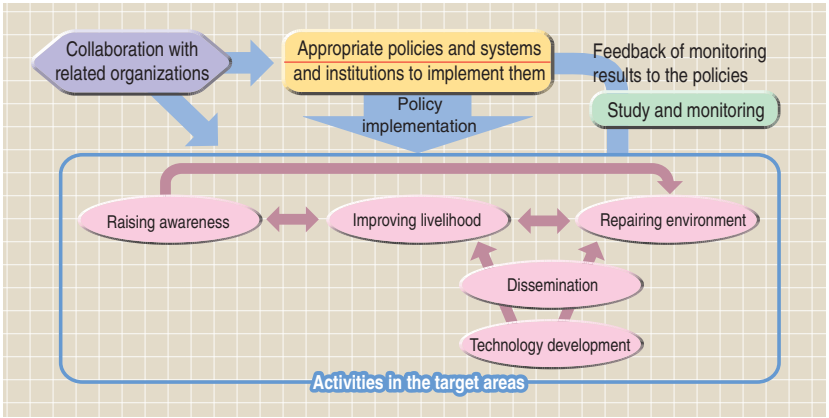


Figure 3-8 Structure for Promoting Nature Conservation



The other type of cooperation is **support for sustainable forestry management**. In order to enable developing countries to sustainably use natural resources such as forests in a planned manner, JICA supports studies on forest resources and formulating forest management plans, in an attempt to ensure compatibility between the improvement of forest management capacity and forest conservation. In recent years, in relation to afforestation and Reforestation Clean Development Mechanism (AR-CDM), JICA has been providing support for the establishment of an implementation system in developing countries, capacity development of administrators, and study and research regarding the feasibility of AR-CDM, all of which respond to climate change issues (see p.12-13).

Biodiversity Conservation

In regions endowed with rich biodiversity and where the value of nature is left intact for posterity, collection of data on the natural environment to accurately understand the current conditions, development of management system of reserves, environmental education, measures for waste and contaminated water treatment, and support for livelihood that does not adversely affect nature (such as ecotourism) are implemented. All these activities are designed for the conservation of valuable nature and improving the income of the people living in the environment.

Rehabilitation of Degraded Land

In regions where the destruction of the natural environment has been accelerated by excessive grazing, cultivation, and logging, soil erosion, desertification, and other problems emerge, imposing difficulties on people's lives. In these regions, JICA provides support for the development of appropriate restoration technologies and maintenance and management system in an effort to restore the natural environment, which is the basis of livelihood for the people.

Effective Nature Conservation

When implementing cooperation in nature conservation described above, it is important to build a system or capacity that allows developing countries to conserve the natural environment on their own (Figure 3-8). Accordingly, JICA provides comprehensive support to improve policies and institutions, enhance the implementation system, upgrade study and monitoring, repair environment, improve livelihood, raise awareness, etc.

When providing such support, JICA is looking to establish a system that promotes conservation activities in collaboration with related parties cross-cuttingly. It is because

Study on basic data (water temperature, salinity, transparency, etc.) for conservation of marine environment (The Project on Conservation of the Galapagos Marine Reserve in Ecuador)

nature conservation requires efforts across various sectors other than environment sector in light of the lives of people living there and, and more importantly, collaboration and coordination with a group of concerned parties related to the area to be conserved (such as local government, ministries and departments in charge of environment and agriculture, NGOs, companies, etc.).

The Project on the Integrated Community Forestry Development Project (Extended Phase) (PRODEFI 2) in Senegal

CASE STUDY

In Senegal, located in West Africa, the degradation of land has advanced due to deforestation and agricultural land development, and as a result the residents' livelihood has worsened. In response, JICA implemented the Integrated Community Forestry Development Project (PRODEFI) for five years starting in 2000.

Generally, training is provided only for the delegates who are selected from villages in a regular project. However, PRODEFI utilized accessible resources to provide various training in forestry management and livelihood improvement to whomever wishes to participate.

