APPENDIX J

ECONOMIC AND FINANCIAL EVALUATION

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CHAPTER I ECONOMIC EVALUATION

1.1 Basic Conditions for Economic Evaluation

Economic evaluation of the proposed sabo and flood control projects based on the economic benefits and costs is a guideline for assessing their economic viability. Economic benefit is given as the effect of reduction in annual mean flood damage to assets in and around the flood protection area and, since the design flood for rivers at the master plan stage is determined to be a 25-year return period flood, benefit corresponds to the reducible amount of annual mean flood damage against a 25-year return period flood. In addition, some agricultural land which used to suffer from flood and sedimentation disasters under the condition of no effective sabo and flood control measures, will be recovered and rehabilitated for crop cultivation. Moreover, damage by habitual floods on irrigation facilities such as dams and canals will be mitigated by the proposed projects. All of these effects are accounted as the project benefit.

Economic cost differs from financial cost in the sense of value judgment since the former is valued at real resource cost and the latter is resource cost valued at market prices. Thus, to estimate the economic costs of the proposed projects, the financial costs which were estimated in Appendices F and G have to be converted by using conceivable adjustments.

Economic evaluation is carried out to ascertain the economic viability by comparing economic benefit and cost. As a method of project evaluation, economic internal rate of return (EIRR) is utilized as a tool for assessing economic viability to judge whether the proposed projects are worthy for investment. Besides EIRR, net present value (NPV) and benefit-cost ratio (B/C) are presented as supplementary indices, for which costs and benefits are discounted at 15% per annum.

In estimating the economic cost and benefit, the economic values are estimated by applying the following conditions and assumptions.

1.1.1 Conversion Factor

All costs involved in every project have to be measured as economic costs, i.e., the real costs or "opportunity costs" incurred from the viewpoint of the national economy. The measurement of economic cost of commodities, for instance, depends on how likely the commodity is to be procured - whether by increasing import, decreasing export, expanding domestic production or diverting.

Market price of land has peculiar characteristics as compared with other commodities, especially in urban areas. Land price should be evaluated on the basis of productivity of the land for productive plots such as crop cultivation and balance of supply and demand for non-productive land such as residential plots. On the other hand, land price is sometimes distorted by speculation in future escalation expectation and by social prestige. Since most of the land in the study area which would be expropriated for riverbeds and dams are being utilized for agricultural cultivation, their value will be evaluated considering crop production lost by the expropriation as negative benefit.

It is clearly impracticable to trace procurement sources for all the project inputs. Thus, the local currency portion of economic cost was estimated to be approximately 82% of the financial cost in the current master plan study. Hence, the rate of 82% is defined as a standard conversion factor (SCF).

1.1.2 Economic life

The economic life of the proposed projects is considered to be 50 years after completion of construction.

1.1.3 Price Level

The basic price level for estimates is set at the end of August, 1996. The shadow exchange rate adopted in economic evaluation is 1.20 of the prevailing exchange rate, 26 pesos per US$1.00.

1.1.4 Land Use Enhancement

Within the Laoag River Basin, some agricultural lands were lost because of sedimentation and flood disasters in the past. The area was estimated at 1,130 ha for the recent ten years. The sabo and flood control projects could not only prevent these land losses but also motivate the affected people to restore crop cultivation in the lost agricultural lands. These effects are identified as the project benefits. The former benefit is accounted as land loss prevention benefit and the latter, as land use restoration benefit.

1.1.5 Future Damageable Assets

The socio-economic situation in Region I will definitely improve in accordance with the growth of the national economy, and that in the Laoag River Basin will also improve in the future. Hence, the damageable assets could increase along with the growth of socio-economic conditions, and the flood mitigation benefit would also increase.

The flood mitigation benefit could be estimated based on the socio-economic projections. The projections are based on population increase, improvement of people's living standard, growth of economic activity in various industries and expansion of infrastructures in the basin areas.

1.2 Economic Cost

As described in Appendices F and G, the financial construction cost consists of the following items:

(1) Main construction cost;
(2) Compensation cost;
(3) Government administration cost;
(4) Engineering service cost; and
(5) Physical contingency cost.

After going through the conversion procedure to the financial costs, the economic costs of the respective schemes are obtained as presented in Table J.1.1. They are summarized as follows.

(Unit: Million Pesos)

Potential Flood Area	Financial Cost	Economic Cost
Tangid, Laoag	36	30
Suyo, Laoag	15	13
Poblacion of Laoag	61	52
Camangaan, Laoag	36	29
Poblacion of San Nicolas	29	24
San Manuel, Sarrat	22	15
San Felipe, Sarrat	41	34
Sto. Tomas, Sarrat	17	14
San Marcos, Sarrat	11	9
San Cristobal, Sarrat	33	27
Guisit River/ Mandaloque	209	174
Suyo, Dingras	32	27
Poblacion of Dingras	41	34
Cura River Basin	810	688
Solsona River Basin	357	303
Madongan River Basin	417	354
Papa River Basin	278	236
Lower Bongo	118	100
Upper Bongo	396	421
Total	3,058	2,587

Annual operation and maintenance (O&M) cost is required during the economic life of the projects in conformity with the management schemes. The O&M cost is also adjusted to economic prices, and it is assumed at 0.5% of the total direct construction cost of the flood control schemes.

In order to compare economic efficiency, the construction schedule is standardized as follows:

(1) The first year: Engineering Services

(2) The succeeding four years: Construction works for sabo and flood control schemes. In case that the series of sabo dams will materialize, the second dam will be constructed five years after the completion of the first dam with the same schedule, i.e., five years in total.

1.3 Economic Benefit

1.3.1 Flood Mitigation Benefits

Flood control benefit is defined as the damage reduction by the designed works as discussed in Section 5.1 of Appendix C. Among the various flood control benefits, the tangible benefits are quantified for the proposed schemes as flood mitigation benefits. They consist of direct damages and indirect damages. The direct damages are broken down as follows: (a) agricultural production from irrigated fields and rainfed fields; (b) housing units and their household effects; (c) industrial facilities, classified into retail and wholesale stores and manufacturing establishments, damageable assets of which comprise their buildings, machinery and equipment, and inventory stocks; and (d) infrastructure.

The direct damages in an inundated area are simulated as the product of the number of inundated property, economic value of inundated property and damage rate in accordance with the inundation depth. The inundation depth is given by the area-depth analysis discussed in Chapter 4 of Appendix C. The inventory of damageable assets and their financial values are mentioned in Chapter 5 of Appendix C. The economic values are

converted from their market values applying the SCF of 0.82. The damage rates are set up on the basis of the analysis of the flood damage survey, which is discussed in Section 3.4 of Appendix C. Since the damage rates of industrial, educational and medical facilities could not be analyzed due data insufficiency, the rates developed by the Ministry of Construction of Japan are modified and applied for the damage estimation. The damage rates used in this study are shown in Table J.1.2.

In general, infrastructure is classified into two major categories: (a) social infrastructure and (b) physical infrastructure. Among the social infrastructures, educational and medical facilities are identified and counted in the direct damage analysis. The physical infrastructures include roads, water supply, electricity, telephone, irrigation facilities and river facilities.

Among the physical infrastructures, irrigation facilities such as dams and distribution canals have been damaged by sedimentation and inundation especially in the upper basins. The National Irrigation Authority (NIA) had repaired these damaged facilities. The average cost for repair of one irrigation dam is estimated at 0.87 million pesos per annum at 1991 prices. This cost is converted to 1.80 million pesos applying the price index of 2.60 between 1991 and 1996. In economic terms, this cost is calculated at 1.48 million pesos in 1996. Most of this repair and maintenance cost could be eliminated once the proposed sabo and flood control schemes are implemented.

Taking the above damage structure into consideration, the physical infrastructure damage is assumed to be 20% of the above direct damages, referring to similar projects in the Philippines.

Indirect damages comprise (1) opportunity losses of business and production activity; (2) emergency activities; (3) medical care for flood victims; and (4) prevention activities against crimes, as mentioned in Section 5.1 of Appendix C. The indirect damage is assumed to be 10% of the above direct and infrastructure damages.

The damage amounts are converted from financial value to economic value by means of the conversion factor. The benefits, i.e., reductions of flood damage, are estimated in Tables J.1.3 to J.1.21 for the respective schemes.

The benefits are estimated under flood occurrence probabilities, i.e., 2, 5, 10, 25, 50 and 100-year return period, as shown in the tables. In calculating the annual average benefit, reference is made to the probability or frequency of flooding on the basis of flood occurrence intervals discussed in Appendix B, Hydrology. The annual average benefit is calculated using the following formula:

$$B = \sum_{i=1}^{n} \frac{1}{2}\left[D(Q_{i-1}) + D(Q_i)\right] \cdot \left[P(Q_{i-1}) - P(Q_i)\right]$$

where;

B	:	annual average benefit
$D(Q_{i-1}), D(Q_i)$	:	flood damage caused by flood with Q_{i-1} and Q_i discharge, respectively
$P(Q_{i-1}), P(Q_i)$	:	probability of occurrence of Q_{i-1} and Q_i discharge, respectively.
n	:	number of flood applied

The annual benefits under future conditions are also estimated in Tables J.1.3 to J.1.21. The benefits are assumed to increase in proportion to population growth, improvement of living standard and increase in economic activity in industrial production. The growth rates of population and economy in Region I are discussed in Chapter 7 of Appendix A. The annual benefits under the future condition are computed at the time just after the completion of the proposed schemes, as follows.

(Unit: Million Pesos at Economic Terms)

Potential Flood Area	Under Present Conditions	Under Future Conditions
Tangid, Laoag	5.9	8.6
Suyo, Laoag	1.0	1.5
Poblacion of Laoag	12.2	19.0
Camangaan, Laoag	4.0	5.8
Poblacion of San Nicolas	3.5	5.3
San Manuel, Sarrat	2.1	3.1
San Felipe, Sarrat	0.7	1.0
Sto. Tomas, Sarrat	0.1	0.2
San Marcos, Sarrat	0.1	0.1
San Cristobal, Sarrat	1.3	1.9
Guisit River/ Mandaloque	6.3	9.3
Suyo, Dingras	4.1	6.1
Poblacion of Dingras	5.4	8.1
Cura River Basin	67.8	98.7
Solsona River Basin	44.1	64.6
Madongan River Basin	47.4	69.2
Papa River Basin	19.8	29.0
Lower Bongo	4.7	6.9
Upper Bongo	7.6	11.1

The flood mitigation benefits are assumed to accrue in proportion to the completion of construction works. Full benefits would accrue after the completion of the entire construction works. Although the annual benefits are constant during the project's economic life under present condition as shown in Tables J.1.22 to J.1.40, the benefits under the future condition are expected to increase in proportion to the economic growth, as seen in Tables J.1.41 to J.1.59.

1.3.2 Land Use Enhancement

(1) Land Loss Prevention

From 1975 to 1995, approximately 1,130 ha of cultivated lands were washed out by sedimentation and flood inundation disasters in the Laoag River Basin. If the sabo and flood control projects were introduced, these losses could have been eliminated. Thus, these losses are considered as project benefits. They are quantified on the assumption that the washed-out trend would continue at the same pace as in the past 20 years.

Crop production in these washed-out lands is accounted in flood mitigation benefits. These benefits should be subtracted from the land loss prevention benefits. The annual economic benefits of land loss prevention are estimated in Table J.1.60. The annual economic benefits of the respective basins are estimated at: P0.30 million in Bongo River basin, P0.18 million in Papa River basin, P0.41 million in Madongan River basin, P0.68 million in Solsona River basin and P1.66 million in Cura River basin. The total benefit of these basins is aggregated to P2.93 million.

(2) Land Use Restoration

After the completion of the proposed works, farmers in the areas free from flood will be motivated to cultivate their agricultural lands. These areas are estimated at 820 ha of grazing land; 512 ha for upland crops; and 501 ha for lowland crops. Thus, this agricultural production is considered as one of land use enhancement benefits, as well. Unit benefit is estimated at 2,300 pesos per ha for upland crop production and 8,100 pesos per ha for lowland crop production, referring to Tables C.5.9 and C.5.7 in Appendix C. However, livestock production from grazing land is so small that its benefit is negligible. The total benefit is estimated at 5.24 million pesos per annum. It consists of the following four basins: 0.03 million pesos in Papa River, 2.51 million pesos in Madongan River, 0.51 million pesos in Solsona River and 2.19 million pesos in Cura River. The details of these benefits are shown in Table J.1.61. It is assumed that full benefit can be attained in five years after the completion of the proposed projects.

These benefits are computed for present conditions in Tables J.1.22 to J.1.40. Under future conditions, the unit yield of crops is assumed to be twice the present yield (2.4 ton/ha for upland crop and 3.8 ton/ha for lowland crop) in the target year 2020. These benefits are enumerated in Table J.1.41 to J.1.59.

1.3.3 Negative Benefits

In the construction of flood control facilities, some areas shall be expropriated for riverbeds, dikes and sabo dams. The sites include some agricultural lands for cropping. Crop production cannot be carried out when construction works begin. This inactivity has to be considered as negative benefits of the project. These negative benefits are estimated on the assumption that all expropriated lands are rainfed fields where palay is cultivated. Then, the unit benefit is estimated at 2,300 pesos per ha, referring to Table C.5.8 in Appendix C. These negative benefits for the respective schemes are enumerated for present conditions in Tables J.1.22 to J.1.40. Under future conditions, the unit yield of palay is assumed to be twice the present yield (2.4 ton/ha) in the target year 2020. These negative benefits are enumerated in Tables J.1.41 to J.1.59.

1.4 Economic Evaluation

1.4.1 Economic Viability of Schemes for Potential Flood Areas

Economic costs and benefits during the economic life of 50 years under present condition are shown in Tables J.1.22 to J.1.40 and under future condition in Tables J.1.41 to J.1.59. The tables also show EIRR, NPV and B/C for the respective projects. Tables J.1.62 and J.1.63 summarize all evaluation indices of the projects.

Among the 19 sabo and flood control projects in the basin under future condition, the most effective is in the Poblacion of Laoag having an EIRR of 34.1% as shown in Table J.1.63. Nine other projects have EIRR exceeding 15%. They are: (1) Tangid, Laoag, 27.6%; (2) Poblacion of Dingras, 23.9%; (3) Solsona river basin, 22.7%; (4) Suyo, Dingras, 22.5%; (5) Poblacion of San Nicolas, 22.4%; (6) Madongan river basin, 21.3%; (7) San Manuel, Sarrat, 20.7%; (8) Camangaan, Laoag, 20.2%; (9) Cura river basin, 17.2%. Thus, they are considered as feasible, although the other nine schemes recorded less than 15% of EIRR under future conditions. Papa river basin project with an EIRR of 14.4% and Suyo, Laoag project with 13.6% was adopted in the master plan study due to its consistent nearness to the location of the viable schemes. The other seven schemes could be implemented beyond the target year 2020.

1.4.2 Economic Viability of the Master Plan Scheme

In this section, the proposed project for the master plan is examined from the economic point of view. The project includes the 12 schemes selected in the previous subsection. Its implementation schedule and the disbursement program are planned as shown in Table J.1.64.

The economic costs amount to 1.8 billion pesos. The economic benefits are expected to accrue in conformity with the schedule, as shown in Table J.1.65 under present condition and Table J.1.66 under future condition. In the latter case, EIRR is 20.6%. Under present condition, it is 13.1%. Considering the economic growth in the future, the proposed master plan projects are considered as feasible from the economic viewpoint.

CHAPTER II FINANCIAL EVALUATION

2.1 Basic Stance of Financial Evaluation

From the financial viewpoint, a flood control project is different from the general public and private infrastucture. No income directly accrues from its implementation, although its economic benefits are numerous as discussed in the previous Chapter.

This chapter deals with whether or not the project costs are available from the public finance of the national government. Furthermore, financial constraints are discussed taking account of present financial situation. They comprise the burden of external debts and outstanding financial sources and limit of investment.

2.2 Public Finance of Flood Control

The financial requirement of the proposed projects in the master plan is estimated at 2.2 billion pesos at 1996 prices. This amount has to be procured between 1999 and 2012.

The total capital investment for flood control schemes by the national government is expected to be 2.5 billion pesos in the year 2000, 3.8 billion pesos in 2010 and 5.9 billion pesos in 2020, as discussed in Section 7.3 of Appendix A and shown in Table A.7.3. Annual capital investment is estimated to accumulate to 88.9 billion pesos for 25 years from 1995 to 2020. In the same manner, the accumulation between 1999 and 2012 is estimated at 43.9 billion pesos. As mentioned in Section 7.3 of Appendix A, 0.2% of the total national investment was spent for Ilocos Norte Province. Then, the expected investment is estimated at 88 million pesos, if the rate is applied. This is only 4% of the financial requirement for the proposed master plan projects.

The table below shows the expected investment for Ilocos Norte Province by the national government between 1999 and 2012, taking consideration of socio-economic indices. The total investment is only 0.2% of the total expenditure or 0.088 billion pesos at 1995 prices. According to population ratio, it is 0.8% or 0.35 billion pesos. In case of land area, it is 1.1% or 0.48 billion pesos. In case of G(R)DP, it is 3.1% or 1.36 billion pesos. These figures are far from the capital requirement of the project.

Item	Figures		Percentage Share (%)	Amount (Bil. Pesos)
	Philippines	Ilocos Norte		
1. Total Expenditure (1999-2012)	-	-	-	43.86
2. Indices				
(a) Expenditure Trend ('90-'95)	P6.45 $\times 10^9$	P0.01 $\times 10^9$	0.2	0.09
(b) Population (1990 Census)	60.56 $\times 10^6$	0.46 $\times 10^6$	0.8	0.35
(c) Land Area	300.0 $\times 10^3$ km^2	3.4 $\times 10^3$ km^2	1.1	0.48
(d) G(R)DP (1995)	P1.91 $\times 10^9$	P0.06 $\times 10^9$	3.1	1.36

2.3 Status of Foreign Aid and Public Debts

Flood control projects planned by DPWH in its Medium-Term Plan (1993-1998) amount to 17.6 billion pesos. Some of them (12.2 billion pesos) are expected as foreign assisted projects, and 7.3 billion pesos or 60% are covered by foreign loans and/or grants. Of the foreign assisted projects, 7.0 billion pesos or 57% have already been pledged by foreign countries and organizations. Of the pledged amount, 4.3 billion pesos or 61% rely on foreign

loans and grants, and the remaining 2.7 billion pesos or 39% are funded by the Philippine Government. The details of the assistance program are shown in the table below.

(Unit: Billion Pesos)

Organization	Foreign Aid		Local Fund	Total
	Loan	Grant		
JICA	-	0.02	0.12	0.14
OECF	4.16	-	2.54	6.70
Dutch	-	0.00	0.03	0.03
ADB	0.07	-	0.03	0.10
Total	4.23	0.02	2.73	6.97

Source: DPWH Medium-Term Public Investment Program (1993-1998)

Total outstanding external debt of the Philippines is US$39.3 billion as of 1994, as discussed in Appendix A. This debt accounted for 59% of GNP or 62% of GDP. Of this total, US$32.5 billion or 83% was procured as long-term debt, mostly for capital investment. On the other hand, the total debt service aggregated to US$4.5 billion in 1994, which is equivalent to about 119 billion pesos. This amount corresponds to the debt service fund of 125 billion pesos, which was appropriated in the financial program of the national government in1994. This fund accounted for 33% of the total expenditure. Incidentally, the debt service ratio (DSR) in 1994 decreased to 19% from 26% in 1993. This value means that the public finance situation is sound from the viewpoint of external debt because it is lower than the critical line of 20%. The national government may be able to procure the investment funds from foreign sources.

2.4 Limit of Investment

The national government spent 10 million pesos or 0.2% of the total expenditure in Ilocos Norte Province between 1990 and 1995 for flood control, although the national expenditure for flood control projects was 6,453 million pesos. Applying this trend for future projection of accumulated total of 88.9 billion pesos up to the target year 2020, the regional expense for flood control in Ilocos Norte Province is estimated at 180 million pesos at 1995 prices, reevaluated to around 200 million pesos at 1996 prices. This is only 9% of the capital requirement of 2,178 million pesos. Even if the national government allots all the flood control budget in proportion to regional economic performance which amounted to 1.36 billion pesos at 1995 prices and reevaluated to 1.50 billion pesos at 1996 prices, the capital requirement will still be short by 30%.

During the implementation period, the total expenditure for flood control by the national government is estimated at 43.9 billion pesos through the same assumption and procedure. The total requirement accounts for less than 5% of this amount. This percentage seems to be somewhat higher than indices such as economic activity and population rate in the country. However, it might be indisputable that 5% is not an impossible figure compared with the indices.

CHAPTER III SOCIAL EVALUATION

3.1 Improvement of Social Amenity and Public Hygiene

Floods have been experienced repeatedly in the past. People in flood prone areas cower in fear when they recall their experiences, and these people have been exposed to unhygienic conditions after each flood.

Implementation of the sabo and flood control plans will relieve the people from the menace of flooding. This will result in a pervasive and positive mental climate among inhabitants in the basin. They can enjoy life and indulge in industrial activities with little worries of flood and sedimentation disasters.

3.2 Enhancement of Land Use and Mitigation of Economic Disparity in Basin

There are many low-lying areas along the Laoag River, particularly in the upper alluvial fan areas along the Cura, Labugaon, Solsona, Madongan, Papa and Bongo rivers. Some of these agricultural areas have been washed out long before. Without the proposed sabo and flood control projects, these land losses could proceed at the same rate. On the other hand, once the proposed projects are implemented, lost lands could be recovered and rehabilitated for crop cultivation.

These visible benefits were already quantified as tangible benefits in the economic evaluation. People in the upper stream areas in particular were depressed by these disasters and damages on their agricultural production. However, the proposed projects would give them incentives to cultivate those lost crop lands actively. These activities might mitigate economic imbalance within the basin.

3.3 Creation of Job Opportunity and Activation of Regional Economy

The implementation of the proposed projects will create opportunities for temporary jobs during the construction period. Temporary workers and some construction materials will be sourced locally as much as possible.

TABLES

Table J.1.1 Financial Costs and Economic Costs

Item	Tangid Laoag	Suyo Laoag	Poblacion of Laoag	Caman-gaan Laoag	Poblacion of San Nicolas	San Manuel Sarrat	San Felipe Sarrat	Sto. Tomas Sarrat	San Marcos Sarrat	San Cristobal Sarrat
Construction Costs in Financial Terms										
Civil Works	27.8	11.7	48.1	27.3	22.2	13.8	32.0	13.3	8.7	25.5
Compensation	1.0	0.0	0.0	1.0	0.6	3.9	0.7	0.5	0.3	0.3
Administration	1.4	0.6	2.4	1.4	1.1	0.9	1.6	0.7	0.5	1.3
Engineering	2.8	1.2	4.8	2.7	2.2	1.4	3.2	1.3	0.9	2.6
Physical Contingency	3.3	1.3	5.5	3.2	2.6	2.0	3.8	1.6	1.0	3.0
Cost Total	36.3	14.8	60.8	35.7	28.8	22.0	41.3	17.4	11.4	32.6
Construction Costs in Economic Terms										
Civil Works	22.8	9.6	39.4	22.4	18.2	11.3	26.2	10.9	7.1	20.9
Compensation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Administration	1.2	0.5	2.0	1.2	0.9	0.7	1.3	0.6	0.4	1.1
Engineering	3.3	1.4	5.8	3.3	2.7	1.7	3.8	1.6	1.0	3.1
Physical Contingency	2.7	1.1	4.5	2.7	2.1	1.6	3.1	1.3	0.8	2.4
Cost Total	30.0	12.6	51.7	29.5	23.9	15.3	34.5	14.4	9.4	27.5

Item	Guisit River/ Mandaloque	Suyo Dingras	Poblacion of Dingras	Cura River Basin	Solsona River Basin	Madongan River Basin	Papa River Basin	Lower Bongo	Upper Bongo	Total
Construction Costs in Financial Terms										
Civil Works	161.5	25.3	31.4	640.0	281.9	329.4	219.8	92.6	391.6	2,403.9
Compensation	3.8	0.3	1.0	0.1	0.1	0.0	0.0	1.0	0.3	14.9
Administration	8.3	1.3	1.6	32.0	14.1	16.5	11.0	4.7	19.6	121.0
Engineering	16.2	2.5	3.1	64.1	28.2	32.9	22.0	9.3	39.1	240.4
Physical Contingency	19.0	2.9	3.7	73.6	32.4	37.9	25.3	10.8	45.1	278.0
Cost Total	208.7	32.4	40.9	809.7	356.8	416.7	278.0	118.3	495.7	3,058.2
Construction Costs in Economic Terms										
Civil Works	132.4	20.7	25.7	524.8	231.2	270.1	180.2	75.9	321.1	1,971.2
Compensation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Administration	6.8	1.0	1.3	26.2	11.6	13.5	9.0	3.8	16.1	99.2
Engineering	19.4	3.0	3.8	76.9	33.8	39.5	26.4	11.1	47.0	288.5
Physical Contingency	15.6	2.4	3.0	60.4	26.6	31.1	20.7	8.8	37.0	228.0
Cost Total	174.1	27.2	33.9	688.2	303.2	354.2	236.4	99.7	421.1	2,586.8

Table J.1.2 Flood Damage Rates

	Inundation Depth				
	Less than 0.5 m	0.5-0.99 m	1.0-1.99 m	2.0-2.99 m	More than 3.0 m
I. Lower Stream					
1. Residence					
a. Housing Unit	0.015	0.046	0.091	0.152	0.213
b. Household Effects	0.000	0.000	0.263	0.787	1.000
2. Industrial, Educational and Medical Facilities					
a. Depreciable Assets	0.180	0.314	0.419	0.539	0.632
b. Inventory Stock	0.127	0.276	0.378	0.479	0.562
3. Crop Production					
a. Lowland Crop	0.135	0.406	0.812	1.000	1.000
b. Upland Crop	0.135	0.406	0.812	1.000	1.000
II. Upper Stream					
1. Residence					
a. Housing Unit	0.066	0.198	0.396	0.659	0.923
b. Household Effects	0.000	0.123	0.586	1.000	1.000
2. Industrial, Educational and Medical Facilities					
a. Depreciable Assets	0.360	0.628	0.838	1.000	1.000
b. Inventory Stock	0.254	0.552	0.958	1.000	1.000
3. Crop Production					
a. Lowland Crop	0.186	0.557	1.000	1.000	1.000
b. Upland Crop	0.186	0.557	1.000	1.000	1.000

Table J.1.3 Damageable Property, Flood Damage and Flood Control Benefit in Tangid, Laoag

Item	Return Period (Year)					
	2	5	10	25	50	100
I. Affected Population and Area						
1 Affected Population (Persons)	824	2,190	3,338	3,945	8,428	9,758
2 Area Inundated (km^2)	1.3	4.0	5.5	6.0	10.5	13.0
II. Inundated Property						
1 Agricultural Land (ha)						
a. Irrigated Field	138	344	382	432	803	966
b. Rainfed Field	0	0	0	0	0	0
2 Buildings (Nos)						
a. Housing Units	165	433	663	780	1,680	1,938
b. Shopping Stores	6	15	24	28	61	71
c. Factories	0	0	0	0	0	0
d. Pre-Schools	1	2	2	2	3	3
e. Elementary Schools	0	1	1	1	3	4
f. Secondary Schools	0	0	0	0	0	0
g. Tertiary Schools	0	0	0	0	0	0
h. Hospitals	0	0	0	0	1	1
i. Barangay Health Stations	0	0	0	0	0	0
j. Rural Health Units	0	0	0	1	1	2
III. Estimated Value of Damaged Property (Million Pesos in Economic Terms)						
1. Direct Damage	3.9	9.6	14.4	22.9	36.5	43.7
a. Agricultural Production	1.0	2.9	4.1	5.2	7.1	9.4
- Irrigated Field	1.0	2.9	4.1	5.2	7.1	9.4
- Rainfed Field	0.0	0.0	0.0	0.0	0.0	0.0
b. Housing Units	1.4	2.9	4.7	9.5	14.1	16.4
c. Industry	0.3	0.7	1.2	1.8	2.9	3.8
- Shoping Stores	0.3	0.7	1.2	1.8	2.9	3.8
- Factories	0.0	0.0	0.0	0.0	0.0	0.0
d. Infrastructure	1.2	3.0	4.3	6.3	12.3	14.2
- Social Infrastructure	0.6	1.5	1.9	2.5	6.2	6.9
. Educational Facilites	0.6	1.5	1.9	2.1	3.0	3.4
. Medical Facilites	0.0	0.0	0.0	0.4	3.3	3.5
- Physical Infrastructure	0.7	1.6	2.4	3.8	6.1	7.3
2. Indirect Damage	0.4	1.0	1.4	2.3	3.6	4.4
3. Total	4.3	10.5	15.8	25.2	40.1	48.0
IV. Annual Benefit under Present Condition (Million Pesos in Economic Terms)						
Annual Benefit	1.1	3.3	4.6	5.9	6.5	7.0
V. Projection of Benefit under Future Condition (Million Pesos in Economic Terms at 1996 Constant Prices)						
1. In the year 2000	1.3	4.0	5.6	7.1	7.9	8.4
2. In the year 2010	1.9	5.8	8.2	10.4	11.8	12.5
3. In the year 2020	2.6	7.9	11.0	14.0	15.8	16.8

Table J.1.4 Damageable Property, Flood Damage and Flood Control Benefit in Suyo, Laoag

