SUPPORTING REPORT J

PROJECT EVALUATION

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SUPPORTING REPORT J PROJECT EVALUATION

1. Introduction

The Project Area covers 1,207 km^2, consisting of the Chane-Pailon project with 600 km^2 and the San Juan-Antofagasta project with 607 km^2. The former is divided into three sub-projects of Rio Chane, Rio Pailon and Okinawa Drainage, and the latter is composed of two sub-projects of San Juan and Antofagasta.

Subjects of the project evaluation are the two projects of Chane-Pailon and San Juan-Antofagasta and each of the said five sub-projects. The evaluation is mainly carried out from economic point of view, taking financial aspect and social- and natural-environmental impacts into account.

The economic evaluation is indicated by the Economic Internal Rate of Return (EIRR), Benefit-Cost Ratio (B/C) and Net Present Value (NPV), by using the present values of economic cost and economic benefit of the project.

The economic prices, which are required to estimate the economic cost and benefit, are given under the conditions and assumptions as shown below:

(a) Transfer payments such as value-added tax, income tax and corporation tax are not included in the economic cost and benefit,

(b) Standard Conversion Factor (SCF) to be applied to get economic prices of non-trade goods and services is assumed to be 88 %, based on amount and duties of external trade of Bolivia in recent years,

(c) Opportunity cost of wages for unskilled laborers are taken as 80 % of their market prices, taking the unemployment rate of Bolivia into account,

(d) Opportunity cost of land to be acquired for the project is assumed to be 70 %, taking into consideration the existing situation of land use in objective area; and

(e) Inflation factor is taken no account for the economic evaluation.

Economic life of the project (hereinafter referred to as the "project life") is taken as 30 years after the construction of facilities was completed, and the benefit and the operating

and maintenance cost (hereinafter referred to as the "OM cost") of the facilities are assumed to occur every year during the period of project life.

2. Economic Benefit

2.1 Concept of Flood Control Benefit

The economic benefit of a flood control project could be presented as an expected reduction effect in flood damage by implementing the project, that is, a difference between two damages of with-project and without-project situations.

The benefit is estimated dividing into two stages; in the first stage the direct effect of reduction in damage to assets in the inundated area, and in the second stage the reduction effect in damage to public facilities and economic activities as a function of the damage to assets.

2.2 Flood Damage Analysis

2.2.1 Methodology

For the purpose of estimating the economic benefit, a flood damage analysis would be made to assets, which are composed of general assets (buildings and household effects) and agricultural field crops, using results of a flood damage survey shown in the Supporting Report K.

The flood damages to the general assets could be estimated by using (a) number of the assets to be inundated by flood, (b) appraisal values of the assets, and (c) damage rate of the assets inundated. It can be expressed by an equation as follows:

$$D_i = N_i \cdot A_i \cdot R_i$$

where i : Kind of buildings,

D_i : Flood damage to general asset (buildings and household effects) for i-kind of building (Bs.),

N_i : Number of i-kind of building,

A_i : Average appraisal values per general asset for i-kind of building (Bs.), and

R_i : Average damage rate of general assets for i-building.

On the other hand, the damages to agricultural field crops could be estimated by using (a) inundation areas in the agricultural crop fields, (b) production per unit area, and (c) the damage rate of agricultural field crops inundated, and it can be expressed by the following equation:

$$D_j = A_j \cdot V_j \cdot R_j$$

where j : Kind of Agricultural field crops,
D_j : Flood damage to j-crop (Bs.),
A_j : Planted area of j-crop (ha),
V_j : Average unit price of j-crop (Bs./ha), and
R_j: Average damage rate for j-crop.

2.2.2 Number of General Assets and Area of Agricultural Crop Fields in Inundation Area

In the inundation area, major buildings include residential houses (high, medium, and low classes), shops, schools, factories, health centers, etc., and agricultural crop fields are mainly composed of soybeans, rice, sugar cane, maize and others. The inundation area has been prepared in accordance with the existing land use and the return period of probable flood, using the Geographical Information System (GIS), as shown in Supporting Report H.

The total inundation area is summarized dividing into two situations of without-project and with-project as follows:

ESTIMATE OF INUNDATION AREA

(1) Without-project — Unit : km^2

Return Period (year)	Chane	Paiton	Okinawa	San Juan	Antofagasta
2	151.2	368.3	155.2	496.3	286.8
5	151.2	378.7	168.4	513.6	317.8
10	158.1	392.1	195.8	575.8	373.4
20	163.7	401.6	208.5	590.4	378.3
50	165.5	412.5	219.1	626.6	382.5

(2) With-project — Unit : km^2

Return Period (year)	Chane	Paiton	Okinawa	San Juan	Antofagasta
2	75.0	29.5	0.0	318.4	92.6
5	144.9	87.9	15.0	338.5	132.1
10	153.8	123.9	42.8	364.4	176.5
20	150.4	132.2	81.6	407.0	199.0
50	160.2	230.8	96.0	468.4	230.1

(3) (Without-project)-(With-project) — Unit : km^2

Return Period (year)	Chane	Paiton	Okinawa	San Juan	Antofagasta
2	76.2	338.8	155.2	177.9	194.2
5	6.3	290.8	153.4	175.1	185.7
10	4.3	268.2	153.0	211.4	196.9
20	13.3	269.4	126.9	183.4	179.3
50	5.3	181.7	123.1	158.2	152.4

The project was formulated for the probable flood with 10-year return period. Compared the with-project to the without project, a reduction in the inundated area shows a greater effect for 2-, 5- and 10-year return periods than for 20-, 50-year return periods. Further, the reduction effect distinguishes for the Paiton and Antofagasta areas, and it is not so much for the Chane area.

Number of residential houses in the inundated area is given as a product of the inundation area and the number of residential houses per unit area. The number of residential houses per unit area in the inundation area would be substituted by the figures in Colonies related to the inundation area. The following tables show the number of households in Colonies concerned:

NUMBER OF HOUSEHOLDS OF COLONIES RELATED TO THE INUNDATION AREA

(1) 1992 (Census)

Name of Colony	Area (km^2)	Population	Population Density/ km^2	Family Size (People/hh)	Number of Households(HH)	Number of HH per km^2
1. Mineros (Rural)	876	10,773	12.3	4.79	2,249	2.568
2. Okinawa	470	3,650	7.8	4.77	765	1.628
3. San Juan	271	2,759	10.2	4.59	604	2.228
4. Antofagasta	197	2,259	11.5	4.59	494	2.509

(2) 2010(Target Year)

Name of Colony	Area (km^2)	Population	Population Density/ km^2	Family Size (People/hh)	Number of Households(HH)	Number of HH per km^2
1. Mineros (Rural)	876	10,773	12.3	4.25	2,543	2.893
2. Okinawa	470	3,591	7.6	3.99	899	1.913
3. San Juan	271	2,881	10.6	3.97	725	2.676
4. Antofagasta	197	2,359	12.0	3.97	594	3.015

The number of residential houses per km^2 in 2010 in each colony mentioned above was estimated as follows:

(1) family size in 1992 and respective growth rates of Municipalities where the Colonies are belonging (see Table I.2.5 in Supporting Report I),

(2) Next, the number of households in 2010 is given by multiplying population with family size in the same year; and

(3) Finally, the number of households per km^2 in 2010 is calculated from the number of households in 2010 and the area of colony.

The unit number of households per km^2 to be inundated could be calculated by the water depth of inundation, using area and water depth of inundation and the unit number of households per km^2 in colonies. The result is given by the return period of probable flood, under conditions of with-project and without project, for the five project areas as shown in Tables J.2.1 to J.2.5.

In the Study Area, the number of households is regarded as be nearly equal to number of residential houses, under the following residential situations in the Colonies:

(1) According to the field survey, most residential houses in the Study Area was being occupied by one household.

(2) The 1992 population census showed that number of collective residences in the said Colonies was less than one percent of the total number of residences.

According to of a result of the field survey, a distribution of number of buildings is as follows:

Distribution of Buildings

Unit : percent

Residences				
High	Medium	Low	Shops	Others
8	33	55	3	1

The classification of residences, high, medium and low, is in accordance with a visual judgment of interview surveyors. The others include schools, factories, health centers, etc. Using the average number of buildings per hectare (ha) shown in Tables J.2.1 to J.2.5 and the distribution of buildings given above, the numbers of buildings to be inundated in 2010 are estimated by the return period of probable flood for the said five project areas, and the results are given in Tables J.2.6 to J.2.10.

The agricultural crop lands in the Study Area have fully been developed, that is, it is considered to be difficult to expect a further increase in the agricultural land area, even though the kinds of planted crops are varied in the future. Accordingly in the present study, an increase in the agricultural crop areas is taken into no account in the flood prone area during the period of project life.

Areas inundated in the major agricultural crop fields, soybeans, rice, sugar cane and maize, are shown in the same tables, together with the number of buildings inundated.

2.2.3 Appraisal Values of Assets

An interview survey was carried out to obtain the present appraisal values of buildings and household effects of residential houses, shops, etc. in the flood prone area. Available data numbered about 151 samples for buildings and 110 samples for household effects. Details are described in Supporting Report K, and the average appraisal values of buildings and household effects are showed in Table J.2.11.

Regarding the agricultural field crops, production (tons/ha), prices (Bs/ton) and yield (Bs/ha) at the farm gate were estimated on the basis of agricultural production statistics and the result of interview survey to farmers (see Supporting Report K). These data together with the appraisal values of the assets are given in the same table.

2.2.4 Flood Damage Rates of Assets

The flood damage rates of building, household effects and agricultural field crops are estimated on the basis of the results of interview survey on the past flood damages in the flood prone area. However, the damage rates of buildings and household effects are mainly based the survey result at the previous mater plan stage, because it could not obtain available data at the present stage. Available data were 110 samples for buildings, 37 samples for household effects and 100 samples on average for each agricultural field crop.

The damage rate are given in accordance with the water depth of inundation to buildings, household effects and agricultural crops, and the respective average damage rates are summarized in Table J.2.12.

In addition to flood damage to the said assets, damages to public facilities and losses in business activities are taken into account. The public facilities contain transportation and agricultural facilities, electric and water supply systems, etc. However, it was difficult to estimate the flood damage to these facilities from the past flood damage records. Therefore, in the present study the total damage to these public facilities is assumed to be 34 % of the damage to general assets, on the basis of data of the similar projects which have been carried out in other countries.

On the other hand, major economic losses in the business activities are caused by suspensions of business activities and road traffic in and around the inundation area. According to records of the past floods, inhabitants and enterprises in and around the flooded area have been obliged to suspend all or a part of their business and production activities during some periods in and after flooding. For example, it is reported that some sugar-manufacturing factories reduced remarkably their sugar productions over two years, caused by flood damage to the planted sugar cane and suspension of road traffic.

Generally, the economic loss in the example above should be evaluated as a decrease in the gross profit of the factories. However, it is very difficult to have an accurate grasp of the economic loss for all sectors in and around the flooded area. Therefore in the present study, the economic loss in business suspension (including the traffic suspension) is

assumed to be approximately 6 % of the flood damage to general assets, according to similar project in other countries.

2.2.5 Estimates of Flood Damage

Under the conditions above, the damage amounts are estimated according to kind of assets and return periods of probable flood. Estimates of the flood damage are carried out for two situations of the without-project and with-project. The results are given in Tables J.2.13 to J.2.19, and a difference between the without-project and with-project situations on the damage is summarized as follows:

Estimate of Flood Damage Reduced

Name of Projects	Return Period (year)				
	2	5	10	20	50
I. Chane-Pailon	102,955	116,564	119,939	145,504	129,059
1. Rio Chane	19,183	13,761	11,813	22,645	9,835
2. Rio Pailon	67,490	81,868	81,119	90,921	83,379
3. Okinawa Drainage	16,282	20,935	27,007	31,938	35,845
II. San Juan-Antofagasta	37,897	46,652	58,206	54,981	61,057
1. San Juan	13,160	17,652	24,449	22,905	21,499
2. Antofagasta	24,737	29,000	33,757	32,076	39,558

Unit : Bs. 1,000

2.3 Average Annual Benefit Expected

Using the damage amounts for each return period shown in Tables J.2.13 to J.2.19, the average annual flood damages of respective projects are calculated for the without- and the with-project situations, taking the occurrence probability of flood into account. The result is summarized as follows:

Average Annual Flood Damage

Name of Projects	Without-Project	With-Project	Reduction in Damage (Annual Benefit)
I. Chane-Pailon	115,663	34,418	81,245
1. Rio Chane	38,550	26,186	12,364
2. Rio Pailon	61,979	7,639	54,340
3. Okinawa Drainage	15,134	593	14,541
II. San Juan-Antofagasta	73,156	41,187	31,969
1. San Juan	46,165	34,299	11,866
2. Antofagasta	26,991	6,888	20,103

Unit : Bs. 1,000

As shown in the table above, reduction in the average annual flood damage expected by executing the project would be estimated at Bs. 81.245 Million for the Chane-Pailon Project and Bs. 31.969 Million for the San Juan-Antofagasta Project. These annual reduction effects in flood damage would be given as a direct tangible benefit expected to accrue every year during the period of project life with 30 years after completion of the construction works.

In addition to the annual benefit mentioned above, a partial annual benefit would be expected to accrue before completion of the construction works. It is assumed to be proportional to progress of the construction works, i.e. the partial benefit would be approximately given in proportion of the construction cost invested already to the total construction cost. These annual benefits are transferred to Tables J.4.1 to J.4.4 for comparing the benefits with the costs of projects.

3. Economic Cost

The economic costs would be given by converting the project costs, taking into account the conditions and assumptions listed in Section 1.1. In addition to these conditions and assumptions, the following matters are considered:

(1) Value Added Tax (VAT) is set as 13 % of costs of commodities and services to be procured locally (L.C.) and costs of commodities to be imported from abroad (F.C.) for the project. Since this tax is being included in the project cost shown in the Supporting Report D, it would be taken out from the project cost for estimating the economic cost.

(2) A ratio of commodity costs and unskilled labor wages in the L.C. of the construction cost is assumed to be 55 : 45 on average judging from the distribution of construction cost.

(3) The engineering services of foreign consultants are assumed to be tax-free.

Based on the matters above, the economic cost of the project can be estimated by multiplying the project cost with the following rates:

Rates to be Multiplied to the Project Costs for Estimating the Economic Costs

Items of Cost	Rates	Calculation Formula
Local Currency Portion (L.C.)		
1. Construction Cost	0.71	0.88(0.55+0.45 x 0.80) / 1.13
2. Land Acquisition Cost	0.55	0.88 x 0.70 / 1.13
3. Administration Cost	0.88	1 / 1.13
4. Engineering Service Fee	0.88	1 / 1.13
Foreign Currency Portion (F.C.)		
1. Construction Cost	0.88	1/1.13

The annual economic costs of projects are shown in Tables J.3.1 to J.3.7, and these are transferred to Tables J.4.1 to J.4.4 for comparing with the economic benefits. The totals of economic and financial costs of the respective projects are summarized below:

Comparison of Economic Costs and Financial Costs of the Projects

Name of Projects	Construction Cost		Annual OM Cost	
	Financial Cost	Economic Costs	Financial Cost	Economic Cost
I. Chane-Pailon	1,011,012	584,596	11,125	4,334
1. Rio Chane	301,618	196,015	2,849	1,453
2. Rio Pailon	593,155	313,056	5,958	2,321
3. Okinawa Drainage	116,239	75,525	1,433	560
II. San Juan-Antofagasta	289,063	172,701	3,314	1,279
1. San Juan	158,533	89,184	1,712	660
2. Antofagasta	130,530	83,517	1,602	619

Unit : Bs. 1,000

Note: Financial cost includes price contingency.

4. Cost-Benefit Analysis

4.1 Economic Evaluation

The proposed projects consist of two parts of the Chane-Pailon project and the San Juan-Antofagasta project. The former is composed of three sub-projects of the Rio Chane area, the Rio Pailon area and the Okinawa drainage area. The latter is divided into two sub-projects of San Juan and Antofagasta.

According to the construction plan described in Supporting Report E, the construction schedules of the projects are planned as follows:

Projects	Construction Term	Projects	Construction Term
1. Chane-Pailon project	2001-2010	2. San Juan-Antofagasta project	2001-2010
1) Rio Chane area	2002-2005	1) San Juan area	2001-2010
2) Rio Pailon area	2003-2010	2) Antofagasta	2001-2010
3) Okinawa drainage area	2001-2010		

The economic feasibility of these projects is examined using the annual flows of economic cost and economic benefit shown in the Tables J.4.1 to J.4.4, based on the evaluation factors of EIRR, NPV and B/C. The results are listed at the lower parts of the said tables, and the EIRR is summarized below:

Name of Projects	EIRR (%)
I. Chane-Pailon	12.1
1. Rio Chane	3.8
2. Rio Pailon	16.4
3. Okinawa Drainage	18.4
II. San Juan-Antofagasta	18.2
1. San Juan	12.4
2. Antofagasta	23.4

The opportunity cost of capital is estimated to be between 10 % and 12 % in Bolivia. Accordingly, the Chane-Pailon project and the San Juan-Antofagasta project would be economically feasible. The four projects other than the Rio Chane area could be expected a fairly high economic return.

An improvement of the Rio Chane would be essential for improving the Rio Pailon and the Okinawa drainage as their lower reaches, though the Rio Chane area is regarded to be economically unfeasible.

4.2 Sensitivity Analysis

Based on professional experience and appropriate judgment by experts, several conditions and assumptions have been carefully set throughout the study. However, there are always some questions as to the degree of reliability of the inputs. A test is therefore carried out about the sensitivity of EIRR affected by variations in the economic costs and the economic benefits.

The effect to EIRR is examined under the pessimistic conditions of the 5 %- and 10 %-increases in the economic cost and the 5 %- and 10 %-decreases in the economic benefit,

for two projects and four sub-projects except the Rio Chane sub-project. The results are as follows:

Sensitivity Analysis of EIRR (%)

I. Chane-Pailon Project

Decrease in Benefit	Increase in Cost 0 %	5 %	10 %
0 %	12.1	11.4	10.9
5 %	11.4	10.8	10.2
10 %	10.7	10.1	9.6

II. San Juan-Antofagasta Project

Decrease in Benefit	Increase in Cost 0 %	5 %	10 %
0 %	18.2	17.2	16.4
5 %	17.2	16.3	15.5
10 %	16.2	15.4	14.6

I-1.Rio Pailon Area

Decrease in Benefit	Increase in Cost 0 %	5 %	10 %
0 %	16.4	15.5	14.8
5 %	15.5	14.7	14.0
10 %	14.6	13.9	13.2

II-1.San Juan Area

Decrease in Benefit	Increase in Cost 0 %	5 %	10 %
0 %	12.4	11.6	11.1
5 %	11.7	11.0	10.4
10%	10.9	10.3	9.7

I-2. Okinawa Drainage Area

Decrease in Benefit	Increase in Cost 0 %	5 %	10 %
0 %	18.4	17.5	16.6
5 %	17.4	16.5	15.7
10 %	16.4	15.6	14.9

II-2. Antofagasta Area

Decrease in Benefit	Increase in Cost 0 %	5 %	10 %
0 %	23.4	22.3	21.2
5 %	22.2	21.1	20.1
10 %	21.0	20.0	19.0

EIRR of the Chane-Pailon project maintains more than 10.0 % which is the economically feasible, except a pessimistic condition where the increase in cost and the decrease in benefit are both 10 %. In the same condition, the Rio Pailon area and the Okinawa drainage area show still a high percentage of EIRR of 13.2 % and 14.9 %, respectively.

The San Juan-Antofagasta project also holds a high EIRR of 14.6 %, under the condition which the increase in cost and the decrease in benefit are both 10 %. In the same condition, the Antofagasta area maintains a high EIRR of 19.0 %, and the San Juan area holds more than 10.0 %, except a pessimistic condition where the increase in cost and the decrease in benefit are both 10 %.

In conclusion of the economic evaluation, two projects of the Chane-Pailon and the San Juan-Antofagasta are economically feasible, and it is expected to produce a large economic return for inhabitants in the flood prone area by implementing the projects.

4.3 Indirect Economic Effects

4.3.1 Structural Measures

In addition to the direct economic effects above, the project would be expected to produce the indirect socio-economic benefit as follows:

(1) The projects are expected to contribute to an improvement of social and economic aspects in the Study Area throughout reductions in: 1) interruption of traffic and communications, 2) increase in idle laborers, 3) spread of disease, 4) drop in quality of crops, 5) increase in unit production costs in factories and agricultural lands, and 6) rise in consumer prices.

