

January 10, 2002

Final Report on the Implementation of Perez-Guerrero Trust Fund
Project for Economic and Technical Cooperation among
Developing Countries of Group of 77

**“Training of Irrigation and Drainage Design Experts
in order to Improve the Development of Water
Resources in Developing Countries”**

Pyongyang, DPR of Korea

The Expert Committee of Perez-Guerrero Trust Fund(PGTF) considered the project proposal “Training of irrigation and drainage design experts in order to improve the development of water resources in developing countries” presented to the Fund by the Government of Democratic People’s Republic of Korea. On September 15, 2001 and approved primarily to allocate 40,000 USD to execute the project proposal.

The Government of the DPR of Korea and the Irrigation Designing Institute, MoA, entered into contract to fulfill the approved project INT/00/K04 “Training the designing experts in the field of irrigation and drainage to undertake the work of developing the water resources in developing countries”

This Report is containing the activities and final related to the performance of PGTF project INT/00/K04.

1. Background of the Project

The work of developing the water resources including irrigation and drainage is one of urgent and important issues when it shall be considered that the agricultural production is reduced by flood or drought and abnormal climate will be continued in the future.

In recent years the developing countries strive to control the damages of drought and flood due to the cold front mobilizing their possibility and potentials on the principle of collective self-reliance, but they don’t reach the satisfactory level in the field of irrigation and drainage because of lack of technology and fund so it makes little possibility to control the damage of flood and drought.

To get rid of the difficult condition in developing countries, they should train the designing experts in a fast time who can draw the design themselves with their own technology, which assumes to be the first and important procedure to develop and use the rational water resources.

From this practical requirement the Irrigation Designing Institute of MoA, DPRK decided to give a practical contribution to development of the South-South Cooperation by organizing the international workshop with practical experience in the work of drawing the design to prevent damages from flood and drought which influence on agriculture of developing countries.

This project lay the foundation to solve the technical problems of designing with themselves which is preferential in the work of developing water resources, putting practical experiences together with theories on “Drawing method of the master plan design for irrigation construction”, “Drawing method of the small and medium sized projects for irrigation and drainage”, “Drawing method of controlling the flood damage in a river” available in Cambodia, Laos, Bangladesh, Nepal where they were suffering the damage of

flood and drainage due to the abnormal climate and shortage of practical experiences in the work of developing the irrigation and drainage.

2. Activities for Implementing the Project

For implementation of the project the government of DPRK would nominate Kim Chang Ryop- officer in the Ministry of Foreign Affairs as a coordinator for the project, Kim Kyong Ung- general manager of the IDI, MoA and Kang Il Won- adviser of the IDI, MoA as responsible consultants, and organize a practical group for implementation of the project.

The practical consisted of 4 technical consultants who were the engineering eorkes with rich experience and ample knowledge and theory in this field so that the technical and practical preparation for implementation of the project would be done.

At first the group prepared the lectures titled “Drawing method of the master plan design for irrigation construction” –3 volumes, “Drawing method of the small and medium sized projects for irrigation and drainage” -5 volumes, “Drawing method of controlling the flood damage in a river” -7 volumes, which were to make them to acquire practical experience.

With this, the group prepared the present and actual data in the field of irrigation and drainage which could exchange the practical experience in the work of developing and using the rational water resources in Cambodia, Laos, Bangladesh, Nepal, DPRK, and also prepared the studying system of data and its method, workshop outline which could take measure of water use in conformity with the characteristic of physiographic and climatic condition in each country.

And the group engaged with national plan the physical and technical preparation of lecture calculating rooms for providing the successful workshop in Pyongyang.

On the basis of such preparation the mission consisted of Kim Chang Ryop and Kang Il Won was dispatched to beneficiary countries to make it the model lecture of designing based on analysis of reality of developing and using the water resources in object countries.

The mission stayed in Bangladesh from July 25 to July 29, 2001 and gave the workshop outline to the corresponding officials in General Group of Irrigation and Department of Agricultural Extension, realized the irrigation and drainage and investigated the data on development on irrigation and drainage. Then the mission visited the project region for development in Asgoni Halisi and Bevai River and exchanged experience in development each other.

