The NARBO Newsletter
(Network of Asian River Basin Organizations)
http://www.narbo.jp/

The 1st Twinning Program - Report from Japanese exchange staff -

1. The 1st Twinning Program was launched !

— Staff exchange between JWA and Jasa Tirta I, II —

Yasuhiro Ochii *

Between Indonesian NARBO and Japan Water Agency (JWA), MOU and agreement were concluded as a first case of Twinning Program on 29th November 2004. Then, exchange of personnel on Twinning Program among JWA, Jasa Tirta I (PJT I) and Jasa Tirta II (PJT II) was also agreed and signed.

The Program aims at sharing information to solve problems as well as to contribute toward an improvement of Asian IWRM. Developing good relationship between JWA and Indonesian NARBO is also important target, too.

Mr. Sugiura and Mr. Ochii from JWA were dispatched to Indonesia from 10th April 2004 to 9th July 2004. We had worked at Head Quarter of PJT I in Malan, East Java State mainly, but we also had worked at Head Quarter of PJT II in Jatilhur, East Java for about two weeks. Further, we visited two River Basin Organizations that belonged to Indonesian NARBO, and other related offices, too.

We had visited many O&M offices of water resources infrastructures in the Brantas River Basin and Bengawan Solo River Basin guided by PJT I and Citarum River Basin guided by PJT II.

Hearing from staff of maintenance office

It seemed that PJT I and PJT II had been doing their Operation and Maintenance works for their facilities well in spite of their severe budget condition and facing some difficult problems. For example, We were impressed with seeing an old weir of more than 80 years old was still working very well because of proper maintenance by PJT II. PJT I and PJT II prepared maintenance rules and standard on how and when they should check the facilities, and they fully observed the rules. Documentation was well managed based on the ISO9001 system. Staff seemed to have good skill to maintain and repair their facilities and they know facilities condition well.

Hydraulic pump
(Water is pumped up by hydraulic power.)

We thought that PJT I and PJT II would be able to take an active role

*) Toyogawa Canal Management & Construction Dpt, JWA

Water grasses are really problem!

Steam engine which move gate up and down for more than 80 years

Final presentation to report our activities

Topics of this issue

in the NARBO through dissemination of their O&M skill to other organizations in Indonesia and other NARBO members.

At the end of Twinning Program, we reported our activities to both PJT I and PJT II and also gave presentations on “Risk and Crisis Management” and “Irrigation Project And Farmers’ Cost Bearing” based on the Japanese experience.

Hoping to continue this Program, we returned to Japan with fruitful experience and good friendship with Indonesian NARBO. We think that we launched the first Twinning Program very well.

Finally, We would like to express our sincere thanks to PJT I, PJT II, Indonesian NARBO Secretary and all organizations.

The 1st Twinning Program - Report from Indonesian exchange staff -

1. ”Jaga Tirta” is farmer leadership style

Saur Saragih *

In reaching a purpose, usually a group will agree to make some ordinances. Even if the simple ordinance, but it contains the procedure, mechanism and guidance in which they must do, so that their purpose can be executed better. Even in determining a figure as their leader, they will use a way to assign their leader by voting. That way the things of farmer groups in Indonesia had a good custom in determining their leader. This custom has the long history and is kept by farmers to date. This farmer group has expanded continually as a strong social institution. Farmer society in Indonesia has developed their institution since ninth century. There are a number of traditional irrigation institutions which have been expanded.

Role of water

A leader can manage water resource to various importances as according to its role. For example, long time ago in Bali area that ordinary water was managed traditionally based on concept of water management through power orientation according to each its benefit. King as highest power made the treatment ordinance of water so that the water have strong role. Power of the past Kings supported by Seven of Water (Sapta Tirta) so that role of water as follows : Irrigation water, Holy water Healthy water, Drinking water, Enjoyment water, Art Water Recreation Water,

Jaga Tirta

Of course water as according to its role will be managed by a man which assigned to the better function. However this article will explain “Jaga Tirta” as a leadership type in Indonesia farmer group. Understanding of the role of water is relatively same in other area in Indonesia, but more stress to first understanding, irrigation water. " Jaga Tirta" has conditions as follows : he has to own the farmlands, be experienced man, be trusted to arrange all farmers in concerning irrigation management (for i.e repairing the canal), be wise to distribute water and to handle the conflict among farmers, and he is very influential because other farmers follow his words and actions.

