Study of the Fabrication, Installation and Cost Estimation for the New Lock Gates

Estudio sobre Fabricación, Instalación, y Estimado de Costo de Nuevas Compuertas para Esclusas

The Study team of Japan Bank for International Cooperation (JBIC)

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Resumen Ejecutivo

FINAL REPORT

ON
FABRICATION, INSTALLATION, AND COST ESTIMATES FOR
THE NEW LOCK GATES OF THE PANAMA CANAL
PREPARED FOR
THE AUTHORITY OF PANAMA CANAL
PERFORMED BY
THE STUDY TEAM OF
JAPAN BANK FOR INTERNATIONAL COOPERATION

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Executive Summary

Introduction

This Study on the fabrication, installation, and the cost estimates for the New Lock Gates of the Panama Canal has been undertaken by the JBIC Study Team (hereinafter called "The Study Team") based on the TOR agreed on the 15th of September in 2003 with the ACP and the Study Team. The Draft Final Report has been submitted to the ACP on the 4th of December in compliance with the TOR despite the very limited studying period. On the 11th of the same month, as stipulated in the TOR, a technical transfer seminar in relation to the essential contents of the Draft Final Report was taken place in the ACP office for the relative staff of the ACP. The papers presented in the seminar are also attached in the Appendix of this Report.
This executive summary is the essential parts of the Final Report revised and refined by the comments provided by the ACP to the Draft Final Report.

The Objective of the Study

▪The objectives of the Study are as follows;

1) To provide an integral information for determining the feasibility of building the Post-Panamax Lock Gates,
2) To recommend and provide the best option of construction methodology on fabrication, transportation and installation methods as well as cost

estimates for both Miter Gate and Rolling Gate independently, including special facilities and equipment requirements taking into consideration of the adequacy of using presently available local facilities, personnel and equipment in Panama and surrounding countries.

Socio-Economic Aspects of Panama and Socio-Environmental Consideration of the Project

(1) In Chapter 1, a short history, socio-economic and political aspects are put together in brief to understand the Republic of Panama, where the project is going to be undertaken. The Panama Canal and the various ongoing investments projects in the extensive past military areas which were reverted at the end of 1999 are going together to have big effects on the socio-economic aspects of the Republic. The focal policies of the present Government to correct the socio-economic gaps existing among the provinces are facing big difficulties under the strong pressures from the other side policies to reduce enormous amount of foreign debts. In this context, it is widely perceived that the Panama Canal Expansion Project, if executed, shall provide big economic benefits not only to the Canal users and to various port related businesses but also to the economy of Panama as a whole by enlarging the "pie", and possibly to open a new page for her history.

(2) In Chapter 12, such socio-environmental impacts as presumably be foreseen in the stage of executing the Project, and also countermeasures are described. The ACP has already started preparing various studies on impact and countermeasures taking into well consideration of the international standards. However, at the present moment, when the magnitude and the exact impacted areas have not yet been assured, the information relating to the environmental impacts from this expansion project are still limited in the stage of "base-line information collecting."

Premises of the Study

- Several premises of this Study were confirmed in Chapter 2, Premises of the Study, as follows;

1) The Configuration of the New Lock Gates and the Type of Gates

The US Army of Corps of Engineers (USACE) is conducting conceptual designs of Miter Gate Type at the Atlantic side, and the Consorcio Post-Panamax (CPP) is conducting conceptual designs for Rolling Gate Type at the Pacific side. The data directly relating to the study of gate from the results of the said studies have been supplied by the ACP. There are 7 different heights of gates. The configurations of the locks and the height of gates are revisited in the image drawings. (Fig. 2.1-3)

2) The Alignments of the New Locks

Both the Atlantic and the Pacific alignments of the New Locks were confirmed in the ACP's drawings. (Fig. 2.1-1, 2)

3) Estimation on the Weights of Gates

The Study Team estimated the weights of each gate as basic data for using in the following stage to calculate work loads in fabrication, transportation, installation and cost estimates.

The heaviest gate of miter gates is 3,216 tons for the case of 2-Lift (with double skin) configuration. In the case of rolling gate, the heaviest gate is 4,580 tons for 2-Lift (with double skin).

