MINISTRY OF PUBLIC WORKS AND HIGHWAYS
OFFICE OF THE MINISTER
MANILA

26 February 1982

MINISTRY ORDER)
NO. 20)
SERIES OF 1982)

SUBJECT: GUIDELINES FOR THE PREPARATION, EVALUATION AND RANKING OF FLOOD CONTROL AND DRAINAGE PROJECTS

All central and regional offices are hereby directed to comply with the enclosed guidelines for the preparation, presentation, evaluation and prioritization of flood control and drainage projects which are proposed for financing under the MPWH Infrastructure Program.

This Order takes effect immediately.

JESUS S. HIPOLITO
Minister

/rcv

Republic of the Philippines
Ministry of Public Works and Highways

26 February 1982

GUIDELINES FOR THE PREPARATION, EVALUATION AND RANKING OF FLOOD CONTROL AND DRAINAGE PROJECTS TO BE FINANCED FROM NATIONAL GOVERNMENT (MPWH) FUNDS

A. PURPOSE

The purpose of this document is to set the guidelines, criteria and procedures for the preparation and evaluation of flood control and drainage projects which are proposed for financing by the National Government under the MPWH Infrastructure Program. It also outlines the kinds or extent of information which should be incorporated in proposals for financing of such projects as evidence that they are technically and economically sound and are worthy of capital financing.

All central and regional offices concerned are expected to comply with these Guidelines in developing and appraising flood control and drainage project proposals. (Regional offices which are not yet prepared to carry out a full-scale economic feasibility evaluation may, in the meantime, exclude the required economic tests and analyses (viz, Items C-5 and D-1 of these Guidelines, Item 7.1 and 7.3 of Form FCD-1, the economic feasibility analysis as illustrated in Annex B, and column 2 of Form FCD-2), but shall provide the other data and perform the other analyses called for in these Guidelines for further evaluation by the central office).

B. PROJECT INFORMATION

For every flood control/drainage project envisioned for capital financing under the MPWH Infrastructure Program, the regional office shall submit to the central office a Project Proposal using Form FCD-1 (Annex A) which shall embody among other things, the basic technical and economic data, including the title and location of the project; the extent and nature of flood control/drainage problems; the existing flood control/drainage facilities; topographic, hydraulic and hydrologic design data; the technical features of the proposed project defined at preliminary engineering level; cost estimates; and justification, including an economic feasibility analysis.

An illustrative example of an economic feasibility analysis is given in Annex B for guidance.

C. EVALUATION

Every flood control/drainage project proposed for financing under the MPWH Infrastructure Program must be evaluated by the regional office concerned as well as the central office to determine if it meets the following criteria for project acceptability and eligibility for funding.

1. The project should fall within any of the following categories:

   a. Flood control and river control works in the major or principal river basins/systems as defined by the National Water Resources Council in its Report No. 4 dated October 1976 (Annex C). These include floodways, dikes, retarding lagoons, water impounding

structures, revetments, dredging/channelization works, spur dikes, and related structures and facilities within such major or principal river basins/ systems. (Works on minor or local rivers and creeks are expected to be financed and undertaken by the local governments concerned).

b. Major components of urban drainage systems, including drainage mains, outfalls, pumping stations, control gates, and dredging and improvement of major drainage channels. (Drainage laterals, canals, pipes and other facilities connecting local areas to drainage mains, outfalls, and major waterways are expected to be financed and undertaken by the local governments concerned. Moreover, internal drainage facilities for private subdivisions and similar areas are presumed to be the responsibility of the private entities concerned.)

c. Flood control, river control and drainage works for national and barangay roads and bridges. (Drainage facilities for provincial, city, and municipal streets are expected to be financed and undertaken by the local governments concerned.)

2. The project must be a part of an overall flood control/ drainage plan, duly approved by the MPWH, for the river basin or urban area in which the project is located.

