

DAM CONSTRUCTION AND DEVELOPMENT IN THE PHILIPPINES

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Dam is a barrier constructed to divert, hold water and raise its level for purposes of water supply, irrigation, power generation, flood control, and recreational facilities, among others. The building of dam should be technically and financially viable and should pass the government's different criteria and regulations.

In the Philippines, the primary agencies involved in dam construction and development could be divided into two groups: the regulatory agencies and the project implementing agencies.

REGULATORY AGENCIES:

1. *DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (DENR)*

The regulatory functions of DENR are vested into two units, namely: Environmental Management Bureau (EMB) and the Protected Areas and Wildlife Division (PAWD), through PWAD's regional offices.

a. Environmental Management Bureau (EMB)

Basic Function: Implementation of Presidential Decree 1568 (Philippine EIS System Law) with an end view of attaining and maintaining a rational and orderly balance between socio-economic growth and environmental protection, not only for the present generation but for the future generations as well.

The EMB through the Environmental Impact Assessment (EIA) Division is tasked to administer and implement the Philippine Environmental Impact Statement (EIS) System and has the following functions:

- i. Determine whether a project or a program is covered by the Philippine EIS System and thus, should be required an ECC prior to implementation;
- ii. Determine the scope of the Environmental Impact Statement (EIS) Study to be required for a specific type of project in a specific location as a requirement for the processing of ECC applications
- iii. Recommend whether to issue or to deny the issuance of the ECCs/CNCs for Environmentally Critical Projects (ECPs) (and other project types) upon completion of their review and assessment;
- iv. Monitor compliance of projects with ECCs, their compliance to the conditions of the ECC, the Environmental Management Plans (EMP), and the project design as committed in the EIS;
- v. Formulate policies for the improvement of the implementation of the Philippine EIS System

In principle, the seven- (7) strategic priorities are all incorporated in the assessment and the resulting EIS study of critical dam projects. However, the DENR has criteria needed to assess whether the dam project would require an Environmental Impact Statement (EIS) or Initial Environmental Examination (IEE). DENR classifies that dam projects which do not fall within the purview of Environmentally Critical Projects (ECPs) but within Environmentally Critical Areas (ECAs) need only an IEE document.

Presented below are the criteria:

CRITERIA	DAM (for power)	DAM (for irrigation)	DAM (other purposes)	
With service area in excess of 1,000 hectares	n.a.	EIS study	EIA Study	E C P
Reservoir storage capacity in excess of 25 million m ³	EIS study (less than 25 million m ³ submit IEE study)	EIS study	EIS Study	
Reservoir area (flooded area) in excess of 25 hectares	n.a.	EIS study	EIS Study	
With service area in excess of 700 hectares but less than or equal to 1,000	n.a.	IEE Study	IEE Study	E C A
With service area in excess of 300 hectares but less than or equal to 700	n.a.	IEE checklist	IEE Checklist	
With service area of less than or equal to 300	n.a.	CNC	CNC	

b. Protected Areas and Wildlife Division (PAWD)

Under Section 10 of RA 7586, otherwise known as the National Integrated Protected Areas System (NIPAS) Act of 1992, the DENR is mandated to control and administer the NIPAS. In regions where protected areas have been established, PAWDs are created under the supervision of a Regional Director. This unit shall manage protected areas and promote the permanent preservation, to the greatest extent possible, their natural conditions. It shall control the construction, operation and maintenance of roads, trails, waterworks, sewerage, fire protection, and sanitation systems and other public utilities within the protected area.

Proposals for activities which are outside the scope of the management plan for protected areas shall be subject to an environmental impact assessment as required by law before they are adopted, and the results thereof shall be taken into consideration in the decision-making process. No actual implementation of such activities shall be allowed without the required Environmental Compliance Certificate (ECC) under the Philippine EIS System. In instances where such activities are allowed to be undertaken, the proponent shall plan and carry them out in such a manner as will minimize any adverse effects. The proponent shall also take preventive and remedial action when appropriate. The proponent shall be liable for any damage due to lack of caution or indiscretion. Construction or maintaining any kind of structure, fence or enclosures, conducting any business enterprise without a

permit are considered prohibited acts, except as may be allowed by the nature of their categories and pursuant to rules and regulations governing the same.

