(d) A majority of the board of directors in office shall constitute a quorum.

(e) The board shall exercise all the powers of a cooperative not conferred upon or reserved to the members by this Decree or by its articles of incorporation or by-laws.

SEC. 25. **Districts.** - The by-laws may provide for the division of the territory served or to be served by a cooperative into two or more districts for any purpose, including, without limitation, the nomination and election of directors. The by-laws shall prescribe the boundaries of the districts, or the manner establishing such boundaries, the manner of changing such boundaries, and the manner in which such districts shall function.

SEC. 26. **Officers.** - The officers of a cooperative shall consist of a president, vice-president, secretary and treasurer, who shall be elected annually by and from the board. When a person holding any such office ceases to be a director, he shall ipso facto cease to hold such office. The offices of secretary and of treasurer may be held by the same person. The board may also elect or appoint such other officers, agents, or employees as it deems necessary or advisable and shall prescribe their powers and duties. Any officer may be removed from office and his successor elected in the manner prescribed in the by-laws.

SEC. 27. **Amendment of Articles of Incorporation.** - A cooperative may ammend its articles of incorporation by complying with the following requirements; Provided, however, that a change of location of principal office may be effected in the manner set forth in Section 28. The proposed amendment shall be presented to a meeting of the members, the notice of which shall set forth or have attached thereto the proposed amendment or an accurate summary thereof. If the proposed amendment, with any changes, is approved by the affirmative vote of not less than two-thirds of the total votes cast thereon at such meeting, articles of amendment shall be executed and acknowledged on behalf of the cooperative by its president or vice-president and its seal be affixed thereto and attested by its secretary. The articles of amendment shall recite that they are executed pursuant to

this Decree and shall state: (1) the name of the cooperative; (2) the address of its principal office; and (3) the amendment to its articles of incorporation.

The president or vice-president executing such articles of amendment shall make the annex thereto an affidavit stating that the provisions of this section with respect to the amendment set forth in such articles were duly compiled with.

SEC. 28. **Change of Location of Principal Office.** - A cooperative may, upon authorization of its board or members, change the location of its principal office by filing a certificate reciting such change of principal office, executed and acknowledged by its president or vice-president under its seal attested by its secretary, in the place provided for in Section 34.

SEC. 29. **Consolidation.** - Any two or more cooperatives (each of which is hereinafter designated a "consolidating cooperative") may consolidate into a new cooperative (hereinafter designated the "new cooperative"), by complying with the following requirements:

(a) The proposition for the consolidation of the consolidating cooperatives into the new cooperative and proposed articles of consolidation to give effect thereto shall be submitted to a meeting of the members of each consolidating cooperative, the notice of which shall have attached thereto a copy of the proposed articles or consolidation or an accurate summary thereof.

(b) If the proposed consolidation and the proposed articles of consolidation, with any amendments, are approved by the affirmative vote of not less than two-thirds of the total votes cast thereon by each consolidating cooperative voting thereon at each such meeting, articles of consolidation in the form approved shall be executed and acknowledged on behalf of each consolidating cooperative by its president or vice-president and and its seal shall be affixed thereto and attested by its secretary. The articles of consolidation shall recit that they

are executed pursuant to this Decree and shall state: (1) the name of each consolidating cooperative and the address of its principal office; (2) the name of the new cooperative and the address of its principal office; (3) a statement that each consolidating cooperative agrees to the consolidation; (4) the names and addresses of the directors of the new cooperative; and (5) the terms and conditions of the consolidation and the mode of carrying the same into effect, including the manner in which members of the consolidating cooperatives may or shall become members of the new cooperative; and may contain any other provisions not inconsistent with this Decree that are deemed necessary or advisable for the conduct of the business of the new cooperative. The president or vice-president of each consolidating cooperative executing such articles of consolidation shall make and annex thereto an affidavit stating that the provisions of this section with respect to such articles were duly complied with by such cooperative.

SEC. 30. Merger. - Any one or more cooperatives (each of which is hereinafter designated a "merging cooperative") may merge with one or more other cooperatives by complying with the following requirements:

(a) The proposition for the merger of the merging cooperatives into the surviving cooperative and proposed articles or merger to give effect thereto shall be submitted to a meeting of the members of each merging cooperative and of the surviving cooperative, the notice of which shall have attracted thereto a copy of the proposed articles of merger or an accurate summary thereof.

(b) If the proposed merger and the proposed articles of merger, with any amendment, are approved by the affirmative vote of not less than two-thirds of the total votes cast thereon by each cooperative voting thereon at each such meeting, articles of merger in the form approved shall be executed and acknowledged on behalf of each such cooperative by its president or vice president and its seal affixed thereto and attested by its secretary. The

articles of merger shall recite that they are executed pursuant to this Decree and shall state: (1) the name of each merging cooperative and the address of its principal office; (3) a statement that each merging cooperative and the surviving cooperative agree to the merger; (4) the names and addresses of the directors of the surviving cooperative, and (5) the terms and conditions of the merger and the mode of carrying the same into effect, including the manner in which members of the merging cooperatives may or shall become members of the surviving cooperative and may contain any other provisions not inconsistent with this Decree that are deemed necessary or advisable for the conduct of the business of the surviving cooperative. The president or vice-president or each cooperative executing such articles of merger shall make and annex thereto an affidavit stating that the provisions of this section with respect to such articles were duly complied with by such cooperative.

SEC. 31. Effect of Consolidation or Merger -

(a) In the case of consolidation, the existence of the consolidating cooperative shall cease and the articles of consolidation shall be deemed to be the articles of incorporation of the new cooperative; and in the case of merger, the separate existence of the merging cooperatives shall cease and the articles of incorporation of the surviving cooperative shall be deemed to be amended to the extent, if any, that changes therein are provided for in the articles of merger;

(b) All rights, privileges, immunities and franchises and all property, real and personal, including without limitation applications for membership, all debts due on whatever account and all other choses in action of each of the consolidating or merging cooperatives shall be deemed to be transferred to and vested in the new or surviving cooperative without further act or deed.

(c) The new or surviving cooperative shall be responsible and liable for all the liabilities and obligations of each of the

consolidating or merging cooperatives, and any claim existing or action or proceeding pending by or against any of the consolidating or merging cooperatives be prosecuted as if the consolidation or merger had not taken place, but the new or surviving cooperatives shall be constituted in its place; and

(d) Neither the rights of creditors nor any liens upon the property of any such cooperatives shall be impaired by such consolidation or merger.

Sec. 32. **Conversion of Existing Corporation** - Any corporation heretofore organized or registered under the Philippine Non-Agricultural Co-operative Act and supplying or having the corporate power to supply electric energy may convert itself into a cooperative under this Decree by complying with the following requirements, and shall thereupon become subject to this Decree with the same effect as if originally organized hereunder:

(a) The proposition for the conversion of such corporation and proposed articles of conversion to give effect thereto shall be submitted to a meeting of the members or stockholders of such corporation, the notice of which shall have attached thereto a copy of the proposed articles of conversion or an accurate summary thereof.

(b) If the proposition for the conversion and the proposed articles of conversion, with any amendments, are approved by the affirmative vote of not less than two-thirds of the total votes cast thereon by members a such meeting, and/or, if such corporation, is a stock corporation or has both members, and voting stockholders, by the affirmative vote of the holders of not less than two-thirds of those shares of the capital stock of such corporation represented at such meeting and voting thereon, articles of conversion in the form approved shall be executed and acknowledged on behalf of such corporation by its president or vice-president and its seal shall be affixed thereto and attested by its secretary. The articles of conversion shall recite that they are executed pursuant to this

Decree and shall state: (1) the name of the corporation and the address of its principal office prior to the conversion into a cooperative; (2) a statement that such corporation elects to become a cooperative, non-profit, membership corporation subject to this Decree; (3) its name as a cooperative; (4) the address of the directors of the cooperative, and (6) the manner in which members or stockholders of such corporation may or shall become members of the cooperative; and may contain any other provisions not inconsistent with this Decree that are deemed necessary or advisable for the conduct of the business of the cooperative. The president or vice-president executing such articles of conversion shall make and annex thereto and affidavit stating that the provisions of this section were duly complied with in respect to such articles. The articles of conversion shall be deemed to be the articles of incorporation of the cooperative.

SEC. 33. **Dissolution** - A cooperative may be dissolved in the following manner: The proposition to dissolve shall be submitted to the members of the cooperative at any annual or special meeting, the notice of which shall set forth such proposition. The members at any such meeting shall approve, by the affirmative vote of not less than a majority of all members of the cooperative, the proposition that the cooperative be dissolved (hereinafter designated the "certificate") shall be executed and acknowledged on behalf of the cooperative by its president or vice-president under its seal, attested by its secretary, stating; (1) the name of the cooperative; (2) the address of its principal office; and (3) that the member of the cooperative have only voted that the cooperative be dissolved. Also, an affidavit, made by its president or vice-president executing the certificate, shall state that the statements in the certificate are true. Upon the filing of the certificate and affidavit as provided for in Section 34, the cooperative shall cease to carry on its business except to the extent necessary for the winding up thereof, but its corporate existence shall continue until articles of dissolution shall have been filed. The board shall immediately cause notice of the dissolution proceedings to be mailed to each known creditor of and claimant against the cooperative and to be published once a week for two successive weeks in a newspaper of general

circulation in the territory in which the principal office of the cooperative is located. The board shall wind up and settle the affairsof the cooperative, collect sum owing to it, liquidate its property and assets,pay and discharge its depts, obligation and liabilities, other than those to patrons arising by reason of their patronage and do all other things required to wind up its business, and after paying or discharging or adequately providing for the payment or discharge of all its debts, obligations and liabilities, other than those to patrons arising by reason of their patronage, shall distribute any remaining sums and/or unliquidated assets, first, to patrons for the pro rata return of all amounts standing to their credit by reason of their patronage; second, to members for the pro rata repayment of membership fees; and third, to patrons for the amounts of any outstanding contributions in aid or construction they have made. Any sums and/or unliquidated assets then remaining shall be distributed in such manner as provided in the cooperative's articles of incorporation or by-laws, which may provide for distribution of such sums or assets on a patronage basis to persons who were members in one or more prior years or for transfer thereof to a new cooperative to succeed the one being dissolved. The board shall thereupon authorize the execution of articles of dissolution, which shall be executed and acknowledged on behalf of the cooperative by its president or vice-president, and its seal shall be affixed thereto and attested by its secretary. The articles of dissolution shall recite that they are executed pursuant to this Decree and shall state: (1) the name of the cooperative; (2) the address of its principal office; (3) the date on which the certificate of election to dissolve was filed; (4) that there are no actions or suits pending against the cooperative; (5) that all debts, obligations and liabilities of the cooperative have been paid and disregard or that provision to the extent possible has been made therefor; and (6) that the provisions of this section have been duly complied with. The president or vice-president executing the articles of dissolution shall make the annex thereto an affidavit stating that the statements made therein are true.

SEC. 34. **Filing of Articles and Certificates** - Articles of incorporations, amendment, consolidation, merger, conversion, or dissolution and certificates of changes in the location of principal offices and of

elections to dissolve, when executed and acknowledged and accompanied by such affidavits as may be required by applicable provisions of this Decree.

CALENDAR YEAR MONTHLY ACCOMPLISHMENT
(Fig.F.5.1)

This reporting format shall be used to monitor the quantities of work accomplished based on approved current year integrated program, including carry-over activities from preceeding year program/s of work. The same form shall be used by the PMO-SWIM in the evaluation of actual percent accomplishment on current year work.

Guidelines for accomplishing the form:

1. Calendar Year shall be current year program considered

2. Project Title shall be the same of the project under implementation

3. Cut-off-date shall on every 15th day of the month

4. Col.(1) - Shall be the code number per item of work as established for use by the project considered

5. Col.(2) - Indicate both major activities and sub-activities/ work items that are included in the current year work following the sequence of major project components under col.(2) of Calendar Year Implementation Schedule and Status. Sub-activities/work items for contract work could be entered in lump sum (L.S.). Sub-activities/work items for force account work should be quantified.

6. Col.(3) - Use cu.m. for cubic meter, L.M. for linear meter, etc.

7. Col.(4) - Indicate the numerical quantities to be realized during the current year, including carry-over quantities that could be funded out of proceeding year free balance, if any. Indicate lump sum "L.S." to summarize consolidated amount of contract works for this purpose and if activities are not quantifiable.

8. Col.(5) - Indicate unit cost of each work item involved per latest revised unit cost estimate within the current year excluding those item under indirect cost.

9. Col.(6) - Indicate amount which is the product of quantities and unit cost (Col.4 x Col.5). For contract works and indirect activities on detailed quantities are required but indicate lump sum (L.S.) programmed for the calendar year.

10. Col.(7) - Shall be the performance weight of each sub-activities/pay item which is the quotient of respective cost of sub-items under Col. (6) and sub-total cost of corresponding major item times 100. The performance weight of each sub-total should be 100%.

11. Col.(8) - (9) - Indicate the respective quantities accomplished during the month and to-date. Accomplished to date should be from January of every calendar year up to reporting month but not beyond year end.

12. Col.(10)- Value of accomplishment to-date should be the product of Col.(5) and Col.(9).

13. Col.(11)- Actual expenses incurred should be the cash disbursement plus unpaid accounts or Cost Engineering data of particular item of work accomplished under Col.(9).

14. Col.(12)- % accomplishment per item is the quotient of Col.(10) & Col.(6) times 100 if not quantifiable.

15. Col.(13)- Weighted % accomplishment is the product of Col.(7) and Col.(12). The sub-total for this column shall be the sum of individual weighted percent of each item.

Complete each major activites or component by indicating the sub-total for each column before proceeding to the next major activity or component.

CURRENT YEAR IMPLEMENTATION SCHEDULE AND STATUS
(Fig.F.5.2)

This figure indicates the relationship of the progress and the program of work in the periodic reporting of project implementation.

Guidelines for accomplishing the form:

1. Col.(1) - Shall identify the item number which is self-explanatory.

2. Col.(2) - Major work items shall be listed down in based on feasibility study work items including additional items, if any. Work items that shall be listed shall include pre-construction activities and right of way acquisition.

3. Col.(3) - "C" shall indicate contract work if work item shall be undertaken by contract and "F" if force account.

4. Col.(4) - Shall indicate the original estimated cost for each work item programmed for particular calendar year as well as the corresponding latest revised cost made within the year. The figures here shall conform with those in the Program of Work.

5. Col.(5) - Shall indicate the percentage weight of each cash item for the calendar year with respect to the total direct cost under Col.(4). Original and revised weight shall be indicated accordingly.

6. Col.(7) - Shall indicate the actual cumulative accomplishment of each item as of the end of the previous calendar year.

7. Col.(8) - (9) Shall indicate the monthly cumulative percentage accomplishment (projected and actual) starting from base zero percent (0%) in January to 100% in December of the same year.

Total Direct Cost - Shal be the sum of the estimated costs, original and revised reflected in Col. (4).

Overall Physical Status - Shall reflect the monthly cumulative accomplishments, both projected and actual. The status for a particular month shall be the sum of the product of Col. (5) and the accomplishment for the month, say, August; it shall be equal to (Col.5 x Col.18).

The format shall be completed by drawing the calendar year projected and actual S-curves starting from zero as origin.

CALENDAR YEAR FUNDING AND STATUS
(Fig.F.5.3)

This reporting form shall be prepared to identify and evaluate funding status of the project at any point in time and to determine any deviation of actual fund utilization from financial program. This form shall be accomplished jointly by the programming engineer and the project accountant. The programming engineer shall prepare the breakdown of the SAA releases per object. The cost engineer shall look into the charging of the cost per object and per major project components as listed in Fig.F.5.2 and Fig.F.5.4., while the accountant will be responsible for supplying data on the actual obligation per object cost.

Guidelines for accomplishing the form:

1. Calendar Year 19___ Funding and Status shall refer to the current year only.

2. Project Title shall be the name of the project.

3. As of _____, 19___ shall mean cumulative from January 1 of the current year up to the cut-off of the period of reporting.

4. Project financial program for the current year shall mean financial requirement for the current year based on the cash flow reflected in the approved project Program of Work for the current year.

5. Amount Released for the Project

a). Particulars shall include all Disbursement Authority (SAA or LAA) released during the previous year with unobligated balance at the start of the budget year. Free Balance of the previous year shall be considered to be carry-over funding for the current year program. It shall also include new allocations or disbursement authority released from start of current year up to reporting period.

b). Fund Code shall be the number that identifies the fund source; i.e., local, foreign, or corporate.

c). Cost object is the different cost components of the total cost, i.e., materials, labor, equipment, ROW, rentals, contract, overhead. Definition of object should be worked out between the cost engineer and the accountant for uniformity.

d). Free balance is the uncommitted amount of the SAA or disbursement authority at the end of the reporting period. This is the difference between the amount released and the total obligations incurred (paid or unpaid).

e). Total Financial Program Balance shall be the difference between the Project Financial Program for CY and the Total Funding Released classified according to the different categories.

6. Amount Obligated Against Aforesaid Funds

a). Obligations shall include paid and unpaid obligations.

b). Major project components shall be as per listing in Figs.F.5.2 to F.5.4.

c). The column **Particular** reflects the obligation for the **month** per object and per major project component. To-date obligation is reckoned from the start of the calendar year up the period of reporting.

d). **Balance of POW** is the difference between the POW current year and the **Total Obligations.**

e). **The Project Fund Balance** is the difference between the total fund to-date and the total obligations to-date.

CALENDAR YEAR SCHEDULED EXPENDITURE AND STATUS
(Fig.F.5.4)

1. Col.(1) - (3) The same data as in **Figure** 5.2 shall be used

2. Col.(4) - Original and Revised CY financial program for each project component shall be indicated

3. Col.(5) - Weighted percentage of each component relative to the total CY program shall be indicated.

4. Col.(7) - The overall project status as of December of preceeding year shall be indicated. (This applies only to multi-year implementation projects.)

5. Col.(8) - (19) - The monthly cumulative percent financial status (projected and actual) starting from zero to 100% by December of the current year shall be indicated. Actual CY percent expenditure shall be up to reporting period.

Current Year Financial Status - Shall indicate monthly cumulative percent expenditure (projected and actual) relative to CY financial program for entire project obtained by weighted summing.

The form shall be completed by plotting the resulting S-curves

generated by projected and actual percent expenditure cited in preceeding paragraph.

MONTHLY CONTRACT ACCOMPLISHMENT
(Fig.F.5.5)

This reporting format shall be for the purpose of monitoring the progress of contract works.

Guidelines for Accomplishing the Form:

1. Report No. - Shall serve as reference for the series of the report until completion of the contract.

2. Contract No.- Shall include particular schedules

3. Project Title- Shall be the name of project and particular activity specified in the title of the Contract Documents.

4. Date - Shall be the period of coverage of the report

5. Item No. (1) - Item number as specified in the contract documents

6. Description of Work (2) - Shall be the major work item defined in the bid proposal of the contract documents or the major pay-item of the contract.

7. Original (3) to (5)
   a. Quantity - Shall be the quantity based from the bidder quantities as originally published in the bid proposals.

   b. Unit Cost- Shall be the bidded and/or accepted unit cost from the winning bidder; sometimes the contract unit cost is negotiated to the agency estimates.

c. Amount - Shall be the quantity multiplied by the unit cost of the work item/pay item.

8. Revised and/or firmed-up (6) to (8) must be approved by top management and the **REVISED** shall be the latest approved revision.

a. Quantity - Shall be based on the firm-up estimates of the approved contract plan.

b. Unit Cost- Shall be the approved price adjustment quantity multiplied by the unit cost.

9. Percentage Weight - Shall be the total amount of the work item divided by the total amount of the whole contract cost.

10. Actual Accomplishments

a. Previous Quantity - Shall be the acomplishment as of last month report.

b. Previous Amount - Shall be the amount of the quantity of work done as of the last month per particular work item.

c. This Period Quantity- Shall be the quantity of work accomplished within the reporting period.

d. Amount This - Shall be the amount of the quantity of Periodwork accomplished within the reporting period

e. To-date - Shall be the quantified overall Quantity accomplishment of the particular major work item.

f. To-date Amount - Shall indicate the cost of accomplishment to-date.

11. Per Item (Col.16) - Shall indicate % completion of particular work/pay item.

12. Overall (Col.17) - Shall indicate the weighted % accomplishment, i.e., Col.(9) x Col.(16)

13. This form shall prepared for every contract.

14. Should there be any changes in the quantity/unit cost of the major pay item from the original contract amount as designated by EXTRA WORK ORDER, the EXTRA WORK ORDER major item shall be listed below and treated as an individual contract in the evaluation. The overall % completion shall be evaluated by weighted summing of individual contract % accomplishment.

OVERALL IMPLEMENTATION SCHEDULE AND STATUS
(Fig.F.5.6)

This form shall be applicable to projects with implementation schedule of more than one year. This shall be prepared quarterly.

Guidelines for accomplishing the form:

1. Col.(1) - Shall identify the item number.

2. Col.(2) - Shall contain all major work items based on the feasibility study including additional activities, if any. Work items shall include pre-construction activities including right of way acquisition and civil works such as diversion works, canalization, powerhouse, etc.

3. Col.(3) - "C" shall be indicated for work items under contract and "F" for force account.

4. Col.(4) - Shall indicate the cost of each activity, the original cost on the upper space and the latest revised cost on the lower

space. Date of latest revision shall be reflected as footnote.

5. Col.(5) - Shall indicate the corresponding performance weight of each item which is the quotient of the estimated cost with the total direct cost items times 100. THe total should be 100%

6. Col.(7) - (22) Shall indicate the quarterly periodic cumulative percentage accomplishments (projected and actual) from start of the project to completion date.

