

## **WATERSHED MANAGEMENT POLICIES AND INSTITUTIONAL MECHANISMS: A CRITICAL REVIEW**

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### **INTRODUCTION**

The Philippines has a total land area of 30 million hectares. About 70 percent of these are considered watersheds, comprising some 421 river basins with drainage areas ranging from 5,000 hectares to 2.5 million hectares. These supply the water requirements of several irrigation systems, multi-million peso hydroelectric dams, and domestic as well as industrial water systems. Among the most important are the Agno and Cagayan River Basins in Northern Luzon, Pampanga River Basin in Central Luzon, Ilog-Hilabangan in the Visayas, and the Agusan and Mindanao River Basins in Mindanao.

Based on the latest forestry statistics (1995), forestlands consist of 15.88 million hectares or 53 percent of the total land area while the remaining 14.12 million hectares or 47 percent constitute the alienable and disposable lands. Only 5.59 million hectares or roughly 18.6 percent of the total land area of the Philippines remain under the original forest cover, less than a million hectares of which are virgin or old-growth forests. The large-scale transformation of the original vegetation of the Philippine forests coupled with inappropriate land-use practices have disrupted the hydrological condition of watersheds which resulted in cases of accelerated soil erosion, siltation of rivers and valuable reservoir, increased incidence and severity of flooding and decreasing supply of potable water. These situations caused considerable reduction

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in the productivity of the forests, agricultural lands and fisheries, and decreased returns from major investments in hydroelectric power generation and irrigation systems.

Watershed management has been described as the application of economic and environmental concepts and principles in order to optimize the goods and services derived from watershed areas. This is based on the premise that watersheds are renewable resources which can be managed sustainably through sound management practices (e.g., multiple-use and sustained yield concepts).

However, due to the rapid degradation of watersheds in the past, watershed management policies have been mainly regulatory rather than developmental. With the renewed recognition given to watershed management in recent years particularly in relation to water crisis, climate change and sustainable development, it is high time to reexamine these policies in the light of current issues and concerns confronting watershed management in the country.

## **MAJOR WATERSHED MANAGEMENT POLICIES**

The most significant policy issuance in watershed management is the Revised Forestry Code (Presidential Decree No. 705, as amended). Promulgated in 1975, this law governs the management, utilization and conservation of the country's forestlands including watersheds and reservations.

PD 705 provided for the formal definitions of a watershed and watershed reservation. Likewise, it provided for the definition of a critical watershed viewed in relation to downstream infrastructure facilities. Although this definition is deemed inadequate and needs further consideration, this has served as the guideline in determining criticality of watersheds in relation to their classification/prioritization. More importantly, PD 705 accorded protected status to critical watersheds by prohibiting commercial logging and grazing operations therein. Moreover, PD 705 authorizes the President to proclaim portions of the public domain as watershed reservations in order to secure their protection and preservation. To date, there are 120 proclaimed watershed forest reserves covering an aggregate area of about 1.4 million hectares.

Another relevant policy issuance pertaining to watershed management is Letter of Instruction (LOI) No. 917 issued in 1979. Under this law, critical watersheds and proclaimed watershed

reservations, among other areas, are declared wilderness areas. As such, these areas cannot be the subject of exploitation of whatever nature. This provision further highlights the protected status of critical watersheds and watershed reservations under PD 705.

Furthermore, under Proclamation No. 2146 (1981), certain areas (including watershed reserves) and types of projects are declared environmentally critical and within the scope of the Environmental Impact Statement (EIS) System established under PD 1586 issued in 1978.

In 1987, Executive Order No. 192 that reorganized the Department of Environment and Natural Resources (DENR) was issued. EO 192 mandates the DENR as the primary government agency responsible for the management, conservation and development of the country's forestlands including, but not limited to, watershed areas. Ironically, however, in the same year, the management of certain watershed areas was transferred to the jurisdiction of other government agencies such as the Philippine National Oil Company (PNOC; EO 223) and National Power Corporation (NPC; EO 224) pursuant to the energy-generating program of the government. These are in addition to watershed areas previously placed under the jurisdiction of other agencies through various policy issuances (i.e., LOI 1002 placing portions of the Magat River Forest Reserve under the jurisdiction of the National Irrigation Administration [NIA]).

In 1992, Congress enacted Republic Act No. 7586 otherwise known as the National Integrated Protected Area System (NIPAS) Act. Geared towards biodiversity conservation, the law includes, among other areas, proclaimed watershed forest reserves as initial components of the Protected Area System. These initial components, however, are subject to Protected Area Suitability Assessment (PASA) to determine their suitability or non-suitability for preservation as protected areas and to determine their appropriate categories under the System. Moreover, the law requires congressional action/proclamation before these areas are declared part of the NIPAS.