(2) The project could be expected forward- and backward-linkage effects. As a forward effect, for example, the agricultural products such as soybeans and sugar cane will increase their productions by implementing the flood mitigation project. The increased production will produce an increase in the net profits of the soybean oil-refineries and sugar-manufacturing factories, and it is further expected that exports of soybean oil and sugar will be increased.

As a backward effect, an increase in the agricultural production, for example, will produce an increase in fertilizer production, and as the result it is expected that the fertilizer plants will get an increased net profit.

(3) The projects will have a stimulate impact to the development of regional economy owing to the investment of huge fund. As the result it will produce an increase in income of inhabitants, and will be to rise the regional GDP.

4.3.2 Non-structural Measures

The proposed non-structural measures would be (1) to establish flood warning system, (2) to establish a institutional organization for flood mitigation, (3) to prepare a flood hazard map, (4) to control a land use in retarding areas, and (5) to conserve forest along the river channels.

These measures would have a reduction effect in flood damage, supporting the structural measures. For instance, the establishment of flood warning system will produce a reduction effect in flood damage to the removal assets such as household effects and livestock. However, it is difficult to estimate reasonably its benefit, because it has to set up many assumptions for estimating the benefit.

In addition, the non-structural measures could be expected an improvement effect of social communications, due to that the inhabitants participate in the flood mitigation project. The non-structural measures would be generally evaluated as an intangible effect of the project.

5. Financial Aspect

During the period of 10 years from 2001 to 2010, the project cost disbursed will amount to Bs. 906.5 Million (US$ 165 Million) at the 1998 constant price, at the annual rate of Bs. 90.6 Million (US$ 16.5 Million) on average.

According to the Government budget of Bolivia, the budget expenditure to public investment in the Department of Santa Cruz was approximately US$ 100 Million per annum, during the period 1992-1997 (see Table I.7.4 of Supporting Report I). Accordingly, annual disbursement of the project is only one-sixth (1/6) of the annual public investment in the Department of Santa Cruz. Judging from such a financial aspect, the project will be possible to realize.

In Bolivia, the greater part of public investment to infrastructures has been provided by aid funds from the multilateral and bilateral agencies. In the aid funds, a ratio of credit to grant would be estimated to be approximately 80 : 20, based on the external aid to public projects of the Prefecture of Santa Department in 1996 and 1997(see Table I.8.8 of Supporting Report I). Should a grant be supplied as a fund of the project from the external agencies, the project will be to get a favorable financial situation.

After completion of the construction works, the annual OM cost for facilities of the project is estimated at Bs. 6.8 Million at the 1998 constant price. Assuming that the facilities will be maintained by Municipalities related to the project, the existing public budgets of these Municipalities should be examined below:

The public investment budget of Municipalities of Warnes, G. Saavedra and San Carlos in 1998 was Bs. 25.3 Million in total for 12 projects, i.e. Bs. 2.1 Million a project. Among the 12 projects, the maximum cost per project was Bs. 8.4 Million for the construction and maintenance of local roads (see Table I.7.6 of Supporting Report I). The annual OM cost of the present project is less than the annual cost of the said road project in the three Municipalities, though it amount to 3.2 times of the average annual cost per project for 12 projects.

The operation and maintenance of the project as a whole will be commenced in 2011, and it is expected that GRDP of the Department of Santa Cruz in 2010 will become twice as much that in 1998 (see Section 3.2.2 of Supporting Report I).

Under the things mentioned above, it seems that the operation and maintenance conducted by the Municipalities will not be so difficult in the financial aspect.

6. Project Evaluation

The project would be evaluated from technical, economic, financial, and social and natural environmental points of view.

(1) Technical Feasibility

All projects are no problem technically on construction works and technical management. Operation and maintenance of facilities after completion of the construction works also will be possible, judging from the existing situation of operation and maintenance of the Rio Piray project.

(2) Economic Feasibility

The four sub-projects of the Rio Pailon area, the Okinawa drainage, the San Juan area and the Antofagasta area show an EIRR of 16.4 %, 18.4 %, 12.4 % and 23.4 % respectively, and those could be expected a fairly high economic return by implementing them.

A river improvement of the Rio Chane would be essential for improve the Rio Pailon and the Okinawa drainage and to maintain their lower reaches, even though an evaluation of the Rio Chane area is economically unfeasible.

The Chane-Pailon project, which contains three areas of the Rio Chane, the Rio Pailon and the Okinawa drainage, is economically feasible, indicating an EIRR of 12.1 %. The San Juan-Antofagasta project, which consists of the San Juan and the Antofagasta areas, would come to a high EIRR of 18.2 %. Accordingly, the said two projects is expected to contribute to a promotion of economic development in the region.

Besides the benefits produced by the structural measures above, lots of intangible benefits would be produced from the non-structural measures.

(3) Social and Natural Environmental Impacts

The flood mitigation and drainage improvement aim basically to improve social and natural environments in the region

The social environment will be improved due to that the structural measures will reduce an interruption of business activities and social communications, and the non-structural measures will promote the good communications among inhabitants.

The natural environment will be improved due to that the project will reduce the natural destruction such as erosion of land and deposit of earth and sand caused by floods and bad drainage system.

To the contrary, the negative impacts to environment is hardly found, except noise pollution and traffic control during the period of construction works.

(4) Financial Aspect

A raise the project cost including the OM cost will be possible, based on the discussion described in Chapter 5.

Under the discussion above, the project would be concluded to be feasible from technical, economic, financial and environmental points of view, and it is expected to realize as soon as possible.

TABLAS

TABLE J.2.1 AREA AND NUMBER OF HOUSEHOLDS TO BE INUNDATED IN THE RIO CHANE AREA

(1) 2-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	22.9	2.893	66	0.0	2.893	0	66
2	0.25-0.5	33.2	2.893	96	7.8	2.893	23	73
3	0.5-1.0	71.5	2.893	207	19.5	2.893	56	151
4	1.0-1.5	21.4	2.893	62	47.7	2.893	138	-76
5	1.5-2.0	2.1	2.893	6	0.0	2.893	0	6
	Total	151.2	2.893	437	75.0	2.893	217	220

(2) 5-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	22.9	2.893	66	34.7	2.893	100	-34
2	0.25-0.5	33.2	2.893	96	36.4	2.893	105	-9
3	0.5-1.0	71.5	2.893	207	73.7	2.893	213	-6
4	1.0-1.5	19.5	2.893	56	0.0	2.893	0	56
5	1.5-2.0	4.1	2.893	12	0.0	2.893	0	12
	Total	151.2	2.893	437	144.9	2.893	419	18

(3) 10-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	12.7	2.893	37	30.6	2.893	88	-52
2	0.25-0.5	18.7	2.893	54	21.7	2.893	63	-9
3	0.5-1.0	40.3	2.893	117	39.1	2.893	113	4
4	1.0-1.5	56.9	2.893	164	26.7	2.893	77	87
5	1.5-2.0	29.6	2.893	86	35.8	2.893	104	-18
	Total	158.1	2.893	457	153.8	2.893	445	13

(4) 20-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	4.7	2.893	14	18.2	2.893	53	-39
2	0.25-0.5	5.0	2.893	14	16.8	2.893	49	-34
3	0.5-1.0	10.0	2.893	29	32.9	2.893	95	-66
4	1.0-1.5	67.6	2.893	196	29.1	2.893	84	111
5	1.5-2.0	76.4	2.893	221	53.5	2.893	155	66
	Total	163.7	2.893	474	150.4	2.893	435	38

(5) 50-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	5.3	2.893	15	8.4	2.893	24	-9
2	0.25-0.5	4.5	2.893	13	8.1	2.893	23	-10
3	0.5-1.0	8.6	2.893	25	16.0	2.893	46	-21
4	1.0-1.5	52.7	2.893	153	38.7	2.893	112	40
5	1.5-2.0	94.4	2.893	273	89.1	2.893	258	15
	Total	165.5	2.893	479	160.2	2.893	464	15

TABLE J.2.2 AREA AND NUMBER OF HOUSEHOLDS TO BE INUNDATED IN THE RIO PAILON AREA

(1) 2-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	75.8	2.893	219	0.0	2.893	0	219
2	0.25-0.5	62.0	2.893	179	0.0	2.893	0	179
3	0.5-1.0	117.2	2.893	339	0.0	2.893	0	339
4	1.0-1.5	103.0	2.893	298	29.5	2.893	85	213
5	1.5-2.0	10.3	2.893	30	0.0	2.893	0	30
	Total	368.3	2.893	1,065	29.5	2.893	85	980

(2) 5-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	48.6	2.893	141	38.8	2.893	112	28
2	0.25-0.5	48.1	2.893	139	19.6	2.893	57	82
3	0.5-1.0	95.9	2.893	277	29.5	2.893	85	192
4	1.0-1.5	153.9	2.893	445	0.0	2.893	0	445
5	1.5-2.0	32.2	2.893	93	0.0	2.893	0	93
	Total	378.7	2.893	1,096	87.9	2.893	254	841

(3) 10-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	46.5	2.893	135	52.4	2.893	152	-17
2	0.25-0.5	50.7	2.893	147	26.4	2.893	76	70
3	0.5-1.0	103.5	2.893	299	39.7	2.893	115	185
4	1.0-1.5	125.9	2.893	364	2.3	2.893	7	358
5	1.5-2.0	65.5	2.893	189	3.1	2.893	9	181
	Total	392.1	2.893	1,134	123.9	2.893	358	776

(4) 20-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	35.7	2.893	103	59.3	2.893	172	-68
2	0.25-0.5	39.6	2.893	115	29.0	2.893	84	31
3	0.5-1.0	80.9	2.893	234	42.8	2.893	124	110
4	1.0-1.5	115.2	2.893	333	0.4	2.893	1	332
5	1.5-2.0	130.2	2.893	377	0.7	2.893	2	375
	Total	401.6	2.893	1,162	132.2	2.893	382	779

(5) 50-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	29.3	2.893	85	102.4	2.893	296	-211
2	0.25-0.5	40.0	2.893	116	46.6	2.893	135	-19
3	0.5-1.0	85.4	2.893	247	65.3	2.893	189	58
4	1.0-1.5	92.4	2.893	267	5.0	2.893	14	253
5	1.5-2.0	165.4	2.893	479	11.5	2.893	33	445
	Total	412.5	2.893	1,193	230.8	2.893	668	526

TABLE J.2.3 AREA AND NUMBER OF HOUSEHOLDS TO BE INUNDATED IN THE OKINAWA AREA

(1) 2-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	47.1	1.913	90	0.0	1.913	0	90
2	0.25-0.5	37.6	1.913	72	0.0	1.913	0	72
3	0.5-1.0	70.5	1.913	135	0.0	1.913	0	135
4	1.0-1.5	0.0	1.913	0	0.0	1.913	0	0
5	1.5-2.0	0.0	1.913	0	0.0	1.913	0	0
	Total	155.2	1.913	297	0.0	1.913	0	297

(2) 5-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	31.1	1.913	60	12.5	1.913	24	36
2	0.25-0.5	36.2	1.913	69	2.5	1.913	5	64
3	0.5-1.0	74.9	1.913	143	0.0	1.913	0	143
4	1.0-1.5	21.6	1.913	41	0.0	1.913	0	41
5	1.5-2.0	4.5	1.913	9	0.0	1.913	0	9
	Total	168.4	1.913	322	15.0	1.913	29	293

(3) 10-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	32.0	1.913	61	35.6	1.913	68	-7
2	0.25-0.5	31.3	1.913	60	7.1	1.913	14	46
3	0.5-1.0	62.3	1.913	119	0.0	1.913	0	119
4	1.0-1.5	46.2	1.913	88	0.0	1.913	0	88
5	1.5-2.0	24.0	1.913	46	0.0	1.913	0	46
	Total	195.8	1.913	375	42.8	1.913	82	293

(4) 20-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	21.4	1.913	41	62.9	1.913	120	-79
2	0.25-0.5	23.2	1.913	44	14.3	1.913	27	17
3	0.5-1.0	47.4	1.913	91	4.4	1.913	8	82
4	1.0-1.5	54.7	1.913	105	0.0	1.913	0	105
5	1.5-2.0	61.8	1.913	118	0.0	1.913	0	118
	Total	208.5	1.913	399	81.6	1.913	156	243

(5) 50-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	13.0	1.913	25	64.3	1.913	123	-98
2	0.25-0.5	17.2	1.913	33	18.3	1.913	35	-2
3	0.5-1.0	36.5	1.913	70	13.5	1.913	26	44
4	1.0-1.5	54.6	1.913	105	0.0	1.913	0	105
5	1.5-2.0	97.8	1.913	187	0.0	1.913	0	187
	Total	219.1	1.913	419	96.0	1.913	184	235

TABLE J.2.4 AREA AND NUMBER OF HOUSEHOLDS TO BE INUNDATED IN THE SAN JUAN AREA

(1) 2-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	151.8	2.676	406	42.3	2.676	113	293
2	0.25-0.5	87.9	2.676	235	54.6	2.676	146	89
3	0.5-1.0	143.8	2.676	385	115.3	2.676	308	76
4	1.0-1.5	112.8	2.676	302	106.3	2.676	285	17
5	1.5-2.0	0.0	2.676	0	0.0	2.676	0	0
	Total	496.3	2.676	1,328	318.4	2.676	852	476

(2) 5-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	123.4	2.676	330	50.9	2.676	136	194
2	0.25-0.5	89.4	2.676	239	56.6	2.676	151	88
3	0.5-1.0	161.7	2.676	433	116.1	2.676	311	122
4	1.0-1.5	139.1	2.676	372	115.0	2.676	308	64
5	1.5-2.0	0.0	2.676	0	0.0	2.676	0	0
	Total	513.6	2.676	1,374	338.5	2.676	906	469

(3) 10-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	113.8	2.676	304	68.7	2.676	184	121
2	0.25-0.5	98.4	2.676	263	51.2	2.676	137	126
3	0.5-1.0	189.0	2.676	506	93.5	2.676	250	255
4	1.0-1.5	174.6	2.676	467	150.9	2.676	404	63
5	1.5-2.0	0.0	2.676	0	0.0	2.676	0	0
	Total	575.8	2.676	1,541	364.4	2.676	975	566

(4) 20-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	90.5	2.676	242	64.2	2.676	172	70
2	0.25-0.5	94.8	2.676	254	54.8	2.676	147	107
3	0.5-1.0	191.6	2.676	513	105.0	2.676	281	232
4	1.0-1.5	213.5	2.676	571	169.4	2.676	453	118
5	1.5-2.0	0.0	2.676	0	13.5	2.676	36	-36
	Total	590.4	2.676	1,580	407.0	2.676	1,089	491

(5) 50-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	101.3	2.676	271	80.8	2.676	216	55
2	0.25-0.5	93.6	2.676	250	62.7	2.676	168	83
3	0.5-1.0	183.3	2.676	491	116.5	2.676	312	179
4	1.0-1.5	225.8	2.676	604	170.8	2.676	457	147
5	1.5-2.0	22.6	2.676	60	37.6	2.676	101	-40
	Total	626.6	2.676	1,677	468.4	2.676	1,253	423

TABLE J.2.5 AREA AND NUMBER OF HOUSEHOLDS TO BE INUNDATED IN THE ANTOFAGASTA AREA

(1) 2-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	84.5	3.015	255	51.9	3.015	157	98
2	0.25-0.5	63.7	3.015	192	16.4	3.015	49	143
3	0.5-1.0	117.0	3.015	353	15.0	3.015	45	307
4	1.0-1.5	21.6	3.015	65	9.3	3.015	28	37
5	1.5-2.0	0.0	3.015	0	0.0	3.015	0	0
	Total	286.8	3.015	865	92.6	3.015	279	585

(2) 5-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	77.0	3.015	232	93.0	3.015	280	-48
2	0.25-0.5	71.2	3.015	215	22.2	3.015	67	148
3	0.5-1.0	139.4	3.015	420	9.1	3.015	27	393
4	1.0-1.5	30.2	3.015	91	7.8	3.015	24	67
5	1.5-2.0	0.0	3.015	0	0.0	3.015	0	0
	Total	317.8	3.015	958	132.1	3.015	398	560

(3) 10-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	93.2	3.015	281	123.6	3.015	373	-91
2	0.25-0.5	79.4	3.015	239	30.2	3.015	91	148
3	0.5-1.0	151.9	3.015	458	13.8	3.015	42	416
4	1.0-1.5	48.8	3.015	147	8.9	3.015	27	120
5	1.5-2.0	0.0	3.015	0	0.0	3.015	0	0
	Total	373.4	3.015	1,126	176.5	3.015	532	594

(4) 20-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	69.0	3.015	208	94.1	3.015	284	-75
2	0.25-0.5	79.7	3.015	240	38.9	3.015	117	123
3	0.5-1.0	164.7	3.015	497	50.3	3.015	152	345
4	1.0-1.5	64.9	3.015	196	15.7	3.015	47	148
5	1.5-2.0	0.0	3.015	0	0.0	3.015	0	0
	Total	378.3	3.015	1,141	199.0	3.015	600	541

(5) 50-Year Return Period

No.	Water Depth (m)	Without Inundation Area (km^2)	Without No. of HH per km^2	Without No. of HH (A)	With Inundation Area(km^2)	With No. of HH per km^2	With No. of HH (B)	(A)-(B)
1	0.0-0.25	44.9	3.015	135	99.6	3.015	300	-165
2	0.25-0.5	62.1	3.015	187	45.6	3.015	137	50
3	0.5-1.0	132.7	3.015	400	64.1	3.015	193	207
4	1.0-1.5	102.0	3.015	308	19.7	3.015	59	248
5	1.5-2.0	40.8	3.015	123	1.2	3.015	4	119
	Total	382.5	3.015	1,153	230.1	3.015	694	459

TABLE J.2.6(1) DISTRIBUTION OF ASSETS TO BE INUNDATED IN THE RIO CHANE AREA (WITHOUT)

Distribution of Buildings	Total	Residence			Shop	School	Factory	Health Center
		High	Medium	Low				
	100.0%	8.0%	33.0%	55.0%	3.0%	0.2%	0.5%	0.3%

(1) 2-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	66	5	22	36	2	0	0	0	197	222	952	57	1,428
2	0.25-0.5	96	8	32	53	3	0	0	0	275	310	1,007	80	1,672
3	0.5-1.0	207	17	68	114	6	0	1	1	588	662	2,042	172	3,464
4	1.0-1.5	62	5	20	34	2	0	0	0	190	214	1,008	56	1,468
5	1.5-2.0	6	0	2	3	0	0	0	0	19	22	101	6	148
	Total	437	35	144	241	13	1	2	1	1,269	1,430	5,110	371	8,180

(2) 5-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	66	5	22	36	2	0	0	0	197	222	952	57	1,428
2	0.25-0.5	96	8	32	53	3	0	0	0	275	310	1,007	80	1,672
3	0.5-1.0	207	17	68	114	6	0	1	1	588	662	2,042	172	3,464
4	1.0-1.5	56	5	19	31	2	0	0	0	173	194	917	51	1,335
5	1.5-2.0	12	1	4	7	0	0	0	0	36	41	193	11	281
	Total	437	35	144	241	13	1	2	1	1,269	1,429	5,111	371	8,180

(3) 10-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	66	5	22	36	2	0	0	0	86	97	623	25	831
2	0.25-0.5	96	8	32	53	3	0	0	0	203	228	660	59	1,150
3	0.5-1.0	207	17	68	114	6	0	1	1	464	523	1,339	136	2,462
4	1.0-1.5	56	5	19	31	2	0	0	0	338	382	1,988	99	2,807
5	1.5-2.0	12	1	4	7	0	0	0	0	176	198	1,034	51	1,459
	Total	437	35	144	241	13	1	2	1	1,267	1,428	5,644	370	8,709

(4) 20-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	14	1	5	8	0	0	0	0	0	0	383	0	383
2	0.25-0.5	14	1	5	8	0	0	0	0	0	0	386	0	386
3	0.5-1.0	29	2	10	16	1	0	0	0	0	0	772	0	772
4	1.0-1.5	196	16	65	108	6	0	1	1	595	671	2,055	174	3,495
5	1.5-2.0	221	18	73	122	7	0	1	1	672	756	2,320	190	3,938
	Total	474	38	156	261	14	1	2	1	1,267	1,427	5,916	364	8,974