Item	Return Period (Year)					
	2	5	10	25	50	100
I. Affected Population and Area						
1 Affected Population (Persons)	0	1,026	1,054	1,054	1,528	1,528
2 Area Inundated (km^2)	0.3	1.3	1.5	2.0	2.3	2.3
II. Inundated Property						
1 Agricultural Land (ha)						
a. Irrigated Field	0	59	77	120	125	125
b. Rainfed Field	0	0	0	0	0	0
2 Buildings (Nos)						
a. Housing Units	0	185	191	191	271	271
b. Shopping Stores	0	7	7	7	13	13
c. Factories	0	0	0	0	0	0
d. Pre-Schools	0	0	0	0	0	0
e. Elementary Schools	0	1	1	1	1	1
f. Secondary Schools	0	0	0	0	1	1
g. Tertiary Schools	0	0	0	0	0	0
h. Hospitals	0	0	0	0	0	0
i. Barangay Health Stations	0	0	0	0	0	0
j. Rural Health Units	0	1	1	1	1	1
III. Estimated Value of Damaged Property (Million Pesos in Economic Terms)						
1. Direct Damage	0.0	1.9	4.8	6.0	10.7	12.2
a. Agricultural Production	0.0	0.3	0.7	1.2	1.5	1.9
- Irrigated Field	0.0	0.3	0.7	1.2	1.5	1.9
- Rainfed Field	0.0	0.0	0.0	0.0	0.0	0.0
b. Housing Units	0.0	0.3	1.9	2.2	5.2	5.8
c. Industry	0.0	0.3	0.5	0.5	0.7	0.8
- Shoping Stores	0.0	0.3	0.5	0.5	0.7	0.8
- Factories	0.0	0.0	0.0	0.0	0.0	0.0
d. Infrastructure	0.0	1.0	1.8	2.1	3.3	3.7
- Social Infrastructure	0.0	0.7	1.0	1.1	1.6	1.7
. Educational Facilites	0.0	0.4	0.6	0.6	1.0	1.0
. Medical Facilites	0.0	0.2	0.4	0.5	0.5	0.7
- Physical Infrastructure	0.0	0.3	0.8	1.0	1.8	2.0
2. Indirect Damage	0.0	0.2	0.5	0.6	1.1	1.2
3. Total	0.0	2.1	5.3	6.6	11.8	13.4
IV. Annual Benefit under Present Condition (Million Pesos in Economic Terms)						
Annual Benefit	0.0	0.3	0.7	1.0	1.2	1.3
V. Projection of Benefit under Future Condition (Million Pesos in Economic Terms at 1996 Constant Prices)						
1. In the year 2000	0.0	0.4	0.8	1.3	1.5	1.6
2. In the year 2010	0.0	0.6	1.2	1.9	2.2	2.4
3. In the year 2020	0.0	0.8	1.7	2.5	3.0	3.3

Table J.1.5 Damageable Property, Flood Damage and Flood Control Benefit in Poblacion of Laoag

Item	Return Period (Year)					
	2	5	10	25	50	100
I. Affected Population and Area						
1 Affected Population (Persons)	2,283	3,376	3,376	5,149	5,149	5,149
2 Area Inundated (km^2)	0.3	0.5	1.0	1.3	1.5	1.8
II. Inundated Property						
1 Agricultural Land (ha)						
a. Irrigated Field	16	17	40	45	50	50
b. Rainfed Field	0	0	0	0	0	0
2 Buildings (Nos)						
a. Housing Units	459	684	684	1,043	1,043	1,043
b. Shopping Stores	28	36	36	50	50	50
c. Factories	4	5	5	5	5	5
d. Pre-Schools	2	5	6	7	8	8
e. Elementary Schools	4	9	9	10	11	11
f. Secondary Schools	1	3	4	5	6	6
g. Tertiary Schools	2	3	3	3	4	4
h. Hospitals	0	1	1	2	2	2
i. Barangay Health Stations	0	0	1	1	1	1
j. Rural Health Units	0	1	1	1	1	1
III. Estimated Value of Damaged Property (Million Pesos in Economic Terms)						
1. Direct Damage	3.9	23.0	39.0	59.6	77.7	82.4
a. Agricultural Production	0.0	0.2	0.3	0.6	0.7	0.7
- Irrigated Field	0.0	0.2	0.3	0.6	0.7	0.7
- Rainfed Field	0.0	0.0	0.0	0.0	0.0	0.0
b. Housing Units	0.3	5.6	12.5	17.3	25.7	27.4
c. Industry	0.7	2.3	3.0	3.8	4.4	4.6
- Shoping Stores	0.7	2.2	2.8	3.6	4.2	4.3
- Factories	0.1	0.2	0.2	0.2	0.3	0.3
d. Infrastructure	2.9	14.8	23.3	37.9	46.9	49.7
- Social Infrastructure	2.2	11.0	16.8	27.9	34.0	35.9
. Educational Facilites	2.2	8.1	11.4	15.7	19.7	20.0
. Medical Facilites	0.0	2.9	5.4	12.2	14.2	15.9
- Physical Infrastructure	0.7	3.8	6.5	9.9	13.0	13.7
2. Indirect Damage	0.4	2.3	3.9	6.0	7.8	8.2
3. Total	4.3	25.3	42.9	65.5	85.5	90.6
IV. Annual Benefit under Present Condition (Million Pesos in Economic Terms)						
Annual Benefit	1.1	5.5	8.9	12.2	13.7	14.6
V. Projection of Benefit under Future Condition (Million Pesos in Economic Terms at 1996 Constant Prices)						
1. In the year 2000	1.4	6.9	11.2	15.3	17.2	18.3
2. In the year 2010	2.1	10.7	17.2	23.5	26.4	28.0
3. In the year 2020	2.9	14.5	23.2	31.8	35.5	37.8

Table J.1.6 Damageable Property, Flood Damage and Flood Control Benefit in Camangaan, Laoag

Item	Return Period (Year)					
	2	5	10	25	50	100
I. Affected Population and Area						
1 Affected Population (Persons)	967	1,020	1,020	2,039	2,404	2,404
2 Area Inundated (km^2)	1.8	2.5	2.5	4.8	6.3	7.8
II. Inundated Property						
1 Agricultural Land (ha)						
a. Irrigated Field	122	190	207	379	503	619
b. Rainfed Field	0	0	0	0	12	17
2 Buildings (Nos)						
a. Housing Units	99	203	203	406	477	477
b. Shopping Stores	4	7	8	20	25	27
c. Factories	1	1	1	2	2	2
d. Pre-Schools	2	0	7	0	0	0
e. Elementary Schools	1	1	1	2	2	3
f. Secondary Schools	0	0	0	0	1	1
g. Tertiary Schools	0	0	0	0	0	0
h. Hospitals	0	1	1	1	1	1
i. Barangay Health Stations	0	0	0	0	0	0
j. Rural Health Units	0	0	0	0	0	0
III. Estimated Value of Damaged Property (Million Pesos in Economic Terms)						
1. Direct Damage	2.7	6.1	10.3	16.4	18.6	20.2
a. Agricultural Production	1.7	2.5	3.1	4.4	5.9	6.8
- Irrigated Field	1.7	2.5	3.1	4.4	5.9	6.7
- Rainfed Field	0.0	0.0	0.0	0.0	0.0	0.1
b. Housing Units	0.2	1.4	3.9	7.0	7.0	7.2
c. Industry	0.2	0.4	0.6	0.8	0.9	1.0
- Shoping Stores	0.2	0.4	0.6	0.8	0.9	1.0
- Factories	0.0	0.0	0.0	0.0	0.0	0.0
d. Infrastructure	0.7	1.8	2.8	4.1	4.7	5.2
- Social Infrastructure	0.2	0.8	1.0	1.4	1.6	1.8
. Educational Facilites	0.2	0.3	0.4	0.6	0.8	1.0
. Medical Facilites	0.0	0.5	0.7	0.8	0.8	0.8
- Physical Infrastructure	0.5	1.0	1.7	2.7	3.1	3.4
2. Indirect Damage	0.3	0.6	1.0	1.6	1.9	2.0
3. Total	3.0	6.7	11.3	18.0	20.4	22.2
IV. Annual Benefit under Present Condition (Million Pesos in Economic Terms)						
Annual Benefit	0.8	2.2	3.1	4.0	4.4	4.6
V. Projection of Benefit under Future Condition (Million Pesos in Economic Terms at 1996 Constant Prices)						
1. In the year 2000	0.9	2.6	3.7	4.8	5.2	5.5
2. In the year 2010	1.2	3.8	5.4	7.0	7.6	8.0
3. In the year 2020	1.7	5.1	7.3	9.4	10.2	10.7

Table J.1.7 Damageable Property, Flood Damage and Flood Control Benefit in Poblacion of San Nicolas

Item	Return Period (Year)					
	2	5	10	25	50	100
I. Affected Population and Area						
1 Affected Population (Persons)	1,295	1,851	2,596	5,835	10,499	12,730
2 Area Inundated (km^2)	1.0	1.5	1.8	2.3	5.8	8.3
II. Inundated Property						
1 Agricultural Land (ha)						
a. Irrigated Field	38	69	74	96	413	531
b. Rainfed Field	0	0	0	0	35	40
2 Buildings (Nos)						
a. Housing Units	266	374	526	1,189	2,144	2,588
b. Shopping Stores	7	9	12	26	51	63
c. Factories	1	1	3	21	37	51
d. Pre-Schools	0	0	1	2	2	4
e. Elementary Schools	0	0	0	1	3	5
f. Secondary Schools	0	0	1	2	2	2
g. Tertiary Schools	0	0	0	0	0	0
h. Hospitals	0	0	0	0	1	1
i. Barangay Health Stations	0	0	0	0	0	1
j. Rural Health Units	0	0	0	1	1	2
III. Estimated Value of Damaged Property (Million Pesos in Economic Terms)						
1. Direct Damage	0.7	5.8	14.5	20.4	33.1	40.7
a. Agricultural Production	0.3	0.8	1.1	1.3	2.2	2.8
- Irrigated Field	0.3	0.8	1.1	1.3	2.1	2.8
- Rainfed Field	0.0	0.0	0.0	0.0	0.1	0.1
b. Housing Units	0.2	3.4	9.6	12.2	17.2	20.8
c. Industry	0.2	0.6	0.9	1.7	2.9	3.7
- Shoping Stores	0.2	0.6	0.8	1.3	2.2	2.8
- Factories	0.0	0.0	0.1	0.4	0.6	1.0
d. Infrastructure	0.1	1.0	2.9	5.2	10.9	13.4
- Social Infrastructure	0.0	0.0	0.5	1.8	5.4	6.6
. Educational Facilites	0.0	0.0	0.5	1.6	2.4	3.4
. Medical Facilites	0.0	0.0	0.0	0.2	2.9	3.2
- Physical Infrastructure	0.1	1.0	2.4	3.4	5.5	6.8
2. Indirect Damage	0.1	0.6	1.4	2.0	3.3	4.1
3. Total	0.8	6.3	15.9	22.4	36.4	44.8
IV. Annual Benefit under Present Condition (Million Pesos in Economic Terms)						
Annual Benefit	0.2	1.3	2.4	3.5	4.1	4.5
V. Projection of Benefit under Future Condition (Million Pesos in Economic Terms at 1996 Constant Prices)						
1. In the year 2000	0.2	1.5	2.9	4.3	5.1	5.6
2. In the year 2010	0.3	2.3	4.3	6.5	7.6	8.4
3. In the year 2020	0.5	3.0	5.8	8.7	10.2	11.2

Table J.1.8 Damageable Property, Flood Damage and Flood Control Benefit in San Manuel, Sarrat

Item	Return Period (Year)					
	2	5	10	25	50	100
I. Affected Population and Area						
1 Affected Population (Persons)	425	425	573	1,339	1,339	2,416
2 Area Inundated (km^2)	1.0	1.5	1.8	5.5	5.5	6.5
II. Inundated Property						
1 Agricultural Land (ha)						
a. Irrigated Field	18	18	24	356	356	445
b. Rainfed Field	25	25	31	39	39	39
2 Buildings (Nos)						
a. Housing Units	90	90	119	274	274	485
b. Shopping Stores	7	7	8	21	21	28
c. Factories	0	0	0	2	2	3
d. Pre-Schools	0	0	0	0	0	0
e. Elementary Schools	0	0	0	0	0	1
f. Secondary Schools	0	0	0	0	0	0
g. Tertiary Schools	0	0	0	0	0	0
h. Hospitals	0	0	0	0	0	0
i. Barangay Health Stations	0	0	0	0	0	0
j. Rural Health Units	0	0	0	0	0	0
III. Estimated Value of Damaged Property (Million Pesos in Economic Terms)						
1. Direct Damage	2.0	3.1	3.5	7.5	8.4	12.4
a. Agricultural Production	0.3	0.5	0.6	1.7	1.9	3.9
- Irrigated Field	0.2	0.3	0.3	1.4	1.5	3.5
- Rainfed Field	0.2	0.2	0.3	0.3	0.4	0.4
b. Housing Units	0.9	1.5	1.7	3.4	3.9	4.5
c. Industry	0.4	0.6	0.6	1.1	1.2	1.7
- Shoping Stores	0.4	0.6	0.6	1.1	1.2	1.7
- Factories	0.0	0.0	0.0	0.0	0.0	0.0
d. Infrastructure	0.3	0.5	0.6	1.3	1.4	2.3
- Social Infrastructure	0.0	0.0	0.0	0.0	0.0	0.2
. Educational Facilites	0.0	0.0	0.0	0.0	0.0	0.2
. Medical Facilites	0.0	0.0	0.0	0.0	0.0	0.0
- Physical Infrastructure	0.3	0.5	0.6	1.3	1.4	2.1
2. Indirect Damage	0.2	0.3	0.3	0.8	0.8	1.2
3. Total	2.2	3.4	3.8	8.3	9.3	13.6
IV. Annual Benefit under Present Condition (Million Pesos in Economic Terms)						
Annual Benefit	0.6	1.4	1.8	2.1	2.3	2.4
V. Projection of Benefit under Future Condition (Million Pesos in Economic Terms at 1996 Constant Prices)						
1. In the year 2000	0.7	1.7	2.1	2.6	2.8	2.9
2. In the year 2010	1.0	2.5	3.2	3.7	4.1	4.2
3. In the year 2020	1.3	3.4	4.2	5.0	5.4	5.6

Table J.1.9 Damageable Property, Flood Damage and Flood Control Benefit in San Felipe, Sarat

Item	Return Period (Year)					
	2	5	10	25	50	100
I. Affected Population and Area						
1 Affected Population (Persons)	0	55	130	182	182	258
2 Area Inundated (km^2)	0.0	0.5	0.8	1.0	1.3	1.3
II. Inundated Property						
1 Agricultural Land (ha)						
a. Irrigated Field	23	55	72	111	111	125
b. Rainfed Field	0	0	0	0	0	0
2 Buildings (Nos)						
a. Housing Units	0	11	26	36	36	51
b. Shopping Stores	0	4	12	18	18	27
c. Factories	0	0	0	0	0	0
d. Pre-Schools	0	0	0	0	0	0
e. Elementary Schools	0	0	0	0	0	1
f. Secondary Schools	0	0	0	0	0	0
g. Tertiary Schools	0	0	0	0	0	0
h. Hospitals	0	0	0	0	0	0
i. Barangay Health Stations	0	0	0	0	0	0
j. Rural Health Units	0	0	0	0	0	1
III. Estimated Value of Damaged Property (Million Pesos in Economic Terms)						
1. Direct Damage	0.5	1.0	1.8	2.7	3.3	4.7
a. Agricultural Production	0.4	0.6	0.9	1.1	1.3	1.5
- Irrigated Field	0.4	0.6	0.9	1.1	1.3	1.5
- Rainfed Field	0.0	0.0	0.0	0.0	0.0	0.0
b. Housing Units	0.0	0.0	0.1	0.3	0.4	0.5
c. Industry	0.0	0.2	0.5	0.9	1.0	1.4
- Shoping Stores	0.0	0.2	0.5	0.9	1.0	1.4
- Factories	0.0	0.0	0.0	0.0	0.0	0.0
d. Infrastructure	0.1	0.2	0.3	0.5	0.6	1.3
- Social Infrastructure	0.0	0.0	0.0	0.0	0.0	0.5
. Educational Facilites	0.0	0.0	0.0	0.0	0.0	0.2
. Medical Facilites	0.0	0.0	0.0	0.0	0.0	0.2
- Physical Infrastructure	0.1	0.2	0.3	0.5	0.6	0.8
2. Indirect Damage	0.0	0.1	0.2	0.3	0.3	0.5
3. Total	0.5	1.1	2.0	3.0	3.7	5.2
IV. Annual Benefit under Present Condition (Million Pesos in Economic Terms)						
Annual Benefit	0.1	0.4	0.5	0.7	0.7	0.8
V. Projection of Benefit under Future Condition (Million Pesos in Economic Terms at 1996 Constant Prices)						
1. In the year 2000	0.1	0.4	0.6	0.8	0.9	1.0
2. In the year 2010	0.2	0.6	0.9	1.2	1.3	1.4
3. In the year 2020	0.3	0.8	1.2	1.6	1.8	1.9

Table J.1.10 Damageable Property, Flood Damage and Flood Control Benefit in Sto. Tomas, Sarat

Item	Return Period (Year)					
	2	5	10	25	50	100
I. Affected Population and Area						
1 Affected Population (Persons)	0	25	76	107	107	156
2 Area Inundated (km^2)	1.0	1.0	1.3	1.5	1.5	1.8
II. Inundated Property						
1 Agricultural Land (ha)						
a. Irrigated Field	0	0	35	35	35	35
b. Rainfed Field	2	2	2	7	7	29
2 Buildings (Nos)						
a. Housing Units	0	5	15	21	21	31
b. Shopping Stores	0	1	4	5	5	6
c. Factories	0	0	0	0	0	0
d. Pre-Schools	0	0	0	0	0	0
e. Elementary Schools	0	0	0	0	0	0
f. Secondary Schools	0	0	0	0	0	0
g. Tertiary Schools	0	0	0	0	0	0
h. Hospitals	0	0	0	0	0	0
i. Barangay Health Stations	0	0	0	0	0	0
j. Rural Health Units	0	0	0	0	0	0
III. Estimated Value of Damaged Property (Million Pesos in Economic Terms)						
1. Direct Damage	0.0	0.2	0.6	0.7	1.1	1.5
a. Agricultural Production	0.0	0.0	0.1	0.2	0.4	0.6
- Irrigated Field	0.0	0.0	0.1	0.1	0.3	0.5
- Rainfed Field	0.0	0.0	0.0	0.0	0.0	0.1
b. Housing Units	0.0	0.1	0.2	0.2	0.3	0.3
c. Industry	0.0	0.1	0.2	0.2	0.3	0.4
- Shoping Stores	0.0	0.1	0.2	0.2	0.3	0.4
- Factories	0.0	0.0	0.0	0.0	0.0	0.0
d. Infrastructure	0.0	0.0	0.1	0.1	0.2	0.2
- Social Infrastructure	0.0	0.0	0.0	0.0	0.0	0.0
. Educational Facilites	0.0	0.0	0.0	0.0	0.0	0.0
. Medical Facilites	0.0	0.0	0.0	0.0	0.0	0.0
- Physical Infrastructure	0.0	0.0	0.1	0.1	0.2	0.2
2. Indirect Damage	0.0	0.0	0.1	0.1	0.1	0.1
3. Total	0.0	0.2	0.6	0.8	1.2	1.6
IV. Annual Benefit under Present Condition (Million Pesos in Economic Terms)						
Annual Benefit	0.0	0.0	0.1	0.1	0.1	0.2
V. Projection of Benefit under Future Condition (Million Pesos in Economic Terms at 1996 Constant Prices)						
1. In the year 2000	0.0	0.0	0.1	0.1	0.2	0.2
2. In the year 2010	0.0	0.1	0.1	0.2	0.2	0.3
3. In the year 2020	0.0	0.1	0.2	0.3	0.3	0.4

Table J.1.11 Damageable Property, Flood Damage and Flood Control Benefit in San Marcos, Sarrat

Item	Return Period (Year)					
	2	5	10	25	50	100
I. Affected Population and Area						
1 Affected Population (Persons)	0	102	102	102	102	102
2 Area Inundated (km²)	0.0	0.3	0.3	0.3	0.3	0.3
II. Inundated Property						
1 Agricultural Land (ha)						
a. Irrigated Field	0	14	14	14	14	14
b. Rainfed Field	0	8	8	8	8	8
2 Buildings (Nos)						
a. Housing Units	0	20	20	20	20	20
b. Shopping Stores	0	3	3	3	3	3
c. Factories	0	0	0	0	0	0
d. Pre-Schools	0	0	0	0	0	0
e. Elementary Schools	0	0	0	0	0	0
f. Secondary Schools	0	0	0	0	0	0
g. Tertiary Schools	0	0	0	0	0	0
h. Hospitals	0	0	0	0	0	0
i. Barangay Health Stations	0	0	0	0	0	0
j. Rural Health Units	0	0	0	0	0	0
III. Estimated Value of Damaged Property (Million Pesos in Economic Terms)						
1. Direct Damage	0.0	0.2	0.2	0.4	0.9	0.9
a. Agricultural Production	0.0	0.0	0.0	0.1	0.3	0.3
- Irrigated Field	0.0	0.0	0.0	0.1	0.2	0.2
- Rainfed Field	0.0	0.0	0.0	0.0	0.1	0.1
b. Housing Units	0.0	0.0	0.0	0.0	0.2	0.2
c. Industry	0.0	0.1	0.1	0.2	0.2	0.2
- Shoping Stores	0.0	0.1	0.1	0.2	0.2	0.2
- Factories	0.0	0.0	0.0	0.0	0.0	0.0
d. Infrastructure	0.0	0.0	0.0	0.1	0.1	0.1
- Social Infrastructure	0.0	0.0	0.0	0.0	0.0	0.0
. Educational Facilites	0.0	0.0	0.0	0.0	0.0	0.0
. Medical Facilites	0.0	0.0	0.0	0.0	0.0	0.0
- Physical Infrastructure	0.0	0.0	0.0	0.1	0.1	0.1
2. Indirect Damage	0.0	0.0	0.0	0.0	0.1	0.1
3. Total	0.0	0.2	0.2	0.4	0.9	0.9
IV. Annual Benefit under Present Condition (Million Pesos in Economic Terms)						
Annual Benefit	0.0	0.0	0.0	0.1	0.1	0.1
V. Projection of Benefit under Future Condition (Million Pesos in Economic Terms at 1996 Constant Prices)						
1. In the year 2000	0.0	0.0	0.1	0.1	0.1	0.1
2. In the year 2010	0.0	0.0	0.1	0.1	0.1	0.1
3. In the year 2020	0.0	0.1	0.1	0.1	0.2	0.2

Table J.1.12 Damageable Property, Flood Damage and Flood Control Benefit in San Cristobal, Sarat

Item	Return Period (Year)					
	2	5	10	25	50	100
I. Affected Population and Area						
1 Affected Population (Persons)	16	40	73	73	73	73
2 Area Inundated (km^2)	0.3	0.5	0.8	0.8	0.8	0.8
II. Inundated Property						
1 Agricultural Land (ha)						
a. Irrigated Field	0	18	18	18	18	18
b. Rainfed Field	5	7	25	25	25	25
2 Buildings (Nos)						
a. Housing Units	3	8	15	15	15	15
b. Shopping Stores	0	0	0	0	0	0
c. Factories	0	2	3	3	3	3
d. Pre-Schools	0	1	1	1	1	1
e. Elementary Schools	1	1	2	2	2	2
f. Secondary Schools	0	0	0	0	0	0
g. Tertiary Schools	0	0	0	0	0	0
h. Hospitals	0	0	0	0	0	0
i. Barangay Health Stations	0	0	0	0	0	0
j. Rural Health Units	0	1	1	1	1	1
III. Estimated Value of Damaged Property (Million Pesos in Economic Terms)						
1. Direct Damage	0.3	2.7	4.2	5.0	5.8	5.8
a. Agricultural Production	0.0	0.3	0.5	0.6	0.6	0.6
- Irrigated Field	0.0	0.3	0.3	0.3	0.3	0.3
- Rainfed Field	0.0	0.1	0.2	0.3	0.3	0.3
b. Housing Units	0.0	0.1	0.3	0.5	0.6	0.6
c. Industry	0.0	0.1	0.1	0.1	0.2	0.2
- Shoping Stores	0.0	0.0	0.0	0.0	0.0	0.0
- Factories	0.0	0.1	0.1	0.1	0.2	0.2
d. Infrastructure	0.3	2.2	3.4	3.8	4.5	4.5
- Social Infrastructure	0.2	1.7	2.7	3.0	3.5	3.5
. Educational Facilites	0.2	1.2	2.0	2.3	2.7	2.7
. Medical Facilites	0.0	0.5	0.7	0.7	0.8	0.8
- Physical Infrastructure	0.1	0.4	0.7	0.8	1.0	1.0
2. Indirect Damage	0.0	0.3	0.4	0.5	0.6	0.6
3. Total	0.3	2.9	4.6	5.5	6.4	6.4
IV. Annual Benefit under Present Condition (Million Pesos in Economic Terms)						
Annual Benefit	0.1	0.6	1.0	1.3	1.4	1.4
V. Projection of Benefit under Future Condition (Million Pesos in Economic Terms at 1996 Constant Prices)						
1. In the year 2000	0.1	0.7	1.2	1.6	1.7	1.8
2. In the year 2010	0.2	1.1	1.8	2.4	2.6	2.8
3. In the year 2020	0.2	1.5	2.5	3.3	3.6	3.8

Table J.1.13 Damageable Property, Flood Damage and Flood Control Benefit in Guisit River/Mandaloque

Item	Return Period (Year)					
	2	5	10	25	50	100
I. Affected Population and Area						
1 Affected Population (Persons)	434	691	917	1,058	1,058	1,286
2 Area Inundated (km^2)	5.1	5.6	6.3	7.3	7.3	7.6
II. Inundated Property						
1 Agricultural Land (ha)						
a. Irrigated Field	175	237	310	332	332	348
b. Rainfed Field	1	1	1	1	1	1
2 Buildings (Nos)						
a. Housing Units	89	137	182	208	208	256
b. Shopping Stores	1	7	10	15	15	16
c. Factories	0	0	1	1	1	1
d. Pre-Schools	0	0	1	1	1	1
e. Elementary Schools	1	1	1	1	1	1
f. Secondary Schools	0	0	1	1	1	1
g. Tertiary Schools	0	0	0	0	0	0
h. Hospitals	0	0	0	0	0	0
i. Barangay Health Stations	0	0	0	0	0	0
j. Rural Health Units	0	0	0	0	0	0
III. Estimated Value of Damaged Property (Million Pesos in Economic Terms)						
1. Direct Damage	6.9	8.1	11.1	16.0	17.7	17.9
a. Agricultural Production	2.6	3.0	3.3	4.3	4.6	4.7
- Irrigated Field	2.5	2.9	3.3	4.2	4.6	4.7
- Rainfed Field	0.0	0.0	0.0	0.0	0.0	0.0
b. Housing Units	2.4	2.7	3.3	4.9	5.4	5.6
c. Industry	0.1	0.4	0.8	1.7	2.0	2.1
- Shoping Stores	0.1	0.4	0.8	1.6	1.9	2.0
- Factories	0.0	0.0	0.0	0.1	0.1	0.1
d. Infrastructure	1.9	2.1	3.6	5.2	5.6	5.7
- Social Infrastructure	0.8	0.8	1.8	2.5	2.7	2.7
. Educational Facilites	0.8	0.8	1.8	2.5	2.7	2.7
. Medical Facilites	0.0	0.0	0.0	0.0	0.0	0.0
- Physical Infrastructure	1.2	1.4	1.8	2.7	2.9	3.0
2. Indirect Damage	0.7	0.8	1.1	1.6	1.8	1.8
3. Total	7.6	8.9	12.2	17.6	19.4	19.7
IV. Annual Benefit under Present Condition (Million Pesos in Economic Terms)						
Annual Benefit	1.9	4.4	5.4	6.3	6.7	6.9
V. Projection of Benefit under Future Condition (Million Pesos in Economic Terms at 1996 Constant Prices)						
1. In the year 2000	2.3	5.2	6.6	7.7	8.1	8.4
2. In the year 2010	3.3	7.6	9.6	11.3	12.0	12.3
3. In the year 2020	4.4	10.2	13.0	15.2	16.1	16.6

Table J.1.14 Damageable Property, Flood Damage and Flood Control Benefit in Suyo, Dingras