For security reasons, each set of lock gate is composed by the dual set of gate leaves. Therefore, the 2-Lift lock gate is composed by 6 set of gates leaves (12 pieces of gate leaves), the 3-Lift lock gate is composed by 8 set of gate leaves (16 pieces of gate leaves). In the case of rolling gate, as the one gate is composed by a set of gate, 2-Lift lock gate is composed by 6 set of gates(6 pieces of gate leaves), and the 3-Lift lock gate is composed by 8 set of gates (8 pieces of gate leaves).

4) The Flow Chart of the Study Undertaken by the Study Team

The flow chart of study works to be undertaken by the Study Team has been included in the TOR agreed on between the ACP and the Study Team. All the standards to be applied in the Study are based on internationally prevailing standards for designing, materials to be used, painting and inspections.

5) Maximum Terrestrial Transportable Size in Panama

The divided parts (blocks) of gates are presumed to be transported by trucks from the port of Balboa. They are packed in a 40' container for the size of 12m in length, 2.3m in width and 2.5m in height, and the maximum

weight is calculated as 2.6tons.

Summary of the Study Results

1) The Research on Panamanian Venders' Capabilities

- The 2 Panamanian companies which have dry docks, a general construction company and a steel construction company have been evaluated their capabilities from the point of assembling and installing the gates in Chapter 3, Research on Panamanian Vendors' Capabilities.

  ACP Industrial Shipyard; having a dry dock (114m×17m×6m) and a Syncrolift (1,200 tons, to be enhanced in the future to 2,800 tons), the sizes of dry dock is too small to assemble the new gates.

  Astilleros Braswell; having 3 dry docks; (1)318m ×39m, Width of Entrance; 33.6m, (2) 130m×30.5m, (3) 70m×16.8m with the draft of 4~8m, at high tide of 15m, capable to assemble with some limitations.

2) Categorization of Construction Methods for the New Lock Gates

- More general methodologies to be applied to the fabrication, transportation and installation for the new lock gates of miter and rolling gates having 2-Lift and 3-Lift configurations were extracted in Chapter 4, Construction Methods of the New Lock Gates.
- The 3 groups were categorized or grouped as follows by analyzing study results of conceptual designs being undertaken by the USACE and CPP, by surveying capabilities of local Panamanian companies, transportation conditions of the ports and restrained terrestrial transportation conditions;

① Study Case (Ⅰ), the "one-unit methodology, transported by semi-submergible vessel, installed in wet conditions"

This methodology is to fabricate the gates in one-unit in overseas manufacturers, transported by semi-submergible vessels to Panama, towed by tugboats to the construction site, installed in the wet conditions in the Canal. (See the attached photos of Semi-submergible Vessel)

② Study Case (Ⅱ), the "blocks, assembled in Panama to one-unit, installed in wet conditions"

This methodology is to fabricate the gates in overseas manufacturers in blocks to the size of terrestrial transportation limitations of Panama, transported by cargo vessels to the port of Panama, unloaded to the ports and transported by trucks to dry docks. After unified to one-unit, towed to the construction sites by tug boats and installed in wet conditions.

③ Study Case (Ⅲ), the "blocks, site assembled & installation in dry conditions"

This methodology is to fabricate the gates in overseas manufactures in blocks to the size of terrestrial transportation limitations of Panama, transported by cargo vessels to the port of Panama, unloaded and transported by trucks to the construction sites, assembled and installed in dry conditions.

- There are 12 Cases in total for having 2 types of miter and rolling gates with 2-Lift and 3-Lift configurations (3 Study Cases×2 Types×2 Configurations=12). For identifying these individual cases, in the case of miter gate with 2 (Double)-Lift, named as M-D-(Ⅰ), M-D-(Ⅱ), M-D-(Ⅱ), in the case of rolling gate with 3(Triple)-Lift, named as R-T-(Ⅰ), R-T-(Ⅱ), R-T-(Ⅲ). (Ref. Study Results of the New Lock Gates)

- In the following pages, the essential points of studies, analyses and the evaluations on the methodology for fabrication, transportation and installation of miter gates and rolling gates in each study case are described.

3) Fabrication Methods

- A detailed fabrication flow, fabrication step diagram and fabrication schedules were prepared for each Study Case of miter gate and rolling gate. The characteristics pertaining to the methods, the necessary conditions for carrying out the methods and the proposals for solving the problems were clarified. Finally, evaluations were made in Chapter 5, Fabrication Methods.