The Water Crisis Act of 1995 (RA 8041) is another important legislation, which indirectly underscores the importance of watershed management. The law directs the government to adopt urgent and effective measures to address national water crisis. As mandated by RA 8041, a Joint Executive-Legislative Water Crisis Commission was created. In its Resolution dated January 11, 1996, the Commission approved and adopted the Guidelines on the Identification and Prioritization of Watershed Areas where Adverse Developmental

Undertakings are to be suspended. Likewise, as an offshoot of RA 8041, the President created the Presidential Task Force on Water Resources Development and Management through EO 374 dated October 15, 1996. Headed by the DENR Secretary, the Task Force is mandated to oversee and coordinate the adoption and implementation of policies and programs on water resources management and development.

## **CURRENT POLICY ISSUES AND CONCERNS**

As can be gleaned from the preceding discussions, there is yet to be a clear-cut and comprehensive watershed management policy in the Philippines. Regulations pertaining to watershed management are scattered in several policy issuances and administrative orders of the government. In view of this, one of the more pressing concerns confronting the DENR is the need to integrate the various provisions related to watershed management into a single and distinct policy pronouncement.

Moreover, there is a critical need to assess the effectiveness of these policies and regulations in the light of past experiences and present conditions and realities in the field. Among the specific policy issues which need to be addressed are the following:

1. *Conflicting land-uses and practices within watershed areas.* Due to lack of a clear and comprehensive national land-use policy, watershed areas are beset with conflicting land-uses such as mining, quarrying, grazing, resettlement, golf courses, etc. These incompatible land-uses and destructive practices continue to exert pressure on, and affect the viability of, watershed ecosystems.
2. *Inappropriate land classification and disposition of watershed areas.* Significant portions of most watershed areas are under alienable and disposable (A & D) land classification. This has caused a limitation on the part of the government to implement watershed development projects and activities. These A & D lands have been the subject of both legal and unlawful private claims. In this regard, measures should be taken to revert these A & D lands into the category of forestland or to include the same under the operation of watershed projects.
3. *Continued encroachment and illegal occupancy:* Illegal occupancy remains to be a major problem area in watershed management. While existing regulations mandate the eviction and relocation of

- people inside watershed areas, government resources have been very limited for this purpose. This is amplified by the attraction caused by social/community-based forest management projects adjacent to these vulnerable areas. In view of this, it is imperative to adopt more equitable and cost-effective management schemes (e.g. soil conservation/ community-based) applicable in watershed areas.
4. *Lack of economic incentives for watershed management and protection.* The absence of immediate and adequate economic incentives discourages people and local communities from supporting watershed protection and rehabilitation projects. One important incentive is the privilege to use the forest resources within watershed areas. In this regard, the concept of limited utilization in selected watershed areas (as espoused by the Philippine Master Plan for Forestry Development) may be worth considering.
  5. *Lack of social and political considerations in implementing watershed management programs.* Traditionally, watershed management has been viewed as a forest management concern without much regard to social and political dimensions. A multi-dimensional/multi-sectoral approach to watershed management needs to be adopted and institutionalized.
  6. *Limited adoption and institutionalization of the watershed as a planning unit approach.* The watershed is the most appropriate planning unit in the use of forestlands. As a planning unit, the watershed possesses well-defined boundaries and interactive relationships for biophysical and socio-economic analysis. Likewise, watersheds can be managed from different management levels such as catchment areas, sub-watersheds or river basins. Full adoption of this approach within DENR has yet to be formalized / institutionalized.

## **INSTITUTIONAL MECHANISMS AND STRUCTURES**

Institutional constraints continue to hamper the effective implementation of watershed management policies and programs. For one, the Watershed Management Section of the Forest Management Bureau (FMB), the DENR's primary unit responsible for formulating and reviewing watershed policies as well as coordinating watershed management programs and projects, lacks sufficient institutional capabilities in terms of manpower complement and necessary

equipment. This holds true with the watershed management units within DENR Field Offices, which are supposed to be the direct implementors of watershed management policies and programs. Proposals for strengthening DENR watershed management capabilities in terms of organizational structure and logistics have yet to be pursued.