7. Total Direct Cost - Shall be the separate summation of original and revised estimated costs of each item.

8. Overall Physical Status - Shall indicate the overall quarterly cumulative percentage status which are under columns (7) to (22) computed by summing the products of respective percentages under a particular column and the corresponding percentages appearing under column (5).

OVERALL SCHEDULED EXPENDITURES AND STATUS
(Fig.F.5.7)

This format shall be used to monitor the periodic cumulative quarterly expenditures expressed in percent in relation to the actual financial status. In addition, this shall represent in graphical form or S-curves the behavior of the financial status of the project.

Guidelines for accomplishing the form:

1. Col.(1) - (4) - The same data shall be used as in Fig.F.5.6. The other components shall consists of non-physical activities, such as a) Engineering Supervision and Administration, b) Consulting Services, c) Price escalation, d) Contingencies, and e) Consulting Services.

2. Col.(5) - Shall indicate the weighted percent of each major component which is the quotient of the estimated cost per item and the total project cost.

3. Col.(7) - (22) - Shall indicate the periodic cumulative percent expenditure (projected and Actual) from date of start of implementation to target date of completion of each project component. Actual percent expenditure should be up to reporting period.

4. Overall Financial Status - Shall be the computed by summing the products of respective percentages under a particular column and the corresponding percentages appearing under column (5).

The form shall be completed by plotting the S-curves of original and/or revised projections as well as the curve of actual using the overall fiancial status of the project as any given period as coordinates.

ANNEX G

LOCATION AND MAJOR FEATURES OF QUALIFIED SWIM PROJECTS

ANNEX G LOCATION AND MAJOR FEATURES OF QUALIFIED SWIM PROJECTS

Table of Contents

List of Tables

ANNEX G LOCATION AND MAJOR FEATURES OF QUALIFIED SWIM PROJECTS

1. LOCATION OF QUALIFIED SWIM PROJECTS

The location of each of qualified SWIM projects were confirmed with its coordinates and marked on the base maps in a scale of 1:250,000 (see Data Sheets).

2. MAJOR FEATURES OF QUALIFIED SWIM PROJECTS

Major features of qualified SWIM projects are shown on Table G.2.1. Some figures and values in the Table, such as embankment volume, dam height, project cost, benefit, EIRR, are reviewed ones on the basis of the results of the revision of costs and benefit and of technical assessment.

3. Classification of Qualified SWIM Projects by Various Categories

Qualified SWIM projects were classified into groups by following categories.

(1) Implementing agency and project status
(2) Region
(3) Development purposes
(4) Catchment area
(5) Dam height
(6) Storage capacity
(7) Embankment volume
(8) Development scale

3.1 Classification by Implementing Agency and Project Status

Total number of qualified SWIM projects is 230. Those projects are

classified into groups in terms of implementing agency and project status as shown below:

Unit : nos.

Implementing Agency	Present Status			Total
	Pre-F/S	F/S	D/D	
DPWH	10	4	9	23
NIA	59	-	8	67
BSWM	-	-	140	140
Total	69	4	157	230

BSWM has the largest number of projects, followed by NIA and DPWH. All of BSWM projects have already finished their detailed designs while most of NIA projects are in pre-feasibility study stage.

3.2 Classification by Region

Qualified SWIM projects are distributed over the country, and their locations are shown by each region as below:

Unit : nos.

Implement. Agency	Region													
	I	II	CAR.	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Total
DPWH	6	3	1	1	5	1	1	0	1	0	0	1	3	23
NIA	10	0	0	9	2	14	0	26	5	1	0	0	0	67
BSWM	24	28	3	17	4	5	8	9	8	7	10	9	8	140
TOTAL	40	31	4	27	11	20	9	35	14	8	10	10	11	230

DPWH projects are rather concentrated in the Luzon Island while BSWM projects show relatively even distribution over the country. More than half of NIA projects are located outer Luzon Island. The largest number of SWIM projects are located in Region I, followed by Regions VII, II, III, V, etc.

3.3 Classification by Development Purposes

SWIM projects are classified by their development purposes as shown below:

Unit : nos.

Implement Agency	Main Purpose					Incidental Purpose					
	IR	WM	MH	WS	TOTAL	IR	IF	FC	WM	MH	WS
DPWH	20	-	2	1	23	1	23	23	14	7	2
NIA	67	-	-	-	67	-	67	67	50	4	0
BSWM	140	-	-	-	140	-	140	140	137	-	-
TOTAL	227	-	2	1	230	1	230	230	201	11	2

Note: IR: Irrigation; WM: Watershed management; IF: Inland fishery; MH: Mini-hydropower; WS: Water supply;

Almost all projects have irrigation development purpose as a main purpose. Only some DPWH projects have other main purpose such as mini-hydropower generation development and water supply.

Flood control, inland fishery development and watershed management are major incidental purposes.

3.4 Classification by Catchment Area

The qualified SWIM projects are classified by the scale of catchment area at the proposed damsites as shown below:

Unit : nos.

Agency	Catchment Area (km^2)											Total
	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	>50	
DPWH	13	6	2	2	0	0	0	0	0	0	0	23
NIA	43	13	7	3	1	0	0	0	0	0	0	67
BSWM	140	0	0	0	0	0	0	0	0	0	0	140
TOTAL	196	19	9	5	1	0	0	0	0	0	0	331

Most of dams proposed in SWIM projects have very small catchment areas in the range of 0.1km^2 and 50 km^2; especially all the BSWM projects have smallest group of the dams with the catchment area of less than 10km^2.

3.5 Classification by Dam Height

The SWIM projects are also classified into groups in terms of structural height of dams as shown below:

Unit : nos.

Agency	Dam Height (m)							Total
	0-5	5-10	10-15	15-20	20-25	25-30	30-35	
DPWH	0	1	6	9	6	1	0	23
NIA	2	8	8	4	17	27	1	67
BSWM	3	61	69	7	0	0	0	140
TOTAL	5	70	83	20	23	28	1	230

The dams proposed by DPWH and NIA are relatively large in height as compared with those of BSWM. More than half of dams of DPWH and NIA have more than 15m of dam height while most of BSWM dams have less than 15m of dam height.

3.6 Classification by Storage Capacity

The following shows the classification of the projects by the storage capacity.

Unit : nos.

Agency	Storage Capacity (10^6 m^3)											Total
	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	>10	
DPWH	16	6	1	0	0	0	0	0	0	0	0	23
NIA	27	14	9	5	4	2	1	1	0	1	3	67
BSWM	139	1	0	0	0	0	0	0	0	0	0	140
Total	182	21	10	5	4	2	1	1	0	1	3	230

The storage capacity of the SWIM projects is generally small. In spite of the definition of SWIM project in terms of storage capacity; "those with storage capacity not exceeding 50 MCM", most dams have storage capacities of less than 5 MCM.

3.7 Classification by Embankment Volume

The SWIM projects are classified by the amount of embankment volume as shown below:

Unit : nos.

Agency	Embankment Volume (10^6 m^3)											Total
	0-0.05	-0.1	-0.15	-0.2	-0.25	-0.3	-0.35	-0.4	-0.45	-0.5	>0.5	
DPWH	9	3	5	5	1	0	0	0	0	0	0	23
NIA	18	25	14	5	4	0	1	0	0	0	0	67
BSWM	131	8	1	0	0	0	0	0	0	0	0	140
Total	158	36	20	10	5	0	1	0	0	0	0	230

The embankment volume of the SWIM projects are rather small; almost all dams have embankment volume of less than 250,000m^3.

3.8 Classification by Development Scale

The SWIM projects are also classified by irrigation area, installed capacity for mini-hydropower, inland fishery production plan and watershed protection area, as indicators of their development scale.

(1) Irrigation Area

Irrigation is the important major purpose in the SWIM projects. However, its development scale varies project by project as well as agency by agency. Proposed irrigation area in each agency is summarized as below:

Agency	Irrigation Area (ha)		
	Average	Minimum	Maximum
DPWH	204	21	500
NIA	200	5	500
BSWM	77	15	400

Since the irrigation area of SWIM projects are restricted by the implementing guideline as explained in ANNEX C "CONCEPTS AND IMPLEMENTING GUIDELINES OF SWIM PROJECTS", maximum irrigation development area is not more than 500 ha. Average irrigation areas of SWIM projects proposed by DPWH and NIA are about 200 ha, bigger than those of BSWM projects. Distribution of irrigation area in each agency is as presented below:

Unit : nos.

Agency	Irrigation Area (ha)										Total
	0-50	-100	-150	-200	-250	-300	-350	-400	-450	-500	
DPWH	1	4	6	4	2	0	0	0	3	1	21
NIA	6	14	14	6	9	4	3	3	5	3	67
BSWM	61	60	10	6	2	0	0	1	0	0	140
TOTAL	68	78	30	16	13	4	3	4	8	4	228

(2) Installed Capacity

Some of DPWH and NIA projects have mini-hydropower generation plan as one of the development purposes. The number of such projects is only 11; 7 of DPWH and 4 of NIA. Proposed installed capacity by each agency and distribution of the scale of installed capacity is shown below:

Agency	Installed Capacity (kW)		
	Average	Minimum	Maximum
DPWH	291	90	600
NIA	203	165	240

Unit : nos.

Agency	Installed Capacity (kW)								Total
	0-100	-200	-300	-400	-500	-600	-700	>700	
DPWH	1	2	1	2	0	1	0	0	7
NIA	0	2	2	0	0	0	0	0	4
Total	1	4	3	2	0	1	0	0	11

(3) Inland Fishery Production

Although the inland fishery development is one of the incidental purposes of SWIM projects, this activity could contribute to improve nutritious condition in rural area by supplying protein source. Also it will contribute to generate employment opportunity and additional income.

Based on the assumption made in the revision of cost and benefit of the SWIM projects, (refer to ANNEX H "COST AND BENEFIT AND RE-CALCULATION OF ECONOMIC INTERNAL RATE OF RETURN (EIRR)"), potential fish production in each agency and distribution of production scale are as shown below:

Agency	Fish Production (tons)		
	Average	Minimum	Maximum
DPWH	20	5	78
NIA	71	1	370
BSWM	8	2	43

Unit : nos.

Agency	Fish Production (tons)											Total
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	>100	
DPWH	8	8	2	2	2	0	0	1	0	0	0	23
NIA	11	3	8	9	5	7	3	3	3	1	14	67
BSWM	109	26	2	2	1	0	0	0	0	0	0	140
Total	128	37	12	13	8	7	3	4	3	1	14	230

(4) Watershed Protection Area

Watershed management/protection is another incidental purpose of SWIM projects. The watershed area to be protected/managed is estimated in each project by FMB and shown below:

Agency	Watershed Protection Area (ha)		
	Average	Minimum	Maximum
DPWH	543	60	1,855
NIA	474	32	2,160
BSWM	98	12	693

Unit : nos.

Agency	Watershed Protection Area (ha)											Total
	0-100	-200	-300	-400	-500	-600	-700	-800	-900	-1,000	>1,000	
DPWH	2	3	2	2	1	0	0	1	0	0	3	14
NIA	7	12	6	5	4	4	1	1	1	3	6	50
BSWM	103	18	10	3	1	1	1	0	0	0	0	137
Total	112	33	18	10	6	5	2	2	1	3	9	201

TABLES

Table G.2.1 Major Features of Qualified SWIM Projects (1/6)
- DPWH -

No.	AGENCY No.	PROJECT NAME	REGION	PROVINCE	PROJECT STATUS	MAIN PURPOSE	INCIDENTAL PURPOSES	ANNUAL RUNOFF (mm)	ANNUAL RAINFALL (mm)	CATCH-MENT AREA (km2)	EFFECTIVE STORAGE CAPACITY (m3)	RESER-VOIR AREA (ha)	DAM HEIGHT (m)	EMBANKMENT VOLUME (m3)	IRRI-GATION AREA (ha)	INSTALLED CAPACITY (kW)	REFORES-TATION AREA (ha)	WATER SUPPLY CAPACITY (m3/day)	ANNUAL FISH PRODUCTION (ton)	PROJECT COST (million pesos)	TOTAL BENEFIT	IER (%)	ORIGINAL IER (%)
1	DPWH 1	SAYTAN DAM & RESERVIOR SWIP	1	LA UNION	D/D	IR	FC,IF,ME	1,502	1,805	4	284,000	3	24	134,000	100	120	0	0	4.8	40.3	1.88	(0.5)	24.2
2	DPWH 2	BOLO DAM & RESERVIOR SWIP	CAR.	KALINGA-APAYAO	D/D	IR	FC,IF,MH	1,687	1,678	19	1,400,000	26	17	167,200	430	178	0	0	41.6	47.7	9.70	17.1	32.6
3	DPWH 3	SACRIFICE VALLEY DAM	3	BATAAN	F/S	WS	FC,IF,WM	1,166	2,326	6	182,000	5	19	46,690	0	0	105	409	8.0	27.2	0.77	7.0	51.9
4	DPWH 6	TULARIQUIN DAM & RESERVOIR	4	PALAWAN	D/D	MH	FC,IF,WM	2,410	1,604	32	1,910,000	29	25	197,000	0	600	1,235	0	46.4	88.1	5.80	5.3	16.0
5	DPWH 7	BURDEOS RIVER SWIP	4	QUEZON	D/D	IR	FC,IF,MH,WM	2,109	3,834	15	730,000	13	19	157,509	250	400	370	0	20.8	71.0	3.64	1.8	25.3
6	DPWH 8	SAN JOSE DAM	4	RIZAL	D/D	IR	FC,IF	861	1,858	2	255,000	5	17	28,750	21	0	0	0	8.0	8.9	0.47	1.4	16.0
7	DPWH 9	CUBACUB DAM & RESERVOIR SWIP	4	RIZAL	D/D	IR	FC,IF,MH	2,179	2,847	10	402,000	6	28	102,424	450	0	0	0	9.6	47.0	6.08	11.0	n.d.
8	DPWH 11	DEBESMAC DAM & RESERVOIR SWIP	5	MASBATE	F/S	MH	FC,IR,WS,IF,WM	2,018	1,851	28	2,350,000	49	22	132,610	200	350	1,855	800	78.4	74.8	7.97	12.1	34.3
9	DPWH 13	SAN JUAN DAM	8	NORTHERN SAMAR	D/D	IR	FC,IF	1,705	3,318	1	1,700,000	20	20	111,550	210	0	0	0	32.0	23.5	4.19	15.0	12.6
10	DPWH 14	GUIMEA DAM & RESERVOIR SWIP	12	LANAO DEL SUR	D/D	IR	FC,IF,MH,WM	2,679	2,800	3	488,100	12	16	26,860	60	90	112	0	19.2	13.1	1.79	15.0	33.1
11	DPWH 15	MAGPET DAM & RESERVOIR SWIP	12	NORTH COTABATO	D/D	IR	FC,IF,MH,WS,WM	2,003	1,941	14	755,000	7	17	232,640	500	0	180	0	11.2	54.2	9.16	15.3	29.6
12	DPWH 16	BANAYAL DAM & RESERVOIR SWIP	12	NORTH COTABATO	F/S	IR	FC,IF,MH,WM	1,808	1,986	36	1,070,000	15	24	92,250	450	300	363	0	24.0	79.3	10.82	13.0	17.0
13	DPWH 17	ACOP & RESERVOIR SWIP	1	PANGASINAN	Pre-F/S	IR	FC,IF	n.d.	2,388	9	414,000	6	12	31,950	200	0	0	0	9.6	14.2	3.31	19.1	21.5
14	DPWH 18	CALITLITAN DAM & RESERVOIR	1	PANGASINAN	Pre-F/S	IR	FC,IF	n.d.	2,388	12	765,000	8	21	138,088	150	0	0	0	12.8	32.3	3.27	7.5	13.7
15	DPWH 19	KITA-KITA DAM & RESERVOIR	1	PANGASINAN	Pre-F/S	IR	FC,IF,WM	n.d.	2,388	9	351,000	10	12	25,789	150	0	95	0	16.0	10.6	2.97	28.8	12.8
16	DPWH 20	SALVACION DAM & RESERVOIR SWIP	1	PANGASINAN	Pre-F/S	IR	FC,IF,WM	4,191	2,388	5	459,000	5	13	58,366	125	0	60	0	8.0	13.7	2.17	14.9	13.6
17	DPWH 21	SAN ANGEL DAM & RESERVOIR	1	PANGASINAN	Pre-F/S	IR	FC,IF	7,515	2,388	9	261,000	10	13	35,640	150	0	0	0	16.0	12.0	3.02	20.8	24.6
18	DPWH 22	LIGTOS SWIP	6	ILOILO	Pre-F/S	IR	FC,IF,WM	13,221	2,119	25	1,602,000	10	25	175,652	200	0	1,385	0	16.0	63.3	4.17	5.7	11.4
19	DPWH 25	ABIAN SWIP	2	NUEVA VIZCAYA	Pre-F/S	IR	FC,IF,WM	28,775	1,230	6	1,386,000	5	20	75,074	100	0	265	0	8.0	22.5	2.06	10.8	6.1
20	DPWH 26	CATTEBAGAN SWIP	2	ISABELA	Pre-F/S	IR	FC,IF,WM	4,470	1,926	5	292,500	7	11	35,494	130	0	278	0	11.2	18.1	2.84	21.2	8.4
21	DPWH 27	MALALINTA SWIP	2	ISABELA	Pre-F/S	IR	FC,IF,WM	3,721	1,926	12	315,000	5	13	42,339	75	0	795	0	8.0	23.4	1.73	12.1	6.7
22	DPWH 28	CALUBAYAN SWIP	4	ORR. MINDORO	Pre-F/S	IR	FC,IF,WM	6,534	2,013	15	504,000	8	20	162,676	200	0	500	0	12.8	46.4	4.17	8.0	12.9
23	DPWH 33	LIBASAN SWIP	11	DAVAO DEL NORTE	F/S	IR	FC,IF	n.d.	1,804	4	371,861	20	10	15,480	136	0	0	0	32.0	11.9	2.36	16.5	n.d.

Note: F/S: Feasibility Study; D/D: Detailed Design; Pre-F/S: Pre-feasibility Study
IR: Irrigation; FC: Flood Control; IF: Inland Fishery; MH: Mini-hydropower WS: Water Supply;
WM: Watershed Management