Item	Return Period (Year)					
	2	5	10	25	50	100
I. Affected Population and Area						
1 Affected Population (Persons)	1,356	1,438	2,317	2,317	2,317	2,317
2 Area Inundated (km^2)	1.5	1.5	2.0	2.0	2.0	2.0
II. Inundated Property						
1 Agricultural Land (ha)						
a. Irrigated Field	83	105	122	122	122	122
b. Rainfed Field	17	17	17	17	17	17
2 Buildings (Nos)						
a. Housing Units	275	291	465	465	465	465
b. Shopping Stores	4	4	4	4	4	4
c. Factories	0	1	2	2	2	2
d. Pre-Schools	0	1	1	1	1	1
e. Elementary Schools	0	0	0	0	0	0
f. Secondary Schools	0	1	1	1	1	1
g. Tertiary Schools	0	0	0	0	0	0
h. Hospitals	0	0	0	0	0	0
i. Barangay Health Stations	0	0	0	0	0	0
j. Rural Health Units	0	0	0	0	0	0
III. Estimated Value of Damaged Property (Million Pesos in Economic Terms)						
1. Direct Damage	4.1	5.8	8.0	10.7	15.7	15.7
a. Agricultural Production	1.0	1.2	1.3	1.6	1.8	1.8
- Irrigated Field	0.9	1.1	1.2	1.5	1.6	1.6
- Rainfed Field	0.1	0.1	0.2	0.2	0.2	0.2
b. Housing Units	2.0	2.8	4.4	6.4	10.0	10.0
c. Industry	0.4	0.4	0.4	0.4	0.5	0.5
- Shoping Stores	0.4	0.4	0.4	0.4	0.4	0.4
- Factories	0.0	0.0	0.0	0.1	0.1	0.1
d. Infrastructure	0.7	1.5	1.8	2.3	3.5	3.5
- Social Infrastructure	0.0	0.5	0.5	0.5	0.9	0.9
. Educational Facilites	0.0	0.5	0.5	0.5	0.9	0.9
. Medical Facilites	0.0	0.0	0.0	0.0	0.0	0.0
- Physical Infrastructure	0.7	1.0	1.3	1.8	2.6	2.6
2. Indirect Damage	0.4	0.6	0.8	1.1	1.6	1.6
3. Total	4.5	6.4	8.8	11.8	17.3	17.3
IV. Annual Benefit under Present Condition (Million Pesos in Economic Terms)						
Annual Benefit	1.1	2.7	3.5	4.1	4.4	4.6
V. Projection of Benefit under Future Condition (Million Pesos in Economic Terms at 1996 Constant Prices)						
1. In the year 2000	1.3	3.3	4.3	5.0	5.4	5.6
2. In the year 2010	2.0	4.9	6.3	7.4	7.9	8.2
3. In the year 2020	2.6	6.6	8.4	9.8	10.6	11.0

Table J.1.15 Damageable Property, Flood Damage and Flood Control Benefit in Poblacion of Dingras

Item	Return Period (Year)					
	2	5	10	25	50	100
I. Affected Population and Area						
1 Affected Population (Persons)	1,176	3,267	4,228	4,228	5,283	5,283
2 Area Inundated (km^2)	0.8	2.8	4.8	5.5	7.8	7.8
II. Inundated Property						
1 Agricultural Land (ha)						
a. Irrigated Field	32	256	319	344	561	561
b. Rainfed Field	0	0	0	0	0	0
2 Buildings (Nos)						
a. Housing Units	231	642	832	832	1,031	1,031
b. Shopping Stores	1	4	4	4	4	4
c. Factories	0	3	3	3	5	5
d. Pre-Schools	0	2	2	2	2	2
e. Elementary Schools	0	2	3	4	5	5
f. Secondary Schools	0	0	0	0	0	0
g. Tertiary Schools	0	0	0	0	0	0
h. Hospitals	0	1	1	1	1	1
i. Barangay Health Stations	0	1	1	1	1	1
j. Rural Health Units	0	0	0	0	1	1
III. Estimated Value of Damaged Property (Million Pesos in Economic Terms)						
1. Direct Damage	2.2	10.3	16.2	21.4	30.8	34.5
a. Agricultural Production	0.3	1.3	2.1	2.9	4.3	5.6
- Irrigated Field	0.3	1.3	2.1	2.9	4.3	5.6
- Rainfed Field	0.0	0.0	0.0	0.0	0.0	0.0
b. Housing Units	1.5	3.1	3.9	6.8	9.7	11.3
c. Industry	0.1	0.2	0.3	0.3	0.4	0.5
- Shoping Stores	0.1	0.2	0.2	0.2	0.2	0.3
- Factories	0.0	0.1	0.1	0.1	0.2	0.2
d. Infrastructure	0.4	5.7	10.0	11.4	16.3	17.1
- Social Infrastructure	0.0	4.0	7.3	7.8	11.2	11.4
. Educational Facilites	0.0	1.2	2.2	2.8	4.0	4.2
. Medical Facilites	0.0	2.8	5.1	5.1	7.2	7.2
- Physical Infrastructure	0.4	1.7	2.7	3.6	5.1	5.7
2. Indirect Damage	0.2	1.0	1.6	2.1	3.1	3.4
3. Total	2.4	11.3	17.9	23.6	33.8	37.9
IV. Annual Benefit under Present Condition (Million Pesos in Economic Terms)						
Annual Benefit	0.6	2.7	4.1	5.4	5.9	6.3
V. Projection of Benefit under Future Condition (Million Pesos in Economic Terms at 1996 Constant Prices)						
1. In the year 2000	0.7	3.3	5.1	6.6	7.3	7.7
2. In the year 2010	1.1	5.0	7.7	10.0	11.0	11.6
3. In the year 2020	1.4	6.7	10.5	13.4	14.8	15.6

Table J.1.16 Damageable Property, Flood Damage and Flood Control Benefit in Cura River Basin

Item	Return Period (Year)					
	2	5	10	25	50	100
I. Affected Population and Area						
1 Affected Population (Persons)	8,994	10,231	10,552	11,115	11,115	11,115
2 Area Inundated (km^2)	33.5	36.3	37.5	39.0	39.8	40.0
II. Inundated Property						
1 Agricultural Land (ha)						
a. Irrigated Field	2,201	2,521	2,605	2,719	2,736	2,736
b. Rainfed Field	28	29	29	29	29	29
2 Buildings (Nos)						
a. Housing Units	1,803	2,065	2,130	2,243	2,243	2,243
b. Shopping Stores	27	30	31	33	33	33
c. Factories	5	5	5	5	5	5
d. Pre-Schools	0	0	0	1	2	2
e. Elementary Schools	7	8	8	8	8	8
f. Secondary Schools	0	0	0	0	0	0
g. Tertiary Schools	0	0	0	0	0	0
h. Hospitals	0	0	0	0	0	0
i. Barangay Health Stations	0	0	0	0	0	0
j. Rural Health Units	3	4	4	4	4	4
III. Estimated Value of Damaged Property (Million Pesos in Economic Terms)						
1. Direct Damage	71.1	102.7	112.4	122.7	131.8	139.2
a. Agricultural Production	20.9	28.1	30.2	32.4	33.5	35.7
- Irrigated Field	20.7	27.8	29.9	32.1	33.2	35.4
- Rainfed Field	0.2	0.3	0.3	0.3	0.3	0.3
b. Housing Units	28.0	43.3	48.3	52.6	58.1	61.4
c. Industry	2.8	3.7	4.0	4.3	4.4	4.4
- Shoping Stores	2.6	3.5	3.7	3.9	4.0	4.1
- Factories	0.2	0.2	0.3	0.4	0.4	0.4
d. Infrastructure	19.4	27.5	29.9	33.4	35.8	37.7
- Social Infrastructure	7.6	10.4	11.2	13.0	13.8	14.5
. Educational Facilites	5.5	7.2	7.9	9.0	9.5	10.1
. Medical Facilites	2.0	3.2	3.2	4.0	4.4	4.4
- Physical Infrastructure	11.9	17.1	18.7	20.4	22.0	23.2
2. Indirect Damage	7.1	10.3	11.2	12.3	13.2	13.9
3. Total	78.2	113.0	123.6	134.9	145.0	153.1
IV. Annual Benefit under Present Condition (Million Pesos in Economic Terms)						
Annual Benefit	19.6	48.2	60.1	67.8	70.6	72.1
V. Projection of Benefit under Future Condition (Million Pesos in Economic Terms at 1996 Constant Prices)						
1. In the year 2000	23.5	58.0	72.3	81.7	85.1	86.9
2. In the year 2010	34.2	84.6	105.4	119.2	124.3	126.8
3. In the year 2020	46.0	113.7	141.7	160.2	167.1	170.5

Table J.1.17 Damageable Property, Flood Damage and Flood Control Benefit in Solsona River Basin

Item	Return Period (Year)					
	2	5	10	25	50	100
I. Affected Population and Area						
1 Affected Population (Persons)	4,721	5,358	5,358	7,152	7,152	7,811
2 Area Inundated (km^2)	19.0	21.5	22.3	22.8	23.0	25.5
II. Inundated Property						
1 Agricultural Land (ha)						
a. Irrigated Field	1,297	1,448	1,465	1,515	1,515	1,712
b. Rainfed Field	36	36	36	36	36	36
2 Buildings (Nos)						
a. Housing Units	919	1,045	1,045	1,396	1,396	1,520
b. Shopping Stores	16	17	17	24	24	26
c. Factories	7	7	7	7	7	7
d. Pre-Schools	2	2	2	2	2	2
e. Elementary Schools	5	5	5	5	5	5
f. Secondary Schools	2	2	2	2	2	2
g. Tertiary Schools	0	0	0	0	0	0
h. Hospitals	0	0	0	0	0	0
i. Barangay Health Stations	1	1	1	1	1	1
j. Rural Health Units	1	1	1	1	1	1
III. Estimated Value of Damaged Property (Million Pesos in Economic Terms)						
1. Direct Damage	50.0	62.1	66.5	77.1	84.1	95.1
a. Agricultural Production	12.4	15.7	17.0	18.4	19.7	21.4
- Irrigated Field	12.1	15.4	16.7	18.1	19.4	21.0
- Rainfed Field	0.2	0.3	0.3	0.3	0.4	0.4
b. Housing Units	19.1	24.4	25.3	32.2	35.5	42.1
c. Industry	2.0	2.3	2.5	3.1	3.4	4.0
- Shoping Stores	1.7	2.0	2.2	2.8	2.9	3.5
- Factories	0.3	0.3	0.4	0.4	0.5	0.5
d. Infrastructure	16.6	19.6	21.6	23.4	25.5	27.7
- Social Infrastructure	8.2	9.3	10.5	10.5	11.5	11.8
. Educational Facilites	7.5	8.5	9.2	9.2	9.8	10.2
. Medical Facilites	0.8	0.8	1.3	1.3	1.7	1.7
- Physical Infrastructure	8.3	10.3	11.1	12.9	14.0	15.9
2. Indirect Damage	5.0	6.2	6.7	7.7	8.4	9.5
3. Total	55.0	68.3	73.2	84.8	92.5	104.7
IV. Annual Benefit under Present Condition (Million Pesos in Economic Terms)						
Annual Benefit	13.8	32.3	39.3	44.1	45.8	46.8
V. Projection of Benefit under Future Condition (Million Pesos in Economic Terms at 1996 Constant Prices)						
1. In the year 2000	16.6	39.0	47.5	53.3	55.4	56.7
2. In the year 2010	24.5	57.1	69.7	78.2	81.4	83.2
3. In the year 2020	32.9	76.9	93.8	105.2	109.5	111.8

Table J.1.18 Damageable Property, Flood Damage and Flood Control Benefit in Madongan River Basin

Item	Return Period (Year)					
	2	5	10	25	50	100
I. Affected Population and Area						
1 Affected Population (Persons)	8,131	8,605	8,745	8,764	8,918	9,358
2 Area Inundated (km^2)	37.0	39.3	41.3	41.8	42.8	43.8
II. Inundated Property						
1 Agricultural Land (ha)						
a. Irrigated Field	2,009	2,189	2,291	2,307	2,362	2,476
b. Rainfed Field	5	5	5	5	15	15
2 Buildings (Nos)						
a. Housing Units	1,583	1,678	1,707	1,711	1,741	1,829
b. Shopping Stores	26	29	29	29	29	29
c. Factories	1	1	1	1	1	1
d. Pre-Schools	2	2	2	2	2	2
e. Elementary Schools	5	6	7	7	7	8
f. Secondary Schools	1	1	1	1	1	1
g. Tertiary Schools	0	0	0	0	0	0
h. Hospitals	0	0	0	0	0	0
i. Barangay Health Stations	0	0	0	0	0	0
j. Rural Health Units	2	2	2	2	2	2
III. Estimated Value of Damaged Property (Million Pesos in Economic Terms)						
1. Direct Damage	50.7	70.1	77.5	88.0	96.3	107.0
a. Agricultural Production	15.1	18.8	20.4	22.2	24.0	25.2
- Irrigated Field	15.1	18.8	20.4	22.2	24.0	25.1
- Rainfed Field	0.0	0.0	0.0	0.0	0.0	0.0
b. Housing Units	18.3	28.5	31.3	37.5	41.8	48.8
c. Industry	2.1	2.7	2.9	3.0	3.1	3.2
- Shoping Stores	2.1	2.7	2.9	3.0	3.1	3.2
- Factories	0.0	0.0	0.0	0.0	0.0	0.0
d. Infrastructure	15.2	20.0	22.8	25.3	27.4	29.9
- Social Infrastructure	6.7	8.3	9.9	10.6	11.3	12.0
. Educational Facilites	5.5	7.1	8.3	9.0	9.3	10.0
. Medical Facilites	1.2	1.2	1.6	1.6	2.0	2.0
- Physical Infrastructure	8.4	11.7	12.9	14.7	16.1	17.8
2. Indirect Damage	5.1	7.0	7.7	8.8	9.6	10.7
3. Total	55.7	77.1	85.2	96.8	105.9	117.7
IV. Annual Benefit under Present Condition (Million Pesos in Economic Terms)						
Annual Benefit	13.9	33.9	42.0	47.4	49.5	50.6
V. Projection of Benefit under Future Condition (Million Pesos in Economic Terms at 1996 Constant Prices)						
1. In the year 2000	16.7	40.8	50.6	57.2	59.7	61.1
2. In the year 2010	24.4	59.6	74.0	83.7	87.2	89.4
3. In the year 2020	32.9	80.1	99.5	112.5	117.3	120.1

Table J.1.19 Damageable Property, Flood Damage and Flood Control Benefit in Papa River Basin

Item	Return Period (Year)					
	2	5	10	25	50	100
I. Affected Population and Area						
1 Affected Population (Persons)	3,495	3,926	4,494	4,651	4,769	4,769
2 Area Inundated (km^2)	17.3	18.8	19.0	19.5	19.8	20.0
II. Inundated Property						
1 Agricultural Land (ha)						
a. Irrigated Field	1,190	1,270	1,304	1,351	1,391	1,414
b. Rainfed Field	28	32	32	32	32	32
2 Buildings (Nos)						
a. Housing Units	682	767	880	910	934	934
b. Shopping Stores	11	12	14	14	14	14
c. Factories	2	2	2	2	2	2
d. Pre-Schools	0	0	0	0	0	0
e. Elementary Schools	5	5	5	5	5	5
f. Secondary Schools	1	1	1	1	1	1
g. Tertiary Schools	0	0	0	0	0	0
h. Hospitals	0	0	0	0	0	0
i. Barangay Health Stations	0	0	0	0	0	0
j. Rural Health Units	0	0	0	0	0	1
III. Estimated Value of Damaged Property (Million Pesos in Economic Terms)						
1. Direct Damage	23.9	26.3	27.2	34.4	37.9	39.1
a. Agricultural Production	6.5	7.2	7.5	8.6	9.5	9.9
- Irrigated Field	6.3	6.9	7.2	8.4	9.2	9.7
- Rainfed Field	0.2	0.3	0.3	0.3	0.3	0.3
b. Housing Units	7.7	9.0	9.3	13.8	15.2	15.3
c. Industry	1.2	1.3	1.4	1.7	1.8	1.8
- Shoping Stores	1.1	1.3	1.3	1.6	1.7	1.7
- Factories	0.1	0.1	0.1	0.1	0.1	0.1
d. Infrastructure	8.5	8.9	9.0	10.2	11.4	12.0
- Social Infrastructure	4.5	4.5	4.5	4.5	5.1	5.5
. Educational Facilites	4.5	4.5	4.5	4.5	5.1	5.1
. Medical Facilites	0.0	0.0	0.0	0.0	0.0	0.4
- Physical Infrastructure	4.0	4.4	4.5	5.7	6.3	6.5
2. Indirect Damage	2.4	2.6	2.7	3.4	3.8	3.9
3. Total	26.3	28.9	29.9	37.8	41.6	43.0
IV. Annual Benefit under Present Condition (Million Pesos in Economic Terms)						
Annual Benefit	6.6	14.9	17.8	19.8	20.6	21.1
V. Projection of Benefit under Future Condition (Million Pesos in Economic Terms at 1996 Constant Prices)						
1. In the year 2000	7.9	17.9	21.5	24.0	24.9	25.4
2. In the year 2010	11.7	26.3	31.5	35.1	36.5	37.3
3. In the year 2020	15.7	35.5	42.5	47.2	49.2	50.2

Table J.1.20 Damageable Property, Flood Damage and Flood Control Benefit in Lower Bongo

Item	Return Period (Year)					
	2	5	10	25	50	100
I. Affected Population and Area						
1 Affected Population (Persons)	199	280	379	480	480	480
2 Area Inundated (km^2)	3.3	3.8	4.0	4.0	4.3	4.3
II. Inundated Property						
1 Agricultural Land (ha)						
a. Irrigated Field	64	98	111	145	170	170
b. Rainfed Field	0	0	0	0	0	0
2 Buildings (Nos)						
a. Housing Units	38	54	72	92	92	92
b. Shopping Stores	0	1	2	3	3	3
c. Factories	0	0	0	0	0	0
d. Pre-Schools	0	0	0	0	0	0
e. Elementary Schools	0	0	0	0	0	0
f. Secondary Schools	0	0	0	0	0	0
g. Tertiary Schools	0	0	0	0	0	0
h. Hospitals	0	0	0	0	0	0
i. Barangay Health Stations	0	0	0	0	0	0
j. Rural Health Units	1	1	1	1	1	1
III. Estimated Value of Damaged Property (Million Pesos in Economic Terms)						
1. Direct Damage	4.9	6.4	8.6	10.4	11.4	11.8
a. Agricultural Production	1.0	1.3	1.5	2.0	2.4	2.6
- Irrigated Field	1.0	1.3	1.5	2.0	2.4	2.6
- Rainfed Field	0.0	0.0	0.0	0.0	0.0	0.0
b. Housing Units	1.8	2.5	4.0	4.8	5.3	5.4
c. Industry	0.0	0.2	0.4	0.5	0.5	0.6
- Shoping Stores	0.0	0.2	0.4	0.5	0.5	0.6
- Factories	0.0	0.0	0.0	0.0	0.0	0.0
d. Infrastructure	2.2	2.4	2.8	3.1	3.3	3.3
- Social Infrastructure	1.3	1.3	1.3	1.3	1.3	1.3
. Educational Facilites	0.0	0.0	0.0	0.0	0.0	0.0
. Medical Facilites	1.3	1.3	1.3	1.3	1.3	1.3
- Physical Infrastructure	0.8	1.1	1.4	1.7	1.9	2.0
2. Indirect Damage	0.5	0.6	0.9	1.0	1.1	1.2
3. Total	5.4	7.0	9.4	11.4	12.6	13.0
IV. Annual Benefit under Present Condition (Million Pesos in Economic Terms)						
Annual Benefit	1.4	3.2	4.0	4.7	4.9	5.0
V. Projection of Benefit under Future Condition (Million Pesos in Economic Terms at 1996 Constant Prices)						
1. In the year 2000	1.7	3.9	4.9	5.7	6.0	6.1
2. In the year 2010	2.5	5.8	7.3	8.4	8.8	9.0
3. In the year 2020	3.3	7.8	9.8	11.2	11.8	12.0

Table J.1.21 Damageable Property, Flood Damage and Flood Control Benefit in Upper Bongo

Item	Return Period (Year)					
	2	5	10	25	50	100
I. Affected Population and Area						
1 Affected Population (Persons)	1,160	1,498	1,498	1,528	1,865	1,865
2 Area Inundated (km^2)	3.5	4.8	5.0	5.5	7.3	7.3
II. Inundated Property						
1 Agricultural Land (ha)						
a. Irrigated Field	191	301	326	348	467	467
b. Rainfed Field	0	0	0	0	0	0
2 Buildings (Nos)						
a. Housing Units	214	275	275	281	341	341
b. Shopping Stores	6	7	7	7	7	7
c. Factories	0	0	0	0	0	0
d. Pre-Schools	0	0	0	0	0	0
e. Elementary Schools	0	0	1	1	1	1
f. Secondary Schools	0	0	0	0	0	0
g. Tertiary Schools	0	0	0	0	0	0
h. Hospitals	0	0	0	0	0	0
i. Barangay Health Stations	0	0	0	0	0	0
j. Rural Health Units	1	1	1	1	1	1
III. Estimated Value of Damaged Property (Million Pesos in Economic Terms)						
1. Direct Damage	7.8	11.4	12.7	15.5	19.2	20.0
a. Agricultural Production	1.6	2.3	2.7	2.9	4.4	4.6
- Irrigated Field	1.6	2.3	2.7	2.9	4.4	4.6
- Rainfed Field	0.0	0.0	0.0	0.0	0.0	0.0
b. Housing Units	3.9	5.9	6.1	7.7	9.3	9.6
c. Industry	0.6	0.8	0.8	1.0	1.0	1.1
- Shoping Stores	0.6	0.8	0.8	1.0	1.0	1.1
- Factories	0.0	0.0	0.0	0.0	0.0	0.0
d. Infrastructure	1.7	2.3	3.0	3.9	4.5	4.6
- Social Infrastructure	0.4	0.4	0.9	1.3	1.3	1.3
. Educational Facilites	0.0	0.0	0.5	0.5	0.5	0.5
. Medical Facilites	0.4	0.4	0.4	0.8	0.8	0.8
- Physical Infrastructure	1.3	1.9	2.1	2.6	3.2	3.3
2. Indirect Damage	0.8	1.1	1.3	1.5	1.9	2.0
3. Total	8.6	12.6	13.9	17.0	21.1	22.0
IV. Annual Benefit under Present Condition (Million Pesos in Economic Terms)						
Annual Benefit	2.1	5.3	6.6	7.6	7.9	8.2
V. Projection of Benefit under Future Condition (Million Pesos in Economic Terms at 1996 Constant Prices)						
1. In the year 2000	2.6	6.4	8.0	9.2	9.6	9.8
2. In the year 2010	3.8	9.4	11.8	13.5	14.0	14.4
3. In the year 2020	5.1	12.6	15.8	18.1	18.8	19.3

Table J.1.22 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Tangid Laoag under Present Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	3.67		3.67			0.00	-3.67
2	2000	6.59		6.59		0.02	-0.02	-6.59
3	2001	6.59	0.03	6.62	1.46	0.02	1.44	-5.15
4	2002	6.59	0.06	6.64	2.93	0.02	2.91	-3.72
5	2003	6.59	0.09	6.67	4.39	0.02	4.37	-2.28
6	2004		0.11	0.11	5.86	0.02	5.83	5.74
7	2005		0.11	0.11	5.86	0.02	5.83	5.74
8	2006		0.11	0.11	5.86	0.02	5.83	5.74
9	2007		0.11	0.11	5.86	0.02	5.83	5.74
10	2008		0.11	0.11	5.86	0.02	5.83	5.74
11	2009		0.11	0.11	5.86	0.02	5.83	5.74
12	2010		0.11	0.11	5.86	0.02	5.83	5.74
13	2011		0.11	0.11	5.86	0.02	5.83	5.74
14	2012		0.11	0.11	5.86	0.02	5.83	5.74
15	2013		0.11	0.11	5.86	0.02	5.83	5.74
16	2014		0.11	0.11	5.86	0.02	5.83	5.74
17	2015		0.11	0.11	5.86	0.02	5.83	5.74
18	2016		0.11	0.11	5.86	0.02	5.83	5.74
19	2017		0.11	0.11	5.86	0.02	5.83	5.74
20	2018		0.11	0.11	5.86	0.02	5.83	5.74
21	2019		0.11	0.11	5.86	0.02	5.83	5.74
22	2020		0.11	0.11	5.86	0.02	5.83	5.74
23	2021		0.11	0.11	5.86	0.02	5.83	5.74
24	2022		0.11	0.11	5.86	0.02	5.83	5.74
25	2023		0.11	0.11	5.86	0.02	5.83	5.74
26	2024		0.11	0.11	5.86	0.02	5.83	5.74
27	2025		0.11	0.11	5.86	0.02	5.83	5.74
28	2026		0.11	0.11	5.86	0.02	5.83	5.74
29	2027		0.11	0.11	5.86	0.02	5.83	5.74
30	2028		0.11	0.11	5.86	0.02	5.83	5.74
31	2029		0.11	0.11	5.86	0.02	5.83	5.74
32	2030		0.11	0.11	5.86	0.02	5.83	5.74
33	2031		0.11	0.11	5.86	0.02	5.83	5.74
34	2032		0.11	0.11	5.86	0.02	5.83	5.74
35	2033		0.11	0.11	5.86	0.02	5.83	5.74
36	2034		0.11	0.11	5.86	0.02	5.83	5.74
37	2035		0.11	0.11	5.86	0.02	5.83	5.74
38	2036		0.11	0.11	5.86	0.02	5.83	5.74
39	2037		0.11	0.11	5.86	0.02	5.83	5.74
40	2038		0.11	0.11	5.86	0.02	5.83	5.74
41	2039		0.11	0.11	5.86	0.02	5.83	5.74
42	2040		0.11	0.11	5.86	0.02	5.83	5.74
43	2041		0.11	0.11	5.86	0.02	5.83	5.74
44	2042		0.11	0.11	5.86	0.02	5.83	5.74
45	2043		0.11	0.11	5.86	0.02	5.83	5.74
46	2044		0.11	0.11	5.86	0.02	5.83	5.74
47	2045		0.11	0.11	5.86	0.02	5.83	5.74
48	2046		0.11	0.11	5.86	0.02	5.83	5.74
49	2047		0.11	0.11	5.86	0.02	5.83	5.74
50	2048		0.11	0.11	5.86	0.02	5.83	5.74
51	2049		0.11	0.11	5.86	0.02	5.83	5.74
52	2050		0.11	0.11	5.86	0.02	5.83	5.74
53	2051		0.11	0.11	5.86	0.02	5.83	5.74
54	2052		0.11	0.11	5.86	0.02	5.83	5.74
55	2053		0.11	0.11	5.86	0.02	5.83	5.74

NPV: 4.1 B/C: 1.20 EIRR : 18.1%

Table J.1.23 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Suyo Laoag under Present Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	1.54		1.54			0.00	-1.54
2	2000	2.76		2.76		0.01	-0.01	-2.76
3	2001	2.76	0.01	2.77	0.26	0.01	0.25	-2.51
4	2002	2.76	0.02	2.78	0.52	0.01	0.51	-2.27
5	2003	2.76	0.04	2.80	0.78	0.01	0.77	-2.02
6	2004		0.05	0.05	1.04	0.01	1.03	0.99
7	2005		0.05	0.05	1.04	0.01	1.03	0.99
8	2006		0.05	0.05	1.04	0.01	1.03	0.99
9	2007		0.05	0.05	1.04	0.01	1.03	0.99
10	2008		0.05	0.05	1.04	0.01	1.03	0.99
11	2009		0.05	0.05	1.04	0.01	1.03	0.99
12	2010		0.05	0.05	1.04	0.01	1.03	0.99
13	2011		0.05	0.05	1.04	0.01	1.03	0.99
14	2012		0.05	0.05	1.04	0.01	1.03	0.99
15	2013		0.05	0.05	1.04	0.01	1.03	0.99
16	2014		0.05	0.05	1.04	0.01	1.03	0.99
17	2015		0.05	0.05	1.04	0.01	1.03	0.99
18	2016		0.05	0.05	1.04	0.01	1.03	0.99
19	2017		0.05	0.05	1.04	0.01	1.03	0.99
20	2018		0.05	0.05	1.04	0.01	1.03	0.99
21	2019		0.05	0.05	1.04	0.01	1.03	0.99
22	2020		0.05	0.05	1.04	0.01	1.03	0.99
23	2021		0.05	0.05	1.04	0.01	1.03	0.99
24	2022		0.05	0.05	1.04	0.01	1.03	0.99
25	2023		0.05	0.05	1.04	0.01	1.03	0.99
26	2024		0.05	0.05	1.04	0.01	1.03	0.99
27	2025		0.05	0.05	1.04	0.01	1.03	0.99
28	2026		0.05	0.05	1.04	0.01	1.03	0.99
29	2027		0.05	0.05	1.04	0.01	1.03	0.99
30	2028		0.05	0.05	1.04	0.01	1.03	0.99
31	2029		0.05	0.05	1.04	0.01	1.03	0.99
32	2030		0.05	0.05	1.04	0.01	1.03	0.99
33	2031		0.05	0.05	1.04	0.01	1.03	0.99
34	2032		0.05	0.05	1.04	0.01	1.03	0.99
35	2033		0.05	0.05	1.04	0.01	1.03	0.99
36	2034		0.05	0.05	1.04	0.01	1.03	0.99
37	2035		0.05	0.05	1.04	0.01	1.03	0.99
38	2036		0.05	0.05	1.04	0.01	1.03	0.99
39	2037		0.05	0.05	1.04	0.01	1.03	0.99
40	2038		0.05	0.05	1.04	0.01	1.03	0.99
41	2039		0.05	0.05	1.04	0.01	1.03	0.99
42	2040		0.05	0.05	1.04	0.01	1.03	0.99
43	2041		0.05	0.05	1.04	0.01	1.03	0.99
44	2042		0.05	0.05	1.04	0.01	1.03	0.99
45	2043		0.05	0.05	1.04	0.01	1.03	0.99
46	2044		0.05	0.05	1.04	0.01	1.03	0.99
47	2045		0.05	0.05	1.04	0.01	1.03	0.99
48	2046		0.05	0.05	1.04	0.01	1.03	0.99
49	2047		0.05	0.05	1.04	0.01	1.03	0.99
50	2048		0.05	0.05	1.04	0.01	1.03	0.99
51	2049		0.05	0.05	1.04	0.01	1.03	0.99
52	2050		0.05	0.05	1.04	0.01	1.03	0.99
53	2051		0.05	0.05	1.04	0.01	1.03	0.99
54	2052		0.05	0.05	1.04	0.01	1.03	0.99
55	2053		0.05	0.05	1.04	0.01	1.03	0.99

