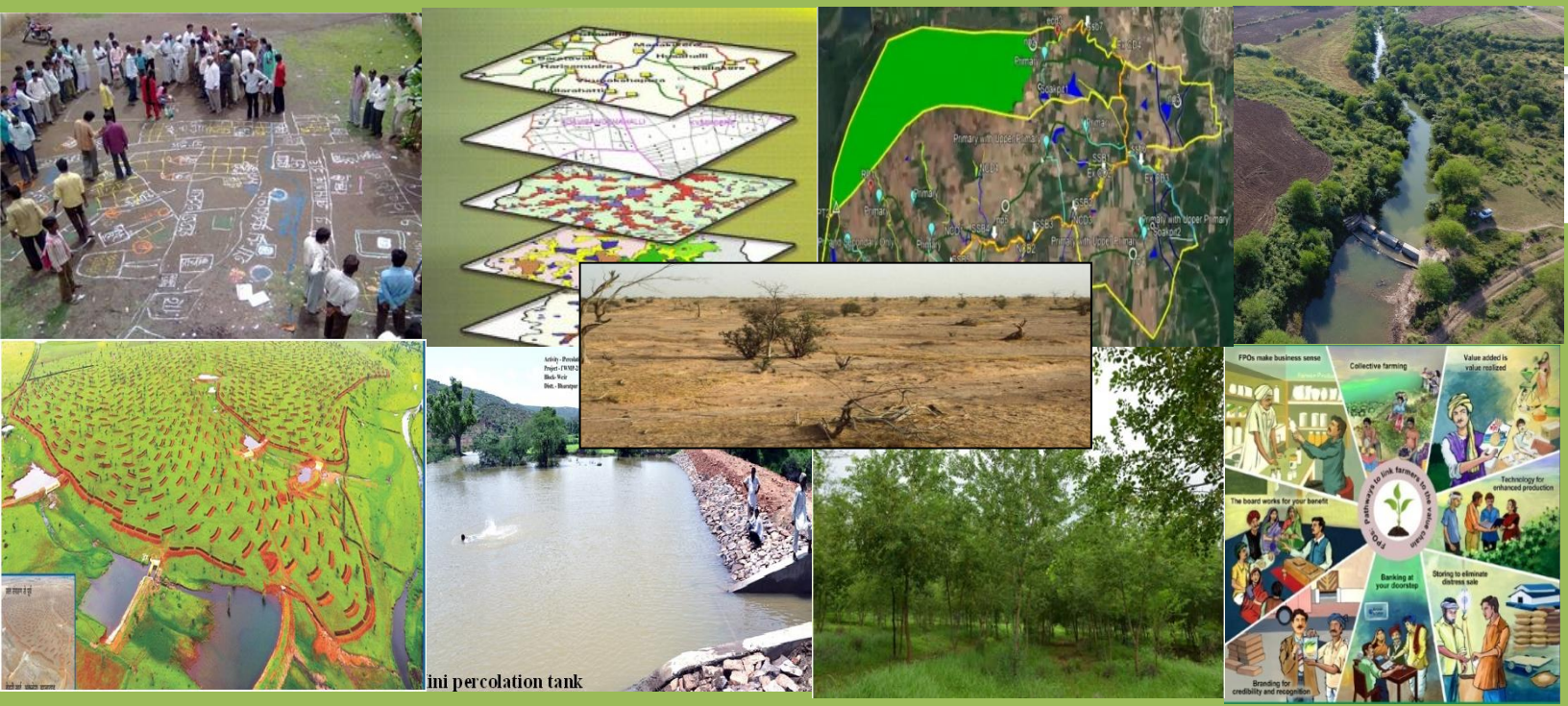
GUIDELINES
FOR
NEW GENERATION WATERSHED DEVELOPMENT PROJECTS
(WDC-PMKSY 2.0)



DEPARTMENT OF LAND RESOURCES
MINISTRY OF RURAL DEVELOPMENT
GOVERNMENT OF INDIA
2021

Published By:
Department of Land Resources,
Ministry of Rural Development,
Government of India, New Delhi
with the knowledge partnership of
National Rainfed Area Authority
Ministry of Agriculture and Farmers Welfare
Government of India, New Delhi

Contents

I

EVOLUTION AND NEED OF GUIDELINES FOR NEW GENERATION WATERSHED DEVELOPMENT PROJECTS - WDC-PMKSY 2.0

1.0. Evolution of Watershed Development

1.1 Watershed development approach has evolved with passage of time gradually from initial objectives of soil & water conservation and reducing siltation of river valley projectsto the current integrated approach of managing the biological, physical, and social elements in a landscape within a watershed's boundaries. By virtue of Participatory Watershed Development Program (PWDP) adopted in 1994 and various amendments effected in the Guidelines from time to time, securing livelihoods has also emerged as an important dimension, apart from developing rainfed and degraded lands in the country. As a consequence, watershed development approach has been accepted as a model for major public investments targeting sustainable production systems for natural resources management and livelihood options. Climate change issues and its impacts witnessed in the recent past have adversely impacted ecology in general and agricultural production systems in particular, posing grave challenges to sustainable livelihoods, especially for vast majority of people in India who are directly or indirectly dependent on agriculture

1.2 A considerable percentage of India’s agricultural production system is rainfed. Over the last 25 years of engagement with watershed development approach, the country now possesses a treasure of diverse learning and improved management capacity.

1.3 Investments made in watershed development programs, like Integrated Watershed Management Program (IWMP), externally funded programs, and other natural resources management programs such as Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Rashtriya Krishi Vikas Yojana (RKVY) etc. have demonstrated reasonable success. This strongly suggests the feasibility for expanded coverage of land resources development under such programs. This is critical for sustaining high growth of agriculture and allied sectors which provide support for country’s majority of people for their livelihoods. With the growing population of the country and for meeting targets of nutritional security, agriculture production systems in particular, and ecology at large, need a focused approach.

1.4 The intensive system of agriculture practiced over last five decades has secured country’s food security. However, the natural resources and especially soil health has been severely compromised as evident from the steep decline in the average Soil Organic Carbon (SOC) content. As per the Desertification and Land Degradation Atlas of India, 2021, estimated land degradation in India is 97.85 million hectare (Mha) i.e. 29.77% Total Geographical Area (TGA). Water, another critical element of production system is under tremendous stress. The same can be witnessed from the

decreasing per capita availability in the country. The groundwater, which is used for almost 60 % of the nation's irrigated areas, has gone down in several parts of the countryleading to their declaration as Dark Zones.

1.5 The adverse impact of climate change is unequivocally accepted across the globe and it is more pronounced in tropical areas, which include India as well. The gradual increase in temperature and erratic rainfall coupled with extreme weather conditions like droughts, floods, hailstorms etc., are being witnessed rather frequently. Climate change situations are gradually compounding the challenges of the production systems which have evolved over the millennia. The climate change, unless addressed effectively on time, is bound to influence production environment of soil, water and air negatively. Both terrestrial as well as aquatic based agriculture systems are likely to face the brunt of lower productivity and enhanced weather risks.

1.6 Rainfed agriculture assumes critical importance from the broader perspective of economy, ecology and equity. Rainfed regions need to target higher productivity, enhanced livelihood & income to farmers, and enriched ecology which in turn will bolster nation's food and nutritional security.

The country's rainfed agriculture is important as it accounts for 51% of net sown area[1]and 40 % of the total food production[2][44% of rice, 87% of major nutri-cereals (sorghum, pearl millet & finger millet) and maize, 90% of all minor millets, 85% of food legumes, 72% of oilseeds and 65% of cotton]. It is also home to substantive tracts of dry land horticulture, spices and medicinal plants. Unfortunately, such land masses are, in comparison to irrigated areas, poorly endowed with natural resources and even less supported scientifically till date.Therefore, the comparative yields of both these area are starkly varied. For example, the average yield in irrigated areas is about 3 tons/ha, whereas it is merely 1.1 tons/ha in the rainfed regions. The Nation thus needs immediate attention on its vast rainfed production systems for assured prosperity and welfare of itsmuch-needy inhabitants.

1.7 Apart from very low levels of crop yields, the rainfed areas show relatively higher incidence of poverty, malnutrition, water scarcity and severity of land degradation. These areas do suffer from low levels of investments and poor physical infrastructure as well. From a macro-perspective, for ensuring equity in terms of growth and development, these areas require higher investments, robust systems of monitoring &evaluation and science-based approach to realise the inherent potential.

1.8 The development paradigm generally remains lopsided towards the supply side management with a basic flawed presumption that the produce is mostly used rationally by taking larger needs of society and ecology into consideration. It can be evidenced from the unmindful extraction of groundwater causing depletion of water

1 Source: Pocket Book of Agricultural Statistics 2020; Ministry of Agriculture & Farmers Welfare

2 Potential and Challenges of Rainfed Farming in India, SrinivasraoCh, et al., Advances in Agronomy Volume 133: page-114-181, July 2015

table on one hand,and degrading water quality, on the other hand. This emphasises the need to focus on the demand side management equally which could help realizing full value of investments while ensuring sustained growth as well. Sustainable groundwater management, for example, will need a more responsible use by community that necessitates a norm-based governance system. This brings to the centre the important point to promote community ownership of resources and asset management to tap the potential of the available resources in the best possible manner. The principle therefore necessitates a balanced supply-demand management of resources for ensuring sustainability for a longer duration.

1.9 Other major issues are India's commitment towards Sustainable Development Goals (SDGs), 2030, Nationally Determined Commitments (NDCs) and Land Degradation Neutrality (LDN) to the tune of 26 million ha. The country's swathes of rainfed regions can make a considerable contribution to all these international commitments. In fact, it will be a win-win situation for the rainfed areas and its inhabitant farmers,if they work to realize these objectives. This suggests the need for higher and targeted investments in the rainfed areas.

1.9.1 The common way of treating only dryland regions as rainfed is not correct. This notion will result in exclusion of a lot of other categories of rainfed regions, including the high rainfall regions, mountainous tracts and cold deserts in the country. It is time to appreciate the situation more wholistically.

Himalayan regions that encompass the States of North Eastern Region (NER), Himachal Pradesh, Sikkim, Uttarakhand, and the Union Territories of Jammu & Kashmir and Ladakh, the Western Ghats, the Eastern Ghats, and other hilly areas of other States have always benefitted from perennial water sources fed by springs. Over the decades however, these springsheds have suffered ecological degradation leading to drying up of almost 50 % of the estimated 4-5 million springs.

Due to indiscreet use and abuse of upper reaches, the aquifer zones that feed the springs and their corresponding recharge zones have got adversely impacted. Therefore, it is necessary to take up rejuvenation of springs through appropriate watershed development activities.

2.0 Watershed Development- Paradigm Shift

The discussions in the preceding paras, lead to the logical conclusion that the rainfed regions of the country are in need of an accelerated pace of growth, comprehensive time tested interventions, benefitting people and sustaining ecology. This paradigm goes well with the recommendation of the Inter-Ministerial Committee on Doubling Farmers Income (DFI) that invites attention to the specific needs of three principal stake holders: (a)the consumers need nutrition security(b)the farmers need income security and (c) the production environment needs ecological security.

The past experiences of watershed approach for development of land prove that watershed is an appropriate platform for converging financial resources from various programs to supplement the project funds.This will accelerate the rate of development of landwithin a short period of about three to five years.

However, the implementation experiences also necessitate redesigning the treatment approach, so as to transit from current over-emphasis on engineering-centric soil & water conservation at the costof agronomic and other biological treatments. Secondly, it needs to recognize the importance of creating farm and non-farm- based livelihood options, and enrol every member in the project area as a stake holder. Thirdly, peoples`responsibility for resolving demands side management, as they learn to own the Project in the interest of long-term sustainability.

2.1 The fundamental shift in approach of watershed development needs to be reflected visibly in the program planning, institution building, implementation, budgeting and monitoring & evaluation. In this context, new watershed programme (WDC-PMKSY 2.0) is envisaged to effect the following shifts:

a) A clear transition from the current predominant practice of mechanical/ engineering treatments to more agriculture engineering measures. This implies overwhelming focus on trees, cropping systems, soil moisture conservation & management and soil organic matter.

b) Emphasis on realizing effective use of rain water by relying more on water productivity. This involves integrated measures to enhance water percolation for storage of rainfall in the soil profile for longer periods; and supplementing of moisture deficits in crops with water that is harvested by constructing small water harvesting structures likefield bunds, trench cum bunds, contour trenches, continuous contour trenches, farm ponds, diversion weirs,embankments, percolation tanks,check dams etc.

c) Diligent planning for crop systems diversification for risk management; enhancing productivity by adopting water use efficient crops (like nutri-cereals, pulses and oil seeds, besides dryland horticulture); and opting for crop alignment as a principle. An important initiative would include aligning crop growth phase with water availability, to provide a protective irrigation at critical stages of crop growth.

d) Clear risk management plans for adaptation and mitigation of adverse impacts of climate variability and change; diversification of the watershed economy by adopting integrated farming systems – agronomic and horticulture crops, livestock, agro-forestry, fishery, poultry etc.; enlarging livelihood portfolios; building climate change projections into water harvesting designs; precision based use of water for managing drought spells; and timely agro-met farm advisories to deal with climate induced uncertainties. Access to technology

suite that forecasts events like pest & disease, price & demand etc. would further help in risk negotiation.

e) Economically vibrant institutions, like Farmers Producers Organization (FPO), to promote agri-business services and impart efficiency to transactions at both input and output management stages. Such organizations are to be people – owned, people – managed and people-centric approach.

f) Setting up and nurturing of community groups that will take interventions beyond mere creation of assets and promote responsible ownership and management. Formation of User Groups based on common identities and interests around natural resources and work consciously towards integrating the principle of sharing.

g) Focus on decentralization, flexibility, community empowerment and greater role for village-level institutions in the planning process with a view to accommodating the local social and traditional strengths.

h) Rejuvenation of springs by taking up appropriate watershed activities in the watershed development projects.