Farmers usually arrange the way and assign person in charge of water at each gate for their rice field. The election of “Jaga Tirta” is held with all farmers gathering in Village hall. At the election, there are one or two important person in that area, such as the chief of the village and the security guard. Of course the election of " Jaga Tirta" is usually held in friendly atmosphere and “Jaga Tirta” is chosen by voting among candidates. Leadership in traditional irrigation has the important relationship to other institutions in the village. In general traditional irrigation with small scale covering one village only, relationship of conformity each other, so that very easy to mobilize mutual assistance (is called gotong royong). A lot of same term as “Jaga Tirta” in other areas in Indonesia, such as in West Java it called "Ulu-ulu", in North Sumatra "Raja Bondar", in Aceh "Keujuren Blang", in West Sumatra " Tuo Banda", etc .

*) Jasa Tirta II, Indonesia

2. Impressive experience during stay in Japan

— Spirit, dedication and responsibilities —

Titik Indahyani *

During my twinning program in Japan Water Agency, there are various impressive experiences I gained, especially about Japanese and its technology. The Japanese culture is worth appraising, mainly on their work dedication and time management.

I myself witnessed those two outstanding things on my way to work and in my working place. I found difficulties to adjust with Japanese footstep. It seems they accustomed to walk fast. Based on my observation, there aren't Japanese who walk briskly and jokingly. The same thing happened in JWA's office. Most of the workers work seriously and meticulously. It is little different with the working atmosphere in my office in Indonesia. Most of the workers in my office work seriously and meticulously also but sometimes there are joking and snacks between their working hours. Eventhough the working hours ends at 17.30, but many JWA's workers gladly work until late at night because they are completely responsible with their work. The dedication and appraisal toward the work are another thing we must learn from Japanese. There is no single work which is done relaxly as most of the works are done seriously.

Another interesting experience happened when the strong earthquake came. I also almost happened to experience the typhoon. Yet it was just its impact-rain and strong wind-but it made the visit to Gunma Prefecture was canceled. Because of the typhoon, when I joined JWA operation work session (special work in emergency), I also can witness the hard work of operation room staff who were all in alert condition. I suddenly remembered when I had my alert turn to keep my eyes on the flood flow. I had to work until late at night at the office when the flood happened in Kali Brantas. One of the differences in the operation room between JWA and PJT are the screen for visual monitoring. In JWA there are several monitoring screen in which we can directly and continously observe the condition (eventhough it is available only in certain reservoir/dam/canal) but it helped us to monitor it visually. All the observation datas had been integrated and connected with the outsider datas (ex. meteorology data). I think we can analize and evaluate the data more accurately. As a result the decision to overcome the disaster problem can be taken accurately.

Another simple example of time management can be seen when we travel by train. Most Japanese have their own different way to use their time-reading and sleeping. I rarely saw the train passengers use their time talking or joking in the train. The comfortable train condition makes it stands as the main transportation option in Japan, including me, besides walking ofcourse. I hope I can gain various breath-taking experiences and useful knowledge based on the purpose of this program.