Despite the mandate of the DENR as the primary government agency responsible for the administration and management of watershed areas, other government institutions such as the NIA, NPC and PNOC exercise jurisdiction over certain watersheds supporting major development projects (e.g., irrigation, hydropower, geothermal). In addition, the DENR has entered into agreement with the Local Water Utilities Administration (LWUA) on the co-managership of certain watersheds supporting facilities of local water districts. Moreover, DENR Administrative Order No. 32-92 which implements the provisions of the Local Government Code on the devolution of certain DENR functions, "small" watersheds are to be devolved to local government units (LGUs).

These institutional arrangements result in the fragmentation of responsibilities and, in some cases, duplication of functions. This is further complicated by the issue on the use of resources (e.g., timber) within the watershed areas. In view of this, there is a need to review the specific roles and responsibilities of these government institutions relative to watershed management in order to foster efficiency and greater accountability. Similarly, the respective roles of FMB and Parks and Wildlife Bureau (PAWB) in the management of watersheds as protected areas under the NIPAS should be clarified.

Another important area of concern in watershed management is research and development. The effective management of the country's watersheds relies to a great extent on the available data and information needed for planning and policy formulation. In this respect, there is a need to promote and support research initiatives toward effective and efficient management of watershed resources.

Watershed valuation is a welcome initiative which would redound to better management of resources. Likewise, it is imperative to establish an appropriate watershed database/management information system to facilitate the utilization and application of state-of-the-art watershed technologies (e.g., GIS and Remote Sensing). The existing WATMANET should focus on watershed information utilization.

In terms of recent legislative initiatives, Congress has filed a bill calling for a comprehensive water resources management (House Bill

No. 9970). This provides, *inter alia*, the protection and conservation of the country's watersheds as well as the creation of a Water Resources Authority. However, the provisions of the bill should be thoroughly reviewed in order to avoid duplication of functions and overlapping of programs.

## **CONCLUSION**

Watershed management remains to be a complex and challenging task. The importance of watershed resources in meeting the economic needs and environmental requirement of the country dictates the need for their effective and efficient management. In the light of the identified policy and institutional issues pertaining to watershed management, there is a critical and urgent need to reconsider existing policies and regulations. Corollary to this, it is important to come up with a long-term and comprehensive national strategy to address the various watershed management concerns and to draw up the necessary investment requirements.

The task that lies ahead requires the continuing commitment on the part of the government and the strong support of all sectors of society.

On the part of the DENR, we hope that the issues and concerns presented above shall be appropriately addressed by the implementation of the Watershed Management Study under the auspices of the Water Resources Development Project. Likewise, we are counting on the results of this forum and other similar initiatives for important inputs in the implementation of the Project and the subsequent adoption of appropriate policies and implementation of programs.

## REFERENCES

- DENR. 1990. Master Plan for Forestry Development.  
Executive Order No. 192. 1997.  
Executive Order No. 374. 1995.
- IEMSD. 1997. Guidebook on Sustainable Forest Land Use Planning and Management.
- Joint Executive-Legislative Water Crisis Commission Resolution No. 07. 1996.
- Letter of Instruction No. 917. 1979.
- Presidential Decree No. 705. 1975. Revised Forestry Code, as amended.
- Proceedings of the First and Second IFC Multi-Sectoral Fora on Watershed Management. 1995 and 1996.
- Republic Act No. 7586. 1992. National Integrated Protected Area System.
- Republic Act No. 8041. 1995. National Water Crisis Act.



**ANNEX A**

**MAJOR WATERSHED MANAGEMENT POLICIES**

<b>Policy Assuance</b>	<b>Date of Issuance</b>	<b>Subject</b>
Presidential Decree No. 705 (The Revised Forestry Code, as amended)	1975	Provides for the adoption of the multiple-use and sustained yield concepts in forest management; defines critical watershed in relation to downstream infrastructure facilities; prohibits commercial logging and grazing operations within critical watersheds; authorizes the President to proclaim portions of the public domain as forest and watershed reservations.
Letter of Instruction No. 917	1979	Declares certain areas including critical watersheds and proclaimed watershed reservations as wilderness areas.
Proclamation No. 2146	1981	Declares certain areas including watershed reserves as environmentally critical and within the scope of the Environmental Impact Statement (EIS) System.
Executive Order No. 192	1987	Mandates the DENR as the primary government agency responsible in the management, conservation and development of forest lands including watershed areas.
Executive Order No. 223	1987	Vests in the PNOC's jurisdiction the management of certain watershed areas supporting major geothermal projects.