3.0 Objectives of Watershed Development Projects

Objectives of watershed development projects are to improve productive potential of rainfed / degraded land through integrated watershed management; to strengthen community based local institutions for promotion of livelihoods & watershed sustainability, and to improve the efficiency of watershed projects through cross learning and incentive mechanism.

At macro - level, the vision of WDC-PMKSY2.0 projects is to accelerate the economic growth rate of agriculture in the less endowed rainfed areas of the country. Moreover, this should be achieved by adopting harmony with ecological principles of development for ensuring sustained transformation of economy and ecology. The guiding principles shall be a better *Economy*, *Ecology* and *Equity* in the rainfed regions of the country.

At watershed level, the development plan shall be guided by the need to achieve higher incomes for farmers, expanded livelihood options for landless, equity in distribution of benefits, community ownership and management, and ecologically sustainable action plan.

3.1. Enhancing economic growth of village community dependent on watershed by:

a) Securing production and farmers' income against climate variability and its risks of drought spells through diversification of crop systems & animal husbandry, and varied livelihood portfolios; efficient water harvesting and

retention of rainwater in soil profile; and entitling all project members to ground and surface water resources for life saving irrigation on equitable basis.

b) Improving intensity and productivity of various crops, livestock, fisheries and biomass production systems through optimal, integrated, sustainable and efficient use of natural resources in project areas.

c) Recognising the stake of non-land holding project members, and promoting alternate livelihood opportunities.

d) Building an ecosystem of enterprises for facilitating efficient scales of operations, access to credit, and market linkages; knowledge sharing; and resource convergence led by vibrant member managed farmers' institutions.

3.2. Ecological restoration and sustainable management of natural resources across the project area through:

a) Sustained community action in management of natural resources/assets such as groundwater, soil, community resources, etc. by way of building community organisations like User Groups (UG), and transferring maintenance responsibilities to them. Further, supporting UGs with regulatory norms, that are institutionalized through the Gram Panchayats.

b) Promotion of simple, easy to use and affordable technologies and practices, that builds upon local knowledge and available materials.

3.3. Improving the economic and social conditions of the resource poor, asset-less, differently-abled and women in particular through:

a) Shared and equitable access to the land, water and biomass resources developed.

b) Greater access to income generating opportunities.

c) Facilitating co-option of members of these categories in various community institutions i.e. FPO, User Groups etc.

4.0 Expected End Results

Each watershed development project shall deliver following results by the end of the project period:

4.1 Economic Front

a) Increase in the total agricultural production of the project area substantively, as a result of higher productivity, enhanced cropping intensity and scientific use of land, water and other natural resources.

This would result in increased livelihood opportunities for landless and marginal farmers. These positive changes in production and job portfolio would reflect in higher average annual incomes for all families in project areas.

b) Farmers and other non–farm producers (practitioners of livestock, fishery, cottage industries etc.) using project resources would effectively be organized into common interest groups, to facilitate sustainable management of resources, that would enable them to manage the resources sustainably.

c) There would be healthy FPOs with adequate number of share-holders, good capital base and professional management. The FPO would promote well established subsidiary units like demand base services, Custom Hiring Centre (CHC)etc, which would serve the local community. It would succeed in integrating local agricultural produce into alternate market channels.

d) There would be active Self-Help Groups (SHGs) playing an important role in micro-credit management.

e) Secondary agriculture, promoting use of by-products, value addition (e.g. husk, straw, stalk etc.) and supplementary/complementary activities like bee-keeping, mushroom etc. would be in place, which will create additional jobs and incomes for stakeholders.

4.2 Ecological Perspective

a) *Ridge to valley* approach in project area would result in soil and water conservation. This in turn would enhance soil health by increasing Soil Organic Carbon (SOC).

b) There would be an increase in green cover on account of rich green mulch (crops and trees), and higher moisture in the soil. The forests on the upper reaches would show improved density, canopy cover and pastures capable of supporting the local livestock.

c) Water-budget based crop-planning would be done every season, and all the farmers would adhere to their agreed plans. Crop alignment and diversification in favour of less water consuming crops, in tune with the available water would be the norm.

d) There would be satisfactory systems of monitoring the health of natural resources such as soil, ground water, biomass cover; and their rejuvenation. The status of natural resources would be audited at intervals, and the Gram

Panchayats (GPs) and UGs would be enforcing the norms relating to use regulation and sharing of usufructs rights.

e) All members of GPs and UGs would be trained to maintain and monitor all the natural resources and assets created during the project implementation period.

4.3 Equity Aspect

a) The landless, the poor and the women would find a place in watershed units like watershed committee and would have stake in management of the project activities. They would be active members of FPO, SHG, Village Level Institutions (VLIs) and various UGs, and would have access to usufruct rights.

b) The investments made in various project works and activities would take into account the poorer sections, the members of SC/ST community and the women.

c) The norms for regulating the benefit access to community assets would be fairlyensured to address the concerns of marginal farmers and the landless people.

d) The landless and asset-less poor would be benefiting from activities that promote alternate livelihood options.

5.0 Success Criteria

Notwithstanding inter-project variations in terms of natural resources, human and livelihood status, it is necessary to outline some common, and measurable success criteria for performance appraisaland impact assessment. Given the high regional diversity in rainfed areas, defining generic indicators across the program can also be counter-productive. It is, therefore, imperative that the decentralized participatory watershed development project plans must define the local success criteria, that are measurable and are in consonance with the end results enumerated in Para 4.

5.1 At the macro-level, the framework of success criteria relating to the new generation watershed projects may be described by the following:

a) Increase in average productivity of crops, including horticulture plantations, livestock and other agricultural enterprises.

b) A rise in cumulative output of all agricultural produce from the project area.

c) Diversified production system, that helps to minimize risks and uncertainties at both production and marketing stages.

d) Increase in the average income of the farmers.

e) Popularity of sustained production technologies & farm management practices among the farmers.

5.2 At the project level, the project planning team may, with reference to the framework indicated supra reflect on the specific project situation, and identify appropriate success criteria as part of the Participatory Project Plans (PPPs). Additionally, the quality aspects of the works executed, extent of completion of planned works, physical and financial targets and milestones achieved over the project period are important criteria to assess the project performance. Extent of outreach with respect to households, deployment of human resources and intensity of capacity building are also important monitoring parameters.

6.0 Convergence and Integration

6.1 Convergence is the process that results in achievement of common objectives through targeted and efficient use of financial and human resources in a coordinated & concerted manner. Specific convergence initiatives could be of a complementary or supplementary nature that promotes more comprehensive treatment, upgradation of assets created, sustainability and up-scaling successful initiatives by adding value at every stage. The watershed approach provides a dynamic framework that enables cooperation in efforts and synergy in outcome from various government and non-government programs.

To effect qualitative convergence of different schemes, due emphasis is necessary on the planning process, that includes mapping of activities from mutually agreed programs; clarity about targets, timeframes & shared responsibilities; and monitoring parameters.

6.2 In preparing the Detailed Project Report (DPR), various available schemes along with eligible activities and resources may be taken into consideration. Some of the important schemes that can be dovetailed are:

a) Pradhan Mantri Krishi Sinchayee Yojana (PMKSY): District Irrigation Plans (DIPs) prepared under PMKSY provide a master plan for water sector development in the district. PWDPs prepared as per these Guidelines need to be harmonised with the DIPs. The convergence to be promoted here is incorporating ‘Per Drop More Crop’ component of PMKSY, with a view to enhance water use efficiency of the water sources created in the project area. This is done by integrating micro-irrigation systems to the water bodies and also promoting low water duty crops and varieties.

b) Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS): Mechanisms of integration of watershed development projects with MGNREGS activities have been developed in various States. MGNREGS that promotes labour intensive works, from a variety of activities is highly suited to watersheddevelopment. There is scope to take up water harvesting structures, land development, soil & water conservation treatments and plantation, all of which are required in a watershed project. The convergence between PWDP and MGNREGS can happen to mutual advantage. All activities that are proposed to be taken up through MGNREGS may be indicated, and approved by GP.

c) National Food Security Mission (NFSM): This program has, of late, brought sharper focus on pulses through NFSM (Pulses), oilseeds and nutri-cereals. These crops are important for diversifying rainfed crop systems, besides promoting resilience to vagaries of weather. Strategic convergence between watershed projects and NFSM will help in promoting these crops in the project area. Improved status of soil, water, quality inputs and good agricultural practices can contribute substantially increase in yield of these crops grown in rainfed areas.

d) Integrated Farming System (IFS): Rainfed agriculture can generate higher income and better resilience when integrated with trees (amenable to agro-forestry), horticulture, livestock, fisheries etc. The IFS approach in a project area can benefit from several ongoing government schemes. These encompass Mission Integrated Development of Horticulture (MIDH), National Mission for Sustainable Agriculture (NMSA), National Mission on Edible Oils – Oil Palm (NMEO-OP), Sub Mission on Agro-forestry (SMAF), National Bamboo Mission (NBM), National Afforestation Programme (NAP), Compensatory Afforestation Fund Management and Planning Authority (CAMPA), Green India Mission (GIM), Rashtriya Krishi VikasYojana (RKVY), National Rural Livelihood Mission (NRLM), National Livestock Mission, National Gokul Mission and schemes related to pisciculture, apiculture, sericulture etc.

6.2.1 Convergence with Horticulture in WDC-PMKSY 2.0

Horticulture crops are integral part of rainfed agriculture system which include wide range of water use efficient crops of fruits, vegetables, ornamental, medicinal and aromatic, tuber, spices and plantation crops, etc. growing in diversified agro climatic situations. Convergence with horticulture crops in new generation watershed development projects (WDC-PMKSY 2.0) will be a thrust area because the prime objective is doubling farmers income in the rural areas. Some of the advantages of horticultural crops include enrichment of diets, premium on economic returns and more suitable for small & marginal farmers. The horticulture has been further

widened with the introduction of mushroom, bamboo, beekeeping and other related activities.

Horticulture may be treated as an integral component of watershed development along with other components such as agro-forestry, sericulture, pisciculture and livestock. Though the main objective of watershed development is resource conservation, resource generation and resource utilization, the livelihood improvement through enhanced farm income is vital for sustainability of any watershed project. In this regard, horticultural component in watershed development plays a pivotal role in achieving the overall objective of the watershed project.

Some important horticulture crops cultivated in watershed project areas:-

Fruits: Mango, Jack fruit, tamarind, sapota, cashew, Jamun, Guava, Ber, Anona, Dragon fruit, Dates (Kujoor), Pomegranate, cashew, orange, lemon Amla, Carmbola, Phalsa, Bael, Kokum, Fig, papaya, Roseapple etc,.

Vegetables: Tomato, Brinjal, Chillies, Drumstick (Moringa), Curryleaf and Cucurbits, Cow pea,

Flower crops: Roses, Marigold, Jasmine, Crossandra, Barlaria, Champaka, Chrysanthimum, Nerium.

Medicinal and aromatic Plants: Amla, Aloevera, Ashwagandha, Bael, Neem, Annota, Bursera, Lemon grass, Citronella, Khus grass, Palma rosa, Henna, Tylophora, Periwinkle, Sappan wood, Karonda, Terminalia arjuna.

Above are only indicative examples. Depending on local suitability other horticulture crops may also be taken up based on its appropriateness and farmers interest.

Sustainable Techniques for enhancement of crop yields in watershed project areas

The techniques used for receiving sustainable yield under watershed areas consists of growing of drought tolerant varieties, in-situ grafting, root stock selection, planting techniques, application of organic matter, mulching and other soil and water conservation practices. Border planting, alternate row irrigation for closely spaced vegetables, micro irrigation techniques, nursery production, kitchen garden / nutritional and medicinal garden, value addition and processing, vermi compost & compost making by using horticulture waste etc. may also play important role.

Expected outcomes of Horticultural cropping system in watershed projects

In addition to increased farm income, nutritional security and other export potential, horticultural systems generate several positive environmental impacts in watershed project areas like, improvement in physical properties of degraded soils and

sustenance of ground water, reduction of surface runoff, reduce in soil erosion and sedimentation of reservoirs. It also helps in recycling of oxygen & carbon elements, act as wind breaks, reduce noise pollution and rejuvenate watershed landscapes. Additionally, it will serve as carbon sinks, control dust, there by regulating atmospheric temperature, relative humidity & also provide favourable climate for animal habitation. Foremost is the creation of favourable micro-climatic condition for enhanced higher food production and human habitation.

Some fruit leaves have good percentage of crude protein which improves nitrogen content of the soil. Apart from leaves, the fruit trees also yield wood from annual pruning, which can be used as fuel wood. Fruit trees provide employment to the farmers and their family members during off season also.

Agro & Horticulture crop planning in watershed projects is the need for new generation watershed projects for obtaining the above mentioned benefits. Therefore, effective convergence with related line departments such as department of horticulture and relevant schemes such as Mission for Integrated Development of Horticulture (MIDH), Per Drop More Crop scheme of PMKSY, Oilseeds Mission, MGNREGA etc, would further benefit the watershed community in harnessing the benefits from the horticulture component under watershed projects.

Finally the efforts should be more towards promotion of agri-horticultural Integrated Farming System through convergence with relevant Central and State schemes of horticultural crops for increasing farmer's income in watershed project areas.

6.3 Only a few programs have been highlighted above for the sake of illustrations. There are several initiatives of both the Central and State Governments, which can be gainfully synchronized with watershed projects. There would always be new ones that may get introduced and would be amenable to harmonization.

7.0 Technology Inputs

7.1 Planning and Monitoring

7.1.1 Technology enables, *inter-alia*, to strengthen program management and coordination, undertake activity based project planning, formulate action plans, streamline sanctions and release of funds, create useful data bases, assess actual impacts of projects, make effective prioritizations, prepare scientific DPRs, document best practices and case studies, as also facilitate free and seamless flow of information and data.