Fabrication Period;

(1) In the case of miter gate, the fabrication periods were calculated on the assumption of 1,245 tons per month. In the case of rolling gate, the fabrication periods were calculated on the assumption of 1,500 tons per month. In any cases, the shortest period was 16 months and the longest was 24 months.

(2) In the case of miter gate, 2-Lift (the number of gate leaves is 12 in total) has shorter period of 4 to 5 months than 3-Lift (the number of gate leaves is 16 in total).

(3) In the case of rolling gate, 2-Lift with 6 leaves has 4 months shorter period than 3-Lift with 8 leaves.

(4) When the "blocks fabrication method" and "one-unit fabrication method" are compared with in any cases, 4 months are shorter, because in the former case, blocks are not profiled as a box, no reversal works are necessary in the course of fabrication, and also no yard assembly is necessary. (See fig. 5. 1. 1-5, 5.2.1.-8, 5.2.3-3)

Evaluation on the Gate Fabrication by Each Case;

(1) The results of the study on fabrication in each case were evaluated by the 3 criteria (A; Executable, B; Executable with conditions, C; Not executable).

(2) In fabrication, only the case of rolling gate by one-unit (Study Case (Ⅰ), 2-Lift, having the heaviest gate leaf of 4,580(R-D3d), some countermeasures might be necessary for bearing capacity of the assembly yard. Accordingly, the evaluation became "B" as "executable with conditions". Other Study Cases of (Ⅱ) and (Ⅲ) are evaluated "A" as "executable" without any problems.

4) Transportation Methods

- Transportation procedure, necessary equipments for transportation, maritime transportation means, packaging, draft of semi-submergible vessel and the draft of gate and transportation schedules were analyzed and studied in Chapter 6, Transportation Methods.

Miter Gate, One-unit Transportation Methods; Study Case (Ⅰ)

(1) The gates to be transported are so big in size, and the weight of each

leaf is from 1,210 tons (M-D1) to 1,494 tons (M-D3) that the floating crane for loading is assumed to use "Suruga" with the capacity of 2,200 tons.

(2) As the same floating crane are not available in Panama, the "semi-submergible vessels" are to be used for transporting the one-unit gate loaded in Yokohama to the nearest area of the Panama Canal for unloading and then towed by tug boats to the construction sites.

(3) When the "semi-submergible vessel" is used, the draft of gates to be transported becomes crucial. In the case of "Swan", the draft becomes 7.3m (submerging draft at 20.6m-sea water level at 13.3m) and the "Mighty Servants 3" have the draft of 10m (22m-12m). As miter gates are transported in horizontal manner, the maximum draft is 4.15m; there are no problems in draft.

(4) As the 4 pieces of gates are transported by a "semi-submergible vessel", the 12 pieces of gate leaves for 2-Lift can be transported by 3 semi-submergible vessels, and the 16 pieces of gate leaves by 4 vessels. About 44 days are calculated for arriving to Panama from Japan.

<u>Miter Gate, Blocks Transportation Methods; Study Case (II), (III)</u>

(1) The constraints of terrestrial transportation are considered. The maximum weight is 25 tons in 40' containers.

(2) The largest gate in the Atlantic side of 2-Lift is the sea-faced MD-2 with the height of 34.5m, weighing 3,238 tons per 1 set of gate (a pair of gate). If they are packed by 14 tons per 1 block, the total numbers of containers become 230. The maximum weight of containers is 25 tons.

(3) As the 2 set of gates (=4 pieces of gate leaves) are transported by one vessel, the number of shipments becomes the same as one-unit transportation. In the case of 2-Lift, total shipments are 3 times and the 3-Lift are 4 times. From the point of efficiency of cargo handling, cargo vessel at the class of 20 thousands tonnage equipped with deck cranes are to be used. The same vessel is also assumed to be used in the case of block transportation for next rolling gates.

<u>Rolling Gate, One-unit Transportation Method, Study Case (I)</u>

(1) The range of weight of one gate to be transported is from 1,900 tons

(R-T1) to 4,500 tons (R-D3). The floating cranes to be used for loading are Suruga with the capacity of 2,200 tons and Musashi of 3,600 tons. For loading the gate of 4,500 tons, two set of cranes of Musashi with the capacity of 3,600 tons are to be used.