From July 30, 2001 to August 3 the mission went to Nepal and met corresponding official in Ministry of Water And Agriculture , gave them the workshop outline, surveyed the data of developing irrigation and drainage. The mission visited irrigation project in

Bilitey and Bagamuli and exchanged experiences in irrigation development, management and operation.

From August 4, 2001 to August 8 the mission went to Cambodia and meet corresponding officials in Ministry of Water and Agriculture, gave them the workshop outline, surveyed the data of development irrigation and drainage. Then the mission visited irrigation area of Boldek Namgang and drainage area of Kompongthuo in Tankav and the construction site in Kamsolv River, exchanged experiences in developing irrigation and drainage.

From August 9 to 13, 2001, the mission went to Laos and met corresponding officials in General Group of Irrigation in Ministry of Agriculture, gave them the workshop outline, surveyed data of developing irrigation and drainage. Then the mission visited Irrigation Research Institute and irrigation project Lao Pedres, exchanged experiences in developing and operation of irrigation and drainage.

Exchanged opinions and visit to the project of irrigation and drainage and data are used as an important thing which would make Pyongyang Workshop to be particular one based on practical experience.

The workshop was held in Pyongyang , capital of the DPRK between 16-23 of October. The workshop took place in IDI , MoA and Won Yong Gi ,chief engineer of IDI, made an open speech and after that there said workshop programme and introduce of lecturer. In the workshop 8 engineers were present –2 for each country from Cambodia, Laos, Bangladesh , Nepal. (The list of participants is attached in Annex 1, the title and contents of workshop is given in Annex 2)

Participants are provided with notebooks and designing supplies for the workshop. This workshop gave the participants practical knowledge explaining the experiences acquired in the work of practice and design in the field of irrigation and drainage for developing the water resources in DPRK, combining the international tendency with practical in a dialogic and popular way.

Participants visited the facilities and establishments constructed in the field of developing irrigation and drainage for developing the water resources in DPRK and were given lecture in the field, including designing theory.

Visit and field lecture took place in several places such as a reservoir in Nampo Lock, Onchon Canal, Kiyang Irrigation System, Taesong Lake and Pumping Station No.2, Kyonryong Reservoir and its canal, Sohung Lake and its canal, Kachon-Tasong Canal under construction.

The responsible consultant Kang Il Won made a close speech and a participants made a speech. All participants received certifications which identified to have taken part in Pyongyang Workshop in DPRK for “Training the designing Experts in the field of

Irrigation and Drainage” to undertake the work of developing the water resources in developing countries.

All participants appraised unanimously that the workshop “Training the designing Experts in the field of Irrigation and Drainage” to undertake the work of developing the water resources held on Pyongyang, capital City of DPRK took place nicely under the solicitude and care of the great leader comrade **KIM JONG IL** of Korean people. And they suggested IDI, MoA that such workshop should be continued through the Group of 77 and they told that they would suggested their government that Korean engineers would come to their countries and give a lecture to them.

3. Results of the Project

- 3.1. Analysis of reality of developing and using the water resources would be taken in object countries, which confirmed the necessity for measurement of improvement according to the existing condition of irrigation and drainage.
- 3.2. It lay the foundation that could draw themselves the master plan design for using the national water resources in each country.
- 3.3. It made possible confirming the possibility for developing and using the rational water resources and putting forward the prospective target with themselves.
- 3.4. It made possible drawing themselves the design for small and medium scaled development project of irrigation and drainage which had depended on others in the past, increasing the designing powers on the basis of 2 experts who trained in the workshop.
- 3.5. It lay the foundation that such countries as Bangladesh, Cambodia, Laos where they themselves , acquiring the drawing method of a river.
- 3.6. It lay the abundant technical foundation that could establish the drainage system and rationalize the headwater, differentiate advantage and disadvantage in the method of planning the structure.