NPV: -1.2 B/C: 0.50 EIRR : 7.5%

Table J.1.24 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Poblacion of Laoag under Present Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	6.35		6.35			0.00	-6.35
2	2000	11.34		11.34		0.00	0.00	-11.34
3	2001	11.34	0.05	11.39	3.05	0.00	3.05	-8.35
4	2002	11.34	0.10	11.44	6.09	0.00	6.09	-5.35
5	2003	11.34	0.15	11.49	9.14	0.00	9.14	-2.35
6	2004		0.20	0.20	12.19	0.00	12.19	11.99
7	2005		0.20	0.20	12.19	0.00	12.19	11.99
8	2006		0.20	0.20	12.19	0.00	12.19	11.99
9	2007		0.20	0.20	12.19	0.00	12.19	11.99
10	2008		0.20	0.20	12.19	0.00	12.19	11.99
11	2009		0.20	0.20	12.19	0.00	12.19	11.99
12	2010		0.20	0.20	12.19	0.00	12.19	11.99
13	2011		0.20	0.20	12.19	0.00	12.19	11.99
14	2012		0.20	0.20	12.19	0.00	12.19	11.99
15	2013		0.20	0.20	12.19	0.00	12.19	11.99
16	2014		0.20	0.20	12.19	0.00	12.19	11.99
17	2015		0.20	0.20	12.19	0.00	12.19	11.99
18	2016		0.20	0.20	12.19	0.00	12.19	11.99
19	2017		0.20	0.20	12.19	0.00	12.19	11.99
20	2018		0.20	0.20	12.19	0.00	12.19	11.99
21	2019		0.20	0.20	12.19	0.00	12.19	11.99
22	2020		0.20	0.20	12.19	0.00	12.19	11.99
23	2021		0.20	0.20	12.19	0.00	12.19	11.99
24	2022		0.20	0.20	12.19	0.00	12.19	11.99
25	2023		0.20	0.20	12.19	0.00	12.19	11.99
26	2024		0.20	0.20	12.19	0.00	12.19	11.99
27	2025		0.20	0.20	12.19	0.00	12.19	11.99
28	2026		0.20	0.20	12.19	0.00	12.19	11.99
29	2027		0.20	0.20	12.19	0.00	12.19	11.99
30	2028		0.20	0.20	12.19	0.00	12.19	11.99
31	2029		0.20	0.20	12.19	0.00	12.19	11.99
32	2030		0.20	0.20	12.19	0.00	12.19	11.99
33	2031		0.20	0.20	12.19	0.00	12.19	11.99
34	2032		0.20	0.20	12.19	0.00	12.19	11.99
35	2033		0.20	0.20	12.19	0.00	12.19	11.99
36	2034		0.20	0.20	12.19	0.00	12.19	11.99
37	2035		0.20	0.20	12.19	0.00	12.19	11.99
38	2036		0.20	0.20	12.19	0.00	12.19	11.99
39	2037		0.20	0.20	12.19	0.00	12.19	11.99
40	2038		0.20	0.20	12.19	0.00	12.19	11.99
41	2039		0.20	0.20	12.19	0.00	12.19	11.99
42	2040		0.20	0.20	12.19	0.00	12.19	11.99
43	2041		0.20	0.20	12.19	0.00	12.19	11.99
44	2042		0.20	0.20	12.19	0.00	12.19	11.99
45	2043		0.20	0.20	12.19	0.00	12.19	11.99
46	2044		0.20	0.20	12.19	0.00	12.19	11.99
47	2045		0.20	0.20	12.19	0.00	12.19	11.99
48	2046		0.20	0.20	12.19	0.00	12.19	11.99
49	2047		0.20	0.20	12.19	0.00	12.19	11.99
50	2048		0.20	0.20	12.19	0.00	12.19	11.99
51	2049		0.20	0.20	12.19	0.00	12.19	11.99
52	2050		0.20	0.20	12.19	0.00	12.19	11.99
53	2051		0.20	0.20	12.19	0.00	12.19	11.99
54	2052		0.20	0.20	12.19	0.00	12.19	11.99
55	2053		0.20	0.20	12.19	0.00	12.19	11.99

NPV: 15.9 B/C: 1.46 EIRR : 21.6%

Table J.1.25 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Camangaan Laoag under Present Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	3.60		3.60			0.00	-3.60
2	2000	6.47		6.47		0.02	-0.02	-6.47
3	2001	6.47	0.03	6.50	1.00	0.02	0.98	-5.50
4	2002	6.47	0.06	6.53	2.00	0.02	1.98	-4.53
5	2003	6.47	0.08	6.55	2.99	0.02	2.98	-3.56
6	2004		0.11	0.11	3.99	0.02	3.97	3.88
7	2005		0.11	0.11	3.99	0.02	3.97	3.88
8	2006		0.11	0.11	3.99	0.02	3.97	3.88
9	2007		0.11	0.11	3.99	0.02	3.97	3.88
10	2008		0.11	0.11	3.99	0.02	3.97	3.88
11	2009		0.11	0.11	3.99	0.02	3.97	3.88
12	2010		0.11	0.11	3.99	0.02	3.97	3.88
13	2011		0.11	0.11	3.99	0.02	3.97	3.88
14	2012		0.11	0.11	3.99	0.02	3.97	3.88
15	2013		0.11	0.11	3.99	0.02	3.97	3.88
16	2014		0.11	0.11	3.99	0.02	3.97	3.88
17	2015		0.11	0.11	3.99	0.02	3.97	3.88
18	2016		0.11	0.11	3.99	0.02	3.97	3.88
19	2017		0.11	0.11	3.99	0.02	3.97	3.88
20	2018		0.11	0.11	3.99	0.02	3.97	3.88
21	2019		0.11	0.11	3.99	0.02	3.97	3.88
22	2020		0.11	0.11	3.99	0.02	3.97	3.88
23	2021		0.11	0.11	3.99	0.02	3.97	3.88
24	2022		0.11	0.11	3.99	0.02	3.97	3.88
25	2023		0.11	0.11	3.99	0.02	3.97	3.88
26	2024		0.11	0.11	3.99	0.02	3.97	3.88
27	2025		0.11	0.11	3.99	0.02	3.97	3.88
28	2026		0.11	0.11	3.99	0.02	3.97	3.88
29	2027		0.11	0.11	3.99	0.02	3.97	3.88
30	2028		0.11	0.11	3.99	0.02	3.97	3.88
31	2029		0.11	0.11	3.99	0.02	3.97	3.88
32	2030		0.11	0.11	3.99	0.02	3.97	3.88
33	2031		0.11	0.11	3.99	0.02	3.97	3.88
34	2032		0.11	0.11	3.99	0.02	3.97	3.88
35	2033		0.11	0.11	3.99	0.02	3.97	3.88
36	2034		0.11	0.11	3.99	0.02	3.97	3.88
37	2035		0.11	0.11	3.99	0.02	3.97	3.88
38	2036		0.11	0.11	3.99	0.02	3.97	3.88
39	2037		0.11	0.11	3.99	0.02	3.97	3.88
40	2038		0.11	0.11	3.99	0.02	3.97	3.88
41	2039		0.11	0.11	3.99	0.02	3.97	3.88
42	2040		0.11	0.11	3.99	0.02	3.97	3.88
43	2041		0.11	0.11	3.99	0.02	3.97	3.88
44	2042		0.11	0.11	3.99	0.02	3.97	3.88
45	2043		0.11	0.11	3.99	0.02	3.97	3.88
46	2044		0.11	0.11	3.99	0.02	3.97	3.88
47	2045		0.11	0.11	3.99	0.02	3.97	3.88
48	2046		0.11	0.11	3.99	0.02	3.97	3.88
49	2047		0.11	0.11	3.99	0.02	3.97	3.88
50	2048		0.11	0.11	3.99	0.02	3.97	3.88
51	2049		0.11	0.11	3.99	0.02	3.97	3.88
52	2050		0.11	0.11	3.99	0.02	3.97	3.88
53	2051		0.11	0.11	3.99	0.02	3.97	3.88
54	2052		0.11	0.11	3.99	0.02	3.97	3.88
55	2053		0.11	0.11	3.99	0.02	3.97	3.88

NPV: -3.3 B/C: 0.83 EIRR : 12.6%

Table J.1.26 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Poblacion of San Nicolas under Present Condition

(Unit : Million Pesos)

Serial	Year	Cost			Benefit			Balance
Year		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	2.93		2.93			0.00	-2.93
2	2000	5.25		5.25		0.01	-0.01	-5.25
3	2001	5.25	0.02	5.28	0.88	0.01	0.87	-4.39
4	2002	5.25	0.05	5.30	1.77	0.01	1.75	-3.53
5	2003	5.25	0.07	5.32	2.65	0.01	2.63	-2.67
6	2004		0.09	0.09	3.53	0.01	3.52	3.44
7	2005		0.09	0.09	3.53	0.01	3.52	3.44
8	2006		0.09	0.09	3.53	0.01	3.52	3.44
9	2007		0.09	0.09	3.53	0.01	3.52	3.44
10	2008		0.09	0.09	3.53	0.01	3.52	3.44
11	2009		0.09	0.09	3.53	0.01	3.52	3.44
12	2010		0.09	0.09	3.53	0.01	3.52	3.44
13	2011		0.09	0.09	3.53	0.01	3.52	3.44
14	2012		0.09	0.09	3.53	0.01	3.52	3.44
15	2013		0.09	0.09	3.53	0.01	3.52	3.44
16	2014		0.09	0.09	3.53	0.01	3.52	3.44
17	2015		0.09	0.09	3.53	0.01	3.52	3.44
18	2016		0.09	0.09	3.53	0.01	3.52	3.44
19	2017		0.09	0.09	3.53	0.01	3.52	3.44
20	2018		0.09	0.09	3.53	0.01	3.52	3.44
21	2019		0.09	0.09	3.53	0.01	3.52	3.44
22	2020		0.09	0.09	3.53	0.01	3.52	3.44
23	2021		0.09	0.09	3.53	0.01	3.52	3.44
24	2022		0.09	0.09	3.53	0.01	3.52	3.44
25	2023		0.09	0.09	3.53	0.01	3.52	3.44
26	2024		0.09	0.09	3.53	0.01	3.52	3.44
27	2025		0.09	0.09	3.53	0.01	3.52	3.44
28	2026		0.09	0.09	3.53	0.01	3.52	3.44
29	2027		0.09	0.09	3.53	0.01	3.52	3.44
30	2028		0.09	0.09	3.53	0.01	3.52	3.44
31	2029		0.09	0.09	3.53	0.01	3.52	3.44
32	2030		0.09	0.09	3.53	0.01	3.52	3.44
33	2031		0.09	0.09	3.53	0.01	3.52	3.44
34	2032		0.09	0.09	3.53	0.01	3.52	3.44
35	2033		0.09	0.09	3.53	0.01	3.52	3.44
36	2034		0.09	0.09	3.53	0.01	3.52	3.44
37	2035		0.09	0.09	3.53	0.01	3.52	3.44
38	2036		0.09	0.09	3.53	0.01	3.52	3.44
39	2037		0.09	0.09	3.53	0.01	3.52	3.44
40	2038		0.09	0.09	3.53	0.01	3.52	3.44
41	2039		0.09	0.09	3.53	0.01	3.52	3.44
42	2040		0.09	0.09	3.53	0.01	3.52	3.44
43	2041		0.09	0.09	3.53	0.01	3.52	3.44
44	2042		0.09	0.09	3.53	0.01	3.52	3.44
45	2043		0.09	0.09	3.53	0.01	3.52	3.44
46	2044		0.09	0.09	3.53	0.01	3.52	3.44
47	2045		0.09	0.09	3.53	0.01	3.52	3.44
48	2046		0.09	0.09	3.53	0.01	3.52	3.44
49	2047		0.09	0.09	3.53	0.01	3.52	3.44
50	2048		0.09	0.09	3.53	0.01	3.52	3.44
51	2049		0.09	0.09	3.53	0.01	3.52	3.44
52	2050		0.09	0.09	3.53	0.01	3.52	3.44
53	2051		0.09	0.09	3.53	0.01	3.52	3.44
54	2052		0.09	0.09	3.53	0.01	3.52	3.44
55	2053		0.09	0.09	3.53	0.01	3.52	3.44

NPV: -1.4 B/C: 0.91 EIRR : 13.7%

Table J.1.27 Economic Cost and Benefit Stream of Sabo and Flood Control Project in San Manuel Sarrat under Present Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	1.82		1.82			0.00	-1.82
2	2000	3.38		3.38		0.01	-0.01	-3.38
3	2001	3.38	0.01	3.39	0.53	0.01	0.52	-2.86
4	2002	3.38	0.03	3.41	1.06	0.01	1.05	-2.35
5	2003	3.38	0.04	3.42	1.59	0.01	1.57	-1.83
6	2004		0.06	0.06	2.12	0.01	2.10	2.06
7	2005		0.06	0.06	2.12	0.01	2.10	2.06
8	2006		0.06	0.06	2.12	0.01	2.10	2.06
9	2007		0.06	0.06	2.12	0.01	2.10	2.06
10	2008		0.06	0.06	2.12	0.01	2.10	2.06
11	2009		0.06	0.06	2.12	0.01	2.10	2.06
12	2010		0.06	0.06	2.12	0.01	2.10	2.06
13	2011		0.06	0.06	2.12	0.01	2.10	2.06
14	2012		0.06	0.06	2.12	0.01	2.10	2.06
15	2013		0.06	0.06	2.12	0.01	2.10	2.06
16	2014		0.06	0.06	2.12	0.01	2.10	2.06
17	2015		0.06	0.06	2.12	0.01	2.10	2.06
18	2016		0.06	0.06	2.12	0.01	2.10	2.06
19	2017		0.06	0.06	2.12	0.01	2.10	2.06
20	2018		0.06	0.06	2.12	0.01	2.10	2.06
21	2019		0.06	0.06	2.12	0.01	2.10	2.06
22	2020		0.06	0.06	2.12	0.01	2.10	2.06
23	2021		0.06	0.06	2.12	0.01	2.10	2.06
24	2022		0.06	0.06	2.12	0.01	2.10	2.06
25	2023		0.06	0.06	2.12	0.01	2.10	2.06
26	2024		0.06	0.06	2.12	0.01	2.10	2.06
27	2025		0.06	0.06	2.12	0.01	2.10	2.06
28	2026		0.06	0.06	2.12	0.01	2.10	2.06
29	2027		0.06	0.06	2.12	0.01	2.10	2.06
30	2028		0.06	0.06	2.12	0.01	2.10	2.06
31	2029		0.06	0.06	2.12	0.01	2.10	2.06
32	2030		0.06	0.06	2.12	0.01	2.10	2.06
33	2031		0.06	0.06	2.12	0.01	2.10	2.06
34	2032		0.06	0.06	2.12	0.01	2.10	2.06
35	2033		0.06	0.06	2.12	0.01	2.10	2.06
36	2034		0.06	0.06	2.12	0.01	2.10	2.06
37	2035		0.06	0.06	2.12	0.01	2.10	2.06
38	2036		0.06	0.06	2.12	0.01	2.10	2.06
39	2037		0.06	0.06	2.12	0.01	2.10	2.06
40	2038		0.06	0.06	2.12	0.01	2.10	2.06
41	2039		0.06	0.06	2.12	0.01	2.10	2.06
42	2040		0.06	0.06	2.12	0.01	2.10	2.06
43	2041		0.06	0.06	2.12	0.01	2.10	2.06
44	2042		0.06	0.06	2.12	0.01	2.10	2.06
45	2043		0.06	0.06	2.12	0.01	2.10	2.06
46	2044		0.06	0.06	2.12	0.01	2.10	2.06
47	2045		0.06	0.06	2.12	0.01	2.10	2.06
48	2046		0.06	0.06	2.12	0.01	2.10	2.06
49	2047		0.06	0.06	2.12	0.01	2.10	2.06
50	2048		0.06	0.06	2.12	0.01	2.10	2.06
51	2049		0.06	0.06	2.12	0.01	2.10	2.06
52	2050		0.06	0.06	2.12	0.01	2.10	2.06
53	2051		0.06	0.06	2.12	0.01	2.10	2.06
54	2052		0.06	0.06	2.12	0.01	2.10	2.06
55	2053		0.06	0.06	2.12	0.01	2.10	2.06

NPV: -1.5 B/C: 0.85 EIRR : 12.9%

Table J.1.28 Economic Cost and Benefit Stream of Sabo and Flood Control Project in San Felipe Sarat under Present Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	4.22		4.22			0.00	-4.22
2	2000	7.57		7.57		0.02	-0.02	-7.57
3	2001	7.57	0.03	7.60	0.17	0.02	0.15	-7.43
4	2002	7.57	0.07	7.63	0.34	0.02	0.32	-7.29
5	2003	7.57	0.10	7.67	0.51	0.02	0.49	-7.16
6	2004		0.13	0.13	0.68	0.02	0.66	0.55
7	2005		0.13	0.13	0.68	0.02	0.66	0.55
8	2006		0.13	0.13	0.68	0.02	0.66	0.55
9	2007		0.13	0.13	0.68	0.02	0.66	0.55
10	2008		0.13	0.13	0.68	0.02	0.66	0.55
11	2009		0.13	0.13	0.68	0.02	0.66	0.55
12	2010		0.13	0.13	0.68	0.02	0.66	0.55
13	2011		0.13	0.13	0.68	0.02	0.66	0.55
14	2012		0.13	0.13	0.68	0.02	0.66	0.55
15	2013		0.13	0.13	0.68	0.02	0.66	0.55
16	2014		0.13	0.13	0.68	0.02	0.66	0.55
17	2015		0.13	0.13	0.68	0.02	0.66	0.55
18	2016		0.13	0.13	0.68	0.02	0.66	0.55
19	2017		0.13	0.13	0.68	0.02	0.66	0.55
20	2018		0.13	0.13	0.68	0.02	0.66	0.55
21	2019		0.13	0.13	0.68	0.02	0.66	0.55
22	2020		0.13	0.13	0.68	0.02	0.66	0.55
23	2021		0.13	0.13	0.68	0.02	0.66	0.55
24	2022		0.13	0.13	0.68	0.02	0.66	0.55
25	2023		0.13	0.13	0.68	0.02	0.66	0.55
26	2024		0.13	0.13	0.68	0.02	0.66	0.55
27	2025		0.13	0.13	0.68	0.02	0.66	0.55
28	2026		0.13	0.13	0.68	0.02	0.66	0.55
29	2027		0.13	0.13	0.68	0.02	0.66	0.55
30	2028		0.13	0.13	0.68	0.02	0.66	0.55
31	2029		0.13	0.13	0.68	0.02	0.66	0.55
32	2030		0.13	0.13	0.68	0.02	0.66	0.55
33	2031		0.13	0.13	0.68	0.02	0.66	0.55
34	2032		0.13	0.13	0.68	0.02	0.66	0.55
35	2033		0.13	0.13	0.68	0.02	0.66	0.55
36	2034		0.13	0.13	0.68	0.02	0.66	0.55
37	2035		0.13	0.13	0.68	0.02	0.66	0.55
38	2036		0.13	0.13	0.68	0.02	0.66	0.55
39	2037		0.13	0.13	0.68	0.02	0.66	0.55
40	2038		0.13	0.13	0.68	0.02	0.66	0.55
41	2039		0.13	0.13	0.68	0.02	0.66	0.55
42	2040		0.13	0.13	0.68	0.02	0.66	0.55
43	2041		0.13	0.13	0.68	0.02	0.66	0.55
44	2042		0.13	0.13	0.68	0.02	0.66	0.55
45	2043		0.13	0.13	0.68	0.02	0.66	0.55
46	2044		0.13	0.13	0.68	0.02	0.66	0.55
47	2045		0.13	0.13	0.68	0.02	0.66	0.55
48	2046		0.13	0.13	0.68	0.02	0.66	0.55
49	2047		0.13	0.13	0.68	0.02	0.66	0.55
50	2048		0.13	0.13	0.68	0.02	0.66	0.55
51	2049		0.13	0.13	0.68	0.02	0.66	0.55
52	2050		0.13	0.13	0.68	0.02	0.66	0.55
53	2051		0.13	0.13	0.68	0.02	0.66	0.55
54	2052		0.13	0.13	0.68	0.02	0.66	0.55
55	2053		0.13	0.13	0.68	0.02	0.66	0.55

NPV: -20.3 B/C: 0.12 EIRR : -0.7%

Table J.1.29 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Sto. Tomas Sarat under Present Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	1.76		1.76			0.00	-1.76
2	2000	3.15		3.15		0.01	-0.01	-3.16
3	2001	3.15	0.01	3.17	0.03	0.01	0.02	-3.15
4	2002	3.15	0.03	3.18	0.06	0.01	0.05	-3.13
5	2003	3.15	0.04	3.19	0.09	0.01	0.08	-3.11
6	2004		0.05	0.05	0.12	0.01	0.11	0.05
7	2005		0.05	0.05	0.12	0.01	0.11	0.05
8	2006		0.05	0.05	0.12	0.01	0.11	0.05
9	2007		0.05	0.05	0.12	0.01	0.11	0.05
10	2008		0.05	0.05	0.12	0.01	0.11	0.05
11	2009		0.05	0.05	0.12	0.01	0.11	0.05
12	2010		0.05	0.05	0.12	0.01	0.11	0.05
13	2011		0.05	0.05	0.12	0.01	0.11	0.05
14	2012		0.05	0.05	0.12	0.01	0.11	0.05
15	2013		0.05	0.05	0.12	0.01	0.11	0.05
16	2014		0.05	0.05	0.12	0.01	0.11	0.05
17	2015		0.05	0.05	0.12	0.01	0.11	0.05
18	2016		0.05	0.05	0.12	0.01	0.11	0.05
19	2017		0.05	0.05	0.12	0.01	0.11	0.05
20	2018		0.05	0.05	0.12	0.01	0.11	0.05
21	2019		0.05	0.05	0.12	0.01	0.11	0.05
22	2020		0.05	0.05	0.12	0.01	0.11	0.05
23	2021		0.05	0.05	0.12	0.01	0.11	0.05
24	2022		0.05	0.05	0.12	0.01	0.11	0.05
25	2023		0.05	0.05	0.12	0.01	0.11	0.05
26	2024		0.05	0.05	0.12	0.01	0.11	0.05
27	2025		0.05	0.05	0.12	0.01	0.11	0.05
28	2026		0.05	0.05	0.12	0.01	0.11	0.05
29	2027		0.05	0.05	0.12	0.01	0.11	0.05
30	2028		0.05	0.05	0.12	0.01	0.11	0.05
31	2029		0.05	0.05	0.12	0.01	0.11	0.05
32	2030		0.05	0.05	0.12	0.01	0.11	0.05
33	2031		0.05	0.05	0.12	0.01	0.11	0.05
34	2032		0.05	0.05	0.12	0.01	0.11	0.05
35	2033		0.05	0.05	0.12	0.01	0.11	0.05
36	2034		0.05	0.05	0.12	0.01	0.11	0.05
37	2035		0.05	0.05	0.12	0.01	0.11	0.05
38	2036		0.05	0.05	0.12	0.01	0.11	0.05
39	2037		0.05	0.05	0.12	0.01	0.11	0.05
40	2038		0.05	0.05	0.12	0.01	0.11	0.05
41	2039		0.05	0.05	0.12	0.01	0.11	0.05
42	2040		0.05	0.05	0.12	0.01	0.11	0.05
43	2041		0.05	0.05	0.12	0.01	0.11	0.05
44	2042		0.05	0.05	0.12	0.01	0.11	0.05
45	2043		0.05	0.05	0.12	0.01	0.11	0.05
46	2044		0.05	0.05	0.12	0.01	0.11	0.05
47	2045		0.05	0.05	0.12	0.01	0.11	0.05
48	2046		0.05	0.05	0.12	0.01	0.11	0.05
49	2047		0.05	0.05	0.12	0.01	0.11	0.05
50	2048		0.05	0.05	0.12	0.01	0.11	0.05
51	2049		0.05	0.05	0.12	0.01	0.11	0.05
52	2050		0.05	0.05	0.12	0.01	0.11	0.05
53	2051		0.05	0.05	0.12	0.01	0.11	0.05
54	2052		0.05	0.05	0.12	0.01	0.11	0.05
55	2053		0.05	0.05	0.12	0.01	0.11	0.05

NPV: -9.1 B/C: 0.04

Table J.1.30 Economic Cost and Benefit Stream of Sabo and Flood Control Project in San Marcos Sarrat under Present Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	1.15		1.15			0.00	-1.15
2	2000	2.06		2.06		0.01	-0.01	-2.07
3	2001	2.06	0.01	2.07	0.02	0.01	0.01	-2.06
4	2002	2.06	0.02	2.08	0.03	0.01	0.02	-2.06
5	2003	2.06	0.03	2.09	0.05	0.01	0.04	-2.05
6	2004		0.04	0.01	0.06	0.01	0.05	0.04
7	2005		0.01	0.01	0.06	0.01	0.05	0.04
8	2006		0.01	0.01	0.06	0.01	0.05	0.04
9	2007		0.01	0.01	0.06	0.01	0.05	0.04
10	2008		0.01	0.01	0.06	0.01	0.05	0.04
11	2009		0.01	0.01	0.06	0.01	0.05	0.04
12	2010		0.01	0.01	0.06	0.01	0.05	0.04
13	2011		0.01	0.01	0.06	0.01	0.05	0.04
14	2012		0.01	0.01	0.06	0.01	0.05	0.04
15	2013		0.01	0.01	0.06	0.01	0.05	0.04
16	2014		0.01	0.01	0.06	0.01	0.05	0.04
17	2015		0.01	0.01	0.06	0.01	0.05	0.04
18	2016		0.01	0.01	0.06	0.01	0.05	0.04
19	2017		0.01	0.01	0.06	0.01	0.05	0.04
20	2018		0.01	0.01	0.06	0.01	0.05	0.04
21	2019		0.01	0.01	0.06	0.01	0.05	0.04
22	2020		0.01	0.01	0.06	0.01	0.05	0.04
23	2021		0.01	0.01	0.06	0.01	0.05	0.04
24	2022		0.01	0.01	0.06	0.01	0.05	0.04
25	2023		0.01	0.01	0.06	0.01	0.05	0.04
26	2024		0.01	0.01	0.06	0.01	0.05	0.04
27	2025		0.01	0.01	0.06	0.01	0.05	0.04
28	2026		0.01	0.01	0.06	0.01	0.05	0.04
29	2027		0.01	0.01	0.06	0.01	0.05	0.04
30	2028		0.01	0.01	0.06	0.01	0.05	0.04
31	2029		0.01	0.01	0.06	0.01	0.05	0.04
32	2030		0.01	0.01	0.06	0.01	0.05	0.04
33	2031		0.01	0.01	0.06	0.01	0.05	0.04
34	2032		0.01	0.01	0.06	0.01	0.05	0.04
35	2033		0.01	0.01	0.06	0.01	0.05	0.04
36	2034		0.01	0.01	0.06	0.01	0.05	0.04
37	2035		0.01	0.01	0.06	0.01	0.05	0.04
38	2036		0.01	0.01	0.06	0.01	0.05	0.04
39	2037		0.01	0.01	0.06	0.01	0.05	0.04
40	2038		0.01	0.01	0.06	0.01	0.05	0.04
41	2039		0.01	0.01	0.06	0.01	0.05	0.04
42	2040		0.01	0.01	0.06	0.01	0.05	0.04
43	2041		0.01	0.01	0.06	0.01	0.05	0.04
44	2042		0.01	0.01	0.06	0.01	0.05	0.04
45	2043		0.01	0.01	0.06	0.01	0.05	0.04
46	2044		0.01	0.01	0.06	0.01	0.05	0.04
47	2045		0.01	0.01	0.06	0.01	0.05	0.04
48	2046		0.01	0.01	0.06	0.01	0.05	0.04
49	2047		0.01	0.01	0.06	0.01	0.05	0.04
50	2048		0.01	0.01	0.06	0.01	0.05	0.04
51	2049		0.01	0.01	0.06	0.01	0.05	0.04
52	2050		0.01	0.01	0.06	0.01	0.05	0.04
53	2051		0.01	0.01	0.06	0.01	0.05	0.04
54	2052		0.01	0.01	0.06	0.01	0.05	0.04
55	2053		0.01	0.01	0.06	0.01	0.05	0.04