7.1.2 The new vision of watershed programs is best achieved by integrating new technologies with indigenous technologies, besides harnessing the knowledge &experiences of local communities. Availability of digital maps at Bhuvan platforms, open source tools integrating mobile apps, Geographic Information System & Remote

Sensing (GIS&RS) and web platforms enable smooth integration of field data with maps/spatial data.

The National Rainfed Area Authority (NRAA) as a Knowledge Partner of Department of Land Resources (DoLR)would facilitate the States/UTs with available new technologies, innovations and tools for participatory planning, implementation and assessment. There are new technological advances and tools available in climate monitoring and weather-based advisories developed by various agencies like India Meteorological Department (IMD), Indian Space Research Organization (ISRO), Network for Information on Climate (Ex) Change (NICE) platform, Climate Information Centres and others including, various Ministries / Departments. NRAA would facilitate to avail these technologies in the project planning and implementation.

7.1.3 GIS&RS technologies may be used for scientific planning and monitoring performance of projects. This will require the National Level Nodal Agency (NLNA) and State Level Nodal Agency(SLNA) to establish core GIS facilities by using satellite imagery data received from National Remote Sensing Centre (NRSC) and ISRO.

All the GIS layers on various themes may be overlaid on a geo-referenced base layer up to the level of village boundaries at the first instance and field agencies, like Project Implementing Agencies (PIAs) may be given controlled access to operate for project planning. Application software for web-enabled integrated project development, spatial & non-spatial data standards and meta-data can also be put in place. This knowledge base would make it possible to define project boundaries with a unique-identification (unique-id) for each project. It would also be possible to map treatment areas with reference to their respective administrative units like villages, blocks and districts.

7.1.4 Both GIS and RS technologies can be generously used in assessing the actual impact of various interventions in a given area and period. These include periodic changes in geo-hydrology, regeneration of biomass, soil cover etc. Further, the proposed interventions at specific locations can be geo-tagged prior to their implementation.

7.1.5 In order to promote data and technology in area development approach like a watershed, the importance of a national portal is well understood. The NLNA may strengthen existing Management Information System (MIS) and develop data base related to watershed projects. Relevant and desired data updated from the field levels can be hosted by implementing and supervising agencies [Watershed Committee (WC), PIA, Watershed Cell cum Data Centre (WCDC) etc.] from across the country which will ultimately be collected and reflected at national portal.

7.1.6 Application of GIS&RS tools in Planning, Monitoring and Evaluation

The evolved modern watershed management practices demand use of State-of-the Art scientific tools like GIS, Global-positioning System (GPS), Management Information System (MIS) & Remote Sensing (RS) for effective planning, monitoring and evaluation of the watershed projects. These technologies not only have the ability to integrate wide range of scientific process but also help in tracking progress, process efficiency and quality on a real time basis and support the project management in micro as well as macro level analytics for timely decision making.

GIS-based Planning:

Site specific scientific informaiton is an essential element of effective watershed planning. During the planning stage, parcel-wise GIS-based resource inventory should be generated by geo-tagging all water harvesting structures, wells and bore wells etc. Satellite images should be used for preparing Land-Uses/Land Cover (LU&LC), soil map etc. Digital Elevation Model (DEM) should not be coarser than 2.5 m. However preference may be given for use of images of 40 cm or better resolution. Slope layer and contour map, flow accumulation map, drainage map, lineaments map should be generated using DEM & high-resolution satellite images. The combination of pre-existing structures map, L-section and cross sections of drainage lines, administrative boundaries, runoff, runoff coefficient map, soil erosion map, geology map, aquifer, nutrient map, crop suitability map, LU&LC map etc. should be overlaid suitably to identify various sites for watershed treatment. The baseline information collected mannually or using relevant applications should also be integrated with spatial data on a GIS platform to arrive at meaningful information for scientific planning. Hydrological and meteorological information such as, ground water table, run-off, ground water discharge, soil errosion, soil PH, historial rainfall pattern, temperature, relative humidity, wind speed and wind direction, solar radiation etc in the watershed project area are to be analysed for scientific watershed planning, for which , GIS technology is of significance.

All these various thematic layers are to be superimposed on administrative boundaries and geo-referenced digitized cadestral map. Further, geo-tagged layers of existing water harvesting structures, water bodies, , wells should be overlaid on the same. The Detailed Project Report (DPR) should be based on the above-said GIS layers. All the mapping should be done on 1:5,000 or 1:10,000 scale. The District and State-level authorities should examine the geo-tagged locations using GIS & remote sensing techniques.

GIS-based Monitoring:

Cross verification of satellite-based images with ground-based interventions can facilitate multiple levels of authentication, monitoring, and help the management to take timely and appropriate mid-course corrections. The advent of Web-enabled GIS facilitating smartphone-based applications also enable regular, authenticated data for

analytics and timely decision making. To track every work on regular basis, a unique ID for each work/structure should be created, which will be used for integrating various *temporal* and attribute data point pertaining to that specific structure. For example, a temporal well inventory data for a dug-well should be tagged with the specific unique ID of the well, so that a time series analysis about change in the water table can be visualized.

The monitoring system consisting of following technology based components should be in place:

i. Mobile application for geo-tagging of existing structures, geo-tagging of the proposed new structures at the planning stage and capturing geotagged photos of work at different stages of work for real-time monitoring.
ii. GIS-based application for GIS-based queries and to upload geotagged works captured through a mobile app and verifying with satellite immages.
iii. Web based Management Information System (WMIS) which facilitates generating reports for monitoring, data management, data analytics and decision making.
iv. Web portal for integration of spatial & non-spatial data and dissemination of project information.

The above components need to be integrated and interact with each other.

GIS-based Evaluation:

The GIS & RS technologies should be used to depict periodic changes and impacts. Change detection technique should be used to understand changes in vegetation cover by Normalized Difference Vegetation Index (NDVI) and changes in water availability through Normalized Difference Water Index (NDWI). For both the analyse pre, mid & post watershed project, satellite images of same resolution should be used for comparision. Whereever possible, drone technology should also be used for documentation of the changed scenario.

Change in Land Use & Land Cover, water harvesting structures and wasteland development intervention visible at planned sites on post-satellite images, change in NDVI, water storage created, the area brought under cultivation, orchards, pastures and under irrigation, regeneration of degraded lands etc., be clearly marked on GIS layers and captured using mobile app periodically.

Capacity-building:

Capacity-building towards these aspects needs to be planned and executed on regular intervals followed by handholding support for necessary technological improvements. Field expertise available with functionaries strengthened & authenticated through GIS tools, can enhance the planning of interventions in the best manner.

Existing GIS skills prevalent with various State/UT agencies should be collated as a dashboard to immediately draw human resource pools for faster planning of interventions on the ground. The knowledge should be transferred to the field staff and local communities so that a participatory cum scientific watershed planning, monitoring and evaluation is accomplished.

Services of various agencies/organisations such as State Remote sensing applications centre, Agricultural/Horticultural Universitites and regional institutues of National Bureau of Soil Survey & Land Use Planning (NBSS&LUP) who are pioneers in GIS, RS and other technologies may effectively be used for capacity building of staffs and for other relevant services.

7.2 Agro-ecological Approach

7.2.1 Nature and climate of a particular location support specific biological activities which ensure proper balance of natural resources of those locations. India witnesses 20 major agro-ecological zones which are further categorized into 127 agro-climatic zones. Each zone with its typical soil characteristics and climatic behaviour can sustain a typical biological growth. The Research and Development (R&D) institutions across India have mapped suitable production systems and recommended suitable farming systems, varieties and operational practices that are most beneficial for the region. Indian Council of Agricultural Research (ICAR) and State Agricultural Universities (SAUs)/ Central Agricultural Universities (CAUs) have developed suitable IFS models for different agro-climatic zones.

The States can consult these R&D bodies, particularly SAUs and Krishi Vigyan Kendras (KVKs), and adopt suitable production models and other practices. Agro-ecological approaches are best suited to rainfed areas. They not only reduce the costs and risks involved, but also help in regeneration of *in situ* resources and ecosystem services.

7.2.2 The landscape approach to planning considers land potential to ensure greater resilience against extreme episodes of climatic aberrations. Project areas experience varying soil types, depth, elevation, slope and biological cover, requiring scientific knowledge in planning types of intervention, size and design of structures, optimal ratio between engineering and biological measures etc. The available models and tools for designing appropriate interventions need to be identified for adoption. Associating scientists and academics from SAUs, KVKs would be of immense help in this regard.

7.2.3 A wide spectrum of agro-ecological approaches are being practiced across the country now, like natural farming, organic farming, permaculture etc. The watershed projects

can select elements of these approaches *in situ*, judiciously and promote the methods that are best suited to the location.

7.3 Biomass and Sustainable Agriculture

7.3.1 Success of the new paradigm of watershed development depends on harmonizing the expected outcomes while maintaining the natural resources, optimizing levels of production systems at a sustainable level and enhancing livelihood opportunities. Improved health of the soil and the quality of water in watershed areas have direct bearing on the crop yields. Regenerating common/community lands and grass lands will result in improved fodder base and will support a vibrant livestock economy.

7.3.2 A suitable agro-ecological approach will help in improving the biomass of the land. This necessitates promoting grasses, multi-purpose trees, diverse crops and livestock systems, year-long soil cover, enhanced microbial diversity & intensity etc. Conservation technologies like, land levelling contour bunding/trenches, ridge and furrow system, raised and sunken beds as appropriate to the location, need to be suitably planned.

The role of physical/ mechanical structures does not contribute directly towards biomass regeneration. However, the new program envisages a shift from purely physical/mechanical structures to bio-engineering structures with reasonable scope to employ mechanical works as per the topographical requirement.

7.3.3 Integrating trees into crop systems is an effective mechanism to diversify and ensure year- long soil cover. It would help promoting multipurpose trees, particularly those that fix nitrogen, contribute organic matter to the soils, provide fodder in the lean season and offer good economic value, while building good mulch for the soil. When the soil is covered over longer period of the year, it helps in checking evapo-transpiration or loss of moisture as well.

7.3.4 Assessment of moisture in soil and adjusting crop systems accordingly so as to increase cropping intensity, promote multi-layer crop systems with combination of long, medium and short duration crops would provide soil cover for longer periods. There should be a target to incorporate at least one third of the crop biomass into the soils. These are the generic principles to evolve location specific crop patterns that provide grains, fodder, and soil biomass.

7.4 Springshed Development - Regeneration of Springs

7.4.1 Springshed development is to be taken up as an activity under new generation watershed projects to mitigate spring water depletion in the Himalayas and other ‘springscapes’ of India.

7.4.2 The strategy involves comprehensive area - based treatment of the springshed, by assessing the hydro-geological control of springs at micro-level. Further, the micro-level perspective of springs would need to be embedded into larger water resources picture of the region.

7.4.3 For achieving satisfactory management of a springshed, it is important to ensure monitoring of spring discharge and quality of water at the stages of planning, implementation and impact assessment.

7.5 Water Management and Rain Water Use Efficiency

7.5.1 With increasing uncertainties in rainfall distribution owing to climate change, crop risks have increased rendering the rainfed farmers more vulnerable. The best use of rainfall for crop production can be achieved by aligning the cropping season including the critical stages of plant growth with the trends of rainfall event in the project area. This would minimize the dependency of crops on external sources of water. Crop cycle that ensures longer duration of canopy cover, and higher contribution towards soil organic matter will help in building green water management. Also useful in enhancing Rain Water Use Efficiency (RWUE) are interventions that include water saving cultivation practices like sprinkler and drip irrigation systems etc. These include line cultivation across the contour, direct seeding, community nurseries, water sharing etc.

7.5.2 The construction of suitably designed water harvesting structures, and soil moisture enriching activities can be most effectively accomplished, if the quantum of runoff from the designated micro-catchment is properly estimated using hydrologic analysis and mathematical equations.

7.5.3 Effective water management needs information relating to various activities. Some important information sets include evapotranspiration of crops, trees; pasture land etc.; infiltration rate; hydraulic conductivity; water requirement of livestock, duration of availability and depth of water in the ponds/tanks to assess scope for fish farming and the type suitable etc.

7.6 Groundwater Management, Water Budgeting and Demand Side Management

7.6.1 With increasing areas being declared as groundwater-dark zones, managing groundwater in a sustainable manner is emerging as a major national challenge.

7.6.2 Effective ground water management is feasible only when community is well informed of the ground water table, annual rate of replenishment, extent of extraction etc. Simple technologies and devices for assessing these parameters on a periodical basis need to be deployed along with active involvement of the community.

7.6.3 Watershed plans must include ‘Participatory Water Budgets’. This exercise needs to be carried out once each in pre- and post-rainy seasons, data analysed and discussed

among the community members to decide on regulating groundwater extraction & sharing protocols, as also crop choices and acreage. Enforcement mechanisms of the norms evolved in this process can be sustained, only when they are locally institutionalized in the GPs.

7.6.4 Groundwater recharge structures should be planned after detailed mapping of aquifers and delineating the recharge zones. The scope for artificial recharge at appropriate sites including defunct tube-wells/wells be examined, using appropriate technology suitable for specific geological formation and soil profile. It is necessary to undertake assessment of surplus run off from a particular location, for diversion and transportation to another location having greater scope for sub-surface storage.

7.7 Mitigating Climate Risks

7.7.1 Currently, climate related risk management strategies are mostly limited to arranging for inputs like seeds to suit the immediately ensuing cultivation system, with some minor preparations to respond to possible contingencies that may arise. The contemporary and future times invite the need to go beyond this, and focus on a crop plan for each season well in advance based on prediction models, using long term climaticdata for a particular region. Besides this, greater focus is desired on long term and reliable weather forecast mechanism, down to the micro-level (village/mandal) and effective dissemination of location-specific farm advisories to the farming community. Access to advanced information would help farmers to get climate smart and intervene to minimise loss of their output and income. As and when such a facility becomes robust and available, it would help to use the same.

