

Salient points for WDC-PMKSY 3.0 Workshop (29th September 2026, New Delhi)



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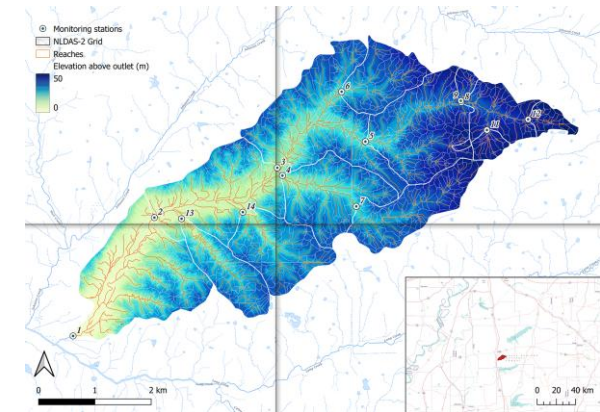
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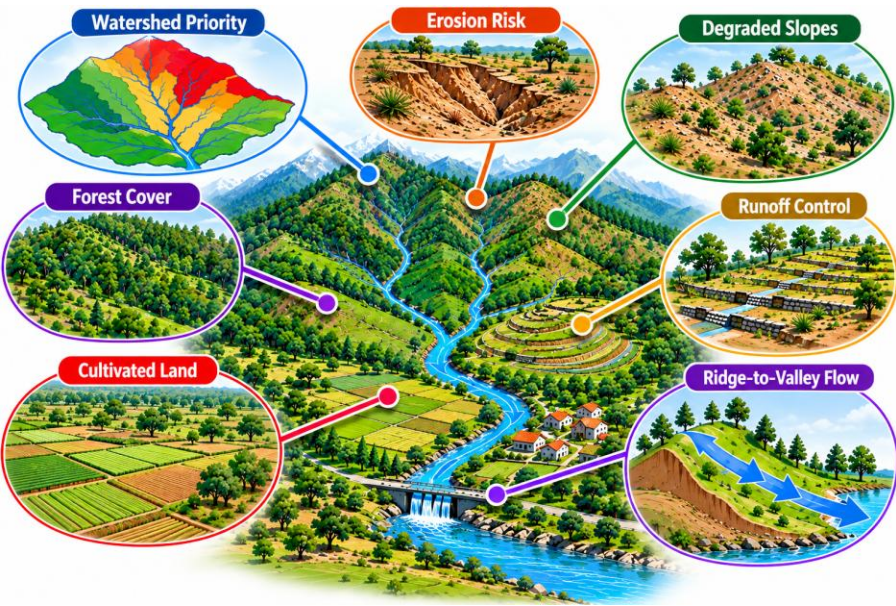
How should rivers and streams with declining flow be identified?

- **Innovative Trend Analysis:** Perform trend analysis using the HMS data and compare with rainfall variability (viz. Modified Man Kendall Test, Innovative Trend Analysis and MARS model)
- **Perennial-to-Seasonal Transitions:** Monitor medium and small streams that lose non-monsoon base flows and transform from perennial channels into dry or seasonal waterways
- **Remote Sensing and Spatial Modeling:** High-resolution hydrological routing models and satellite imagery to track shrinking water spread areas, reduced wetland connectivity and declining drainage density
- **Groundwater Table monitoring (“MyWater”):** Measure adjacent aquifer depletion levels as the groundwater tables indicate the base-flow enrichment to sustain summer and non-monsoon river discharges.



NASA-IMAGE tool (Earthdata)
<https://www.earthdata.nasa.gov/topics/land-surface>

2. What criteria should be used for river/stream selection?



- Hydrological, physical, and socio-economic criteria besides Community and Accessibility Factors.
- Drainage density, Stream Order and Frequency, Hypsometric Integral
- Erosion Vulnerability and Sediment Yield: Drainage Density and Bifurcation Ratio: High drainage density and high bifurcation ratios reflect rapid surface runoff and poor infiltration (Need for artificial recharge structures to enhance the base flow).
- Soil Permeability and Hydrology, Prefer perennial rivers or streams with a reliable flow source.
- The outlet should be accessible and close to a road
- Availability of long term data and outlet should be suitable for installation and operation of a flow-measuring system

3. How Much of the Catchment Should be Treated?

- Watershed prioritization and Geo-Morphometric analysis
- Soil-erosion and land-degradation assessment
- Priority to uplands and degraded/barren hill slopes
- Non-arable medium lands and other areas contributing to runoff and erosion
- Maximum treatment can be 100% of the priority area and optimum around 60–70%.
- Ridge-to-valley approach
- Drainage line treatment, Land Area, Agroforestry (Different Structures)



4. Which watershed interventions are most effective for improving base flow?

- Staggered trenches at 10-15% slopes
- Percolation ponds and recharge structures
- Trench-cum-bund and contour bunding measures
- Plantation and vegetative measures on hill slopes
- DLTs (flexi check dam, loose boulder check dam, drop structures, masonry check dam, rubber dams etc.)
- Groundwater recharge to support base flow



5. How can the impact on stream flow be scientifically measured?

- Companion watershed / Pair watershed bases approach: Streamflow before and after watershed interventions (Impact of intervention and min 3 years of Data)
- Normalize the effect of rainfall variability while assessing changes
- Use of rainfall, streamflow and other hydrological observations together
- Hydrological modelling (SWAT) can be used to separate rainfall and intervention effects
- Stage-Discharge Rating and use of **TMDL** approach