NPV: -6.0 B/C: 0.03 EIRR : -4.4%

Table J.1.31 Economic Cost and Benefit Stream of Sabo and Flood Control Project in San Cristobal Sarat under Present Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	3.37		3.37			0.00	-3.37
2	2000	6.02		6.02		0.01	-0.01	-6.03
3	2001	6.02	0.03	6.05	0.31	0.01	0.31	-5.74
4	2002	6.02	0.05	6.08	0.63	0.01	0.62	-5.45
5	2003	6.02	0.08	6.10	0.94	0.01	0.94	-5.16
6	2004		0.10	0.10	1.26	0.01	1.25	1.15
7	2005		0.10	0.10	1.26	0.01	1.25	1.15
8	2006		0.10	0.10	1.26	0.01	1.25	1.15
9	2007		0.10	0.10	1.26	0.01	1.25	1.15
10	2008		0.10	0.10	1.26	0.01	1.25	1.15
11	2009		0.10	0.10	1.26	0.01	1.25	1.15
12	2010		0.10	0.10	1.26	0.01	1.25	1.15
13	2011		0.10	0.10	1.26	0.01	1.25	1.15
14	2012		0.10	0.10	1.26	0.01	1.25	1.15
15	2013		0.10	0.10	1.26	0.01	1.25	1.15
16	2014		0.10	0.10	1.26	0.01	1.25	1.15
17	2015		0.10	0.10	1.26	0.01	1.25	1.15
18	2016		0.10	0.10	1.26	0.01	1.25	1.15
19	2017		0.10	0.10	1.26	0.01	1.25	1.15
20	2018		0.10	0.10	1.26	0.01	1.25	1.15
21	2019		0.10	0.10	1.26	0.01	1.25	1.15
22	2020		0.10	0.10	1.26	0.01	1.25	1.15
23	2021		0.10	0.10	1.26	0.01	1.25	1.15
24	2022		0.10	0.10	1.26	0.01	1.25	1.15
25	2023		0.10	0.10	1.26	0.01	1.25	1.15
26	2024		0.10	0.10	1.26	0.01	1.25	1.15
27	2025		0.10	0.10	1.26	0.01	1.25	1.15
28	2026		0.10	0.10	1.26	0.01	1.25	1.15
29	2027		0.10	0.10	1.26	0.01	1.25	1.15
30	2028		0.10	0.10	1.26	0.01	1.25	1.15
31	2029		0.10	0.10	1.26	0.01	1.25	1.15
32	2030		0.10	0.10	1.26	0.01	1.25	1.15
33	2031		0.10	0.10	1.26	0.01	1.25	1.15
34	2032		0.10	0.10	1.26	0.01	1.25	1.15
35	2033		0.10	0.10	1.26	0.01	1.25	1.15
36	2034		0.10	0.10	1.26	0.01	1.25	1.15
37	2035		0.10	0.10	1.26	0.01	1.25	1.15
38	2036		0.10	0.10	1.26	0.01	1.25	1.15
39	2037		0.10	0.10	1.26	0.01	1.25	1.15
40	2038		0.10	0.10	1.26	0.01	1.25	1.15
41	2039		0.10	0.10	1.26	0.01	1.25	1.15
42	2040		0.10	0.10	1.26	0.01	1.25	1.15
43	2041		0.10	0.10	1.26	0.01	1.25	1.15
44	2042		0.10	0.10	1.26	0.01	1.25	1.15
45	2043		0.10	0.10	1.26	0.01	1.25	1.15
46	2044		0.10	0.10	1.26	0.01	1.25	1.15
47	2045		0.10	0.10	1.26	0.01	1.25	1.15
48	2046		0.10	0.10	1.26	0.01	1.25	1.15
49	2047		0.10	0.10	1.26	0.01	1.25	1.15
50	2048		0.10	0.10	1.26	0.01	1.25	1.15
51	2049		0.10	0.10	1.26	0.01	1.25	1.15
52	2050		0.10	0.10	1.26	0.01	1.25	1.15
53	2051		0.10	0.10	1.26	0.01	1.25	1.15
54	2052		0.10	0.10	1.26	0.01	1.25	1.15
55	2053		0.10	0.10	1.26	0.01	1.25	1.15

NPV: -13.2 B/C: 0.28 EIRR : 3.4%

Table J.1.32 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Guisit River/Mandaloque under Present Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	21.32		21.32			0.00	-21.32
2	2000	38.21		38.21		0.08	-0.08	-38.29
3	2001	38.21	0.17	38.37	1.58	0.08	1.50	-36.87
4	2002	38.21	0.33	38.54	3.17	0.08	3.08	-35.45
5	2003	38.21	0.50	38.70	4.75	0.08	4.67	-34.04
6	2004		0.66	0.17	6.33	0.08	6.25	6.09
7	2005		0.66	0.66	6.33	0.08	6.25	5.59
8	2006		0.66	0.66	6.33	0.08	6.25	5.59
9	2007		0.66	0.66	6.33	0.08	6.25	5.59
10	2008		0.66	0.66	6.33	0.08	6.25	5.59
11	2009		0.66	0.66	6.33	0.08	6.25	5.59
12	2010		0.66	0.66	6.33	0.08	6.25	5.59
13	2011		0.66	0.66	6.33	0.08	6.25	5.59
14	2012		0.66	0.66	6.33	0.08	6.25	5.59
15	2013		0.66	0.66	6.33	0.08	6.25	5.59
16	2014		0.66	0.66	6.33	0.08	6.25	5.59
17	2015		0.66	0.66	6.33	0.08	6.25	5.59
18	2016		0.66	0.66	6.33	0.08	6.25	5.59
19	2017		0.66	0.66	6.33	0.08	6.25	5.59
20	2018		0.66	0.66	6.33	0.08	6.25	5.59
21	2019		0.66	0.66	6.33	0.08	6.25	5.59
22	2020		0.66	0.66	6.33	0.08	6.25	5.59
23	2021		0.66	0.66	6.33	0.08	6.25	5.59
24	2022		0.66	0.66	6.33	0.08	6.25	5.59
25	2023		0.66	0.66	6.33	0.08	6.25	5.59
26	2024		0.66	0.66	6.33	0.08	6.25	5.59
27	2025		0.66	0.66	6.33	0.08	6.25	5.59
28	2026		0.66	0.66	6.33	0.08	6.25	5.59
29	2027		0.66	0.66	6.33	0.08	6.25	5.59
30	2028		0.66	0.66	6.33	0.08	6.25	5.59
31	2029		0.66	0.66	6.33	0.08	6.25	5.59
32	2030		0.66	0.66	6.33	0.08	6.25	5.59
33	2031		0.66	0.66	6.33	0.08	6.25	5.59
34	2032		0.66	0.66	6.33	0.08	6.25	5.59
35	2033		0.66	0.66	6.33	0.08	6.25	5.59
36	2034		0.66	0.66	6.33	0.08	6.25	5.59
37	2035		0.66	0.66	6.33	0.08	6.25	5.59
38	2036		0.66	0.66	6.33	0.08	6.25	5.59
39	2037		0.66	0.66	6.33	0.08	6.25	5.59
40	2038		0.66	0.66	6.33	0.08	6.25	5.59
41	2039		0.66	0.66	6.33	0.08	6.25	5.59
42	2040		0.66	0.66	6.33	0.08	6.25	5.59
43	2041		0.66	0.66	6.33	0.08	6.25	5.59
44	2042		0.66	0.66	6.33	0.08	6.25	5.59
45	2043		0.66	0.66	6.33	0.08	6.25	5.59
46	2044		0.66	0.66	6.33	0.08	6.25	5.59
47	2045		0.66	0.66	6.33	0.08	6.25	5.59
48	2046		0.66	0.66	6.33	0.08	6.25	5.59
49	2047		0.66	0.66	6.33	0.08	6.25	5.59
50	2048		0.66	0.66	6.33	0.08	6.25	5.59
51	2049		0.66	0.66	6.33	0.08	6.25	5.59
52	2050		0.66	0.66	6.33	0.08	6.25	5.59
53	2051		0.66	0.66	6.33	0.08	6.25	5.59
54	2052		0.66	0.66	6.33	0.08	6.25	5.59
55	2053		0.66	0.66	6.33	0.08	6.25	5.59

NPV: -90.2 B/C: 0.22 EIRR : 2.1%

Table J.1.33 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Suyo Dingras under Present Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	3.34		3.34			0.00	-3.34
2	2000	5.98		5.98		0.01	-0.01	-5.99
3	2001	5.98	0.03	6.00	1.03	0.01	1.02	-4.98
4	2002	5.98	0.05	6.03	2.06	0.01	2.05	-3.98
5	2003	5.98	0.08	6.05	3.09	0.01	3.08	-2.97
6	2004		0.10	0.10	4.12	0.01	4.11	4.01
7	2005		0.10	0.10	4.12	0.01	4.11	4.01
8	2006		0.10	0.10	4.12	0.01	4.11	4.01
9	2007		0.10	0.10	4.12	0.01	4.11	4.01
10	2008		0.10	0.10	4.12	0.01	4.11	4.01
11	2009		0.10	0.10	4.12	0.01	4.11	4.01
12	2010		0.10	0.10	4.12	0.01	4.11	4.01
13	2011		0.10	0.10	4.12	0.01	4.11	4.01
14	2012		0.10	0.10	4.12	0.01	4.11	4.01
15	2013		0.10	0.10	4.12	0.01	4.11	4.01
16	2014		0.10	0.10	4.12	0.01	4.11	4.01
17	2015		0.10	0.10	4.12	0.01	4.11	4.01
18	2016		0.10	0.10	4.12	0.01	4.11	4.01
19	2017		0.10	0.10	4.12	0.01	4.11	4.01
20	2018		0.10	0.10	4.12	0.01	4.11	4.01
21	2019		0.10	0.10	4.12	0.01	4.11	4.01
22	2020		0.10	0.10	4.12	0.01	4.11	4.01
23	2021		0.10	0.10	4.12	0.01	4.11	4.01
24	2022		0.10	0.10	4.12	0.01	4.11	4.01
25	2023		0.10	0.10	4.12	0.01	4.11	4.01
26	2024		0.10	0.10	4.12	0.01	4.11	4.01
27	2025		0.10	0.10	4.12	0.01	4.11	4.01
28	2026		0.10	0.10	4.12	0.01	4.11	4.01
29	2027		0.10	0.10	4.12	0.01	4.11	4.01
30	2028		0.10	0.10	4.12	0.01	4.11	4.01
31	2029		0.10	0.10	4.12	0.01	4.11	4.01
32	2030		0.10	0.10	4.12	0.01	4.11	4.01
33	2031		0.10	0.10	4.12	0.01	4.11	4.01
34	2032		0.10	0.10	4.12	0.01	4.11	4.01
35	2033		0.10	0.10	4.12	0.01	4.11	4.01
36	2034		0.10	0.10	4.12	0.01	4.11	4.01
37	2035		0.10	0.10	4.12	0.01	4.11	4.01
38	2036		0.10	0.10	4.12	0.01	4.11	4.01
39	2037		0.10	0.10	4.12	0.01	4.11	4.01
40	2038		0.10	0.10	4.12	0.01	4.11	4.01
41	2039		0.10	0.10	4.12	0.01	4.11	4.01
42	2040		0.10	0.10	4.12	0.01	4.11	4.01
43	2041		0.10	0.10	4.12	0.01	4.11	4.01
44	2042		0.10	0.10	4.12	0.01	4.11	4.01
45	2043		0.10	0.10	4.12	0.01	4.11	4.01
46	2044		0.10	0.10	4.12	0.01	4.11	4.01
47	2045		0.10	0.10	4.12	0.01	4.11	4.01
48	2046		0.10	0.10	4.12	0.01	4.11	4.01
49	2047		0.10	0.10	4.12	0.01	4.11	4.01
50	2048		0.10	0.10	4.12	0.01	4.11	4.01
51	2049		0.10	0.10	4.12	0.01	4.11	4.01
52	2050		0.10	0.10	4.12	0.01	4.11	4.01
53	2051		0.10	0.10	4.12	0.01	4.11	4.01
54	2052		0.10	0.10	4.12	0.01	4.11	4.01
55	2053		0.10	0.10	4.12	0.01	4.11	4.01

NPV: -1.2 B/C: 0.93 EIRR : 14.0%

Table J.1.34 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Poblacion of Dingras under Present Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	4.14		4.14			0.00	-4.14
2	2000	7.44		7.44		0.02	-0.02	-7.46
3	2001	7.44	0.03	7.47	1.34	0.02	1.32	-6.15
4	2002	7.44	0.06	7.50	2.68	0.02	2.66	-4.84
5	2003	7.44	0.10	7.53	4.02	0.02	4.00	-3.53
6	2004		0.13	0.13	5.36	0.02	5.34	5.21
7	2005		0.13	0.13	5.36	0.02	5.34	5.21
8	2006		0.13	0.13	5.36	0.02	5.34	5.21
9	2007		0.13	0.13	5.36	0.02	5.34	5.21
10	2008		0.13	0.13	5.36	0.02	5.34	5.21
11	2009		0.13	0.13	5.36	0.02	5.34	5.21
12	2010		0.13	0.13	5.36	0.02	5.34	5.21
13	2011		0.13	0.13	5.36	0.02	5.34	5.21
14	2012		0.13	0.13	5.36	0.02	5.34	5.21
15	2013		0.13	0.13	5.36	0.02	5.34	5.21
16	2014		0.13	0.13	5.36	0.02	5.34	5.21
17	2015		0.13	0.13	5.36	0.02	5.34	5.21
18	2016		0.13	0.13	5.36	0.02	5.34	5.21
19	2017		0.13	0.13	5.36	0.02	5.34	5.21
20	2018		0.13	0.13	5.36	0.02	5.34	5.21
21	2019		0.13	0.13	5.36	0.02	5.34	5.21
22	2020		0.13	0.13	5.36	0.02	5.34	5.21
23	2021		0.13	0.13	5.36	0.02	5.34	5.21
24	2022		0.13	0.13	5.36	0.02	5.34	5.21
25	2023		0.13	0.13	5.36	0.02	5.34	5.21
26	2024		0.13	0.13	5.36	0.02	5.34	5.21
27	2025		0.13	0.13	5.36	0.02	5.34	5.21
28	2026		0.13	0.13	5.36	0.02	5.34	5.21
29	2027		0.13	0.13	5.36	0.02	5.34	5.21
30	2028		0.13	0.13	5.36	0.02	5.34	5.21
31	2029		0.13	0.13	5.36	0.02	5.34	5.21
32	2030		0.13	0.13	5.36	0.02	5.34	5.21
33	2031		0.13	0.13	5.36	0.02	5.34	5.21
34	2032		0.13	0.13	5.36	0.02	5.34	5.21
35	2033		0.13	0.13	5.36	0.02	5.34	5.21
36	2034		0.13	0.13	5.36	0.02	5.34	5.21
37	2035		0.13	0.13	5.36	0.02	5.34	5.21
38	2036		0.13	0.13	5.36	0.02	5.34	5.21
39	2037		0.13	0.13	5.36	0.02	5.34	5.21
40	2038		0.13	0.13	5.36	0.02	5.34	5.21
41	2039		0.13	0.13	5.36	0.02	5.34	5.21
42	2040		0.13	0.13	5.36	0.02	5.34	5.21
43	2041		0.13	0.13	5.36	0.02	5.34	5.21
44	2042		0.13	0.13	5.36	0.02	5.34	5.21
45	2043		0.13	0.13	5.36	0.02	5.34	5.21
46	2044		0.13	0.13	5.36	0.02	5.34	5.21
47	2045		0.13	0.13	5.36	0.02	5.34	5.21
48	2046		0.13	0.13	5.36	0.02	5.34	5.21
49	2047		0.13	0.13	5.36	0.02	5.34	5.21
50	2048		0.13	0.13	5.36	0.02	5.34	5.21
51	2049		0.13	0.13	5.36	0.02	5.34	5.21
52	2050		0.13	0.13	5.36	0.02	5.34	5.21
53	2051		0.13	0.13	5.36	0.02	5.34	5.21
54	2052		0.13	0.13	5.36	0.02	5.34	5.21
55	2053		0.13	0.13	5.36	0.02	5.34	5.21

NPV: -0.6 B/C: 0.98 EIRR : 14.6%

Table J.1.35 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Cura River Basin under Present Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit					Balance
		Construct'n	O&M	Total	Flood Ctrl	Loss Preven.	Land Restra.	Negative	Total	
1	1999	84.48		84.48					0.00	-84.48
2	2000	150.93		150.93				0.00	-0.00	-150.93
3	2001	150.93	0.48	151.41	16.96			0.00	16.95	-134.45
4	2002	150.93	0.96	151.89	33.91			0.00	33.91	-117.98
5	2003	150.93	1.43	152.37	50.87			0.00	50.87	-101.50
6	2004		1.91	1.91	67.83	1.66	0.44	0.00	69.92	68.01
7	2005		1.91	1.91	67.83	3.32	0.88	0.00	72.02	70.10
8	2006		1.91	1.91	67.83	4.97	1.31	0.00	74.11	72.20
9	2007		1.91	1.91	67.83	6.63	1.75	0.00	76.21	74.29
10	2008		1.91	1.91	67.83	8.29	2.19	0.00	78.30	76.39
11	2009	9.31	1.91	11.22	67.83	9.95	2.19	0.00	79.96	68.74
12	2010	15.96	1.91	17.87	67.83	11.61	2.19	0.00	81.62	63.75
13	2011	15.96	1.91	17.87	67.83	13.26	2.19	0.00	83.28	65.41
14	2012	15.96	1.91	17.87	67.83	14.92	2.19	0.00	84.93	67.07
15	2013	15.96	1.91	17.87	67.83	16.58	2.19	0.00	86.59	68.72
16	2014		1.91	1.91	67.83	18.24	2.19	0.00	88.25	86.34
17	2015		1.91	1.91	67.83	19.90	2.19	0.00	89.91	88.00
18	2016		1.91	1.91	67.83	21.55	2.19	0.00	91.57	89.65
19	2017		1.91	1.91	67.83	23.21	2.19	0.00	93.22	91.31
20	2018		1.91	1.91	67.83	24.87	2.19	0.00	94.88	92.97
21	2019		1.91	1.91	67.83	26.53	2.19	0.00	96.54	94.63
22	2020		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
23	2021		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
24	2022		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
25	2023		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
26	2024		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
27	2025		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
28	2026		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
29	2027		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
30	2028		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
31	2029		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
32	2030		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
33	2031		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
34	2032		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
35	2033		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
36	2034		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
37	2035		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
38	2036		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
39	2037		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
40	2038		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
41	2039		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
42	2040		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
43	2041		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
44	2042		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
45	2043		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
46	2044		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
47	2045		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
48	2046		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
49	2047		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
50	2048		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
51	2049		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
52	2050		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
53	2051		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
54	2052		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29
55	2053		1.91	1.91	67.83	28.19	2.19	0.00	98.20	96.29

NPV: -143.7 B/C: 0.69 EIRR : 10.7%

Table J.1.36 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Solsona River Basin under Present Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit					Balance
		Construct'n	O&M	Total	Flood Ctrl	Loss Preven.	Land Restra.	Negative	Total	
1	1999	37.21		37.21					0.00	-37.21
2	2000	66.48		66.48				0.00	-0.00	-66.48
3	2001	66.48	0.22	66.70	11.02			0.00	11.02	-55.68
4	2002	66.48	0.43	66.92	22.04			0.00	22.03	-44.88
5	2003	66.48	0.65	67.13	33.05			0.00	33.05	-34.08
6	2004		0.87	0.87	44.07	0.68	0.10	0.00	44.86	43.99
7	2005		0.87	0.87	44.07	1.37	0.20	0.00	45.64	44.77
8	2006		0.87	0.87	44.07	2.05	0.31	0.00	46.43	45.56
9	2007		0.87	0.87	44.07	2.73	0.41	0.00	47.21	46.34
10	2008		0.87	0.87	44.07	3.42	0.51	0.00	48.00	47.13
11	2009	5.16	0.87	6.03	44.07	4.10	0.51	0.00	48.68	42.65
12	2010	8.85	0.87	9.72	44.07	4.78	0.51	0.00	49.36	39.65
13	2011	8.85	0.87	9.72	44.07	5.46	0.51	0.00	50.05	40.33
14	2012	8.85	0.87	9.72	44.07	6.15	0.51	0.00	50.73	41.01
15	2013	8.85	0.87	9.72	44.07	6.83	0.51	0.00	51.41	41.69
16	2014		0.87	0.87	44.07	7.51	0.51	0.00	52.10	51.23
17	2015		0.87	0.87	44.07	8.20	0.51	0.00	52.78	51.91
18	2016		0.87	0.87	44.07	8.88	0.51	0.00	53.46	52.59
19	2017		0.87	0.87	44.07	9.56	0.51	0.00	54.14	53.28
20	2018		0.87	0.87	44.07	10.25	0.51	0.00	54.83	53.96
21	2019		0.87	0.87	44.07	10.93	0.51	0.00	55.51	54.64
22	2020		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
23	2021		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
24	2022		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
25	2023		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
26	2024		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
27	2025		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
28	2026		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
29	2027		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
30	2028		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
31	2029		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
32	2030		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
33	2031		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
34	2032		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
35	2033		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
36	2034		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
37	2035		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
38	2036		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
39	2037		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
40	2038		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
41	2039		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
42	2040		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
43	2041		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
44	2042		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
45	2043		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
46	2044		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
47	2045		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
48	2046		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
49	2047		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
50	2048		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
51	2049		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
52	2050		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
53	2051		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
54	2052		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33
55	2053		0.87	0.87	44.07	11.61	0.51	0.00	56.19	55.33

NPV: -8.3 B/C: 0.96 EIRR : 14.4%

Table J.1.37 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Madongan River Basin under Present Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit					Balance
		Construct'n	O&M	Total	Flood Ctrl	Loss Preven.	Land Restra.	Negative	Total	
1	1999	43.48		43.48					0.00	-43.48
2	2000	77.68		77.68				0.00	0.00	-77.68
3	2001	77.68	0.28	77.97	11.86			0.00	11.86	-66.11
4	2002	77.68	0.57	78.25	23.71			0.00	23.71	-54.54
5	2003	77.68	0.85	78.53	35.57			0.00	35.57	-42.96
6	2004		1.14	1.14	47.43	0.41	0.50	0.00	48.34	47.20
7	2005		1.14	1.14	47.43	0.82	1.01	0.00	49.25	48.12
8	2006		1.14	1.14	47.43	1.23	1.51	0.00	50.17	49.03
9	2007		1.14	1.14	47.43	1.64	2.01	0.00	51.08	49.94
10	2008		1.14	1.14	47.43	2.05	2.51	0.00	51.99	50.86
11	2009		1.14	1.14	47.43	2.46	2.51	0.00	52.40	51.27
12	2010		1.14	1.14	47.43	2.87	2.51	0.00	52.81	51.68
13	2011		1.14	1.14	47.43	3.28	2.51	0.00	53.22	52.09
14	2012		1.14	1.14	47.43	3.69	2.51	0.00	53.63	52.50
15	2013		1.14	1.14	47.43	4.10	2.51	0.00	54.04	52.91
16	2014		1.14	1.14	47.43	4.51	2.51	0.00	54.45	53.32
17	2015		1.14	1.14	47.43	4.92	2.51	0.00	54.86	53.73
18	2016		1.14	1.14	47.43	5.33	2.51	0.00	55.27	54.14
19	2017		1.14	1.14	47.43	5.74	2.51	0.00	55.68	54.55
20	2018		1.14	1.14	47.43	6.15	2.51	0.00	56.09	54.96
21	2019		1.14	1.14	47.43	6.56	2.51	0.00	56.50	55.37
22	2020		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
23	2021		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
24	2022		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
25	2023		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
26	2024		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
27	2025		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
28	2026		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
29	2027		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
30	2028		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
31	2029		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
32	2030		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
33	2031		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
34	2032		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
35	2033		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
36	2034		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
37	2035		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
38	2036		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
39	2037		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
40	2038		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
41	2039		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
42	2040		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
43	2041		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
44	2042		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
45	2043		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
46	2044		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
47	2045		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
48	2046		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
49	2047		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
50	2048		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
51	2049		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
52	2050		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
53	2051		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
54	2052		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78
55	2053		1.14	1.14	47.43	6.97	2.51	0.00	56.91	55.78

NPV: -23.4 B/C: 0.90 EIRR : 13.6%

Table J.1.38 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Papa River Basin under Present Condition

(Unit : Million Pesos)

Serial	Year	Cost			Benefit					Balance
Year		Construct'n	O&M	Total	Flood Ctrl	Loss Preven.	Land Restra.	Negative	Total	
1	1999	29.01		29.01					0.00	-29.01
2	2000	51.83		51.83				0.00	0.00	-51.83
3	2001	51.83	0.17	52.01	4.96			0.00	4.96	-47.05
4	2002	51.83	0.34	52.18	9.92			0.00	9.92	-42.26
5	2003	51.83	0.52	52.35	14.88			0.00	14.88	-37.47
6	2004		0.69	0.69	19.84	0.18	0.01	0.00	20.02	19.34
7	2005		0.69	0.69	19.84	0.36	0.01	0.00	20.21	19.52
8	2006		0.69	0.69	19.84	0.55	0.02	0.00	20.40	19.71
9	2007		0.69	0.69	19.84	0.73	0.02	0.00	20.59	19.90
10	2008		0.69	0.69	19.84	0.91	0.03	0.00	20.77	20.09
11	2009		0.69	0.69	19.84	1.09	0.03	0.00	20.96	20.27
12	2010		0.69	0.69	19.84	1.27	0.03	0.00	21.14	20.45
13	2011		0.69	0.69	19.84	1.46	0.03	0.00	21.32	20.63
14	2012		0.69	0.69	19.84	1.64	0.03	0.00	21.50	20.81
15	2013		0.69	0.69	19.84	1.82	0.03	0.00	21.68	21.00
16	2014		0.69	0.69	19.84	2.00	0.03	0.00	21.87	21.18
17	2015		0.69	0.69	19.84	2.18	0.03	0.00	22.05	21.36
18	2016		0.69	0.69	19.84	2.37	0.03	0.00	22.23	21.54
19	2017		0.69	0.69	19.84	2.55	0.03	0.00	22.41	21.72
20	2018		0.69	0.69	19.84	2.73	0.03	0.00	22.59	21.91
21	2019		0.69	0.69	19.84	2.91	0.03	0.00	22.78	22.09
22	2020		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
23	2021		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
24	2022		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
25	2023		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
26	2024		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
27	2025		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
28	2026		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
29	2027		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
30	2028		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
31	2029		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
32	2030		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
33	2031		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
34	2032		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
35	2033		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
36	2034		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
37	2035		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
38	2036		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
39	2037		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
40	2038		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
41	2039		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
42	2040		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
43	2041		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
44	2042		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
45	2043		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
46	2044		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
47	2045		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
48	2046		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
49	2047		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
50	2048		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
51	2049		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
52	2050		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
53	2051		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
54	2052		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27
55	2053		0.69	0.69	19.84	3.09	0.03	0.00	22.96	22.27

NPV: -70.5 B/C: 0.55 EIRR : 8.4%

Table J.1.39 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Lower Bong under Present Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	12.22		12.22			0.00	-12.22
2	2000	21.87		21.87		0.02	-0.02	-21.89
3	2001	21.87	0.09	21.96	1.17	0.02	1.15	-20.82
4	2002	21.87	0.19	22.06	2.34	0.02	2.31	-19.75
5	2003	21.87	0.28	22.15	3.51	0.02	3.48	-18.67
6	2004		0.38	0.38	4.67	0.02	4.65	4.27
7	2005		0.38	0.38	4.67	0.02	4.65	4.27
8	2006		0.38	0.38	4.67	0.02	4.65	4.27
9	2007		0.38	0.38	4.67	0.02	4.65	4.27
10	2008		0.38	0.38	4.67	0.02	4.65	4.27
11	2009		0.38	0.38	4.67	0.02	4.65	4.27
12	2010		0.38	0.38	4.67	0.02	4.65	4.27
13	2011		0.38	0.38	4.67	0.02	4.65	4.27
14	2012		0.38	0.38	4.67	0.02	4.65	4.27
15	2013		0.38	0.38	4.67	0.02	4.65	4.27
16	2014		0.38	0.38	4.67	0.02	4.65	4.27
17	2015		0.38	0.38	4.67	0.02	4.65	4.27
18	2016		0.38	0.38	4.67	0.02	4.65	4.27
19	2017		0.38	0.38	4.67	0.02	4.65	4.27
20	2018		0.38	0.38	4.67	0.02	4.65	4.27
21	2019		0.38	0.38	4.67	0.02	4.65	4.27
22	2020		0.38	0.38	4.67	0.02	4.65	4.27
23	2021		0.38	0.38	4.67	0.02	4.65	4.27
24	2022		0.38	0.38	4.67	0.02	4.65	4.27
25	2023		0.38	0.38	4.67	0.02	4.65	4.27
26	2024		0.38	0.38	4.67	0.02	4.65	4.27
27	2025		0.38	0.38	4.67	0.02	4.65	4.27
28	2026		0.38	0.38	4.67	0.02	4.65	4.27
29	2027		0.38	0.38	4.67	0.02	4.65	4.27
30	2028		0.38	0.38	4.67	0.02	4.65	4.27
31	2029		0.38	0.38	4.67	0.02	4.65	4.27
32	2030		0.38	0.38	4.67	0.02	4.65	4.27
33	2031		0.38	0.38	4.67	0.02	4.65	4.27
34	2032		0.38	0.38	4.67	0.02	4.65	4.27
35	2033		0.38	0.38	4.67	0.02	4.65	4.27
36	2034		0.38	0.38	4.67	0.02	4.65	4.27
37	2035		0.38	0.38	4.67	0.02	4.65	4.27
38	2036		0.38	0.38	4.67	0.02	4.65	4.27
39	2037		0.38	0.38	4.67	0.02	4.65	4.27
40	2038		0.38	0.38	4.67	0.02	4.65	4.27
41	2039		0.38	0.38	4.67	0.02	4.65	4.27
42	2040		0.38	0.38	4.67	0.02	4.65	4.27
43	2041		0.38	0.38	4.67	0.02	4.65	4.27
44	2042		0.38	0.38	4.67	0.02	4.65	4.27
45	2043		0.38	0.38	4.67	0.02	4.65	4.27
46	2044		0.38	0.38	4.67	0.02	4.65	4.27
47	2045		0.38	0.38	4.67	0.02	4.65	4.27
48	2046		0.38	0.38	4.67	0.02	4.65	4.27
49	2047		0.38	0.38	4.67	0.02	4.65	4.27
50	2048		0.38	0.38	4.67	0.02	4.65	4.27
51	2049		0.38	0.38	4.67	0.02	4.65	4.27
52	2050		0.38	0.38	4.67	0.02	4.65	4.27
53	2051		0.38	0.38	4.67	0.02	4.65	4.27
54	2052		0.38	0.38	4.67	0.02	4.65	4.27
55	2053		0.38	0.38	4.67	0.02	4.65	4.27