4. Conclusion

As the work of developing and using the water resource and controlling the damage of drought and flood is the important one to increase the agricultural production, the IDI would think that the work of training the designing experts in the field of irrigation and drainage should be preferential and close cooperation and assistance of developing countries and international course through the Group of 77 would be realized.

The IDI would think that efficient fund assistance would be necessary for the new project in order to develop the water resources in developing countries and improve the operational technique in the field of design and construction able to use rationally.

Like this, IDI, MOA, DPRK satisfactorily completed the planned objective carrying out the project fully.

5 Cooperative fund of the 77 Group Trust Fund would be efficiently and usefully used for implementation of the project and that is recommended as following;

| No. | Item | Person/month | USD |
|------------|---|---------------------|---------------|
| 1. | Personnel | | |
| | Project Coordinator | 4 | 1,200 |
| | Consultant | 4 | 1,000 |
| | Trainees | 2 | 2,912 |
| 2. | Travel | | |
| | Travel Cost for Trainees | | 16,200 |
| | Travel Cost for Consultants | | 7,520 |
| 3. | Procurement of Supplies for Workshop | | 10,168 |
| 4. | Other (fare, documentation) | | 1,000 |
| | Total | | 40,000 |

On behalf of the Government of DPR of Korea

Choi Su Hon

Vice Minister of Foreign Affairs

On behalf of sub-contracting agency

Kim Kyong Ung

General Manager of Irrigation Designing Institute

Annex 1

List of participants in the workshop

| Country | Name | Birth date | Position |
|------------|--|------------|----------|
| Cambodia | 1. SREY SOHPTAK 2. CHEACHHUN KEAT | | |
| Laos | 1. SOUVAN THONG SOUTHIMATH 2. SOUVNA THAMMA VONG SA | | |
| Bangladesh | 1. MOHAMMAD MAHBUBUL HAQUE 2. ZAIDUR RAHMAN | | |
| Nepal | 1. LOK DARSHAN SHRESYHA 2. BASISTHA RAH ADHIKARI | | |

Annex 2

Titles and contents of lectures dealt during the workshop

1. Drawing-method of the master plan design for irrigation construction

- 1.1 Survey content and method, technical standards should be included in present and major survey for drawing the master plan design.
- 1.2 Technical problems as principles, solving the method in the plan of master plan – drawing principle, headwaters facilities such as reservoir, pumping station, intake, other facilities, canal and structures
- 1.3 Master plan – drawing principle and contents to be included.
- 1.4 Making system of manuals and technical contents and drawing method to be included.

2. Drawing method of small and medium scaled project for irrigation and drainage.

Technical contents and method, technical requirement to be included in headwaters facilities and canals, structure along canal, measurement and survey for drawing the technical design of the small and medium scaled project of irrigation and drainage.

Technical requirement, experimental method and standard selection to be kept in data and survey of construction buildings as well as geological survey.

Calculation principle and method in interior design: Hydraulic and structural calculation method of canal structure as well as inverted siphon, water amount calculation and standard, selection and calculation principle of headwater facilities such as hydraulic engineering calculation of canal cross-section.

Estimation of budget price for equipment.

3. Drawing method of controlling the flood damage in a river.

- 3.1 Technical content and method to be included in the survey of drawing the river.
- 3.2 Standard selection of calculating the flood account and the method of calculation of flood amount.
- 3.3 Calculation of canal cross-section in a river.

3.4 Embankment of standing drainage amount and calculation method of drainage structures.

4. Visit and lecture in the field

Lectures in the field was given combining the visit to the structures in the field with national consultant about headwaters facilities such as earth-fill dam, concrete dam, intake facilities, canal, structures along canal, and structural settlement.

Participants visited Korean West Sea Lock reservoir in downstream of Daedong River, Taeryong Lake and Kiyang Pumping Station No.2, Kiyang reservoir dam, excess water spillway, intake tower, canals, dam in Sohung Lake, intake structures in Onchon tideland and its canal, construction site of canal from Kaechon-Taesong Lake, as a practice.