2. *NATIONAL WATER RESOURCES BOARD (NWRB)*

Basic Function: Implementation and administration of the Philippine Water Code of 1976 which provides the following, among others:

- a. No person, including government instrumentalities or government owned or controlled corporations, shall appropriate water without a water right, which shall be evidenced by a document known as a water permit, and this includes diversion of water through a dam;
- b. The measure and limit of appropriation of water shall be beneficial use. Beneficial use of water is the utilization of water in the right amount during the period that the water is needed for producing the benefits for which the water is appropriated;
- c. The authority for the construction of dams, bridges and other structures across or that which may interfere with the flow of navigable or floatable waterways shall first be secured from the Department of Public Works;
- d. The impounding of water in ponds or reservoirs may be prohibited by NWRB upon consultation with the Department of Health, if it is dangerous to public health, or it may order that such pond or reservoir be drained if such is necessary for the protection of public health;
- e. Waters of a stream may be stored in a reservoir by a permittee in such amounts as will not prejudice the rights of any permittee downstream. Whatsoever operates the reservoir shall, when required, release water for minimum stream flow. All reservoir operations shall be subject to rules and regulations issued by the NWRB or any proper government agency;
- f. The operator of a dam for the storage of water may be required to employ an engineer possessing qualifications prescribed for the proper operation, maintenance and administration of the dam.

3. *DEPARTMENT OF ENERGY (DOE)*

Pursuant to the provisions of Republic Act No. 7638 or the DOE Act of 1992, DOE is primarily mandated to regulate and administer energy projects. It likewise issues permits and licenses and conducts various research programs to accelerate the development of our indigenous energy resources. The private sector, including government-owned and controlled corporations and local government units, should implement energy projects in accordance with policies, rules and regulations set forth by the DOE.

Relative to dam construction and development, the DOE through the **Mini-hydro Division of the Energy Utilization Management Bureau**, administers, regulates and promotes mini-hydropower development in the country and issues permits and licenses to qualified mini-hydropower developers. Mini-hydroelectric power plants have a capacity range of more than 100 kilowatts up to 10,000 kilowatts.

The DOE collaborates with other government regulating agencies to ensure sustainability and acceptability of mini-hydropower projects. It requires the following permits, licenses and/or clearances prior to its approval of project implementation by the private sector:

- a. Environmental Compliance Certificate from the DENR
- b. Water Rights Permit from the NWRB
- c. Free and Prior Informed Consent from the National Commission of Indigenous Peoples / Indigenous Cultural Communities
- d. Endorsement from Local Government Units

Aside from the issuance of permits and licenses, the DOE administers the provision of benefits to communities hosting energy projects in accordance with Republic Act No. 7160 (Local Government Code) and Section 5(i) of Republic Act No. 7638.

The DOE, in coordination with the Department of Interior and Local Government (DILG), allocates the distribution of the National Wealth Share (Section 290 – 294 of RA 7160). It provides direct benefits to the province, city or municipality, and especially to communities directly affected by the development of indigenous energy resources. These benefits represent 1% of gross sales or receipts or 40% of the national wealth taxes, royalties, fees, or charges derived by any national government-owned and controlled corporation from energy resources development of which 80% of such accumulated funds shall be exclusively utilized for missionary electrification (or lowering of electricity tariff rates). The accumulated funds are allocated/distributed as follows:

- a. 60% for national government
- b. 40% for local governments, further allocated as follows:
 - i. 20% for the provincial government
 - ii. 45% for component city or municipality
 - iii. 35% for barangay

or

- i. 65% for highly urbanized or independent city
- ii. 35% for barangay

Under Section 5(i) of RA No. 7638 and its implementing rules and regulations (Energy Regulation 1-94, as amended) owners and developers of power generating facilities provide PhP0.01 per kilowatt-hr sold as benefit to communities hosting such facilities. The DOE allocates such funds, as follows:

- a. PhP 0.0050 for electrification purposes
- b. PhP 0.0025 for social development and livelihood
- c. PhP 0.0025 for reforestation, watershed management, health, and/or environment enhancement

Mini-hydroelectric power developers and plant owners are exempted from paying the above benefits. Instead, they pay a 2% Special Privilege Tax which provides benefits to communities hosting mini-hydropower plants. Such funds are allocated, as follows:

- a. 40% for the national government
 - b. 60% for the local government units, further allocated as follows:
 - i. 30% for the provincial government
 - ii. 30% for the municipal or component city government
- or
- i. 60% for highly urbanized or independent city

IMPLEMENTING AGENCIES:

1. *NATIONAL IRRIGATION ADMINISTRATION (NIA)*

The mandate of NIA to plan, build and operate dams emanates from Republic Act No. 3601 dated 22 June 1963 which created the agency. Its main function is to develop, operate and maintain irrigation systems. Presidential Decree No. 552 provided for the expansion of NIA's irrigation development program and authorized it to borrow money from foreign sources. Among NIA's powers are:

1. Investigate and study all available possible water resources in the country, primarily for irrigation purposes.
2. Plan, design, construct and/or improve all types of irrigation projects and appurtenant structures.
3. Operate, maintain and administer all national irrigation systems.
4. Construct multi-purpose water resource projects that give other benefits aside from irrigation.

NIA's objectives are as follows:

1. To support the government policy of self-sufficiency in the production staple food;
2. To maintain a satisfactory level of service;
3. To catalyze development in rural areas; and
4. To operate the agency as a viable corporation and in a cost-effective manner, particularly in the implementation of its capital investment construction program in operations of the systems and in administration of the agency.

In planning, designing and constructing its dams, the following considerations are included: ecological and environmental, recreational and design considerations including structural, landscape, protective and construction.

2. *DEPARTMENT OF AGRICULTURE (DA)*

The DA through the Bureau of Soil and Water Management, implements and administers irrigation projects.

3. *NATIONAL POWER CORPORATION (NPC)*

The mandate of NPC for the development of hydropower projects are vested on the following statutes:

- a. Commonwealth Act No. 120 - Creates NPC, nationalizes hydropower industry and reserves all water resources to NPC for hydropower development
- b. Presidential Decree NO. 40 - Gives NPC the sole responsibility of developing power generation facilities and transmission line systems
- c. Executive Order No. 215 complemented by Republic Act Nos. 6957 and 7718 - Innovative Approaches to encourage private sector participation through:
 - i. Careful allocation of risks between the public and private sector
 - ii. Possible availment of loans on terms that improve the debt service profile of projects
 - iii. Availments of incentives.

WCD Proposed Strategic Policies:

In general, the Philippines has been implementing the proposed strategic policies of the World Commission on Dams. There are existing laws, rules and regulations that are being observed prior to dam project implementation. These laws include the Philippine EIS System, the Indigenous Peoples Rights Act, the Philippine Water Code, and the Mini-hydro Law, among others. However, the level of implementation may vary depending on the available resources of the implementing agencies.

As such, opinions and comments on the WCD Strategic Policies on dam construction and development may be given as follows:

1. Gaining Public Acceptance

In accordance with existing laws, rules and regulations, the licensing procedures and permit requirements for all infrastructure projects, as implemented by the different regulating agencies ensure sustainability and social acceptance by all stakeholders. All infrastructure projects, particularly dam projects by NPC, NIA and DA have undergone consultations and endorsement from all stakeholders. These include Project Affected

Persons (PAP), NGOs, affected LGUs and concerned Regional Development Councils (RDC).

