

Headline: What is a watershed?

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It's not often that we have a Cabinet official like Gina Lopez with an implementing zeal in relation to the protection of the environment and its inhabitants. But it was a pity hearing her give a tautological, instead of nuanced, definition of a watershed to the Commission on Appointments, and getting laughed at by the audience. And it was her bad luck that the term "watershed" surfaced during the confirmation hearing.

On the other hand, making people conscious of the watershed concept is providential, for it got them to wonder about a term that is central to Philippine development. An instructive definition by UP photogrammetrist Romeo Bruce is: "A body of land bounded above by a ridge or water divide and below by the level at which water drains from it." Watersheds occur in upland areas; thus, except on the flat islands, almost three-fourths of the Philippine terrain are characterized by large watersheds or river basins.

And if our country is practically a system of prominent watersheds totaling 421 in all, we need to know how to use the watershed properly and not merely say, for instance, that some mines should be closed because they are inside watersheds. We have to be definite where, say, extractive industries can be or are actually located among the different slope gradients of watersheds.

My practice in general land use planning within the watershed is to assign urban and agricultural activities to slopes below 18 percent; mining, forestry and grazing to 18-50-percent slopes; and protection forest to slopes above 50 percent. But in certain cases, there are environmentally critical projects (ECPs) that are allowed in any of these slope ranges, provided they observe mitigating measures or are allowed by public and private entities who have control over certain areas. Examples of these ECPs are resource extractive industries (e.g., mining and forestry), heavy industries, and infrastructure projects. Also, on these slope ranges the government has carved out protected areas that are environmentally critical areas and are closed to ECPs.

It is important to point out that processes occurring in a watershed are interconnected. In particular, activities upstream have effects on the downstream areas. Thus, in a rainy country like ours, unregulated extractive industries like mining and forestry that are located upstream can lead to downstream problems like water pollution, mudslides, landslides, soil erosion, siltation, flooding and eventual destruction of lives and property. Deforestation, even more than mining, is more problematic because its effects are more pervasive and repetitive. Still, mining can also cause these hazards because it is topographically intrusive and does not respect slope limits.

Amid the threats brought about by climate change and unsound anthropogenic practices, the person we need now to head the Department of Environment and Natural Resources is more of a crusader than a technocrat. But although she comes on too strong in her statements, Lopez can still be reasonable by objectively evaluating mining projects—i.e., by going back to their feasibility study, environmental impact assessment, and contract particulars for observance of environmental and legal principles. She can also cite the case of the continuing mining debacle in Boac, Marinduque, as a stark reminder of our poor project monitoring and evaluation practices.

Clearly, locating different and competing land uses in the watershed is a complex exercise dictated by physical and cultural considerations. This is the reason the Housing and Land Use Regulatory Board observes the "ridge-to-reef" or watershed planning approach in the formulation of local

comprehensive land use plans. Towns located within a watershed have to be planned in relation to each other in order to avoid disasters. And their planning and development should also be coordinated by a strong watershed management council, in addition to the regulatory work of the DENR and other agencies.

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