As a result, local residents who had been hesitant to plant the seedlings they received realized the possibilities of and benefits from conserving regional resources, and started to produce and plant seedlings by themselves. They also put into practice various economic activities in which local residents can take initiatives based on the knowledge acquired during training, such as creation of vegetable gardens. Consequently, the people's livelihood has gradually improved and the whole village was invigorated.


Anyone who wishes can participate in training provided in the project.

The future goal is that the Senegalese ministry of forestry disseminates the method applied in this project as PRODEFI model on their own. JICA extended the project for three years in 2005 and expanded the target villages from 18 to 30 in order to further improve and disseminate the model.

Front Line Argentina

Natural Environment Conservation Project in the Iguazu Area

Protecting the Parana Jungle with Rich Biodiversity

Virgin forests that are being destroyed

The border area of Argentina, Brazil, and Paraguay, located at latitude 26 south, is known for the Iguazu Falls, one of the world's three great waterfalls. The Parana jungle is famous for its biodiversity, with indigenous plants, birds, and insects; and rare animals and plants, such as the giant anteater and Morpho butterfly, also inhabit this area.

The Argentine government designated approximately 70,000 ha of forest area surrounding Iguazu Falls as Iguazu National Park in 1934. In 1984 this area was also registered as a UNESCO World Heritage site. In Argentina, national parks are traditionally marked-off preserves patrolled by guards where only tourists and other people with special permission can enter. However, animals and insects move around regardless of the boundaries that humans draw, so they easily become targets of poachers. In addition, once outside the border line where the right of private ownership exists, forests have been freely logged and cultivated.

Though the virgin forest once covered as much as one million km^2, due to dam construction and rapid development of farmland, only 5.8% of it remains. In response to such a situation, the World Wide Fund for Nature (WWF) designated the Parana jungle as Global 200 (priority nature conservation area, or 'hot spot,' where immediate conservation is necessary).

In order to protect the Parana jungle, humans who live not only in the closed preserve but also in the neighborhood (buffer zone) of the preserve need to exist in harmony with nature. Thus, the Natural Environment Conservation Project in the Iguazu Area was launched in February 2004.

Project consisting of three pillars

The project activities consist of three pillars: collaboration and information sharing, environmental education, and pilot program. With regard to collaboration and information sharing, collaboration among three parties who previously acted individually is being promoted. The three parties are: National Park Agency, Misiones Province in charge of land use and nature conservation of the peripheral area, and Andresito Municipality representing poor residents such as small-scale mate leaf farmers. Specifically, JICA experts provide information regarding Japan's methods of nature conservation and national park management to the three parties and create opportunities for them to collaborate. In terms of environmental education, educational activities are carried out so that residents can realize the value of local natural resources and raise the value together with tourists. Finally, with regard to pilot program, an eco-lodge was built to be operated by local residents and an environmental education program is provided to lodgers, so the profits are returned locally.

The three-year activities made the collaboration among National Park Agency, Misiones Province, and Andresito Municipality solid. More local people have become proud of the Parana jungle and the operation of the eco-lodge is becoming financially stable.

(JICA Argentina Office)


Children participate in an afforestation activity, too.

Environmental Management (Pollution Control)

Overview

With globalization and economic development, environmental issues that have negative impacts on our health and living conditions are becoming critical in many developing countries, not to mention in developed countries. Diverse environmental problems such as air pollution induced by industrial activities and motor-vehicle traffic, water contamination caused by inappropriate management of industrial waste water and human sewage, and waste problems arising from urbanization and changes in consumption activities, are becoming apparent in developing countries. Some of these environmental problems, such as acid rain and yellow sand, spread beyond national borders. A sense of crisis about environmental problems on a global scale, such as global warming, is rapidly growing.

These environmental issues are considered to be a serious problem affecting not only present but also future generations. In response, developing countries have promoted solutions to these problems at their own initiative by setting up environmental ministries or similar bodies and updating relevant legislation. However, environmental problems are a relatively new area and they have not been addressed satisfactorily due to lack of expertise, personnel, and financial resources. Taking actions after global ecosystems and people's health have already been damaged would be too late. Efforts in line with the international framework based on prevention principles are therefore necessary.

