

# An Overview of Recent Concepts and Participatory Integrated Watershed Management (PIWM) Processes

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## Objective

- To provide an over view of recent concepts, including the role of indigenous technology knowledge (ITK), and to arrive at a better understanding of participatory integrated watershed management (PIWM) processes and related aspects.

## Overview of Recent Concepts

While there are limited lessons to be learned from recent watershed management (WM) efforts that have been successful at upland watershed rehabilitation in certain places, much can be learned from the indigenous efforts made by people over the centuries in all aspects of participatory watershed management.

## People's indigenous knowledge systems in watershed management

In a recent regional workshop on indigenous technology knowledge (ITK) for watershed management (WM) by PWTMA, Mr Anupam Mishra (1996 a,b; 1997) highlighted the importance of people's indigenous knowledge systems as follows.

- Conservation, utilisation, protection and development of forest, land, and water resources are as old as civilisation. In fact, civilisations have evolved around them.
- Society has traditionally moulded WM into socio-cultural mechanisms thus supporting people sustainably over the centuries by assimilating it into the life of each member of society without barriers of caste, class, or gender.
- Today, technology agents (who often consider themselves donors) label people beneficiaries, if not labourers, making them feel alien in their own lands. Thus they break the spirit of independence and self-confidence in the society.



- Subsidies and many incentives used for WM also do the same, even though they are unaffordable over the long term. Then where will the initiative to undertake such work come from? It will only come about by restoring confidence in social institutions, by recognising the people's strengths and the depth of their experience and by not looking down upon large sections of our society as illiterate, poor, and weak.
- Thus the most important task in WM is to help reinstate the self respect and sense of identity that the people have lost due to recent interventions.
- Sustainable WM should be based on age-old indigenous knowledge within a society.

This new paradigm addresses the watershed degradation problem as perceived by farmers and gives economically viable, environmentally sustainable, production-oriented conservation alternatives that are built upon indigenous knowledge. In this respect, simple concepts of appropriate land use and conservation technology based on traditional farming systems, which can be directly understood and implemented by farmers with-

out much external technical or financial assistance, play an important role. Modern tools, such as GIS and advanced models, can be used to assist farmers by converting their outputs into simple rules of thumb as an aid to correcting land use and other related decision-making mechanisms.

### What Are the Other New Concepts in PIWM?

In addition to basing WM programmes on ITK/WM, some new concepts that have come to be accepted in the past 10 years or so are as follow (Dent 1995; Gupta and Chokkakula 1998; Hamilton 1986; Moldenhauer, 1989; Nair 1986; Sanders 1990).

- Building on indigenous knowledge and grafting suitable frontier technologies, e.g., biotechnologies, biofertilizers, bio-engineering, biodiversity, etc to upscale productivity and conservation
- Farmers' institution-building firmly rooted in local indigenous social institutions
- WM techniques to aim at production-oriented conservation
- Assurance of ground cover, tree litter/mulch and multi-storey forest plantations for soil conservation by forests
- Agroforestry contributions to soil and water conservation if planted as barriers and/or used as ground cover/mulch
- Encouragement of live barriers versus alone or with mechanical methods to be encouraged for production-based soil and water conservation
- Appropriate management of land use by agronomic and cultural practices, e.g., correct time of crop planting on contours to provide cover at peak-intensity



rainy season, use of beds/ridges and furrows, use of crop residue as mulch and compost, traditional minimum tillage practices, live barriers and suitable agroforestry practices, etc.

- Provision of investments to farmers and other land users for self-help rather than doling out dependency-creating incentives
- Participatory process-based WM rather than target-based WM programmes that call for natural resource management in a small watershed for overall human development.

### New Paradigms in Participatory WM

These new concepts are used to redefine sustainable PIWM as utilisation and conservation of land, water, and forest resources at farm household and community (or given watershed) levels for continuously improved livelihoods and overall human development (Table 1).

Thus, in the Asian context, participatory watershed management consists of natural resource management by farmers and communities for poverty alleviation and local overall development. This shifts the old paradigm of target-based WM to a new process-based PIWM paradigm.

### Participatory Processes for Integrated Watershed Management

The following key elements are required to make integrated watershed management programmes into participatory processes. These elements can overlap, be continuous, or be in sequence depending on the need (Sharma 1997; Sharma et al. 1997).