7.7.2 Groundwater recharge benefits those few who already have access to groundwater, while the climate risks are mostly faced by those who do not have access to groundwater. It is therefore important to have a risk mitigation plan, for those who do not own groundwater assets.

7.7.3 While ‘green water’ management provides the first line of resilience to climate risks, farm ponds and local water bodies provide the second line of security and access to groundwater becomes critical for surviving longer dry spells in rainfed agriculture. The new generation watershed programs should bring focus on enhancing access to water (surface and groundwater) for stable rainfed agriculture. Considering the importance of life saving irrigation at critical stages of crop growth, the extent of area that can be supported by at least two protective irrigations deserves to be treated as one of the metrics for performance assessment.

7.7.4 Renewable forms of energy like solar power provide off-grid and mobile energy options for pumping and using micro- systems. This can yield multiple benefits to the farmer- reliable power in supplement with grid power, a source of additional income etc. The Pradhan Mantri Kisan Urja Suraksh aevam Utthaan Mahabhiyan (PM KUSUM)on solarisation of pump sets can be creatively used for this purpose.

7.7.5 Ensuring outreach of weather based weekly agro-advisories prepared by KVKs and SAUs to all the farmers on crops and farming systems relevant to the watershed will help in making information- based farm decisions and negotiate possible risks. Various knowledge platforms, that are already available may be utilised for speedy and real time data transmission to the farmers.

If a two- way flow of information between the platform and the farmers can be created, then data feedback into a server managed by an institute like local KVK will enable data analytics and interpretation for more comprehensive farmer advice.

7.7.6 Necessarily adopt risk management systems like 'Real Time Contingency Planning (RTCP)' conceptualized through All India Coordinated Research Project for Dryland Agriculture (AICRPDA). When this is made integral to project implementation strategy, the project community will come to be appropriately trained, and prepared for facing contingent situations.

7.7.7 Comprehensive approach to watershed development yields several climate change mitigative co-benefits like reduced emission of Green House Gas (GHG), improved resilience index, minimisation of loss & damages, sequestration of surface and sub-surface carbon. While some of these directly benefit the watershed farmers, data collection and feeding into the national portal would help the country to undertake data analytics and meet its international commitments.

7.7.8 Identifying and accessing location-specific advisories will prove more relevant in negotiating weather fluctuations. Some institutes like ICAR- Central Research Institute for Dryland Agriculture (CRIDA) have developed tools that can offer such advisories based on integration of historical weather patterns, weather forecasts and data from monitoring local weather. There are also a few Non-Government Organizations (NGOs) who have developed and successfully tested such a process.

7.8 FPOs, Farmers' Income and Value Addition

In contrast to production-centric agriculture, that has largely been practised in the country so far, the Government's vision of doubling farmers' income, has shifted the attention to income – centric policy framework. This entails market- based production decisions, and integrating farm-produce with markets, with a view to enabling the farmers to capture optimal value from his farm output.

This calls for mobilising farmers into FPOs, to impart efficiency to operations at both production and post-production stages.

It further calls for effective post- harvest management by focussing on agri-logistics (storage and transportation), processing and marketing.

The PWDP would do well build a robust FPO system that can take care of important issues as listed below:

a) The PWDPmust incorporate mobilisation of farmers into a healthy FPO, to shoulder the responsibilities. It should become the foremost entry point activity.

b) The FPO should focus on providing inputs to farmers at reasonable price, and evacuating farmers' produce to markets by depending on alternate market channels, always preferring for direct sale options. It needs to put in place the needed infrastructure and management systems in place for this purpose.

c) It should support the farmers to undertake primary processing of the produce, so that it is able to command higher prices when put to price discovery mechanisms, including online trade platforms.

d) It should establish basic infrastructure that will enable assaying and aggregation of the small lots of the farmers; and further facilitate produce transportation through one or more of the markets now available under new market architecture, comprising Grameen Agricultural Markets (GrAMs), reformed Agriculture Produce Market Committees (APMCs)/ Agriculture Produce and Livestock Market Committees (APLMCs), Export platforms, Futures Trade platforms and the like.

e) Supporting the farmers to overcome distress sale, which is common after the harvest is critical to capture optimal value on their sales and realise better incomes. The FPO can play a crucial role by hand holding the farmers in adopting warehouse facilities. The farmers will stand to benefit from electronicNegotiable Warehouse Receipt (eNWR) system available in the country.

f) FPOs can provide/facilitate many other services like input supplies, farm advisories, custom hiring of farm machineries, credit, contract farming etc.

II

INSTITUTIONAL ARRANGEMENTS AT NATIONAL, STATE AND DISTRICT LEVELS

Considering the magnitude and critical importance of watershed based developmental approach, it would be necessary to build suitable institutions at various levels – National, State, District and Project levels. These institutions should be constituted by co-opting a spectrum of partners -Government and NGOs, peoples' representatives and more importantly the project community. The vibrancy of these institutions will, to a large extent, have bearing on the success of the program.

Various institutional arrangements at different levels for effective and professional management of new generation watershed projects are as below:

8.0 National Level

8.1. Institutional Arrangements at the Ministry Level

8.1.1 National Level Nodal Department (NLND)

At the National level, the program will be anchored in the Department of Land Resources (DoLR) in the Ministry of Rural Development as NLND. It will determine the policy framework for the programme, will have overall supervision of watershed projects and will arrange budgetary and non-budgetary resources for effective implementation of the watershed programme in the country.

8.1.2 National Steering Committee

NLND will set up a Steering Committee under the Chairpersonship of Secretary, DoLR, to oversee implementation of watershed programmes at national level. This Committee may include members from NITI Aayog, Secretaries of Ministries/ Departments of Agriculture and Farmers Welfare, Animal Husbandry, Rural Development, Fisheries, Panchayati Raj, Jal Shakti, Environment, Forests & Climate Change, Corporation and Tribal Welfare, CEO, NRAA and head of relevant Institutions & organizations. Main functions of the Steering Committee will be as under:

i. To undertake policy initiatives /policy guidelines for the overall development of rainfed / degraded areas under WDC-PMKSY2.0.
ii. To undertake appraisal / sanction of new projects / foreclosure of projects, whenever required.
iii. To decide inter-state allocation of funds / re-allocation of area to States / UTs.
iv. To act as an effective coordinating agency involving various Ministries / Departments / Institutions of Central and State Governments/Union Territories

for efficient and effective implementation of WDC-PMKSY2.0 projects in convergence with the relevant schemes of Centre and States /UTs.

v. To adopt new and established technologies, best management practices and innovations in the development of watershed areas.
vi. To undertake comprehensive monitoring and review of projects.
vii. To modify the physical targets communesrate with availability of resources.
viii. Any other functions assigned by the Department of Land Resources.

In addition to above, the national committees of PMKSY will also review and monitor implementation of watershed activities as component of PMKSY as per national commitments decided from time to time.

8.1.3 National Level Nodal Agency (NLNA)

Watershed Management Division of DoLR will function as NLNA. The NLNA will supervise and guide PWDP in the country. The NLNA will have professionals possessing expertise and experiences in the domains of program management, monitoring and evaluation, data management, agriculture, animal husbandry, fishery, forestry, water management and community institution development etc. For this purpose a suitable arrangement may be made by NLNA.

Other Ministries/Departments managing watershed programmes, may similarly adopt their own institutional mechanism including establishing their own Nodal Agency. However, they should have strong linkage with the NLNA / DoLR which will be the principal Department for rainfed / degraded land development through watershed approach. All data and information on watershed projects across the country can be compiled by DoLR/NLNA as a “single window agency”.

Functions of NLNA

Main functions of NLNA will be as under:

a) To undertake suitable activities useful for promoting comprehensive development of rainfed/degraded areas through watershed program in the country. It should also consider focussing on springs in hill, terrain of States / UTs.
b) To examine new project proposals received from SLNAs, and place them before the Steering Committee for appraisal and also recommend to NLND for allocation and sanction of funds to States /UTs.
c) To examine funds release proposals received from SLNAs and release funds to States / UTs.
d) To strengthen MIS and maintain a comprehensive data base relating to watershed development projects.

e) To undertake close monitoring, review and supervision of project implementation by using, both online system of MIS, undertaking field visits, and also conducting regional review meetings.
f) To interact with SLNAs, facilitate and ensure smooth flow of funds for project implementation as per the extant financial rules.
g) To actively support capacity building activities at all levels. To initiate, support and strengthen Information, Education and Communication (IEC) activities.
h) To build a repository of new technologies, practices, knowledge base by accessing national and international agencies, practicing countries, research and academic institutes, funding agencies, UN bodies etc.
i) To collect, compile and publish best practices from field agencies, and share it with all the concerned, both in printed and electronic form.
j) To support as well as facilitate participation of project partners at different levels in regional, national, and international conferences, seminars and workshops, study tours, research/ field studies and information sharing exercises.
k) To create and operate a platform for agencies and organizations from across Government and Non-Government sectors to meet and share knowledge for continuous improvement in program implementation in the country.

Funding support for the NLNA

The NLND, namely, DoLR will provide financial support from its Departmental / scheme budgetneeded for NLNA to conduct its responsibilities.

8.2 National Level Data Centre and National Portal

The DoLR/NLNA may strengthen the MIS and Web Portal to serve as a National Data Centre (NDC) for compiling, storing and analysing project related, and land resource related information data and knowledge. The NDC may collate all relevant data on physical and financial parameters relating to projects from across the country, analyse it for national purposes. The data can also be archived at the data centre.

The NDC will document and host success stories and innovative practices from all the States and Union Territories.

9.0 State Level Institutions

9.1 State Level Sanctioning Committee (SLSC)

The SLSC under the Chairpersonship of Chief Secretary or equivalent officer, as may be decided by the State /UT Government shall be responsible for overall strategy, approach and supervision of watershed development projects in the States /UTs.

The SLSC shall lay down broad framework for successful implementation of projects, based on natural resources of States /UTs and its vision. The impact of climate change, vulnerability to drought and recommendations of DIPs etc. may also be taken into consideration while developing the framework.

It shall approve cumulative funds to SLNA for watershed projects for the year and authorise it to further allocate to various projects as per the approved DPRs. In case of delay in approval by SLSC, SLNA may seek approval of the Chairperson, SLSC on file and submit proposal to NLNA for necessary action. Subsequently, SLNA may get the proposal ratified by the SLSC.

The SLSC will approve and indicate the annual budget in time, so that SLNA and other institutions down the line are able to decide and roll out their respective tasks in sync with the season bound nature of watershed development projects works.

9.2 State Level Nodal Department (SLND)

This refers to the State/UT Departments, which according to the Rules of Business, is to house the watershed development projects at the State level. The Nodal Department shall be responsible for coordination with the SLSC, setting up and supporting SLNA, offering clarification on Guidelines and its implementation as and when required, ensuring availability of funds in time for the SLNA, and coordinating with NLNA. The existing arrangements of different States/UTs may continue as SLND.

A critical role of SLND is to mobilise adequate budgetary support for the watershed projects. It shall get project appraisals done by NLNA, receive Central share of funds from the NLNA, pool it with the State matching share, and release it to the SLNA.

Broadly speaking, SLND shall own up all residual responsibilities not specifically assigned to any other institution/agency for successful implementation of the projects.

9.3 State Level Nodal Agency (SLNA)

The State/UT Government shall constitute a dedicated SLNA as a Directorate/ Commissionerate/ Mission/ Society/ Authority. They can exercise the flexibility to utilise or strengthen an existing State Level Nodal Agency/ Department /Organisation/ Directorate/ Commissionerate for this purpose. The SLNA may be suitably empowered to enable implementation of watershed development projects by converging scheme resources with those under Central [MGNREGA, NRLM, Gram Panchayat Development Plan (GPDP) and CAMPA etc.] and State /UTschemes to provide greater convergence to watershed development at the field level.

The SLNA shall sign a Memorandum of Understanding (MoU) with the SLND wherever applicable, setting out mutual expectations with regard to performance, timelines and financial parameters including conditions related to release of funds into its account. The SLNA will be required to review the programme and provide

enabling mechanism to set up State level data cell and ensure regular reporting to the NLNA / NLND.

There would be multi-disciplinary professional support team, housed with the SLNA to guide and supervise project implementation in States/UTs.

9.3.1. Composition of SLNA

The Additional Chief Secretary /Agricultural Production Commissioner/Development Commissioner or their equivalent may be positioned for effective inter-departmental/agency coordination in the States/UTs. They may be designated as the "Chairperson / Chairman" of the SLNA.

The executive head of SLNA shall be a full-time Chief Executive Officer (CEO), who may be a serving Government Officer on deputation, or appointed on a contract for preferably not less than a period of three years. In selecting a CEO from the market, the job description, educational qualifications and experience should be kept in mind. The educational qualifications preferred may be post-graduation in agricultural sciences, water management and forestry with good experience in managing a substantive organisation, whether Government or non-Government. A strong, stable & professional leadership would help provide desirable drive and understanding for successful management of the SLNA. The CEO and key senior officials of SLNA should therefore be preferred for placement of at least three years at a stretch. Such a contract may set out the terms and conditions of engagement, as well as clearly defined goals against which the performance of the CEO (whether from Government or on contract) and his team will be closely monitored.

9.3.2. SLNA and Professional Team

A Team of four to seven professionals with specific domain knowledge shall support the CEO. This team may be selected by the SLNA either by way of deputation of experts/professionals available in appropriate line Departments of the government, or on contract through a transparent open market selection. They preferably should be from the disciplines of different agricultural sciences, soil and water management, forestry sciences, human resource development, community development/home science, information technology, GIS&RS,finance and accounts management, and etc. Further, a requisite number of administrative staff may also be provisioned by the SLNA, and they may be drawn from Government Departments on deputation or from market on contract after detailing job description and desired qualifications.