*) Jasa Tirta I, Indonesia

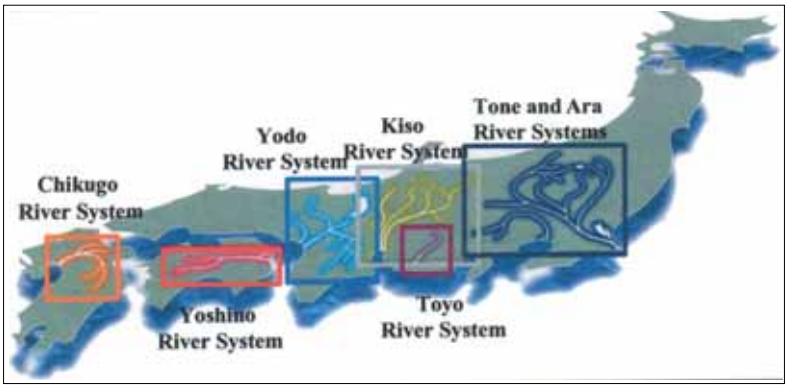
3. Learn about Integrated Water Resources Management on Japan

— How to create innovation from getting the problem —

Alfan Rianto *

According to the Memorandum of Understanding on Twinning Program between Japan Water Agency and Indonesian Network of Asian River Basin, scope of the twinning program focuses on fields related to promoting Integrated Water Resources. And based on the discussions at a series of regional and global water conferences, including the World Water Forums in 1997, 2000, and 2003, they have underlined the need to adopt and operationally the approach of integrated water resources management (IWRM), which is defined by the Global Water Partnership as "*a process to improve the planning, conservation, development, and management of water, forest, land, and aquatic resources in a river basin context, to maximize economic benefits and social welfare in an equitable manner without compromising the sustainability of vital environmental systems.*" Why the water is one of the most important aspect for human life in the world, because Water is a prime natural resources, a basic human need and precious national asset. Growing population urbanization and economic development are exerting pressure on the available fresh water resources.

Basically from above matter we get surprise from my company to joint with twinning program on the Sakura Country under organizing of Japan Water Agency (JWA) as an Independent Administrative corporation with the goal of contributing the growth of national economy and improvement in the life of citizens through implementation water resources development and use project based on the water resources Development Basic plan formulated for each of the water



Locations of Water Resource Development River Systems

resources development river system (seven river system) designated for the purpose of supplying water to areas for which wide area water measures are required to be taken urgently. Japan one of the country in the world which implemented of integrated water management with long-term experience, content of water resources development basic plan such as 1) Water demand forecast and supply target according to purpose use, 2) Basic items relating to construction of facilities required in order to achieve the supply target and 3) Other important item related to the comprehensive development of water resources and rationalization of water utilization. The 1997 amendment to the River Law 1997 based from the process started from 1896 with purpose of flood control and on 1964 establishment of systematic framework for flood control and water use and in this time Japan introduced of integrated river management system, on 1997 established of comprehensive river administration system for flood control, water use and environmental conservation.

We would like to thank the all of JWA staff according to the lecturing, information and transfer knowledge to us for all matters such us management system, financial and budgeting system, technical matter and scheduling to site visit and etc. Particularly on the technical matters many kind of information and new knowledge given to us, this is very important to us because we get experience about how to create innovation after to get the problem. For example problem about sedimentation and eutropication, we get comparing technical issues between Indonesian problem and Japanese problem and how to solve with the counter measures. Once more …, how Japanese create the problem to reduce inundated area due to flood occurred, what is being done and what can be done, some of a good idea to create of solving the problem flooding by remarkable countermeasures and various facilities and system have been established to provide protection from damage. Watarase Retarding Basin is one of the countermeasures with the main function to keep amount of water flood approximately 200 million m3, but in the next session inundated water can use of some purpose like water supply for domestic water, industrial user, irrigation and etc, the operational system of Watarase retarding basin is very smart. And also the creation of reducing inundated area surrounding the metropolitan district by construction of underground subway (extension : 6.3km; depth : 50 m; inside diameter : 10,6 m) and draining it finally into the Edogawa River, and effect of flood control is reduced flooded area from 264 km^2 to 90 km^2, in this project high level construction was achieved. This structure is remarkable structure and very expensive but very important to solve problem of flood on the future because in the next major cities, it is becoming more difficult to construct new surface floodways. Underground floodways and underground regulating reservoirs are underground rivers and ponds designed to protect the overlying cities from floods.