- The basing of integrated WM programmes on the cosmic vision of the people, i.e., their relationship to nature and the universe, which often is through spiritual and/or religious thought in Asia.
- Farmers' empowerment and ownership of WM processes, i.e., by building farmers' organizations
- Land-use titling/tenure should be given to the land users.
- Mainstreaming gender concerns, ensuring women's and other disadvantaged group's participation.
- Assured and quick-benefit generation by WM programmes using indigenous technologies and the in-

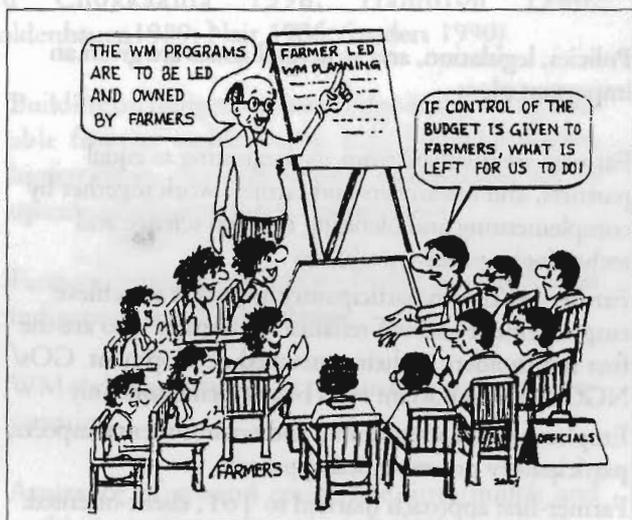
**Table 1: Old Versus New Paradigm for PIWM**

Old/Outdated	New/Recent
WM was synonymous with soil conservation	Synonymous to NRM for poverty alleviation and overall human development in a watershed
WM was addressed in separate components and sectors	WM seen in its entire complexity but made into simple rules of thumb for farmers
Land-use decisions based on land capacity	Land-use decisions based on land suitability and people's interests, needs, and preferences.
Farmers viewed as backward, illiterate and unwilling to change, as culprits in damaging the watersheds and part of the problem, and unable to manage their natural resources	WM programmes to be grounded in indigenous technical and institutional knowledge of farmers who have rich traditions of sustainable WM.
Policies, legislation, and structural issues such as land laws, forest policies, ownership, management, etc not considered	Policies, legislation, and structural issues are given an important place
WM programmes were designed, researchers tested various options, extensionists conveyed the new technology to farmers, and farmers passively waited for science to provide solutions	Farmers are involved from the beginning as equal partners, and researchers and farmers work together by complementing and blending modern science and technologies to solve problems
GO/NGO/executing agency-led/driven and target-based approach	Farmer-led/driven participatory approach to achieve empowerment and self-reliance for farmers who are the first stakeholders in their watershed development. GOs/NGOs have important roles but as facilitators only
Emphasis on technical activities and targets	Emphasis on socioeconomic and environmental aspects, participatory process-based approach
Transfer of technology (ToT) extension method, message-oriented (one-way communication)	Farmer-first approach married to ToT, client-oriented.
Extensionist and scientist-led, based on imported ideas and technology, ITK ignored	Farmer-led based on indigenous knowledge technology (ITK) and the culture of the people.
Supply-oriented research: supplying technical innovations based on assumptions	Demand-driven research responding to the problems faced by farmers.
Top-down planning, monitoring and evaluation – Top-down thinking and approach	Participatory planning, monitoring, and evaluation Grass-root's based thinking and approach
Controlled by single sectors, departments, disciplines, and strong sectoral compartmentalisation; little cross-sector linkages, interactions	Multisectoral and multidisciplinary, close inter-sectoral linkages, interactions
Empowered officials and extension agents	Empowers farmers, other land users, stakeholders
Selected generally better-off farmers, and little concern for women and disadvantaged people.	Aims at poor, marginal, small farmers with special emphasis on gender equity and disadvantaged classes
Aimed at long-term benefits	Aims at quick net benefits first to attain long-term socio-economic and ecological benefits
Incentives and monetary aid used for co-opting people's participation.	Investment at the disposal of farmers
Did not encourage people's initiatives.	Based on people's initiatives
Disjointed and arbitrary approach	Uses farming systems and common property resources' management approach
Preference for engineering structure, methods	Preference for biological methods
Large watershed based	Small watershed based
Sustainable development not an important consideration	Sustainable development gaining greater importance and prime consideration

tegration of recent frontier technologies into indigenous technology systems.

### Other Important Aspects of Participatory WM

To facilitate implementation of the above participatory processes, the following aspects (Sharma and Krosschell 1997) should be planned, implemented, monitored, and evaluated in order to facilitate farmers'/land owner's empowerment and their true ownership of WM/NRM programmes.



- Farmer-led facilitation
- Farmers' capacity-building
- Farmer-led planning
- Farmer-managed funding
- Farmer-led implementation
- Farmer-led monitoring and evaluation

The final result of such an approach will be that the confidence of farmers (women/men) has been boosted and innovative ideas have spread from farmer to farmer. By this, it is hoped that prevalent practices in local indigenous WM will also be realised by professionals (Mishra 1997), i.e., 'Instead of looking down upon large sections of society as illiterate, poor, and weak, we need to reinstate the self-respect and sense of identity that they have lost. It is by building on the age-old knowledge (or indigenous knowledge) in our society that foundations for sustainable watershed management can be laid'.

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