The SLNA should also set up an Advisory Board drawing representatives from DoLR, NRAA, CRIDA, State Forest Department, CAUs, SAUs, KVKs, National Bank for Agriculture & Rural Development (NABARD), Central Ground Water Board (CGWB), NGOs & other community basedorganisations, Industries etc. to

periodically seek advice on matters of policy, planning, implementation and monitoring of watershed development projects.

9.3.3. Functions of the SLNA

SLNA shall be a key agency to shoulder the primary responsibility for successful implementation of projects in the State/UT. The list of indicative responsibilities is as follows:

a) To prepare a State Perspective and Strategic Plan (SPSP) of watershed development projects for the State /UT (if not already prepared and approved) on the basis of plans prepared at the Block and District levels. SLNA may also consider developing springs especially in hilly terrain of States / UTs. It shall then submit this along with implementation strategy, expected outcomes and financial outlays to the NLNA for appraisal and clearance.
b) To establish and maintain a State Data Cell (SDC) from the funds sanctioned to the States / UTs, and connect it online with the NDC.
c) To provide technical support to all the WCDC, set up at the District level.
d) To approve DPRs. While approving DPRs, it should be ensured that relevant activities originating from GPDP documents are incorporated in the DPRs.
e) To approve a list of independent institutions for capacity building of various stakeholders within the State /UT, and work out overall capacity building strategy in consultation with NRAA/NLNA/SLND.
f) To arrange sanctioning of individual watershed development projects submitted by the WCDC after appraisal and recommendation of Steering Committee of NLND, keeping in mind the budgetary authorization made by the SLSC.
g) To approve PIAs identified/selected by WCDC by adopting objective and transparent selection criteria, and establish monitoring, review, evaluation and learning systems at various levels (internal and independent external systems);
h) To undertake regular on-line monitoring of implementation projects in the State /UT. It shall also hold review meetings at fixed intervals, besides undertaking field visits to ensure quality of implementation. Commissioning of studies, evaluations, workshops, learning meets and the like, is another important task to build a feedback loop.
i) To constitute a State level Panel of Independent Evaluating Agencies. The evaluating agencies may be shared with the Districts to take up Mid-term and End- of- term evaluation of independent projects.
j) To prepare State-specific Process Guidelines, and Technology Manuals etc. in coordination with the SLND.
k) To design and obtain approval of competent authority to release ‘Guidelines for Establishment and Utilization of Watershed Development Fund (WDF)’ based on model Guidelines given at **Annexure I.**

9.3.4. Funding Support

The SLNA and the SDC will be financially supported from the budgetary allocations made for the Watershed Development Component of PMKSY. The administrative expenditure of SLNA shall be met from the provision of 10% available as administrative expenditure of the scheme. It may also receive support from other National and International agencies which are interested to fund watershed development projects. Such agencies may also include private corporate bodies and philanthropic organisations. Additional requirements of funds, if required, may be provided by the States/UTs from their own resources.

10.0. District Level Institutions

10.1. Watershed Cell cum Data Centre (WCDC)

10.1.1. An exclusive Cell, called the WCDC shall be established at District level to oversee implementation of watershed development projects in each District. The WCDC shall have a team of professionals. A separate zero balance account shall be maintained in respect of the WCDC **(Reference Annexure II).**

10.1.2. The District Collector/Deputy Commissioner may be designated as the Chairperson, and CEO, ZP as Co-Chairperson of the District Cell. All the administrative and implementation responsibilities shall vest in the Project Manager, who in effect will serve as the CEO of this Cell. He/she will service the Cell and support its Chairperson in carrying out all assigned responsibilities.

Mostly the District Head of the Line Department, which as per State Rules of Business, is responsible for watershed programs. However, States/UTs may designate a suitable officer for this purpose. He/she shall be supported by a team of subject matter specialists with at least graduation degree in Agriculture, Agricultural Engineering, Animal Husbandry, Forestry, Horticulture, Community Development/Home Science and such other Agricultural Sciences. The SLNA may customize their resource persons based on their requirements within the overall contours defined above.

The Project Manager will attend to the management functions on a daily basis and will also be responsible for implementation of watershed projects in his jurisdiction, The Chairperson/Co-Chairperson will be responsible for securing coordination and convergence, besides undertaking monitoring and periodical review of the program. The representatives of relevant developmental schemes for agriculture, horticulture, animal husbandry & fisheries, rural development, welfare/social welfare, small & cottage level enterprises, women welfare, etc. at the District level shall be co-opted as members of the review meetings. Technical and professional advice may be secured by WCDC by drawing scientists & academicians from KVKs/SAUs/CAUs. The

Chairperson should make special endeavour to build strong linkage of the program with these scientificInstitutes.

10.1.3. The WCDC will be a dedicated unit under the Project Manager, with three to six full time persons, (three in Districts with less than 25,000 ha project area, one additional person for increase every 10,000 ha project area but not more than six person) comprising of Subject Matter Specialists (SMSs) on agriculture/ water management / social mobilization / management & accounts and Data Entry Operator may be appointed on the basis of their qualifications and expertise on contract/deputation/transfer etc. Atleast one SMS should have experience on springshed specialization for areas having potential for springshed development.

10.1.4. The WCDC may exercise the freedom to decide on the profiles of the SMSs as deemed appropriate for local situation, but within the Guideline parameters. It may do so in consultation and with approval of SLNA. Data Entry Operator (DEO) and a minimal support staff may also be hired from the market by adhering the Guideline norms.

The District Head of the line department i.e. in charge of the watershed development projects will serve as the Project Manager (PM), and the SMSs, will come from relevant Departments on deputation, or may be hired when inevitable. When hiring is to be done, the support staff including the PM may be hired from the market in accordance with prescribed qualifications and defined job descriptions. The District Cell in consultation with SLNA will spell out well-defined annual goals, against which the performance of the Project Manager and his team shall be monitored and evaluated.

10.1.5. Functions of WCDC

a) To select suitable PIAs by following due process of selection prescribed by the SLNA and procurement norms of the respective State/UT Governments.
b) To take up overall responsibility of facilitating preparation of strategic and Annual Action Plans (AAP) for watershed development projects in respective districts. Springshed development should find adequate focus in AAP wherever possible.
c) To provide professional and administrative/managerial guidance to PIAs in planning and execution of watershed development projects.
d) To examine and recommend the project proposals to SLNA for approval.
e) To bring effective convergence of other schemes with the project works by effective coordination with various developmental and welfare Departments for synergy of delivery at field level.
f) To effectively support scientific organizations in District or in nearby Districts for infusing technical and domain knowledge for development of projects.
g) To develop action plans for capacity building of various manpower and community-based organisations associated with project works. The support of

knowledgeable and experienced resource organizations may be tapped for this purpose.

h) To carry out regular monitoring, evaluation and learning exercises to promote quality of execution, to ensure the principles of economy, ecology and equity.
i) Ensure unhindered flow of funds as per budget approvals to the PIAs, WCs and others to whom it may be due.
j) To ensure smooth flow of funds to watershed development projects.
k) To establish and maintain District Data Cell (DDC), and link it to State and National Data Centres.
l) To integrate watershed development plans into District Plans of the District Planning Committee.
m) To observe the primary responsibility to establish close linkages with all the three (ZP,TP/BP/MP and GP) democratic bodies and District Development Coordination and Monitoring Committee (DISHA) in the interest of watershed development projects.
n) To actively participate in DISHA committee meeting, maintain an office record on recommendation made by the members and action taken by the WCDC thereon. The reports may be uploaded on Ministry of Rural Development website.

III

PROJECT LEVEL INSTITUTIONS

11 Project Implementing Agency (PIA)

11.1 Constitution of PIA

The SLNA may evolve and lay down appropriate mechanisms for selecting and approving the PIAs, who would be responsible for implementation of watershed development projects through WCs. These PIAs may include relevant line Departments, autonomous organizations under State/Central Governments, Government Institutes/Research Bodies, Panchayats, Voluntary Organizations (VOs), development agencies set up by Private Trusts and Industries to operate their Corporate Social Responsibility (CSR) activities and the like. It is the WCDC that will select the PIAs in accordance with the laid down norms.

However, the selection of a Government agency shall be based on competence and certain objective criteria, some of which are as suggested below:

The organization should preferably have prior experience in management of watershed development projects including springshed development activities as applicable or components of watershed projects. They should be ready to constitute dedicated Watershed Development Teams (WDTs).

11.1.1 Voluntary Organizations (VOs) and Private/Trust Development Agencies as PIA

Organizations may be chosen as a PIA based on proven credentials and approval of competent authority in the State/UT Government. The WCDC may adopt an objective and transparent system for evaluating the competence of such an applicant organization. Some indicative criteria are as below:

a) Should be a registered legal entity of at least five years standing and also register on NGO-Darpan portal of NITI Aayog.
b) Should have at least three years of field experience with development of watershed projects; or/and in the area of community based natural resource management and livelihood promotion.
c) Should have minimum years of experience or/and minimum value of work fixed by the SLNA.
d) Should not have been blacklisted by Government of India or State /UT Government.
e) Should be equipped with a multi-disciplinary professional team with gender balance. The same team or its members should not be engaged with various other projects.

f) Should furnish Annual Report and balance sheet for three years, Audited Statement of Accounts and income returns within the preceding block of five years. All accounts of the organization should be up to date.
g) Should furnish the profile of its Board of Directors/Members/Trustees as the case may be.
h) Should have independently and successfully implemented watershed projects or any other nature of project encompassing management of natural resources, agricultural production systems, which involved community participation too. The status report of works under execution & evaluation reports of completed works may be submitted.
i) Should fulfil any other criterion laid down by the NLND and SLND/SLNA from time to time.

11.1.2 The SLNA and the District Cells must make attempts to onboard the best of Government and Non-Government agencies as PIAs. When there are PIAs with varying backgrounds, it will enrich the approach and methodology, and enable cross-learning among different PIAs to the advantage of the scheme. A spirit of healthy competition is another spin-off advantage that the scheme will stand to benefit from. The WCDC may target assigning up to 25% of the projects in the district to any of the VOs / NGOs.

11.1.3 Without reference to selection as a PIA, the VOs have an important role to play in implementation of watershed development projects. Given the importance the Guidelines attach to community participation, the services of VOs may be utilized by SLNAs and PIAs (Government or non-Government) in various aspects relating to peoples' participation. These include awareness generation, orientation & mobilization of people; training & orientation of project functionaries; capacity building & formation of community institutions and so on.

11.2 Signing of Contract/MoU

The selected PIAs shall sign a Contract/MoU with the WCDC. The contract / MoU should contain well defined Terms of Reference (ToR), and roles and responsibility of the PIAs. The names and profiles of the Watershed Development Team (WDT) should also be included in the Contact/MoU.

11.3 Roles and Responsibilities of the PIA

a) To orient GPs and communities towards the program, its objectives, and expectations, community organization, maintenance of transferred assets, developing of regulatory norms for use of groundwater & other common property resources. An important role of the PIA will be to prepare GPs to adopt a resolution to provide all the support to the project life cycle.

b) To put in place a WDT immediately after signing the MoU, begin community mobilization & organization into FPO. Various UGs and SHGs, undertake orientation & training programs for them. It shall set up WC, which shall be the field execution agency.

c) The WDT shall work with the WC and get the project communities involved in preparing comprehensive action plan. It may adopt scientific approaches and processes to promote active participation of people. WDT shall, in discussion with the project communities initiate Entry Point Activities (EPA) and to get the project action plan vetted from the GS, and forward it to WCDC for its approval.

d) To supervise implementation activities, inspect and authenticate project accounts; encourage adoption of low-cost technologies, building upon indigenous technical knowledge, monitor & review the overall project implementation.

e) To ensure MIS in place. This includes submission of periodical progress reports in prescribed formats and uploading data online, feeding into various Data Portals. PIA should attend reiew meetings convened by the WCDC.

f) To make institutional arrangements to carry out post-project Operation & Maintenance (O&M) functions.

g) To arrange for physical, financial and social audits of all the works undertaken.

h) The PIA, with support from WCDC, may bring in the services of local KVK and SAU/CAU for developing the norms and monitoring procedures for natural resource governance. Relevant training modules and training programs may be developed by the PIA.

i) PIA shall orient and help communities towards springshed development in hilly areas.

The Guidelines consider PIAs as the key agency in driving a people- centric and science-based watershed development approach for implementation of the projects. It is, therefore critical, that the SLNA and WCDC should select very competent PIAs and constitute strong WDT.

11.4 Other issues related to PIA

A Government agency appointed as a PIA may build its WDT by taking suitable human resources from various departments/agencies, including its own, on deputation/transfer, or on contract from outside.

On an average, the PIA shall have one WDT for eachproject covering an average area of 5,000 hectares. The SLNA may prescribe more specific norms giving due regards to the terrain, infrastructure status and the geographical distribution of the projects.

On sanction of Project by SLNA, and on signing of the Contract/MoU, the WCDC shall authorize PIA to use fund as per protocol (**Reference Annexure II**)

12.0 Watershed Development Team (WDT)

12.1 Establishment of WDT

The WDT shall be set up by PIA. It shall act as the technical team at the Project level, and guide WC in planning and implementation of Project activities.

Each WDT shall have a minimum of four members; at least one of them should be a woman. Broadly, the domain knowledge and experience of the team should encompass agriculture (includes all related agricultural sciences), forestry, soil health management, water management and community mobilization & institutional building.

The team members should preferably have a professional degree in the related domain. However, the qualification can be relaxed by the WCDC in favour of experienced candidates with the approval of SLNA. The PIA shall designate one of the WDT members as the Project Leader.

The WDT should be positioned as close as possible to the project location. The WDT should function in close collaboration with the team of experts/professionals at the district and State levels.

The establishment cost of the WDT including salary, travel etc, shall be met by the PIA by charging it to the ‘Administrative head of account.

The WDT shall be in place for the entire duration of the project implementation. No fund use authorization shall be given to PIA or WC, unless a WDT is in place. The training and orientation of WDT members shall be facilitated by the WCDC.