3. The project must be included in the Regional Development Investment Program.

4. The project must be technically sound, as evidenced by (at least) preliminary engineering investigations, surveys, and designs, which show that:

   a. all significant technical problems and other engineering aspects have been taken into account in the analysis;

   b. all likely technical alternatives have been thoroughly examined;

   c. preliminary engineering has been carried out according to accepted standards and practices and to a degree of detail that will permit estimates of work quantities to be made within plus or minus 20%; and

   d. the estimated cost of the project is as low as any other reasonably available alternative which would produce the intended results.

5. The project must pass the following economic tests based on a feasibility analysis (See illustrative example in Annex B):

   a. Net Present Value (at 15% discount rate) of at least nil.

   b. Benefit-Cost Ratio (at 15% discount rate) of at least 1.

   c. Internal Rate of Return of at least 15%.

   Note that the method adopted here is a modification of the traditional economic benefit-cost analysis, where the social equity factor, particularly income redistribution, has been inputted in line with the objective of the Government to

utilize infrastructure investment as a vehicle to reduce disparities in income between social groups. Thus, the conventionally calculated economic benefits are to be "weighted" to favor the poorer beneficiary areas and families. In particular, the portion of the economic benefits accruing to the low income groups is given the highest weight, that enjoyed by the high income group is unweighted (i.e., a weight of 1), and the portion of the benefits allocated to the middle group is given an intermediate weight. The combined weighted benefits are used in computing for the modified NPV, B/C and IRR. The weights are calculated using the average household income of the Philippines as the benchmark, as follows:

Beneficiaries	Ratio of Income	Weight of Benefits
Low Income	P/L = x	x
Middle Income	P/M = Y	$(x-1.00)\left(\frac{y-z}{x-z}\right)$
High Income	P/H = z	1

where: P= average household income for the Philippines,

L= average household income of the low income beneficiaries of the project,

M= average household income of the middle-income beneficiaries of the project, and

H= average household income of the high-income beneficiaries of the project

Projects that fail to satisfy all of the criteria above shall be rejected or deferred. Those that fully meet the criteria are considered eligible for financing but shall undergo the ranking procedure in Section D below.

D. PROJECT RANKING

The regional and central offices shall rate all projects that pass the acceptability criteria in Section C, using the following merit point system:

Criterion	Weight	Weighted Merit Points
1. Benefit-Cost Ratio (Weighted)	60%	
Equal to 1		30
Between 1 and 3		$30+\left(\frac{B/C-1}{2}\right)(30)$
Equal to or more than 3		60

Criterion	Weight	Weighted Merit Points
2. Contribution of Project to Improvement of Health/Education/Safety & Security	25%	
Nil or negative		0
Low		8
Medium		17
High		25
3. Degree of Employment Inducing Capacity	15%	
Nil or negative		0
Low		5
Medium		10
High		15

The total possible maximum number of weighted merit points that a project may obtain is 100.

The weighted merit points obtained by each project shall be completed, and the projects shall then be ranked according to their total number of points. This ranking shall be considered as the order of priority of the projects. The results shall be presented in Form FCD-2 (Annex D).

ANNEX A

Republic of the Philippines
MINISTRY OF PUBLIC WORKS AND HIGHWAYS

Form FCD - 1

FLOOD CONTROL AND DRAINAGE PROJECT PROPOSAL

I. GENERAL

1.1 Project Title : _____

_____

1.2 Location :

Region : _____ Province: _____
City/Municipality _____ Barangay _____

Attach a Location Map as Annex A

1.3 Project Category - Please check:

☐ Flood control and river control works in a major or principal river basin/system as defined by NWRC.

☐ Major components of urban drainage system based on overall scheme.

☐ Flood control, river control and works for national roads/bridges.

☐ Project under local government responsibility.