Table G.2.1 Major Features of Qualified SWIM Projects (2/6)
- NIA - No.1

No.	AGENCY No.	PROJECT NAME	REGION	PROVINCE	PROJECT STATUS	MAIN PURPOSE	INCIDENTAL PURPOSES	ANNUAL RUNOFF (mm)	ANNUAL RAINFALL (mm)	CATCH-MENT AREA (km2)	EFFECTIVE STORAGE CAPACITY (m3)	RESER-VOIR AREA (ha)	DAM HEIGHT (m)	EMBANKMENT VOLUME (m3)	IRRI-GATION AREA (ha)	INSTALLED CAPACITY (kW)	REFORES-TATION AREA (ha)	WATER SUPPLY CAPACITY (m3/day)	ANNUAL FISH PRODUCTION (ton)	PROJECT COST (million pesos)	TOTAL BENEFIT (million pesos)	IFR (%)	ORIGINAL IRR (%)
1	NIA 4	PARPAGOJA SWIP (SCHEME - I)	4	ROMBLON	D/D	IR	FC,MH,IF,WM	735	2,138	37	2,800,000	51	21.0	168,000	500	225	842	0	82	81.3	8.3	8.7	10.9
2	NIA 6	POTOT SWIP (SCHEME-I)	5	MASBATE	D/D	IR	FC,MH,IF	n.d.	3,133	10	3,144,000	43	18.0	125,830	300	165	0	0	69	35.3	5.8	13.2	11.3
3	NIA 7	CARAMDAN SWIP	5	CAMARINES SUR	D/D	IR	FC,MH,IF,WM	1,824	3,145	23	586,000	20	14.8	65,645	350	240	1,000	0	32	48.4	7.2	16.4	N.D.
4	NIA 9	NASIG-ID SWIP	7	NEGROS ORIENTAL	D/D	IR	FC,IF,WM	1,433	1,275	10	466,000	6	30.0	160,900	500	0	482	0	10	122.8	10.0	4.9	12.0
5	NIA 11	TUGAS SWIP	7	BOHOL	D/D	IR	FC,IF	582	1,486	5	2,080,000	18	33.0	368,500	250	0	0	0	29	46.2	4.6	6.6	10.5
6	NIA 12	ILAYA SWIP	7	BOHOL	D/D	IR	FC,IF,WM	427	2,134	10	3,370,000	49	25.0	232,400	450	0	500	0	78	51.3	10.9	19.4	16.4
7	NIA 14	SAGUDSURON SWIP (SCHEME-I)	8	NORTHERN SAMAR	D/D	IR	FC,WM	1,706	3,301	5	1,570,000	21	14.0	212,500	230	0	150	0	34	35.5	5.0	12.4	10.3
8	NIA 15	SUCACAO SWIP	9	ZAMBOANGA DEL SUR	D/D	IR	FC,MH,IF	1,101	2,618	23	1,630,000	25	26.0	68,500	410	180	0	0	40	62.6	8.8	10.7	13.5
9	NIA 20	MALOYO SWIP	1	LA UNION	Pre-F/S	IR	FC,IF,WM	2,536	2,436	29	5,409,000	85	23.0	100,300	430	0	955	0	136	63.4	9.9	17.4	24.0
10	NIA 21	MAGSIPING SWIP	1	LA UNION	Pre-F/S	IR	FC,IF,WM	2,536	2,436	10	3,153,000	41	30.0	126,500	100	0	400	0	66	36.8	3.2	10.2	11.6
11	NIA 22	SAN FELIPE SWIP	1	LA UNION	Pre-F/S	IR	FC,IF,WM	2,536	2,436	15	1,364,000	20	30.0	141,600	140	0	600	0	32	44.3	3.6	8.4	13.0
12	NIA 23	MACABATO SWIMP	1	LA UNION	Pre-F/S	IR	FC,IF,WM	2,536	2,436	8	682,000	8	30.0	55,000	60	0	320	0	1	22.7	1.3	6.4	12.0
13	NIA 25	MASIDEM SWIP	1	PANGASINAN	Pre-F/S	IR	FC,IF,WM	2,504	2,319	12	1,957,000	28	30.0	82,000	440	0	380	0	45	43.0	6.8	17.4	21.7
14	NIA 26	OBOY-OBOY SWIP	1	PANGASINAN	Pre-F/S	IR	FC,IF,WM	2,504	2,319	5	1,792,000	23	25.0	200,900	60	0	120	0	37	36.4	1.7	1.1	8.8
15	NIA 27	VEGA SWIP	1	PANGASINAN	Pre-F/S	IR	FC,IF,WM	2,504	2,319	14	4,269,000	76	22.0	51,000	100	0	520	0	122	30.1	3.8	16.6	15.4
16	NIA 29	ALIBENG SWIP	1	PANGASINAN	Pre-F/S	IR	FC,IF	2,504	2,319	11	1,730,000	26	30.0	127,000	250	0	0	0	42	31.0	4.6	12.9	14.7
17	NIA 31	DIGAP SWIP	1	PANGASINAN	Pre-F/S	IR	FC,IF,WM	1,138	2,319	1	71,000	4	10.0	14,550	40	0	49	0	6	6.2	0.5	8.2	2.0
18	NIA 32	DIKET SWIP	1	PANGASINAN	Pre-F/S	IR	FC,IF,WM	1,138	2,319	1	368,000	8	23.0	75,500	75	0	52	0	13	17.3	0.9	1.6	4.8
19	NIA 47	MAYAMOT CIP	3	NUEVA ECIJA	Pre-F/S	IR	FC,IF	1,092	1,900	1	18,000	5	2.0	1,515	5	0	0	0	8	0.4	0.2	57.9	27.0
20	NIA 48	SAN FELIPE CIS	3	NUEVA ECIJA	Pre-F/S	IR	FC,IF	1,093	1,900	3	20,000	3	3.0	2,430	5	0	0	0	5	0.5	0.2	30.8	27.0
21	NIA 49	BAYOG CIS	3	NUEVA ECIJA	Pre-F/S	IR	FC,IF,WM	2,066	1,900	10	7,706,000	149	28.0	81,000	230	0	467	0	238	35.7	8.6	29.5	25.0
22	NIA 53	MANTEDITED CIP	3	NUEVA ECIJA	Pre-F/S	IR	FC,IF,WM	1,094	1,900	3	1,184,000	55	10.0	21,000	75	0	60	0	88	7.8	2.5	33.0	14.7
23	NIA 55	DALAYAP SWIP	3	PAMPANGA	Pre-F/S	IR	FC,IF	1,157	1,843	1	9,500	3	20.0	48,900	55	0	0	0	5	9.1	0.4	(0.2)	5.2
24	NIA 56	ELISS II SWIP	3	PAMPANGA	Pre-F/S	IR	FC,IF	1,150	1,843	1	40,000	2	11.0	19,800	20	0	0	0	3	7.3	0.3	3.7	6.6
25	NIA 57	BIGBIGA CIS	3	TARLAC	Pre-F/S	IR	FC,IF,WM	1,136	2,098	4	439,000	77	22.0	45,500	200	0	161	0	123	21.1	3.3	17.8	11.3
26	NIA 58	TANGCARANG CIP	3	TARLAC	Pre-F/S	IR	FC,IF,WM	1,137	2,098	2	278,000	5	21.0	21,600	100	0	80	0	8	9.0	1.4	16.8	19.4
27	NIA 59	LAWACAMILAG CIP	3	TARLAC	Pre-F/S	IR	FC,IF	1,130	2,098	2	719,000	34	8.8	36,000	120	0	0	0	54	8.9	2.3	21.4	12.2
28	NIA 72	MATIKIW SWIP	4	LAGUNA	Pre-F/S	IR	FC,IF	632	1,897	3	447,000	7	30.0	136,100	100	0	0	0	11	25.0	1.2	0.8	7.4
29	NIA 97	DOMOROG SWIP	5	MASBATE	Pre-F/S	IR	FC,IF	1,512	1,851	5	1,147,000	21	22.0	57,500	120	0	0	0	34	14.1	2.8	16.4	12.3
30	NIA 98	BATONGAN CIP	5	MASBATE	Pre-F/S	IR	FC,IF	1,512	1,851	4	1,818,000	50	15.0	52,500	150	0	0	0	80	13.9	4.0	24.7	14.5
31	NIA 99	JAMORAWON CIP	5	MASBATE	Pre-F/S	IR	FC,IF,WM	1,512	1,851	19	4,280,000	166	15.0	77,000	400	0	950	0	266	49.9	12.8	28.7	23.8
32	NIA 100	CABANGCALAN CIP	5	MASBATE	Pre-F/S	IR	FC,IF,WM	1,512	1,851	28	12,485,000	231	22.0	70,700	200	0	1,530	0	370	59.8	9.9	22.9	22.3
33	NIA 101	POSIAGON SWIMP	5	MASBATE	Pre-F/S	IR	FC,IF,WM	1,512	1,851	7	4,928,000	95	22.0	89,000	250	0	160	0	152	30.8	7.4	23.9	17.1
34	NIA 102	PILI SWIMP	5	MASBATE	Pre-F/S	IR	FC,IF,WM	1,512	1,851	4	727,000	36	10.0	24,000	80	0	60	0	58	11.7	2.6	29.9	14.2
35	NIA 103	BITO SWIMP	5	MASBATE	Pre-F/S	IR	FC,IF,WM	1,512	1,851	30	1,404,000	33	15.0	49,000	200	0	1,400	0	53	60.3	5.1	11.6	21.9
36	NIA 104	RIZAL SWIMP	5	MASBATE	Pre-F/S	IR	FC,IF,WM	1,512	1,851	4	2,479,000	21	22.9	65,200	120	0	192	0	34	21.9	2.6	14.3	14.4
37	NIA 106	BONTOLAN SWIMP	5	MASBATE	Pre-F/S	IR	FC,IF,WM	1,512	1,851	2	2,505,000	36	25.0	73,400	100	0	105	0	58	16.2	2.5	16.5	10.9
38	NIA 107	BORACAN SWIMP	5	MASBATE	Pre-F/S	IR	FC,IF,WM	1,512	1,851	5	392,000	17	12.0	28,000	80	0	120	0	27	11.8	1.9	19.8	12.3
39	NIA 108	PINANGAKOGAN SWIMP	5	MASBATE	Pre-F/S	IR	FC,IF	1,512	1,851	12	14,066,000	198	30.0	143,000	250	0	0	0	317	31.5	9.5	25.2	16.9
40	NIA 111	IBINGAN SWIP	5	SORSOGON	Pre-F/S	IR	FC,IF,WM	2,290	2,561	6	1,460,000	18	30.0	172,000	460	0	238	0	29	44.1	7.7	17.1	17.9

Note: F/S: Feasibility Study; D/D: Detailed Design; Pre-F/S: Pre-feasibility Study
IR: Irrigation; FC: Flood Control; IF: Inland Fishery; MH: Mini-hydropower;
WM: Watershed Management

Table G.2.1 Major Features of Qualified SWIM Projects (3/6)
- NIA - No.2

No.	AGENCY No.	PROJECT NAME	REGION	PROVINCE	PROJECT STATUS	MAIN PURPOSE	INCIDENTAL PURPOSES	ANNUAL RUNOFF (mm)	ANNUAL RAINFALL (mm)	CATCH-MENT AREA (km2)	EFFECTIVE STORAGE CAPACITY (m3)	RESER-VOIR AREA (ha)	DAM HEIGHT (m)	EMBANKMENT VOLUME (m3)	IRRI-GATION AREA (ha)	INSTALLED CAPACITY (kW)	RESORES-TATION AREA (ha)	WATER SUPPLY CAPACITY (m3/day)	ANNUAL FISH PRODUCTION (ton)	PROJECT COST (million pesos)	TOTAL BENEFIT	IRR (%)	ORIGINAL IRR (%)
41	NIA 112	BAGASICO SWIP	7	BOHOL	Pre-F/S	IR	FC,IF	1,300	2,057	21	2,364,000	52	18.5	42,000	400	0	0	0	83	33.2	8.0	20.0	23.0
42	NIA 119	BONOT-BONOT SWIP	7	BOHOL	Pre-F/S	IR	FC,IF,WM	1,300	1,792	13	11,693,000	173	30.0	105,000	300	0	680	0	277	45.5	10.8	27.5	22.0
43	NIA 120	CALINASAN SWIP	7	BOHOL	Pre-F/S	IR	FC,IF,WM	1,300	1,792	3	833,700	13	30.0	78,000	100	0	120	0	21	16.7	2.2	14.2	14.4
44	NIA 121	MANDAIG SWIP	7	BOHOL	Pre-F/S	IR	FC,IF,WM	1,300	1,792	3	1,122,000	13	30.0	104,000	140	0	157	0	21	23.1	2.9	13.0	15.0
45	NIA 122	ABEJILAN SWIP	7	BOHOL	Pre-F/S	IR	FC,IF,WM	1,300	2,057	12	202,000	3	30.0	102,000	30	0	55	0	5	19.2	0.7	(0.8)	9.4
46	NIA 129	LINGSOOA-AN SWIP	7	BOHOL	Pre-F/S	IR	FC,IF,WM	1,300	2,057	1	277,000	15	9.0	8,100	30	0	32	0	24	6.5	0.9	29.1	18.6
47	NIA 130	CATUNGAWAN SWIM	7	BOHOL	Pre-F/S	IR	FC,IF,WM	1,300	2,057	4	774,000	13	25.0	77,000	130	0	560	0	21	24.3	3.0	15.6	16.3
48	NIA 131	LAPACAN SWIP	7	BOHOL	Pre-F/S	IR	FC,IF,WM	1,300	1,791	9	591,000	37	8.5	41,500	150	0	770	0	59	24.0	4.0	25.5	24.8
49	NIA 132	TAYTAY SWIP	7	BOHOL	Pre-F/S	IR	FC,IF,WM	1,300	1,791	3	822,000	30	13.0	22,000	110	0	136	0	48	10.9	3.0	32.5	19.6
50	NIA 133	ABACA SWIP	7	BOHOL	Pre-F/S	IR	FC,IF,WM	1,300	1,555	5	1,749,000	27	23.0	70,000	200	0	180	0	43	26.0	5.1	20.2	22.0
51	NIA 136	ONDOL SWIP	7	BOHOL	Pre-F/S	IR	FC,IF,WM	1,300	1,555	5	3,692,000	68	22.0	83,000	200	0	225	0	109	26.8	6.1	24.4	21.8
52	NIA 138	SAN ISIDRO SANLASAN SWIP	7	BOHOL	Pre-F/S	IR	FC,IF,WM	1,300	1,555	7	2,786,000	95	20.0	61,000	300	0	159	0	152	26.3	8.9	32.2	22.5
53	NIA 139	BANLASAN SWIP	7	BOHOL	Pre-F/S	IR	FC,IF,WM	1,300	1,792	7	465,000	24	10.0	28,300	130	0	320	0	38	19.6	3.0	23.0	23.6
54	NIA 141	BIABAS SWIP	7	BOHOL	Pre-F/S	IR	FC,IF,WM	1,300	1,555	6	485,000	23	10.0	25,000	110	0	255	0	37	16.0	3.0	27.2	20.6
55	NIA 147	KANASUHAN CIP	7	CEBU	Pre-F/S	IR	FC,IF,WM	485	1,622	39	5,992,000	95	30.0	164,000	380	0	1,560	0	152	85.2	10.0	13.7	17.5
56	NIA 148	LUYANG CIP	7	CEBU	Pre-F/S	IR	FC,IF,WM	485	1,622	32	982,000	14	27.0	77,000	230	0	1,350	0	22	61.8	5.3	10.0	16.0
57	NIA 149	DANAO CIP	7	CEBU	Pre-F/S	IR	FC,IF,WM	485	1,622	50	2,623,000	39	30.0	73,200	430	0	2,160	0	62	93.4	10.3	13.8	19.0
58	NIA 150	TUNGKOD CIP	7	CEBU	Pre-F/S	IR	FC,IF,WM	485	1,622	19	9,648,000	135	30.0	88,900	240	0	1,033	0	216	50.9	8.3	20.0	14.8
59	NIA 152	MAAYOG-TUBIG CIP	7	NEGROS ORIENTAL	Pre-F/S	IR	FC,IF	1,595	1,932	8	1,455,000	37	25.0	78,600	180	0	0	0	59	18.8	4.8	23.2	17.2
60	NIA 154	MASAPLOD CIP	7	NEGROS ORIENTAL	Pre-F/S	IR	FC,IF,WM	1,595	1,932	5	2,273,000	27	30.0	78,000	130	0	240	0	43	21.5	3.6	19.4	13.0
61	NIA 157	NAGA-MANTUYOP CIP	7	NEGROS ORIENTAL	Pre-F/S	IR	FC,IF,WM	1,595	1,932	11	2,481,000	34	30.0	219,000	250	0	465	0	54	57.9	6.3	11.4	12.2
62	NIA 158	SAN ANTONIO CIP	7	NEGROS ORIENTAL	Pre-F/S	IR	FC,IF,WM	1,595	1,932	9	351,000	7	30.0	118,300	120	0	365	0	11	38.5	2.4	6.4	11.5
63	NIA 163	TIGABAO CIP	7	SIQUIJOR	Pre-F/S	IR	FC,IF,WM	1,595	2,115	5	383,000	6	30.0	95,200	80	0	217	0	10	25.8	1.9	7.4	14.2
64	NIA 186	MAHAYAHAY SWIP	8	SOUTHERN LEYTE	Pre-F/S	IR	FC,IF,WM	1,818	2,761	7	221,000	4	30.0	117,000	335	0	204	0	6	36.8	7.3	19.3	18.5
65	NIA 187	BOGO-DONGAN SWIP	8	SOUTHERN LEYTE	Pre-F/S	IR	FC,IF,WM	1,818	2,761	13	4,405,000	58	30.0	150,000	260	0	555	0	93	47.1	6.4	14.6	14.4
66	NIA 188	LAN-AGAN SWIM	8	SOUTHERN LEYTE	Pre-F/S	IR	FC,IF	1,818	2,760	3	3,003,000	45	30.0	141,000	110	0	0	0	72	20.0	3.3	13.8	9.9
67	NIA 190	KAMANSI-RIZAL SWIP	8	SOUTHERN LEYTE	Pre-F/S	IR	FC,IF	1,818	2,760	30	6,031,000	76	30.0	160,000	345	0	0	0	122	52.8	8.9	14.0	15.0

Note: F/S: Feasibility Study; D/D: Detailed Design; Pre-F/S: Pre-feasibility Study
IR: Irrigation; FC: Flood Control; IF: Inland Fishery; MH: Mini-hydropower
WM: Watershed Management