(2) Assuming that the floating cranes with the same capacity are not available in Panama, semi-submergible vessels are used to carry the one-unit gates from Yokohama to Panama and from there on to be towed by tug boats to the construction sites.

(3) As mentioned in miter gate transportation by the "semi-submergible vessel", the draft of gates to be transported becomes crucial. In the case of Swan, the draft is 7.3m and the Mighty Servants 3 have the draft of 10m. As the rolling gates are transported in the perpendicular in accordance with the present design, the draft is around 13.9m~17.1m. It is impossible to transport them by semi-submergible vessels.

(4) Following countermeasures to lower the draft to at least 9.5m are necessary to transport them by the semi-submergible vessels; a) by mounting an auxiliary float to lower the draft, b) by modifying the structure of the gate leaf to be able to transport horizontally, c) by using high strength steel to reduce entire weight, d) by combining the above modifications to lower the draft.

On the assumption that the draft problems are solved by using the above countermeasures, transportation methods were analyzed.

(5) It became clear that the one set of gate is transported by the one semi-submergible vessel. Accordingly, 2-Lift composed by 6 pieces of gate leaves are shipped by 3 vessels, and 3-Lift composed by 8 pieces of gate leaves are shipped by 4 vessels.

<u>Rolling Gate, Blocks Transportation Methods; Study Case (II)</u>

(1) The constraints of terrestrial transportation are considered. The maximum weight is 25 tons in 40' containers.

(2) The largest gate of 2-Lift in the Pacific side is the sea-faced R-D3 with the height of 34.5m, weighing 4,730 tons per 1 set of gate. If they are packed at maximum of 24 tons, the total numbers of containers become 707.

(3) Although the number of shipments is decided by the delivering conditions, the same numbers as in the case of one-unit transportation for rolling gate are assumed. It is important to

make sure, in any case, the timing of fabrication, transportation and installation before beginning all the construction works.

Evaluation on the Transportation Methods by Each Case;

(1) Only one-unit transportation of rolling gate became impossible by means of semi-submergible vessel for the reason of draft limitations. Other cases have no problems.
(2) In the case of Miter Gate, the 3-Lift can pass thorough the Panama Canal, on the contrary the 2-Lift can not. In the case of Rolling Gate, both the 2-Lift and 3-Lift cannot pass the Canal for being transported in perpendicular. Although this theme is out of scope of this study, if the same gate type is required to be selected in the both Oceans, only 3-Lift Miter Gate might be eligible.

5) Installation Methods

- For each study case, installation conditions, installation procedures, step diagrams, working schedules were prepared. Required manpower and necessary machines and equipments were estimated. As to manpower, assembling and installing works to be undertaken in Panama were estimated in accordance with job categories. Equipments are estimated in accordance with the type of machines. The study is done in Chapter 7, Installation Methods

Miter and Rolling Gates, One-unit Installation Methods; Study Case (Ⅰ)

(1) In these cases, the gates are manufactured outside of Panama, transported to the construction sites to be installed. Therefore, the working forces required in Panama became one sixth compared with the block methods mentioned later. The 3-Lift is requiring more workers than 2-Lift in Panama, because more gates are assembled and installed in Panama.
(2) The 2-Lift of Miter Gate, 63,000 workers are required, 3-Lift of Miter Gate, 85,000 workers. The 2-Lift of Rolling Gate, 50,000, the 3-Lift, 54,000. The 3-Lift of each gate requires 30% and 8% more workers respectively than 2-Lift.

Miter Gate, Blocks Installation Methods, Study Case (Ⅱ) ;

(1) After manufactured outside of Panama, the blocks are transported by cargo ships to the port of Panama, unloaded to the dry docks in Panama to unify them into one-unit, then towed to the construction sites to be installed in wet condition. The assembling at the dry docks in Panama is also recommended in the conceptual designs. Assembling in the dry dock in Panama is limited by the size of dry dock in Panama.

(2) The ACP Industrial Shipyard in the Atlantic side has a dry dock of 114m in length and 17m in width. The Miter Gate has the size of 22.34m~34.5m in width and 22.34m~36.5m in height. When the gate is completed in horizontal, the completed gates can not be carried out.

(3) Even the Braswell's biggest dray dock having entrance width of 33.6m is not enough for the biggest gates of M-D-d2 and M-D-d3 of 2-Lift(34.5m×35.47m×4.15m) to take out after unified.