Further, the National Economic and Development Authority requires the submission of an RDC endorsement prior to the approval of proposed projects.

2. Comprehensive Options Assessment

The NPC's infrastructure power projects have gone through a stringent selection process of economic and financial evaluation and benefit/cost ratio that involves comparison among potential sources like coal, thermal, geothermal solar, wind and hydro. The DOE, on the other hand, and in compliance with the new Electric Power Industry Reform Act of 2001 (RA No. 9136) formulates an indicative Philippine Energy Plan providing the private sector a free choice/selection of energy/fuel sources for their power generation projects.

The NIA on the other hand, implements irrigation projects after completing a Strategic Impact Assessment (SIA) during the feasibility study stage. The SIA involves a multi-criteria analysis where the most feasible option is adopted. The Valuation of Social and Environmental Impacts are covered in the preparation of the EIA of the project as required by the DENR-EMB

3. Addressing Existing Dam

The NPC's existing dams on hydropower plants are all maintained by the NPC Plant Organization to avoid potential financial losses resulting once failure occurs. Losses are in terms of damage to properties, lives, restoration cost, and unearned revenues from the operation of the plant. Regulation by the DOE on mini-hydropower projects entails maintenance and repair of existing dams and mandatory restoration/re-engineering in such a way that existing water users are not permanently deprived of water.

The NIA addresses its dam concerns through flood forecasting and flood warning in case of spillway released, in low-lying areas, as exemplified along the Pampanga River system. They conduct once-a-month dam maintenance and operation; regular inspection of gates, gates chamber, spillway and other related structures. The safety inspection is conducted two times a year during high water level and low water level.

4. Sustaining Rivers and Livelihoods

The stringent ECC requirements includes mitigating measures to minimize the effects of dam projects to the river system and the environment, as implemented by DENR. Water Rights Permits issued by the NWRB requires proponents and water users to ensure sustenance of the river system, as well as fish and aquatic resources that may thrive on

the system. On the other hand, the DOE encourages the application of run-of-river schemes in mini-hydropower development which entail construction of small diversion structures rather than high impounding dams.

The NPC's site selection of the dam for hydropower project goes through a series of screening to determine the most viable location of the dam in terms of structural stability and benefit /cost ratio. River courses after the dams are allowed to exist by releasing 10% of the normal river flow for downstream ecosystems and domestic requirements of downstream communities.

The NIA projects follow the requirements set by the NWRB when applying for water permit. The maintenance of fish and aquatic resources is being complied within the reservoir area.

5. Recognizing Entitlements and Sharing Benefits

The social responsibility of NPC on project affected persons and communities is addressed through just reparation of properties and improvements, plants and trees; payments of dislocation benefits; resettlements; and, providing financial assistance to host communities. Likewise, DOE's administration of energy projects ensures the provision of appropriate benefits to communities hosting energy projects in accordance with RA 7160 and RA 7638.

The NIA's Project Benefit Sharing Mechanism is evaluated as a parameter used in cost allocation.

6. Ensuring Compliance

The Philippine EIS System and the Clean Air Act provides penalties and incentives for power generation projects. Such provisions, are included in the issuance of the ECC.

The NPC guarantees compliance to technical measures as a built-in component of the project through inclusion of the requirements in the project specifications. The social and environmental aspects are complied during and after the project implementation through provisions in the ECC.

The NIA follows the ECC issued by the DENR-EMB, which enumerates the items to be complied with by the implementing agency and sanctions in case of failure.

The DOE, on the other hand, qualifies private mini-hydropower developers through technical and financial capabilities to implement projects and requires the same of performance bonds to ensure compliance with regulations.

7. Sharing Rivers for Peace, Development and Security

The NWRB has the exclusive authority in appropriating water allocations to address the various needs of the different sectors, in accordance with the Philippine Water Code. The National Government establishes cooperative efforts among different government agencies in administering and regulating water resource development and utilization.