NPV: -47.3 B/C: 0.29 EIRR : 3.5%

Table J.1.40 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Upper Bongo River Basin under Present Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit					Balance
		Construct'n	O&M	Total	Flood Ctrl	Loss Preven.	Land Restra.	Negative	Total	
1	1999	51.69		51.69					0.00	-51.69
2	2000	92.36		92.36				0.01	-0.01	-92.37
3	2001	92.36	0.34	92.70	1.89			0.01	1.88	-90.82
4	2002	92.36	0.69	93.05	3.78			0.01	3.77	-89.27
5	2003	92.36	1.03	93.39	5.67			0.01	5.66	-87.73
6	2004		1.38	1.38	7.56	0.29	0.00	0.01	7.84	6.47
7	2005		1.38	1.38	7.56	0.58	0.00	0.01	8.13	6.76
8	2006		1.38	1.38	7.56	0.87	0.00	0.01	8.42	7.05
9	2007		1.38	1.38	7.56	1.16	0.00	0.01	8.71	7.34
10	2008		1.38	1.38	7.56	1.45	0.00	0.01	9.00	7.63
11	2009	2.40	1.38	3.78	7.56	1.74	0.00	0.01	9.29	5.52
12	2010	4.12	1.38	5.50	7.56	2.03	0.00	0.01	9.58	4.09
13	2011	4.12	1.38	5.50	7.56	2.32	0.00	0.01	9.87	4.38
14	2012	4.12	1.38	5.50	7.56	2.61	0.00	0.01	10.16	4.67
15	2013	4.12	1.38	5.50	7.56	2.90	0.00	0.01	10.45	4.96
16	2014		1.38	1.38	7.56	3.19	0.00	0.01	10.74	9.37
17	2015		1.38	1.38	7.56	3.48	0.00	0.01	11.03	9.66
18	2016		1.38	1.38	7.56	3.77	0.00	0.01	11.32	9.95
19	2017		1.38	1.38	7.56	4.06	0.00	0.01	11.61	10.24
20	2018		1.38	1.38	7.56	4.35	0.00	0.01	11.90	10.53
21	2019		1.38	1.38	7.56	4.64	0.00	0.01	12.19	10.82
22	2020		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
23	2021		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
24	2022		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
25	2023		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
26	2024		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
27	2025		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
28	2026		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
29	2027		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
30	2028		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
31	2029		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
32	2030		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
33	2031		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
34	2032		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
35	2033		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
36	2034		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
37	2035		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
38	2036		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
39	2037		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
40	2038		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
41	2039		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
42	2040		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
43	2041		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
44	2042		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
45	2043		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
46	2044		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
47	2045		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
48	2046		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
49	2047		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
50	2048		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
51	2049		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
52	2050		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
53	2051		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
54	2052		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11
55	2053		1.38	1.38	7.56	4.93	0.00	0.01	12.48	11.11

NPV: -245.1 B/C: 0.13 EIRR : 0.7%

Table J.1.41 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Tangid Laoag under Future Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	3.67		3.67			0.00	-3.67
2	2000	6.59		6.59		0.03	-0.03	-6.61
3	2001	6.59	0.03	6.62	1.91	0.03	1.89	-4.73
4	2002	6.59	0.06	6.64	3.98	0.03	3.95	-2.69
5	2003	6.59	0.09	6.67	6.20	0.03	6.17	-0.50
6	2004		0.11	0.11	8.60	0.03	8.57	8.45
7	2005		0.11	0.11	8.94	0.03	8.90	8.79
8	2006		0.11	0.11	9.29	0.03	9.25	9.14
9	2007		0.11	0.11	9.65	0.03	9.62	9.50
10	2008		0.11	0.11	10.03	0.04	9.99	9.88
11	2009		0.11	0.11	10.42	0.04	10.39	10.27
12	2010		0.11	0.11	10.74	0.04	10.70	10.59
13	2011		0.11	0.11	11.06	0.04	11.02	10.91
14	2012		0.11	0.11	11.39	0.04	11.35	11.24
15	2013		0.11	0.11	11.74	0.04	11.69	11.58
16	2014		0.11	0.11	12.09	0.04	12.05	11.93
17	2015		0.11	0.11	12.45	0.04	12.41	12.29
18	2016		0.11	0.11	12.83	0.05	12.78	12.67
19	2017		0.11	0.11	13.21	0.05	13.17	13.05
20	2018		0.11	0.11	13.61	0.05	13.56	13.45
21	2019		0.11	0.11	14.02	0.05	13.97	13.86
22	2020		0.11	0.11	14.02	0.05	13.97	13.86
23	2021		0.11	0.11	14.02	0.05	13.97	13.86
24	2022		0.11	0.11	14.02	0.05	13.97	13.86
25	2023		0.11	0.11	14.02	0.05	13.97	13.86
26	2024		0.11	0.11	14.02	0.05	13.97	13.86
27	2025		0.11	0.11	14.02	0.05	13.97	13.86
28	2026		0.11	0.11	14.02	0.05	13.97	13.86
29	2027		0.11	0.11	14.02	0.05	13.97	13.86
30	2028		0.11	0.11	14.02	0.05	13.97	13.86
31	2029		0.11	0.11	14.02	0.05	13.97	13.86
32	2030		0.11	0.11	14.02	0.05	13.97	13.86
33	2031		0.11	0.11	14.02	0.05	13.97	13.86
34	2032		0.11	0.11	14.02	0.05	13.97	13.86
35	2033		0.11	0.11	14.02	0.05	13.97	13.86
36	2034		0.11	0.11	14.02	0.05	13.97	13.86
37	2035		0.11	0.11	14.02	0.05	13.97	13.86
38	2036		0.11	0.11	14.02	0.05	13.97	13.86
39	2037		0.11	0.11	14.02	0.05	13.97	13.86
40	2038		0.11	0.11	14.02	0.05	13.97	13.86
41	2039		0.11	0.11	14.02	0.05	13.97	13.86
42	2040		0.11	0.11	14.02	0.05	13.97	13.86
43	2041		0.11	0.11	14.02	0.05	13.97	13.86
44	2042		0.11	0.11	14.02	0.05	13.97	13.86
45	2043		0.11	0.11	14.02	0.05	13.97	13.86
46	2044		0.11	0.11	14.02	0.05	13.97	13.86
47	2045		0.11	0.11	14.02	0.05	13.97	13.86
48	2046		0.11	0.11	14.02	0.05	13.97	13.86
49	2047		0.11	0.11	14.02	0.05	13.97	13.86
50	2048		0.11	0.11	14.02	0.05	13.97	13.86
51	2049		0.11	0.11	14.02	0.05	13.97	13.86
52	2050		0.11	0.11	14.02	0.05	13.97	13.86
53	2051		0.11	0.11	14.02	0.05	13.97	13.86
54	2052		0.11	0.11	14.02	0.05	13.97	13.86
55	2053		0.11	0.11	14.02	0.05	13.97	13.86

NPV: 21.8 B/C: 2.09 EIRR : 27.6%

Table J.1.42 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Suyo Laoag under Future Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	1.54		1.54			0.00	-1.54
2	2000	2.76		2.76		0.01	-0.01	-2.77
3	2001	2.76	0.01	2.77	0.34	0.01	0.33	-2.44
4	2002	2.76	0.02	2.78	0.71	0.01	0.70	-2.08
5	2003	2.76	0.04	2.80	1.11	0.01	1.10	-1.70
6	2004		0.05	0.05	1.54	0.01	1.53	1.48
7	2005		0.05	0.05	1.60	0.01	1.59	1.54
8	2006		0.05	0.05	1.67	0.01	1.65	1.61
9	2007		0.05	0.05	1.73	0.01	1.72	1.67
10	2008		0.05	0.05	1.80	0.01	1.79	1.74
11	2009		0.05	0.05	1.88	0.01	1.86	1.81
12	2010		0.05	0.05	1.93	0.02	1.92	1.87
13	2011		0.05	0.05	1.99	0.02	1.98	1.93
14	2012		0.05	0.05	2.05	0.02	2.04	1.99
15	2013		0.05	0.05	2.11	0.02	2.10	2.05
16	2014		0.05	0.05	2.18	0.02	2.16	2.11
17	2015		0.05	0.05	2.24	0.02	2.23	2.18
18	2016		0.05	0.05	2.31	0.02	2.29	2.24
19	2017		0.05	0.05	2.38	0.02	2.36	2.31
20	2018		0.05	0.05	2.45	0.02	2.43	2.39
21	2019		0.05	0.05	2.53	0.02	2.51	2.46
22	2020		0.05	0.05	2.53	0.02	2.51	2.46
23	2021		0.05	0.05	2.53	0.02	2.51	2.46
24	2022		0.05	0.05	2.53	0.02	2.51	2.46
25	2023		0.05	0.05	2.53	0.02	2.51	2.46
26	2024		0.05	0.05	2.53	0.02	2.51	2.46
27	2025		0.05	0.05	2.53	0.02	2.51	2.46
28	2026		0.05	0.05	2.53	0.02	2.51	2.46
29	2027		0.05	0.05	2.53	0.02	2.51	2.46
30	2028		0.05	0.05	2.53	0.02	2.51	2.46
31	2029		0.05	0.05	2.53	0.02	2.51	2.46
32	2030		0.05	0.05	2.53	0.02	2.51	2.46
33	2031		0.05	0.05	2.53	0.02	2.51	2.46
34	2032		0.05	0.05	2.53	0.02	2.51	2.46
35	2033		0.05	0.05	2.53	0.02	2.51	2.46
36	2034		0.05	0.05	2.53	0.02	2.51	2.46
37	2035		0.05	0.05	2.53	0.02	2.51	2.46
38	2036		0.05	0.05	2.53	0.02	2.51	2.46
39	2037		0.05	0.05	2.53	0.02	2.51	2.46
40	2038		0.05	0.05	2.53	0.02	2.51	2.46
41	2039		0.05	0.05	2.53	0.02	2.51	2.46
42	2040		0.05	0.05	2.53	0.02	2.51	2.46
43	2041		0.05	0.05	2.53	0.02	2.51	2.46
44	2042		0.05	0.05	2.53	0.02	2.51	2.46
45	2043		0.05	0.05	2.53	0.02	2.51	2.46
46	2044		0.05	0.05	2.53	0.02	2.51	2.46
47	2045		0.05	0.05	2.53	0.02	2.51	2.46
48	2046		0.05	0.05	2.53	0.02	2.51	2.46
49	2047		0.05	0.05	2.53	0.02	2.51	2.46
50	2048		0.05	0.05	2.53	0.02	2.51	2.46
51	2049		0.05	0.05	2.53	0.02	2.51	2.46
52	2050		0.05	0.05	2.53	0.02	2.51	2.46
53	2051		0.05	0.05	2.53	0.02	2.51	2.46
54	2052		0.05	0.05	2.53	0.02	2.51	2.46
55	2053		0.05	0.05	2.53	0.02	2.51	2.46

NPV: -0.9 B/C: 0.89 EIRR : 13.6%

Table J.1.43 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Poblacion of Laoag under Future Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	6.35		6.35			0.00	-6.35
2	2000	11.34		11.34		0.00	0.00	-11.34
3	2001	11.34	0.05	11.39	4.17	0.00	4.17	-7.22
4	2002	11.34	0.10	11.44	8.70	0.00	8.70	-2.74
5	2003	11.34	0.15	11.49	13.63	0.00	13.63	2.14
6	2004		0.20	0.20	18.98	0.00	18.98	18.78
7	2005		0.20	0.20	19.81	0.00	19.81	19.62
8	2006		0.20	0.20	20.69	0.00	20.69	20.49
9	2007		0.20	0.20	21.60	0.00	21.60	21.40
10	2008		0.20	0.20	22.55	0.00	22.55	22.36
11	2009		0.20	0.20	23.55	0.00	23.55	23.35
12	2010		0.20	0.20	24.26	0.00	24.26	24.07
13	2011		0.20	0.20	25.00	0.00	25.00	24.80
14	2012		0.20	0.20	25.76	0.00	25.76	25.56
15	2013		0.20	0.20	26.55	0.00	26.55	26.35
16	2014		0.20	0.20	27.35	0.00	27.35	27.16
17	2015		0.20	0.20	28.18	0.00	28.18	27.99
18	2016		0.20	0.20	29.04	0.00	29.04	28.84
19	2017		0.20	0.20	29.92	0.00	29.92	29.73
20	2018		0.20	0.20	30.83	0.00	30.83	30.64
21	2019		0.20	0.20	31.77	0.00	31.77	31.58
22	2020		0.20	0.20	31.77	0.00	31.77	31.58
23	2021		0.20	0.20	31.77	0.00	31.77	31.58
24	2022		0.20	0.20	31.77	0.00	31.77	31.58
25	2023		0.20	0.20	31.77	0.00	31.77	31.58
26	2024		0.20	0.20	31.77	0.00	31.77	31.58
27	2025		0.20	0.20	31.77	0.00	31.77	31.58
28	2026		0.20	0.20	31.77	0.00	31.77	31.58
29	2027		0.20	0.20	31.77	0.00	31.77	31.58
30	2028		0.20	0.20	31.77	0.00	31.77	31.58
31	2029		0.20	0.20	31.77	0.00	31.77	31.58
32	2030		0.20	0.20	31.77	0.00	31.77	31.58
33	2031		0.20	0.20	31.77	0.00	31.77	31.58
34	2032		0.20	0.20	31.77	0.00	31.77	31.58
35	2033		0.20	0.20	31.77	0.00	31.77	31.58
36	2034		0.20	0.20	31.77	0.00	31.77	31.58
37	2035		0.20	0.20	31.77	0.00	31.77	31.58
38	2036		0.20	0.20	31.77	0.00	31.77	31.58
39	2037		0.20	0.20	31.77	0.00	31.77	31.58
40	2038		0.20	0.20	31.77	0.00	31.77	31.58
41	2039		0.20	0.20	31.77	0.00	31.77	31.58
42	2040		0.20	0.20	31.77	0.00	31.77	31.58
43	2041		0.20	0.20	31.77	0.00	31.77	31.58
44	2042		0.20	0.20	31.77	0.00	31.77	31.58
45	2043		0.20	0.20	31.77	0.00	31.77	31.58
46	2044		0.20	0.20	31.77	0.00	31.77	31.58
47	2045		0.20	0.20	31.77	0.00	31.77	31.58
48	2046		0.20	0.20	31.77	0.00	31.77	31.58
49	2047		0.20	0.20	31.77	0.00	31.77	31.58
50	2048		0.20	0.20	31.77	0.00	31.77	31.58
51	2049		0.20	0.20	31.77	0.00	31.77	31.58
52	2050		0.20	0.20	31.77	0.00	31.77	31.58
53	2051		0.20	0.20	31.77	0.00	31.77	31.58
54	2052		0.20	0.20	31.77	0.00	31.77	31.58
55	2053		0.20	0.20	31.77	0.00	31.77	31.58

NPV: 59.4 B/C: 2.72 EIRR : 34.1%

Table J.1.44 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Camangaan Laoag under Future Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	3.60		3.60			0.00	-3.60
2	2000	6.47		6.47		0.02	-0.02	-6.49
3	2001	6.47	0.03	6.50	1.29	0.02	1.27	-5.23
4	2002	6.47	0.06	6.53	2.69	0.02	2.67	-3.86
5	2003	6.47	0.08	6.55	4.19	0.02	4.16	-2.39
6	2004		0.11	0.11	5.80	0.02	5.77	5.66
7	2005		0.11	0.11	6.02	0.03	6.00	5.88
8	2006		0.11	0.11	6.25	0.03	6.23	6.12
9	2007		0.11	0.11	6.49	0.03	6.47	6.35
10	2008		0.11	0.11	6.74	0.03	6.72	6.60
11	2009		0.11	0.11	7.00	0.03	6.97	6.86
12	2010		0.11	0.11	7.21	0.03	7.18	7.07
13	2011		0.11	0.11	7.43	0.03	7.40	7.29
14	2012		0.11	0.11	7.65	0.03	7.62	7.51
15	2013		0.11	0.11	7.88	0.03	7.85	7.74
16	2014		0.11	0.11	8.12	0.03	8.09	7.97
17	2015		0.11	0.11	8.36	0.04	8.33	8.22
18	2016		0.11	0.11	8.61	0.04	8.58	8.47
19	2017		0.11	0.11	8.87	0.04	8.84	8.72
20	2018		0.11	0.11	9.14	0.04	9.10	8.99
21	2019		0.11	0.11	9.41	0.04	9.37	9.26
22	2020		0.11	0.11	9.41	0.04	9.37	9.26
23	2021		0.11	0.11	9.41	0.04	9.37	9.26
24	2022		0.11	0.11	9.41	0.04	9.37	9.26
25	2023		0.11	0.11	9.41	0.04	9.37	9.26
26	2024		0.11	0.11	9.41	0.04	9.37	9.26
27	2025		0.11	0.11	9.41	0.04	9.37	9.26
28	2026		0.11	0.11	9.41	0.04	9.37	9.26
29	2027		0.11	0.11	9.41	0.04	9.37	9.26
30	2028		0.11	0.11	9.41	0.04	9.37	9.26
31	2029		0.11	0.11	9.41	0.04	9.37	9.26
32	2030		0.11	0.11	9.41	0.04	9.37	9.26
33	2031		0.11	0.11	9.41	0.04	9.37	9.26
34	2032		0.11	0.11	9.41	0.04	9.37	9.26
35	2033		0.11	0.11	9.41	0.04	9.37	9.26
36	2034		0.11	0.11	9.41	0.04	9.37	9.26
37	2035		0.11	0.11	9.41	0.04	9.37	9.26
38	2036		0.11	0.11	9.41	0.04	9.37	9.26
39	2037		0.11	0.11	9.41	0.04	9.37	9.26
40	2038		0.11	0.11	9.41	0.04	9.37	9.26
41	2039		0.11	0.11	9.41	0.04	9.37	9.26
42	2040		0.11	0.11	9.41	0.04	9.37	9.26
43	2041		0.11	0.11	9.41	0.04	9.37	9.26
44	2042		0.11	0.11	9.41	0.04	9.37	9.26
45	2043		0.11	0.11	9.41	0.04	9.37	9.26
46	2044		0.11	0.11	9.41	0.04	9.37	9.26
47	2045		0.11	0.11	9.41	0.04	9.37	9.26
48	2046		0.11	0.11	9.41	0.04	9.37	9.26
49	2047		0.11	0.11	9.41	0.04	9.37	9.26
50	2048		0.11	0.11	9.41	0.04	9.37	9.26
51	2049		0.11	0.11	9.41	0.04	9.37	9.26
52	2050		0.11	0.11	9.41	0.04	9.37	9.26
53	2051		0.11	0.11	9.41	0.04	9.37	9.26
54	2052		0.11	0.11	9.41	0.04	9.37	9.26
55	2053		0.11	0.11	9.41	0.04	9.37	9.26

NPV: 8.4 B/C: 1.43 EIRR : 20.2%

Table J.1.45 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Poblacion of San Nicolas under Future Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	2.93		2.93			0.00	-2.93
2	2000	5.25		5.25		0.02	-0.02	-5.27
3	2001	5.25	0.02	5.28	1.18	0.02	1.16	-4.12
4	2002	5.25	0.05	5.30	2.45	0.02	2.43	-2.87
5	2003	5.25	0.07	5.32	3.82	0.02	3.80	-1.52
6	2004		0.09	0.09	5.30	0.02	5.28	5.19
7	2005		0.09	0.09	5.52	0.02	5.50	5.40
8	2006		0.09	0.09	5.74	0.02	5.72	5.63
9	2007		0.09	0.09	5.97	0.02	5.95	5.86
10	2008		0.09	0.09	6.22	0.02	6.20	6.10
11	2009		0.09	0.09	6.47	0.02	6.45	6.36
12	2010		0.09	0.09	6.66	0.02	6.64	6.55
13	2011		0.09	0.09	6.86	0.02	6.84	6.75
14	2012		0.09	0.09	7.06	0.02	7.04	6.95
15	2013		0.09	0.09	7.27	0.02	7.25	7.16
16	2014		0.09	0.09	7.49	0.03	7.46	7.37
17	2015		0.09	0.09	7.71	0.03	7.69	7.59
18	2016		0.09	0.09	7.94	0.03	7.91	7.82
19	2017		0.09	0.09	8.18	0.03	8.15	8.06
20	2018		0.09	0.09	8.42	0.03	8.39	8.30
21	2019		0.09	0.09	8.67	0.03	8.64	8.55
22	2020		0.09	0.09	8.67	0.03	8.64	8.55
23	2021		0.09	0.09	8.67	0.03	8.64	8.55
24	2022		0.09	0.09	8.67	0.03	8.64	8.55
25	2023		0.09	0.09	8.67	0.03	8.64	8.55
26	2024		0.09	0.09	8.67	0.03	8.64	8.55
27	2025		0.09	0.09	8.67	0.03	8.64	8.55
28	2026		0.09	0.09	8.67	0.03	8.64	8.55
29	2027		0.09	0.09	8.67	0.03	8.64	8.55
30	2028		0.09	0.09	8.67	0.03	8.64	8.55
31	2029		0.09	0.09	8.67	0.03	8.64	8.55
32	2030		0.09	0.09	8.67	0.03	8.64	8.55
33	2031		0.09	0.09	8.67	0.03	8.64	8.55
34	2032		0.09	0.09	8.67	0.03	8.64	8.55
35	2033		0.09	0.09	8.67	0.03	8.64	8.55
36	2034		0.09	0.09	8.67	0.03	8.64	8.55
37	2035		0.09	0.09	8.67	0.03	8.64	8.55
38	2036		0.09	0.09	8.67	0.03	8.64	8.55
39	2037		0.09	0.09	8.67	0.03	8.64	8.55
40	2038		0.09	0.09	8.67	0.03	8.64	8.55
41	2039		0.09	0.09	8.67	0.03	8.64	8.55
42	2040		0.09	0.09	8.67	0.03	8.64	8.55
43	2041		0.09	0.09	8.67	0.03	8.64	8.55
44	2042		0.09	0.09	8.67	0.03	8.64	8.55
45	2043		0.09	0.09	8.67	0.03	8.64	8.55
46	2044		0.09	0.09	8.67	0.03	8.64	8.55
47	2045		0.09	0.09	8.67	0.03	8.64	8.55
48	2046		0.09	0.09	8.67	0.03	8.64	8.55
49	2047		0.09	0.09	8.67	0.03	8.64	8.55
50	2048		0.09	0.09	8.67	0.03	8.64	8.55
51	2049		0.09	0.09	8.67	0.03	8.64	8.55
52	2050		0.09	0.09	8.67	0.03	8.64	8.55
53	2051		0.09	0.09	8.67	0.03	8.64	8.55
54	2052		0.09	0.09	8.67	0.03	8.64	8.55
55	2053		0.09	0.09	8.67	0.03	8.64	8.55

NPV: 9.9 B/C: 1.62 EIRR : 22.4%

Table J.1.46 Economic Cost and Benefit Stream of Sabo and Flood Control Project in San Manuel Sarrat under Future Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	1.82		1.82			0.00	-1.82
2	2000	3.38		3.38		0.01	-0.01	-3.39
3	2001	3.38	0.01	3.39	0.69	0.01	0.68	-2.72
4	2002	3.38	0.03	3.41	1.43	0.01	1.42	-1.99
5	2003	3.38	0.04	3.42	2.23	0.01	2.22	-1.20
6	2004		0.06	0.06	3.09	0.02	3.08	3.02
7	2005		0.06	0.06	3.21	0.02	3.20	3.14
8	2006		0.06	0.06	3.34	0.02	3.32	3.26
9	2007		0.06	0.06	3.47	0.02	3.45	3.39
10	2008		0.06	0.06	3.60	0.02	3.59	3.53
11	2009		0.06	0.06	3.74	0.02	3.72	3.67
12	2010		0.06	0.06	3.85	0.02	3.84	3.78
13	2011		0.06	0.06	3.97	0.02	3.95	3.89
14	2012		0.06	0.06	4.09	0.02	4.07	4.01
15	2013		0.06	0.06	4.21	0.02	4.19	4.14
16	2014		0.06	0.06	4.34	0.02	4.32	4.26
17	2015		0.06	0.06	4.47	0.02	4.45	4.39
18	2016		0.06	0.06	4.60	0.02	4.58	4.52
19	2017		0.06	0.06	4.74	0.02	4.72	4.66
20	2018		0.06	0.06	4.88	0.02	4.86	4.80
21	2019		0.06	0.06	5.03	0.03	5.00	4.95
22	2020		0.06	0.06	5.03	0.03	5.00	4.95
23	2021		0.06	0.06	5.03	0.03	5.00	4.95
24	2022		0.06	0.06	5.03	0.03	5.00	4.95
25	2023		0.06	0.06	5.03	0.03	5.00	4.95
26	2024		0.06	0.06	5.03	0.03	5.00	4.95
27	2025		0.06	0.06	5.03	0.03	5.00	4.95
28	2026		0.06	0.06	5.03	0.03	5.00	4.95
29	2027		0.06	0.06	5.03	0.03	5.00	4.95
30	2028		0.06	0.06	5.03	0.03	5.00	4.95
31	2029		0.06	0.06	5.03	0.03	5.00	4.95
32	2030		0.06	0.06	5.03	0.03	5.00	4.95
33	2031		0.06	0.06	5.03	0.03	5.00	4.95
34	2032		0.06	0.06	5.03	0.03	5.00	4.95
35	2033		0.06	0.06	5.03	0.03	5.00	4.95
36	2034		0.06	0.06	5.03	0.03	5.00	4.95
37	2035		0.06	0.06	5.03	0.03	5.00	4.95
38	2036		0.06	0.06	5.03	0.03	5.00	4.95
39	2037		0.06	0.06	5.03	0.03	5.00	4.95
40	2038		0.06	0.06	5.03	0.03	5.00	4.95
41	2039		0.06	0.06	5.03	0.03	5.00	4.95
42	2040		0.06	0.06	5.03	0.03	5.00	4.95
43	2041		0.06	0.06	5.03	0.03	5.00	4.95
44	2042		0.06	0.06	5.03	0.03	5.00	4.95
45	2043		0.06	0.06	5.03	0.03	5.00	4.95
46	2044		0.06	0.06	5.03	0.03	5.00	4.95
47	2045		0.06	0.06	5.03	0.03	5.00	4.95
48	2046		0.06	0.06	5.03	0.03	5.00	4.95
49	2047		0.06	0.06	5.03	0.03	5.00	4.95
50	2048		0.06	0.06	5.03	0.03	5.00	4.95
51	2049		0.06	0.06	5.03	0.03	5.00	4.95
52	2050		0.06	0.06	5.03	0.03	5.00	4.95
53	2051		0.06	0.06	5.03	0.03	5.00	4.95
54	2052		0.06	0.06	5.03	0.03	5.00	4.95
55	2053		0.06	0.06	5.03	0.03	5.00	4.95