Table G.2.1 Major Features of Qualified SWIM Projects (4/6)
- BSWM - No.1

No.	AGENCY No.	PROJECT NAME	REGION	PROVINCE	PROJECT STATUS	MAIN PURPOSE	INCIDENTAL PURPOSES	ANNUAL RUNOFF (mm)	ANNUAL RAINFALL (mm)	CATCH-MENT AREA (km2)	EFFECTIVE STORAGE CAPACITY (m3)	RESER-VOIR AREA (ha)	DAM HEIGHT (m)	EMBANKMENT VOLUME (m3)	IRRI-GATION AREA (ha)	INSTALLED CAPACITY (kW)	REFORES-TATION AREA (ha)	WATER SUPPLY CAPACITY (m3/day)	ANNUAL FISH PRODUCTION (ton)	PROJECT COST (million pesos)	TOTAL BENEFIT	IRR (%)	ORIGINAL IRR (%)
1	BSWM 1	SUSUQUEN SWIP	1	ILOCOS NORTE	D/D	IR	WM,IF,FC	530	1,903	1.1	156,662	4	13.5	28,000	30	0	108	0	6.4	6.0	0.4	8.0	41.5
2	BSWM 2	OLO-OLO I SWIP	1	ILOCOS SUR	D/D	IR	WM,IF,FC	441	2,336	0.7	168,048	4	13.5	55,900	35	0	63	0	5.4	7.9	0.6	6.9	19.9
3	BSWM 3	OLO-OLO II SWIP	1	ILOCOS SUR	D/D	IR	WM,IF,FC	442	2,336	0.7	68,549	1	11.7	37,120	30	0	68	0	1.6	6.3	0.5	7.9	28.4
4	BSWM 4	BALINGOAN SWIP	1	ILOCOS SUR	D/D	IR	WM,IF,FC	557	2,336	0.4	165,025	3	15.5	46,000	50	0	32	0	4.8	6.6	0.7	10.4	21.0
5	BSWM 5	SAN CRISTOBAL SWIP	1	ILOCOS NORTE	D/D	IR	WM,IF,FC	407	1,903	2.6	281,432	10	13.5	39,200	100	0	252	0	16.0	11.0	1.6	21.0	31.2
6	BSWM 6	SAN AGUSTIN SWIP	1	ILOCOS NORTE	D/D	IR	WM,IF,FC	559	1,903	0.7	90,082	3	10.0	24,750	32	0	71	0	4.8	5.2	0.5	9.8	28.8
7	BSWM 7	BINGAO II SWIP	1	ILOCOS NORTE	D/D	IR	WM,IF,FC	410	1,903	1.4	528,958	19	10.0	33,000	40	0	124	0	30.4	7.3	1.1	19.2	31.5
8	BSWM 8	ODA SWIP	1	PANGASINAN	D/D	IR	WM,IF,FC	893	2,275	1.2	360,737	7	11.0	53,000	100	0	109	0	11.2	9.2	1.8	22.6	32.4
9	BSWM 9	PUGARO SWIP	1	PANGASINAN	D/D	IR	WM,IF,FC	480	2,275	0.9	193,995	12	6.5	10,000	75	0	78	0	19.2	5.3	1.1	25.5	47.8
10	BSWM 10	PAMARANUM SWIP	1	PANGASINAN	D/D	IR	WM,IF,FC	484	2,275	1.2	67,253	2	8.2	15,000	50	0	113	0	3.2	4.9	0.6	16.9	31.1
11	BSWM 11	CAPARISPISAN SWIP	1	ILOCOS NORTE	D/D	IR	WM,IF,FC	1,324	1,903	0.6	140,707	3	10.0	33,945	50	0	59	0	4.8	5.9	0.9	15.1	20.6
12	BSWM 12	PATONG SWIP	1	ILOCOS SUR	D/D	IR	WM,IF,FC	444	2,336	0.9	109,554	4	15.5	38,000	100	0	86	0	6.4	7.6	0.9	12.5	23.1
13	BSWM 13	SAMAC SWIP	1	ILOCOS NORTE	D/D	IR	WM,IF,FC	436	1,903	0.4	87,990	3	10.0	32,000	20	0	34	0	4.8	5.1	0.3	2.1	30.3
14	BSWM 14	MABINI SWIP	1	PANGASINAN	D/D	IR	WM,IF,FC	647	2,275	1.0	158,683	2	10.0	13,000	80	0	100	0	3.2	5.8	1.0	20.2	27.5
15	BSWM 15	SAN GONZALO SWIP	1	PANGASINAN	D/D	IR	WM,IF,FC	1,748	2,275	0.7	169,958	2	14.5	54,800	50	0	30	0	3.2	7.5	0.9	11.8	23.5
16	BSWM 16	CAMAGSINGALAN SWIP	1	PANGASINAN	D/D	IR	WM,IF,FC	483	2,275	0.7	56,984	2	8.0	13,375	55	0	40	0	3.2	4.3	0.8	22.6	40.1
17	BSWM 17	PATAR SWIP	1	PANGASINAN	D/D	IR	IF,FC	837	2,275	0.6	329,656	4	13.5	32,800	50	0	0	0	6.4	5.6	1.2	22.6	35.2
18	BSWM 18	MALIMPIN SWIP	1	PANGASINAN	D/D	IR	WM,IF,FC	826	2,275	2.6	169,869	6	9.7	23,500	100	0	127	0	9.6	8.9	1.2	21.4	39.7
19	BSWM 19	VIGA SWIP	1	PANGASINAN	D/D	IR	WM,IF,FC	826	2,275	0.8	167,670	4	10.0	18,600	70	0	60	0	6.4	5.1	1.3	29.3	51.1
20	BSWM 20	CABUDSAN	1	ILOCOS NORTE	D/D	IR	WM,IF,FC	419	1,903	3.0	446,635	9	15.0	44,000	75	0	296	0	14.4	7.2	1.5	20.5	44.6
21	BSWM 21	MAGNIANG SWIP	1	ILOCOS NORTE	D/D	IR	WM,IF,FC	396	1,903	0.4	126,887	4	12.0	31,000	30	0	51	0	6.4	4.6	0.4	8.6	24.0
22	BSWM 23	DAQUIOAG II SWIP	1	ILOCOS NORTE	D/D	IR	WM,IF,FC	403	1,903	0.5	99,278	2	14.0	35,420	25	0	50	0	3.2	5.5	0.3	4.0	20.3
23	BSWM 24	SAN ANDRES SWIP	1	ILOCOS NORTE	D/D	IR	WM,IF,FC	408	1,903	1.1	105,048	2	16.0	60,705	40	0	109	0	3.2	9.1	0.5	3.5	14.3
24	BSWM 25	PANTINAAN SWIP	1	ILOCOS NORTE	D/D	IR	WM,IF,FC	400	1,903	1.1	212,100	5	15.0	30,500	50	0	100	0	8.0	6.1	0.7	14.7	31.8
25	BSWM 26	SAN JUAN I SWIP	CAR.	ABRA	D/D	IR	WM,IF,FC	544	2,366	0.1	97,637	1	11.7	26,000	25	0	12	0	1.6	3.4	0.2	4.7	19.0
26	BSWM 27	SAN JUAN II SWIP	CAR.	ABRA	D/D	IR	WM,IF,FC	497	2,366	0.7	192,277	2	14.0	72,000	25	0	68	0	3.2	8.7	0.3	(0.8)	23.0
27	BSWM 28	MACARCARMAY SWIP	CAR.	ABRA	D/D	IR	WM,IF,FC	550	2,366	0.8	56,921	1	0.5	27,500	60	0	74	0	1.6	5.7	0.4	7.0	28.3
28	BSWM 29	PATA SWIP	2	CAGAYAN	D/D	IR	IF,FC	1,375	2,216	0.6	29,609	1	1.3	17,700	100	0	0	0	1.6	5.6	1.2	22.1	27.1
29	BSWM 30	BALAQUIT SWIP	2	NUEVA VISCAYA	D/D	IR	WM,IF,FC	1,047	2,038	0.9	102,242	3	9.5	10,498	100	0	86	0	4.8	5.8	1.3	26.4	41.9
30	BSWM 31	CABANNUNGAN SWIP	2	ISABELA	D/D	IR	WM,IF,FC	1,391	2,038	1.8	254,220	12	7.0	20,600	70	0	168	0	19.2	7.8	1.5	27.7	43.2
31	BSWM 32	MARANA SWIP	2	ISABELA	D/D	IR	WM,IF,FC	1,068	2,038	0.3	66,526	3	9.0	9,800	30	0	35	0	4.8	3.4	0.7	23.4	22.6
32	BSWM 33	CABULUAN SWIP	2	CAGAYAN	D/D	IR	WM,IF,FC	892	1,746	1.9	371,049	8	12.0	54,341	100	0	177	0	12.8	10.7	1.7	19.8	17.8
33	BSWM 34	DIADI SWIP	2	NUEVA VIZCAYA	D/D	IR	WM,IF,FC	1,000	2,038	5.6	44,777	4	8.0	36,320	65	0	553	0	6.4	14.7	1.8	24.8	21.6
34	BSWM 35	NAGANACAN SWIP	2	ISABELA	D/D	IR	WM,IF,FC	842	1,746	3.1	167,451	6	10.7	18,944	80	0	305	0	9.6	9.3	1.4	26.7	31.0
35	BSWM 36	BALETE SWIP	2	NUEVA VIZCAYA	D/D	IR	WM,IF,FC	1,014	2,038	1.4	17,453	2	8.0	8,000	20	0	142	0	3.2	4.3	0.7	28.4	31.5
36	BSWM 37	MINGBAG	2	ISABELA	D/D	IR	WM,IF,FC	889	1,746	0.6	193,684	4	10.5	37,887	60	0	59	0	6.4	6.8	1.1	16.2	17.6
37	BSWM 38	KIRANG SWIP	2	NUEVA VIZCAYA	D/D	IR	WM,IF,FC	986	2,038	0.5	46,768	2	9.5	15,800	120	0	44	0	3.2	5.5	1.7	31.8	45.3
38	BSWM 39	LANNEG SWIP	2	CAGAYAN	D/D	IR	WM,IF,FC	851	1,746	0.5	237,027	6	7.0	22,754	35	0	47	0	9.6	4.2	0.7	18.9	22.8
39	BSWM 40	SAN ANTONIO SWIP	2	NUEVA VIZCAYA	D/D	IR	WM,IF,FC	941	2,038	0.8	188,255	5	10.2	41,140	100	0	80	0	8.0	7.5	1.9	27.4	42.0
40	BSWM 41	ABIAN SWIP	2	NUEVA VISCAYA	D/D	IR	WM,IF,FC	1,068	2,038	0.2	78,215	2	10.0	14,500	40	0	16	0	3.2	3.9	0.5	13.4	18.5
41	BSWM 42	TRINIDAD SWIP	2	ISABELA	D/D	IR	WM,IF,FC	1,065	1,746	2.6	140,487	5	9.0	37,600	50	0	254	0	8.0	9.5	1.0	16.3	20.7
42	BSWM 43	MALALAM SWIP	2	ISABELA	D/D	IR	WM,IF,FC	955	2,038	0.8	373,000	7	11.0	24,990	70	0	68	0	11.2	5.5	0.6	13.3	21.6
43	BSWM 44	APANG SWIP	2	CAGAYAN CLAVERIA	D/D	IR	WM,IF,FC	1,374	2,216	0.4	79,574	2	11.0	38,437	50	0	41	0	3.2	6.0	0.6	8.3	21.3
44	BSWM 45	ANNEG SWIP	2	ISABELA	D/D	IR	WM,IF,FC	882	2,038	4.1	290,838	12	7.0	36,729	250	0	398	0	19.2	18.1	4.8	25.7	24.7
45	BSWM 46	VICTORIA SWIP	2	QUIRINO	D/D	IR	WM,IF,FC	1,066	2,038	0.5	102,550	3	10.3	15,800	40	0	43	0	4.8	3.6	0.8	24.7	34.9
46	BSWM 47	SAN MARCOS SWIP	2	QUIRINO	D/D	IR	WM,IF,FC	1,089	2,038	0.8	111,035	4	11.2	30,000	70	0	72	0	6.4	5.5	1.2	23.6	37.8
47	BSWM 48	SAN FRANCISCO SWIP	2	QUIRINO	D/D	IR	WM,IF,FC	2,963	2,038	1.2	391,700	12	10.1	26,000	100	0	107	0	19.2	7.1	2.0	34.4	45.0
48	BSWM 49	STA PTLOMENA SWIP	2	ISABELA	D/D	IR	WM,IF,FC	1,012	2,038	0.2	58,040	3	6.5	4,333	15	0	22	0	4.8	1.4	0.3	28.9	30.9
49	BSWM 50	OLD SAN MARIANO	2	ISABELA	D/D	IR	WM,IF,FC	1,014	2,038	0.6	46,480	2	10.6	18,000	20	0	58	0	3.2	3.4	0.4	12.5	27.1
50	BSWM 51	YEBAN SWIP	2	ISABELA	D/D	IR	WM,IF,FC	997	2,038	0.9	213,300	5	13.0	41,040	55	0	80	0	8.0	7.0	1.1	17.3	32.1

Note: D/D: Detailed Design
IR: Irrigation; FC: Flood Control; IF: Inland Fishery; WM: Watershed Management

Table G.2.1 Major Features of Qualified SWIM Projects (5/6)
- BSWM - No.2

No.	AGENCY No.	PROJECT NAME	REGION	PROVINCE	PROJECT STATUS	MAIN PURPOSE	INCIDENTAL PURPOSES	ANNUAL RUNOFF (mm)	ANNUAL RAINFALL (mm)	CATCH-MENT AREA (km2)	EFFECTIVE STORAGE CAPACITY (m3)	RESER-VOIR AREA (ha)	DAM HEIGHT (m)	EMBANKMENT VOLUME (m3)	IRRI-GATION AREA (ha)	INSTALLED CAPACITY (kW)	REFORES-TATION AREA (ha)	WATER SUPPLY CAPACITY (m3/day)	ANNUAL FISH PRODUCTION (ton)	PROJECT COST (million pesos)	TOTAL BENEFIT	IRR (%)	ORIGINAL IRR (%)
51	BSWM 52	MINALLO SWIP	2	ISABELA	D/D	IR	WM,IF,FC	989	2,038	0.7	365,775	10	13.6	46,000	50	0	60	0	16.0	9.6	1.0	10.5	25.6
52	BSWM 56	AFUSING DAGA SWIP	2	CAGAYAN	D/D	IR	WM,IF,FC	932	1,746	1.3	421,600	8	14.0	50,000	80	0	117	0	12.8	9.2	1.1	13.9	24.2
53	BSWM 57	MASIN SWIP	2	CAGAYAN	D/D	IR	WM,IF,FC	893	1,746	0.9	136,000	5	9.5	23,625	43	0	82	0	8.0	5.0	0.7	17.4	35.8
54	BSWM 58	CARALLANGAN SWIP	2	CAGAYAN	D/D	IR	WM,IF,FC	1,024	2,216	0.4	133,422	4	12.6	30,000	38	0	36	0	6.4	4.7	0.6	12.5	17.2
55	BSWM 59	GANZANO SWIP	2	CAGAYAN	D/D	IR	WM,IF,FC	1,026	2,216	1.0	250,369	6	13.4	50,740	40	0	89	0	9.6	7.9	1.2	17.6	25.0
56	BSWM 60	SAMPALOC SWIP	3	NUEVA ECIJA	D/D	IR	WM,IF,FC	560	1,880	0.8	279,354	7	10.5	34,510	100	0	73	0	11.2	8.2	1.2	16.2	29.7
57	BSWM 61	STO. DOMINGO III SWIP	3	NUEVA ECIJA	D/D	IR	WM,IF,FC	544	1,880	0.8	395,424	16	8.7	26,080	100	0	80	0	25.6	6.8	1.6	27.5	38.3
58	BSWM 62	MASAUPIT SWIP	3	BULACAN	D/D	IR	WM,IF,FC	645	1,880	2.2	495,745	21	9.0	12,500	100	0	190	0	33.6	7.7	2.1	43.7	44.2
59	BSWM 63	VILLA BOADO SWIP	3	NUEVA ECIJA	D/D	IR	WM,IF,FC	518	1,880	0.8	212,799	6	11.0	15,500	100	0	69	0	9.6	5.7	1.5	29.9	29.8
60	BSWM 64	BUTID SWIP	3	NUEVA ECIJA	D/D	IR	WM,IF,FC	521	1,880	0.7	306,078	6	10.2	22,000	100	0	65	0	9.6	6.7	1.1	17.5	34.3
61	BSWM 65	MANINIOG SWIP	3	TARLAC	D/D	IR	WM,IF,FC	1,248	1,909	2.0	42,302	1	13.5	23,300	50	0	199	0	1.6	5.4	0.4	7.7	25.6
62	BSWM 66	VILLA ISLA SWIP	3	NUEVA ECIJA	D/D	IR	WM,IF,FC	516	1,880	0.8	227,278	11	8.4	17,500	100	0	70	0	17.6	5.8	1.6	31.5	61.9
63	BSWM 67	STA. CATALINA SWIP	3	NUEVA ECIJA	D/D	IR	WM,IF,FC	507	1,880	0.4	154,717	4	11.0	29,000	50	0	32	0	6.4	5.5	0.7	13.5	23.8
64	BSWM 68	PULO SWIP	3	BULACAN	D/D	IR	WM,IF,FC	567	1,880	0.8	94,030	4	11.0	42,705	50	0	71	0	6.4	6.8	0.8	11.6	22.1
65	BSWM 69	STO DOMINGO II SWIP	3	NUEVA ECIJA	D/D	IR	WM,IF,FC	525	1,880	0.4	281,663	8	13.0	22,680	50	0	35	0	12.8	4.9	0.7	15.9	40.2
66	BSWM 70	BITUNGOL SWIP	3	BULACAN	D/D	IR	WM,IF,FC	589	1,880	0.6	190,049	5	13.0	44,000	100	0	56	0	8.0	7.6	0.8	10.4	14.9
67	BSWM 71	MAASIN SWIP	3	NUEVA ECIJA	D/D	IR	WM,IF,FC	542	1,880	2.4	367,690	9	11.0	46,538	100	0	277	0	14.4	11.6	1.4	15.8	24.9
68	BSWM 72	STO DOMINGO I SWIP	3	NUEVA ECIJA	D/D	IR	WM,IF,FC	518	1,880	0.6	266,700	9	10.0	11,500	70	0	52	0	14.4	4.9	0.9	20.0	43.8
69	BSWM 73	MANGANDINGAY SWIP	3	NUEVA ECIJA	D/D	IR	WM,IF,FC	473	1,880	0.5	201,132	5	10.5	44,000	80	0	45	0	8.0	7.3	1.1	15.2	31.9
70	BSWM 74	NAMULANDAYAN SWIP	3	NUEVA ECIJA	D/D	IR	WM,IF,FC	687	1,880	7.2	1,098,613	27	19.0	30,200	400	0	693	0	43.2	24.8	5.4	34.3	51.9
71	BSWM 75	PARISTA SWIP	3	NUEVA ECIJA	D/D	IR	WM,IF,FC	607	1,880	3.4	222,656	6	14.0	35,938	80	0	334	0	9.6	10.9	1.1	16.9	25.5
72	BSWM 76	BALBALINGAO SWIP	3	NUEVA ECIJA	D/D	IR	WM,IF,FC	552	1,880	0.9	365,540	6	19.0	110,500	50	0	83	0	9.6	12.9	1.0	6.1	16.7
73	BSWM 77	LAGUNLONG SWIP	4	ORIENTAL MINDORO	D/D	IR	WM,IF,FC	1,713	1,855	0.3	219,182	5	12.3	38,600	50	0	20	0	8.0	5.4	0.8	13.9	18.9
74	BSWM 78	PAKALA II SWIP	4	ORIENTAL MINDORO	D/D	IR	WM,IF,FC	1,713	1,855	0.3	155,640	3	10.0	28,000	75	0	23	0	4.8	5.8	1.1	17.5	21.7
75	BSWM 79	BAYUIN SWIP	4	ORIENTAL MINDORO	D/D	IR	WM,IF,FC	1,724	1,854	0.2	91,323	2	10.5	19,300	45	0	17	0	3.2	4.1	0.7	15.6	16.7
76	BSWM 80	CAMBURAY SWIP	4	OCCIDENTAL MINDORO	D/D	IR	WM,IF,FC	254	1,646	1.1	285,055	7	11.9	47,523	50	0	107	0	11.2	8.5	1.1	14.7	18.9
77	BSWM 82	BUENASUERTE SWIP	5	MASBATE	D/D	IR	WM,IF,FC	2,594	1,879	0.4	82,064	3	9.5	20,111	80	0	34	0	4.8	5.3	0.3	2.8	25.4
78	BSWM 83	BULNAO SWIP	5	CAMARINES NORTE	D/D	IR	WM,IF,FC	3,059	3,443	0.5	64,180	2	9.5	20,885	100	0	49	0	3.2	5.7	0.7	11.9	34.1
79	BSWM 84	DALNAC SWIP	5	CAMARINES NORTE	D/D	IR	WM,IF,FC	2,486	3,443	0.5	76,545	3	9.0	15,300	50	0	47	0	4.8	4.6	0.9	20.9	32.8
80	BSWM 85	GABAWAN	5	ALBAY	D/D	IR	WM,IF,FC	2,329	3,175	0.8	153,007	9	6.0	15,458	100	0	67	0	14.4	6.1	0.9	16.2	25.4
81	BSWM 86	BURGOS SWIP	5	CATANDUANES	D/D	IR	WM,IF,FC	2,979	4,029	0.3	13,990	1	7.0	20,700	25	0	32	0	1.6	4.4	0.6	13.1	15.8
82	BSWM 87	F.ARCANGEL SWIP	6	AKLAN	D/D	IR	WM,IF,FC	1,579	3,312	0.7	53,214	2	8.8	29,792	50	0	72	0	3.2	5.7	0.7	12.9	20.3
83	BSWM 88	PINONOY SWIP	6	AKLAN	D/D	IR	WM,IF,FC	1,681	3,311	0.4	60,811	2	9.0	16,120	25	0	42	0	3.2	3.6	0.5	18.2	27.4
84	BSWM 89	SIBALIW-TORALBA SWIP	6	AKLAN	D/D	IR	WM,IF,FC	1,628	3,312	0.7	51,767	3	7.0	14,091	25	0	77	0	4.8	4.0	0.4	12.8	26.2
85	BSWM 90	PANLAGANGAN SWIP	6	ANTIQUE	D/D	IR	WM,IF,FC	1,888	3,749	0.2	14,205	2	12.0	24,200	50	0	16	0	3.2	4.3	0.6	12.4	22.4
86	BSWM 91	TRACIANO SWIP	6	CAPIZ	D/D	IR	WM,IF,FC	1,803	2,212	0.6	18,412	1	10.0	11,800	50	0	64	0	1.6	4.3	0.6	15.7	31.7
87	BSWM 92	SAN ROQUE SWIP	6	AKLAN	D/D	IR	WM,IF,FC	2,165	2,212	0.6	60,512	2	2.5	28,400	40	0	65	0	3.2	5.0	0.8	17.3	30.2
88	BSWM 93	ARANAG SWIP	6	AKLAN	D/D	IR	WM,IF,FC	1,642	3,312	0.9	82,544	4	11.0	36,500	100	0	46	0	6.4	7.6	1.1	15.7	23.7
89	BSWM 94	BUENAVISTA SWIP	6	ANTIQUE	D/D	IR	WM,IF,FC	2,025	3,749	0.2	58,656	2	7.0	16,000	50	0	12	0	3.2	3.6	0.6	15.2	22.8
90	BSWM 95	DITA I SWIP	7	BOHOL	D/D	IR	WM,IF,FC	1,569	1,244	0.5	119,321	4	13.5	23,200	50	0	44	0	6.4	6.1	1.0	17.0	21.1
91	BSWM 96	DITA II SWIP	7	BOHOL	D/D	IR	WM,IF,FC	1,437	1,244	0.3	109,672	4	12.5	14,000	35	0	30	0	6.4	4.1	0.7	18.4	23.8
92	BSWM 97	SAN JOSE SWIP II	7	BOHOL	D/D	IR	WM,IF,FC	1,568	1,244	0.6	35,679	2	9.8	11,900	30	0	59	0	3.2	4.8	0.7	16.2	28.8
93	BSWM 98	STO. NINO SWIP	7	BOHOL	D/D	IR	WM,IF,FC	1,475	1,244	1.7	176,495	8	11.0	26,600	110	0	131	0	12.8	8.7	1.9	28.2	19.4
94	BSWM 99	NANGKA SWIP	7	NEGROS ORIENTAL	D/D	IR	WM,IF,FC	1,435	1,782	0.2	71,336	1	15.6	26,000	35	0	21	0	1.6	4.3	0.6	12.3	17.6
95	BSWM 100	BAGTIC SWIP	7	NEGROS ORIENTAL	D/D	IR	WM,IF,FC	1,476	1,216	2.5	17,359	2	13.5	19,500	100	0	247	0	3.2	8.8	2.2	37.2	43.9
96	BSWM 101	NABILOG SWIP	7	NEGROS ORIENTAL	D/D	IR	WM,IF,FC	1,463	1,215	1.3	19,567	2	13.0	45,000	50	0	131	0	3.2	8.2	1.0	14.1	23.8
97	BSWM 102	BONG-BONG I SWIP	7	BOHOL	D/D	IR	WM,IF,FC	1,481	1,244	1.0	79,439	4	7.0	8,800	100	0	96	0	6.4	5.7	1.9	39.5	25.8
98	BSWM 103	BONG-BONG II SWIP	7	BOHOL	D/D	IR	WM,IF,FC	1,566	1,244	0.5	106,019	3	12.0	10,250	100	0	43	0	4.8	4.9	1.5	31.1	33.1
99	BSWM 108	JUBASAN SWIP	8	NORTHERN SAMAR	D/D	IR	WM,IF,FC	1,568	3,030	0.6	55,717	2	9.6	33,400	25	0	54	0	3.2	5.6	0.3	3.4	16.1
100	BSWM 109	CASABAHAN SWIP	8	WESTERN SAMAR	D/D	IR	WM,IF,FC	3,415	2,912	0.5	75,320	6	6.0	36,600	100	0	46	0	9.6	7.1	1.3	17.9	42.3

Note: D/D: Detailed Design
IR: Irrigation; FC: Flood Control; IF: Inland Fishery; WM: Watershed Management