(5) 50-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	15	1	5	8	0	0	0	0	0	0	453	0	453
2	0.25-0.5	13	1	4	7	0	0	0	0	0	0	350	0	350
3	0.5-1.0	25	2	8	14	1	0	0	0	0	0	650	0	650
4	1.0-1.5	153	12	50	84	5	0	1	0	455	512	1,662	133	2,762
5	1.5-2.0	273	22	90	150	8	1	1	1	816	924	2,970	230	4,940
	Total	479	38	158	263	14	1	2	1	1,271	1,436	6,085	363	9,155

TABLE J.2.6(2) DISTRIBUTION OF ASSETS TO BE INUNDATED IN THE RIO CHANE AREA (WITH)

Distribution of Buildings	Total	Residence			Shop	School	Factory	Health Center
		High	Medium	Low				
	100.0%	8.0%	33.0%	55.0%	3.0%	0.2%	0.5%	0.3%

(1) 2-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0.25-0.5	23	2	7	12	1	0	0	0	58	65	135	17	275
3	0.5-1.0	56	5	19	31	2	0	0	0	143	161	338	42	684
4	1.0-1.5	138	11	46	76	4	0	1	0	346	390	1,383	101	2,220
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	217	17	72	119	7	0	1	1	547	616	1,856	160	3,179

(2) 5-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	100	8	33	55	3	0	1	0	330	372	1,369	96	2,167
2	0.25-0.5	105	8	35	58	3	0	1	0	293	330	1,136	86	1,845
3	0.5-1.0	213	17	70	117	6	0	1	1	569	641	2,155	166	3,531
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	419	34	138	230	13	1	2	1	1,192	1,343	4,660	348	7,543

(3) 10-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	88	7	29	49	3	0	0	0	281	317	1,253	82	1,933
2	0.25-0.5	63	5	21	35	2	0	0	0	174	197	826	51	1,248
3	0.5-1.0	113	9	37	62	3	0	1	0	295	332	1,439	86	2,152
4	1.0-1.5	77	6	25	42	2	0	0	0	221	248	700	65	1,234
5	1.5-2.0	104	8	34	57	3	0	1	0	221	336	940	80	1,577
	Total	445	36	147	245	13	1	2	1	1,192	1,430	5,158	364	8,144

(4) 20-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	53	4	17	29	2	0	0	0	134	152	955	39	1,280
2	0.25-0.5	49	4	16	27	1	0	0	0	140	158	676	41	1,015
3	0.5-1.0	95	8	31	52	3	0	0	0	284	320	1,213	83	1,900
4	1.0-1.5	84	7	28	46	3	0	0	0	194	218	914	57	1,383
5	1.5-2.0	155	12	51	85	5	0	1	0	360	420	1,680	120	2,580
	Total	435	35	144	239	13	1	2	1	1,112	1,268	5,438	340	8,158

(5) 50-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	24	2	8	13	1	0	0	0	44	50	553	13	660
2	0.25-0.5	23	2	8	13	1	0	0	0	43	48	466	13	570
3	0.5-1.0	46	4	15	25	1	0	0	0	85	96	889	25	1,095
4	1.0-1.5	112	9	37	62	3	0	1	0	324	366	1,138	95	1,923
5	1.5-2.0	258	21	85	142	8	1	1	1	744	840	2,620	210	4,414
	Total	464	37	153	255	14	1	2	1	1,240	1,400	5,666	356	8,662

TABLE J.2.7(1) DISTRIBUTION OF ASSETS TO BE INUNDATED IN THE RIO PAILON AREA (WITHOUT)

Distribution of Buildings	Total	Residence			Shop	School	Factory	Health Center
		High	Medium	Low				
	100.0%	8.0%	33.0%	55.0%	3.0%	0.2%	0.5%	0.3%

(1) 2-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	219	18	72	121	7	0	1	1	1,344	1,512	1,020	390	4,266
2	0.25-0.5	179	14	59	99	5	0	1	1	1,152	1,296	370	340	3,158
3	0.5-1.0	339	27	112	186	10	1	2	1	2,208	2,496	430	650	5,784
4	1.0-1.5	298	24	98	164	9	1	1	1	1,824	2,064	580	530	4,998
5	1.5-2.0	30	2	10	16	1	0	0	0	180	204	60	50	494
	Total	1,065	85	352	586	32	2	5	3	6,708	7,572	2,460	1,960	18,700

(2) 5-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	141	11	46	77	4	0	1	0	876	984	590	260	2,710
2	0.25-0.5	139	11	46	77	4	0	1	0	900	1,020	340	260	2,520
3	0.5-1.0	277	22	92	153	8	1	1	1	1,824	2,052	560	530	4,966
4	1.0-1.5	445	36	147	245	13	1	2	1	2,700	3,036	950	790	7,476
5	1.5-2.0	93	7	31	51	3	0	0	0	564	636	200	170	1,570
	Total	1,096	88	362	603	33	2	5	3	6,864	7,728	2,640	2,010	19,242

(3) 10-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	135	11	44	74	4	0	1	0	852	960	590	250	2,652
2	0.25-0.5	147	12	48	81	4	0	1	0	960	1,080	330	280	2,650
3	0.5-1.0	299	24	99	165	9	1	1	1	1,980	2,232	540	580	5,332
4	1.0-1.5	364	29	120	200	11	1	2	1	2,196	2,472	860	640	6,168
5	1.5-2.0	189	15	63	104	6	0	1	1	1,140	1,284	440	330	3,194
	Total	1,134	91	374	624	34	2	6	3	7,128	8,028	2,760	2,080	19,996

(4) 20-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	103	8	34	57	3	0	1	0	588	672	590	170	2,020
2	0.25-0.5	115	9	38	63	3	0	1	0	744	840	350	220	2,154
3	0.5-1.0	234	19	77	129	7	0	1	1	1,560	1,752	580	450	4,342
4	1.0-1.5	333	27	110	183	10	1	2	1	2,088	2,352	590	610	5,640
5	1.5-2.0	377	30	124	207	11	1	2	1	2,364	2,652	670	690	6,376
	Total	1,162	93	383	639	35	2	6	3	7,344	8,268	2,780	2,140	20,532

(5) 50-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	85	7	28	47	3	0	0	0	504	564	460	150	1,678
2	0.25-0.5	116	9	38	64	3	0	1	0	768	864	350	220	2,202
3	0.5-1.0	247	20	82	136	7	0	1	1	1,668	1,872	660	490	4,690
4	1.0-1.5	267	21	88	147	8	1	1	1	1,668	1,872	490	490	4,520
5	1.5-2.0	479	38	158	263	14	1	2	1	2,976	3,348	870	870	8,064
	Total	1,193	95	394	656	36	2	6	4	7,584	8,520	2,830	2,220	21,154

TABLE J.2.7(2) DISTRIBUTION OF ASSETS TO BE INUNDATED IN THE RIO PAILON AREA (WITH)

Distribution of Buildings	Total	Residence			Shop	School	Factory	Health Center
		High	Medium	Low				
	100.0%	8.0%	33.0%	55.0%	3.0%	0.2%	0.5%	0.3%

(1) 2-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0.25-0.5	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0.5-1.0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1.0-1.5	85	7	28	47	3	0	0	0	516	588	10	150	1,264
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	85	7	28	47	3	0	0	0	516	588	10	150	1,264

(2) 5-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	112	9	37	62	3	0	1	0	624	708	440	190	1,962
2	0.25-0.5	57	5	19	31	2	0	0	0	312	348	120	90	870
3	0.5-1.0	85	7	28	47	3	0	0	0	468	516	90	130	1,204
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	254	20	84	140	8	1	1	1	1,404	1,572	650	410	4,036

(3) 10-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	152	12	50	83	5	0	1	0	732	1,092	450	280	2,554
2	0.25-0.5	76	6	25	42	2	0	0	0	456	516	140	130	1,242
3	0.5-1.0	115	9	38	63	3	0	1	0	648	732	120	190	1,690
4	1.0-1.5	7	1	2	4	0	0	0	0	12	24	40	10	86
5	1.5-2.0	9	1	3	5	0	0	0	0	12	36	50	10	108
	Total	358	29	118	197	11	1	2	1	1,860	2,400	800	620	5,680

(4) 20-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	172	14	57	94	5	0	1	1	1,008	1,128	490	290	2,916
2	0.25-0.5	84	7	28	46	3	0	0	0	480	552	150	140	1,322
3	0.5-1.0	124	10	41	68	4	0	1	0	708	804	120	210	1,842
4	1.0-1.5	1	0	0	1	0	0	0	0	0	0	20	0	20
5	1.5-2.0	2	0	1	1	0	0	0	0	0	0	40	0	40
	Total	382	31	126	210	11	1	2	1	2,196	2,484	820	640	6,140

(5) 50-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	296	24	98	163	9	1	1	1	2,004	2,256	860	580	5,700
2	0.25-0.5	135	11	44	74	4	0	1	0	864	972	210	250	2,296
3	0.5-1.0	189	15	62	104	6	0	1	1	1,152	1,296	110	340	2,898
4	1.0-1.5	14	1	5	8	0	0	0	0	84	96	10	20	210
5	1.5-2.0	33	3	11	18	1	0	0	0	192	216	20	50	478
	Total	668	53	220	367	20	1	3	2	4,296	4,836	1,210	1,240	11,582

TABLE J.2.8(1) DISTRIBUTION OF ASSETS TO BE INUNDATED IN THE OKINAWA DRAINAGE AREA (WITHOUT)

Distribution of Buildings	Total	Residence			Shop	School	Factory	Health Center
		High	Medium	Low				
	100.0%	8.0%	33.0%	55.0%	3.0%	0.2%	0.5%	0.3%

(1) 2-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	90	7	30	50	3	0	0	0	2,030	44	0	480	2,554
2	0.25-0.5	72	6	24	40	2	0	0	0	1,471	32	0	348	1,851
3	0.5-1.0	135	11	45	74	4	0	1	0	2,663	58	0	630	3,351
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	297	24	98	163	9	1	1	1	6,164	134	0	1,458	7,756

(2) 5-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	60	5	20	33	2	0	0	0	1,273	28	0	301	1,602
2	0.25-0.5	69	6	23	38	2	0	0	0	1,496	32	0	357	1,885
3	0.5-1.0	143	11	47	79	4	0	1	0	3,104	67	0	735	3,906
4	1.0-1.5	41	3	14	23	1	0	0	0	632	13	0	150	795
5	1.5-2.0	9	1	3	5	0	0	0	0	133	2	0	31	166
	Total	322	26	106	177	10	1	2	1	6,638	142	0	1,574	8,354

(3) 10-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	61	5	20	34	2	0	0	0	1,399	30	0	331	1,760
2	0.25-0.5	60	5	20	33	2	0	0	0	1,334	29	0	316	1,679
3	0.5-1.0	119	10	39	65	4	0	1	0	2,636	58	0	624	3,318
4	1.0-1.5	88	7	29	48	3	0	0	0	1,621	35	0	384	2,040
5	1.5-2.0	46	4	15	25	1	0	0	0	844	18	0	200	1,062
	Total	374	30	123	206	11	1	2	1	7,834	170	0	1,855	9,859

(4) 20-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	41	3	14	23	1	0	0	0	889	19	0	210	1,118
2	0.25-0.5	44	4	15	24	1	0	0	0	973	22	0	230	1,225
3	0.5-1.0	91	7	30	50	3	0	0	0	1,987	43	0	470	2,500
4	1.0-1.5	105	8	35	58	3	0	1	0	2,093	46	0	495	2,634
5	1.5-2.0	118	9	39	65	4	0	1	0	2,364	46	0	560	2,970
	Total	399	32	132	219	12	1	2	1	8,306	176	0	1,965	10,447

(5) 50-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	25	2	8	14	1	0	0	0	455	10	0	108	573
2	0.25-0.5	33	3	11	18	1	0	0	0	703	16	0	166	885
3	0.5-1.0	70	6	23	39	2	0	0	0	1,530	34	0	362	1,926
4	1.0-1.5	105	8	35	58	3	0	1	0	2,141	47	0	507	2,695
5	1.5-2.0	187	15	62	103	6	0	1	1	3,828	84	0	910	4,822
	Total	420	34	139	231	13	1	2	1	8,657	191	0	2,053	10,901

TABLE J.2.8(2) DISTRIBUTION OF ASSETS TO BE INUNDATED IN THE OKINAWA DRAINAGE AREA (WITH)

Distribution of Buildings	Total	Residence			Shop	School	Factory	Health Center
		High	Medium	Low				
	100.0%	8.0%	33.0%	55.0%	3.0%	0.2%	0.5%	0.3%

(1) 2-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0.25-0.5	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0.5-1.0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	0	0	0	0	0	0	0	0	0	0	0	0	0

(2) 5-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	24	2	8	13	1	0	0	0	516	11	0	122	649
2	0.25-0.5	5	0	2	3	0	0	0	0	103	2	0	24	129
3	0.5-1.0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	29	2	10	16	1	0	0	0	619	13	0	146	778

(3) 10-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	68	5	22	37	2	0	0	0	1381	30	0	327	1,738
2	0.25-0.5	14	1	5	8	0	0	0	0	276	6	0	65	347
3	0.5-1.0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	82	7	27	45	2	0	0	0	1,657	36	0	392	2,085

(4) 20-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	120	10	40	66	4	0	1	0	2,233	48	0	529	2,810
2	0.25-0.5	27	2	9	15	1	0	0	0	527	12	0	125	664
3	0.5-1.0	8	1	3	4	0	0	0	0	200	5	0	48	253
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	155	12	51	85	5	0	1	0	2,960	65	0	702	3,727

(5) 50-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	123	10	41	68	4	0	1	0	2,322	50	0	549	2,921
2	0.25-0.5	35	3	12	19	1	0	0	0	694	16	0	164	874
3	0.5-1.0	26	2	9	14	1	0	0	0	574	12	0	136	722
4	1.0-1.5	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	184	15	61	101	6	0	1	1	3,590	78	0	849	4,517

TABLE J.2.9(1) DISTRIBUTION OF ASSETS TO BE INUNDATED IN THE SAN JUAN AREA (WITHOUT)

Distribution of Buildings	Total	Residence			Shop	School	Factory	Health Center
		High	Medium	Low				
	100.0%	8.0%	33.0%	55.0%	3.0%	0.2%	0.5%	0.3%

(1) 2-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	406	32	134	223	12	1	2	1	1,088	5,448	194	91	6,821
2	0.25-0.5	235	19	78	129	7	0	1	1	632	3,163	39	53	3,887
3	0.5-1.0	385	31	127	212	12	1	2	1	1,036	5,184	0	86	6,306
4	1.0-1.5	302	24	100	166	9	1	2	1	613	3,069	0	51	3,733
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	1,328	106	438	730	40	3	7	4	3,369	16,864	233	281	20,747

(2) 5-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	330	26	109	182	10	1	2	1	884	4,428	191	74	5,577
2	0.25-0.5	239	19	79	131	7	0	1	1	639	3,197	40	53	3,929
3	0.5-1.0	433	35	143	238	13	1	2	1	1,154	5,779	6	96	7,035
4	1.0-1.5	372	30	123	205	11	1	2	1	794	3,972	0	66	4,832
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	1,374	110	453	756	41	3	7	4	3,471	17,376	237	289	21,373

(3) 10-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	304	24	100	167	9	1	2	1	821	4,108	144	68	5,141
2	0.25-0.5	263	21	87	145	8	1	1	1	705	3,531	52	59	4,347
3	0.5-1.0	506	40	167	278	15	1	3	2	1,353	6,774	57	113	8,297
4	1.0-1.5	467	37	154	257	14	1	2	1	1,029	5,151	0	86	6,266
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	1,540	123	508	847	46	3	8	5	3,908	19,564	253	326	24,051

(4) 20-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	242	19	80	133	7	0	1	1	665	3,327	137	55	4,184
2	0.25-0.5	254	20	84	140	8	1	1	1	683	3,421	53	57	4,214
3	0.5-1.0	513	41	169	282	15	1	3	2	1,376	6,890	63	115	8,444
4	1.0-1.5	571	46	188	314	17	1	3	2	1,294	6,475	0	108	7,877
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	1,580	126	521	869	47	3	8	5	4,018	20,113	253	335	24,719

(5) 50-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	271	22	89	149	8	1	1	1	747	3,740	137	62	4,686
2	0.25-0.5	250	20	83	138	8	1	1	1	677	3,391	62	57	4,187
3	0.5-1.0	491	39	162	270	15	1	2	1	1,320	6,609	86	110	8,125
4	1.0-1.5	604	48	199	332	18	1	3	2	1,404	7,027	0	117	8,548
5	1.5-2.0	60	5	20	33	2	0	0	0	140	703	0	12	855
	Total	1,676	134	553	922	50	3	8	5	4,288	21,470	285	358	26,401

TABLE J.2.9(2) DISTRIBUTION OF ASSETS TO BE INUNDATED IN THE SAN JUAN AREA (WITH)

Distribution of Buildings	Total	Residence			Shop	School	Factory	Health Center
		High	Medium	Low				
	100.0%	8.0%	33.0%	55.0%	3.0%	0.2%	0.5%	0.3%

(1) 2-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	113	9	37	62	3	0	1	0	302	1,511	30	25	1,868
2	0.25-0.5	146	12	48	80	4	0	1	0	398	1,993	6	33	2,430
3	0.5-1.0	308	25	102	169	9	1	2	1	844	4,227	0	70	5,141
4	1.0-1.5	285	23	94	157	9	1	1	1	578	2,893	0	48	3,519
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	852	68	281	469	26	2	4	3	2,122	10,624	36	176	12,958

(2) 5-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	136	11	45	75	4	0	1	0	368	1,844	20	31	2,263
2	0.25-0.5	151	12	50	83	5	0	1	0	413	2,070	4	34	2,521
3	0.5-1.0	311	25	103	171	9	1	2	1	850	4,253	0	71	5,174
4	1.0-1.5	308	25	102	169	9	1	2	1	639	3,196	0	53	3,888
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	906	72	299	498	27	2	5	3	2,270	11,363	24	189	13,846

(3) 10-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	184	15	61	101	6	0	1	1	496	2,482	54	41	3,073
2	0.25-0.5	137	11	45	75	4	0	1	0	373	1,868	11	31	2,283
3	0.5-1.0	250	20	83	138	8	1	1	1	685	3,429	0	57	4,171
4	1.0-1.5	404	32	133	222	12	1	2	1	894	4,474	0	75	5,443
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	975	78	322	536	29	2	5	3	2,448	12,253	65	204	14,970

(4) 20-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	172	14	57	95	5	0	1	1	451	2,259	47	38	2,795
2	0.25-0.5	147	12	49	81	4	0	1	0	402	2,013	14	34	2,463
3	0.5-1.0	281	22	93	155	8	1	1	1	780	3,904	11	65	4,760
4	1.0-1.5	453	36	149	249	14	1	2	1	1,018	5,094	0	85	6,197
5	1.5-2.0	36	3	12	20	1	0	0	0	81	408	0	7	496
	Total	1,089	87	359	599	33	2	5	3	2,732	13,678	72	229	16,711

(5) 50-Year Return Period

No.	Water Depth (m)	No. of Build-dings	Buildings							Agricultural Crops (ha)				
			Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	216	17	71	119	6	0	1	1	569	2851	67	47	3,534
2	0.25-0.5	168	13	55	92	5	0	1	1	457	2286	15	38	2,796
3	0.5-1.0	312	25	103	172	9	1	2	1	857	4290	3	71	5,221
4	1.0-1.5	457	37	151	251	14	1	2	1	1049	5254	0	88	6,391
5	1.5-2.0	101	8	33	56	3	0	1	0	231	1156	0	19	1,406
	Total	1,254	100	414	690	38	3	6	4	3,163	15,837	85	263	19,348

TABLE J.2.10(1) DISTRIBUTION OF ASSETS TO BE INUNDATED IN THE ANTOFAGASTA AREA (WITHOUT)

Distribution of Buildings	Total	Residence			Shop	School	Factory	Health Center
		High	Medium	Low				
	100.0%	8.0%	33.0%	55.0%	3.0%	0.2%	0.5%	0.3%

(1) 2-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	255	20	84	140	8	1	1	1	1,515	1,945	386	0	3,846
2	0.25-0.5	192	15	63	106	6	0	1	1	1,091	1,399	77	0	2,567
3	0.5-1.0	353	28	116	194	11	1	2	1	1,969	2,526	0	0	4,495
4	1.0-1.5	65	5	21	36	2	0	0	0	192	247	0	0	439
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	865	69	285	476	26	2	4	3	4,767	6,117	463	0	11,347