Rolling Gate, Blocks Installation Methods, Study Case (Ⅱ);

(1) The same as Miter Gate mentioned above, after assembled in the dry dock of Braswell Shipyard in the Pacific side, unified one-unit rolling gate are not to be taken out from the dry dock.

(2) Although the maximum draft at high tides is 15.2m, normal draft is only around 4~8m. The draft of Rolling Gates are 14~17m, some gates can be taken out, some gates can't.

Evaluation on the Installation Methods of Each Study Case;

(1) The Block Installation Methods for Miter Gate and Rolling Gate (Study Case Ⅱ) became not to be executable caused by the size limitation of dry dock of Braswell Shipyard in the Pacific side.

(2) There are no problems in the other cases (Study Case, Ⅰ, Ⅲ)

6) Technical Evaluation on Miter Gate & Rolling Gate

- At the end of each chapter, evaluations were made whether the methods are executable or not for fabrication in Chapter 5, transportation in Chapter 6 and installation in Chapter 7 respectively. In Chapter 8 again, the past evaluations were re-evaluated from the point of

"technical" criteria in comparison with the following "cost" and "construction schedule" evaluations.

- Through the technical evaluation, the Study Cases (Ⅰ), (Ⅲ) are to be executable, but (Ⅱ) is evaluated "C" as not executable by the limitation of size of Braswell Shipyard. The Rolling Gate, Study Case (Ⅲ) has no problem. Study Case (Ⅰ)has the problem in transportation (the draft of gate is more than 10m) ,the evaluation became "C" as not to be executable.

Evaluation on Construction Period;

(1) All working period including the construction period of fabrication, transportation and installation of gates and the other civil works were put into together for evaluation. Such works as to put the frames, handling machines and control systems are presumed to be done within the same period, all working period including civil works are to be done within 72months (6 years).

(2) In the case of Miter Gate, the Study Case (Ⅰ) and (Ⅱ) of 2-Lift became 71 months, the Study Case (Ⅲ) 75 months. The 3-Lift, the Study Case (Ⅰ), (Ⅱ), (Ⅲ) became 76.5 months, 76.5 months and 90 months respectively.

(3) In the case of Rolling Gate, the Study Case (Ⅰ) and (Ⅱ) of 2-Lift became 61 months and 63.5 months respectively, the Study Case (Ⅲ) 76.5 months. The 3-Lift, the Study Case (Ⅰ), (Ⅱ), (Ⅲ) became 78 months, 78 months and 94 months respectively.

(4) Those cases staying within 72 months (=6 years) are evaluated as "A", within 73 to 78 months are evaluated as "B", more than 79 months as "C".

(5) The Study Case (Ⅰ) and (Ⅱ) of the 2-Lift of Miter Gate and Rolling Gate are evaluated as "A". The Study Case (Ⅲ) of the 2-Lift and the Study Case (Ⅰ) and (Ⅱ) of the 3-Lift are "B", the Study Case (Ⅲ) is "C".

The International Formation for Fabrication and Installation;

- The international formation for fabrication and installation of gates were prepared taking into consideration of the results of the surveys on venders. The 5 formations were prepared; Japan, the U.S.A., Europe, Latin America and Panama. Installation works are to be done by the

Panamanian companies under the technical advices.

- In Latin American countries, 2 companies (Maua-Jurong, Alstom) from Brazil, 1 company (Consorcio Industrial) from Mexico, 1 company (Venezuelan Heavy Industries) from Venezuela were surveyed as potential venders.

7) Cost Estimates on Gates

- Cost estimates were made in Chapter 9, Cost Estimates for the New Lock Gates.

(1) The construction costs (initial costs) were estimated using in-house data and taking into consideration of information provided by the ACP. Maintenance costs for the period of 100 years after the construction were also estimated, and the life cycle costs were estimated adding the maintenance costs to the initial costs.

(2) In the initial costs, such costs as designing, fabrication of gates and relating machines (frames, operating machines and controlling equipments), transportation and installation are included. As to the installation and transportation in Panama, domestic costs of Panama were utilized. The manning cost data are coming from Chapter 7. The costs estimates were made for 2-Lift and 3-Lift for Miter and Rolling Gates, totaling 12 cases.