Table G.2.1 Major Features of Qualified SWIM Projects (6/6)
- BSWM - No.3

No.	AGENCY No.	PROJECT NAME	REGION	PROVINCE	PROJECT STATUS	MAIN PURPOSE	INCIDENTAL PURPOSES	ANNUAL RUNOFF (mm)	ANNUAL RAINFALL (mm)	CATCH-MENT AREA (km2)	EFFECTIVE STORAGE CAPACITY (m3)	RESER-VOIR AREA (ha)	DAM HEIGHT (m)	EMBANKMENT VOLUME (m3)	IRRI-GATION AREA (ha)	INSTALLED CAPACITY (kW)	REFORES-TATION AREA (ha)	WATER SUPPLY CAPACITY (m3/day)	ANNUAL FISH PRODUCTION (ton)	PROJECT COST (million pesos)	TOTAL BENEFIT (million pesos)	IRR (%)	ORIGINAL IRR (%)
101	BSWM 110	INAMBURACAY SWIP	8	NORTHERN SAMAR	D/D	IR	WM,IF,FC	1,393	3,030	0.3	114,866	4	10.0	31,000	50	0	24	0	6.4	5.9	0.9	15.5	34.8
102	BSWM 111	STA. FE SWIP	8	EASTERN SAMAR	D/D	IR	WM,IF,FC	1,710	4,020	0.7	191,491	3	8.0	15,323	125	0	63	0	4.8	6.4	2.1	34.3	43.5
103	BSWM 112	CAMPIN SWIP	8	LEYTE	D/D	IR	WM,IF,FC	2,154	2,130	0.5	396,065	9	10.0	16,800	58	0	36	0	14.4	4.8	1.0	23.8	49.4
104	BSWM 113	LABOON SWIP	8	SOUTHERN SAMAR	D/D	IR	WM,IF,FC	2,849	3,906	0.2	59,845	2	10.0	17,200	25	0	16	0	3.2	3.2	0.5	14.6	28.5
105	BSWM 114	POLANQUI SWIP	8	EASTERN SAMAR	D/D	IR	WM,IF,FC	1,706	4,020	0.5	70,331	4	6.0	9,600	50	0	44	0	6.4	3.6	1.1	33.7	52.4
106	BSWM 115	TABAWAN SWIP	8	WESTERN SAMAR	D/D	IR	IF,FC	1,408	2,593	1.3	58,000	2	13.0	28,430	100	0	0	0	3.2	9.9	n.d.	n.d.	20.4
107	BSWM 117	WOODLAND SWIP	9	ZAMBOANGA DEL SUR	D/D	IR	WM,IF,FC	1,694	2,996	2.0	66,389	4	11.0	12,400	100	0	193	0	6.4	8.3	1.8	29.8	28.5
108	BSWM 118	SUMADAT SWIP	9	ZAMBOANGA DEL SUR	D/D	IR	WM,IF,FC	1,644	2,996	0.3	55,235	1	13.6	19,400	70	0	27	0	1.6	4.9	1.0	19.1	18.8
109	BSWM 119	LUNGMOT SWIP	9	ZAMBOANGA DEL SUR	D/D	IR	WM,IF,FC	1,773	2,996	0.6	98,125	3	12.0	17,040	60	0	53	0	4.8	5.3	1.2	24.9	24.7
110	BSWM 120	LAMARE I SWIP	9	ZAMBOANGA DEL SUR	D/D	IR	WM,IF,FC	1,656	2,511	0.7	61,871	2	11.0	15,600	80	0	66	0	3.2	5.4	1.0	19.8	27.7
111	BSWM 121	LAMARE II SWIP	9	ZAMBOANGA DEL SUR	D/D	IR	WM,IF,FC	1,652	2,511	0.5	60,734	2	12.0	26,200	60	0	50	0	3.2	5.7	1.0	18.2	20.5
112	BSWM 122	BUENAVISTA SWIP	9	ZAMBOANGA DEL SUR	D/D	IR	WM,IF,FC	2,001	2,511	0.5	40,204	2	12.5	20,200	100	0	50	0	3.2	6.7	1.0	14.5	18.1
113	BSWM 123	GOLING SWIP	9	ZAMBOANGA DEL SUR	D/D	IR	WM,IF,FC	1,642	2,511	0.2	76,566	2	11.0	20,400	100	0	20	0	3.2	5.1	1.0	17.4	34.3
114	BSWM 124	LABUAGON SWIP	10	BUKIDNON	D/D	IR	WM,IF,FC	2,657	5,056	1.0	48,210	3	6.0	6,000	150	0	93	0	4.8	4.9	2.1	37.2	30.9
115	BSWM 125	ALURLUID SWIP	10	AGUSAN DEL NORTE	D/D	IR	WM,IF,FC	1,579	2,316	0.7	78,549	4	8.0	20,000	105	0	63	0	6.4	6.1	1.3	22.8	24.4
116	BSWM 126	BALIBAYON SWIP	10	SURIGAO DEL NORTE	D/D	IR	WM,IF,FC	3,361	3,906	0.7	48,210	1	13.0	41,200	80	0	67	0	1.6	7.8	1.0	13.0	16.2
117	BSWM 127	APULANG SWIP	10	BUKIDNON	D/D	IR	WM,IF,FC	2,686	5,056	0.3	158,448	7	6.2	9,000	140	0	27	0	11.2	5.2	1.6	30.3	42.4
118	BSWM 128	TALO-AO SWIP	10	AGUSAN DEL NORTE	D/D	IR	WM,IF,FC	2,143	2,316	0.8	295,439	7	13.0	58,000	155	0	80	0	11.2	10.4	3.2	30.8	24.4
119	BSWM 129	DIMALAGAN SWIP	10	AGUSAN DEL NORTE	D/D	IR	WM,IF,FC	1,611	2,316	1.6	208,932	8	7.0	34,000	170	0	86	0	12.8	10.1	2.6	29.8	25.1
120	BSWM 130	MINTU-OD SWIP	10	AGUSAN DEL NORTE	D/D	IR	WM,IF,FC	2,380	2,316	0.8	118,557	4	7.0	25,676	100	0	75	0	6.4	6.3	2.1	35.6	43.6
121	BSWM 131	MALAPONG SWIP	10	AGUSAN DEL NORTE	D/D	IR	WM,IF,FC	1,609	2,316	0.8	63,430	2	9.0	10,900	200	0	74	0	3.2	7.5	2.2	29.6	46.2
122	BSWM 132	TALAGANAHAO SWIP	10	AGUSAN DEL NORTE	D/D	IR	WM,IF,FC	2,193	2,316	0.6	84,919	3	12.0	18,300	60	0	42	0	4.8	4.8	1.0	22.6	21.6
123	BSWM 133	KITAO-TAO SWIP	10	BUKIDNON	D/D	IR	WM,IF,FC	1,673	5,056	2.1	88,993	4	9.0	20,000	200	0	209	0	6.4	10.3	3.5	41.0	57.6
124	BSWM 134	SAN RAFAEL SWIP	11	DAVAO ORIENTAL	D/D	IR	WM,IF,FC	624	2,639	0.6	206,731	5	12.0	48,391	35	0	59	0	8.0	6.3	0.6	9.5	15.9
125	BSWM 135	BUKAY-PAIT SWIP	11	SOUTH COTABATO	D/D	IR	WM,IF,FC	826	951	2.9	146,733	4	11.0	41,000	135	0	284	0	6.4	12.3	1.6	17.5	20.4
126	BSWM 136	LIBODON SWIP	11	DAVAO ORIENTAL	D/D	IR	WM,IF,FC	451	2,639	0.3	17,750	1	7.2	5,100	30	0	29	0	1.6	2.8	0.4	14.6	20.5
127	BSWM 137	DIMADALIG SWIP	11	SOUTH COTABATO	D/D	IR	WM,IF,FC	546	951	2.5	68,848	2	11.0	2,400	40	0	241	0	3.2	8.1	0.7	13.9	18.2
128	BSWM 138	LIBASAN SWIP	11	DAVAO DEL NORTE	D/D	IR	WM,IF,FC	633	2,639	4.1	551,755	11	12.0	47,000	190	0	401	0	17.6	16.1	3.1	27.7	20.5
129	BSWM 139	FLORIDA SWIP	11	DAVAO DEL NORTE	D/D	IR	WM,IF,FC	601	2,639	1.5	313,912	8	10.0	31,800	150	0	139	0	12.8	9.7	2.7	31.7	29.4
130	BSWM 140	DAIMAN SWIP	11	DAVAO DEL NORTE	D/D	IR	WM,IF,FC	629	2,639	0.5	134,163	4	12.2	12,695	40	0	46	0	6.4	4.0	0.5	14.5	18.8
131	BSWM 141	SAN NICOLAS SWIP	11	DAVAO DEL SUR	D/D	IR	WM,IF,FC	456	2,639	2.8	111,316	4	11.0	39,400	80	0	279	0	6.4	10.6	1.6	22.1	25.3
132	BSWM 142	BOLTON SWIP	11	DAVAO DEL SUR	D/D	IR	WM,IF,FC	471	2,639	2.3	49,963	1	16.0	43,250	120	0	228	0	1.6	11.9	1.9	19.5	26.2
133	BSWM 143	PEDTAP SWIP	12	NORTH COTABATO	D/D	IR	WM,IF,FC	2,397	1,571	0.5	67,053	2	15.0	39,000	80	0	48	0	3.2	7.7	1.2	15.0	21.2
134	BSWM 144	LCOY SWIP	12	MAGUINDANAO	D/D	IR	WM,IF,FC	2,428	1,256	1.0	89,613	6	7.0	49,200	85	0	93	0	9.6	7.4	1.6	19.9	35.5
135	BSWM 145	DALINGAWEN SWIP	12	NORTH COTABATO	D/D	IR	WM,IF,FC	2,441	1,571	1.0	241,742	9	9.0	37,000	250	0	89	0	14.4	12.1	4.7	38.8	39.8
136	BSWM 146	TIMBITBAN SWIP	12	NORTH COTABATO	D/D	IR	WM,IF,FC	2,443	1,571	0.9	100,789	4	8.0	34,000	120	0	38	0	6.4	8.2	2.6	33.0	18.9
137	BSWM 147	BUSOK SWIP	12	SULTAN KUDARAT	D/D	IR	WM,IF,FC	2,314	1,256	0.8	78,125	2	14.0	19,000	100	0	75	0	3.2	6.4	1.3	22.3	31.0
138	BSWM 149	LANCHETA SWIP	12	SULTAN KUDARAT	D/D	IR	WM,IF,FC	2,068	1,256	0.2	55,973	2	6.0	13,167	20	0	21	0	3.2	3.5	0.3	10.0	29.8
139	BSWM 150	NEW CARMEN	12	SULTAN KUDARAT	D/D	IR	WM,IF,FC	2,159	1,256	1.0	286,642	14	8.0	20,000	175	0	86	0	22.4	8.9	2.2	27.8	60.1
140	BSWM 151	MALAGAKIT SWIP	12	NORTH COTABATO	D/D	IR	WM,IF,FC	2,503	1,256	0.9	93,607	6	7.2	9,740	100	0	87	0	9.6	6.1	1.9	35.8	70.0

Note: D/D: Detailed Design
IR: Irrigation; FC: Flood Control; IF: Inland Fishery; WM: Watershed Management

ANNEX H

COSTS AND BENEFITS ESTIMATES AND RE-CALCULATION OF ECONOMIC INTERNAL RATE OF RETURN (EIRR)

ANNEX H COSTS AND BENEFITS ESTIMATES AND RE-CALCULATION OF ECONOMIC INTERNAL RATE OF RETURN (EIRR)

Table of Contents

List of Tables

List of Figures

ANNEX H COSTS AND BENEFITS ESTIMATES AND RE-CALCULATION OF ECONOMIC INTERNAL RATE OF RETURN (EIRR)

1. PROJECT COST

1.1 Condition of Cost Estimate

The condition of construction cost estimate is as follows:

(1) The work item and form of cost estimate are as follows:

I. Cost for Dam and Other Facilities

1.Direct Cost of Dam and Other Facilities

(a) Dam
(b) Irrigation
(c) Mini-hydropower
(d) Water supply
(e) Contractor's tax

Sub-total

2.Indirect Cost

(a) Land acquisition and compensation
(b) General administration cost
(c) Engineering services
(d) Physical contingency

Sub-total

II. Cost for Watershed Management

(a) Engineering services
(b) Cost for Engineering Measures
(c) Cost for Vegetative Measures

Sub-total

III. Cost for Review Work of Project

Total

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(2) Cost is estimated at 1989 current price.

(3) Cost is estimated on a local competitive bidding (LCB) basis by applying local price prevailing in the Philippines.

(4) Cost is estimated in local currency (Pesos).

1.2 Financial Construction Cost

Financial construction cost is revised based on the procedure and premises described hereunder. The summary of financial construction cost for the SWIM Projects is shown in Table H.1.1 and the financial costs for each SWIM project are shown in Tables H.1.2 to H.1.4.

1.2.1 Direct Cost

The direct cost is estimated as follows:

(1) The original financial construction costs estimated in the existing studies are converted to those at 1989 current price, applying the average price escalation rates of local and foreign portions from study year to present.

(2) Cost of dam is reviewed as follows:

- Cost of dam body is reviewed referring to the latest bid prices and average unit cost of embankment works for the SWIM projects of which those studies are conducted (see Figs.H.1.1 and H.1.2).

  for DPWH, NIA : Cost in the range of US$3.0-5.0/$m^3$ is appropriate, if not, US$4.0/$m^3$ is applied.

  for BSWM : Cost of more than US$2.5/$m^3$ is appropriate, if less than that, US$3.0/$m^3$ is applied.

- In case that additional foundation treatment is required, its necessary cost is added to the original cost estimate.

- In case that freeboard is not enough, dam height is raised and its required cost for embankment is added to the original cost estimate.

- Costs of appurtenant structures are updated.

(3) Cost for irrigation facilities is revised considering unit cost per hectare applied by NIA for communal irrigation projects as follows:

- In case that unit cost of irrigation facilities per hectare in the previous studies is in the range from ₱17,000 to 25,000/ha, the cost is not revised.

- In case that unit cost is lower than ₱17,000/ha, the cost for irrigation facilities is revised on the basis of unit cost of ₱17,000/ha.

- In case that unit cost is higher than ₱25,000/ha, the cost is revised on the basis of ₱25,000/ha.

(4) Cost for mini-hydropower generation is revised considering the average unit cost per kW applied by NEA for the SWIM projects.

- In case that unit cost of power facilities per kW is in the range from US$900 to 1,100/kW, the cost is not revised.

- If the unit cost is out of the above range, the cost is revised based on the unit cost of US$1,000/kW.

(5) Cost of rural water supply facilities is updated by applying price escalation rates.

(6) Contractors' profit and overhead are included in the direct cost of dam and water utilization facilities.

(7) Contractor's tax is estimated at 5% of the direct cost.

1.2.2 Indirect Cost

The indirect cost is estimated as follows:

(1) Land acquisition and compensation cost is revised by multiplying reservoir area by average unit price of ₱15,000/ha.

(2) General administration cost is assumed to be 3% of the direct cost.

(3) Cost for engineering service is estimated at:

for feasibility study	:	3% of the direct cost
for detailed design	:	6% of the direct cost
for construction supervision	:	10% of the direct cost

(4) Physical contingency is estimated, considering present status of project preparation, at the following percentages to the total cost of direct cost, land acquisition cost, general administration cost and engineering service cost:

for Pre-F/S project	:	20%
for F/S project	:	15%
for D/D project	:	10%

1.2.3 Cost for Watershed Protection Works

The necessity of rehabilitation of watershed of each SWIM project was studied by FMB, and the required cost for rehabilitation of watershed for the SWIM project is estimated on preliminary basis by FMB in November 1989.

1.2.4 Required Cost for Review Works

The required cost for review works of the project is estimated for different kinds of the present status of project as shown in Table H.1.2. The required costs are estimated at the following rates:

Project Status	Review	Cost
EIRR≥10%;		
D/D project	-Design	1% of direct cost
EIRR<10%;		
D/D project	-Plan	1% of direct cost
	-Plan & Design	2% of direct cost
F/S project	-Plan	1% of direct cost
Pre-F/S project	-Plan	0.5% of direct cost

1.2.5 Price Contingency

Price contingency is not estimated for individual projects. However, it is included in estimation of fund requirement for 10 Year Action Program. Proportion of foreign and local currency portions and escalation rates for each currency portion are assumed as follows:

Currency	Proportion	Escalation Rate
Local portion (pesos) :	60%	7% per annum
Foreign portion :	40%	3% per annum

1.3 O&M Cost

The financial O&M costs are estimated at the following rate:

- for dam portion: 0.5% of direct construction cost
- for water utilization facilities: 2.5% of direct construction cost

The financial O&M costs for each SWIM project are shown in Table H.1.5. The total financial O&M cost of the 230 projects at full development stage is estimated as follows:

(Unit: ₱ million)

Agency	Number of Project	O&M Cost
DPWH	23	5.2
NIA	67	11.8
BSWM	140	6.5
Total	230	23.5

1.4 Cost for Feasibility Study of Project not Supported with Data

The required cost for feasibility study of project which has no data is estimated at ₱450,000/project. The unit cost is estimated based on the average cost for feasibility study on 70 projects of DPWH and NIA which will be implemented under the 10 Year Action Program. The cost for approximate 300 projects is ₱135 million.

1.5 Fund Requirement

1.5.1 Total Project Cost

The total project costs required for the implementation of 230 projects, including the costs for watershed protection works for 230 projects, the costs for feasibility study on approximate 300 projects and price contingency, are estimated at approximately ₱6.1 billion in total as shown below, comprising ₱2.3 billion for the first five years (118 projects)

and ₱3.8 billion for the second five years (112 projects). The summary of total project cost is shown in Table H.1.6.

Total Project Costs:

Items	Total Costs (₱million)				Total	
	1st Five Years		2nd Five Years			
DPWH projects	250	(149)	596	(0)	846	(149)
NIA projects	977	(275)	1,264	(0)	2,241	(275)
BSWM projects	569	(209)	393	(0)	962	(209)
Sub-total	1,796	(633)	2,253	(0)	4,049	(633)
F/S(300 pjts.)	85	(0)	50	(0)	135	(0)
Price Contingency	483	(153)	1,466	(0)	1,949	(153)
Total	2,364	(786)	3,769	(0)	6,133	(786)

Remark: Figures in the parentheses show the cost for OECF-SWIM projects.

The summary of disbursement schedule of total project cost is shown in Table H.1.17. The breakdowns of disbursement schedule of total cost for individual projects are shown in Tables H.1.18 to H.1.20.

1.5.2 SWIM Fund Portion

The costs required for implementation of dams inclusive of its appurtenant structures and watershed protection, and feasibility study on approximate 300 projects, amount to approximately ₱4.9 billion, of which ₱1.8 billion is disbursed in the first five years and the remaining ₱3.1 billion in the second five years as shown below (also refer to Table H.1.7).

Total SWIM Fund Portion:

Items	Total Costs (₱million)					
	1st Five Years		2nd Five Years		Total	
DPWH projects	192	(113)	477	(0)	669	(113)
NIA projects	768	(200)	1,066	(0)	1,834	(200)
BSWM projects	412	(149)	307	(0)	719	(149)
Sub-total	1,372	(462)	1,850	(0)	3,222	(462)
F/S(300 pjts.)	85	(0)	50	(0)	135	(0)
Price Contingency	377	(111)	1,206	(0)	1,583	(111)
Total	1,834	(573)	3,106	(0)	4,940	(573)

Remark: Figures in the parentheses show the costs for OECF-SWIM projects.

The SWIM Fund portion is further divided into the following four portions:

(a) construction cost for dam and its appurtenant structures,

(b) cost for watershed protection works,

(c) cost feasibility study and detailed design of the project, and

(d) cost for study on watershed protection works.

The costs for dam and its appurtenant structures require ₱3.5 billion or 70% of the total required SWIM Fund, while the costs for watershed protection require ₱1.1 billion or 22% of the total required SWIM Fund, and the costs for study and design are ₱0.4 billion or 8% of the total required SWIM Fund . The costs for each portion are summarized below and shown in Tables H.1.8 to H.1.11.

Cost for Dam and Appurtenant Structures:

Items	Total Costs (₱million)				Total	
	1st Five Years		2nd Five Years			
DPWH projects	154	(108)	370	(0)	524	(108)
NIA projects	541	(173)	761	(0)	1,302	(173)
BSWM projects	278	(107)	236	(0)	514	(107)
Sub-total	973	(388)	1,367	(0)	2,340	(388)
P.Contingency	251	(93)	879	(0)	1,130	(93)
Total	1,224	(481)	2,246	(0)	3,470	(481)

Remark: Figures in the parentheses show the cost for OECF-SWIM projects.

Cost for Watershed Protection Works:

Items	Total Costs (₱million)				Total	
	1st Five Years		2nd Five Years			
DPWH projects	26	(5)	90	(0)	116	(5)
NIA projects	159	(25)	255	(0)	414	(25)
BSWM projects	128	(40)	68	(0)	196	(40)
Sub-total	313	(70)	413	(0)	726	(70)
P.Contingency	82	(17)	262	(0)	344	(17)
Total	395	(87)	675	(0)	1,070	(87)

Remark: Figures in the parentheses show the cost for OECF-SWIM projects.

Cost for Feasibility Study and Detailed Design:

Items	Total Costs (₱million)				Total	
	1st Five Years		2nd Five Years			
DPWH projects	10	(0)	13	(0)	23	(0)
NIA projects	56	(0)	42	(0)	98	(0)
BSWM projects	0	(0)	0	(0)	0	(0)
Sub-total	66	(0)	55	(0)	121	(0)
F/S(300 pjts.)	85	(0)	50	(0)	135	(0)
P.Contingency	38	(0)	57	(0)	95	(0)
Total	189	(0)	162	(0)	351	(0)

Remark: Figures in the parentheses show the cost for OECF-SWIM projects.

Cost for Study on Watershed Protection Works:

Items	Total Costs (₱million)				Total	
	1st Five Years		2nd Five Years			
DPWH projects	3	(0.2)	3	(0)	6	(0.2)
NIA projects	12	(1.3)	8	(0)	20	(1.3)
BSWM projects	6	(2)	3	(0)	9	(2)
Sub-total	21	(3.5)	14	(0)	35	(3.5)
P.Contingency	5	(0.8)	8	(0)	13	(0.8)
Total	26	(4.3)	22	(0)	48	(4.3)

Remark: Figures in the parentheses show the cost for OECF-SWIM projects.