JICA's Efforts

In response to the announcement of Our Common Future by the World Commission on Environment and Development in 1987 and the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992, JICA has strengthened measures for environmental management (pollution control). Environmental issues are widespread, involving many factors and people, so these problems cannot be solved in a short period. Therefore, JICA is implementing cooperation projects that aim to improve the capacity for dealing with the environment (capacity development) so that the people in developing countries can solve the problems on their own in a sustainable way. The focus is placed on graduated cooperation suitable for the development situations of partner countries, various types of participation in development, and the development of effective environmental management capacities based on environmental science and technology. In cooperation for environmental centers that serve the base of environmental analysis and human development in each county, South-South cooperation to support neighboring countries is implemented to spread the effects of cooperation efficiently and promote cross-border support for environmental issues. JICA's specific measures are as follows.

1) Air environment (including global warming)

JICA implements cooperation that aims to improve the capabilities of developing countries such as environmental-monitoring capacity and countermeasures planning capacity for air pollution. Cooperation for establishing standards for air pollutants is also implemented. As for global warming, JICA supports building a foundation, including designated national authorities (DNA)*, and other relevant bodies that will play a pivotal role in fighting global warming (see p.12-13).

2) Water environment

JICA provides support for measures to prevent the pollution of rivers, lakes, and seas, including improvement of water environment monitoring capacity, management planning, and policy advice capability. Cooperation for planning and capacity development to manage human sewage such as sewage systems is also implemented.

The Study on the Solid Waste Management for the Kathmandu Valley in Nepal — CASE STUDY

The Kathmandu Valley, which embraces five major cities in Nepal (Kathmandu, Lalitpur, Bhaktapur, Thimi, and Kirtipur), accommodates a population of 1.5 million (estimated figure in 2001) in an area of approximately 899 km^2. Population is rapidly increasing and people's lifestyles have been drastically changing in Kathmandu Valley recently. Accordingly, the amount of waste generated per person is rapidly increasing. On the other hand, as proper urban waste management is not thoroughly established, the lack of waste collection capability results in scattered waste in the living space and waste is dumped into rivers in the valley without a final waste disposal site, thus worsening waste problems and deteriorating the people's living conditions.

In order to improve the situation, JICA conducted a development study from March 2003 to August 2005, and formulated action plans for improving waste management in the five major cities and the Solid Waste Management and Resource Mobilization Center (SWMRMC) under the supervision of ministry of local governance by 2015.

In the study, the general basic policy for the Kathmandu Valley was first established to indicate the basic direction regarding issues common to the five cities. Based on this policy, action plans for the five cities and SWMRMC were drafted. Based on the drafts, pilot projects for improvement of collection and transport systems, waste reduction, and improvement of the final disposal site were implemented to finalize action plans reflecting the lessons learned.

This study features emphasis on the process of the study and on-the-job (OJT) training. Prior to the start of the study, there was almost no cooperation in place for proper waste management among the related parties. However, based on the general basic policy for the Kathmandu Valley, an attitude of tackling waste management collaboratively and cooperatively is gradually emerging led by members of a technical working group formed from related parties during the study and task forces in each city. In the future, action plans are expected to be implemented based on these outcomes.

Clean up campaign held in the major five cities (photo in Thimi)

Front Line Viet Nam

The Project for Implementation Support for 3R Initiative in Hanoi City to Contribute to the Development of a Sound Material-cycle Society

Community Understanding and Cooperation is the Key

Resources when segregated, waste when mixed

3R is an acronym consisting of the initial letters of three words: reduce, reuse, and recycle. Japan promotes international efforts by proposing the 3R Initiative, which aims to establish a sound material-cycle society through 3R. In JICA's Project for Implementation Support for 3R Initiative in Hanoi City to Contribute to the Development of a Sound Material-cycle Society, a model program for segregated collection and composting of kitchen waste is implemented to support the Vietnamese national environmental strategy of recycling 30% of household waste.