12.2 Roles and Responsibilities of WDT

The WDT shall guide WC in formulation of project action plan and its execution. An indicative list of the roles and responsibilities of WDT would include, among others, the following:

a) To assist GP/GS in constitution and functioning of WC.

b) To organizing and nurture village level institutions and FPOs in developing & implementing their business plans and services. WDT shall ensure institutionalizing governance mechanisms.
c) To mobilize women to ensure adequate reflection of perspectives and interests of women in the watershed action plan.
d) To conduct participatory base-line surveys, training and capacity building activities.
e) To prepare detailed PWDP for each watershed for consideration and approval of the Gram Sabha. Such plans constitute detailed actions related to focal areas like regeneration of biomass and water resources in private and common lands, equitable sharing of regenerated resources, reducing risks due to climate variability, water management value addition to enhance farmers' income and to promote sustainable livelihoods at household level. WDT shall ensure that the action plan has laid due emphasis on biological activities as a sustainable route to implementation and success of projects.
f) To undertaking engineering surveys, prepare engineering drawings and cost estimates for structure(s) to be built, maintain of Measurement Book (MB) etc.
g) To monitor, assess and undertake physical verification & measurements of the work done.
h) To facilitate development of livelihood opportunities for the landless people.
i) To maintain project accounts.
j) To arrange physical, financial and social audits of the work undertaken.
k) To setup suitable arrangements for post-project operation, maintenance and future upgradation of assets created during the project period.
l) To place the statement of progress of various works/activities before the WC in its monthly meetings.
m) To ensure the use of available of digital maps at Bhuvan, GIS and web platforms enable smooth integration of field data with maps/spatial data and also use of Land Resource Inventory (LRI) data whereever available while preparing the Detailed Participatory Watershed Development Plan DPWDP/ Detailed Project Report (DPR).
n) To geo-tag of assets (like water harvesting Structures and block plantations) created under programme and maintain physical records and action plans /DPRs for better understanding of programme by the Community.

13.0 Project Level Peoples' Institutions

The very purpose of forming people's institutions in watershed programme is to provide people the "ownership of the project" by making them an integral part of decision-making, giving them control over their resources, autonomy to implement the project, capacity to use resources sustainably and carry on the process even after the completion of such projects.

These Institutions will bring cohesiveness within the community, introduce and nurture a culture of cooperative and coordinated use of natural resources and assets on a sustainable basis, and protect the project area resources from indiscriminate use, which was the primary reason for degradation and low productivity status seen before the treatment. The unstated spirit is to break the vicious cycle of overuse and degradation in post project implementation by developing sense of ownership among people.

In the project area, small groups of the project communities shall be formed with specific roles and responsibilities. It is important to mobilise project stakeholders around common identities and interests as listed in the following sub-paras.

'Gram Sabha (GS)' a Panchayati Raj Institution shall be an important peoples' body to be associated with the project.

13.1 Gram Sabha (GS)

Involvement of Gram Sabha (GS) in planning, sanctioning & execution of watershed projects shall be ensured. While approving the comprehensive action plan, the GS, ensure adequate biological activities find suitable place in it.

13.2 Watershed Committee (WC)

The Gram Sabha will constitute WC to take primary responsibility for executing project development. The Committee shall be registered as a Society under the Societies Registration Act, 1860. Alternatively, the WC shall be constituted by the GS as a sub-committee of GP chaired by the Sarpanch. In such case, no registration under Societies Registration Act, 1860 will be required.

The Committee shall comprise a minimum of eleven members; five members representing various user groups and the SHGs; three from FPO (one member each representing the FPO itself, CHC, and such other unit, like at sale outlet set by it); one GP member; and one WDT. The Secretary selected will serve as Member-Secretary of WC. The eleven member committee (including the Secretary) shall have, at least two representations each, from among the women and SC/ST members.

The Committee members in a specially convened meeting shall choose one among themselves to serve as the Chairperson and another as Co-Chairperson. Either Chairperson or co-Chairperson shall be essentially a woman.

The Secretary of the Committee shall be a paid functionary, and his emolument shall come from the administrative component of the budget of watershed project.

The Committee may approach the Gram Panchayat for a suitable space to set up its office or hire a building from where it can operate on a regular basis.

13.2.1 Functions of the Watershed Committee (WC)

The most important peoples' body responsible for the project success is the WC, as it shall shoulder the major responsibility for preparing and executing the project plan. It shall be guided all along by the WDT.

a) To ensure active partnership of the project community in planning and implementation.
b) To approve works and activities to be taken up as per action plan and DPR. It shall adhere to cost norms approved by the State Government, i.e., Schedule of Rates (SRs) for different infrastructure works. In case of individual beneficiary activities, the rates as prescribed under the scheme shall be the norm.
c) To prepare plans for implementation at GP level and submit it in the planning module of eGramSwaraj portal with the help of WDT.
d) To open and maintain a zero balance joint bank account in one of the scheduled banks and operate it under the joint signature of the account holders (Reference **Annexure II)**.
e) To receive funds entitled under these Guidelines into the bank account and after expenditure submit utilization certificates to PIA for further submission (Reference **Annexure II)**.
f) To focus on nurturing community participation by supporting various User Groups, Self- Help Groups as well as FPO. It shall enforce regulatory norms relating to various assets and resources created and developed through action plan with the help of Gram Panchayat.
g) To conduct annual audit of natural resources leading to asset maintenance plan, water budgeting exercise, twice a year for establishing regulatory norms on water use, and laying down protection norms for regeneration of the common land.
h) To own resources during the implementation of project activities and enforce its implementation by taking necessary support of Gram Panchayat and PIA. The new generation watershed development program is expected to generate wider experiences in community managed participatory governance of natural resource management for universalization.
i) To finally transfer the assets created to the Gram Panchayat at the end of financial year. Further, it shall take an active part in inspecting the assets and works from time to time and ensure their repair, maintenance and upgradation as required. For this, financial resources available from ongoing schemes under GP and Watershed Development Fund (WDF) may be accessed.

13.2.2 Secretary of the Watershed Committee

The Gram Sabha will select a suitably qualified preferably a local resource person to serve as the Secretary of the WC, who shall have the requisite competence in carrying out the responsibilities of the said Committee.

The Secretary would be a dedicated functionary reporting to and providing assistance to the WC and shall work under the direct supervision of its Chairman. The Secretary will be responsible for the following tasks:

a) Convening meetings of the WC; and coordination with Gram Panchayat, Gram Sabha & other Village Level Institutions (VLIs) for various purposes, including convening of their meetings to take decisions relating to the project development activities.
b) Maintaining records of various works undertaken as per the action plans& other project activities.
c) Taking follow up action on all decisions taken by WC and GS/GP.
d) Maintaining all the records of proceedings of the meetings of GP, GS, WC and other VLIs, relating to Project development.
e) Maintaining the statement of accounts -funds received from all the sources and the expenditure details.
f) Record of all works and activities carried out and assets transferred to the GP.

13.2.3 Resources for implementation

The WC shall be authorized to use funds for both, its administrative operations and work/activity operations of project in accordance with the action plan, DPR and its own resolutions (Reference **Annexure-II**).

The expenses on account of administration include those relating to the salary of the Secretary, office rentals and office functions, and miscellaneous activities. The PIA will charge these expenses to the Administrative head .The funds may be utilized by WC through authorization by WCDC on the recommendation of PIA.Some specific details are enumerated below in this respect:

a) The mechanism for authorizationof funds by PIA/WCDC to the WC will be decided by the WCDC.
b) All expenditures incurred for a project, pre-maturely closed in accordance with para23, shall be treated as legitimate expenditures.
c) The WC shall open a zero balance joint account in the names of Chairperson of the Committee and the WDT representative serving as its member. The account shall be opened in any of the scheduled commercial banks, State cooperative bank, RRB, and operated under the joint signature of both the members.

13.3 Farmer Producers Organization (FPO)

13.3.1 Rationale for FPO

With the majority of farmers being small and marginal, both input and output management becomes inefficient, due to low scales of operational economy. As a result, mostly farmers may not be able to achieve high productivity and also stand to

lose from not being able to integrate their produce with markets. One of the important objectives of the new generation guidelines is to help achieve higher economic growth for the project community, collectivization of farm operations, which can be realized through FPOs.

Hence, from the stage of implementation of project itself, the PIA shall focus on forming FPO as an Entry Point Activity. In case it already exists in a project, the approach would be to strengthen it.

The FPO shall be the member - owned and member - managed institution. Any household dependent directly or indirectly on the natural resources of watershed can join the FPO by paying prescribed share capital amount and membership fee as defined by the organization. The WDTs will initiate the FPO formation by mobilizing the people, creating awareness, and educating them about the need & advantages of forming such an organization. The Team may seek and avail support of GP members and others who can positively influence the community.

The FPO will be registered once it reaches a threshold of 300 to 500memberships (with paid share capital) as a cooperative or a society or a company under the relevant Act, after detailing out its bylaws and governance structure. The Team may encourage existing SHGs to take membership in the FPO and expand its base.

In respect of FPOs, Operational Guidelines of the scheme of "Formation and Promotion of 10,000 Farmer Producer Organizations (FPOs) issued by Department of Agriculture & Farmers Welfare, Govt. of India may be referred for guidance. (*https://dmi.gov.in/Documents/FPO_Scheme_Guidelines_FINAL_English.pdf*).

13.3.2 FPO – Subsidiary Institutions and Services Offered

The FPOs can set up several subsidiary activities, create backward & forward linkages, and serve both, farmers and other non – farmer stakeholders of the project. Some of such services that an FPO can manage and deliver are indicated below:

a) Custom Hiring Centre (CHC): Farm machinery and associated services can be rented out to the farmers and landless labourersfor achieving higher productivity and reducing cost of cultivation. The FPO can run it on a revenue model by charging reasonable rates of rent. The FPO should try to avail itself of the ongoing CHC scheme.
b) Community Seed and Planting Material Centre: It can take up seed and planting material production of various agronomic, fodder and horticultural crops. The FPO must focus on providing seed and planting materials of varieties recommended for the local area, their timely delivery at reasonable rates. These can become the brand value of such an initiative.
c) FPO can ideally focus on the strength of farmers and facilitate promoting integrated farming system by taking up suitable combination of sectors like -

afforestation (agro-forestry), fishery, goatery, apiary, piggery, horticulture plants like moringa, amla, mango, cashew nut, floriculture etc through convergence with PDMC.

d) Promote micro irrigation like drip, sprinkler and pivot irrigation, drip cum mulch, small size green house and shadenet with foggers through convergence with PDMC.
e) Post-harvest management: FPO can develop facilities and capacity to aggregate the local produce and link to alternate market channels. These include both online and physical transactions, with preference for direct sale. The concomitant logistics for primary processing, aggregation, storage and transport may be set up by the FPO. It should attempt to benefit from several of ongoing relevant schemes.
f) Creation of sale outlet and service centre: FPO can create Centre from where the farmers can purchase various inputs and avail of services such as insurance, credit, vaccination for animals by levying service fee at a single place.
g) Promoting secondary agriculture activities by facilitating skill development, access to institutional credit besides assistance under government scheme.
h) Managing an information centre for disseminating weather based agro meteorological-advisories, package of practices for cultivation etc.
i) Any other social / business activity as per the local needs.

13.3.3 Financial Support

The financial support for formation of FPOs will be part of the project development plan. The fund for this will be spent by PIA on various activities relating to the FPO.However, effort should be made to promote FPOs in convergence with FPOs scheme of Department of Agriculture & Farmers Welfare, Govt. of India. If there is already FPO available in the project area there shall not be additional FPO created.

As the FPO consolidates itself by enrolling larger number of share-holders, it should make efforts to avail of various schemes of the Government and roll out different activities enumerated in the sub-para no. 13.3.2 above.

The FPO may be housed in the WC office rented for the purpose from the project fund, till it develops its own capacity.

13.4 Self Help Groups (SHGs)

SHGs have proved successful across the country, particularly as centres of micro-credit. Further, they have also taken up variety of livelihood activities in diverse fields. Promoting alternate livelihood activities being an important objective of a watershed project, conscious efforts should be made to make the existing SHGs as active partners in development strategy within the project area. While strengthening

the existing ones, need based/resource based new ones may also be formulated. Effort may be make to federate all SHGs to improve business opportunities.

The WDT and WC should take this responsibility and create homogenous groups based on the common identity and interests of local people. The landless and weaker section members in particular will need to be mobilized. This initiative can be linked with the program of NABARD, MGNREGS, NRLM etc.

The members of existing and new SHGs will need to be trained in different aspects of operations, credit management and livelihood activities. The NLNA/NLND may decide on the size of revolving fund to be made available to the SHGs in the Project area.

13.5 User Groups (UGs)

Watershed approach of development is a landscape approach, wherein resources like land, water, and assets thereon, are planned/utilized keeping conservation and regeneration in view.

This warrants total involvement of the people in terms of ownership and management of the assets created. These assets include, soil & water conservation measures, water harvesting structures, pastures, horticulture&plantations etc.

In this context,promotion of collective effort of farmers & other stakeholders at planning, decision making, implementation and management stages would be useful. This can be achieved by creating and nurturing several 'User Groups (UGs)' comprising of persons with common interest around different resources.

The PIA shall focus on forming homogenous groups of different stake holders around various initiatives at the implementation stage. This will help in associating the potential users in deciding on the work details. For example, the decision for developing a pasture land may involve the ratio of fodder trees and grasses to be adopted, the species to be opted. Such an approach builds ownership and a stake in developing and maintaining it later. UGs may be encouraged to join FPOs and avail of various services offered by them.

Further, the WC should roll out resource-use agreements among UGs based on the principles of equity and sustainability. These agreements must be worked out before the activity is undertaken. The UGs shall be responsible for adhering to the user norms, and upkeep of the concerned assets.

The Gram Panchayat will need to take over these assets and provide operation and maintenance support. The WDF resources could also be made available for the upkeep of assets.