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**Annex A Continued**

<b>Policy Assuance</b>	<b>Date of Issuance</b>	<b>Subject</b>
Executive Order No. 224	1987	Vests in the NPC's jurisdiction the management of watershed areas supporting hydropower and geothermal projects.
Republic Act No. 7586 (The National Integrated Protected Area System Act)	1992	Includes proclaimed watershed forest reserves as initial components of the NIPAS.
Republic Act No. 8041 (The National Water Crisis Act of 1995)	1995	Provides for the adoption of urgent and effective measures to address the water crisis including but not limited to protection and conservation of watersheds; provides for the creation of a Joint Executive-Legislative Water Crisis Commission; provides for the identification and designation of critical watersheds where development undertakings are to be suspended.
Executive Order No. 374	1996	Provides for the creation of the Presidential Task Force on Water Resources Development and Management (PTFWRDM) mandated to oversee and coordinate the adoption and implementation of water resources policies and programs.

**ANNEX B**

<b>Policy Issues and Concerns</b>	<b>Government Action/Response</b>
<ul style="list-style-type: none"> <li>• Conflicting land-uses and practices within watershed areas</li> <li>• Inappropriate land classification and disposition of watershed areas</li> <li>• Encroachment and illegal occupancy</li>   <li>• Lack of incentives for watershed management and protection</li> <li>• Lack of social and political considerations in watershed management programs</li> <li>• Limited adoption and institutionalization of the watershed as planning unit approach.</li> <li>• Insufficient institutional capabilities of DENR in terms of manpower complement and logistics</li> <li>• Fragmentation of responsibilities in watershed management/administration</li> <li>• Lack of integrated watershed information system</li> </ul>	<ul style="list-style-type: none"> <li>• land-use policy</li> <li>• land-use planning</li>   <li>• adoption of more equitable and cost effective management schemes (soil conservation/community-based)</li> <li>• adoption of limited utilization scheme</li> <li>• multi-dimensional/multisectoral approach to watershed management</li> <li>• full adoption of watershed as a planning and management unit</li> <li>• pursue institutional strengthening program</li>   <li>• integration/coordination of programs</li> <li>• networking</li> </ul>

## ANNEX C

### WATERSHED AREAS UNDER THE JURISDICTION OF OTHER GOVERNMENT INSTITUTIONS

<b>National Irrigation Administration (LOI 1002)</b>	
Pantabangan-Carranglan WFR (portion)	9,834.00 ha
Magat Watershed (portion)	12,409.00 ha
<b>Sub-total</b>	<b>22,252.00 ha</b>
<b>National Power Corporation (EO 224)</b>	
Ambuklao-Binga WFR	123,000.00 ha
Buhi-Barit Watershed	18,380.00 ha
Caliraya-Lumot Watershed	10,771.00 ha
Angat WFR	55,709.00 ha
Makiling-Banahaw Geothermal Reservation	162,000.00 ha
Tiwi Geothermal Reservation	17,661.00 ha
Lower Agno WFR	9,550.00 ha
<b>Sub-total</b>	<b>397,071.00 ha</b>
<b>Philippine National Oil Corporation (EO 223)</b>	
Tongonan Geothermal Reservation	107,625.00 ha
Palimpinon Geothermal Reservation	133,000.00 ha
Bacon-Manito Geothermal Reservation	25,000.00 ha
<b>Sub-total</b>	<b>265,000.00 ha</b>
<b>Grand Total</b>	<b>684,948.00 ha</b>

## **ANNEX D**

### **PROCESS/STEPS IN THE ESTABLISHMENT OF WATERSHED FOREST RESERVES (WFR)**

- Submission of Proposal/Request/Resolution for the Establishment of WFR from
  - DENR Central and Field Offices
  - Local Government Units
  - Regional Development Councils
  - Other government agencies/institutions (e.g. NIA, NPC, LWDs)
  - Office of the President
- Watershed Survey and Characterization
- Preparation of Maps, Draft Proclamation and Other Related Documents (e.g., Watershed Profile, Justification, Organization of a Watershed Management Council)
- Submission to FMB for Review and Evaluation
- Finalization of Maps, Draft Proclamation and Other Documents
- Submission to the Secretary for Approval and Endorsement to the Office of the President

## ANNEX E

## SUMMARY OF WATERSHED FOREST RESERVES

<b>Region</b>	<b>No.</b>	<b>Area (In hectares)</b>
CAR	6	111,008.98
1	10	6,167.00
2	5	119,261.00
3	8	221,385.00
4	35	107,399.00
5	10	36,564.95
6	9	131,777.00
7	7	104,793.00
8	8	30,017.24
9	4	11,456.00
10	4	114,970.00
11	8	111,337.00
12	1	52,820.00
13	5	33,774.00
ARMM	2	182,354.00
<b>Total</b>	<b><u>120</u></b>	<b><u>1,377,085.99</u></b>