In developing countries, generally there are no definite rules regarding waste disposal. Even Hanoi, the capital, faces serious waste issues such as waste scattered on roads and illegal waste disposal in lakes due to undeveloped waste management systems and low citizen awareness. The introduction of segregated collection requires the understanding and cooperation of local communities. In order to raise and put into action the awareness that waste becomes resources when segregated, various educational and dissemination activities are being promoted.

For the formulation of "Segregation Hanoi Model"

In the project, in preparation for starting the model program, community meetings are held where local residents and related parties gather to promote understanding for the model program and establish partnerships. Various efforts to promote participation and familiarize local residents with the program are made; for example, having them discuss designs of trash cans for segregation, which will be distributed to every household, and distributing "my bags" to decrease the use of plastic bags. Active dissemination and education activities are also implemented, such as raising awareness through media and 3R events. These activities have attracted the attention of the whole country.

Next steps are the provision of environment education through the development of environment education program for elementary schools, organizing waste disposal site tours for local residents, and launching the model program for segregation and composting of kitchen waste. It is expected that the collaboration cycle (local residents who segregate kitchen waste→ garbage men who collect and transport waste→ composting facilities→ farmers who use the composts→and local residents who buy agricultural products from the farmers) will be established as the "Segregation Hanoi Model" and extended throughout Viet Nam.

(JICA Viet Nam Office)

Special bags and containers for specific types of waste were distributed throughout the community.
(Photo by Katsumi Yoshida)

3) Waste management (including the promotion of a sound material-cycle society)

JICA implements cooperation that aims to enhance planning and management capabilities related to the collection, transport, and disposal of general and industrial waste. Recently, cooperation for building a sound material-cycle society through 3R, including waste reduction, promotion of recycling, environmental education, and awareness raising activities, is actively promoted, too.

4) Other environmental management

Other than the above three areas, JICA implements cooperation for measures against mine pollution, soil contamination and formulation of environmental management plans.

* Designated national authorities (DNA) are governmental bodies whose establishment was stipulated under the Marrakesh Accords, which provides detailed rules for implementing the Kyoto Protocol. A CDM project requires the approval of the DNA.

Water, Disaster Prevention

Overview

Water shortage, water pollution, flood disasters, and other problems associated with water resources are becoming increasingly serious and diversified due to the rapid growth of population and economic development on a global-scale. At present, one-third of the world's population is facing water shortage and 1.1 billion people have no access to safe drinking water. Every eight seconds one child dies from water-borne diseases, and 80% of the causes of diseases in developing countries reportedly are linked to contaminated water. In addition, many problems are associated with water resources, including flood damage and deterioration of the water environment caused by inappropriate water use and treatment. Various water-related problems are recognized as urgent global issues, and the deteriorating situation of water resources has further intensified global response.

In addition, various disasters occur every day throughout the world. In developing countries where social infrastructure is not fully developed, disasters directly affect people's livelihood, aggravating poverty. In order to improve these situations, support for systematically enhancing the capacity to deal with disasters, including the development and enhancement of system, structure and capacity, is promoted as well as conventional measures centered on reinforcing physical structures. JICA is cooperating with community based disaster risk reduction, which focuses on activities by local communities and on strengthening their capacity to deal with natural disasters.

JICA's Efforts

Following the announcement of the basic policy of subsequent cooperation in the water sector in 2004, JICA participated in the 2nd World Conference on Disaster Reduction held in 2005. In response, JICA reinforced its measures in the disaster management sector. As the water and disaster prevention sector has gained importance in recent years, measures in the water and disaster prevention sector are increasingly discussed at international conferences, including summits and Tokyo International Conference on African Development (TICAD). Although the World Water Forum is a global conference in the water sector, from the suggestion made by the late former Prime Minister Ryutaro Hashimoto, a new Asia-Pacific Water Forum to solve water problems in Asia-Pacific was established. At the 4th World Water Forum held in Mexico in 2006, JICA again presented its project achievements in various countries.