6. What should be the appropriate size and duration of a pilot?

- **How the 50km length and 2 km of both sides will suffice?** Each basin has its own characteristics and near the river the highest stream order will be there and within 2 km span the lower stream orders may not be managed (Size of small watersheds within 2 km should be delineated which represent a size of 400-500 ha or less)
- Heterogeneity to represent different conditions and situations present in the representative region.
- **Preparatory Phase** (Year 1): Community mobilization, baseline surveys, participatory planning, and capacity building
- **Works/Implementation Phase** (Years 2–3): Constructing rainwater harvesting, ridge treatment, soil conservation structures, and livelihood activities
- **Consolidation and Withdrawal Phase** (Year 5): Handing over assets to the local community, ensuring post-project sustainability, and develop exit protocols.
- Long-term monitoring is important because groundwater and base-flow responses may be delayed

7. How can WDC-PMKSY, VB-G RAM G and other schemes be converged?

- Convergence between WDC-PMKSY, VB-G RAM G, and other rural development schemes is achieved through **unified spatial planning, labor-material decoupling, and institutional alignment**
- By merging the **Watershed Development Component of Pradhan Mantri Krishi Sinchayee Yojana (WD-PMKSY)** with **Viksit Bharat – Guarantee for Rozgar and Aajeevika Mission Gramin (VB-G RAM G)**, the government creates a powerful mechanism where employment guarantees directly build high-value, sustainable water and agricultural infrastructure

A) Spatial Planning using Viksit Gram Panchayat Plan (VGPP) and Yuktdhara Portal and PM Gati Shakti layers : Instead of independent project selections, all works are mapped using geospatial and non-spatial datasets

- **The Convergence:** WDC-PMKSY identifies ridge area treatments, drainage lines, and macro-watershed gaps. These technical requirements are automatically pushed into the VGPP shelf of works as part of VB-G RAM G's mandatory **Water Security** vertical.

Contd.. 7. How can WDC-PMKSY, VB-G RAM G and other schemes be converged?

B) De-coupling Labor and Material Costs - *To decide the wage-to-material ratio.*

- **How it works:** VB-G RAM G provides the ready labor pool by funding 125 days of guaranteed unskilled manual work per household.
- **The Convergence:** The specialized technical components, engineering expertise, and heavy materials are funded directly through **WD-PMKSY 2.0 allocations**.

C) Synchronizing the Agricultural Pause Window

A core feature of the VB-G RAM G Act is the statutory **60-day agricultural pause** during peak sowing and harvesting seasons.

- **How it works:** Gram Sabhas customize work-suspension calendars to fit local crop seasons.
- **The Convergence:** During the 305 days when the employment guarantee is active, intensive watershed conservation works—such as contour trenches, loose boulder structures, and farm ponds—can be executed. So during the pause window, the labor pool naturally transitions into agricultural activities without creating rural labor shortages.



8. What institutional mechanism is required?

D) Institutional Arrangement

To ensure convergence doesn't stall in bureaucratic silos, undesired delays, state governments should utilize multi-tier coordination mechanisms:

- **State Level:** The State Level Nodal Agency (SLNA) for watersheds signs MoUs with the State Gramin Rozgar Guarantee Councils to pool administrative and technical supervision.
- **Block & Gram Panchayat Level:** Setting up a unified **Block Level Coordination Committee (BLCC)** ensures that a single Project Implementing Agency (PIA) monitors both the National Electronic Fund Management System (for wages) and the PFMS tracking systems (for material components) simultaneously
- MIDH (Mission for Integrated Development of Horticulture), Agroforestry Block Plantation; National Bamboo Mission (NBM): Regionally differentiated strategies to reduce soil erosion and stream bank erosion.

9. How should GIS, remote sensing and hydrological modelling be used?

- **Use GIS, remote sensing and hydrological modelling at every stage of watershed planning**
- **Use GIS for watershed delineation and drainage analysis**
- **Prepare resource maps and Land Resource Inventory (LRI)**
- **Use spatial information for watershed prioritization**
- **Estimate water budgeting components and hydrological fluxes**
- **Use GIS/RS for intervention planning, site selection and design**
- **Use remote sensing for post-intervention monitoring and evaluation**
- **Use hydrological models for scenario analysis and impact assessment**
- **Develop DSS, automated DPRs and digital monitoring systems**



10. What outcomes should determine the success of a pilot?

- Reduction in soil loss and sediment yield
- Increase in soil-moisture availability
- Increase in groundwater level/recharge
- Increase in streamflow/base flow, particularly during the dry season
- Increase in cropped area and cropping intensity
- Increase in crop production and productivity and diversification through different indices
- Improvement in irrigation-water availability
- Improvement in farmers' income and livelihood opportunities
- Improvement in functionality and sustainability of watershed assets and motivated farm youths
- **Increase in Ecosystem services and Carbon credit indicators under green agriculture.**



11. How can communities protect and maintain the created assets?

- Create awareness among communities about asset protection and maintenance
- Strengthen the role of the Watershed Committee/community institutions
- Use available watershed/ community development funds (WDF) for routine maintenance, where permitted
- Follow a scheduled maintenance procedure for different structures



- Preparation of tentative maintenance expenditure estimates for each type of structure
- Separate maintenance guidelines based on structure types.
- Guidelines should cover construction quality, inspection, protection, repair and maintenance
- Maintain an asset register with location, type, date of construction and maintenance history
- Conduct regular pre-monsoon and post-monsoon inspections to ascertain the changes
- Wetland management initiatives can be taken up



Thank you