☐ Others

1.4 Inclusion of Project in Approved Flood Control/Drainage Master Plan for the River Basin or Urban Area

☐ Yes ☐ No

1.5 Inclusion of Project in Regional Development Investment Program

☐ Yes ☐ No

1.6 Project Status - Please check:

	Not Started	Underway	Completed
Pre-feasibility study	_____	_____	_____
Feasibility study	_____	_____	_____
Detailed engineering	_____	_____	_____
Construction	_____	_____	_____

Remarks _____

_____

2. NATURE AND EXTENT OF PROBLEM

2.1 Brief Description : _____

FLOOD SEVERITY AND DAMAGE DATA

	Maximum Flood Events in Three Successive Years								
	Year _____			Year _____			Year _____		
2.2 Area Flooded	Area Flooded (has)	Depth of Flood (m)	Duration (days)	Area Flooded (has)	Depth (m)	Duration (days)	Area Flooded (has)	Depth (m)	Duration (days)
Agricultural									
Urban:									
Industrial									
Commercial									
Residential									
Total Flooded Area:									
	AGRICULTURAL	URBAN		AGRICULTURAL	URBAN		AGRICULTURAL	URBAN	
2.3 Population Affected									
No. of Families									
No. of Persons									
Ave. Household Income									
2.4 Private Properties Affected									
No. of Houses									
No. of Commercial/ Industrial Bldgs.									
2.5 Public Properties Affected									
No. of Buildings									
Kilometers of Roads									
No. of Bridges									
2.6 Damages/Losses (₱1,000)									
Sub-total									
Total for Agricultural & Urban									

Attach Map of Flooded Area or Annex "B"

3. EXISTING FLOOD CONTROL/DRAINAGE FACILITIES: Describe Fully

3.1 Type and Condition of Facilities: _____

3.2 Degree of Effectiveness: _____

4. TOPOGRAPHIC/HYDRAULIC/HYDROLOGIC DESIGN DATA:

4.1 Available Data

a. Submit all available records relative to the Project as Annex C

b. Submit topographic maps, river cross sections, and datum plane used with date of surveys as Annex D

4.2 River Characteristics: Describe river/stream conditions as to whether meandering, erodable or unstable banks, light or heavy siltation, characteristics of bank and riverbed materials, whether clayey soils, gravel, sandy loam, etc.

_____

4.3 Hydraulic and Hydrologic Data.

Discharge Data	Max. Flood Events in 3 Successive Years per table under Section 2 above		
	Year	Year	Year
a. Peak Discharge (m^3/sec.)			
b. Max. Flood Level (m)			
c. Max. Flood Flow Velocity			

d. Drainage Area: _____

e. Stream Flow Records: State the number and type, (automatic recorder/non-automatic) of existing river gaging stations in the area. Indicate the location of the gaging station in Annex A.

_____

f. Available Rainfall Records: State the number and type, (automatic recorder/non-automatic) rainfall stations. Indicate the location of rainfall station in Annex E.

_____

7. JUSTIFICATION

7.1. Primary Quantifiable Benefits from the Project(at 19——prices)*

	Recommended Scheme	Alternative Scheme
a. Reduction in Value of Flood Damages		
i. Average annual damages without the Project(₱1,000)		
ii. Average annual damages with the Project(₱1,000)		
iii. Reduction(i-ii)		
b. Net Value of Incremental Production of Associated Costs(Provided this is not included in 7.1-a above)		
i. Average annual production without the Project(₱1,000)		
ii. Average annual production with the Project (₱1,000)		
iii. Increment (ii-i)		

Remarks: _____

_____

c. Other Quantifiable Benefits (Specify)

_____ _____ _____

7.2. Other Social and Economic Benefits

a. Population Protected		
b. Area Protected(hectares)		
c. Others (Specify)		

d. Remarks: _____

_____

7.3. Economic Feasibility Indicators *

a. Net Present Value(at 15%)		
b. Benefit-Cost Ratio(at15%)		
c. Internal Rate of Return		

Attach economic feasibility calculations as Annex H.

8. IMPLEMENTATION ARRANGEMENTS

8.1. Proposed Mode of Prosecution

☐ Contract ☐ Force Account

8.2. Proposed Supervising Agency

☐ Regional Director ☐ District/City Engineer

☐ Project Management Office

9. CONCLUSIONS AND RECOMMENDATIONS

_____

_____

_____

Prepared by: _____ Date: _____

Submitted by: _____ Date: _____

_____

* May be calculated in the MPWH Central Office