Water

In the water sector, the following goals are set out as specific measures.

1) **Promoting integrated water resources management:** JICA proactively supports integrated and comprehensive water resources management systems, considering the multifaceted nature of water resources that includes flood control, water use, and water environment. Specifically, JICA supports system-building for collection and analysis of water resources information and planning for building a watershed management system.
2) **Urban water supply:** JICA supports the efficient operation of water utilities by strengthening their capacity to maintain and manage resources, measure non-revenue water, and systemize water fee collection.
3) **Rural water supply:** JICA assists water supply soil survey for building water supply facilities, formulation of facility improvement plans, enhancement of the maintenance and management system of existing water supply facilities, and dissemination and establishment of rural hygiene plans.
4) **Flood control:** JICA supports implementation of balanced flood control measures for the entire watershed from upstream to downstream in view of a combined approach with a focus on hardware and software aspects.
5) **Conserving the water environment:** JICA provides support for enhancement of the framework for conserving the water environment through a range of activities, including establishment of environmental standards, monitoring, control measures for contaminated sources, and IEC (Information, Education and Communication).

Disaster Risk Reduction

In disaster risk reduction, JICA sets out the following three goals from a comprehensive viewpoint based on the disaster management cycle (DMC) (preparation and mitigation→emergency relief immediately after the occurrence of a disaster→recovery and reconstruction →promotion of further preparation activities).

1) **Disaster-tolerant society building:** As a step to prepare for disasters, JICA supports the understanding of communities regarding disaster risks through communication; formulation and upgrading of laws, systems, and plans regarding disaster risk mitigation prevention measures; establishment of early warning, warning, and evacuation systems; improvement of deterrence capabilities by establishing disaster prevention facilities and measures; and improvement of regional disaster risk reduction capacity.
2) **Emergency response that reaches the victims quickly and effectively:** Immediately after the occurrence of a disaster, in order to save lives quickly and effectively, JICA provides life-saving and rescue operations, emergency medical care, and support for the victims (supply of food and drinking water, securing temporary housing, health and medical services, and mental care). These emergency relief activities are carried out by the Japan Disaster Relief Team (see p.111). In parallel with this emergency relief, JICA conducts a needs survey for recovery and reconstruction aiming at a seamless transition to recovery and reconstruction assistance.
3) **Transition to and implementation of accurate recovery and reconstruction:** In order for victims to be able to return to their normal daily lives from post-disaster chaotic conditions as soon as possible, JICA provides continuous support from emergency relief in the wake of a disaster to the recovery and reconstruction stages, including recovery of living infrastructure, lifelines, and reconstruction of regional communities.

The Project on Rural Water Supply Technology in the Central Dry Zone in Myanmar

CASE STUDY

The central dry zone of Myanmar belongs to a subtropical semi-arid zone and has a population of approximately 11.5 million. Annual rainfall ranges from 400mm to 880mm, most of which falls during the rainy season. During the rainy season people utilize water in reservoirs for their daily needs. During the dry season, when the reservoirs are dry, people in villages without a well either have to walk three-to-four hours to neighboring villages every couple of days for water, or they must purchase water with the small amount of cash income they earn.

This project is being implemented for three years and targets the Department of Development Affair (DDA) in charge of village water supply services in Myanmar. The project is expected to bring approximately 52,000 people access to safe water. In addition to technical transfer to the DDA technicians tasked with the digging of a deep well, new activities for Myanmar will be implemented, such as the establishment of a well monitoring system and repair of the water supply facility. Through the establishment of a maintenance and management system by local residents, the project aims to ensure a continuous supply of safe water.

In Myanmar, water-fetching is mainly carried out by women and children. When a well is completed through this project, time that has been spent fetching water can be used for education or work to obtain cash income. The counterparts and JICA experts are jointly implementing this project hand-in-hand to provide safe water to as many people as possible.

Project website
http://project.jica.go.jp/myanmar/0301099E0