The summary of disbursement schedule of SWIM fund portion is shown in Table H.1.21. The breakdowns of disbursement schedule of SWIM fund portion for individual projects is shown in Tables H.1.22 to H.1.24. The breakdown of costs for watershed protection works is shown in Table H.1.25.

1.5.3 Specific Costs to be Funded by Each Implementing Agency

The remaining ₱1.2 billion out of ₱6.1 billion is for the specific facilities such as irrigation system, mini-hydropower facilities and water supply system, and will be funded by each implementing agency. Out of ₱1.2 billion, ₱0.5 billion will be disbursed in the first five years and ₱0.7 billion in the second five years as shown below (refer to Table H.1.12).

Total Specific Costs:

Items	Total Costs (₱million)				Total	
	1st Five Years		2nd Five Years			
DPWH projects	58	(37)	119	(0)	177	(37)
NIA projects	208	(76)	198	(0)	406	(76)
BSWM projects	157	(59)	86	(0)	243	(59)
Sub-total	423	(172)	403	(0)	826	(172)
P.Contingency	107	(41)	260	(0)	367	(41)
Total	530	(213)	663	(0)	1,193	(213)

Remark: Figures in the parentheses show the costs for OECF-SWIM projects.

The specific costs to be funded by each implementing agency are divided into the following:

(a) Cost for irrigation facilities
(b) Cost for mini-hydropower facilities
(c) Cost for water supply facilities
(d) Cost for review works

The above costs are summarized as follows (refer to Tables H.1.13 to H.1.16):

Cost for Irrigation Facilities:

Items	Total Costs (₱million)				Total	
	1st Five Years		2nd Five Years			
DPWH projects	49	(31)	48	(0)	97	(31)
NIA projects	178	(48)	198	(0)	376	(48)
BSWM projects	155	(59)	85	(0)	240	(59)
Sub-total	382	(138)	331	(0)	713	(138)
Price Contingency	98	(33)	210	(0)	308	(33)
Total	480	(171)	541	(0)	1,021	(171)

Remark: Figures in the parentheses show the cost for OECF-SWIM projects.

Cost for Mini-hydropower Facilities:

Items	Total Costs (₱million)				Total	
	1st Five Years		2nd Five Years			
DPWH projects	6	(6)	64	(0)	70	(6)
NIA projects	26	(26)	0	(0)	26	(26)
BSWM projects	0	(0)	0	(0)	0	(0)
Sub-total	32	(32)	64	(0)	96	(32)
Price Contingency	7	(7)	44	(0)	51	(7)
Total	39	(39)	108	(0)	147	(39)

Remark: Figures in the parentheses show the cost for OECF-SWIM projects.

Cost for Water Supply Facilities:

Items	Total Costs (₱million) 1st Five Years	2nd Five Years	Total
DPWH projects	0 (0)	7 (0)	7 (0)
NIA projects	0 (0)	0 (0)	0 (0)
BSWM projects	0 (0)	0 (0)	0 (0)
Sub-total	0 (0)	7 (0)	7 (0)
Price Contingency	0 (0)	6 (0)	6 (0)
Total	0 (0)	13 (0)	13 (0)

Remark: Figures in the parentheses show the cost for OECF-SWIM projects.

Cost for Review Works:

Items	Total Costs (₱million) 1st Five Years	2nd Five Years	Total
DPWH projects	3.0 (0.4)	0 (0)	3.0 (0.4)
NIA projects	4.1 (1.7)	0 (0)	4.1 (1.7)
BSWM projects	1.9 (0.3)	0.3 (0)	2.1 (0.3)
Sub-total	9.0 (2.4)	0.3 (0)	9.3 (2.4)
Price Contingency	1.7 (0.6)	0.2 (0)	1.9 (0.6)
Total	10.7 (3.0)	0.5 (0)	11.2 (3.0)

Remark: Figures in the parentheses show the cost for OECF-SWIM projects.

The summary of disbursement schedule of specific costs is shown in Table H.1.26. The breakdowns of disbursement schedule of specific costs for individual projects is shown in Tables H.1.27 to H.1.29.

1.6 Annual Fund Requirements

1.6.1 Total Project Cost

The annual fund requirement of total project cost is shown in Table H.1.30 and summarized below.

The price contingency is included in each cost items and cost for study on watershed protection works is included in the cost for implementation of watershed protection works.

(Unit:Pesos million)

Year	SWIM Fund			Specific Cost	Total
	Dam & Appur.	Watershed	F/S & D/D		
1991	129 (86)	43 (17)	31 (0)	65 (38)	268 (141)
1992	223 (91)	73 (17)	30 (0)	101 (40)	427 (148)
1993	260 (96)	94 (18)	38 (0)	113 (43)	505 (157)
1994	300 (101)	98 (19)	30 (0)	119 (45)	547 (165)
1995	311 (107)	115 (21)	59 (0)	132 (47)	617 (175)
1996	339 (0)	116 (0)	53 (0)	104 (0)	612 (0)
1997	400 (0)	135 (0)	47 (0)	119 (0)	701 (0)
1998	450 (0)	141 (0)	55 (0)	111 (0)	757 (0)
1999	485 (0)	160 (0)	8 (0)	150 (0)	803 (0)
2000	573 (0)	144 (0)	0 (0)	179 (0)	896 (0)
Total	3,470 (481)	1,119 (92)	351 (0)	1,193(213)	6,133 (786)

Note: Figures in the parentheses show the costs for OECF-SWIM projects.

1.6.2 Annual Fund Requirements of Each Implementing Agency

The annual fund requirements for each implementing agency are tabulated below. Breakdown is shown in Tables H.1.31 to H.1.33.

The costs of feasibility study for 300 projects are tentatively included in the SWIM Fund portion of DPWH. The fund will be allocated among the implementing agencies such as DPWH, NIA and BSWM through the SWIM-TWG meeting.

(1) DPWH

(Unit:Pesos million)

Year	SWIM Fund						Specific Cost		Total	
	Dam & Appur.		Watershed		F/S & D/D					
1991	24	(24)	2	(1)	20	(0)	9	(8)	55	(33)
1992	32	(25)	1	(1)	21	(0)	12	(9)	66	(35)
1993	38	(27)	10	(1)	24	(0)	15	(9)	87	(37)
1994	43	(28)	14	(1)	24	(0)	15	(10)	96	(39)
1995	57	(29)	10	(2)	29	(0)	21	(10)	117	(41)
1996	74	(0)	24	(0)	35	(0)	29	(0)	162	(0)
1997	97	(0)	32	(0)	34	(0)	35	(0)	198	(0)
1998	131	(0)	26	(0)	27	(0)	29	(0)	213	(0)
1999	139	(0)	40	(0)	2	(0)	42	(0)	223	(0)
2000	172	(0)	29	(0)	0	(0)	63	(0)	264	(0)
Total	807	(133)	188	(6)	216	(0)	270	(46)	1,481	(185)

Note: Figures in the parentheses show the costs for OECF-SWIM projects.

(2) NIA

(Unit:Pesos million)

Year	SWIM Fund						Specific Cost		Total	
	Dam & Appur.		Watershed		F/S & D/D					
1991	54	(38)	12	(6)	11	(0)	22	(17)	99	(61)
1992	130	(41)	41	(6)	9	(0)	48	(18)	228	(65)
1993	151	(43)	54	(7)	15	(0)	59	(18)	279	(68)
1994	182	(45)	45	(7)	6	(0)	70	(20)	303	(72)
1995	166	(48)	64	(7)	30	(0)	65	(21)	325	(76)
1996	206	(0)	72	(0)	18	(0)	50	(0)	346	(0)
1997	241	(0)	79	(0)	13	(0)	54	(0)	387	(0)
1998	248	(0)	88	(0)	27	(0)	51	(0)	414	(0)
1999	259	(0)	99	(0)	7	(0)	76	(0)	441	(0)
2000	289	(0)	93	(0)	0	(0)	95	(0)	477	(0)
Total	1,926	(215)	647	(33)	136	(0)	590	(94)	3,299	(342)

Note: Figures in the parentheses show the costs for OECF-SWIM projects.

(3) BSWM

(Unit:Pesos million)

Year	SWIM Fund				Specific Cost	Total
	Dam & Appur.	Watershed	F/S & D/D			
1991	52 (24)	28 (9)	0 (0)		34 (13)	114 (46)
1992	62 (25)	31 (10)	0 (0)		40 (14)	133 (49)
1993	70 (27)	30 (10)	0 (0)		40 (15)	140 (52)
1994	75 (28)	39 (11)	0 (0)		34 (16)	148 (55)
1995	88 (29)	40 (12)	0 (0)		46 (16)	174 (57)
1996	58 (0)	20 (0)	0 (0)		26 (0)	104 (0)
1997	62 (0)	24 (0)	0 (0)		30 (0)	116 (0)
1998	71 (0)	28 (0)	0 (0)		31 (0)	130 (0)
1999	87 (0)	21 (0)	0 (0)		31 (0)	139 (0)
2000	112 (0)	22 (0)	0 (0)		21 (0)	155 (0)
Total	737 (133)	283 (52)	0 (0)		333 (74)	1,353 (259)

Note: Figures in the parentheses show the costs for OECF-SWIM projects.

Out of the SWIM fund portion, the annual fund requirements for watershed protection works which will be managed by FMB is summarized as follows:

(Unit:Pesos million)

Year	SWIM Fund			Total
	DPWH	NIA	BSWM	
1991	1 (1)	13 (6)	28 (9)	42 (16)
1992	1 (1)	41 (6)	30 (10)	73 (17)
1993	10 (1)	54 (7)	30 (10)	94 (18)
1994	14 (1)	45 (7)	39 (11)	98 (19)
1995	10 (1)	65 (7)	40 (12)	115 (20)
1996	24 (0)	72 (0)	20 (0)	116 (0)
1997	32 (0)	80 (0)	24 (0)	135 (0)
1998	26 (0)	88 (0)	28 (0)	141 (0)
1999	40 (0)	100 (0)	21 (0)	160 (0)
2000	29 (0)	93 (0)	22 (0)	145 (0)
Total	188 (6)	647 (33)	283 (52)	1,118 (92)

1.7 Regional Distribution of Fund Requirements

1.7.1 Total Project Cost

The regional distribution of total project cost except cost for feasibility study on 300 projects and price contingency is summarized as follows:

(Unit: Pesos million)

Region	DPWH	NIA	BSWM	Total
1	123	331	159	613
2	64	0	193	257
CAR	48	0	18	66
3	27	102	144	273
4	263	106	24	393
5	75	453	26	554
6	64	0	38	102
7	0	991	56	1,047
8	23	195	47	265
9	0	62	42	104
10	0	0	73	73
11	12	0	82	94
12	147	0	60	207
Total	846	2,240	962	4,048

The disbursement schedule of total project cost by region is summarized in Table H.1.34 and its breakdown by each implementing agency is shown in Tables H.1.37 to H.1.39.

1.7.2 SWIM Fund Portion

The regional distribution of SWIM fund portion except cost for feasibility study on 300 projects and price contingency is summarized in Table H.1.35 and tabulated as follows:

(Unit: Pesos million)

Region	DPWH	NIA	BSWM	Total
1	99	289	128	516
2	56	0	151	207
CAR	33	0	15	48
3	20	82	106	208
4	205	80	19	304
5	58	371	18	447
6	59	0	29	88
7	0	807	42	849
8	19	164	35	218
9	0	41	29	70
10	0	0	43	43
11	9	0	64	73
12	111	0	40	151
Total	669	1,834	719	3,222

Remark: The figures include the costs for watershed protection works.

1.7.3 Cost to be Funded by Implementing Agencies

The regional distribution of specific costs to be funded by each implementing agency except price contingency is summarized in Table H.1.36 and tabulated as follows:

(Unit: Pesos million)

Region	DPWH	NIA	BSWM	Total
1	25	41	31	97
2	7	0	43	50
CAR	15	0	3	18
3	7	20	38	65
4	58	26	5	89
5	17	83	8	8
6	5	0	9	14
7	0	184	13	197
8	5	30	12	47
9	0	22	12	34
10	0	0	30	30
11	3	0	18	21
12	35	0	21	56
Total	177	406	243	826

2. ECONOMIC COST AND BENEFIT

2.1 Economic Cost

2.1.1 Economic Construction Cost

The economic construction cost is estimated referring to the NEDA's standard procedure as explained hereunder. The calculated results are shown in Table H.1.5.

(1) Contractor's tax and other transfer payments are excluded from financial cost.

(2) Cost for watershed protection works and review works of the projects are not included in the economic cost.

(3) Other direct and indirect costs are converted to economic cost based on the following assumptions:

- Proportion of foreign and local currency portions:

	Foreign	Local
Direct cost	40%	60%
General admi. cost	0%	100%
Engineering ser. cost	0%	100%

- Percentage of cost for unskilled labor in local currency portion of direct cost is 30%.

- Conversion factors applied are:
  for F/C portion ; 1.2 (foreign exchange factor)
  for unskilled labor cost; 0.6 (shadow price factor)
  for other local costs ; 1.0

(4) Physical contingency is included in the economic cost at the following percentage, depending upon the current status of project preparation:

for Pre-F/S project ; 20%
for F/S project ; 15%
for D/D project ; 10%

2.1.2 Economic O&M Cost

The economic O&M cost is calculated based on the following assumptions:

- Proportion of foreign and local currency portions is as follows:

  Foreign ; 20%
  Local ; 80%

- Percentage of cost for unskilled labor in local currency portion is 40%.

- Conversion factors applied are:

  for F/C portion ; 1.2 (foreign exchange factor)
  for unskilled labor cost; 0.6 (shadow price factor)
  for other local costs ; 1.0

The total economic O&M cost of the 230 projects is estimated at ₱21.4 million; ₱4.7 million for DPWH, ₱10.7 million for NIA and ₱6.0 million for BSWM. The economic O&M costs for each project are shown in Table H.1.5.

2.2 Project Benefit

The project benefits of the 230 "Qualified Projects" are estimated on the economic basis as explained hereunder. The results are shown in Tables H.2.1 to H.2.3.

2.2.1 Condition of Benefit Estimate

The condition of benefit estimate is as follows:

(1) The following direct benefits are estimated and counted in calculation of EIRR:

- Irrigation benefit
- Mini-hydropower benefit
- Inland fishery benefit
- Water supply benefit

(2) The following basic plans of the projects are not revised for benefit estimates:

(a) Irrigation
- Irrigation areas in dry and wet seasons

(b) Mini-hydropower
- Installed capacity (kW)
- Energy generation (kWh)

(c) Water supply
- Water supply capacity

(3) Inland fishery benefits are revised and counted in benefits for all the projects by applying unit benefit per hectare of reservoir area.

(4) Benefit is estimated at 1989 constant price.

2.2.2 Irrigation Benefit

Irrigation benefit is estimated on the following assumptions:

(1) Cropping Pattern : Paddy-paddy double cropping

(2) Cropping Area

(a) without project condition : same as original plan.
(b) with project condition : same as original plan.

(3) Yield of Rice (unit: ton/ha)

	without project			with project
	new area	rainfed	irrigated	
Wet season	0	2.0	3.0	4.5
Dry season	0	2.0	3.0	5.0

(4) Economic Price of Rice : ₱3,690/ton

(a) Financial farmgate price : ₱3,000/ton
(b) Conversion factor : 1.23 (derived from Balog-balog project of NIA in 1987)

(5) Production Cost of Rice

The production cost is assumed to be 35% of gross benefit on both without and with project conditions.

(6) Net Incremental Benefit

Calculated as the balance of net benefits between without and with

project conditions.

(7) Build-up Period : 3 years

1st year : 60% of maximum benefit.
2nd year : 80% of maximum benefit.
3rd year : 100% of maximum benefit.

2.2.3 Mini-hydropower Benefit

Scale of mini-hydropower is not revised but unit benefits of kW value and kWh value are revised as follows:

(1) kW Value

(a) Investment cost of diesel power plant; ₱17,440/kW (=US$800/kW)

(b) Annual cost (at 15% of discount rate, for 15 years of life time); ₱2,982/kW/year

(c) OM&R cost (4% of investment cost); ₱698/kW/year

(d) Total annual cost; ₱3,680/kW/year

(e) kW Value (₱3,680/kW/year x 1.16 of adjustment factor); ₱4,270/kW/year

(2) kWh Value

(a) Average price of crude oil (FOB price from OPEC countries) during 1995-2000 by projected the World Bank; US$27.5/barrel

(b) Refinery and transportation cost (20% of crude oil price); US$5.5/barrel

(c) Price of light diesel oil in the Philippines ((US$27.5 + US$5.5)/barrel x 1/159); US$0.2075/lit

(d) Average fuel consumption per kWh by diesel power plant; 0.357 lit/kWh

(e) kWh Value (US$0.2075/lit x 0.357 lit/kWh x 1.01 of adjustment factor x ₱21.8/US$); ₱1.63/kWh

2.2.4 Inland Fishery Benefit

Inland fishery benefits are counted for all the projects by applying unit benefit estimated as follows:

(1) Fish Species : Tilapia

(2) Fish Culture Method : Spawning

(3) Production : 1.6 tons/year/ha of reservoir.

(4) Economic Price of Fish : ₱20/kg.

(5) Production Cost : 25% of gross benefit.

(6) Net Benefit : ₱24,000/year/ha of reservoir.

2.2.5 Water Supply Benefit

Water supply benefit is regarded as the construction cost and annual operation and maintenance cost of alternative water supply facilities such as deep well. The water supply benefit is estimated for only DPWH-3, Sacrifice Valley SWIP. The benefit estimated in the feasibility report is updated by applying price escalation rate.

3. ECONOMIC INTERNAL RATE OF RETURN (EIRR)

3.1 Condition of Re-calculation of EIRR

In order to make relative comparison of economic viability among the qualified projects, the JICA Study Team has consulted with NEDA and re-calculated the economic internal rate of return (EIRR) based on the following assumptions:

(1) Project Life : 25 years after completion of construction.

(2) Economic Costs : The price contingencies, taxes and other transfer payments will be excluded from the estimated financial costs, and the financial costs will further be shadow-priced at 1.2 for currency portion and 0.6 for unskilled labor.

(3) Economic Benefits : Although the SWIM Projects have manifold types of benefits, only those accrued from irrigation, mini-hydropower, domestic water supply, and inland fishery will be calculated as economic benefits. Other indirect and intangible benefits are not included in the calculation of EIRR. The estimated production losses in the prospective reservoir areas will be deducted from the project benefits.

3.2 Results of Re-calculation of EIRR

The results of re-calculation of EIRR for 230 projects are shown in Tables H.3.1 to H.3.3 and summarized below.

(Unit: number of project)

Range of EIRR	DPWH	NIA	BSWM	Total
EIRR<10%	8 (0)	14 (2)	18 (4)	40 (6)
10%≦EIRR<20%	12 (3)	30 (3)	66 (15)	108 (21)
20%≦EIRR	3 (0)	23 (0)	56 (12)	82 (12)
Total	23 (3)	67 (5)	140 (31)	230 (31)

Remark: Figures in the parentheses show the number of OECF-SWIM projects.

TABLES

Table H.1.1 Summary of Financial Project Costs

(Unit: Pesos 1,000)

Cost Items	DPWH Projects	NIA Projects	BSWM Projects	Total
I. Direct Cost				
1. Dam	384,761 (81,912)	894,213 (129,205)	384,997 (79,751)	1,663,971 (290,868)
2. Irrigation	71,811 (23,460)	271,799 (36,592)	184,127 (45,356)	527,737 (105,408)
3. Mini-Hydropower	52,923 (4,288)	20,044 (20,044)	0 (0)	72,967 (24,332)
4. Water Supply	5,324 (0)	0 (0)	0 (0)	5,324 (0)
5. Contractor's Tax	25,741 (5,483)	59,303 (9,292)	28,456 (6,255)	113,500 (21,030)
Sub-total	540,560 (115,143)	1,245,359 (195,133)	597,580 (131,362)	2,383,499 (441,638)
II. Indirect Cost				
1. Land Acquisition	3,772 (833)	45,529 (3,780)	10,179 (2,585)	59,480 (7,198)
2. General Administration	16,217 (3,454)	37,361 (5,854)	17,927 (3,941)	71,505 (13,249)
3. Engineering Services	73,785 (11,514)	205,853 (19,513)	59,758 (13,136)	339,396 (44,164)
(1) F/S	4,414 (0)	27,106 (0)	0 (0)	31,520 (0)
(2) D/D	15,315 (0)	54,211 (0)	0 (0)	69,526 (0)
(3) C/S	54,056 (11,514)	124,536 (19,513)	59,758 (13,136)	238,350 (44,164)
4. Physical Contingency	87,450 (13,094)	267,696 (22,428)	68,544 (15,102)	423,691 (50,625)
Sub-total	181,224 (28,896)	556,438 (51,575)	156,409 (34,765)	894,071 (115,236)
Total (I & II)	721,784 (144,039)	1,801,797 (246,708)	753,989 (166,127)	3,277,570 (556,874)
III. Watershed Management				
1. Study (F/S,D/D)	5,615 (220)	20,062 (1,303)	9,470 (1,943)	35,147 (3,466)
2. General Administration	18,064 (710)	65,377 (4,278)	32,433 (6,649)	115,874 (11,637)
3. Engineering Measuring Cost	29,381 (1,240)	100,509 (5,090)	39,033 (7,993)	168,923 (14,323)
4. Vegetative Measuring Cost	68,458 (2,660)	248,495 (16,300)	124,629 (25,511)	441,582 (44,471)
Total (III)	121,518 (4,830)	434,443 (26,971)	205,565 (42,095)	761,526 (73,896)
IV Cost for Review Work	2,948 (377)	4,124 (1,683)	2,249 (377)	9,320 (2,437)
V. Grand Total(I to IV)	846,250 (149,246)	2,240,364 (275,363)	961,803 (208,598)	4,048,417 (633,207)

Note: 1; Figures in the parentheses show the costs for the OECF Projects.
2; The total may not equal the sum of individual figures due to rounding.