In conclusion, We would like to underline that The Japan Water Agency have a good vision and why all Japanese component support it. We believe that JWA can contribute to a better future for Water Management in Asia region. Networking among the members of NARBO can help a NEW GENERATION of Water management make Integrated Water Resources Management a reality in river basin. Water management start with changing people mind effect.The main purpose Development for poverty reduction and sustainable economic development. This is not daydream and not nightmare but is really dream and dream come true if the people mind in the world changing to support of basic vision on Integrated Water Resources Management. The Future depend on what we can do on the current condition and we must prepare with the vision and a good planning.

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*) Jasa Tirta I, Indonesia

Watarase Retarding Basin

Underground Flood Way Construction, Metropolitan District

Information from members

1. Introduction of Jeneberang River Basin Development

— Bili-Bili Dam, South Sulawesi,Indonesia —

Bambang Hargono *

Jeneberang River Basin Development

Jeneberang River Basin is under tropical monsoon climate. The weather is warm, humid, with constant temperature throughout the year, but significant variation of rainfall intensity occurs between rainy and dry season. The basin may receive 80 to 90% of annual rainfall in rainy season. Rainfall at the mountains may reach 4000 mm, while in the lower plains it is around or less than 2500 mm. The average annual rainfall intensity is around 2800 mm. The whole extent of the Jeneberang River basin is 762 km^2, while the channel length of the mainstream is 85,5 km. Bawakaraeng Peak, 2830 m above mean sea level is the headwater. The River runs westward through Gowa District before eventually pours to the estuary, in the Strait of Makassar at the perimeter of the City of Makassar. Makassar is the capital of the Province; a big city with around 1.2 million populations.

Bili-Bili Dam

The Jeneberang River has been fully developed. A large dam, Bili-Bili Dam, has been built about 30 km from Makassar City. The reservoir catchment area for the dam itself is 385 km^2. This dam, 73 m high and around 1800 m crest length, is a rockfill dam with earth central core. The impounding commenced in 1997 creaf around 37 million m^3. The intake for irrigation, power generation, and water supply is set at a level created a dead storage of 29 million m^3.

Bili-Bili Dam, the blue color of the water now turns brown due to sedimentfrom Bawakaraeng Caldera wall collapse 45 km upstream.

Flood Protection

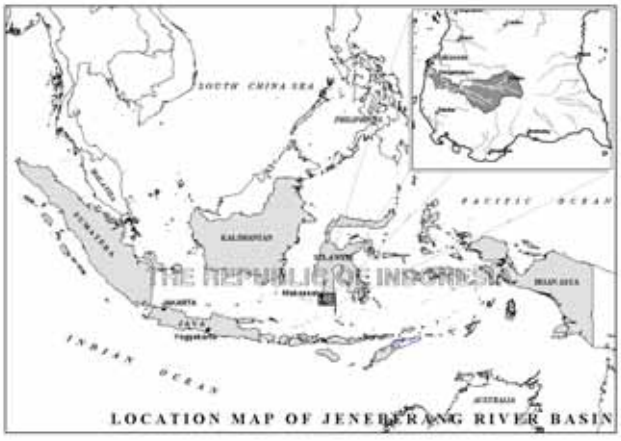
The idea for developing Jeneberang rose after the big flood of 1976 inundated 2/3 of Makassar City around 37 km^2. The development started with construction of dyke along Jeneberang River. The dyke is 11 km long, protects Makassar City for flood of 25 years return period. The development continued with a plan for Bili-Bili Dam development. Construction of the dam started in 1992 and completely finished in 1998. The dam then increased the flood protection intensity to a return period of 50 years, protecting around 58.5 km^2 area of the Makassar City.