(2) 5-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	232	19	77	128	7	0	1	1	1,280	1,643	403	0	3,326
2	0.25-0.5	215	17	71	118	6	0	1	1	1,235	1,585	81	0	2,901
3	0.5-1.0	420	34	139	231	13	1	2	1	2,448	3,141	0	0	5,589
4	1.0-1.5	91	7	30	50	3	0	0	0	314	404	0	0	718
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	958	77	316	527	29	2	5	3	5,277	6,773	484	0	12,534

(3) 10-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	281	22	93	155	8	1	1	1	1,500	1,925	516	0	3,941
2	0.25-0.5	239	19	79	131	7	0	1	1	1,387	1,779	103	0	3,269
3	0.5-1.0	458	37	151	252	14	1	2	1	2,716	3,485	0	0	6,201
4	1.0-1.5	147	12	49	81	4	0	1	0	609	782	0	0	1,391
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	1,125	90	371	619	34	2	6	3	6,212	7,971	619	0	14,802

(4) 20-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	208	17	69	114	6	0	1	1	1,069	1,372	636	0	3,077
2	0.25-0.5	240	19	79	132	7	0	1	1	1,379	1,770	127	0	3,276
3	0.5-1.0	497	40	164	273	15	1	2	1	2,914	3,739	0	0	6,653
4	1.0-1.5	196	16	65	108	6	0	1	1	911	1,169	0	0	2,080
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	1,141	91	377	628	34	2	6	3	6,273	8,050	763	0	15,086

(5) 50-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	135	11	45	74	4	0	1	0	693	890	637	0	2,220
2	0.25-0.5	187	15	62	103	6	0	1	1	1,049	1,346	127	0	2,522
3	0.5-1.0	400	32	132	220	12	1	2	1	2,276	2,920	0	0	5,196
4	1.0-1.5	308	25	102	169	9	1	2	1	1,661	2,131	0	0	3,792
5	1.5-2.0	123	10	41	68	4	0	1	0	664	852	0	0	1,516
	Total	1,153	92	380	634	35	2	6	3	6,343	8,139	764	0	15,246

TABLE J.2.10(2) DISTRIBUTION OF ASSETS TO BE INUNDATED IN THE ANTOFAGASTA AREA (WITH)

Distribution of Buildings	Total	Residence			Shop	School	Factory	Health Center
		High	Medium	Low				
	100.0%	8.0%	33.0%	55.0%	3.0%	0.2%	0.5%	0.3%

(1) 2-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	157	13	52	86	5	0	1	0	973	1,249	0	0	2,222
2	0.25-0.5	49	4	16	27	1	0	0	0	281	361	0	0	642
3	0.5-1.0	45	4	15	25	1	0	0	0	217	278	0	0	495
4	1.0-1.5	28	2	9	15	1	0	0	0	9	12	0	0	21
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	279	22	92	153	8	1	1	1	1,480	1,900	0	0	3,380

(2) 5-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	280	22	92	154	8	1	1	1	1,707	2,190	0	0	3,897
2	0.25-0.5	67	5	22	37	2	0	0	0	389	499	0	0	888
3	0.5-1.0	27	2	9	15	1	0	0	0	118	152	0	0	270
4	1.0-1.5	24	2	8	13	1	0	0	0	4	5	0	0	9
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	398	32	131	219	12	1	2	1	2,218	2,846	0	0	5,064

(3) 10-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	373	30	123	205	11	1	2	1	2,248	2,884	0	0	5,132
2	0.25-0.5	91	7	30	50	3	0	0	0	526	674	0	0	1,200
3	0.5-1.0	42	3	14	23	1	0	0	0	190	244	0	0	434
4	1.0-1.5	27	2	9	15	1	0	0	0	11	14	0	0	25
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	533	43	176	293	16	1	3	2	2,975	3,816	0	0	6,791

(4) 20-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	284	23	94	156	9	1	1	1	1,673	2,146	0	0	3,819
2	0.25-0.5	117	9	39	64	4	0	1	0	706	906	0	0	1,612
3	0.5-1.0	152	12	50	84	5	0	1	0	928	1,191	0	0	2,119
4	1.0-1.5	47	4	16	26	1	0	0	0	81	104	0	0	185
5	1.5-2.0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	600	48	198	330	18	1	3	2	3,388	4,347	0	0	7,735

(5) 50-Year Return Period

No.	Water Depth (m)	Number of Buildings								Agricultural Crops (ha)				
		Total	Residence			Shop	School	Factory	Health Center	Soy-beans	Rice	Sugar cane	Maize	Total
			High	Medium	Low									
1	0.0-0.25	300	24	99	165	9	1	2	1	1,745	2,238	0	0	3,983
2	0.25-0.5	137	11	45	75	4	0	1	0	825	1,059	0	0	1,884
3	0.5-1.0	193	15	64	106	6	0	1	1	1,191	1,528	0	0	2,719
4	1.0-1.5	59	5	19	32	2	0	0	0	151	194	0	0	345
5	1.5-2.0	4	0	1	2	0	0	0	0	9	12	0	0	21
	Total	693	55	229	381	21	1	3	2	3,921	5,031	0	0	8,952

TABLE J.2.11 AVERAGE APPRAISAL VALUES OF ASSETS IN FLOOD PRONE AREA

1. Buildings and Household Effects

Unit : Bs.

No.	Kind of Assets	Buildings	House-hold Effects
1	Residence		
	(A) High Class	313,300	125,300
	(B) Medium Class	133,600	68,600
	(C) Low Class	6,900	14,100
2	Shop	69,400	115,611 *
3	School	96,680 *	17,809 *
4	Factory	255,800	492,377 *
5	Health Center	28,666 *	9,237 *

2. Agricultural Crops

No.	Crops	Yield (Tons/ha)	Unit Price (Bs/ton)	Unit Price (Bs/ha)	Land Use Efficiency (80%) (Bs/ha)
1	(A) Soybeans	2.5	1,210	3,025	2,420
	(B) Soybean seeds	3.0	2,200	6,600	5,280
2	Rice	3.1	1,475	4,573	3,658
3	Sugar cane	47.0	313	14,711	11,769
4	Maize	4.0	626	2,504	2,003

Source : Results of interview survey by the JICA Study Team

Note : * Estimated from results of interview survey at the MP stage, taking inflation and amortization into account.

TABLE J.2.12 INUNDATION DAMAGE RATE OF ASSETS

No.	Inundation Depth (cm.)	Damage Rate						
		General Assets		Agricultural Field Crops				
		Buildings	Household Effects	Soybeans	Rice[1)]		Sugar Cane	Maize
					San Juan & Antofafasta	Chane, Pailon & Okinawa		
1	0 - 25	0.070	0.111	0.109	0.044	0.107	0.095	0.122
2	25 - 50	0.099	0.127	0.328	0.130	0.321	0.284	0.366
3	50 - 100	0.177	0.254	0.655	0.260	0.641	0.567	0.731
4	100 - 150	0.226	0.325	0.937	0.674	0.928	0.878	0.988
5	150 - 200	0.227	0.343	1.000	1.000	1.000	1.000	1.000

Source : Results of interview survey by the JICA Study Team

Note : 1) San Juan & Antofacasta areas : Wet rice
Chane, Pailon & Okinawa areas : Dry rice

TABLE J.2.13 FLOOD DAMAGE IN THE RIO CHANE AREA

(1) Without-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)					
		Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	5,069	4,380	34,989	3,213	567	48,218
2	5	5,069	4,385	35,139	3,214	567	48,374
3	10	5,069	4,385	51,258	3,214	567	64,493
4	20	7,803	6,966	64,851	5,021	886	85,527
5	50	7,907	7,098	67,696	5,102	900	88,703

(2) With-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)					
		Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	3,323	2,879	20,352	2,109	372	29,035
2	5	4,228	3,652	23,581	2,679	473	34,613
3	10	5,618	4,970	37,857	3,600	635	52,680
4	20	6,087	5,411	46,785	3,909	690	62,882
5	50	7,355	6,601	59,330	4,745	837	78,868

(3) Reduction in Damage

No.	Return Period (Year)						
		Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	1,746	1,501	14,637	1,104	195	19,183
2	5	841	733	11,558	535	94	13,761
3	10	-549	-585	13,401	-386	-68	11,813
4	20	1,716	1,555	18,066	1,112	196	22,645
5	50	552	497	8,366	357	63	9,835

TABLE J.2.14 FLOOD DAMAGE IN THE RIO PAILON AREA

(1) Without-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)					
		Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	12,808	11,153	41,657	8,147	1,438	75,203
2	5	14,896	13,014	53,663	9,489	1,675	92,737
3	10	15,491	13,598	57,106	9,890	1,745	97,830
4	20	16,912	14,989	63,079	10,846	1,914	107,740
5	50	17,627	15,680	67,010	11,324	1,998	113,639

(2) With-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)					
		Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	1,477	1,287	3,843	940	166	7,713
2	5	2,189	1,919	5,119	1,396	246	10,869
3	10	3,220	2,828	8,244	2,056	363	16,711
4	20	3,290	2,888	8,170	2,100	371	16,819
5	50	6,000	5,295	14,447	3,840	678	30,260

(3) Reduction in Damage

No.	Return Period (Year)						
		Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	11,331	9,866	37,814	7,207	1,272	67,490
2	5	12,707	11,095	48,544	8,093	1,429	81,868
3	10	12,271	10,770	48,862	7,834	1,382	81,119
4	20	13,622	12,101	54,909	8,746	1,543	90,921
5	50	11,627	10,385	52,563	7,484	1,320	83,379

TABLE J.2.15 FLOOD DAMAGE IN THE OKINAWA DRAINAGE AREA

(1) Without-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)					
		Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	2,858	2,479	8,810	1,815	320	16,282
2	5	3,649	3,163	12,170	2,316	409	21,707
3	10	4,718	4,130	16,753	3,008	531	29,140
4	20	5,656	5,005	21,545	3,625	640	36,471
5	50	6,402	5,709	25,363	4,118	727	42,319

(2) With-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)					
		Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	0	0	0	0	0	0
2	5	167	153	324	109	19	772
3	10	471	433	868	307	54	2,133
4	20	956	872	1,973	622	110	4,533
5	50	1,277	1,146	3,082	824	145	6,474

(3) Reduction in Damage

No.	Return Period (Year)	Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	2,858	2,479	8,810	1,815	320	16,282
2	5	3,482	3,010	11,846	2,207	390	20,935
3	10	4,247	3,697	15,885	2,701	477	27,007
4	20	4,700	4,133	19,572	3,003	530	31,938
5	50	5,125	4,563	22,281	3,294	582	35,845

TABLE J.2.16 FLOOD DAMAGE IN THE CHANE-PAILON AREA

(1) Without-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)					
		Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	20,735	18,012	85,456	13,175	2,325	139,703
2	5	23,614	20,562	100,972	15,019	2,651	162,818
3	10	25,278	22,113	125,117	16,112	2,843	191,463
4	20	30,371	26,960	149,475	19,492	3,440	229,738
5	50	31,936	28,487	160,069	20,544	3,625	244,661

(2) With-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)					
		Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	4,800	4,166	24,195	3,049	538	36,748
2	5	6,584	5,724	29,024	4,184	738	46,254
3	10	9,309	8,231	46,969	5,963	1,052	71,524
4	20	10,333	9,171	56,928	6,631	1,171	84,234
5	50	14,632	13,042	76,859	9,409	1,660	115,602

(3) Reduction in Damage

No.	Return Period (Year)	Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	15,935	13,846	61,261	10,126	1,787	102,955
2	5	17,030	14,838	71,948	10,835	1,913	116,564
3	10	15,969	13,882	78,148	10,149	1,791	119,939
4	20	20,038	17,789	92,547	12,861	2,269	145,504
5	50	17,304	15,445	83,210	11,135	1,965	129,059

TABLE J.2.17 FLOOD DAMAGE IN THE SAN JUAN AREA

(1) Without-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)					
		Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	14,405	12,570	19,334	9,172	1,619	57,100
2	5	15,890	13,824	22,608	10,103	1,783	64,208
3	10	18,566	16,125	27,847	11,795	2,081	76,414
4	20	20,061	17,404	31,700	12,738	2,248	84,151
5	50	21,502	18,723	36,154	13,677	2,414	92,470

(2) With-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)					
		Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	10,821	9,372	15,669	6,866	1,212	43,940
2	5	11,421	9,902	16,704	7,250	1,279	46,556
3	10	12,407	10,796	19,481	7,889	1,392	51,965
4	20	14,313	12,471	23,749	9,106	1,607	61,246
5	50	16,327	14,282	28,118	10,407	1,837	70,971

(3) Reduction in Damage

No.	Return Period (Year)	Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	3,584	3,198	3,665	2,306	407	13,160
2	5	4,469	3,922	5,904	2,853	504	17,652
3	10	6,159	5,329	8,366	3,906	689	24,449
4	20	5,748	4,933	7,951	3,632	641	22,905
5	50	5,175	4,441	8,036	3,270	577	21,499

TABLE J.2.18 FLOOD DAMAGE IN THE ANTOFAGASTA AREA

(1) Without-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)					
		Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	8,733	7,587	9,501	5,549	979	32,349
2	5	10,143	8,786	11,633	6,436	1,136	38,134
3	10	12,072	10,473	14,502	7,665	1,353	46,065
4	20	13,065	11,301	16,698	8,284	1,462	50,810
5	50	15,033	13,117	23,064	9,571	1,689	62,474

(2) With-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)					
		Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	2,308	2,050	1,511	1,482	261	7,612
2	5	2,791	2,518	1,702	1,805	318	9,134
3	10	3,726	3,360	2,388	2,409	425	12,308
4	20	5,284	4,653	4,822	3,379	596	18,734
5	50	6,354	5,582	6,206	4,058	716	22,916

(3) Reduction in Damage

No.	Return Period (Year)	Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	6,425	5,537	7,990	4,067	718	24,737
2	5	7,352	6,268	9,931	4,631	818	29,000
3	10	8,346	7,113	12,114	5,256	928	33,757
4	20	7,781	6,648	11,876	4,905	866	32,076
5	50	8,679	7,535	16,858	5,513	973	39,558

TABLE J.2.19 FLOOD DAMAGE IN THE SAN JUAN-ANTOFAGASTA AREA

(1) Without-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)					
		Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	23,138	20,157	28,835	14,721	2,598	89,449
2	5	26,033	22,610	34,241	16,539	2,919	102,342
3	10	30,638	26,598	42,349	19,460	3,434	122,479
4	20	33,126	28,705	48,398	21,022	3,710	134,961
5	50	36,535	31,840	59,218	23,248	4,103	154,944

(2) With-Project

No.	Return Period (Year)	Flood Damage (Bs. 1,000)					
		Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	13,129	11,422	17,180	8,348	1,473	51,552
2	5	14,212	12,420	18,406	9,055	1,597	55,690
3	10	16,133	14,156	21,869	10,298	1,817	64,273
4	20	19,597	17,124	28,571	12,485	2,203	79,980
5	50	22,681	19,864	34,324	14,465	2,553	93,887

(3) Reduction in Damage

No.	Return Period (Year)						
		Building	Household Effects	Agricultural Crops	Public Facilities	Business Activities	Total
1	2	10,009	8,735	11,655	6,373	1,125	37,897
2	5	11,821	10,190	15,835	7,484	1,322	46,652
3	10	14,505	12,442	20,480	9,162	1,617	58,206
4	20	13,529	11,581	19,827	8,537	1,507	54,981
5	50	13,854	11,976	24,894	8,783	1,550	61,057

TABLE J.3.1 ESTIMATE OF ECONOMIC COST FOR RIO CHANE PROJECT

(1) Financial Cost

1

Unit : Bs. 1,000

No.	Classification of Costs	2002 L.C.	2002 F.C.	2002 Total	
1	Construction Cost	0	0	0	
2	Land Acquisition	0	0	0	
3	Administration	0	0	0	
4	Engineering Services	355	1,419	1,774	
5	Physical Contingency	53	213	266	
	Sub-total	408	1,632	2,040	
6	price Escalation	92	204	296	
	Grand Total	500	1,836	2,336	OM Cost 0

2

No.	Classification of Costs	2003 L.C.	2003 F.C.	2003 Total	
1	Construction Cost	23,481	38,613	62,094	
2	Land Acquisition	0	0	0	
3	Administration	3,105	0	3,105	
4	Engineering Services	1,242	4,968	6,210	
5	Physical Contingency	4,174	6,537	10,711	
	Sub-total	32,002	50,118	82,120	
6	price Escalation	9,946	8,513	18,459	
	Grand Total	41,948	58,631	100,579	OM Cost 0

3

No.	Classification of Costs	2004 L.C.	2004 F.C.	2004 Total	
1	Construction Cost	23,481	38,613	62,094	
2	Land Acquisition	0	0	0	
3	Administration	3,105	0	3,105	
4	Engineering Services	1,242	4,968	6,210	
5	Physical Contingency	4,174	6,537	10,711	
	Sub-total	32,002	50,118	82,120	
6	price Escalation	12,882	10,858	23,740	
	Grand Total	44,884	60,976	105,860	OM Cost 871

4

No.	Classification of Costs	2005 L.C.	2005 F.C.	2005 Total	
1	Construction Cost	20,127	33,097	53,224	
2	Land Acquisition	0	0	0	
3	Administration	2,661	0	2,661	
4	Engineering Services	709	2,838	3,547	
5	Physical Contingency	3,525	5,390	8,915	
	Sub-total	27,022	41,325	68,347	
6	price Escalation	13,531	10,964	24,495	
	Grand Total	40,553	52,289	92,842	OM Cost 1,864

Total

	Classification of Costs	Total L.C.	Total F.C.	Total Total	
1	Construction Cost	67,089	110,323	177,412	
2	Land Acquisition	0	0	0	
3	Administration	8,871	0	8,871	
4	Engineering Services	3,548	14,193	17,741	
6	Physical Contingency	11,926	18,677	30,604	
	Sub-total	91,434	143,193	234,628	
7	price Escalation	36,451	30,539	66,990	
	Grand Total	127,885	173,732	301,618	OM Cost 2,849

(2) Economic Cost

1

Unit : Bs. 1,000

No.	Classification of Costs	2002 L.C.	2002 F.C.	2002 Total	
1	Construction Cost	0	0	0	
2	Land Acquisition	0	0	0	
3	Administration	0	0	0	
4	Engineering Services	314	1,419	1,733	
5	Physical Contingency	47	213	260	
	Sub-total	361	1,632	1,993	
6	price Escalation	0	0	0	
	Grand Total	361	1,632	1,993	OM Cost 0

2

No.	Classification of Costs	2003 L.C.	2003 F.C.	2003 Total	
1	Construction Cost	16,672	34,171	50,842	
2	Land Acquisition	0	0	0	
3	Administration	2,748	0	2,748	
4	Engineering Services	1,099	4,968	6,067	
5	Physical Contingency	3,078	5,871	8,949	
	Sub-total	23,596	45,010	68,606	
6	price Escalation	0	0	0	
	Grand Total	23,596	45,010	68,606	OM Cost 0

3

No.	Classification of Costs	2004 L.C.	2004 F.C.	2004 Total	
1	Construction Cost	16,672	34,171	50,842	
2	Land Acquisition	0	0	0	
3	Administration	2,748	0	2,748	
4	Engineering Services	1,099	4,968	6,067	
5	Physical Contingency	3,078	5,871	8,949	
	Sub-total	23,596	45,010	68,606	
6	price Escalation	0	0	0	
	Grand Total	23,596	45,010	68,606	OM Cost 508

4

No.	Classification of Costs	2005 L.C.	2005 F.C.	2005 Total	
1	Construction Cost	14,290	29,289	43,580	
2	Land Acquisition	0	0	0	
3	Administration	2,355	0	2,355	
4	Engineering Services	627	2,838	3,465	
5	Physical Contingency	2,591	4,819	7,410	
	Sub-total	19,863	36,946	56,810	
6	price Escalation	0	0	0	
	Grand Total	19,863	36,946	56,810	OM Cost 1,017

Total

	Classification of Costs	Total L.C.	Total F.C.	Total Total	
1	Construction Cost	47,633	97,631	145,264	
2	Land Acquisition	0	0	0	
3	Administration	7,850	0	7,850	
4	Engineering Services	3,140	14,193	17,333	
6	Physical Contingency	8,794	16,774	25,567	
	Sub-total	67,417	128,598	196,015	
7	price Escalation	0	0	0	
	Grand Total	67,417	128,598	196,015	OM Cost 1,453