IV

SUPPORT FROM KNOWLEDGE PARTNER AND PANCHAYATI RAJ INSTITUTIONS

14.0 National Rainfed Area Authority (NRAA) – Knowledge Partner

14.1. The National Rainfed Area Authority (NRAA), under the Ministry of Agriculture and Farmers Welfare is an organization mandated to advise changes to agricultural policies and programs that will enable sustainable development of agriculture in rainfed areas of the country. Hence, it is well suited to partner with Department of Land Resources in promoting watershed development programs.

14.2. Some of the areas of strengths and role of the organization can play for new generation watershed projects are follows:

a) Prioritization of areas: Given the vast need for watershed -based projects in the country, and the variations in degree of vulnerability, prioritization of project areas becomes indispensable.

   This can be done by developing District/State wise landscape availability of Composite Index based on assigning proportionate weightage to both, natural resources and livelihood opportunities. NRAA having developed such an index can support DoLR in the process. It can also help in integrating north-eastern and hilly States in tandem with the government's concern for these regions.

b) NRAA is a Knowledge & Technology partner with required expertise to support the program with an aim to bring inclusive growth in rainfed areas. It can, therefore, advise watershed program on appropriate technologies, innovations & approaches; capacity building; new knowledge and best practices.

c) It can assist NLNA on design/policy formulation, evolution of participatory methodologies for planning & implementation of the program, and also development of monitoring and evaluation tools.

d) NRAA can help the SLNAs in developing location-specific strategic plans for project development programs of States/UTs, consistent with their agro-climatic and socio-economic conditions.

e) It can help SLNAs in preparation of State-specific technical manuals for design & execution of interventions, besides laying down standards and specifications. It further can help States/UTs in identifying resource organizations and systems that will upgrade the quality of their program.

f) It can facilitate action research relevant to watershed development program in different agro-climatic regions. It can also undertake studies, evaluation and impact assessment assignments, so that appropriate & timely learnings are

generated for incorporation into both ongoing projects, and new ones to be taken up.

g) NRAA can facilitate DoLR in organizing annual Watershed Conclave to share best practices & learnings. This annual event will facilitate SLNAs and various other stakeholders to deliberate on issues relates to implementation and the mid-course corrections required. The learnings emerging there on can feed into refining the new generation Guidelines.

h) NRAA can facilitate DoLR in bringing out an 'Annual Status Report on the Program' for wider dissemination. NRAA can establish a 'Practitioners' Platform' by pooling expertise and experiences from civil society organizations, research organisation and enterprises to make such pool easily accessible to the SLNAs. It can also identify and accredit reputed national level agencies for capacity building, monitoring and evaluation of the program to be deployed in different parts of the country.

i) NRAA can facilitate DoLR in organizing regional, national and international conferences, seminars, workshops and study tours.

15.0 Role of Panchayati Raj Institutions at District and Intermediate Levels

Under the 73rd constitutional amendment, there is well defined role for the decentralized democratic institutions in the country for Zilla Parishads, Taluk / Block Panchayats and Gram Panchayats. Since, these institutions have representatives elected by people, they should be closely involved in planning and implementation of watershed development projects.

15.1. Zilla Parishad (ZP) / Zilla Panchayat (ZP)

All the developmental and welfare departments work under the supervision of the Zilla Parishad. Hence, convergence of different schemes resources and coordination with all concerned line Departments in the Districts can become feasible through ZP. The WCDC should therefore proactively seek its support. Additional resources needed, which cannot be sourced from the Project Head of Account, may also be sought for, from ZP. The ZP may be kept informed of the status and progress of the program in the District by WCDC.

15.2. District Planning Committee (DPC)

Under the decentralised democratic set up, DPC has an important role. It is responsible for the overall development plan of the District and brings together all the developmental initiatives under different sectors in the District. It will be therefore, beneficial for the watershed projects with the District Plan to get the much needed convergence & coordination of relevant schemes. Further, the MLAs and MPs who are members of this Committee, besides the elected members of the Urban Local Bodies (ULBs), will also get to appreciate the Project status and offer

necessary inputs and support. For example, a ULB may be able to support opening of a sale counter for the agriculture produce grown in the Project area.

It is the primary responsibility of the WCDC led by its Chairman and Co-chairman to establish close linkages with all these democratic bodies in the interest of watershed development projects.

15.3. Taluk/ Block / Mandal Panchayat

The members of this intermediate democratic body are closer to the local situations, and therefore, their support at the field level can prove very useful. The member(s) whose jurisdiction covers a project area can be associated in mobilizing the community for active involvement at both planning and implementation stages.

The intermediate Panchayatcan also support WCs in execution by offering the services of Taluk/Block/Mandal level officers of departments like agriculture, engineering, animal husbandry, social welfare etc.

As this Panchayat body also executes certain schemes, it may help in convergence of activities with watershed projects.

15.4. Gram Panchayat (GP)

The Gram Panchayat as the grassroot level democratic unit for development in the rural areas has a very critical role in ensuring successful development of watershed projects. While they will not be directly involved in execution, their active support is essential at all stages of project development. Some of the important expectations from the GPs in relation to the Projects are as follows:

a) Support the PIA in getting the Project community with different interests, involved with Project activities, particularly in forming FPO and various user groups.
b) Help in constituting watershed committee, and offer required advice and support in preparing a comprehensive project development plan.
c) Adopt a GP resolution to support the Project at all stages. Some important components of such a resolution include: developing norms for use of resources created; convergence of ongoing schemes and programs with Project activities; taking over the executed assets for operation & maintenance; and providing space to run the Committee office etc.
d) Maintain asset registers for the Project area with a view to sustain these assets in good condition even after the Project executing agency withdraws.
e) In partnership with the WC, monitor rainfall and groundwater data on a regular basis and use this along with other information, to conduct water-budgeting exercises, develop norms of water use, water sharing, regulations (for new

borewells, depth of digging, spacing between wells and others) and crop pattern shifts in consultation with the community etc.

f) Allocate usufruct rights to user groups over the assets created or areas developed.

g) Develop norms for protection of common lands for their regeneration, management and sharing of usufruct rights.

h) Develop facilities of drinking water for livestock in the grazing areas and in the villages, during summer months and their management as well.

i) Undertake annual audit of the natural resource assets transferred to the GP by the WC with a view to assessing their maintenance needs.

V

IMPLEMENTATION STRATEGY AND ROADMAP

16.0 Selection of Watershed Development Projects - Criteria

The watershed development projects will be broadly taken up in the most vulnerable rainfed Districts by prioritization of micro-watersheds.However, the challenges and issues of North-Eastern and hilly States/UTs will be given due emphasis to accommodate the policies and thrust areas of the government for these regions. While prioritizing the watershed projects in the critical areas of the Districts, the following criteria may be used in selection:

a) Frequency of drought occurrence.
b) Acute scarcity of drinking water Degree of over exploitation of ground water resources.
c) Preponderance of degraded lands/wastelands.
d) Decline in Normalized Difference Vegetation Index (NDVI).
e) Status of soil health, aquifer characteristics and topography.
f) Hydrological assessment of surplus run off from watersheds Contiguity to another watershed that has already been developed/ treated.
g) High proportion of population belonging to scheduled castes and scheduled tribes, and other socially & economically backward population.
h) Low productivity of major crops to that of District/State average.
i) Willingness of village community to make voluntary contributions, adopt regulatory norms for maintenance of common property resources, and ensure equitable sharing of the resources/benefits.

17.0. Project Implementation and Management

The contemporary and near future context warrants a paradigm shift in watershed development approach, that is largely describable by ‘biomass generation, crops-livestock system of production, and livelihood options’ This suggests the need for rejuvenation of life in the watershed landscape, with its multiple dimensions of topography, soils, moisture regimes, water bodies, grasses, trees, diverse crop & livestock systems, and people depending on these resources.

Regeneration of landscapes implies regeneration of all these elements of the landscape and their inter-relationships. It also includes various ecosystem services such as base flow in the streams, increased spring discharge, improved pest- predator complex etc., that contribute to enhanced productivity of all the dependent systems while minimizing the use of external inputs.

17.1. Participatory Watershed Development Plans (PWDP)

The vision of the new generation of watershed development projects will be achieved through PWDP prepared by the watershed community with technical guidance from the WDTs.

The following constitute broader components of the watershed development plan:

i. Ecosystem Regeneration and Production.
ii. Natural Resources Management and Governance.
iii. Services & Livelihoods.

These three are organically linked and relate to development, management and governance of natural resources. The plan should focus on effective and efficient use of natural resources to realize better income for the rural people.

In hilly regions, participatory approach should be adapted for springs rejuvenation with meticulous planning, involving communities in twin arrangements in upper and lower reaches.

17.1.1. EcosystemRegeneration and Production Plan

a. Crops and the land use vary in accordance with the topography. Its characteristics and tenurial relations also determine the land use. The watershed landscape is first zoned into relatively homogenous units based on its physical characteristics, usage (crops, grasses, trees) and tenurial status (such as private/ commons/ forest department owned lands). The types of zonation vary across different agro-ecologies.

b. In addition to the physical watershed treatment plan covering *ridge to valley*, the ecosystem regeneration plan should look at the land use crops grown or types of grass lands or vegetation in each of the zones and the status of groundwater/ aquifers etc.

c. The plan should indicate the measures taken up for improving soil health in terms of soil organic matter, regeneration of vegetation, mitigation of climate risks in crop production, crop diversification including horticulture, approach to improve crop (soil) cover for longer duration in a year, arresting land degradation, harvesting rainfall and protective irrigation.

d. An important aspect of this plan is integration and strengthening of livestock production systems, integration of livestock feed and fodder into crop systems, promotion of fodder trees and regeneration of grass lands, as the broad components.

e. The plan for each of the zones must show measurable indicators for assessing the ecosystem regeneration and projected improvement in production of various crop systems as a result of interventions made. The change can be appreciated only when the baseline index of these indicators is included in the plan.

f. For comprehensive *ridge to valley* treatment is the watershed development approach. The forests and common lands on the upper reaches will necessarily constitute the first candidates for watershed activities. Well-treated upper reaches impact the lower reaches including the arable lands positively. The additional benefit of such a treatment would result in improvement in quality of forest, besides augmenting forest produce adding to supplementary income of the community.

Normally, the forest department has a working/management plan for its development, which it carries out through the Joint Forest Management Committees (JFMCs). It is important to plan/align all activities in forest areas in sync with watershed activities following *ridge to valley* approach.

Since it may not always be possible to achieve such perfect alignments in the field, it would be necessary to fund this activity from Project development allocations itself. One may also explore scope for convergence of forest area treatment plan with ongoing afforestation programs and MGNREGS etc.

17.1.2. Natural Resources Management and Governance Plans

These plans will have three parts as discussed below:

a) Maintenance of natural resources related assets

Natural resources related physical works need maintenance, and the bio-works such as plantation require strong protection measures and care. The watershed committee responsible for undertaking treatment works and asset creation should maintain a Watershed Assets Register, and the list of completed works recorded and updated continuously. The completed assets should be transferred to the Gram Panchayat for their continued maintenance at the end of each year of implementation.

A system of annual audit of natural resource assets should be taken up by the GP to assess their status and maintenance needs. These can be integrated into the MGNREGS by a resolution of the Gram Panchayats. The WDT should ensure that these processes are institutionalized into the functioning of Gram Panchayat and followed regularly from 2nd year onwards. The activities planned to achieve this should be submitted as a part of the overall Project development plan.

b) Water Budgeting, Management/Regulatory Norms and Governance

It is crucial for the community to establish reference sites of wells/ bore wells, and regularly monitor groundwater along with local rainfall, so as to arrive at

regulatory norms on water extraction, type of crops to be grown and area coverage.

The groundwater monitoring exercise may be taken up twice a year (April-May & September-October / before the crop season), and results be placed after analysis, before the Gram Sabha. The purpose should be to build a common understanding and consensus in the project community for sustainable use of groundwater. The community should be brought to agree on potential restrictions on new extraction structures, reducing area under water intensive crops and other such norms that economise on water use. These exercises are to be taken up twice a year and activities proposed should be part of the watershed development plan.

A suitable arrangement for carrying out this exercise should be made by PIA in consultation with Watershed Committee and also provide requisite training for the same.

c) Protection and Regulation/Regeneration of Common Lands

Common lands that are typically in the upper reaches of the watershed slopes, including forests, pastures etc. should receive focused attention,along with identification of users, their needs and organizing them into user groups. The plan for regeneration and development should also enlist various products, usufructs arising out of the planned regeneration process, and their benefit sharing norms. Protection measures, norms and their enforcement mechanisms need to be arrived at and must have sanction of the Gram Panchayat.

17.1.3. Services and Livelihood Plan of FPOs

These are essentially *economic growth plans* of the watershed community building upon the social capital base and investments in natural resources. An FPO is formed from the beginning as a business entity that efficiently provides services, organizes inputs, promotes value added commodities produced by local enterprises, and undertakes aggregation and marketing, protecting the interests of small & marginal farmers, SC/ST members and women.

The FPO shall start with organizing the three regular components:

- *Custom Hiring Centre (CHC)*- renting out implements/ equipment/ small machines for use by small holder farmers, women and agriculture labour
- *Input Shop*- where inputs required for farming, small implements, quality seeds (produced by its farmers or procured from outside) are readily available within close proximity

- *Information Centre*- providing weather forecasts, weather advisories, crops and livestock related information, information on various schemes, hosting knowledge sources like videos, a library etc.

The plan for economic growth and livelihood activities ideally starts with assessment of the potential impact on crop, livestock, fish and other agricultural production system that comes from the investments made on natural resources. From the perspective of monetising the produce, attention is needed on post-production activities, including value addition & marketing. Hence, investments for creating/upgrading infrastructure, building human resources and skills, and working capital are assessed, and included in the watershed development plan.

The FPO should be able to undertake these responsibilities by taking active support of Watershed Committees, Gram Sabha and Gram Panchayats.