Water Supply Facilities

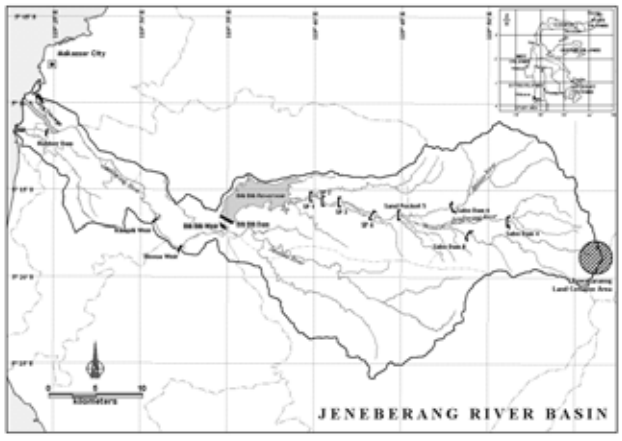
A large supply concrete conduit 1.5 m diameter runs down 16 km from Bili-Bili Dam to Sombaopu Water Treatment Plant (WTP). The conduit, usually termed as Raw Water Transmission Main (RWTM), supplied raw water for domestic water supply and industry to Makassar City. Although the reservoir is able to supply raw water as much as 3.3 m^3/second, the current capacity of the Sombaopu WTP is only 1.1 m^3/second. This WTP serves around 1/3 of Makassar population, while there are still some WTPs for the rest ofhe city. The development for enlarging the capacity of the WTP is planned pursuant to the developmetof the city; which is increase of population and industry.

There are still five other raw water supply intake facilities along Jeneberang River downstream of Bili-Bili Dam; at Sungguminasa, Ratulangi, Pandang-Pandang, Malengkeri, and Maccini Sombala. The last one, Maccini Sombala intake is at the long storage, where the Jeneberang River split into two, around 4 km before reaching the estuary.

Due to important utilization of Jeneberang water for domestic water supply, a rubber dam is built at a site just after Jeneberang River split into two mentioned above. This rubber dam protects the water at the river from being brackish, beside to maintain the water level along the



Location Map, Jeneberang River Basin, South Sulawesi, Indonesia.



Jeneberang River Basin, Bawakaraeng Caldera at utmost left, and water resources infrastructures along the River

river to keep the head in the water supply intakes.

The operation of the rubber dam is also for water diversion to the long storage where the intake gate is located 300 m upstream of the rubber dam. At the end of the long storage a tidal gate is installed, to maintain the fresh water at the long storage. The distance from the intake to the tidal gate is around 4.7 km. The capacity of the long storage is 3.8 million m^3. As mentioned before, water is extracted from the long storage into the Maccini Sombala WTP. Currently, the Maccini Sombala WTP supplies around 200 l/sec for possible improvement in the future to 700 l/sec. The long storage also provides regular city flushing to maintain sanitary in the Makassar City.

Irrigation development

Irrigation development has its long history in South Sulawesi. In Jeneberang River itself, there had been many irrigation intakes since the old days. The recent development intended to increase a cropping intensity from 160% to 240% with the provision of water from the Bili-Bili Reservoir. Change of water level after the dam development and excessive sand mining resulted in deterioration of the free intakes; besides water could not reach the operation level.

Three (3) weirs replacing the free intakes have been developed for 23,690 ha irrigation area at Kabupaten Gowa, and Takalar. The weirs are Bili-Bili (2,360 ha), Bissua (10,785 ha), and Kampili (10,545 ha). The irrigation system as well as the headworks have just completed in 2004.

Power Generation

The potential head of Bili-Bili reservoir will also be utilized for generating power. Two vertical shaft Kaplan Turbines are being erected; 14.1 MW and 6 MW, total 20.1 MW installed capacity. The operation of the power plant is scheduled to commence in 2006.

Bawakaraeng Collapse

A huge mass movement had occurred in 26 March 2004, in the afternoon at around 1.30 PM. The caldera wall of Bawakaraeng, as high as 1500 m collapse. All of a sudden, 200 to 300 million m^3 of sediment material covered the Jeneberang River Valley from the headwater to around 8 km downstream. The sediment material piled to 150 m thick from the bottom of the V-shape river valley. On the surface this material spread to 400 m (Figure 1).