TABLE J.3.2 (1/2) ESTIMATE OF ECONOMIC COST FOR RIO PAILON PROJECT

(1) Financial Cost

1 — Unit : Bs. 1,000

No.	Classification of Costs	2003 L.C.	2003 F.C.	2003 Total	
1	Construction Cost	0	0	0	
2	Land Acquisition	0	0	0	
3	Administration	0	0	0	
4	Engineering Services	20	79	99	
5	Physical Contingency	3	12	15	
	Sub-total	23	91	114	
6	price Escalation	7	15	22	
	Grand Total	30	106	136	OM Cost 0

2

No.	Classification of Costs	2004 L.C.	2004 F.C.	2004 Total	
1	Construction Cost	545	830	1,375	
2	Land Acquisition	0	0	0	
3	Administration	69	0	69	
4	Engineering Services	28	110	138	
5	Physical Contingency	96	141	237	
	Sub-total	738	1,081	1,819	
6	price Escalation	297	234	531	
	Grand Total	1,035	1,315	2,350	OM Cost 0

3

No.	Classification of Costs	2005 L.C.	2005 F.C.	2005 Total	
1	Construction Cost	545	830	1,375	
2	Land Acquisition	0	0	0	
3	Administration	69	0	69	
4	Engineering Services	466	1,862	2,328	
5	Physical Contingency	162	404	566	
	Sub-total	1,242	3,096	4,338	
6	price Escalation	622	822	1,444	
	Grand Total	1,864	3,918	5,782	OM Cost 21

4

No.	Classification of Costs	2006 L.C.	2006 F.C.	2006 Total	
1	Construction Cost	20,631	35,548	56,179	
2	Land Acquisition	0	0	0	
3	Administration	2,809	0	2,809	
4	Engineering Services	1,136	4,543	5,679	
5	Physical Contingency	3,686	6,014	9,700	
	Sub-total	28,262	46,105	74,367	
6	price Escalation	17,120	14,566	31,686	
	Grand Total	45,382	60,671	106,053	OM Cost 45

5

No.	Classification of Costs	2007 L.C.	2007 F.C.	2007 Total	
1	Construction Cost	25,954	45,002	70,956	
2	Land Acquisition	0	0	0	
3	Administration	3,548	0	3,548	
4	Engineering Services	1,420	5,677	7,097	
5	Physical Contingency	4,638	7,602	12,240	
	Sub-total	35,560	58,281	93,841	
6	price Escalation	25,539	21,481	47,020	
	Grand Total	61,099	79,762	140,861	OM Cost 1,014

(2) Economic Cost

1 — Unit : Bs. 1,000

No.	Classification of Costs	2003 L.C.	2003 F.C.	2003 Total	
1	Construction Cost	0	0	0	
2	Land Acquisition	0	0	0	
3	Administration	0	0	0	
4	Engineering Services	18	79	97	
5	Physical Contingency	3	12	15	
	Sub-total	20	91	111	
6	price Escalation	0	0	0	
	Grand Total	20	91	111	OM Cost 0

2

No.	Classification of Costs	2004 L.C.	2004 F.C.	2004 Total	
1	Construction Cost	387	735	1,121	
2	Land Acquisition	0	0	0	
3	Administration	61	0	61	
4	Engineering Services	25	110	135	
5	Physical Contingency	71	127	198	
	Sub-total	544	971	1,515	
6	price Escalation	0	0	0	
	Grand Total	544	971	1,515	OM Cost 0

3

No.	Classification of Costs	2005 L.C.	2005 F.C.	2005 Total	
1	Construction Cost	387	735	1,121	
2	Land Acquisition	0	0	0	
3	Administration	61	0	61	
4	Engineering Services	412	1,862	2,274	
5	Physical Contingency	129	389	519	
	Sub-total	989	2,986	3,975	
6	price Escalation	0	0	0	
	Grand Total	989	2,986	3,975	OM Cost 11

4

No.	Classification of Costs	2006 L.C.	2006 F.C.	2006 Total	
1	Construction Cost	14,648	31,458	46,106	
2	Land Acquisition	0	0	0	
3	Administration	2,486	0	2,486	
4	Engineering Services	1,005	4,543	5,548	
5	Physical Contingency	2,721	5,400	8,121	
	Sub-total	20,860	41,402	62,262	
6	price Escalation	0	0	0	
	Grand Total	20,860	41,402	62,262	OM Cost 22

5

No.	Classification of Costs	2007 L.C.	2007 F.C.	2007 Total	
1	Construction Cost	18,427	39,825	58,252	
2	Land Acquisition	0	0	0	
3	Administration	3,140	0	3,140	
4	Engineering Services	1,257	5,677	6,934	
5	Physical Contingency	3,424	6,825	10,249	
	Sub-total	26,247	52,327	78,574	
6	price Escalation	0	0	0	
	Grand Total	26,247	52,327	78,574	OM Cost 483

TABLE J.3.2 (2/2) ESTIMATE OF ECONOMIC COST FOR RIO PAILON PROJECT

(1) Financial Cost

6

No.	Classification of Costs	2008 L.C.	2008 F.C.	2008 Total	
1	Construction Cost	21,466	37,166	58,632	
2	Land Acquisition	0	0	0	
3	Administration	2,932	0	2,932	
4	Engineering Services	1,257	5,025	6,282	
5	Physical Contingency	3,848	6,329	10,177	
	Sub-total	29,503	48,520	78,023	
6	price Escalation	24,737	20,540	45,277	
	Grand Total	54,240	69,060	123,300	OM Cost 2,390

7

No.	Classification of Costs	2009 L.C.	2009 F.C.	2009 Total	
1	Construction Cost	27,618	46,322	73,940	
2	Land Acquisition	0	0	0	
3	Administration	3,697	0	3,697	
4	Engineering Services	1,041	4,165	5,206	
5	Physical Contingency	4,853	7,573	12,426	
	Sub-total	37,209	58,060	95,269	
6	price Escalation	35,986	27,884	63,870	
	Grand Total	73,195	85,944	159,139	OM Cost 3,712

8

No.	Classification of Costs	2010 L.C.	2010 F.C.	2010 Total	
1	Construction Cost	7,857	12,600	20,457	
2	Land Acquisition	0	0	0	
3	Administration	1,022	0	1,022	
4	Engineering Services	290	1,173	1,463	
5	Physical Contingency	1,375	2,066	3,441	
	Sub-total	10,544	15,839	26,383	
6	price Escalation	11,651	17,499	29,150	
	Grand Total	22,195	33,338	55,533	OM Cost 5,528

Total

	Classification of Costs	Total L.C.	Total F.C.	Total	
1	Construction Cost	104,616	178,298	282,914	
2	Land Acquisition	0	0	0	
3	Administration	14,146	0	14,146	
4	Engineering Services	5,658	22,634	28,292	
6	Physical Contingency	18,663	30,140	48,803	
	Sub-total	143,083	231,072	374,155	
7	price Escalation	115,959	103,041	219,000	
	Grand Total	259,042	334,113	593,155	OM Cost 5,958

(2) Economic Cost

6

No.	Classification of Costs	2008 L.C.	2008 F.C.	2008 Total	
1	Construction Cost	15,241	32,890	48,131	
2	Land Acquisition	0	0	0	
3	Administration	2,595	0	2,595	
4	Engineering Services	1,112	5,025	6,137	
5	Physical Contingency	2,842	5,687	8,529	
	Sub-total	21,790	43,603	65,393	
6	price Escalation	0	0	0	
	Grand Total	21,790	43,603	65,393	OM Cost 1,066

7

No.	Classification of Costs	2009 L.C.	2009 F.C.	2009 Total	
1	Construction Cost	19,609	40,993	60,602	
2	Land Acquisition	0	0	0	
3	Administration	3,272	0	3,272	
4	Engineering Services	921	4,165	5,086	
5	Physical Contingency	3,570	6,774	10,344	
	Sub-total	27,372	51,932	79,304	
6	price Escalation	0	0	0	
	Grand Total	27,372	51,932	79,304	OM Cost 1,547

8

No.	Classification of Costs	2010 L.C.	2010 F.C.	2010 Total	
1	Construction Cost	5,578	11,150	16,729	
2	Land Acquisition	0	0	0	
3	Administration	904	0	904	
4	Engineering Services	257	1,173	1,430	
5	Physical Contingency	1,011	1,849	2,859	
	Sub-total	7,750	14,172	21,922	
6	price Escalation	0	0	0	
	Grand Total	7,750	14,172	21,922	OM Cost 2,153

Total

	Classification of Costs	Total L.C.	Total F.C.	Total	
1	Construction Cost	74,277	157,786	232,063	
2	Land Acquisition	0	0	0	
3	Administration	12,519	0	12,519	
4	Engineering Services	5,007	22,634	27,641	
6	Physical Contingency	13,770	27,063	40,833	
	Sub-total	105,573	207,483	313,056	
7	price Escalation	0	0	0	
	Grand Total	105,573	207,483	313,056	OM Cost 2,321

TABLE J.3.3 (1/2) ESTIMATE OF ECONOMIC COST FOR OKINAWA DRAINAGE PROJECT

(1) Financial Cost

1

Unit : Bs. 1,000

No.	Classification of Costs	2001 L.C.	2001 F.C.	2001 Total	
1	Construction Cost	0	0	0	
2	Land Acquisition	0	0	0	
3	Administration	0	0	0	
4	Engineering Services	94	374	468	
5	Physical Contingency	14	56	70	
	Sub-total	108	430	538	
6	price Escalation	16	35	51	
	Grand Total	124	465	589	OM Cost 0

2

No.	Classification of Costs	2002 L.C.	2002 F.C.	2002 Total	
1	Construction Cost	9,460	18,619	28,079	
2	Land Acquisition	0	0	0	
3	Administration	1,404	0	1,404	
4	Engineering Services	562	2,246	2,808	
5	Physical Contingency	1,714	3,130	4,844	
	Sub-total	13,140	23,995	37,135	
6	price Escalation	2,957	2,996	5,953	
	Grand Total	16,097	26,991	43,088	OM Cost 0

3

No.	Classification of Costs	2003 L.C.	2003 F.C.	2003 Total	
1	Construction Cost	6,307	12,413	18,720	
2	Land Acquisition	0	0	0	
3	Administration	936	0	936	
4	Engineering Services	322	1,293	1,615	
5	Physical Contingency	1,135	2,056	3,191	
	Sub-total	8,700	15,762	24,462	
6	price Escalation	2,704	2,677	5,381	
	Grand Total	11,404	18,439	29,843	OM Cost 368

4

No.	Classification of Costs	2004 L.C.	2004 F.C.	2004 Total	
1	Construction Cost	1,038	1,917	2,955	
2	Land Acquisition	0	0	0	
3	Administration	148	0	148	
4	Engineering Services	59	236	295	
5	Physical Contingency	187	323	510	
	Sub-total	1,432	2,476	3,908	
6	price Escalation	576	536	1,112	
	Grand Total	2,008	3,012	5,020	OM Cost 655

5

No.	Classification of Costs	2005 L.C.	2005 F.C.	2005 Total	
1	Construction Cost	1,038	1,917	2,955	
2	Land Acquisition	0	0	0	
3	Administration	148	0	148	
4	Engineering Services	59	236	295	
5	Physical Contingency	187	323	510	
	Sub-total	1,432	2,476	3,908	
6	price Escalation	717	657	1,374	
	Grand Total	2,149	3,133	5,282	OM Cost 747

(2) Economic Cost

1

Unit : Bs. 1,000

No.	Classification of Costs	2001 L.C.	2001 F.C.	2001 Total	
1	Construction Cost	0	0	0	
2	Land Acquisition	0	0	0	
3	Administration	0	0	0	
4	Engineering Services	83	374	457	
5	Physical Contingency	12	56	69	
	Sub-total	96	430	526	
6	price Escalation	0	0	0	
	Grand Total	96	430	526	OM Cost 0

2

No.	Classification of Costs	2002 L.C.	2002 F.C.	2002 Total	
1	Construction Cost	6,717	16,477	23,194	
2	Land Acquisition	0	0	0	
3	Administration	1,242	0	1,242	
4	Engineering Services	497	2,246	2,743	
5	Physical Contingency	1,268	2,808	4,077	
	Sub-total	9,725	21,531	31,256	
6	price Escalation	0	0	0	
	Grand Total	9,725	21,531	31,256	OM Cost 0

3

No.	Classification of Costs	2003 L.C.	2003 F.C.	2003 Total	
1	Construction Cost	4,478	10,985	15,463	
2	Land Acquisition	0	0	0	
3	Administration	828	0	828	
4	Engineering Services	285	1,293	1,578	
5	Physical Contingency	839	1,842	2,680	
	Sub-total	6,430	14,120	20,550	
6	price Escalation	0	0	0	
	Grand Total	6,430	14,120	20,550	OM Cost 232

4

No.	Classification of Costs	2004 L.C.	2004 F.C.	2004 Total	
1	Construction Cost	737	1,696	2,433	
2	Land Acquisition	0	0	0	
3	Administration	131	0	131	
4	Engineering Services	52	236	288	
5	Physical Contingency	138	290	428	
	Sub-total	1,058	2,222	3,281	
6	price Escalation	0	0	0	
	Grand Total	1,058	2,222	3,281	OM Cost 387

5

No.	Classification of Costs	2005 L.C.	2005 F.C.	2005 Total	
1	Construction Cost	737	1,696	2,433	
2	Land Acquisition	0	0	0	
3	Administration	131	0	131	
4	Engineering Services	52	236	288	
5	Physical Contingency	138	290	428	
	Sub-total	1,058	2,222	3,281	
6	price Escalation	0	0	0	
	Grand Total	1,058	2,222	3,281	OM Cost 411

TABLE J.3.3 (2/2) ESTIMATE OF ECONOMIC COST FOR OKINAWA DRAINAGE PROJECT

(1) Financial Cost

6

No.	Classification of Costs	2006 L.C.	2006 F.C.	2006 Total	
1	Construction Cost	1,075	1,985	3,060	
2	Land Acquisition	0	0	0	
3	Administration	153	0	153	
4	Engineering Services	61	245	306	
5	Physical Contingency	193	335	528	
	Sub-total	1,482	2,565	4,047	
6	price Escalation	898	810	1,708	
	Grand Total	2,380	3,375	5,755	OM Cost 818

7

No.	Classification of Costs	2007 L.C.	2007 F.C.	2007 Total	
1	Construction Cost	1,186	2,191	3,377	
2	Land Acquisition	0	0	0	
3	Administration	169	0	169	
4	Engineering Services	68	270	338	
5	Physical Contingency	213	369	583	
	Sub-total	1,636	2,830	4,467	
6	price Escalation	1,175	1,043	2,218	
	Grand Total	2,811	3,873	6,685	OM Cost 960

8

No.	Classification of Costs	2008 L.C.	2008 F.C.	2008 Total	
1	Construction Cost	1,075	1,985	3,060	
2	Land Acquisition	0	0	0	
3	Administration	153	0	153	
4	Engineering Services	61	245	306	
5	Physical Contingency	193	335	528	
	Sub-total	1,482	2,565	4,047	
6	price Escalation	1,243	1,086	2,329	
	Grand Total	2,725	3,651	6,376	OM Cost 1,090

9

No.	Classification of Costs	2009 L.C.	2009 F.C.	2009 Total	
1	Construction Cost	1,038	1,917	2,955	
2	Land Acquisition	0	0	0	
3	Administration	148	0	148	
4	Engineering Services	59	236	295	
5	Physical Contingency	187	323	510	
	Sub-total	1,432	2,476	3,908	
6	price Escalation	1,385	1,189	2,574	
	Grand Total	2,817	3,665	6,482	OM Cost 1,228

10

No.	Classification of Costs	2010 L.C.	2010 F.C.	2010 Total	
1	Construction Cost	961	1,781	2,742	
2	Land Acquisition	0	0	0	
3	Administration	136	0	136	
4	Engineering Services	13	51	64	
5	Physical Contingency	167	275	441	
	Sub-total	1,277	2,107	3,383	
6	price Escalation	1,411	2,327	3,738	
	Grand Total	2,688	4,434	7,121	OM Cost 1,377

Total

	Classification of Costs	Total L.C.	Total F.C.	Total	
1	Construction Cost	23,178	44,725	67,903	
2	Administration	0	0	0	
3	Engineering Services	3,395	0	3,395	
4	Land Acquisition	1,358	5,432	6,790	
6	Physical Contingency	4,190	7,524	11,713	
	Sub-total	32,121	57,681	89,801	
7	price Escalation	13,082	13,356	26,438	
	Grand Total	45,203	71,037	116,239	OM Cost 1,433

(2) Economic Cost

6

No.	Classification of Costs	2006 L.C.	2006 F.C.	2006 Total	
1	Construction Cost	763	1,757	2,520	
2	Land Acquisition	0	0	0	
3	Administration	135	0	135	
4	Engineering Services	54	245	299	
5	Physical Contingency	143	300	443	
	Sub-total	1,096	2,302	3,397	
6	price Escalation	0	0	0	
	Grand Total	1,096	2,302	3,397	OM Cost 435

7

No.	Classification of Costs	2007 L.C.	2007 F.C.	2007 Total	
1	Construction Cost	842	1,939	2,781	
2	Land Acquisition	0	0	0	
3	Administration	150	0	150	
4	Engineering Services	60	270	330	
5	Physical Contingency	158	331	489	
	Sub-total	1,210	2,540	3,750	
6	price Escalation	0	0	0	
	Grand Total	1,210	2,540	3,750	OM Cost 460

8

No.	Classification of Costs	2008 L.C.	2008 F.C.	2008 Total	
1	Construction Cost	763	1,757	2,520	
2	Land Acquisition	0	0	0	
3	Administration	135	0	135	
4	Engineering Services	54	245	299	
5	Physical Contingency	143	300	443	
	Sub-total	1,096	2,302	3,397	
6	price Escalation	0	0	0	
	Grand Total	1,096	2,302	3,397	OM Cost 488

9

No.	Classification of Costs	2009 L.C.	2009 F.C.	2009 Total	
1	Construction Cost	737	1,696	2,433	
2	Land Acquisition	0	0	0	
3	Administration	131	0	131	
4	Engineering Services	52	236	288	
5	Physical Contingency	138	290	428	
	Sub-total	1,058	2,222	3,281	
6	price Escalation	0	0	0	
	Grand Total	1,058	2,222	3,281	OM Cost 513

10

No.	Classification of Costs	2010 L.C.	2010 F.C.	2010 Total	
1	Construction Cost	682	1,576	2,258	
2	Land Acquisition	0	0	0	
3	Administration	120	0	120	
4	Engineering Services	12	51	63	
5	Physical Contingency	122	244	366	
	Sub-total	936	1,871	2,807	
6	price Escalation	0	0	0	
	Grand Total	936	1,871	2,807	OM Cost 538

Total

	Classification of Costs	Total L.C.	Total F.C.	Total	
1	Construction Cost	16,456	39,580	56,036	
2	Administration	0	0	0	
3	Engineering Services	3,004	0	3,004	
4	Land Acquisition	1,202	5,432	6,634	
6	Physical Contingency	3,099	6,752	9,851	
	Sub-total	23,762	51,763	75,525	
7	price Escalation	0	0	0	
	Grand Total	23,762	51,763	75,525	OM Cost 560

TABLE J.3.4(1/2) ESTIMATE OF ECONOMIC COST FOR CHANE-PAILON PROJECT

(1) Financial Cost

1

Unit : Bs. 1,000

No.	Classification of Costs	2001 L.C.	2001 F.C.	2001 Total	
1	Construction Cost	0	0	0	
2	Land Acquisition	0	0	0	
3	Administration	0	0	0	
4	Engineering Services	94	374	468	
5	Physical Contingency	14	56	70	
	Sub-total	108	430	538	
6	price Escalation	16	35	51	
	Grand Total	124	465	589	OM Cost 0

2

No.	Classification of Costs	2002 L.C.	2002 F.C.	2002 Total	
1	Construction Cost	9,460	18,619	28,079	
2	Land Acquisition	0	0	0	
3	Administration	1,404	0	1,404	
4	Engineering Services	917	3,665	4,582	
5	Physical Contingency	1,767	3,343	5,110	
	Sub-total	13,548	25,627	39,175	
6	price Escalation	3,049	3,200	6,249	
	Grand Total	16,597	28,827	45,424	OM Cost 0