(3) In both the Miter Gate and the Rolling Gate, the blocks method is 10% cheaper than the one-unit method for more works are going to be done in Panama.

(4) The fabrication costs of gates are occupying 70% to 80 % in the total construction costs. Especially in the case of one-unit fabrication method, as all parts are fabricated in overseas, the fabrication costs occupy 85% in all costs. On the contrary, the works are small in Panama; the installation costs are limited to only 5 % in all costs. The Study Case of (II) and (III) in blocks method, as the assembling and installing works are larger in Panama for 20 % in all costs, 3 to 4 times higher than one-unit methods.

(5) Comparing Miter and Rolling Gates, in both 2-Lift and 3-Lift, the Rolling Gates are more expensive than Miter Gates. Comparing 2-Lift and 3-Lift, the 3-Lift is more expensive for having more numbers of gate leaves.

(6) In the case of Miter Gates, the least initial cost is US$170 millions in the Study Case (Ⅲ), 2-Lift, and the most expensive is US$ 215 millions in the Study Case (Ⅰ), 3-Lift. The difference of the two cases is 26.5% (US$ 45 millions). In the case of Rolling Gates, the least cost is US$ 180 millions in the Study Case (Ⅲ), 2-Lift, and the most expensive is US$ 225 millions in the Study Case (Ⅰ), 3-Lift. The difference of the two cases is 25% (US$ 45 millions).

(7) Comparing 2-Lift and 3-Lift, although the latter has more numbers of gate leaves, as each gate is smaller than the former, fabrication and transportation are easier than the former.

The Comparison of Life Cycle Costs;

(1) The maintenance costs for Miter Gates and Rolling Gates were estimated by calculating the present costs in 100 years after completion of the construction, and also estimated life cycle costs by adding to the initial costs.

(2) The maintenance costs; In the case of Miter Gates, 2-Lift were estimated at US$ 135 millions, 3-Lift at US$ 156 millions, and for the Rolling Gates, 2-Lift at US$ 111 millions, 3-Lift at US$ 138 millions.

(3) Comparing the two types of gates in life cycle costs in 100 years, at 20 or 35 years in the 2-Lift, at 25 years in the 3-Lift, come across (break even points) each other. The Rolling Gates become cheaper after these points than Miter Gates. The biggest reason is that the maintenance works are done in the recess of Rolling Gates, on the contrary, the Miter Gates are necessary to be removed from the place for painting outside of Lock Chamber.

(4) Comparing life cycle costs for each Study Case. The cheapest one in 100 years is the Study Case (Ⅲ) , 2-Lift of Rolling Gates at US$ 291 millions, and the most expensive one is Study Case (Ⅰ) , 3-Lift of Miter Gates at US$ 371 millions. In the following Comprehensive Comparison, comparative comparisons were made by putting 1.0 for the cheapest cost case as the basic figure.

8) Comprehensive Comparison

- In Chapter 8, technical evaluations were made as to the fabrication, transportation, installation methods, and also construction periods, and

in Chapter 9 initial costs and maintenance costs were estimated. In Chapter 10, taking into consideration of the above results, a comprehensive evaluation was made. In this study, the both types of gates were not to be evaluated in the same way, but to be evaluated independently.

(1) As the result of comprehensive evaluation in Miter Gates, the Study Case (Ⅰ), 2-Lift is selected as No. 1 from the points of construction period and quality, and the Study Case (Ⅲ), 2-Lift as No. 2 from the costly wise. The Study Team recommends the former one, as the comprehensive evaluation is "A", the difference of costs is within 10%, the installation period is shorter, total construction period is the shortest and the quality is better for all the welding and painting works are to be done in the overseas factories.

(2) As to the Rolling Gates, the Study Case (Ⅰ), 2-Lift is selected as No. 1 from the points of construction period and quality, and the Study Case (Ⅲ), 2-Lift as No. 2 from the costly wise. The Study Team recommends the former one, as the difference of costs is within 5%, the installation period at sites is shorter, total construction period is the shortest and the quality is better for all the welding and painting works are to be done in the overseas factories.

Appendix

The following two documents are attached;

A) Visual Presentation Papers compiled from the Draft Final Report presented at the ACP office on the occasion of technical transfer seminar held on December 11, 2003.

B) Visual Presentation Papers compiled from the Final Report submitted on 30th of January, 2004.