Table II.1.2 Cost Estimate of the SWIM Projects -DPWH- (1/2)

(Unit: Pesos 1,000)

Item	Project Name Status	DPWH 1 D/D	DPWH 2 D/D	DPWH 3 F/S	DPWH 6 D/D	DPWH 7 D/D	DPWH 8 D/D	DPWH 9 D/D	DPWH 11 F/S	DPWH 13 D/D	DPWH 14 D/D	DPWH 15 D/D	DPWH 16 F/S
ORIGINAL (1989 price)													
I Direct Cost													
1. Dam		19589	22320	7597	28111	23807	7024	29168	19836	18244	3866	26470	40551
2. Irrigation		0	0	-	-	0	415	2122	0	2073	0	0	0
3. Mini-hydropower		3439	3898	-	15009	2689	-	-	6288	-	3721	-	22679
4. Water Supply		-	-	4840	-	-	-	-	-	-	-	-	-
Sub-total		23028	26218	12437	43120	26496	7439	31290	26124	20317	7587	26470	63230
II Indirect Cost													
1. Cont.Overhead & Prof		2076	2463	972	-	2487	-	-	2569	-	543	2913	4438
2. Contractor's Tax		685	828	428	-	821	-	-	900	-	239	961	1465
3. Land Acq. & Compen.		272	484	112	383	234	346	-	25	654	374	421	265
4. Gen.Administration		-	1092	424	-	1170	715	-	670	-	702	1248	1872
5. Engineering Services		-	-	-	4001	-	-	-	-	2095	-	-	-
6. Physical Contingency		2093	2455	1091	6525	2526	1074	-	-	3149	1100	2679	4058
7. Price Contingency		-	-	-	-	-	-	-	-	-	-	-	-
Sub-total		5126	7322	3027	10909	7238	2135	0	4164	5898	2958	8222	12098
Total		28154	33540	15464	54029	33734	9574	31290	30288	26215	10545	34692	75328
REVISED (1989 price)													
I Direct Cost													
1. Dam		25292	24552	11314	36779	31593	6265	28243	25754	14163	4253	29117	33645
2. Irrigation		1700	7310	-	-	4250	415	7650	3400	3570	1020	8500	7650
3. Mini-Hydropower		3783	4288	-	16510	10130	-	-	9018	-	2346	-	6848
4. Water Supply		-	-	5324	-	-	-	-	-	-	-	-	-
5. Contractor's Tax		1539	1808	832	2664	2299	334	1795	1909	887	361	1681	2407
Sub-total		32314	37958	17470	55953	48272	7014	37688	40081	18620	8000	39498	50550
II Indirect Cost													
1. Land Acq. & Compen.		105	465	75	450	150	120	98	30	300	180	270	150
2. Gen. Administration		969	1139	524	1679	1448	210	1131	1202	559	240	1185	1517
3. Engineering Services		3231	3796	2795	5595	4827	701	3769	6413	1862	800	3950	8088
(1) F/S		0	0	0	0	0	0	0	0	0	0	0	0
(2) D/D		0	0	1048	0	0	0	0	2405	0	0	0	3033
(3) C/S		3231	3796	1747	5595	4827	701	3769	4008	1862	800	3950	5055
4. Physical Contingency		3662	4336	3130	6368	5470	805	4269	7159	2134	922	4490	9046
Sub-total		7968	9735	6524	14092	11895	1836	9266	14804	4855	2142	9895	18800
Total (I & II)		40281	47693	23994	70045	60167	8850	46954	54885	23474	10142	49393	69350
III Watershed Management													
1. Study (F/S,D/D)				150	830	500			920		138	220	460
2. Gen. Administration				420	2840	1470			2900		438	710	1427
3. Eng. Measuring Cost				1040	3410	3370			5120		770	1240	2760
4. Vege. Measuring Cost				1550	10930	5460			10940		1650	2660	5350
Total (III)		0	0	3160	18010	10800	0	0	19860	0	2996	4830	9997
IV Cost for Review Work		323		175	560	965	140	377					
IV Grand Total(I to IV)		40605	47693	27329	88515	71932	8991	47330	74765	23474	13138	54223	79347

Note: The total may not equal the sum of individual figures due to rounding.

Table II.1.2 Cost Estimate of the SWIM Projects -DPWH- (2/2)

(Unit: Pesos 1,000)

Item	Project Name Status	DPWH 17 Pre-F/S	DPWH 18 Pre-F/S	DPWH 19 Pre-F/S	DPWH 20 Pre-F/S	DPWH 21 Pre-F/S	DPWH 22 Pre-F/S	DPWH 25 Pre-F/S	DPWH 26 Pre-F/S	DPWH 27 Pre-F/S	DPWH 28 Pre-F/S	DPWH 33 F/S
ORIGINAL (1989 price)												
I Direct Cost												
1. Dam		5118	10088	3823	6336	4506	13636	6767	4601	5417	12034	5653
2. Irrigation		3210	2408	2408	2006	2408	3210	1605	2087	1204	3210	470
3. Mini-hydropower		-	-	-	-	-	-	-	-	-	-	-
4. Water Supply		-	-	-	-	-	-	-	-	-	-	-
Sub-total		8328	12496	6231	8342	6914	16846	8372	6688	6621	15244	6123
II Indirect Cost												
1. Cont.Overhead & Prof		-	-	-	-	-	-	-	-	-	-	546
2. Contractor's Tax		-	-	-	-	-	-	-	-	-	-	150
3. Land Acq. & Compen.		-	-	-	-	-	-	-	-	-	-	312
4. Gen.Administration		-	-	-	-	-	-	-	-	-	-	-
5. Engineering Services		675	1407	505	837	595	1800	894	608	621	1589	-
6. Physical Contingency		511	80	401	633	451	1363	676	460	470	1204	544
7. Price Contingency		-	-	-	-	-	-	-	-	-	-	-
Sub-total		1186	1487	906	1470	1046	3163	1570	1068	1091	2793	1552
Total		9514	13983	7137	9812	7960	20009	9942	7756	7712	18037	7675
REVISED (1989 price)												
I Direct Cost												
1. Dam		5978	18347	3349	5769	5280	28015	8314	4881	6330	21974	5554
2. Irrigation		3210	2550	1875	2006	2408	3400	1700	2210	1275	3400	2312
3. Mini-Hydropower		-	-	-	-	-	-	-	-	-	-	-
4. Water Supply		-	-	-	-	-	-	-	-	-	-	-
5. Contractor's Tax		459	1045	261	389	384	1571	501	355	380	1269	393
Sub-total		9647	21942	5485	8164	8072	32986	10515	7446	7985	26643	8259
II Indirect Cost												
1. Land Acq. & Compen.		90	120	150	75	150	150	75	105	75	120	269
2. Gen. Administration		289	658	165	245	242	990	315	223	240	799	248
3. Engineering Services		1833	4169	1042	1551	1534	6267	1998	1415	1517	5062	1569
(1) F/S		289	658	165	245	242	990	315	223	240	799	248
(2) D/D		579	1317	329	490	484	1979	631	447	479	1599	496
(3) C/S		965	2194	549	816	807	3299	1051	745	799	2664	826
4. Physical Contingency		2372	5378	1368	2007	2000	8079	2581	1838	1963	6525	1552
Sub-total		4584	10325	2725	3878	3926	15485	4969	3581	3795	12506	3638
Total (I & II)		14232	32267	8210	12042	11998	48471	15484	11026	11780	39149	11897
III Watershed Management												
1. Study (F/S,D/D)				110	75		685	325	330	535	337	
2. Gen. Administration				367	235		2166	1035	1080	1826	1150	
3. Eng. Measuring Cost				497	414		3826	1768	1590	2196	1380	
4. Vege. Measuring Cost				1400	885		8170	3908	4100	7035	4420	
Total (III)		0	0	2374	1609	0	14847	7036	7100	11592	7287	0
IV Cost for Review Work			110				165				133	
IV Grand Total(I to IV)		14232	32377	10584	13651	11998	63483	22520	18126	23372	46569	11897

Note: The total my not equal the sum of individual figures due to rounding.

Table H.1.3 Cost Estimate of the SWIM Projects -NIA- (1/6)

(Unit: Pesos 1,000)

Item	Project Name Status	NIA 4 D/D	NIA 6 D/D	NIA 7 D/D	NIA 9 D/D	NIA 11 D/D	NIA 12 D/D	NIA 14 D/D	NIA 15 D/D	NIA 20 Pre-F/S	NIA 21 Pre-F/S	NIA 22 Pre-F/S	NIA 23 Pre-F/S
ORIGINAL (1989 price)													
I. Direct Cost													
1. Dam		23960	22060	16866	30512	30796	24508	19672	20250	15622	12412	14659	6527
2. Irrigation		12057	4896	5618	46252	2978	7223	3514	9235	6902	1605	2247	963
3. Mini-hydropower		10855	4871	5032	-	-	-	-	7120	-	-	-	-
4. Water Supply		-	-	-	-	-	-	-	-	-	-	-	-
Sub-total		46872	31827	27516	76764	33774	31731	23186	36605	22524	14017	16906	7490
II. Indirect Cost													
1. Cont.Overhead & Prof		-	-	-	-	-	-	-	-	-	-	-	-
2. Contractor's Tax		-	-	-	-	-	-	-	-	-	-	-	-
3. Land Acq. & Compen.		1010	1530	459	204	1530	-	276	395	-	-	-	-
4. Gen.Administration		-	-	-	-	-	-	-	-	-	-	-	-
5. Engineering Services		3583	2670	2236	3072	2670	4902	1995	2777	2033	1605	1936	867
6. Physical Contingency		5374	3114	3354	4607	3114	2451	2992	4165	1605	1284	1498	653
7. Price Contingency		-	-	-	-	-	-	-	-	-	-	-	-
Sub-total		9967	7314	6049	7883	7314	7353	5263	7337	3638	2889	3424	1520
Total		56839	39141	33565	84647	41088	39084	28449	43942	26162	16906	20330	9010
REVISED (1989 price)													
I. Direct Cost													
1. Dam		34562	15779	16866	37729	30796	24508	19672	31202	23863	14927	18735	8017
2. Irrigation		12057	5100	5950	46252	4250	7650	3910	9235	7310	1700	2380	1020
3. Mini-Hydropower		5339	4871	2714	-	-	-	-	7120	-	-	-	-
4. Water Supply		-	-	-	-	-	-	-	-	-	-	-	-
5. Contractor's Tax		2598	1288	1277	4199	1752	1608	1179	2378	1559	831	1056	452
Sub-total		54556	27038	26807	88180	36798	33766	24761	49935	32732	17458	22171	9489
II. Indirect Cost													
1. Land Acq. & Compen.		990	1500	450	150	375	735	300	465	1272	615	294	189
2. Gen. Administration		1637	811	804	2645	1104	1013	743	1490	982	524	665	285
3. Engineering Services		5456	2704	2681	8818	3680	3377	2476	4993	6219	3317	4212	1803
(1) F/S		0	0	0	0	0	0	0	0	982	524	665	285
(2) D/D		0	0	0	0	0	0	0	0	1964	1048	1330	569
(3) C/S		5456	2704	2681	8818	3680	3377	2476	4993	3273	1746	2217	949
4. Physical Contingency		6264	3205	3074	9979	4196	3889	2828	5689	8241	4383	5468	2353
Sub-total		14346	8220	7009	21593	9354	9014	6347	12646	16714	8839	10640	4630
Total (I & II)		68902	35258	33815	109773	46153	42780	31108	62581	49446	26297	32811	14118
III Watershed Management													
1. Study (F/S,D/D)		630		673	600		390	200		640	485	528	400
2. Gen. Administration		1980		2298	1089		1186	590		2200	1560	1460	1250
3. Eng. Measuring Cost		2330		2760	3400		2490	1380		2640	2550	4144	2210
4. Vege. Measuring Cost		7450		8850	7110		4420	2210		8450	5900	5310	4720
Total (III)		12390	0	14581	12999	0	8486	4380	0	13930	10495	11442	8580
IV Cost for Review Work		546	270		1764	368			499			111	47
V. Grand Total(I to IV)		81838	35528	48396	124535	46521	51266	35488	63080	63376	36792	44364	22746

Note: The total may not equal the sum of individual figures due to rounding.

Table H.1.3 Cost Estimate of the SWIM Projects -NIA- (2/6)

(Unit: Pesos 1,000)

Item	Project Name	NIA 25	NIA 26	NIA 27	NIA 29	NIA 31	NIA 32	NIA 47	NIA 48	NIA 49	NIA 53	NIA 55	NIA 56
	Status	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S
ORIGINAL (1969 price)													
I. Direct Cost													
1. Dam		12091	9095	6741	17227	2247	8828	81	87	8667	3852	3499	2622
2. Irrigation		7062	963	1070	2675	642	1204	80	80	3692	1204	883	150
3. Mini-hydropower		-	-	-	-	-	-	-	-	-	-	-	-
4. Water Supply		-	-	-	-	-	-	-	-	-	-	-	-
Sub-total		19153	10058	7811	19902	2889	10032	161	167	12359	5056	4382	2772
II. Indirect Cost													
1. Cont.Overhead & Prof		-	-	-	-	-	-	-	-	-	-	-	-
2. Contractor's Tax		-	-	-	-	-	-	-	-	-	-	-	-
3. Land Acq. & Compen.		-	-	-	-	-	-	-	-	-	-	-	-
4. Gen.Administration		-	-	-	-	-	-	-	-	-	-	-	-
5. Engineering Services		2889	1177	1616	3103	300	1166	10	12	1177	514	452	342
6. Physical Contingency		1177	910	674	1723	225	888	8	9	867	385	350	268
7. Price Contingency		-	-	-	-	-	-	-	-	-	-	-	-
Sub-total		4066	2087	2290	4826	525	2054	18	21	2044	899	802	610
Total		23219	12145	10101	24728	3414	12086	179	188	14403	5955	5184	3382
REVISED (1989 price)													
I. Direct Cost													
1. Dam		13567	20221	11201	15026	2247	8828	124	213	11522	2698	4964	2622
2. Irrigation		7480	1020	1700	4250	680	1275	85	85	3910	1275	935	340
3. Mini-Hydropower		-	-	-	-	-	-	-	-	-	-	-	-
4. Water Supply		-	-	-	-	-	-	-	-	-	-	-	-
5. Contractor's Tax		1052	1062	645	964	146	505	10	15	772	199	295	148
Sub-total		22099	22303	13546	20240	3073	10508	219	313	16204	4172	6194	3110
II. Indirect Cost													
1. Land Acq. & Compen.		423	339	1137	386	54	117	75	45	2249	821	39	26
2. Gen. Administration		663	669	406	607	92	318	7	9	486	125	185	93
3. Engineering Services		4199	4238	2574	3846	584	2016	42	59	3079	793	1177	591
(1) F/S		663	669	406	607	92	318	7	9	486	125	186	93
(2) D/D		1326	1338	813	1214	184	636	13	19	972	250	372	187
(3) C/S		2210	2230	1355	2024	307	1061	22	31	1620	417	619	311
4. Physical Contingency		5477	5510	3533	5016	761	2612	69	85	4403	1182	1519	764
Sub-total		10762	10755	7650	9854	1491	5063	192	199	10217	2921	2921	1474
Total (I & II)		32861	33058	21196	30094	4564	15671	411	512	26421	7092	9115	4584
III Watershed Management													
1. Study (F/S,D/D)		470	150	460		60	60			550	75		
2. Gen. Administration		1480	470	1260		190	200			1800	235		
3. Eng. Measuring Cost		2620	830	3590		293	310			2620	420		
4. Vege. Measuring Cost		5600	1770	4600		720	770			6890	885		
Total (III)		10170	3220	9910	0	1263	1340	0	0	11860	1615	0	0
IV Cost for Review Work			112			15	53					31	16
V. Grand Total(I to IV)		43031	36390	31106	30094	5843	17064	411	512	38281	8707	9146	4600

Note: The total may not equal the sum of individual figures due to rounding.

Table H.1.3 Cost Estimate of the SWIM Projects -NIA- (3/6)

(Unit: Pesos 1,000)

Item	Project Name Status	NIA 57 Pre-F/S	NIA 58 Pre-F/S	NIA 59 Pre-F/S	NIA 72 Pre-F/S	NIA 97 Pre-F/S	NIA 98 Pre-F/S	NIA 99 Pre-F/S	NIA 100 Pre-F/S	NIA 101 Pre-F/S	NIA 102 Pre-F/S	NIA 103 Pre-F/S	NIA 104 Pre-F/S
ORIGINAL (1989 price)													
I. Direct Cost													
1. Dam		5404	2536	5350	7490	8239	8657	12840	8560	13696	4387	9095	7490
2. Irrigation		3210	1605	1926	1605	1926	2408	6420	3210	4013	1284	3210	1926
3. Mini-hydropower		-	-	-	-	-	-	-	-	-	-	-	-
4. Water Supply		-	-	-	-	-	-	-	-	-	-	-	-
Sub-total		8614	4141	7276	9095	10165	11075	19260	11770	17709	5671	12305	9416
II. Indirect Cost													
1. Cont.Overhead & Prof		-	-	-	-	-	-	-	-	-	-	-	-
2. Contractor's Tax		-	-	-	-	-	-	-	-	-	-	-	-
3. Land Acq. & Compen.		-	-	-	-	-	-	-	-	-	-	-	-
4. Gen.Administration		-	-	-	-	-	-	-	-	-	-	-	-
5. Engineering Services		696	321	749	963	1070	1284	1712	1177	1819	535	1177	963
6. Physical Contingency		535	257	535	749	824	856	1284	856	1391	428	963	749
7. Price Contingency		-	-	-	-	-	-	-	-	-	-	-	-
Sub-total		1231	578	1284	1712	1894	2140	2996	2033	3210	963	2140	1712
Total		9845	4719	8560	10807	12059	13215	22256	13803	20919	6634	14445	11128
REVISED (1989 price)													
I. Direct Cost													
1. Dam		6843	2725	3700	13657	7094	6101	16621	20738	12415	3260	19850	7768
2. Irrigation		3400	1700	2040	1700	2040	2550	6800	3400	4250	1360	3400	2040
3. Mini-Hydropower		-	-	-	-	-	-	-	-	-	-	-	-
4. Water Supply		-	-	-	-	-	-	-	-	-	-	-	-
5. Contractor's Tax		512	221	287	768	457	433	1171	1207	833	231	1163	490
Sub-total		10755	4646	6027	16125	9591	9084	24592	25345	17498	4851	24413	10298
II. Indirect Cost													
1. Land Acq. & Compen.		1155	80	515	102	311	755	2496	3461	1428	534	498	315
2. Gen. Administration		323	139	181	484	288	273	738	760	525	146	732	309
3. Engineering Services		2043	883	1145	3064	1822	1726	4672	4816	3325	922	4638	1957
(1) F/S		323	139	181	484	288	273	738	760	525	146	732	309
(2) D/D		645	279	362	967	575	545	1476	1521	1050	291	1465	618
(3) C/S		1076	465	603	1612	959	908	2459	2534	1750	485	2441	1030
4. Physical Contingency		2855	1150	1574	3955	2402	2367	6500	6876	4555	1290	6056	2576
Sub-total		6376	2252	3415	7604	4823	5121	14406	15913	9833	2892	11925	5156
Total (I & II)		17132	6898	9442	23729	14414	14204	38998	41258	27331	7743	36338	15455
III Watershed Management													
1. Study (F/S,D/D)		200	100					680	1030	200	75	940	240
2. Gen. Administration		630	320					2150	3530	625	235	3230	745
3. Eng. Measuring Cost		1170	550					2630	4230	1055	420	3870	1330
4. Vege. Measuring Cost		2370	1180					8410	13540	2360	880	12390	2830
Total (III)		4370	2150	0	0	0	0	13770	22330	4240	1610	20430	5145
IV Cost for Review Work					81								
V. Grand Total(I to IV)		21502	9048	9442	23810	14414	14204	52768	63588	31571	9353	56768	20600

Note: The total may not equal the sum of individual figures due to rounding.