Figure 1. Bawakaraeng Caldera two days after the collapse.

The river ran dry for some time after the collapse.

The collapse occurred several times, but there were two main collapses, as sensed by a seismometer installed in a station located around 60 km from the collapse site. The first collapsed material filled the river valley. Based on the remnant found on the wall of the caldera, it seemed the second one run on the surface of the first. This second collapse destroyed Lengkese village that is located on a hill at 150 m above the bottom of the Jeneberang River valley; 32 persons were reported missing, 10 among those were found dead. This collapse also destroyed 1 (one) elementary school and 10 houses, buried 1500 paddy field and coffee plantations, beside 635 cows were reported missing. People at the valley felt a very strong wind following the terrible sound of explosion from the caldera. The wind, filled up with dust drove people working in the paddy field and plantation away. This gave short but significant opportunity for the people to escape, before the debris came and buried the valley.

Local inhabitant reported that debris flow in Jeneberang River had ever occurred in 1958. Cracks in the Bawakaraeng had been reported in 1993. However, it is difficult to assess whether the crack will be followed by collapse of such magnitude. Bawakaraeng collapse started with cracks at the top of the caldera that get wider and wider from time to time. Rain water seeped through these cracks and made the rock saturated. Eventually the rock mass lost its stability and resulted a huge collapse. This is pure geological movement that has nothing to do with absence of vegetation on the caldera. (Dr. Sarono, Directorat Vulcanology and Geological Disaster Mitigation, personal interview). There are still some cracks found in Mount Bawakaraeng nowadays. We still have to work hard to anticipate such large scale slope failures.

Land conservation

Jeneberang River Basin is classified as one of 59 critical watersheds in Indonesia. This is reported in 1999, and quoted in the opening ceremony of National Movement for Rehabilitation of Forest and Land in Malino, 2003. The result of soil erosion assessment as reported for the design of Bili-Bili Dam is that the annual erosion rate in the Bili-Bili Watershed is 600,000 m^3. Many studies had been conducted to control sediment in the watershed, for the purpose of keeping sustainability of Bili-Bili Reservoir for 50 years the Government decided to build five sand pockets and three sabo dams, all the sand pockets and one out of the three sabo dams are in the mainstream of Jeneberang River. The rest are in its tributaries. However, after Bawakaraeng collapse, these sediment control structures along the mainstream have been buried by the collapsed material. Due to this disaster, the dead storage of the Bili-Bili reservoir may be full in 5 years.

*) Manager of Jeneberang River Basin Development Project, Indonesia

2. Introduction of the Red River Basin Organization in Vietnam

Nguyen Thuy Hang *

Red River system is the second biggest river of Vietnam. Red River is an international river which originates in China and runs through Lao and Vietnam before merges the East sea. Total area of the entire basin is 169,020 km^2 including 81,240 km^2 (or 48%) in China's territory, 1,100km^2 (0.65%) in Laos' territory and 86,660km^2 (51.35%) in Vietnam's territory.

Administratively, the Red River basin covers 26 provinces with a population of 28 million people (in 2002). The basin is consisted of 5 sub-basins as showed in the following picture.

The Red River Basin Organization is a non-productive body under Ministry of Agriculture and Rural Development of Viet Nam. The RRBO was established on April 9, 2001 according to a Decision by Minister of Agriculture and Rural Development of Vietnam. Dr. Pham Hong Giang, Vice Minister of Agriculture and Rural Development is Chairman of the RRBO.

The RRBO has its office (Secretariat) based at Institute of Water Resources Planning (IWARP).

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Website: www.rrbo.org.vn

Dr. To Trung Nghia, Director of IWARP is also Chief of the Secretariat of the RRBO.