3

No.	Classification of Costs	2003 L.C.	2003 F.C.	2003 Total	
1	Construction Cost	29,788	51,026	80,814	
2	Land Acquisition	0	0	0	
3	Administration	4,041	0	4,041	
4	Engineering Services	1,584	6,340	7,924	
5	Physical Contingency	5,312	8,605	13,917	
	Sub-total	40,725	65,971	106,696	
6	price Escalation	12,657	11,205	23,862	
	Grand Total	53,382	77,176	130,558	OM Cost 368

4

No.	Classification of Costs	2004 L.C.	2004 F.C.	2004 Total	
1	Construction Cost	25,064	41,360	66,424	
2	Land Acquisition	0	0	0	
3	Administration	3,322	0	3,322	
4	Engineering Services	1,329	5,314	6,643	
5	Physical Contingency	4,457	7,001	11,458	
	Sub-total	34,172	53,675	87,847	
6	price Escalation	13,755	11,628	25,383	
	Grand Total	47,927	65,303	113,230	OM Cost 1,527

5

No.	Classification of Costs	2005 L.C.	2005 F.C.	2005 Total	
1	Construction Cost	21,710	35,844	57,554	
2	Land Acquisition	0	0	0	
3	Administration	2,878	0	2,878	
4	Engineering Services	1,234	4,936	6,170	
5	Physical Contingency	3,873	6,117	9,990	
	Sub-total	29,695	46,897	76,592	
6	price Escalation	14,870	12,443	27,313	
	Grand Total	44,565	59,340	103,905	OM Cost 2,632

(2) Economic Cost

1

Unit : Bs. 1,000

No.	Classification of Costs	2001 L.C.	2001 F.C.	2001 Total	
1	Construction Cost	0	0	0	
2	Land Acquisition	0	0	0	
3	Administration	0	0	0	
4	Engineering Services	83	374	457	
5	Physical Contingency	12	56	69	
	Sub-total	96	430	526	
6	price Escalation	0	0	0	
	Grand Total	96	430	526	OM Cost 0

2

No.	Classification of Costs	2002 L.C.	2002 F.C.	2002 Total	
1	Construction Cost	6,717	16,477	23,194	
2	Land Acquisition	0	0	0	
3	Administration	1,242	0	1,242	
4	Engineering Services	812	3,665	4,477	
5	Physical Contingency	1,316	3,021	4,337	
	Sub-total	10,086	23,163	33,249	
6	price Escalation	0	0	0	
	Grand Total	10,086	23,163	33,249	OM Cost 0

3

No.	Classification of Costs	2003 L.C.	2003 F.C.	2003 Total	
1	Construction Cost	21,149	45,156	66,305	
2	Land Acquisition	0	0	0	
3	Administration	3,576	0	3,576	
4	Engineering Services	1,402	6,340	7,742	
5	Physical Contingency	3,919	7,724	11,643	
	Sub-total	30,046	59,220	89,267	
6	price Escalation	0	0	0	
	Grand Total	30,046	59,220	89,267	OM Cost 232

4

No.	Classification of Costs	2004 L.C.	2004 F.C.	2004 Total	
1	Construction Cost	17,795	36,692	54,397	
2	Land Acquisition	0	0	0	
3	Administration	2,940	0	2,940	
4	Engineering Services	1,176	5,314	6,490	
5	Physical Contingency	3,287	6,287	9,574	
	Sub-total	25,198	48,203	73,401	
6	price Escalation	0	0	0	
	Grand Total	25,198	48,203	73,401	OM Cost 895

5

No.	Classification of Costs	2005 L.C.	2005 F.C.	2005 Total	
1	Construction Cost	15,414	31,720	47,134	
2	Land Acquisition	0	0	0	
3	Administration	2,547	0	2,547	
4	Engineering Services	1,092	4,936	6,028	
5	Physical Contingency	2,858	5,498	8,356	
	Sub-total	21,911	42,155	64,066	
6	price Escalation	0	0	0	
	Grand Total	21,911	42,155	64,066	OM Cost 1,439

TABLE 3.3.4(2/2) ESTIMATE OF ECONOMIC COST FOR CHANE-PAILON PROJECT

(1) Financial Cost

6

No.	Classification of Costs	2006 L.C.	2006 F.C.	2006 Total	
1	Construction Cost	21,706	37,533	59,239	
2	Land Acquisition	0	0	0	
3	Administration	2,962	0	2,962	
4	Engineering Services	1,197	4,788	5,985	
5	Physical Contingency	3,880	6,348	10,228	
	Sub-total	29,745	48,669	78,414	
6	price Escalation	18,018	15,376	33,394	
	Grand Total	47,763	64,045	111,808	OM Cost 3,742

7

No.	Classification of Costs	2007 L.C.	2007 F.C.	2007 Total	
1	Construction Cost	27,140	47,193	74,333	
2	Land Acquisition	0	0	0	
3	Administration	3,717	0	3,717	
4	Engineering Services	1,488	5,947	7,435	
5	Physical Contingency	4,852	7,971	12,823	
	Sub-total	37,197	61,111	98,308	
6	price Escalation	26,714	22,524	49,238	
	Grand Total	63,911	83,635	147,546	OM Cost 5,022

8

No.	Classification of Costs	2008 L.C.	2008 F.C.	2008 Total	
1	Construction Cost	22,541	39,151	61,692	
2	Land Acquisition	0	0	0	
3	Administration	3,085	0	3,085	
4	Engineering Services	1,318	5,270	6,588	
5	Physical Contingency	4,042	6,663	10,705	
	Sub-total	30,986	51,084	82,070	
6	price Escalation	25,980	21,626	47,606	
	Grand Total	56,966	72,710	129,676	OM Cost 6,741

9

No.	Classification of Costs	2009 L.C.	2009 F.C.	2009 Total	
1	Construction Cost	28,656	48,239	76,895	
2	Land Acquisition	0	0	0	
3	Administration	3,845	0	3,845	
4	Engineering Services	1,100	4,401	5,501	
5	Physical Contingency	5,040	7,896	12,936	
	Sub-total	38,641	60,536	99,177	
6	price Escalation	37,371	29,073	66,444	
	Grand Total	76,012	89,609	165,621	OM Cost 8,430

10

No.	Classification of Costs	2010 L.C.	2010 F.C.	2010 Total	
1	Construction Cost	8,818	14,381	23,199	
2	Land Acquisition	0	0	0	
3	Administration	1,158	0	1,158	
4	Engineering Services	303	1,224	1,527	
5	Physical Contingency	1,542	2,341	3,883	
	Sub-total	11,821	17,946	29,767	
6	price Escalation	13,062	19,826	32,888	
	Grand Total	24,883	37,772	62,655	OM Cost 10,639

Total

	Classification of Costs	Total L.C.	Total F.C.	Total Total	
1	Construction Cost	194,883	333,346	528,229	
2	Administration	0	0	0	
3	Engineering Services	26,412	0	26,412	
4	Land Acquisition	10,564	42,259	52,823	
6	Physical Contingency	34,779	56,341	91,120	
	Sub-total	266,638	431,946	698,584	
7	price Escalation	165,492	146,936	312,428	
	Grand Total	432,130	578,882	1,011,012	OM Cost 11,125

(2) Economic Cost

6

No.	Classification of Costs	2006 L.C.	2006 F.C.	2006 Total	
1	Construction Cost	15,411	33,215	48,626	
2	Land Acquisition	0	0	0	
3	Administration	2,621	0	2,621	
4	Engineering Services	1,059	4,788	5,847	
5	Physical Contingency	2,864	5,700	8,564	
	Sub-total	21,956	43,704	65,659	
6	price Escalation	0	0	0	
	Grand Total	21,956	43,704	65,659	OM Cost 1,910

7

No.	Classification of Costs	2007 L.C.	2007 F.C.	2007 Total	
1	Construction Cost	19,269	41,764	61,033	
2	Land Acquisition	0	0	0	
3	Administration	3,289	0	3,289	
4	Engineering Services	1,317	5,947	7,264	
5	Physical Contingency	3,581	7,157	10,738	
	Sub-total	27,457	54,867	82,324	
6	price Escalation	0	0	0	
	Grand Total	27,457	54,867	82,324	OM Cost 2,397

8

No.	Classification of Costs	2008 L.C.	2008 F.C.	2008 Total	
1	Construction Cost	16,004	34,647	50,651	
2	Land Acquisition	0	0	0	
3	Administration	2,730	0	2,730	
4	Engineering Services	1,166	5,270	6,436	
5	Physical Contingency	2,985	5,988	8,973	
	Sub-total	22,886	45,904	68,790	
6	price Escalation	0	0	0	
	Grand Total	22,886	45,904	68,790	OM Cost 3,007

9

No.	Classification of Costs	2009 L.C.	2009 F.C.	2009 Total	
1	Construction Cost	20,346	42,689	63,035	
2	Land Acquisition	0	0	0	
3	Administration	3,403	0	3,403	
4	Engineering Services	973	4,401	5,374	
5	Physical Contingency	3,708	7,064	10,772	
	Sub-total	28,430	54,154	82,584	
6	price Escalation	0	0	0	
	Grand Total	28,430	54,154	82,584	OM Cost 3,513

10

No.	Classification of Costs	2010 L.C.	2010 F.C.	2010 Total	
1	Construction Cost	6,261	12,727	18,987	
2	Land Acquisition	0	0	0	
3	Administration	1,025	0	1,025	
4	Engineering Services	268	1,224	1,492	
5	Physical Contingency	1,133	2,093	3,226	
	Sub-total	8,687	16,043	24,730	
6	price Escalation	0	0	0	
	Grand Total	8,687	16,043	24,730	OM Cost 4,144

Total

	Classification of Costs	Total L.C.	Total F.C.	Total Total	
1	Construction Cost	138,367	294,996	433,363	
2	Administration	0	0	0	
3	Engineering Services	23,373	0	23,373	
4	Land Acquisition	9,349	42,259	51,608	
6	Physical Contingency	25,663	50,588	76,252	
	Sub-total	196,752	387,844	584,596	
7	price Escalation	0	0	0	
	Grand Total	196,752	387,844	584,596	OM Cost 4,334

TABLE J.3.5(1/2) ESTIMATE OF ECONOMIC COST FOR SAN JUAN PROJECT

(1) Financial Cost

1

Unit : Bs. 1,000

No.	Classification of Costs	2001 L.C.	2001 F.C.	2001 Total	
1	Construction Cost	702	708	1,410	
2	Land Acquisition	0	0	0	
3	Administration	0	0	0	
4	Engineering Services	22	88	110	
5	Physical Contingency	109	119	228	
	Sub-total	833	915	1,748	
6	price Escalation	120	75	195	
	Grand Total	953	990	1,943	OM Cost 0

2

No.	Classification of Costs	2002 L.C.	2002 F.C.	2002 Total	
1	Construction Cost	3,287	3,312	6,599	
2	Land Acquisition	0	0	0	
3	Administration	330	0	330	
4	Engineering Services	132	528	660	
5	Physical Contingency	562	576	1,138	
	Sub-total	4,311	4,416	8,727	
6	price Escalation	970	551	1,521	
	Grand Total	5,281	4,967	10,248	OM Cost 17

3

No.	Classification of Costs	2003 L.C.	2003 F.C.	2003 Total	
1	Construction Cost	2,762	3,455	6,217	
2	Land Acquisition	0	0	0	
3	Administration	220	0	220	
4	Engineering Services	116	466	582	
5	Physical Contingency	465	588	1,053	
	Sub-total	3,563	4,509	8,072	
6	price Escalation	1,108	766	1,874	
	Grand Total	4,671	5,275	9,946	OM Cost 105

4

No.	Classification of Costs	2004 L.C.	2004 F.C.	2004 Total	
1	Construction Cost	1,955	2,941	4,896	
2	Land Acquisition	0	0	0	
3	Administration	256	0	256	
4	Engineering Services	103	410	513	
5	Physical Contingency	347	503	850	
	Sub-total	2,661	3,854	6,515	
6	price Escalation	1,072	835	1,907	
	Grand Total	3,733	4,689	8,422	OM Cost 198

5

No.	Classification of Costs	2005 L.C.	2005 F.C.	2005 Total	
1	Construction Cost	2,623	3,895	6,518	
2	Land Acquisition	0	0	0	
3	Administration	326	0	326	
4	Engineering Services	131	521	652	
5	Physical Contingency	462	662	1,124	
	Sub-total	3,542	5,078	8,620	
6	price Escalation	1,774	1,348	3,122	
	Grand Total	5,316	6,426	11,742	OM Cost 286

(2) Economic Cost

1

Unit : Bs. 1,000

No.	Classification of Costs	2001 L.C.	2001 F.C.	2001 Total	
1	Construction Cost	498	627	1,125	
2	Land Acquisition	0	0	0	
3	Administration	0	0	0	
4	Engineering Services	19	88	107	
5	Physical Contingency	78	107	185	
	Sub-total	596	822	1,417	
6	price Escalation	0	0	0	
	Grand Total	596	822	1,417	OM Cost 0

2

No.	Classification of Costs	2002 L.C.	2002 F.C.	2002 Total	
1	Construction Cost	2,334	2,931	5,265	
2	Land Acquisition	0	0	0	
3	Administration	292	0	292	
4	Engineering Services	117	528	645	
5	Physical Contingency	411	519	930	
	Sub-total	3,154	3,978	7,132	
6	price Escalation	0	0	0	
	Grand Total	3,154	3,978	7,132	OM Cost 11

3

No.	Classification of Costs	2003 L.C.	2003 F.C.	2003 Total	
1	Construction Cost	1,961	3,058	5,019	
2	Land Acquisition	0	0	0	
3	Administration	195	0	195	
4	Engineering Services	103	466	569	
5	Physical Contingency	339	529	867	
	Sub-total	2,597	4,052	6,649	
6	price Escalation	0	0	0	
	Grand Total	2,597	4,052	6,649	OM Cost 64

4

No.	Classification of Costs	2004 L.C.	2004 F.C.	2004 Total	
1	Construction Cost	1,388	2,603	3,991	
2	Land Acquisition	0	0	0	
3	Administration	227	0	227	
4	Engineering Services	91	410	501	
5	Physical Contingency	256	452	708	
	Sub-total	1,962	3,465	5,426	
6	price Escalation	0	0	0	
	Grand Total	1,962	3,465	5,426	OM Cost 114

5

No.	Classification of Costs	2005 L.C.	2005 F.C.	2005 Total	
1	Construction Cost	1,862	3,447	5,309	
2	Land Acquisition	0	0	0	
3	Administration	288	0	288	
4	Engineering Services	116	521	637	
5	Physical Contingency	340	595	935	
	Sub-total	2,607	4,563	7,170	
6	price Escalation	0	0	0	
	Grand Total	2,607	4,563	7,170	OM Cost 154

TABLE J.3.5(2/2) ESTIMATE OF ECONOMIC COST FOR SAN JUAN PROJECT

(1) Financial Cost

6

No.	Classification of Costs	2006 L.C.	2006 F.C.	2006 Total	
1	Construction Cost	4,090	5,856	9,946	
2	Land Acquisition	0	0	0	
3	Administration	317	0	317	
4	Engineering Services	184	732	916	
5	Physical Contingency	689	988	1,677	
	Sub-total	5,280	7,576	12,856	
6	price Escalation	3,198	2,394	5,592	
	Grand Total	8,478	9,970	18,448	OM Cost 410

7

No.	Classification of Costs	2007 L.C.	2007 F.C.	2007 Total	
1	Construction Cost	6,978	9,871	16,849	
2	Land Acquisition	0	0	0	
3	Administration	802	0	802	
4	Engineering Services	334	1,334	1,668	
5	Physical Contingency	1,217	1,681	2,898	
	Sub-total	9,331	12,886	22,217	
6	price Escalation	6,703	4,750	11,453	
	Grand Total	16,034	17,636	33,670	OM Cost 610

8

No.	Classification of Costs	2008 L.C.	2008 F.C.	2008 Total	
1	Construction Cost	6,944	9,971	16,915	
2	Land Acquisition	0	0	0	
3	Administration	833	0	833	
4	Engineering Services	333	1,335	1,668	
5	Physical Contingency	1,217	1,696	2,912	
	Sub-total	9,327	13,002	22,328	
6	price Escalation	7,820	5,503	13,323	
	Grand Total	17,147	18,505	35,651	OM Cost 962

9

No.	Classification of Costs	2009 L.C.	2009 F.C.	2009 Total	
1	Construction Cost	4,335	6,526	10,861	
2	Land Acquisition	0	0	0	
3	Administration	724	0	724	
4	Engineering Services	233	932	1,165	
5	Physical Contingency	791	1,119	1,913	
	Sub-total	6,086	8,577	14,663	
6	price Escalation	5,886	4,119	10,005	
	Grand Total	11,972	12,696	24,668	OM Cost 1,362

10

No.	Classification of Costs	2010 L.C.	2010 F.C.	2010 Total	
1	Construction Cost	391	721	1,112	
2	Land Acquisition	0	0	0	
3	Administration	258	0	258	
4	Engineering Services	39	160	199	
5	Physical Contingency	103	132	235	
	Sub-total	791	1,013	1,804	
6	price Escalation	874	1,117	1,991	
	Grand Total	1,665	2,130	3,795	OM Cost 1,688

Total

	Classification of Costs	Total L.C.	Total F.C.	Total Total	
1	Construction Cost	34,067	47,256	81,323	
2	Administration	0	0	0	
3	Engineering Services	4,066	0	4,066	
4	Land Acquisition	1,627	6,506	8,133	
6	Physical Contingency	5,964	8,064	14,028	
	Sub-total	45,724	61,826	107,550	
7	price Escalation	29,525	21,458	50,983	
	Grand Total	75,249	83,284	158,533	OM Cost 1,712

(2) Economic Cost

6

No.	Classification of Costs	2006 L.C.	2006 F.C.	2006 Total	
1	Construction Cost	2,904	5,182	8,086	
2	Land Acquisition	0	0	0	
3	Administration	281	0	281	
4	Engineering Services	163	732	895	
5	Physical Contingency	502	887	1,389	
	Sub-total	3,849	6,801	10,651	
6	price Escalation	0	0	0	
	Grand Total	3,849	6,801	10,651	OM Cost 207

7

No.	Classification of Costs	2007 L.C.	2007 F.C.	2007 Total	
1	Construction Cost	4,954	8,735	13,690	
2	Land Acquisition	0	0	0	
3	Administration	710	0	710	
4	Engineering Services	296	1,334	1,630	
5	Physical Contingency	894	1,510	2,404	
	Sub-total	6,854	11,580	18,433	
6	price Escalation	0	0	0	
	Grand Total	6,854	11,580	18,433	OM Cost 288

8

No.	Classification of Costs	2008 L.C.	2008 F.C.	2008 Total	
1	Construction Cost	4,930	8,824	13,754	
2	Land Acquisition	0	0	0	
3	Administration	737	0	737	
4	Engineering Services	295	1,335	1,630	
5	Physical Contingency	894	1,524	2,418	
	Sub-total	6,856	11,683	18,539	
6	price Escalation	0	0	0	
	Grand Total	6,856	11,683	18,539	OM Cost 425

9

No.	Classification of Costs	2009 L.C.	2009 F.C.	2009 Total	
1	Construction Cost	3,078	5,775	8,853	
2	Land Acquisition	0	0	0	
3	Administration	641	0	641	
4	Engineering Services	206	932	1,138	
5	Physical Contingency	589	1,006	1,595	
	Sub-total	4,513	7,713	12,227	
6	price Escalation	0	0	0	
	Grand Total	4,513	7,713	12,227	OM Cost 562

10

No.	Classification of Costs	2010 L.C.	2010 F.C.	2010 Total	
1	Construction Cost	278	638	916	
2	Land Acquisition	0	0	0	
3	Administration	228	0	228	
4	Engineering Services	35	160	195	
5	Physical Contingency	81	120	201	
	Sub-total	622	918	1,539	
6	price Escalation	0	0	0	
	Grand Total	622	918	1,539	OM Cost 651

Total

	Classification of Costs	Total L.C.	Total F.C.	Total Total	
1	Construction Cost	24,188	41,819	66,007	
2	Administration	0	0	0	
3	Engineering Services	3,598	0	3,598	
4	Land Acquisition	1,440	6,506	7,946	
6	Physical Contingency	4,384	7,249	11,633	
	Sub-total	33,609	55,574	89,184	
7	price Escalation	0	0	0	
	Grand Total	33,609	55,574	89,184	OM Cost 660