NPV: 4.8 B/C: 1.47 EIRR : 20.7%

Table J.1.47 Economic Cost and Benefit Stream of Sabo and Flood Control Project in San Felipe Sarat under Future Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	4.22		4.22			0.00	-4.22
2	2000	7.57		7.57		0.02	-0.02	-7.59
3	2001	7.57	0.03	7.60	0.22	0.02	0.20	-7.40
4	2002	7.57	0.07	7.63	0.46	0.02	0.44	-7.20
5	2003	7.57	0.10	7.67	0.71	0.02	0.69	-6.98
6	2004		0.13	0.13	0.98	0.02	0.96	0.83
7	2005		0.13	0.13	1.02	0.02	1.00	0.87
8	2006		0.13	0.13	1.06	0.02	1.04	0.91
9	2007		0.13	0.13	1.10	0.02	1.08	0.95
10	2008		0.13	0.13	1.15	0.02	1.12	0.99
11	2009		0.13	0.13	1.19	0.03	1.16	1.03
12	2010		0.13	0.13	1.23	0.03	1.20	1.07
13	2011		0.13	0.13	1.26	0.03	1.24	1.11
14	2012		0.13	0.13	1.30	0.03	1.27	1.14
15	2013		0.13	0.13	1.34	0.03	1.31	1.18
16	2014		0.13	0.13	1.38	0.03	1.35	1.22
17	2015		0.13	0.13	1.43	0.03	1.40	1.26
18	2016		0.13	0.13	1.47	0.03	1.44	1.31
19	2017		0.13	0.13	1.52	0.03	1.48	1.35
20	2018		0.13	0.13	1.56	0.03	1.53	1.40
21	2019		0.13	0.13	1.61	0.04	1.58	1.44
22	2020		0.13	0.13	1.61	0.04	1.58	1.44
23	2021		0.13	0.13	1.61	0.04	1.58	1.44
24	2022		0.13	0.13	1.61	0.04	1.58	1.44
25	2023		0.13	0.13	1.61	0.04	1.58	1.44
26	2024		0.13	0.13	1.61	0.04	1.58	1.44
27	2025		0.13	0.13	1.61	0.04	1.58	1.44
28	2026		0.13	0.13	1.61	0.04	1.58	1.44
29	2027		0.13	0.13	1.61	0.04	1.58	1.44
30	2028		0.13	0.13	1.61	0.04	1.58	1.44
31	2029		0.13	0.13	1.61	0.04	1.58	1.44
32	2030		0.13	0.13	1.61	0.04	1.58	1.44
33	2031		0.13	0.13	1.61	0.04	1.58	1.44
34	2032		0.13	0.13	1.61	0.04	1.58	1.44
35	2033		0.13	0.13	1.61	0.04	1.58	1.44
36	2034		0.13	0.13	1.61	0.04	1.58	1.44
37	2035		0.13	0.13	1.61	0.04	1.58	1.44
38	2036		0.13	0.13	1.61	0.04	1.58	1.44
39	2037		0.13	0.13	1.61	0.04	1.58	1.44
40	2038		0.13	0.13	1.61	0.04	1.58	1.44
41	2039		0.13	0.13	1.61	0.04	1.58	1.44
42	2040		0.13	0.13	1.61	0.04	1.58	1.44
43	2041		0.13	0.13	1.61	0.04	1.58	1.44
44	2042		0.13	0.13	1.61	0.04	1.58	1.44
45	2043		0.13	0.13	1.61	0.04	1.58	1.44
46	2044		0.13	0.13	1.61	0.04	1.58	1.44
47	2045		0.13	0.13	1.61	0.04	1.58	1.44
48	2046		0.13	0.13	1.61	0.04	1.58	1.44
49	2047		0.13	0.13	1.61	0.04	1.58	1.44
50	2048		0.13	0.13	1.61	0.04	1.58	1.44
51	2049		0.13	0.13	1.61	0.04	1.58	1.44
52	2050		0.13	0.13	1.61	0.04	1.58	1.44
53	2051		0.13	0.13	1.61	0.04	1.58	1.44
54	2052		0.13	0.13	1.61	0.04	1.58	1.44
55	2053		0.13	0.13	1.61	0.04	1.58	1.44

NPV: -18.3 B/C: 0.20 EIRR : 2.7%

Table J.1.48 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Sto. Tomas Sarat under Future Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	1.76		1.76			0.00	-1.76
2	2000	3.15		3.15		0.01	-0.01	-3.17
3	2001	3.15	0.01	3.17	0.04	0.01	0.03	-3.14
4	2002	3.15	0.03	3.18	0.08	0.01	0.07	-3.11
5	2003	3.15	0.04	3.19	0.13	0.01	0.11	-3.08
6	2004		0.05	0.05	0.18	0.02	0.16	0.11
7	2005		0.05	0.05	0.18	0.02	0.17	0.11
8	2006		0.05	0.05	0.19	0.02	0.18	0.12
9	2007		0.05	0.05	0.20	0.02	0.18	0.13
10	2008		0.05	0.05	0.21	0.02	0.19	0.14
11	2009		0.05	0.05	0.22	0.02	0.20	0.14
12	2010		0.05	0.05	0.22	0.02	0.20	0.15
13	2011		0.05	0.05	0.23	0.02	0.21	0.16
14	2012		0.05	0.05	0.24	0.02	0.22	0.16
15	2013		0.05	0.05	0.24	0.02	0.22	0.17
16	2014		0.05	0.05	0.25	0.02	0.23	0.18
17	2015		0.05	0.05	0.26	0.02	0.24	0.18
18	2016		0.05	0.05	0.27	0.02	0.24	0.19
19	2017		0.05	0.05	0.27	0.02	0.25	0.20
20	2018		0.05	0.05	0.28	0.02	0.26	0.20
21	2019		0.05	0.05	0.29	0.03	0.27	0.21
22	2020		0.05	0.05	0.29	0.03	0.27	0.21
23	2021		0.05	0.05	0.29	0.03	0.27	0.21
24	2022		0.05	0.05	0.29	0.03	0.27	0.21
25	2023		0.05	0.05	0.29	0.03	0.27	0.21
26	2024		0.05	0.05	0.29	0.03	0.27	0.21
27	2025		0.05	0.05	0.29	0.03	0.27	0.21
28	2026		0.05	0.05	0.29	0.03	0.27	0.21
29	2027		0.05	0.05	0.29	0.03	0.27	0.21
30	2028		0.05	0.05	0.29	0.03	0.27	0.21
31	2029		0.05	0.05	0.29	0.03	0.27	0.21
32	2030		0.05	0.05	0.29	0.03	0.27	0.21
33	2031		0.05	0.05	0.29	0.03	0.27	0.21
34	2032		0.05	0.05	0.29	0.03	0.27	0.21
35	2033		0.05	0.05	0.29	0.03	0.27	0.21
36	2034		0.05	0.05	0.29	0.03	0.27	0.21
37	2035		0.05	0.05	0.29	0.03	0.27	0.21
38	2036		0.05	0.05	0.29	0.03	0.27	0.21
39	2037		0.05	0.05	0.29	0.03	0.27	0.21
40	2038		0.05	0.05	0.29	0.03	0.27	0.21
41	2039		0.05	0.05	0.29	0.03	0.27	0.21
42	2040		0.05	0.05	0.29	0.03	0.27	0.21
43	2041		0.05	0.05	0.29	0.03	0.27	0.21
44	2042		0.05	0.05	0.29	0.03	0.27	0.21
45	2043		0.05	0.05	0.29	0.03	0.27	0.21
46	2044		0.05	0.05	0.29	0.03	0.27	0.21
47	2045		0.05	0.05	0.29	0.03	0.27	0.21
48	2046		0.05	0.05	0.29	0.03	0.27	0.21
49	2047		0.05	0.05	0.29	0.03	0.27	0.21
50	2048		0.05	0.05	0.29	0.03	0.27	0.21
51	2049		0.05	0.05	0.29	0.03	0.27	0.21
52	2050		0.05	0.05	0.29	0.03	0.27	0.21
53	2051		0.05	0.05	0.29	0.03	0.27	0.21
54	2052		0.05	0.05	0.29	0.03	0.27	0.21
55	2053		0.05	0.05	0.29	0.03	0.27	0.21

NPV: -8.8 B/C: 0.08 EIRR : -1.2%

Table J.1.49 Economic Cost and Benefit Stream of Sabo and Flood Control Project in San Marcos Sarrat under Future Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	1.15		1.15			0.00	-1.15
2	2000	2.06		2.06		0.01	-0.01	-2.07
3	2001	2.06	0.01	2.07	0.02	0.01	0.01	-2.06
4	2002	2.06	0.02	2.08	0.04	0.01	0.03	-2.05
5	2003	2.06	0.03	2.09	0.06	0.01	0.06	-2.03
6	2004		0.04	0.01	0.09	0.01	0.08	0.07
7	2005		0.01	0.01	0.09	0.01	0.08	0.07
8	2006		0.01	0.01	0.10	0.01	0.09	0.08
9	2007		0.01	0.01	0.10	0.01	0.09	0.08
10	2008		0.01	0.01	0.10	0.01	0.09	0.08
11	2009		0.01	0.01	0.11	0.01	0.10	0.09
12	2010		0.01	0.01	0.11	0.01	0.10	0.09
13	2011		0.01	0.01	0.12	0.01	0.10	0.09
14	2012		0.01	0.01	0.12	0.01	0.11	0.10
15	2013		0.01	0.01	0.12	0.01	0.11	0.10
16	2014		0.01	0.01	0.13	0.01	0.11	0.10
17	2015		0.01	0.01	0.13	0.01	0.12	0.11
18	2016		0.01	0.01	0.13	0.01	0.12	0.11
19	2017		0.01	0.01	0.14	0.01	0.12	0.12
20	2018		0.01	0.01	0.14	0.01	0.13	0.12
21	2019		0.01	0.01	0.14	0.02	0.13	0.12
22	2020		0.01	0.01	0.14	0.02	0.13	0.12
23	2021		0.01	0.01	0.14	0.02	0.13	0.12
24	2022		0.01	0.01	0.14	0.02	0.13	0.12
25	2023		0.01	0.01	0.14	0.02	0.13	0.12
26	2024		0.01	0.01	0.14	0.02	0.13	0.12
27	2025		0.01	0.01	0.14	0.02	0.13	0.12
28	2026		0.01	0.01	0.14	0.02	0.13	0.12
29	2027		0.01	0.01	0.14	0.02	0.13	0.12
30	2028		0.01	0.01	0.14	0.02	0.13	0.12
31	2029		0.01	0.01	0.14	0.02	0.13	0.12
32	2030		0.01	0.01	0.14	0.02	0.13	0.12
33	2031		0.01	0.01	0.14	0.02	0.13	0.12
34	2032		0.01	0.01	0.14	0.02	0.13	0.12
35	2033		0.01	0.01	0.14	0.02	0.13	0.12
36	2034		0.01	0.01	0.14	0.02	0.13	0.12
37	2035		0.01	0.01	0.14	0.02	0.13	0.12
38	2036		0.01	0.01	0.14	0.02	0.13	0.12
39	2037		0.01	0.01	0.14	0.02	0.13	0.12
40	2038		0.01	0.01	0.14	0.02	0.13	0.12
41	2039		0.01	0.01	0.14	0.02	0.13	0.12
42	2040		0.01	0.01	0.14	0.02	0.13	0.12
43	2041		0.01	0.01	0.14	0.02	0.13	0.12
44	2042		0.01	0.01	0.14	0.02	0.13	0.12
45	2043		0.01	0.01	0.14	0.02	0.13	0.12
46	2044		0.01	0.01	0.14	0.02	0.13	0.12
47	2045		0.01	0.01	0.14	0.02	0.13	0.12
48	2046		0.01	0.01	0.14	0.02	0.13	0.12
49	2047		0.01	0.01	0.14	0.02	0.13	0.12
50	2048		0.01	0.01	0.14	0.02	0.13	0.12
51	2049		0.01	0.01	0.14	0.02	0.13	0.12
52	2050		0.01	0.01	0.14	0.02	0.13	0.12
53	2051		0.01	0.01	0.14	0.02	0.13	0.12
54	2052		0.01	0.01	0.14	0.02	0.13	0.12
55	2053		0.01	0.01	0.14	0.02	0.13	0.12

NPV: -5.8 B/C: 0.06 EIRR : -1.7%

Table J.1.50 Economic Cost and Benefit Stream of Sabo and Flood Control Project in San Cristobal Sarat under Future Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	3.37		3.37			0.00	-3.37
2	2000	6.02		6.02		0.01	-0.01	-6.03
3	2001	6.02	0.03	6.05	0.43	0.01	0.42	-5.63
4	2002	6.02	0.05	6.08	0.89	0.01	0.88	-5.19
5	2003	6.02	0.08	6.10	1.40	0.01	1.39	-4.71
6	2004		0.10	0.10	1.94	0.01	1.94	1.83
7	2005		0.10	0.10	2.03	0.01	2.02	1.92
8	2006		0.10	0.10	2.12	0.01	2.11	2.00
9	2007		0.10	0.10	2.21	0.01	2.20	2.10
10	2008		0.10	0.10	2.31	0.01	2.30	2.19
11	2009		0.10	0.10	2.41	0.01	2.40	2.30
12	2010		0.10	0.10	2.48	0.01	2.47	2.37
13	2011		0.10	0.10	2.56	0.01	2.55	2.45
14	2012		0.10	0.10	2.64	0.01	2.63	2.52
15	2013		0.10	0.10	2.72	0.01	2.71	2.60
16	2014		0.10	0.10	2.81	0.01	2.79	2.69
17	2015		0.10	0.10	2.89	0.01	2.88	2.77
18	2016		0.10	0.10	2.98	0.01	2.97	2.86
19	2017		0.10	0.10	3.07	0.01	3.06	2.95
20	2018		0.10	0.10	3.17	0.01	3.15	3.05
21	2019		0.10	0.10	3.27	0.02	3.25	3.15
22	2020		0.10	0.10	3.27	0.02	3.25	3.15
23	2021		0.10	0.10	3.27	0.02	3.25	3.15
24	2022		0.10	0.10	3.27	0.02	3.25	3.15
25	2023		0.10	0.10	3.27	0.02	3.25	3.15
26	2024		0.10	0.10	3.27	0.02	3.25	3.15
27	2025		0.10	0.10	3.27	0.02	3.25	3.15
28	2026		0.10	0.10	3.27	0.02	3.25	3.15
29	2027		0.10	0.10	3.27	0.02	3.25	3.15
30	2028		0.10	0.10	3.27	0.02	3.25	3.15
31	2029		0.10	0.10	3.27	0.02	3.25	3.15
32	2030		0.10	0.10	3.27	0.02	3.25	3.15
33	2031		0.10	0.10	3.27	0.02	3.25	3.15
34	2032		0.10	0.10	3.27	0.02	3.25	3.15
35	2033		0.10	0.10	3.27	0.02	3.25	3.15
36	2034		0.10	0.10	3.27	0.02	3.25	3.15
37	2035		0.10	0.10	3.27	0.02	3.25	3.15
38	2036		0.10	0.10	3.27	0.02	3.25	3.15
39	2037		0.10	0.10	3.27	0.02	3.25	3.15
40	2038		0.10	0.10	3.27	0.02	3.25	3.15
41	2039		0.10	0.10	3.27	0.02	3.25	3.15
42	2040		0.10	0.10	3.27	0.02	3.25	3.15
43	2041		0.10	0.10	3.27	0.02	3.25	3.15
44	2042		0.10	0.10	3.27	0.02	3.25	3.15
45	2043		0.10	0.10	3.27	0.02	3.25	3.15
46	2044		0.10	0.10	3.27	0.02	3.25	3.15
47	2045		0.10	0.10	3.27	0.02	3.25	3.15
48	2046		0.10	0.10	3.27	0.02	3.25	3.15
49	2047		0.10	0.10	3.27	0.02	3.25	3.15
50	2048		0.10	0.10	3.27	0.02	3.25	3.15
51	2049		0.10	0.10	3.27	0.02	3.25	3.15
52	2050		0.10	0.10	3.27	0.02	3.25	3.15
53	2051		0.10	0.10	3.27	0.02	3.25	3.15
54	2052		0.10	0.10	3.27	0.02	3.25	3.15
55	2053		0.10	0.10	3.27	0.02	3.25	3.15

NPV: -8.7 B/C: 0.52 EIRR : 8.5%

Table J.1.51 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Guisit River/Mandaloque Sarrat under Future Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	21.32		21.32			0.00	-21.32
2	2000	38.21		38.21		0.10	-0.10	-38.30
3	2001	38.21	0.17	38.37	2.07	0.10	1.97	-36.40
4	2002	38.21	0.33	38.54	4.31	0.10	4.20	-34.33
5	2003	38.21	0.50	38.70	6.72	0.11	6.61	-32.10
6	2004		0.66	0.17	9.31	0.11	9.20	9.03
7	2005		0.66	0.66	9.68	0.11	9.56	8.90
8	2006		0.66	0.66	10.06	0.12	9.94	9.28
9	2007		0.66	0.66	10.45	0.12	10.33	9.67
10	2008		0.66	0.66	10.87	0.13	10.74	10.08
11	2009		0.66	0.66	11.30	0.13	11.17	10.50
12	2010		0.66	0.66	11.64	0.14	11.50	10.84
13	2011		0.66	0.66	11.99	0.14	11.85	11.19
14	2012		0.66	0.66	12.35	0.14	12.21	11.55
15	2013		0.66	0.66	12.73	0.15	12.58	11.92
16	2014		0.66	0.66	13.11	0.15	12.96	12.30
17	2015		0.66	0.66	13.51	0.16	13.35	12.69
18	2016		0.66	0.66	13.92	0.16	13.75	13.09
19	2017		0.66	0.66	14.34	0.17	14.17	13.51
20	2018		0.66	0.66	14.77	0.18	14.60	13.94
21	2019		0.66	0.66	15.22	0.18	15.04	14.38
22	2020		0.66	0.66	15.22	0.18	15.04	14.38
23	2021		0.66	0.66	15.22	0.18	15.04	14.38
24	2022		0.66	0.66	15.22	0.18	15.04	14.38
25	2023		0.66	0.66	15.22	0.18	15.04	14.38
26	2024		0.66	0.66	15.22	0.18	15.04	14.38
27	2025		0.66	0.66	15.22	0.18	15.04	14.38
28	2026		0.66	0.66	15.22	0.18	15.04	14.38
29	2027		0.66	0.66	15.22	0.18	15.04	14.38
30	2028		0.66	0.66	15.22	0.18	15.04	14.38
31	2029		0.66	0.66	15.22	0.18	15.04	14.38
32	2030		0.66	0.66	15.22	0.18	15.04	14.38
33	2031		0.66	0.66	15.22	0.18	15.04	14.38
34	2032		0.66	0.66	15.22	0.18	15.04	14.38
35	2033		0.66	0.66	15.22	0.18	15.04	14.38
36	2034		0.66	0.66	15.22	0.18	15.04	14.38
37	2035		0.66	0.66	15.22	0.18	15.04	14.38
38	2036		0.66	0.66	15.22	0.18	15.04	14.38
39	2037		0.66	0.66	15.22	0.18	15.04	14.38
40	2038		0.66	0.66	15.22	0.18	15.04	14.38
41	2039		0.66	0.66	15.22	0.18	15.04	14.38
42	2040		0.66	0.66	15.22	0.18	15.04	14.38
43	2041		0.66	0.66	15.22	0.18	15.04	14.38
44	2042		0.66	0.66	15.22	0.18	15.04	14.38
45	2043		0.66	0.66	15.22	0.18	15.04	14.38
46	2044		0.66	0.66	15.22	0.18	15.04	14.38
47	2045		0.66	0.66	15.22	0.18	15.04	14.38
48	2046		0.66	0.66	15.22	0.18	15.04	14.38
49	2047		0.66	0.66	15.22	0.18	15.04	14.38
50	2048		0.66	0.66	15.22	0.18	15.04	14.38
51	2049		0.66	0.66	15.22	0.18	15.04	14.38
52	2050		0.66	0.66	15.22	0.18	15.04	14.38
53	2051		0.66	0.66	15.22	0.18	15.04	14.38
54	2052		0.66	0.66	15.22	0.18	15.04	14.38
55	2053		0.66	0.66	15.22	0.18	15.04	14.38

NPV: -71.1 B/C: 0.39 EIRR : 6.3%

Table J.1.52 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Suyo Dingras under Future Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	3.34		3.34			0.00	-3.34
2	2000	5.98		5.98		0.01	-0.01	-5.99
3	2001	5.98	0.03	6.00	1.35	0.01	1.34	-4.66
4	2002	5.98	0.05	6.03	2.81	0.01	2.79	-3.23
5	2003	5.98	0.08	6.05	4.38	0.01	4.36	-1.69
6	2004		0.10	0.10	6.07	0.02	6.05	5.95
7	2005		0.10	0.10	6.30	0.02	6.29	6.18
8	2006		0.10	0.10	6.55	0.02	6.53	6.43
9	2007		0.10	0.10	6.81	0.02	6.79	6.69
10	2008		0.10	0.10	7.07	0.02	7.06	6.95
11	2009		0.10	0.10	7.35	0.02	7.33	7.23
12	2010		0.10	0.10	7.57	0.02	7.55	7.45
13	2011		0.10	0.10	7.79	0.02	7.77	7.67
14	2012		0.10	0.10	8.02	0.02	8.00	7.90
15	2013		0.10	0.10	8.26	0.02	8.24	8.14
16	2014		0.10	0.10	8.51	0.02	8.49	8.38
17	2015		0.10	0.10	8.76	0.02	8.74	8.64
18	2016		0.10	0.10	9.02	0.02	9.00	8.89
19	2017		0.10	0.10	9.29	0.02	9.27	9.16
20	2018		0.10	0.10	9.56	0.02	9.54	9.44
21	2019		0.10	0.10	9.85	0.03	9.82	9.72
22	2020		0.10	0.10	9.85	0.03	9.82	9.72
23	2021		0.10	0.10	9.85	0.03	9.82	9.72
24	2022		0.10	0.10	9.85	0.03	9.82	9.72
25	2023		0.10	0.10	9.85	0.03	9.82	9.72
26	2024		0.10	0.10	9.85	0.03	9.82	9.72
27	2025		0.10	0.10	9.85	0.03	9.82	9.72
28	2026		0.10	0.10	9.85	0.03	9.82	9.72
29	2027		0.10	0.10	9.85	0.03	9.82	9.72
30	2028		0.10	0.10	9.85	0.03	9.82	9.72
31	2029		0.10	0.10	9.85	0.03	9.82	9.72
32	2030		0.10	0.10	9.85	0.03	9.82	9.72
33	2031		0.10	0.10	9.85	0.03	9.82	9.72
34	2032		0.10	0.10	9.85	0.03	9.82	9.72
35	2033		0.10	0.10	9.85	0.03	9.82	9.72
36	2034		0.10	0.10	9.85	0.03	9.82	9.72
37	2035		0.10	0.10	9.85	0.03	9.82	9.72
38	2036		0.10	0.10	9.85	0.03	9.82	9.72
39	2037		0.10	0.10	9.85	0.03	9.82	9.72
40	2038		0.10	0.10	9.85	0.03	9.82	9.72
41	2039		0.10	0.10	9.85	0.03	9.82	9.72
42	2040		0.10	0.10	9.85	0.03	9.82	9.72
43	2041		0.10	0.10	9.85	0.03	9.82	9.72
44	2042		0.10	0.10	9.85	0.03	9.82	9.72
45	2043		0.10	0.10	9.85	0.03	9.82	9.72
46	2044		0.10	0.10	9.85	0.03	9.82	9.72
47	2045		0.10	0.10	9.85	0.03	9.82	9.72
48	2046		0.10	0.10	9.85	0.03	9.82	9.72
49	2047		0.10	0.10	9.85	0.03	9.82	9.72
50	2048		0.10	0.10	9.85	0.03	9.82	9.72
51	2049		0.10	0.10	9.85	0.03	9.82	9.72
52	2050		0.10	0.10	9.85	0.03	9.82	9.72
53	2051		0.10	0.10	9.85	0.03	9.82	9.72
54	2052		0.10	0.10	9.85	0.03	9.82	9.72
55	2053		0.10	0.10	9.85	0.03	9.82	9.72

NPV: 11.3 B/C: 1.62 EIRR : 22.5%

Table J.1.53 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Poblacion of Dingras under Future Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	4.14		4.14			0.00	-4.14
2	2000	7.44		7.44		0.03	-0.03	-7.46
3	2001	7.44	0.03	7.47	1.79	0.03	1.77	-5.70
4	2002	7.44	0.06	7.50	3.74	0.03	3.71	-3.79
5	2003	7.44	0.10	7.53	5.84	0.03	5.81	-1.72
6	2004		0.13	0.13	8.11	0.03	8.08	7.95
7	2005		0.13	0.13	8.45	0.03	8.42	8.29
8	2006		0.13	0.13	8.80	0.03	8.77	8.64
9	2007		0.13	0.13	9.17	0.03	9.14	9.01
10	2008		0.13	0.13	9.55	0.04	9.52	9.39
11	2009		0.13	0.13	9.95	0.04	9.92	9.79
12	2010		0.13	0.13	10.26	0.04	10.22	10.09
13	2011		0.13	0.13	10.57	0.04	10.53	10.40
14	2012		0.13	0.13	10.89	0.04	10.85	10.72
15	2013		0.13	0.13	11.22	0.04	11.18	11.05
16	2014		0.13	0.13	11.56	0.04	11.51	11.39
17	2015		0.13	0.13	11.91	0.04	11.86	11.73
18	2016		0.13	0.13	12.27	0.05	12.22	12.09
19	2017		0.13	0.13	12.64	0.05	12.59	12.47
20	2018		0.13	0.13	13.02	0.05	12.98	12.85
21	2019		0.13	0.13	13.42	0.05	13.37	13.24
22	2020		0.13	0.13	13.42	0.05	13.37	13.24
23	2021		0.13	0.13	13.42	0.05	13.37	13.24
24	2022		0.13	0.13	13.42	0.05	13.37	13.24
25	2023		0.13	0.13	13.42	0.05	13.37	13.24
26	2024		0.13	0.13	13.42	0.05	13.37	13.24
27	2025		0.13	0.13	13.42	0.05	13.37	13.24
28	2026		0.13	0.13	13.42	0.05	13.37	13.24
29	2027		0.13	0.13	13.42	0.05	13.37	13.24
30	2028		0.13	0.13	13.42	0.05	13.37	13.24
31	2029		0.13	0.13	13.42	0.05	13.37	13.24
32	2030		0.13	0.13	13.42	0.05	13.37	13.24
33	2031		0.13	0.13	13.42	0.05	13.37	13.24
34	2032		0.13	0.13	13.42	0.05	13.37	13.24
35	2033		0.13	0.13	13.42	0.05	13.37	13.24
36	2034		0.13	0.13	13.42	0.05	13.37	13.24
37	2035		0.13	0.13	13.42	0.05	13.37	13.24
38	2036		0.13	0.13	13.42	0.05	13.37	13.24
39	2037		0.13	0.13	13.42	0.05	13.37	13.24
40	2038		0.13	0.13	13.42	0.05	13.37	13.24
41	2039		0.13	0.13	13.42	0.05	13.37	13.24
42	2040		0.13	0.13	13.42	0.05	13.37	13.24
43	2041		0.13	0.13	13.42	0.05	13.37	13.24
44	2042		0.13	0.13	13.42	0.05	13.37	13.24
45	2043		0.13	0.13	13.42	0.05	13.37	13.24
46	2044		0.13	0.13	13.42	0.05	13.37	13.24
47	2045		0.13	0.13	13.42	0.05	13.37	13.24
48	2046		0.13	0.13	13.42	0.05	13.37	13.24
49	2047		0.13	0.13	13.42	0.05	13.37	13.24
50	2048		0.13	0.13	13.42	0.05	13.37	13.24
51	2049		0.13	0.13	13.42	0.05	13.37	13.24
52	2050		0.13	0.13	13.42	0.05	13.37	13.24
53	2051		0.13	0.13	13.42	0.05	13.37	13.24
54	2052		0.13	0.13	13.42	0.05	13.37	13.24
55	2053		0.13	0.13	13.42	0.05	13.37	13.24

NPV: 17.1 B/C: 1.76 EIRR : 23.9%

Table J.1.54 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Cura River Basin under Future Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit					Balance
		Construct'n	O&M	Total	Flood Ctrl	Loss Preven.	Land Restra.	Negative	Total	
1	1999	84.48		84.48					0.00	-84.48
2	2000	150.93		150.93				0.00	-0.00	-150.93
3	2001	150.93	0.48	151.41	22.02			0.00	22.02	-129.39
4	2002	150.93	0.96	151.89	45.74			0.00	45.73	-106.15
5	2003	150.93	1.43	152.37	71.25			0.00	71.24	-81.12
6	2004		1.91	1.91	98.66	2.15	0.59	0.00	101.39	99.48
7	2005		1.91	1.91	102.46	4.45	1.17	0.00	108.08	106.16
8	2006		1.91	1.91	106.40	6.89	1.82	0.00	115.11	113.20
9	2007		1.91	1.91	110.50	9.50	2.51	0.00	122.50	120.59
10	2008		1.91	1.91	114.76	12.27	3.24	0.00	130.26	128.35
11	2009	9.31	1.91	11.22	119.18	15.21	3.34	0.00	137.73	126.51
12	2010	15.96	1.91	17.87	122.76	18.33	3.46	0.00	144.54	126.68
13	2011	15.96	1.91	17.87	126.45	21.64	3.57	0.00	151.66	133.79
14	2012	15.96	1.91	17.87	130.25	25.16	3.69	0.00	159.09	141.22
15	2013	15.96	1.91	17.87	134.16	28.88	3.81	0.00	166.85	148.98
16	2014		1.91	1.91	138.19	32.82	3.94	0.00	174.95	173.04
17	2015		1.91	1.91	142.34	37.00	4.07	0.00	183.40	181.49
18	2016		1.91	1.91	146.62	41.41	4.20	0.00	192.23	190.32
19	2017		1.91	1.91	151.03	46.07	4.34	0.00	201.44	199.53
20	2018		1.91	1.91	155.56	51.00	4.49	0.00	211.05	209.14
21	2019		1.91	1.91	160.24	56.21	4.64	0.01	221.08	219.16
22	2020		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
23	2021		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
24	2022		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
25	2023		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
26	2024		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
27	2025		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
28	2026		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
29	2027		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
30	2028		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
31	2029		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
32	2030		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
33	2031		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
34	2032		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
35	2033		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
36	2034		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
37	2035		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
38	2036		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
39	2037		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
40	2038		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
41	2039		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
42	2040		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
43	2041		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
44	2042		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
45	2043		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
46	2044		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
47	2045		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
48	2046		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
49	2047		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
50	2048		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
51	2049		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
52	2050		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
53	2051		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
54	2052		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66
55	2053		1.91	1.91	160.24	61.70	4.64	0.01	226.57	224.66

NPV: 91.2 B/C: 1.19 EIRR : 17.2%

Table J.1.55 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Solsona River Basin under Future Condition