Table H.1.3 Cost Estimate of the SWIM Projects -NIA- (4/6)

(Unit: Pesos 1,000)

Item	Project Name	NIA 106	NIA 107	NIA 108	NIA 111	NIA 112	NIA 119	NIA 120	NIA 121	NIA 122	NIA 128	NIA 130	NIA 131
	Status	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S
ORIGINAL (1989 price)													
I. Direct Cost													
1. Dam		7276	5243	13910	19046	9630	14445	8239	11128	5885	1819	9951	5564
2. Irrigation		1605	1284	4013	7383	6420	4815	1605	2247	482	321	2087	2408
3. Mini-hydropower		-	-	-	-	-	-	-	-	-	-	-	-
4. Water Supply		-	-	-	-	-	-	-	-	-	-	-	-
Sub-total		8881	6527	17923	26429	16050	19260	9844	13375	6367	2140	12038	7972
II. Indirect Cost													
1. Cont.Overhead & Prof		-	-	-	-	-	-	-	-	-	-	-	-
2. Contractor's Tax		-	-	-	-	-	-	-	-	-	-	-	-
3. Land Acq. & Compen.		-	-	-	-	-	-	-	-	-	-	-	-
4. Gen.Administration		-	-	-	-	-	-	-	-	-	-	-	-
5. Engineering Services		963	642	1819	2568	1284	1819	1070	1498	777	312	1359	749
6. Physical Contingency		749	535	1391	1926	963	1498	856	1113	589	214	995	556
7. Price Contingency		-	-	-	-	-	-	-	-	-	-	-	-
Sub-total		1712	1177	3210	4494	2247	3317	1926	2611	1366	526	2354	1305
Total		10593	7704	21133	30923	18297	22577	11770	15986	7733	2666	14392	9277
REVISED (1989 price)													
I. Direct Cost													
1. Dam		6604	3840	15973	16285	14574	15744	6827	9668	10406	1134	8128	5564
2. Irrigation		1700	1360	4250	7820	6800	5100	1700	2380	510	510	2210	2550
3. Mini-Hydropower		-	-	-	-	-	-	-	-	-	-	-	-
4. Water Supply		-	-	-	-	-	-	-	-	-	-	-	-
5. Contractor's Tax		415	260	1011	1205	1069	1042	426	602	546	82	517	406
Sub-total		8719	5460	21234	25310	22443	21886	8953	12650	11462	1726	10855	8520
II. Indirect Cost													
1. Land Acq. & Compen.		542	249	2972	276	773	2600	189	213	41	231	201	558
2. Gen. Administration		262	164	637	759	673	657	269	380	344	52	326	256
3. Engineering Services		1657	1037	4034	4809	4264	4158	1701	2404	2178	328	2062	1619
(1) F/S		262	164	637	759	673	657	269	380	344	52	326	256
(2) D/D		523	328	1274	1519	1347	1313	537	759	688	104	651	511
(3) C/S		872	546	2123	2531	2244	2189	895	1265	1146	173	1085	852
4. Physical Contingency		2236	1382	5776	6231	5631	5860	2222	3129	2805	467	2689	2190
Sub-total		4696	2832	13419	12075	11341	13275	4381	6125	5367	1078	5278	4623
Total (I & II)		13415	8292	34653	37385	33784	35161	13335	18776	16829	2804	16133	13142
III Watershed Management													
1. Study (F/S,D/D)		130	150		290		460	150	190	70	40	380	520
2. Gen. Administration		410	470		935		1565	470	615	215	130	1290	1775
3. Eng. Measuring Cost		720	830		1644		1880	830	1086	380	220	1550	2130
4. Vege. Measuring Cost		1550	1770		3510		6020	1770	2315	810	470	4955	6810
Total (III)		2810	3220	0	6379	0	9925	3220	4206	1475	860	8175	11235
IV Cost for Review Work										57			
V. Grand Total(I to IV)		16225	11512	34653	43764	33784	45086	16555	22982	18362	3664	24308	24377

Note: The total may not equal the sum of individual figures due to rounding.

Table H.1.3 Cost Estimate of the SWIM Projects -NIA- (5/6)

(Unit: Pesos 1,000)

Item	Project Name / Status	NIA 132 Pre-F/S	NIA 133 Pre-F/S	NIA 136 Pre-F/S	NIA 138 Pre-F/S	NIA 139 Pre-F/S	NIA 141 Pre-F/S	NIA 147 Pre-F/S	NIA 148 Pre-F/S	NIA 149 Pre-F/S	NIA 150 Pre-F/S	NIA 152 Pre-F/S	NIA 154 Pre-F/S
ORIGINAL (1989 price)													
I. Direct Cost													
1. Dam		5778	10165	10272	13268	5350	4815	17013	11770	16585	12840	8560	7490
2. Irrigation		1766	3210	3210	4815	2087	1766	6099	3692	6955	3852	2809	2087
3. Mini-hydropower		-	-	-	-	-	-	-	-	-	-	-	-
4. Water Supply		-	-	-	-	-	-	-	-	-	-	-	-
Sub-total		7544	13375	13482	18083	7437	6581	23112	15462	23540	16692	11449	9577
II. Indirect Cost													
1. Cont.Overhead & Prof		-	-	-	-	-	-	-	-	-	-	-	-
2. Contractor's Tax		-	-	-	-	-	-	-	-	-	-	-	-
3. Land Acq. & Compen.		-	-	-	-	-	-	-	-	-	-	-	-
4. Gen.Administration		-	-	-	-	-	-	-	-	-	-	-	-
5. Engineering Services		653	1338	1359	1712	749	642	2247	1498	2140	1605	1070	963
6. Physical Contingency		578	1017	1027	1284	535	482	1712	1177	1605	1284	856	749
7. Price Contingency		-	-	-	-	-	-	-	-	-	-	-	-
Sub-total		1231	2355	2386	2996	1284	1124	3959	2675	3745	2889	1926	1712
Total		8775	15730	15868	21079	8721	7705	27071	18137	27285	19581	13375	11289
REVISED (1989 price)													
I. Direct Cost													
1. Dam		2803	10165	9939	9038	4609	3785	33344	23272	32696	18980	8059	7718
2. Irrigation		1870	3400	3400	5100	2210	1870	6460	3910	7310	4080	3060	2210
3. Mini-Hydropower		-	-	-	-	-	-	-	-	-	-	-	-
4. Water Supply		-	-	-	-	-	-	-	-	-	-	-	-
5. Contractor's Tax		234	678	667	707	341	283	1990	1359	2000	1153	556	496
Sub-total		4907	14243	14006	14845	7160	5938	41794	28541	42006	24213	11675	10424
II. Indirect Cost													
1. Land Acq. & Compen.		443	407	1026	300	362	345	1425	215	578	2025	560	401
2. Gen. Administration		147	427	420	445	215	178	1254	856	1260	726	350	313
3. Engineering Services		932	2706	2661	2821	1360	1128	7981	5423	7981	4600	2218	1981
(1) F/S		147	427	420	445	215	178	1254	856	1260	726	350	313
(2) D/D		294	855	840	891	430	356	2508	1712	2520	1453	700	625
(3) C/S		491	1424	1401	1484	716	594	4179	2854	4201	2421	1167	1042
4. Physical Contingency		1286	3557	3623	3682	1819	1518	10483	7007	10365	6313	2961	2624
Sub-total		2808	7097	7730	7248	3757	3169	21103	13501	20185	13665	6089	5318
Total (I & II)		7715	21341	21736	22093	10917	9107	62897	42042	62191	37878	17764	15743
III Watershed Management													
1. Study (F/S,D/D)		170	220	280	180	400	315	1050	909	1450	695		278
2. Gen. Administration		530	710	880	610	1250	998	3589	3105	4967	2375		925
3. Eng. Measuring Cost		940	1240	1550	760	2210	1760	4310	3730	5967	2850		1280
4. Vege. Measuring Cost		2010	2660	3320	2350	4720	3760	13890	11950	19110	9140		3540
Total (III)		3650	4830	6030	3900	8580	6833	22749	19694	31494	15060	0	6023
IV Cost for Review Work													
V. Grand Total(I to IV)		11365	26171	27766	25993	19497	15940	85646	61736	93685	52938	17764	21766

Note: The total may not equal the sum of individual figures due to rounding.

Table H.1.3 Cost Estimate of the SWIM Projects -NIA- (6/6)

(Unit: Pesos 1,000)

Item	Project Name	NIA 157	NIA 158	NIA 163	NIA 186	NIA 187	NIA 188	NIA 190
	Status	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S	Pre-F/S
ORIGINAL (1989 price)								
I. Direct Cost								
1. Dam		16050	8560	6420	14980	16050	12840	16050
2. Irrigation		4013	1926	1284	5377	4173	1766	5537
3. Mini-Hydropower		-	-	-	-	-	-	-
4. Water Supply		-	-	-	-	-	-	-
Sub-total		20063	10486	7704	20357	20223	14606	21587
II. Indirect Cost								
1. Cont.Overhead & Prof		-	-	-	-	-	-	-
2. Contractor's Tax		-	-	-	-	-	-	-
3. Land Acq. & Compen.		-	-	-	-	-	-	-
4. Gen.Administration		-	-	-	-	-	-	-
5. Engineering Services		2140	1177	856	1926	2140	1605	2140
6. Physical Contingency		1605	856	642	1498	1605	1284	1605
7. Price Contingency		-	-	-	-	-	-	-
Sub-total		3745	2033	1498	3424	3745	2889	3745
Total		23808	12519	9202	23781	23968	17495	25332
REVISED (1989 price)								
1. Direct Cost								
1. Dam		24879	15067	10961	14391	19625	11034	28440
2. Irrigation		4250	2040	1360	5695	4420	1870	5865
3. Mini-Hydropower		-	-	-	-	-	-	-
4. Water Supply		-	-	-	-	-	-	-
5. Contractor's Tax		1456	855	616	1004	1202	645	1715
Sub-total		30585	17962	12937	21090	25247	13549	36020
II. Indirect Cost								
1. Land Acq. & Compen.		506	105	84	525	870	675	1136
2. Gen. Administration		918	539	388	633	757	406	1081
3. Engineering Services		5811	3413	2458	4007	4797	2574	6844
(1) F/S		918	539	388	633	757	406	1081
(2) D/D		1835	1078	776	1265	1515	813	2161
(3) C/S		3059	1796	1294	2109	2525	1355	3602
4. Physical Contingency		7564	4404	3173	5251	6334	3441	9016
Sub-total		14799	8461	6104	10416	12759	7097	18077
Total (I & II)		45384	26423	19041	31506	38006	20646	54097
III Watershed Management								
1. Study (F/S,D/D)		575	450	285	250	439		
2. Gen. Administration		1817	1427	860	797	1149		
3. Eng. Measuring Cost		3200	2530	1830	1410	3830		
4. Vege. Measuring Cost		6860	5380	3200	3000	4100		
Total (III)		12452	9787	6175	5457	9518	0	0
IV Cost for Review Work			90	65				
V. Grand Total(I to IV)		57836	36300	25280	36963	47524	20646	54097

Note: The total may not equal the sum of individual figures due to rounding.

Table II.1.4 Cost Estimate of the SWIM Projects -BSWM- (1/12)

(Unit: Pesos 1,000)

Item / Project Name / Status	BSWM 1 D/D	BSWM 2 D/D	BSWM 3 D/D	BSWM 4 D/D	BSWM 5 D/D	BSWM 6 D/D	BSWM 7 D/D	BSWM 8 D/D	BSWM 9 D/D	BSWM 10 D/D	BSWM 11 D/D	BSWM 12 D/D
ORIGINAL (1989 price)												
I Direct Cost												
1. Dam	2347	4347	3148	2086	3187	2395	3122	3933	1630	1280	2794	3063
2. Irrigation	70	114	98	70	103	146	119	64	183	46	63	122
3. Mini-hydropower	-	-	-	-	-	-	-	-	-	-	-	-
4. Water Supply	-	-	-	-	-	-	-	-	-	-	-	-
Sub-total:	2417	4461	3246	2156	3290	2541	3241	3997	1813	1326	2857	3185
II Indirect Cost												
1. Cont.Overhead & Prof:	-	-	-	-	-	-	-	-	-	-	-	-
2. Contractor's Tax	-	-	-	-	-	-	-	-	-	-	-	-
3. Land Acq. & Compen.	-	-	-	-	-	-	-	-	-	-	-	-
4. Gen.Administration	266	491	357	237	362	280	357	440	199	146	314	350
5. Engineering Services:	-	-	-	-	-	-	-	-	-	-	-	-
6. Physical Contingency:	242	446	323	216	329	254	324	400	181	133	286	319
7. Price Contingency	-	-	-	-	-	-	-	-	-	-	-	-
Sub-total:	508	937	680	453	691	534	681	840	380	279	600	669
Total	2925	5398	3926	2609	3981	3075	3922	4837	2193	1605	3457	3854
REVISED (1989 price)												
I Direct Cost												
1. Dam	2811	4615	3542	3702	3710	2591	3360	3933	1630	1525	2987	3063
2. Irrigation	510	595	510	850	1700	544	680	1700	1275	850	850	1700
3. Mini-Hydropower	-	-	-	-	-	-	-	-	-	-	-	-
4. Water Supply	-	-	-	-	-	-	-	-	-	-	-	-
5. Contractor's Tax	166	261	203	228	271	157	202	282	145	119	192	238
Sub-total:	3487	5471	4255	4780	5681	3292	4242	5915	3050	2494	4029	5001
II Indirect Cost												
1. Land Acq. & Compen.	63	57	18	41	149	43	27	105	180	28	51	54
2. Gen. Administration	105	164	128	143	170	99	127	177	92	75	121	150
3. Engineering Services:	349	547	425	478	568	329	424	591	305	249	403	500
(1) F/S	0	0	0	0	0	0	0	0	0	0	0	0
(2) D/D	0	0	0	0	0	0	0	0	0	0	0	0
(3) C/S	349	547	425	478	568	329	424	591	305	249	403	500
4. Physical Contingency:	400	624	483	544	657	376	482	679	363	285	460	571
Sub-total:	917	1392	1054	1207	1544	847	1061	1553	939	637	1035	1275
Total (I & II)	4404	6863	5308	5986	7225	4139	5303	7467	3989	3131	5064	6276
III Watershed Management												
1. Study (F/S,D/D)	70	47	47	27	175	47	95	80	60	60	40	60
2. Gen. Administration	249	160	160	93	597	160	320	270	210	270	137	210
3. Eng. Measuring Cost	300	190	190	110	720	190	390	330	250	330	170	259
4. Vege. Measuring Cost:	970	620	620	350	2300	620	1240	1060	800	1060	530	800
Total (III)	1589	1017	1017	580	3792	1017	2045	1740	1320	1740	877	1320
IV Cost for Review Work	35	109	43		57	66	42				40	
V Grand Total(I to IV)	6028	7989	6368	6566	11074	5222	7390	9207	5309	4871	5981	7596

Note: The total may not equal the sum of individual figures due to rounding.

Table H.1.4 Cost Estimate of the SWIM Projects -BSWM- (2/12)

(Unit: Pesos 1,000)

Item / Project Name / Status	BSWM 13 D/D	BSWM 14 D/D	BSWM 15 D/D	BSWM 16 D/D	BSWM 17 D/D	BSWM 18 D/D	BSWM 19 D/D	BSWM 20 D/D	BSWM 21 D/D	BSWM 23 D/D	BSWM 24 D/D	BSWM 25 D/D
ORIGINAL (1989 price)												
I Direct Cost												
1. Dam	3108	1922	2508	1200	1992	1663	1394	2043	1529	1774	2407	1758
2. Irrigation	70	133	17	25	65	60	87	116	64	219	140	140
3. Mini-hydropower	-	-	-	-	-	-	-	-	-	-	-	-
4. Water Supply	-	-	-	-	-	-	-	-	-	-	-	-
Sub-total:	3178	2055	2525	1225	2057	1723	1481	2159	1593	1993	2547	1898
II Indirect Cost												
1. Cont.Overhead & Prof:	-	-	-	-	-	-	-	-	-	-	-	-
2. Contractor's Tax	-	-	-	-	-	-	-	-	-	-	-	-
3. Land Acq. & Compen.	-	-	-	-	-	-	-	-	-	-	-	-
4. Gen.Administration	350	226	278	135	226	190	163	238	175	219	280	209
5. Engineering Services:	-	-	-	-	-	-	-	-	-	-	-	-
6. Physical Contingency:	318	206	253	123	206	172	148	216	159	199	255	190
7. Price Contingency	-	-	-	-	-	-	-	-	-	-	-	-
Sub-total:	668	432	531	258	432	362	311	454	334	418	535	399
Total	3846	2487	3056	1483	2489	2085	1792	2613	1927	2411	3082	2297
REVISED (1989 price)												
I Direct Cost												
1. Dam	3108	1922	4121	1553	2714	2170	1751	3829	2553	2950	4897	2542
2. Irrigation	340	1360	850	935	850	1700	1190	1275	510	680	850	850
3. Mini-Hydropower	-	-	-	-	-	-	-	-	-	-	-	-
4. Water Supply	-	-	-	-	-	-	-	-	-	-	-	-
5. Contractor's Tax	172	164	249	124	178	194	147	255	153	182	287	170
Sub-total:	3620	3446	5220	2612	3742	4064	3088	5359	3216	3812	6034	3562
II Indirect Cost												
1. Land Acq. & Compen.	51	35	30	35	68	91	57	144	59	23	35	76
2. Gen. Administration	109	103	157	78	112	122	93	161	96	114	181	107
3. Engineering Services:	362	345	522	261	374	406	309	536	322	381	603	356
(1) F/S	0	0	0	0	0	0	0	0	0	0	0	0
(2) D/D	0	0	0	0	0	0	0	0	0	0	0	0
(3) C/S	362	345	522	261	374	406	309	536	322	381	603	356
4. Physical Contingency:	414	393	593	299	429	468	355	620	369	433	685	410
Sub-total:	936	876	1301	673	973	1088	813	1461	846	951	1505	949
Total (I & II)	4556	4322	6521	3286	4715	5151	3901	6820	4063	4763	7539	4511
III Watershed Management												
1. Study (F/S,D/D)	27	68	47	47	40	175	54	20	27	30	70	70
2. Gen. Administration	93	230	160	160	137	597	186	65	98	110	249	249
3. Eng. Measuring Cost	110	280	190	190	170	720	220	80	110	140	300	300
4. Vege. Measuring Cost:	350	885	620	620	530	2300	710	265	350	440	970	970
Total (III)	580	1463	1017	1017	877	3792	1170	430	585	720	1589	1589
IV Cost for Review Work	36		52						32	76	121	
V Grand Total(I to IV)	5172	5785	7590	4303	5592	8943	5071	7250	4680	5559	9249	6100

Note: The total may not equal the sum of individual figures due to rounding.

Table II.1.4 Cost Estimate of the SWIM Projects -BSWM- (3/12)

(Unit: Pesos 1,000)

Item	Project Name / Status	BSWM 26 D/D	BSWM 27 D/D	BSWM 28 D/D	BSWM 29 D/D	BSWM 30 D/D	BSWM 31 D/D	BSWM 32 D/D	BSWM 33 D/D	BSWM 34 D/D	BSWM 35 D/D	BSWM 36 D/D	BSWM 37 D/D
ORIGINAL (1989 price)													
I Direct Cost													
1. Dam		2033	3048	1935	1892	1609	2638	1698	4037	3081	2124	1328	3225
2. Irrigation		36	161	79	227	88	202	70	158	175	571	49	219
3. Mini-hydropower		-	-	-	-	-	-	-	-	-	-	-	-
4. Water Supply		-	-	-	-	-	-	-	-	-	-	-	-
Sub-total		2069	3209	2014	2119	1697	2840	1768	4195	3256	2695	1377	3444
II Indirect Cost													
1. Cont.Overhead & Prof		-	-	-	-	-	-	-	-	-	-	-	-
2. Contractor's Tax		-	-	-	-	-	-	-	-	-	-	-	-
3. Land Acq. & Compen.		-	-	-	-	-	-	-	-	-	-	-	-
4. Gen.Administration		228	353	222	233	187	312	195	462	358	297	152	379
5. Engineering Services		-	-	-	-	-	-	-	-	-	-	-	-
6. Physical Contingency		207	321	201	212	170	284	177	420	326	270	138	344
7. Price Contingency		-	-	-	-	-	-	-	-	-	-	-	-
Sub-total		435	674	423	445	357	596	372	882	684	567	290	723
Total		2504	3883	2437	2564	2054	3436	2140	5077	3940	3262	1667	4167
REVISED (1989 price)													
I Direct Cost													
1. Dam		2033	5411	2438	1892	1666	2638	1698	4301	3839	2230	1328	3445
2. Irrigation		425	425	1020	1700	1700	1190	510	1700	1105	1360	340	1020
3. Mini-Hydropower		-	-	-	-	-	-	-	-	-	-	-	-
4. Water Supply		-	-	-	-	-	-	-	-	-	-	-	-
5. Contractor's Tax		123	292	173	180	168	191	110	300	247	180	83	223
Sub-total		2581	6128	3631	3772	3534	4019	2318	6301	5191	3770	1751	4688
II Indirect Cost													
1. Land Acq. & Compen.		24	30	14	14	40	173	42	117	53	86	32	58
2. Gen. Administration		77	184	109	113	106	121	70	189	156	113	53	141
3. Engineering Services		258	613	363	377	353	402	232	630	519	377	175	469
(1) F/S		0	0	0	0	0	0	0	0	0	0	0	0
(2) D/D		0	0	0	0	0	0	0	0	0	0	0	0
(3) C/S		258	613	363	377	353	402	232	630	519	377	175	469
4. Physical Contingency		294	695	412	428	403	471	266	724	592	435	201	536
Sub-total		654	1522	898	932	903	1167	610	1660	1320	1011	461	1203
Total (I & II)		3234	7650	4529	4703	4437	5186	2928	7961	6511	4780	2212	5891
III Watershed Management													
1. Study (F/S,D/D)		7	47	54	40	60	120	20	128	377	209	95	40
2. Gen. Administration		25	160	186	137	210	410	65	435	1290	714	320	139
3. Eng. Measuring Cost		30	190	220	170	250	500	80	530	1550	860	390	167
4. Vege. Measuring Cost		90	620	710	530	800	1600	265	1680	4950	2740	1240	532
Total (III)		152	1017	1170	877	1320	2630	430	2773	8167	4523	2045	877
IV Cost for Review Work		26	61	36		35			63	52	38		47
V Grand Total(I to IV)		3412	8728	5735	5580	5792	7816	3358	10797	14730	9341	4257	6815

Note: The total may not equal the sum of individual figures due to rounding.