TABLE J.3.6(1/2) ESTIMATE OF ECONOMIC COST FOR ANTOFAGASTA PROJECT

(1) Financial Cost

1

Unit : Bs. 1,000

No.	Classification of Costs	2001 L.C.	2001 F.C.	2001 Total	
1	Construction Cost	1,080	1,344	2,424	
2	Land Acquisition	0	0	0	
3	Administration	0	0	0	
4	Engineering Services	38	151	189	
5	Physical Contingency	168	224	392	
	Sub-total	1,286	1,719	3,005	
6	price Escalation	186	140	326	
	Grand Total	1,472	1,859	3,331	OM Cost 0

2

No.	Classification of Costs	2002 L.C.	2002 F.C.	2002 Total	
1	Construction Cost	5,055	6,292	11,347	
2	Land Acquisition	0	0	0	
3	Administration	568	0	568	
4	Engineering Services	227	908	1,135	
5	Physical Contingency	878	1,080	1,958	
	Sub-total	6,728	8,280	15,008	
6	price Escalation	1,514	1,034	2,548	
	Grand Total	8,242	9,314	17,556	OM Cost 29

3

No.	Classification of Costs	2003 L.C.	2003 F.C.	2003 Total	
1	Construction Cost	3,679	4,921	8,600	
2	Land Acquisition	0	0	0	
3	Administration	378	0	378	
4	Engineering Services	167	670	837	
5	Physical Contingency	634	839	1,472	
	Sub-total	4,858	6,430	11,287	
6	price Escalation	1,202	956	2,158	
	Grand Total	6,060	7,386	13,445	OM Cost 180

4

No.	Classification of Costs	2004 L.C.	2004 F.C.	2004 Total	
1	Construction Cost	2,226	3,325	5,551	
2	Land Acquisition	0	0	0	
3	Administration	189	0	189	
4	Engineering Services	104	413	517	
5	Physical Contingency	378	561	939	
	Sub-total	2,897	4,299	7,196	
6	price Escalation	569	631	1,200	
	Grand Total	3,466	4,930	8,396	OM Cost 313

5

No.	Classification of Costs	2005 L.C.	2005 F.C.	2005 Total	
1	Construction Cost	4,834	7,235	12,069	
2	Land Acquisition	0	0	0	
3	Administration	604	0	604	
4	Engineering Services	242	965	1,207	
5	Physical Contingency	852	1,230	2,082	
	Sub-total	6,532	9,430	15,962	
6	price Escalation	2,473	2,059	4,532	
	Grand Total	9,005	11,489	20,494	OM Cost 419

(2) Economic Cost

1

Unit : Bs. 1,000

No.	Classification of Costs	2001 L.C.	2001 F.C.	2001 Total	
1	Construction Cost	767	1,189	1,956	
2	Land Acquisition	0	0	0	
3	Administration	0	0	0	
4	Engineering Services	34	151	185	
5	Physical Contingency	120	201	321	
	Sub-total	920	1,541	2,462	
6	price Escalation	0	0	0	
	Grand Total	920	1,541	2,462	OM Cost 0

2

No.	Classification of Costs	2002 L.C.	2002 F.C.	2002 Total	
1	Construction Cost	3,589	5,568	9,157	
2	Land Acquisition	0	0	0	
3	Administration	503	0	503	
4	Engineering Services	201	908	1,109	
5	Physical Contingency	644	971	1,615	
	Sub-total	4,936	7,448	12,384	
6	price Escalation	0	0	0	
	Grand Total	4,936	7,448	12,384	OM Cost 20

3

No.	Classification of Costs	2003 L.C.	2003 F.C.	2003 Total	
1	Construction Cost	2,612	4,355	6,967	
2	Land Acquisition	0	0	0	
3	Administration	335	0	335	
4	Engineering Services	148	670	818	
5	Physical Contingency	464	754	1,218	
	Sub-total	3,559	5,779	9,337	
6	price Escalation	0	0	0	
	Grand Total	3,559	5,779	9,337	OM Cost 111

4

No.	Classification of Costs	2004 L.C.	2004 F.C.	2004 Total	
1	Construction Cost	1,580	2,942	4,523	
2	Land Acquisition	0	0	0	
3	Administration	167	0	167	
4	Engineering Services	92	413	505	
5	Physical Contingency	276	503	779	
	Sub-total	2,116	3,859	5,975	
6	price Escalation	0	0	0	
	Grand Total	2,116	3,859	5,975	OM Cost 181

5

No.	Classification of Costs	2005 L.C.	2005 F.C.	2005 Total	
1	Construction Cost	3,432	6,403	9,835	
2	Land Acquisition	0	0	0	
3	Administration	535	0	535	
4	Engineering Services	214	965	1,179	
5	Physical Contingency	627	1,105	1,732	
	Sub-total	4,808	8,473	13,281	
6	price Escalation	0	0	0	
	Grand Total	4,808	8,473	13,281	OM Cost 226

TABLE J.3.6(2/2) ESTIMATE OF ECONOMIC COST FOR ANTOFAGASTA PROJECT

(I) Financial Cost

6

No.	Classification of Costs	2006 L.C.	2006 F.C.	2006 Total	
1	Construction Cost	3,074	4,594	7,668	
2	Land Acquisition	0	0	0	
3	Administration	472	0	472	
4	Engineering Services	160	644	804	
5	Physical Contingency	556	786	1,342	
	Sub-total	4,262	6,024	10,286	
6	price Escalation	1,532	1,290	2,822	
	Grand Total	5,794	7,314	13,108	OM Cost 642

7

No.	Classification of Costs	2007 L.C.	2007 F.C.	2007 Total	
1	Construction Cost	2,444	3,948	6,392	
2	Land Acquisition	0	0	0	
3	Administration	216	0	216	
4	Engineering Services	118	474	592	
5	Physical Contingency	417	663	1,080	
	Sub-total	3,195	5,085	8,280	
6	price Escalation	873	1,020	1,893	
	Grand Total	4,068	6,105	10,173	OM Cost 820

8

No.	Classification of Costs	2008 L.C.	2008 F.C.	2008 Total	
1	Construction Cost	3,235	5,530	8,765	
2	Land Acquisition	0	0	0	
3	Administration	439	0	439	
4	Engineering Services	175	701	876	
5	Physical Contingency	577	935	1,512	
	Sub-total	4,426	7,166	11,592	
6	price Escalation	2,169	2,092	4,261	
	Grand Total	6,595	9,258	15,853	OM Cost 996

9

No.	Classification of Costs	2009 L.C.	2009 F.C.	2009 Total	
1	Construction Cost	3,735	6,513	10,248	
2	Land Acquisition	0	0	0	
3	Administration	513	0	513	
4	Engineering Services	205	820	1,025	
5	Physical Contingency	668	1,100	1,768	
	Sub-total	5,121	8,433	13,554	
6	price Escalation	3,199	2,973	6,172	
	Grand Total	8,320	11,406	19,726	OM Cost 1,237

10

No.	Classification of Costs	2010 L.C.	2010 F.C.	2010 Total	
1	Construction Cost	970	1,855	2,825	
2	Land Acquisition	0	0	0	
3	Administration	416	0	416	
4	Engineering Services	81	325	406	
5	Physical Contingency	220	327	547	
	Sub-total	1,687	2,507	4,194	
6	price Escalation	1,601	2,654	4,255	
	Grand Total	3,288	5,161	8,449	OM Cost 1,541

Total

	Classification of Costs	Total L.C.	Total F.C.	Total	
1	Construction Cost	30,332	45,557	75,889	
2	Administration	0	0	0	
3	Engineering Services	3,795	0	3,795	
4	Land Acquisition	1,517	6,071	7,588	
6	Physical Contingency	5,347	7,744	13,091	
	Sub-total	40,991	59,372	100,363	
7	price Escalation	15,318	14,849	30,167	
	Grand Total	56,309	74,221	130,530	OM Cost 1,602

(2) Economic Cost

6

No.	Classification of Costs	2006 L.C.	2006 F.C.	2006 Total	
1	Construction Cost	2,183	4,065	6,248	
2	Land Acquisition	0	0	0	
3	Administration	418	0	418	
4	Engineering Services	142	644	786	
5	Physical Contingency	411	706	1,118	
	Sub-total	3,153	5,416	8,569	
6	price Escalation	0	0	0	
	Grand Total	3,153	5,416	8,569	OM Cost 324

7

No.	Classification of Costs	2007 L.C.	2007 F.C.	2007 Total	
1	Construction Cost	1,735	3,494	5,229	
2	Land Acquisition	0	0	0	
3	Administration	191	0	191	
4	Engineering Services	104	474	578	
5	Physical Contingency	305	595	900	
	Sub-total	2,335	4,563	6,898	
6	price Escalation	0	0	0	
	Grand Total	2,335	4,563	6,898	OM Cost 387

8

No.	Classification of Costs	2008 L.C.	2008 F.C.	2008 Total	
1	Construction Cost	2,297	4,894	7,191	
2	Land Acquisition	0	0	0	
3	Administration	388	0	388	
4	Engineering Services	155	701	856	
5	Physical Contingency	426	839	1,265	
	Sub-total	3,265	6,434	9,700	
6	price Escalation	0	0	0	
	Grand Total	3,266	6,434	9,700	OM Cost 439

9

No.	Classification of Costs	2009 L.C.	2009 F.C.	2009 Total	
1	Construction Cost	2,652	5,764	8,416	
2	Land Acquisition	0	0	0	
3	Administration	454	0	454	
4	Engineering Services	181	820	1,001	
5	Physical Contingency	493	988	1,481	
	Sub-total	3,780	7,571	11,352	
6	price Escalation	0	0	0	
	Grand Total	3,780	7,571	11,352	OM Cost 511

10

No.	Classification of Costs	2010 L.C.	2010 F.C.	2010 Total	
1	Construction Cost	689	1,642	2,330	
2	Land Acquisition	0	0	0	
3	Administration	368	0	368	
4	Engineering Services	72	325	397	
5	Physical Contingency	169	295	464	
	Sub-total	1,298	2,262	3,559	
6	price Escalation	0	0	0	
	Grand Total	1,298	2,262	3,559	OM Cost 595

Total

	Classification of Costs	Total L.C.	Total F.C.	Total	
1	Construction Cost	21,536	40,316	61,852	
2	Administration	0	0	0	
3	Engineering Services	3,358	0	3,358	
4	Land Acquisition	1,342	6,071	7,413	
6	Physical Contingency	3,935	6,958	10,894	
	Sub-total	30,172	53,345	83,517	
7	price Escalation	0	0	0	
	Grand Total	30,172	53,345	83,517	OM Cost 619

TABLE J.3.7(1/2) ESTIMATE OF ECONOMIC COST FOR SAN JUAN-ANTOFAGASTA PROJECT

(1) Financial Cost

1

Unit : Bs. 1,000

No.	Classification of Costs	2001 L.C.	2001 F.C.	2001 Total	
1	Construction Cost	1,782	2,052	3,834	
2	Land Acquisition	0	0	0	
3	Administration	0	0	0	
4	Engineering Services	60	239	299	
5	Physical Contingency	276	344	620	
	Sub-total	2,118	2,635	4,753	
6	price Escalation	306	215	521	
	Grand Total	2,424	2,850	5,274	OM Cost 0

2

No.	Classification of Costs	2002 L.C.	2002 F.C.	2002 Total	
1	Construction Cost	8,342	9,604	17,946	
2	Land Acquisition	0	0	0	
3	Administration	898	0	898	
4	Engineering Services	359	1,436	1,795	
5	Physical Contingency	1,440	1,656	3,096	
	Sub-total	11,039	12,696	23,735	
6	price Escalation	2,484	1,585	4,069	
	Grand Total	13,523	14,281	27,804	OM Cost 46

3

No.	Classification of Costs	2003 L.C.	2003 F.C.	2003 Total	
1	Construction Cost	6,441	8,376	14,817	
2	Land Acquisition	0	0	0	
3	Administration	598	0	598	
4	Engineering Services	283	1,136	1,419	
5	Physical Contingency	1,098	1,427	2,525	
	Sub-total	8,420	10,939	19,359	
6	price Escalation	2,310	1,722	4,032	
	Grand Total	10,730	12,661	23,391	OM Cost 285

4

No.	Classification of Costs	2004 L.C.	2004 F.C.	2004 Total	
1	Construction Cost	4,181	6,266	10,447	
2	Land Acquisition	0	0	0	
3	Administration	445	0	445	
4	Engineering Services	207	823	1,030	
5	Physical Contingency	725	1,063	1,788	
	Sub-total	5,558	8,152	13,710	
6	price Escalation	1,641	1,466	3,107	
	Grand Total	7,199	9,618	16,817	OM Cost 511

5

No.	Classification of Costs	2005 L.C.	2005 F.C.	2005 Total	
1	Construction Cost	7,457	11,130	18,587	
2	Land Acquisition	0	0	0	
3	Administration	930	0	930	
4	Engineering Services	373	1,486	1,859	
5	Physical Contingency	1,314	1,892	3,206	
	Sub-total	10,074	14,508	24,582	
6	price Escalation	4,247	3,407	7,654	
	Grand Total	14,321	17,915	32,236	OM Cost 705

(2) Economic Cost

1

Unit : Bs. 1,000

No.	Classification of Costs	2001 L.C.	2001 F.C.	2001 Total	
1	Construction Cost	1,265	1,816	3,081	
2	Land Acquisition	0	0	0	
3	Administration	0	0	0	
4	Engineering Services	53	239	292	
5	Physical Contingency	198	308	506	
	Sub-total	1,516	2,363	3,879	
6	price Escalation	0	0	0	
	Grand Total	1,516	2,363	3,879	OM Cost 0

2

No.	Classification of Costs	2002 L.C.	2002 F.C.	2002 Total	
1	Construction Cost	5,923	8,499	14,422	
2	Land Acquisition	0	0	0	
3	Administration	795	0	795	
4	Engineering Services	318	1,436	1,754	
5	Physical Contingency	1,055	1,490	2,546	
	Sub-total	8,090	11,425	19,516	
6	price Escalation	0	0	0	
	Grand Total	8,090	11,425	19,516	OM Cost 31

3

No.	Classification of Costs	2003 L.C.	2003 F.C.	2003 Total	
1	Construction Cost	4,573	7,412	11,985	
2	Land Acquisition	0	0	0	
3	Administration	529	0	529	
4	Engineering Services	250	1,136	1,386	
5	Physical Contingency	803	1,282	2,085	
	Sub-total	6,156	9,831	15,986	
6	price Escalation	0	0	0	
	Grand Total	6,156	9,831	15,986	OM Cost 175

4

No.	Classification of Costs	2004 L.C.	2004 F.C.	2004 Total	
1	Construction Cost	2,969	5,545	8,514	
2	Land Acquisition	0	0	0	
3	Administration	394	0	394	
4	Engineering Services	183	823	1,006	
5	Physical Contingency	532	955	1,487	
	Sub-total	4,077	7,323	11,401	
6	price Escalation	0	0	0	
	Grand Total	4,077	7,323	11,401	OM Cost 295

5

No.	Classification of Costs	2005 L.C.	2005 F.C.	2005 Total	
1	Construction Cost	5,294	9,850	15,144	
2	Land Acquisition	0	0	0	
3	Administration	823	0	823	
4	Engineering Services	330	1,486	1,816	
5	Physical Contingency	967	1,700	2,667	
	Sub-total	7,415	13,036	20,451	
6	price Escalation	0	0	0	
	Grand Total	7,415	13,036	20,451	OM Cost 380

TABLE J.3.7(2/2) ESTIMATE OF ECONOMIC COST FOR SAN JUAN-ANTOFAGASTA PROJECT

(1) Financial Cost

6

No.	Classification of Costs	2006 L.C.	2006 F.C.	2006 Total	
1	Construction Cost	7,164	10,450	17,614	
2	Land Acquisition	0	0	0	
3	Administration	789	0	789	
4	Engineering Services	344	1,376	1,720	
5	Physical Contingency	1,245	1,774	3,018	
	Sub-total	9,542	13,600	23,141	
6	price Escalation	4,730	3,684	8,414	
	Grand Total	14,272	17,284	31,555	OM Cost 1,052

7

No.	Classification of Costs	2007 L.C.	2007 F.C.	2007 Total	
1	Construction Cost	9,422	13,819	23,241	
2	Land Acquisition	0	0	0	
3	Administration	1,018	0	1,018	
4	Engineering Services	452	1,808	2,260	
5	Physical Contingency	1,634	2,344	3,978	
	Sub-total	12,526	17,971	30,497	
6	price Escalation	7,576	5,770	13,346	
	Grand Total	20,102	23,741	43,843	OM Cost 1,430

8

No.	Classification of Costs	2008 L.C.	2008 F.C.	2008 Total	
1	Construction Cost	10,179	15,501	25,680	
2	Land Acquisition	0	0	0	
3	Administration	1,272	0	1,272	
4	Engineering Services	508	2,036	2,544	
5	Physical Contingency	1,794	2,631	4,424	
	Sub-total	13,753	20,168	33,920	
6	price Escalation	9,989	7,595	17,584	
	Grand Total	23,742	27,763	51,504	OM Cost 1,958

9

No.	Classification of Costs	2009 L.C.	2009 F.C.	2009 Total	
1	Construction Cost	8,070	13,039	21,109	
2	Land Acquisition	0	0	0	
3	Administration	1,237	0	1,237	
4	Engineering Services	438	1,752	2,190	
5	Physical Contingency	1,462	2,219	3,680	
	Sub-total	11,207	17,010	28,216	
6	price Escalation	9,085	7,092	16,177	
	Grand Total	20,292	24,102	44,393	OM Cost 2,599

10

No.	Classification of Costs	2010 L.C.	2010 F.C.	2010 Total	
1	Construction Cost	1,361	2,576	3,937	
2	Land Acquisition	0	0	0	
3	Administration	674	0	674	
4	Engineering Services	120	485	605	
5	Physical Contingency	323	459	782	
	Sub-total	2,478	3,520	5,998	
6	price Escalation	2,475	3,771	6,246	
	Grand Total	4,953	7,291	12,244	OM Cost 3,229

Total

	Classification of Costs	Total L.C.	Total F.C.	Total	
1	Construction Cost	64,399	92,813	157,212	
2	Administration	0	0	0	
3	Engineering Services	7,861	0	7,861	
4	Land Acquisition	3,144	12,577	15,721	
6	Physical Contingency	11,311	15,809	27,119	
	Sub-total	86,715	121,199	207,913	
7	price Escalation	44,843	36,307	81,150	
	Grand Total	131,558	157,506	289,063	OM Cost 3,314

(2) Economic Cost

6

No.	Classification of Costs	2006 L.C.	2006 F.C.	2006 Total	
1	Construction Cost	5,086	9,248	14,334	
2	Land Acquisition	0	0	0	
3	Administration	698	0	698	
4	Engineering Services	304	1,376	1,680	
5	Physical Contingency	913	1,594	2,507	
	Sub-total	7,002	12,217	19,220	
6	price Escalation	0	0	0	
	Grand Total	7,002	12,217	19,220	OM Cost 531

7

No.	Classification of Costs	2007 L.C.	2007 F.C.	2007 Total	
1	Construction Cost	6,690	12,229	18,919	
2	Land Acquisition	0	0	0	
3	Administration	901	0	901	
4	Engineering Services	400	1,808	2,208	
5	Physical Contingency	1,199	2,106	3,304	
	Sub-total	9,189	16,143	25,332	
6	price Escalation	0	0	0	
	Grand Total	9,189	16,143	25,332	OM Cost 675

8

No.	Classification of Costs	2008 L.C.	2008 F.C.	2008 Total	
1	Construction Cost	7,227	13,718	20,945	
2	Land Acquisition	0	0	0	
3	Administration	1,126	0	1,126	
4	Engineering Services	450	2,036	2,486	
5	Physical Contingency	1,320	2,363	3,683	
	Sub-total	10,123	18,117	28,239	
6	price Escalation	0	0	0	
	Grand Total	10,123	18,117	28,239	OM Cost 864

9

No.	Classification of Costs	2009 L.C.	2009 F.C.	2009 Total	
1	Construction Cost	5,730	11,539	17,269	
2	Land Acquisition	0	0	0	
3	Administration	1,095	0	1,095	
4	Engineering Services	388	1,752	2,140	
5	Physical Contingency	1,082	1,994	3,075	
	Sub-total	8,294	15,285	23,578	
6	price Escalation	0	0	0	
	Grand Total	8,294	15,285	23,578	OM Cost 1,073