The RRBO has tasks to:

- Prepare, submit for approval the Red – Thai Binh River Basin Plan and monitor implementation in ensuring consistent management of the river basin plan with the administrative boundary;
- Coordinate with relevant Ministerial, sectoral and local agencies in baseline water resources investigation, inventory and assessment for the Red – Thai Binh and in preparing, submitting for approval and monitor implementation of river basins' plans for tributaries of the Red – Thai Binh system;
- Propose resolution for water resources disputes in the Red – Thai Binh River Basin.

The Directory Board of the RRBO comprises of 4 persons with following details.

Dr. Pham Hong Giang
Vice Minister of Agriculture and Rural Development
Chairman

Dr. Pham Xuan Su
Director of Water Resources Department Ministry of Agriculture and Rural Development (MARD)
Vice chairman

Dr. Nguyen Thai Lai
Director of Water Resources Department (Ministry of Natural Resources and Environment -MONRE)
Vice chairman

Dr. To Trung Nghia
Director of Institute of Water Resources Planning (IWARP) Ministry of Agriculture and Rural Development (MARD)
Chief of the Secretariat

There are in total 46 members of the RRBO excluding those of the Directory Board. Members are directors of relevant Departments under MARD, directors of provincial Departments of Agriculture and Rural Development (DARDs) in the Red-Thai Binh river basin, and directors of relevant departments of ministries of Natural Resources and Environment, Industries, Fishery, Construction, Transport, Health, National Defense, and General Services of Hydro-meteorology.

Funds for operation of RRBO are provided from the State budget upon approval by Ministry of Agriculture and Rural Development (MARD).

*) Institute of Water Resources Planning, Vietnam

From secretariat

1. The revision of NARBO Charter

NARBO Charter was revised a little bit to clear some of its stipulations. The outline of the revision is as follows:

1. Provision of selection of the Chairperson and venue for the General Meeting (changed)
   (a) In principle, the General Meeting is held in the Chairperson's country.
   (b) The date of the General Meeting is proposed jointly by the Chairperson and the Secretary General

2. Provision of the procedure for the change of officers in the middle of their tenure (added)
   (a) When the Chairperson becomes unable to perform his/her function, Vice-Chairperson substitutes for the Chairperson until the next General Meeting.
   (b) When the Vice-Chairperson becomes unable to perform his/her function, Acting Vice-Chairperson serves as the Vice-Chairperson until the next General meeting.
   (c) When the Secretary General or any of the Vice-Secretary Generals become unable to perform his/her function, Acting Secretary General or Acting Vice-Secretary General serves as the Secretary General or Vice-Secretary General.

The processes regarding selection of Acting Vice-Chairperson, Acting Secretary General and Acting Vice-Secretary General need
   (1) Nomination by the Secretariat
   (2) Appointment by the Chairperson

If you want to know the detail, please see our web-site.

2. The announcement of the 2nd General Meeting

The three-day-long 2nd General Meeting will be held at Bandung, Indonesia next February. The last day will be the site visit.

3. Three Indonesian exchange staff in JWA HQ

Under the twinning program, signed between Indonesian NARBO and JWA, three Indonesian exchange staff, Ms. Titik Indahyani and Mr. Alfan Rianto from Jasa Tirta I and Mr. Saur Saragih from Jasa Tirta II, have been assimilating information that JWA and Japanese society have experienced and accumilated.

[Photo] At Naramata Dam, JWA (Ms. Titik, Mr Alfan, Mr. Yoshioka and Mr. Saur:from left)

According to the two-month-long program, they came to Japan July 12 and go back to Indonesia September 10. They're staying at the weekly condominium near JWA HQ and walk to work every day. They seem to work very hard to fulfill their own purpose. The first month was constituted of lectures, but they have had some opportunities to go out for visiting JWA facilities and other organizations.

They seem to enjoy their stay in Japan as the communication between JWA staff and three exchange staff has been getting well and getting used to the ways in Japan.

We hope that they will continue to work hard, have good time with JWA staff without any problems and this program will end very successfully.

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