(Unit : Million Pesos)

Serial	Year	Cost			Benefit					Balance
Year		Construct'n	O&M	Total	Flood Ctrl	Loss Preven.	Land Restra.	Negative	Total	
1	1999	37.21		37.21					0.00	-37.21
2	2000	66.48		66.48				0.00	-0.00	-66.48
3	2001	66.48	0.22	66.70	14.38			0.00	14.38	-52.32
4	2002	66.48	0.43	66.92	29.89			0.00	29.89	-37.03
5	2003	66.48	0.65	67.13	46.59			0.00	46.59	-20.55
6	2004		0.87	0.87	64.55	0.89	0.14	0.00	65.57	64.70
7	2005		0.87	0.87	67.07	1.83	0.27	0.00	69.17	68.31
8	2006		0.87	0.87	69.69	2.84	0.43	0.00	72.95	72.09
9	2007		0.87	0.87	72.42	3.91	0.59	0.00	76.91	76.04
10	2008		0.87	0.87	75.25	5.05	0.76	0.00	81.05	80.19
11	2009		0.87	0.87	78.19	6.26	0.78	0.00	85.23	84.37
12	2010	5.16	0.87	6.03	80.54	7.55	0.81	0.00	88.90	82.87
13	2011	8.85	0.87	9.72	82.97	8.92	0.83	0.00	92.71	82.99
14	2012	8.85	0.87	9.72	85.46	10.36	0.86	0.00	96.68	86.97
15	2013	8.85	0.87	9.72	88.03	11.90	0.89	0.00	100.81	91.10
16	2014	8.85	0.87	9.72	90.68	13.52	0.92	0.00	105.12	95.40
17	2015		0.87	0.87	93.41	15.24	0.95	0.00	109.59	108.72
18	2016		0.87	0.87	96.22	17.06	0.98	0.00	114.25	113.38
19	2017		0.87	0.87	99.11	18.98	1.01	0.00	119.10	118.23
20	2018		0.87	0.87	102.09	21.01	1.05	0.00	124.14	123.28
21	2019		0.87	0.87	105.16	23.16	1.08	0.01	129.39	128.53
22	2020		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
23	2021		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
24	2022		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
25	2023		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
26	2024		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
27	2025		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
28	2026		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
29	2027		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
30	2028		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
31	2029		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
32	2030		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
33	2031		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
34	2032		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
35	2033		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
36	2034		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
37	2035		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
38	2036		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
39	2037		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
40	2038		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
41	2039		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
42	2040		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
43	2041		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
44	2042		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
45	2043		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
46	2044		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
47	2045		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
48	2046		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
49	2047		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
50	2048		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
51	2049		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
52	2050		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
53	2051		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
54	2052		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79
55	2053		0.87	0.87	105.16	25.42	1.08	0.01	131.66	130.79

NPV: 138.9 B/C: 1.67 EIRR : 22.7%

Table J.1.56 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Madongan River Basin under Future Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit					Balance
		Construct'n	O&M	Total	Flood Ctrl	Loss Preven.	Land Restra.	Negative	Total	
1	1999	43.48		43.48					0.00	-43.48
2	2000	77.68		77.68				0.00	0.00	-77.68
3	2001	77.68	0.28	77.97	15.43			0.00	15.43	-62.53
4	2002	77.68	0.57	78.25	32.06			0.00	32.06	-46.19
5	2003	77.68	0.85	78.53	49.96			0.00	49.96	-28.58
6	2004		1.14	1.14	69.19	0.53	0.67	0.00	70.40	69.26
7	2005		1.14	1.14	71.87	1.10	1.35	0.00	74.32	73.19
8	2006		1.14	1.14	74.66	1.70	2.09	0.00	78.46	77.32
9	2007		1.14	1.14	77.56	2.35	2.88	0.00	82.79	81.65
10	2008		1.14	1.14	80.56	3.03	3.72	0.00	87.32	86.18
11	2009		1.14	1.14	83.69	3.76	3.84	0.00	91.29	90.15
12	2010		1.14	1.14	86.20	4.53	3.97	0.00	94.71	93.57
13	2011		1.14	1.14	88.79	5.35	4.10	0.00	98.25	97.11
14	2012		1.14	1.14	91.46	6.22	4.24	0.00	101.92	100.78
15	2013		1.14	1.14	94.21	7.14	4.38	0.00	105.73	104.59
16	2014		1.14	1.14	97.04	8.12	4.53	0.00	109.68	108.54
17	2015		1.14	1.14	99.96	9.15	4.68	0.00	113.78	112.64
18	2016		1.14	1.14	102.96	10.24	4.83	0.00	118.03	116.89
19	2017		1.14	1.14	106.05	11.39	4.99	0.00	122.44	121.30
20	2018		1.14	1.14	109.24	12.61	5.16	0.00	127.01	125.87
21	2019		1.14	1.14	112.52	13.90	5.33	0.00	131.75	130.61
22	2020		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
23	2021		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
24	2022		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
25	2023		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
26	2024		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
27	2025		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
28	2026		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
29	2027		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
30	2028		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
31	2029		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
32	2030		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
33	2031		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
34	2032		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
35	2033		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
36	2034		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
37	2035		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
38	2036		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
39	2037		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
40	2038		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
41	2039		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
42	2040		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
43	2041		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
44	2042		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
45	2043		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
46	2044		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
47	2045		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
48	2046		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
49	2047		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
50	2048		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
51	2049		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
52	2050		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
53	2051		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
54	2052		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97
55	2053		1.14	1.14	112.52	15.26	5.33	0.00	133.11	131.97

NPV: 129.7 B/C: 1.55 EIRR : 21.3%

Table J.1.57 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Papa River Basin under Future Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit					Balance
		Construct'n	O&M	Total	Flood Ctrl	Loss Preven.	Land Restra.	Negative	Total	
1	1999	29.01		29.01					0.00	-29.01
2	2000	51.83		51.83				0.00	0.00	-51.83
3	2001	51.83	0.17	52.01	6.46			0.00	6.46	-45.54
4	2002	51.83	0.34	52.18	13.43			0.00	13.43	-38.74
5	2003	51.83	0.52	52.35	20.94			0.00	20.94	-31.41
6	2004		0.69	0.69	29.00	0.24	0.01	0.00	29.25	28.56
7	2005		0.69	0.69	30.13	0.49	0.01	0.00	30.64	29.95
8	2006		0.69	0.69	31.31	0.76	0.02	0.00	32.09	31.40
9	2007		0.69	0.69	32.53	1.04	0.03	0.00	33.60	32.92
10	2008		0.69	0.69	33.80	1.35	0.04	0.00	35.19	34.50
11	2009		0.69	0.69	35.12	1.67	0.04	0.00	36.83	36.14
12	2010		0.69	0.69	36.17	2.01	0.04	0.00	38.23	37.54
13	2011		0.69	0.69	37.26	2.38	0.04	0.00	39.68	39.00
14	2012		0.69	0.69	38.39	2.76	0.05	0.00	41.19	40.51
15	2013		0.69	0.69	39.54	3.17	0.05	0.00	42.76	42.07
16	2014		0.69	0.69	40.73	3.60	0.05	0.00	44.38	43.70
17	2015		0.69	0.69	41.96	4.06	0.05	0.00	46.07	45.38
18	2016		0.69	0.69	43.22	4.55	0.05	0.00	47.82	47.13
19	2017		0.69	0.69	44.52	5.06	0.05	0.00	49.63	48.95
20	2018		0.69	0.69	45.86	5.60	0.06	0.00	51.52	50.83
21	2019		0.69	0.69	47.24	6.17	0.06	0.00	53.47	52.78
22	2020		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
23	2021		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
24	2022		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
25	2023		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
26	2024		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
27	2025		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
28	2026		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
29	2027		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
30	2028		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
31	2029		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
32	2030		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
33	2031		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
34	2032		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
35	2033		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
36	2034		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
37	2035		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
38	2036		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
39	2037		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
40	2038		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
41	2039		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
42	2040		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
43	2041		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
44	2042		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
45	2043		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
46	2044		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
47	2045		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
48	2046		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
49	2047		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
50	2048		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
51	2049		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
52	2050		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
53	2051		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
54	2052		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39
55	2053		0.69	0.69	47.24	6.77	0.06	0.00	54.07	53.39

NPV: -7.6 B/C: 0.95 EIRR : 14.4%

Table J.1.58 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Lower Bong under Future Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit			Balance
		Construction	O&M	Total	Flood Control	Negative	Total	
1	1999	12.22		12.22			0.00	-12.22
2	2000	21.87		21.87		0.03	-0.03	-21.90
3	2001	21.87	0.09	21.96	1.53	0.03	1.50	-20.46
4	2002	21.87	0.19	22.06	3.19	0.03	3.16	-18.90
5	2003	21.87	0.28	22.15	4.97	0.03	4.94	-17.22
6	2004		0.38	0.38	6.88	0.03	6.85	6.47
7	2005		0.38	0.38	7.16	0.03	7.13	6.75
8	2006		0.38	0.38	7.44	0.03	7.41	7.03
9	2007		0.38	0.38	7.73	0.03	7.70	7.32
10	2008		0.38	0.38	8.04	0.03	8.00	7.62
11	2009		0.38	0.38	8.35	0.04	8.32	7.94
12	2010		0.38	0.38	8.61	0.04	8.57	8.19
13	2011		0.38	0.38	8.86	0.04	8.83	8.45
14	2012		0.38	0.38	9.13	0.04	9.09	8.71
15	2013		0.38	0.38	9.40	0.04	9.36	8.98
16	2014		0.38	0.38	9.68	0.04	9.64	9.26
17	2015		0.38	0.38	9.98	0.04	9.93	9.55
18	2016		0.38	0.38	10.27	0.04	10.23	9.85
19	2017		0.38	0.38	10.58	0.05	10.54	10.16
20	2018		0.38	0.38	10.90	0.05	10.85	10.47
21	2019		0.38	0.38	11.23	0.05	11.18	10.80
22	2020		0.38	0.38	11.23	0.05	11.18	10.80
23	2021		0.38	0.38	11.23	0.05	11.18	10.80
24	2022		0.38	0.38	11.23	0.05	11.18	10.80
25	2023		0.38	0.38	11.23	0.05	11.18	10.80
26	2024		0.38	0.38	11.23	0.05	11.18	10.80
27	2025		0.38	0.38	11.23	0.05	11.18	10.80
28	2026		0.38	0.38	11.23	0.05	11.18	10.80
29	2027		0.38	0.38	11.23	0.05	11.18	10.80
30	2028		0.38	0.38	11.23	0.05	11.18	10.80
31	2029		0.38	0.38	11.23	0.05	11.18	10.80
32	2030		0.38	0.38	11.23	0.05	11.18	10.80
33	2031		0.38	0.38	11.23	0.05	11.18	10.80
34	2032		0.38	0.38	11.23	0.05	11.18	10.80
35	2033		0.38	0.38	11.23	0.05	11.18	10.80
36	2034		0.38	0.38	11.23	0.05	11.18	10.80
37	2035		0.38	0.38	11.23	0.05	11.18	10.80
38	2036		0.38	0.38	11.23	0.05	11.18	10.80
39	2037		0.38	0.38	11.23	0.05	11.18	10.80
40	2038		0.38	0.38	11.23	0.05	11.18	10.80
41	2039		0.38	0.38	11.23	0.05	11.18	10.80
42	2040		0.38	0.38	11.23	0.05	11.18	10.80
43	2041		0.38	0.38	11.23	0.05	11.18	10.80
44	2042		0.38	0.38	11.23	0.05	11.18	10.80
45	2043		0.38	0.38	11.23	0.05	11.18	10.80
46	2044		0.38	0.38	11.23	0.05	11.18	10.80
47	2045		0.38	0.38	11.23	0.05	11.18	10.80
48	2046		0.38	0.38	11.23	0.05	11.18	10.80
49	2047		0.38	0.38	11.23	0.05	11.18	10.80
50	2048		0.38	0.38	11.23	0.05	11.18	10.80
51	2049		0.38	0.38	11.23	0.05	11.18	10.80
52	2050		0.38	0.38	11.23	0.05	11.18	10.80
53	2051		0.38	0.38	11.23	0.05	11.18	10.80
54	2052		0.38	0.38	11.23	0.05	11.18	10.80
55	2053		0.38	0.38	11.23	0.05	11.18	10.80

NPV: -33.1 B/C: 0.50 EIRR : 8.2%

Table J.1.59 Economic Cost and Benefit Stream of Sabo and Flood Control Project in Upper Bongo River Basin under Future Condition

(Unit : Million Pesos)

Serial	Year	Cost			Benefit					Balance
Year		Construct'n	O&M	Total	Flood Ctrl	Loss Preven.	Land Restra.	Negative	Total	
1	1999	51.69		51.69					0.00	-51.69
2	2000	92.36		92.36				0.01	-0.01	-92.37
3	2001	92.36	0.34	92.70	2.48			0.01	2.47	-90.23
4	2002	92.36	0.69	93.05	5.15			0.01	5.14	-87.91
5	2003	92.36	1.03	93.39	8.03			0.01	8.02	-85.37
6	2004		1.38	1.38	11.13	0.38	0.00	0.01	11.49	10.12
7	2005		1.38	1.38	11.56	0.78	0.00	0.01	12.33	10.96
8	2006		1.38	1.38	12.02	1.21	0.00	0.01	13.22	11.84
9	2007		1.38	1.38	12.49	1.66	0.00	0.01	14.14	12.77
10	2008		1.38	1.38	12.98	2.15	0.00	0.01	15.12	13.74
11	2009	2.40	1.38	3.78	13.49	2.66	0.00	0.01	16.14	12.36
12	2010	4.12	1.38	5.50	13.90	3.21	0.00	0.01	17.09	11.60
13	2011	4.12	1.38	5.50	14.31	3.79	0.00	0.01	18.09	12.59
14	2012	4.12	1.38	5.50	14.74	4.40	0.00	0.01	19.13	13.63
15	2013	4.12	1.38	5.50	15.18	5.05	0.00	0.01	20.22	14.72
16	2014		1.38	1.38	15.64	5.74	0.00	0.01	21.36	19.99
17	2015		1.38	1.38	16.10	6.47	0.00	0.01	22.56	21.18
18	2016		1.38	1.38	16.59	7.24	0.00	0.01	23.81	22.44
19	2017		1.38	1.38	17.08	8.06	0.00	0.01	25.13	23.75
20	2018		1.38	1.38	17.59	8.92	0.00	0.01	26.50	25.12
21	2019		1.38	1.38	18.12	9.83	0.00	0.02	27.93	26.56
22	2020		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
23	2021		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
24	2022		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
25	2023		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
26	2024		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
27	2025		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
28	2026		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
29	2027		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
30	2028		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
31	2029		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
32	2030		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
33	2031		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
34	2032		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
35	2033		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
36	2034		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
37	2035		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
38	2036		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
39	2037		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
40	2038		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
41	2039		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
42	2040		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
43	2041		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
44	2042		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
45	2043		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
46	2044		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
47	2045		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
48	2046		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
49	2047		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
50	2048		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
51	2049		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
52	2050		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
53	2051		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
54	2052		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52
55	2053		1.38	1.38	18.12	10.79	0.00	0.02	28.90	27.52

NPV: -216.6 B/C: 0.23 EIRR : 4.1%

Table J.1.60 Land Loss Prevention Benefit in Economic Terms

Item	Unit	Bongo River Basin	Papa River Basin	Madongan River Basin	Solsona River Basin	Cura River Basin	Total
1. Lost Areas							
Total Loss Areas	ha for 20 yea	99.0	64.0	142.0	241.0	584.0	1,031.0
Average Lost Areas	ha/year	5.0	3.2	7.1	12.1	29.2	51.6
Cropping Pattern							
System (1)	ha	1.0	0.6	1.4	2.4	5.8	10.2
System (2)	ha	4.0	2.6	5.7	9.7	23.4	41.4
2. Lost Production Due to Land Losses							
System (1)*1	P1000/year	241.1	144.7	337.5	578.6	1,398.4	2,459.2
System (2)*2	P1000/year	73.1	48.1	105.5	178.5	432.9	765.0
Total		314.2	192.8	443.0	757.2	1,831.3	3,224.2
3. Flood Mitigation, Accounted in the lost areas							
Unit Benefit*3	P1000/year	3.24	3.24	4.71	6.19	5.92	-
Total Benefit	P1000/year	16.0	10.4	33.4	74.6	172.9	291.3
4. Benefit as Land Loss Prevention*3	P1000/year	298.1	182.4	409.5	682.6	1,658.4	2,932.9

Note: *1 Refer to Table C.5.8 in Appendix C of Part 1. Unit production rate was estimated at P241,101 per ha in economic term.
*2 Refer to Table C.5.7 in Appendix C of Part 1. Unit production rate was estimated at P18,500 per ha in economic term.
*3 Annual unit benefit of flood mitigation in croplands is estimated through Table J.1.16 to J.1.19 and J.1.21.
*4 Flood mitigation benefit is subtracted from the lost production values, because of double account.

Table J.1.61 Economic Benefit Accruing from Agricultural Lands Restored

Item	Unit	Papa River Basin	Madongan River Basin	Solsona River Basin	Cura River Basin	Total
Recovered Areas						
Grazing Fields	ha	220.3	360.1	57.1	181.3	818.8
Upland Fields	ha	11.8	291.2	0.8	208.8	512.6
Lowland Fields	ha	0.0	227.8	62.9	210.8	501.5
Total	ha	232.1	879.1	120.8	600.9	1,832.9
Benefits						
Livestock Production	1000 Pesos/year	0.0	0.0	0.0	0.0	0.0
Upland Production*1	1000 Pesos/year	27.1	669.8	1.8	480.2	1,179.0
Lowland Production*2	1000 Pesos/year	0.0	1,845.2	509.5	1,707.5	4,062.2
Total	1000 Pesos/year	27.1	2,514.9	511.3	2,187.7	5,241.1

Note: *1 Refer to Table C.5.9 in Appendix C of Part 1. Unit production rate was estimated at P2,300 per ha in economic term.
*2 Refer to Table C.5.7 in Appendix C of Part 1. Unit production rate was estimated at P8,100 per ha in economic term.

Table J.1.62 Economic Efficiency of Schemes in Potential Flood Areas under Present Condition

No.	Potential Flood Area	EIRR (%)	B/C	NPV (Million Pesos)
1	Tangid, Laoag	17.9	1.20	4.1
2	Suyo, Laoag	7.4	0.50	-4.2
3	Poblacion of Laoag	21.6	1.46	15.9
4	Camangaan, Laoag	12.5	0.83	-3.3
5	Poblacion of San Nicolas	13.7	0.91	-1.4
6	San Manuel, Sarrat	12.8	0.85	-1.5
7	San Felipe, Sarrat	-	0.12	-20.3
8	Sto. Tomas, Sarrat	-	0.04	-9.1
9	San Marcos, Sarrat	-	0.03	-6.0
10	San Cristobal, Sarrat	3.4	0.28	-13.2
11	Guisit River/Mandaloque	2.1	0.22	-90.2
12	Suyo, Dingras	14.0	0.93	-1.2
13	Poblacion of Dingras	14.6	0.98	-0.6
14	Cura River Basin	10.7	0.69	-143.7
15	Solsona River Basin	14.4	0.96	-8.3
16	Madongan River Basin	13.6	0.90	-23.4
17	Papa River Basin	8.4	0.55	-70.5
18	Lower Bongo	3.5	0.29	-47.3
19	Upper Bongo	0.7	0.13	-245.1

Note: *1 Discounted at 15%.
*2 "-" in EIRR column means negative.

Table J.1.63 Economic Efficiency of Schemes in Potential Flood Areas under Future Condition

No.	Potential Flood Area	EIRR (%)	B/C	NPV (Million Pesos)
1	Tangid, Laoag	27.6	2.09	21.8
2	Suyo, Laoag	13.6	0.89	-0.9
3	Poblacion of Laoag	34.1	2.72	59.4
4	Camangaan, Laoag	20.2	1.43	8.4
5	Poblacion of San Nicolas	22.4	1.62	9.9
6	San Manuel, Sarrat	20.7	1.47	4.8
7	San Felipe, Sarrat	2.7	0.20	-18.3
8	Sto. Tomas, Sarrat	-	0.08	-8.8
9	San Marcos, Sarrat	-	0.06	-5.8
10	San Cristobal, Sarrat	8.5	0.52	-8.7
11	Guisit River/Mandaloque	6.3	0.39	-71.1
12	Suyo, Dingras	22.5	1.62	11.3
13	Poblacion of Dingras	23.9	1.76	17.1
14	Cura River Basin	17.2	1.19	91.2
15	Solsona River Basin	22.7	1.67	138.9
16	Madongan River Basin	21.3	1.55	129.7
17	Papa River Basin	14.4	0.95	-7.6
18	Lower Bongo	8.2	0.50	-33.1
19	Upper Bongo	4.1	0.23	-216.6

Note: *1 Discounted at 15%.
*2 "-" in EIRR column means negative.

Table J.1.64 Implentation Schedule and Disbursement Program of Master Plan

(Unit: Million Pesos in Economic Terms)

	Total	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
I. Construction Works	1,376.5	0.0	251.4	251.4	249.9	192.3	56.0	56.0	54.2	67.0	55.9	52.6	30.0	30.0	30.0
1 Tangid, Laoag	22.8	0.0	0.0	0.0	0.0	0.0	11.4	11.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2 Suyo, Laoag	9.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.6	0.0	0.0	0.0	0.0	0.0	0.0
3 Poblacion of Laoag	39.4	0.0	19.7	19.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4 Camangaan, Laoag	22.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.4	0.0	0.0	0.0	0.0	0.0
5 Poblacion of San Nicolas	18.2	0.0	0.0	0.0	18.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6 San Manuel, Sarrat	11.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.3	0.0	0.0	0.0	0.0
7 Suyo, Dingras	20.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.7	0.0	0.0	0.0
8 Poblacion of Dingras	25.7	0.0	0.0	0.0	0.0	25.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9 Cura River Basin	524.8	0.0	106.0	106.0	106.0	77.8	12.5	12.5	12.5	12.5	12.5	8.9	19.3	19.3	19.3
10 Solsona River Basin	231.2	0.0	38.0	38.0	38.0	29.5	9.8	9.8	9.8	9.8	9.8	7.0	10.7	10.7	10.7
11 Madongan River Basin	270.1	0.0	51.4	51.4	51.4	37.2	13.8	13.8	13.8	13.8	13.8	9.8	0.0	0.0	0.0
12 Papa River Basin	180.2	0.0	36.3	36.3	36.3	22.1	8.6	8.6	8.6	8.6	8.6	6.1	0.0	0.0	0.0
II. Engineering Service	201.4	83.2	13.9	13.9	13.9	13.9	8.0	8.0	7.8	9.6	8.0	13.1	2.8	2.8	2.8
III. Administration	69.2	0.0	12.7	12.7	12.6	9.4	2.8	2.8	2.7	3.3	2.8	2.6	1.6	1.6	1.6
IV. Physical Contingency	159.0	5.8	27.6	27.6	27.5	20.8	6.4	6.4	6.2	7.6	6.4	6.3	3.5	3.5	3.5
V. Total	1,806.1	88.9	305.6	305.6	303.8	236.4	73.2	73.2	70.8	87.5	73.1	74.6	37.8	37.8	37.8

Table J.1.65 Economic Cost and Benefit Stream of Sabo and Flood Control Project of Proposed Schemes under Present Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit					Balance
		Construction	O&M	Total	Flood Control	Land Loss Prevention	Land Restoration	Negative Benefit	Total	
1	1999	88.9		88.9					0.0	-88.9
2	2000	305.6		305.6				0.0	-0.0	-305.6
3	2001	305.6	0.9	306.5	40.1			0.0	40.0	-266.4
4	2002	303.8	1.9	305.7	80.1			0.0	80.1	-225.6
5	2003	236.4	2.8	239.2	117.6	1.7	1.0	0.0	120.3	-121.6
6	2004	73.2	3.7	76.9	147.6	4.2	2.1	0.1	153.8	76.9
7	2005	73.2	4.0	77.2	157.4	6.6	3.1	0.1	167.0	89.8
8	2006	70.8	4.3	75.1	167.1	9.2	4.2	0.1	180.4	105.3
9	2007	87.5	4.6	92.1	175.0	12.0	5.2	0.1	192.1	100.0
10	2008	73.1	4.9	78.0	185.8	14.9	5.2	0.1	205.9	127.9
11	2009	74.6	5.2	79.8	194.8	18.1	5.2	0.1	218.0	138.2
12	2010	37.8	5.5	43.3	203.8	21.2	5.2	0.1	230.2	186.9
13	2011	37.8	5.5	43.3	208.3	24.7	5.2	0.1	238.2	194.9
14	2012	37.8	5.5	43.3	212.8	28.4	5.2	0.1	246.4	203.1
15	2013		5.5	5.5	217.4	32.3	5.2	0.1	254.8	249.3
16	2014		5.5	5.5	217.4	35.2	5.2	0.1	257.7	252.2
17	2015		5.5	5.5	217.4	38.1	5.2	0.1	260.6	255.2
18	2016		5.5	5.5	217.4	41.1	5.2	0.1	263.6	258.1
19	2017		5.5	5.5	217.4	44.0	5.2	0.1	266.5	261.0
20	2018		5.5	5.5	217.4	53.5	5.2	0.1	276.0	270.6
21	2019		5.5	5.5	217.4	63.9	5.2	0.1	286.4	280.9
22	2020		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
23	2021		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
24	2022		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
25	2023		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
26	2024		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
27	2025		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
28	2026		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
29	2027		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
30	2028		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
31	2029		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
32	2030		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
33	2031		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
34	2032		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
35	2033		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
36	2034		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
37	2035		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
38	2036		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
39	2037		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
40	2038		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
41	2039		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
42	2040		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
43	2041		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
44	2042		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
45	2043		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
46	2044		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
47	2045		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
48	2046		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
49	2047		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
50	2048		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
51	2049		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
52	2050		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
53	2051		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
54	2052		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
55	2053		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
56	2054		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
57	2055		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
58	2056		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
59	2057		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
60	2058		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
61	2059		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
62	2060		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
63	2061		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1
64	2062		5.5	5.5	217.4	75.0	5.2	0.1	297.5	292.1

NPV: -130.1 B/C: 0.87 EIRR : 13.1%

Table J.1.66 Economic Cost and Benefit Stream of Sabo and Flood Control Project of Proposed Schemes under Future Condition

(Unit : Million Pesos)

Serial Year	Year	Cost			Benefit					Balance
		Construction	O&M	Total	Flood Control	Land Loss Prevention	Land Restoration	Negative Benefit	Total	
1	1999	88.9		88.9					0.0	-88.9
2	2000	305.6		305.6				0.0	-0.0	-305.6
3	2001	305.6	0.9	306.5	50.5			0.0	50.5	-256.0
4	2002	303.8	1.9	305.7	105.1			0.0	107.2	-200.7
5	2003	236.4	2.8	239.2	160.0	2.1	1.2	0.0	163.3	-79.1
6	2004	73.2	3.7	76.9	208.7	5.4	2.5	0.1	216.5	139.6
7	2005	73.2	4.0	77.2	231.2	8.8	3.8	0.1	243.8	166.6
8	2006	70.8	4.3	75.1	255.1	12.7	5.3	0.1	273.0	197.9
9	2007	87.5	4.6	92.1	277.6	17.1	6.8	0.1	301.4	209.3
10	2008	73.1	4.9	78.0	306.2	22.1	7.0	0.1	335.2	257.2
11	2009	74.6	5.2	79.8	333.5	27.7	7.3	0.2	368.3	288.5
12	2010	37.8	5.5	43.3	362.6	33.6	7.5	0.2	403.5	360.2
13	2011	37.8	5.5	43.3	381.7	40.4	7.8	0.2	429.6	386.4
14	2012	37.8	5.5	43.3	401.7	47.9	8.0	0.2	457.4	414.1
15	2013		5.5	5.5	422.5	56.2	8.3	0.2	486.8	481.3
16	2014		5.5	5.5	435.2	63.3	8.6	0.2	506.9	501.4
17	2015		5.5	5.5	448.3	70.9	8.8	0.2	527.8	522.4
18	2016		5.5	5.5	461.8	78.9	9.1	0.2	549.6	544.1
19	2017		5.5	5.5	475.6	87.3	9.4	0.2	572.2	566.7
20	2018		5.5	5.5	490.0	109.7	9.7	0.2	609.2	603.8
21	2019		5.5	5.5	504.7	135.3	10.1	0.2	649.8	644.4
22	2020		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
23	2021		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
24	2022		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
25	2023		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
26	2024		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
27	2025		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
28	2026		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
29	2027		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
30	2028		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
31	2029		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
32	2030		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
33	2031		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
34	2032		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
35	2033		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
36	2034		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
37	2035		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
38	2036		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
39	2037		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
40	2038		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
41	2039		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
42	2040		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
43	2041		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
44	2042		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
45	2043		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
46	2044		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
47	2045		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
48	2046		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
49	2047		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
50	2048		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
51	2049		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
52	2050		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
53	2051		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
54	2052		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
55	2053		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
56	2054		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
57	2055		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
58	2056		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
59	2057		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
60	2058		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
61	2059		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
62	2060		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
63	2061		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8
64	2062		5.5	5.5	519.9	164.2	10.4	0.2	694.3	688.8

NPV: 493.0 B/C: 1.50 EIRR : 20.6%