10

No.	Classification of Costs	2010 L.C.	2010 F.C.	2010 Total	
1	Construction Cost	966	2,280	3,246	
2	Land Acquisition	0	0	0	
3	Administration	596	0	596	
4	Engineering Services	106	485	591	
5	Physical Contingency	250	415	665	
	Sub-total	1,919	3,179	5,099	
6	price Escalation	0	0	0	
	Grand Total	1,919	3,179	5,099	OM Cost 1,246

Total

	Classification of Costs	Total L.C.	Total F.C.	Total	
1	Construction Cost	45,723	82,135	127,859	
2	Administration	0	0	0	
3	Engineering Services	6,957	0	6,957	
4	Land Acquisition	2,782	12,577	15,359	
6	Physical Contingency	8,319	14,207	22,526	
	Sub-total	63,782	108,919	172,701	
7	price Escalation	0	0	0	
	Grand Total	63,782	108,919	172,701	OM Cost 1,279

TABLE J.4.1 ECONOMIC ANALYSIS FOR CHANE AND PAILON AREAS

1. Rio Chane Area

Unit : Bs.1,000

No.	Year	Economic Cost			Economic	(B)-(C)
		Construction	OM	Total (C)	Benefit (B)	
1	2001	0	0	0	0	0
2	2002	1,993	0	1,993	0	-1,993
3	2003	68,606	0	68,606	0	-68,606
4	2004	68,606	508	69,114	4,323	-64,791
5	2005	56,810	1,017	57,827	8,654	-49,173
6	2006	0	1,453	1,453	12,364	10,911
7	2007	0	1,453	1,453	12,364	10,911
8	2008	0	1,453	1,453	12,364	10,911
9	2009	0	1,453	1,453	12,364	10,911
10	2010	0	1,453	1,453	12,364	10,911
11	2011	0	1,453	1,453	12,364	10,911
12	2012	0	1,453	1,453	12,364	10,911
13	2013	0	1,453	1,453	12,364	10,911
14	2014	0	1,453	1,453	12,364	10,911
15	2015	0	1,453	1,453	12,364	10,911
16	2016	0	1,453	1,453	12,364	10,911
17	2017	0	1,453	1,453	12,364	10,911
18	2018	0	1,453	1,453	12,364	10,911
19	2019	0	1,453	1,453	12,364	10,911
20	2020	0	1,453	1,453	12,364	10,911
21	2021	0	1,453	1,453	12,364	10,911
22	2022	0	1,453	1,453	12,364	10,911
23	2023	0	1,453	1,453	12,364	10,911
24	2024	0	1,453	1,453	12,364	10,911
25	2025	0	1,453	1,453	12,364	10,911
26	2026	0	1,453	1,453	12,364	10,911
27	2027	0	1,453	1,453	12,364	10,911
28	2028	0	1,453	1,453	12,364	10,911
29	2029	0	1,453	1,453	12,364	10,911
30	2030	0	1,453	1,453	12,364	10,911
31	2031	0	1,453	1,453	12,364	10,911
32	2032	0	1,453	1,453	12,364	10,911
33	2033	0	1,453	1,453	12,364	10,911
34	2034	0	1,453	1,453	12,364	10,911
35	2035	0	1,453	1,453	12,364	10,911
36	2036	0	0	0	0	0
37	2037	0	0	0	0	0
38	2038	0	0	0	0	0
39	2039	0	0	0	0	0
40	2040	0	0	0	0	0
41	2041	0	0	0	0	0
	Total	196,015	45,115	241,130	383,897	142,767

EIRR (%) 3.83

Discount Rate (%)	B/C	PV(Bs. 1,000) Cost	PV(Bs. 1,000) Benefit	NPV Bs. 1,000)
15	0.39	119,626	47,136	-72,490
12	0.48	133,798	64,170	-69,628
10	0.56	144,809	80,697	-64,112
5	0.88	180,742	159,258	-21,485
3	1.10	200,518	220,350	19,832

2. Rio Pailon Area

Unit : Bs.1,000

No.	Year	Economic Cost			Economic	(B)-(C)
		Construction	OM	Total (C)	Benefit (B)	
1	2001	0	0	0	0	0
2	2002	0	0	0	0	0
3	2003	111	0	111	0	-111
4	2004	1,515	0	1,515	0	-1,515
5	2005	3,975	11	3,986	258	-3,728
6	2006	62,262	22	62,284	515	-61,769
7	2007	78,574	483	79,057	11,308	-67,749
8	2008	65,393	1,066	66,459	24,958	-41,501
9	2009	79,304	1,547	80,851	36,219	-44,632
10	2010	21,923	2,153	24,076	50,407	26,331
11	2011	0	2,321	2,321	54,340	52,019
12	2012	0	2,321	2,321	54,340	52,019
13	2013	0	2,321	2,321	54,340	52,019
14	2014	0	2,321	2,321	54,340	52,019
15	2015	0	2,321	2,321	54,340	52,019
16	2016	0	2,321	2,321	54,340	52,019
17	2017	0	2,321	2,321	54,340	52,019
18	2018	0	2,321	2,321	54,340	52,019
19	2019	0	2,321	2,321	54,340	52,019
20	2020	0	2,321	2,321	54,340	52,019
21	2021	0	2,321	2,321	54,340	52,019
22	2022	0	2,321	2,321	54,340	52,019
23	2023	0	2,321	2,321	54,340	52,019
24	2024	0	2,321	2,321	54,340	52,019
25	2025	0	2,321	2,321	54,340	52,019
26	2026	0	2,321	2,321	54,340	52,019
27	2027	0	2,321	2,321	54,340	52,019
28	2028	0	2,321	2,321	54,340	52,019
29	2029	0	2,321	2,321	54,340	52,019
30	2030	0	2,321	2,321	54,340	52,019
31	2031	0	2,321	2,321	54,340	52,019
32	2032	0	2,321	2,321	54,340	52,019
33	2033	0	2,321	2,321	54,340	52,019
34	2034	0	2,321	2,321	54,340	52,019
35	2035	0	2,321	2,321	54,340	52,019
36	2036	0	2,321	2,321	54,340	52,019
37	2037	0	2,321	2,321	54,340	52,019
38	2038	0	2,321	2,321	54,340	52,019
39	2039	0	2,321	2,321	54,340	52,019
40	2040	0	2,321	2,321	54,340	52,019
41	2041	0	0	0	0	0
	Total	313,057	74,912	387,969	1,753,864	1,365,895

EIRR (%) 16.39

Discount Rate (%)	B/C	PV(Bs. 1,000) Cost	PV(Bs. 1,000) Benefit	NPV Bs. 1,000
15	1.09	113,995	123,710	9,715
12	1.32	140,389	185,826	45,438
10	1.54	162,330	250,189	87,859
5	2.46	240,911	592,633	351,722
3	3.09	287,523	887,341	599,818

TABLE J.4.2 ECONOMIC ANALYSIS FOR OKINAWA DRAINAGE AREA & CHANE-PAILON PROJECT

1. Okinawa Drainage Area

Unit : Bs.1,000

No.	Year	Economic Cost			Economic	(B)-(C)
		Construction	OM	Total (C)	Benefit (B)	
1	2001	526	0	526	0	-526
2	2002	31,256	0	31,256	0	-31,256
3	2003	20,550	232	20,782	6,024	-14,758
4	2004	3,281	387	3,668	10,049	6,381
5	2005	3,281	411	3,692	10,672	6,980
6	2006	3,397	435	3,832	11,295	7,463
7	2007	3,750	460	4,210	11,944	7,734
8	2008	3,398	488	3,886	12,671	8,785
9	2009	3,281	513	3,794	13,321	9,527
10	2010	2,807	538	3,345	13,970	10,625
11	2011	0	560	560	14,541	13,981
12	2012	0	560	560	14,541	13,981
13	2013	0	560	560	14,541	13,981
14	2014	0	560	560	14,541	13,981
15	2015	0	560	560	14,541	13,981
16	2016	0	560	560	14,541	13,981
17	2017	0	560	560	14,541	13,981
18	2018	0	560	560	14,541	13,981
19	2019	0	560	560	14,541	13,981
20	2020	0	560	560	14,541	13,981
21	2021	0	560	560	14,541	13,981
22	2022	0	560	560	14,541	13,981
23	2023	0	560	560	14,541	13,981
24	2024	0	560	560	14,541	13,981
25	2025	0	560	560	14,541	13,981
26	2026	0	560	560	14,541	13,981
27	2027	0	560	560	14,541	13,981
28	2028	0	560	560	14,541	13,981
29	2029	0	560	560	14,541	13,981
30	2030	0	560	560	14,541	13,981
31	2031	0	560	560	14,541	13,981
32	2032	0	560	560	14,541	13,981
33	2033	0	560	560	14,541	13,981
34	2034	0	560	560	14,541	13,981
35	2035	0	560	560	14,541	13,981
36	2036	0	560	560	14,541	13,981
37	2037	0	560	560	14,541	13,981
38	2038	0	560	560	14,541	13,981
39	2039	0	560	560	14,541	13,981
40	2040	0	560	560	14,541	13,981
41	2041	0	0	0	0	0
	Total	75,527	20,264	95,791	526,176	430,385

EIRR (%) 18.38

Discount Rate (%)	B/C	NPV		
		Cost	Benefit	(Bs. 1,000)
15	1.21	49,013	59,368	10,355
12	1.48	53,918	79,987	26,070
10	1.74	57,791	100,317	42,525
5	2.84	70,980	201,718	130,739
3	3.63	78,699	285,500	206,801

2. Chane-Pallon Project (Eastern Area)

Unit : Bs.1,000

No.	Year	Economic Cost			Economic	(B)-(C)
		Construction	OM	Total (C)	Benefit (B)	
1	2001	526	0	526	0	-526
2	2002	33,249	0	33,249	0	-33,249
3	2003	89,267	232	89,499	6,024	-83,475
4	2004	73,402	895	74,297	14,372	-59,925
5	2005	64,066	1,439	65,505	19,584	-45,921
6	2006	65,659	1,910	67,569	24,174	-43,395
7	2007	82,324	2,396	84,720	35,617	-49,103
8	2008	68,791	3,007	71,798	49,993	-21,805
9	2009	82,585	3,513	86,098	61,903	-24,195
10	2010	24,730	4,144	28,874	76,740	47,866
11	2011	0	4,334	4,334	81,245	76,911
12	2012	0	4,334	4,334	81,245	76,911
13	2013	0	4,334	4,334	81,245	76,911
14	2014	0	4,334	4,334	81,245	76,911
15	2015	0	4,334	4,334	81,245	76,911
16	2016	0	4,334	4,334	81,245	76,911
17	2017	0	4,334	4,334	81,245	76,911
18	2018	0	4,334	4,334	81,245	76,911
19	2019	0	4,334	4,334	81,245	76,911
20	2020	0	4,334	4,334	81,245	76,911
21	2021	0	4,334	4,334	81,245	76,911
22	2022	0	4,334	4,334	81,245	76,911
23	2023	0	4,334	4,334	81,245	76,911
24	2024	0	4,334	4,334	81,245	76,911
25	2025	0	4,334	4,334	81,245	76,911
26	2026	0	4,334	4,334	81,245	76,911
27	2027	0	4,334	4,334	81,245	76,911
28	2028	0	4,334	4,334	81,245	76,911
29	2029	0	4,334	4,334	81,245	76,911
30	2030	0	4,334	4,334	81,245	76,911
31	2031	0	4,334	4,334	81,245	76,911
32	2032	0	4,334	4,334	81,245	76,911
33	2033	0	4,334	4,334	81,245	76,911
34	2034	0	4,334	4,334	81,245	76,911
35	2035	0	4,334	4,334	81,245	76,911
36	2036	0	2,881	2,881	68,881	66,000
37	2037	0	2,881	2,881	68,881	66,000
38	2038	0	2,881	2,881	68,881	66,000
39	2039	0	2,881	2,881	68,881	66,000
40	2040	0	2,881	2,881	68,881	66,000
41	2041	0	0	0	0	0
	Total	584,599	140,291	724,890	2,663,937	1,939,047

EIRR (%) 12.08

Discount Rate (%)	B/C	NPV		
		Cost	Benefit	(Bs. 1,000)
15	0.81	282,634	230,214	-52,420
12	1.01	328,105	329,984	1,879
10	1.18	364,930	431,202	66,272
5	1.94	492,633	953,609	460,976
3	2.46	566,740	1,393,191	826,451

TABLE J.4.3 ECONOMIC ANALYSIS FOR SAN JUAN AND ANTOFAGASTA AREAS

1. San Juan Area

Unit : Bs.1,000

No.	Year	Economic Cost			Economic	(B)-(C)
		Construction	OM	Total (C)	Benefit (B)	
1	2001	1,417	0	1,417	0	-1,417
2	2002	7,132	11	7,143	198	-6,945
3	2003	6,649	64	6,713	1,151	-5,562
4	2004	5,426	114	5,540	2,050	-3,490
5	2005	7,170	154	7,324	2,769	-4,555
6	2006	10,651	207	10,858	3,722	-7,136
7	2007	18,433	288	18,721	5,178	-13,543
8	2008	18,539	425	18,964	7,641	-11,323
9	2009	12,227	562	12,789	10,104	-2,685
10	2010	1,539	651	2,190	11,704	9,514
11	2011	0	660	660	11,866	11,206
12	2012	0	660	660	11,866	11,206
13	2013	0	660	660	11,866	11,206
14	2014	0	660	660	11,866	11,206
15	2015	0	660	660	11,866	11,206
16	2016	0	660	660	11,866	11,206
17	2017	0	660	660	11,866	11,206
18	2018	0	660	660	11,866	11,206
19	2019	0	660	660	11,866	11,206
20	2020	0	660	660	11,866	11,206
21	2021	0	660	660	11,866	11,206
22	2022	0	660	660	11,866	11,206
23	2023	0	660	660	11,866	11,206
24	2024	0	660	660	11,866	11,206
25	2025	0	660	660	11,866	11,206
26	2026	0	660	660	11,866	11,206
27	2027	0	660	660	11,866	11,206
28	2028	0	660	660	11,866	11,206
29	2029	0	660	660	11,866	11,206
30	2030	0	660	660	11,866	11,206
31	2031	0	660	660	11,866	11,206
32	2032	0	660	660	11,866	11,206
33	2033	0	660	660	11,866	11,206
34	2034	0	660	660	11,866	11,206
35	2035	0	660	660	11,866	11,206
36	2036	0	660	660	11,866	11,206
37	2037	0	660	660	11,866	11,206
38	2038	0	660	660	11,866	11,206
39	2039	0	660	660	11,866	11,206
40	2040	0	660	660	11,866	11,206
41	2041	0	0	0	0	0
	Total	89,183	22,276	111,459	400,495	289,036
		70,995				

EIRR (%) 12.37

Discount Rate (%)	B/C	NPV		
		Cost	Benefit	(Bs. 1,000)
15	0.84	41,035	34,532	-6,504
12	1.03	48,072	49,351	1,280
10	1.20	53,816	64,394	10,578
5	1.92	73,983	142,340	68,356
3	2.43	85,835	208,321	122,486

2. Antofagasta Area

Unit : Bs.1,000

No.	Year	Economic Cost			Economic	(B)-(C)
		Construction	OM	Total (C)	Benefit (B)	
1	2001	2,462	0	2,462	0	-2,462
2	2002	12,384	20	12,404	650	-11,754
3	2003	9,337	111	9,448	3,605	-5,843
4	2004	5,975	181	6,156	5,878	-278
5	2005	13,281	226	13,507	7,340	-6,167
6	2006	8,569	324	8,893	10,522	1,629
7	2007	6,898	387	7,285	12,568	5,283
8	2008	9,700	439	10,139	14,257	4,118
9	2009	11,352	511	11,863	16,596	4,733
10	2010	3,559	595	4,154	19,324	15,170
11	2011	0	619	619	20,103	19,484
12	2012	0	619	619	20,103	19,484
13	2013	0	619	619	20,103	19,484
14	2014	0	619	619	20,103	19,484
15	2015	0	619	619	20,103	19,484
16	2016	0	619	619	20,103	19,484
17	2017	0	619	619	20,103	19,484
18	2018	0	619	619	20,103	19,484
19	2019	0	619	619	20,103	19,484
20	2020	0	619	619	20,103	19,484
21	2021	0	619	619	20,103	19,484
22	2022	0	619	619	20,103	19,484
23	2023	0	619	619	20,103	19,484
24	2024	0	619	619	20,103	19,484
25	2025	0	619	619	20,103	19,484
26	2026	0	619	619	20,103	19,484
27	2027	0	619	619	20,103	19,484
28	2028	0	619	619	20,103	19,484
29	2029	0	619	619	20,103	19,484
30	2030	0	619	619	20,103	19,484
31	2031	0	619	619	20,103	19,484
32	2032	0	619	619	20,103	19,484
33	2033	0	619	619	20,103	19,484
34	2034	0	619	619	20,103	19,484
35	2035	0	619	619	20,103	19,484
36	2036	0	619	619	20,103	19,484
37	2037	0	619	619	20,103	19,484
38	2038	0	619	619	20,103	19,484
39	2039	0	619	619	20,103	19,484
40	2040	0	619	619	20,103	19,484
41	2041	0	0	0	0	0
	Total	83,517	21,364	104,881	693,830	588,949
		81,794				

EIRR (%) 23.45

Discount Rate (%)	B/C	NPV		
		Cost	Benefit	(Bs. 1,000)
15	1.52	43,269	65,928	22,659
12	1.86	49,505	92,103	42,599
10	2.17	54,550	118,410	63,860
5	3.51	72,120	253,004	180,884
3	4.44	82,435	366,043	283,608

TABLE J.4.4 ECONOMIC ANALYSIS FOR SAN JUAN -ANTOFAGASTA PROJECT

Unit : Bs.1,000

No.	Year	Economic Cost			Economic	(B)-(C)
		Construction	OM	Total (C)	Benefit (B)	
1	2001	3,879	0	3,879	0	-3,879
2	2002	19,516	31	19,547	847	-18,700
3	2003	15,986	175	16,161	4,756	-11,405
4	2004	11,401	295	11,696	7,928	-3,768
5	2005	20,451	380	20,831	10,108	-10,723
6	2006	19,220	531	19,751	14,244	-5,507
7	2007	25,331	675	26,006	17,746	-8,260
8	2008	28,239	864	29,103	21,898	-7,205
9	2009	23,579	1,073	24,652	26,700	2,048
10	2010	5,098	1,246	6,344	31,028	24,684
11	2011	0	1,279	1,279	31,969	30,690
12	2012	0	1,279	1,279	31,969	30,690
13	2013	0	1,279	1,279	31,969	30,690
14	2014	0	1,279	1,279	31,969	30,690
15	2015	0	1,279	1,279	31,969	30,690
16	2016	0	1,279	1,279	31,969	30,690
17	2017	0	1,279	1,279	31,969	30,690
18	2018	0	1,279	1,279	31,969	30,690
19	2019	0	1,279	1,279	31,969	30,690
20	2020	0	1,279	1,279	31,969	30,690
21	2021	0	1,279	1,279	31,969	30,690
22	2022	0	1,279	1,279	31,969	30,690
23	2023	0	1,279	1,279	31,969	30,690
24	2024	0	1,279	1,279	31,969	30,690
25	2025	0	1,279	1,279	31,969	30,690
26	2026	0	1,279	1,279	31,969	30,690
27	2027	0	1,279	1,279	31,969	30,690
28	2028	0	1,279	1,279	31,969	30,690
29	2029	0	1,279	1,279	31,969	30,690
30	2030	0	1,279	1,279	31,969	30,690
31	2031	0	1,279	1,279	31,969	30,690
32	2032	0	1,279	1,279	31,969	30,690
33	2033	0	1,279	1,279	31,969	30,690
34	2034	0	1,279	1,279	31,969	30,690
35	2035	0	1,279	1,279	31,969	30,690
36	2036	0	1,279	1,279	31,969	30,690
37	2037	0	1,279	1,279	31,969	30,690
38	2038	0	1,279	1,279	31,969	30,690
39	2039	0	1,279	1,279	31,969	30,690
40	2040	0	1,279	1,279	31,969	30,690
41	2041	0	0	0	0	0
	Total	172,700	43,640	216,340	1,094,325	877,985

EIRR (%) 18.18

Discount Rate (%)	B/C	Cost	Benefit	NPV (Bs. 1,000)
15	1.19	84,304	100,459	16,155
12	1.45	97,576	141,454	43,878
10	1.69	108,366	182,804	74,438
5	2.71	146,103	395,344	249,241
3	3.41	168,270	574,364	406,094