17.2 Convergence Planning

17.2.1. Several government schemes can complement the watershed development initiatives. Once the overall project development plans is prepared, the WCDC will need to discuss with the PIA supported by its WDT and prioritise the activities. This should also involve exploration of scope for sourcing funds from various ongoing relevant schemes. The focus should be on supplementing project activities and funds by effecting convergence with relevant ongoing schemes.

17.2.2. The final budget of the Watershed Development Plan will thus stand to include the list of planned activities, estimated costs, sources of funds (project fund, convergence fund etc.). The WCDC shall shoulder the primary responsibility for mobilizing convergence of resources from other schemes.

18.0 Springshed Development

Springshed Development will be taken up as an activity under watershed projects. Any intervention attempting to develop springs as a natural resource must involve assessment of geological controls on springs, recharge potential of springs at micro level, maintenance and protection of springs, and effective monitoring of spring discharge and water quality. Spring conservation and management activities should use integrated landscape management approaches to synergize the positive linkages with livelihood practices, while also preventing practices that have negative impacts (overgrazing, deforestation, creation of artificial gullies, haphazard road construction, over-extraction of springs, etc.). Some of the important interventions for spring rejuvenation are as follows:

a) Identification of springsheds within the given area of watershed project.
b) Identification & delineation of catchment area along the spring contributing to the flow/runoff. Catchments must fall in the identified watershed development projects.

c) Identification of aquifer zone contributing towards perennial flow in the spring and its corresponding recharge zone of the aquifer.
d) Treat springshed area inclusive of both aquifer recharge zone and run off catchment area of the spring.
e) Collection of data and information on physiology, geo-location, geology, land use, water quality etc.
f) Assessment of number of households dependent on the spring.
g) Assessing the temporal and spatial trends in the discharge from the springs.
h) Identification of interventions, both vegetative and engineering measures to accommodate diversion of excess run off to the spring from its catchment area.
i) Identification of interventions for both natural and artificial recharge to the aquifer zone contributing sub-surface flow to the spring.
j) Effective monitoring of the spring discharge and water quality during planning, implementation and impact assessment stages.
k) Active community participation in effective water management in the spring and its sustainable use.
l) Protection and regeneration of the recharge zones by the community. This necessitates formulation and adoption of regulatory norms, with active support of the Gram Panchayat.
m) Capacity building is vital especially during the initial phase to develop para-professionals at the block and Gram Panchayat level in hydrogeology to delineate the aquifer recharge zones and design the groundwater recharge structures".
n) The science of reviving mountain springs is still evolving and hence the SLNA is encouraged to partner with suitable research organizations who have expertise and experience in reviving mountain springs.
o) The baseline survey and end-line outcome survey necessarily should be undertaken for springshed activities.

18.1 A detailed Note on springshed development in the Himalayan States / UTs and other locations having presence springs like the Eastern Ghats, the Western Ghats & other hilly areas will be separately issued.

19.0. Project Period and Phasing

All major activities of the Project will be sequenced in an order. While some activities will run in sequence, there will be many that can be rolled out in parallel. The implementing partners may identify all possible parallel activities, as this will help in adhering to the project timelines.

In view of the expanded scope and expectations under the new generation watershed; development program, the project duration would be three to five years. The phases and duration of each phase is shown in the table below, and in subsequent sub-paras, the details are provided

Phase	Name	Duration	
I	Preparatory Phase	upto 1	Year
II	Works Phase	2 to 3	Years
III	Consolidation and Withdrawal Phase	upto 1	Year

19.1. Phase I - Preparatory Phase (upto 1 Year)

The major objective of this phase is to create people-centric platform by mobilizing the project community and setting up institutions. Towards this, the main activities will include the following:

19.1.1. Mobilisation of Community and Promotion of Institutions

a) Mobilizing the local community, creating awareness, leading them into various User Groups around natural resources with a view to promote their sustainable usage, and initiating opportunities for livelihood activities. This also involves orientation of members belonging to GP, local institutions, various stakeholders,and other VLIs.

b) Formation of WCs.

c) Preparing farmers to organise themselves into an FPO, or strengthen the existing ones.

d) Finalising appointment of the Secretaries of WC and FPO, and taking them through the required orientation & training programs.

e) Overall orientation of the people, the local PRI members and the officials concerned to be oriented for executing a community-led watershed project.

f) Day to day functions and activities to ensure progress.

19.1.2. Mapping and Creating Watershed Databases

a) Compilation of basic demographic and spatial data - the data sets accumulating over several planning exercises need to be integrated with the base data/maps, both across households and space.

b) Building Land Resource Inventory (LRI) through compilation of basic site and soil characteristics; hydrological and meteorological data; and socio-economic status. To begin with, states should cover at least 10% of projects under LRI system.

Site and soil characteristics of the watershed - The site characteristics include slope, erosion, drainage, salinity, rock fragments etc. and soil characteristics include depth, texture, colour, structure, consistency, gravels, porosity, soil

reaction etc. The LRI approach has beneficial use for adopting climate resilient agriculture. It helps in deciding site-specific crop selection, nutrient management and improving soil organic carbon content.

Hydrological and meteorological data relate to various data sets in respect of climate (total rainfall, intensity & rainy days, drought frequency, onset & withdrawal dates of monsoon, temperature, humidity, and frequency of extreme weather events etc.) and hydrology (runoff, evaporation, infiltration, sediment load, status of surface irrigation and groundwater etc.)

Socio-economic data includes demographic details inclusive of social & economic status, land holding s, agriculture related backward & forward linkages, ongoing government schemes etc.

c) Baseline surveys needed for preparation of the project development plan, along with that necessary for assessment of project success and end results to be completed. The data must be disaggregated, such that granular data and information are made available to appreciate the benefits that have accrued to different categories of the project stakeholders including the landless, small & marginal farmers, women and SC/ST members.

19.1.3. Participatory Watershed Development Plan (PWDP)

The overall responsibility for preparation of a PWDP for a watershedprojects, along with DPR shall be with PIA, who shall fulfil this by adhering to the norms of these Guidelines.

a) Once a watershedhas been assigned to a PIA, it becomes its responsibility to constitute project level committees, including the all-important watershed committee, and guide it to prepare a comprehensive development plan, by adopting participatory approach. The comprehensive plan for the project period shall show year-wise actions plan indicating various activities/ works. This shall be placed before the Gram Sabha, and with its approval sent up for consideration and approval of the WCDC.

b) At the time of submitting the plan for consideration of the WCDC, project level community institutions, namely, FPO, User Groups, SHG etc. must be in place, and the profile must be incorporated into the Plan.

c) The Plan needs to detail out the potential benefits that will be generated from various interventions in favour of the project community as individuals and as a group, and also the positive impact on the ecology. The time schedules in respect of these varying benefits must also be reflected.

d) In the plan, the project area will need to be clearly delineated by mapping sub-watersheds/landscape zones, and their characteristics. It must contain all baseline data in respect of all the parameters.

   The details relating to existing production systems (activities-crops, livestock etc., cropping intensity, degree of diversification, productivity levels, constraints etc.), and the proposed changes to be adopted for higher productivity and cumulative output may be incorporated.

   The Plan must identify the potential climate risks to production activities, through consultations with the farmers, and show the response mechanisms that will be implemented.

e) Hydro-geological assessment of the watershed includes an inventory of both surface and groundwater resources, identified locations of springs and their characteristics, including delineation of recharge and discharge areas.

f) In case of rejuvenation of springs in hilly areas, details of the aquifer profile and its recharge potential need to be studied for identifying both natural and artificial recharge interventions.

g) Groundwater monitoring and local weather monitoring systems needs to be established based on the hydro-geological assessment for use in participatory water budgeting exercise should to be taken up from the second year.

h) Workout and include detailed resource-use agreements (for surface water, groundwater and common/forest land usufructs) among User Group members in a participatory manner based on principles of equity and sustainability.

i) Common land properties are identified along with their users, the status of the lands is detailed, and the package of activities for regeneration and maintenance of the commons is finalised as a part of the Plan.

j) The WC should take up the responsibility of regular monitoring of groundwater.

k) The plan must also describe the proposed interventions (physical and financial, including the time schedule).

l) Based on the local priorities, the plan may detail the sequence of activities and their budget requirements such that implementation is spaced appropriately for realising the desired quality.However, the resource mapping, problem analysis, and identification of solutions and development of a perspective plan for the entire watershed is necessary to ensure comprehensive treatment.

m) The project plan must be in alignment with the District Irrigation Plan. Water budgeting based on available water and the potential quantum that is proposed to be harvested in the project area, will help in determining an optimal crop plan.

n) Entry point activities are taken up by the WDT to build rapport with the village community and gain their confidence towards people-centric project development.The progress made in respect of the entry point activities like formation of FPO and establishment of custom hiring centre may be included in the plan being submitted. However, a few other activities that the local situation may demand, and the WDT finds it necessary may also be taken up by preferably sourcing funds from ongoing schemes like MGNREGS, RKVY etc.

Formation of FPO with about 300 shareholding members would be an optimal entry point activity for the program. Entry point related budget will be released to the FPO as soon as it has been registered with at least 50 paid shareholders and has a space to open its office. The FPO can then be supported to operationalize a CHC too as its initial activity.

o) The comprehensive project plan containing all details, forms the basis for the program's MIS. It must therefore be elaborate enough in terms of data, information, technical details, budget etc., so that its MIS can be linked with State and National Data Centres.

p) The plan must be flexible enough, so that necessary changes can be effected to accommodate emerging experiences/ learning and innovations felt useful. The plan can be reviewed and amended biannually, if necessary, with the approval of the WCDC.

q) For the purpose of clarity, roll out action plan must show a clearly demarcated project area boundary with specific details of survey numbers, ownership, as also year-wise sites for various works/activities that will be undertaken.

19.2 Phase II –Works Phase

19.2.1. This phase is the heart of the program during which the planned activities will be implemented. The main challenge of the new approach to watershed development arises from the need for taking up an integral view of multiple expectations and harmonising their realization. These include aligning project activities with the working plan of the forest area, development of natural resources, improvement of production systems, enhancement of livelihood options, and enhancement of farmers' income.

19.2.2. The preferable basis of implementation may be landscape zone having specific topography, cropping systems and common challenges issues that need to be addressed. The plan of implementation should parallelly address three streams namely, (a) ecosystem regeneration and production enhancement; (b) natural resources governance; and (c) services & livelihoods.

19.2.3. Implementation in different landscape zones can be prioritized by the WC, based on degree of vulnerability and degradation, high dependence on monsoons, concentration of small &marginal farmers and other factors.

19.2.4. Some of the following activities are suggested that greatly emphasize agronomic, biological and livelihood activities, while not compromising on the needed mechanical measures for soil and water conservation.

a) Multi-purpose trees (fodder, nitrogen-fixing, biomass for incorporation into soils) to be promoted. Nursery raising for fodder, fuel, timber and horticultural species should form an important activity. As far as possible, local species may be given priority.
b) Land development including *in-situ* soil and moisture conservation, and drainage management measures like field bunds, contour and graded bunds fortified with plantation, terracing in hilly terrains etc.
c) Water budget-based promotion of Integrated Farming System (IFS) models, that promote crops, horticulture, livestock and agro-forestry and facilitate deriving the benefits arising from supplementary and complementary relationships among these enterprises.
d) Pasture development to support livestock activities.
e) Exploring the scope for introducing fisheries by assessing the period & availability of water. The tanks/ponds/other water bodies may be designed and executed in accordance with hydro-geological assessment.
f) Veterinary services for promotion of livestock activities.
g) Agro-ecology based crop alignment and demonstrations for popularizing new crops/varieties, animal breeds, resource use efficient practices (soil health card -based soil health management, micro-irrigation systems etc.), and various agronomic practices that help in negotiating production risks (pests, diseases, weather variations etc.).
h) Climate risk management activities like Custom Hiring Centre, portable micro irrigation, drought/flood resistant varieties, protected cultivation, seed bank, fodder bank, tools for dissemination of agro advisories etc.
i) Thrust on secondary agriculture for increased farm income adding value to primary agriculture activities; taking up alternative enterprises that can utilise the available land and labour.

Important and appropriate would be to train and facilitate the project individuals, particularly the landless to take up activities like mushroom cultivation, bee keeping, back yard poultry, compost making, rearing of small ruminants & and rabbits etc.

j) Promotion and propagation of non-conventional energy saving devices, energy conservation measures, bio-fuel plantations etc. This intervention needs careful consideration after examining the local social and cultural milieu, including the critical livelihood options of the household(s) concerned.

19.2.5. In each landscape zone, activities need to be implemented by adopting an ecosystem approach, which implies undertaking related activities simultaneouslyin quick succession, depending upon the nature of activity. When a variety of activities like land development, evidence- based soil health management, *in situ* conservation with biomass production, resilient cropping systems and protective irrigation support is adopted, it brings in the much-needed ecosystem developmental approach and positively impacts farm output. When this ecosystem is further integrated with post-harvest ecosystem comprising primary processing, aggregation and integration into market channel, the farmers will come to benefit from remunerative returns from the produce.

19.2.6. The landscape ecosystem regeneration plan should aim at nurturing different natural resources like soil, water and vegetation by recognising their organic relationship. Hence, the first steps for regeneration will involve marking of such common properties (forest land, pasturelands etc.), and protecting them from access and use for at least three years. During this three years period of rejuvenation, alternate arrangements have to be made to meet the demands like fodder. Further, the protected area will need interventions like land development, soil & water conservation measures, seeding, planting etc.

19.2.7. Soil and moisture conservation measures aid in establishing good biomass. Hence, execution composite measures, which include both mechanical and biological activities and arrest erosion till the time, the biomass takes roots. All activities should aim at reducing the volume and velocity of surface run off.

19.2.8. Take up watershed treatment by building earthen checks, brushwood checks, gully plugs, loose boulder checks, gabion structures, underground dykes, staggered trenches, contour and graded bunds, bench terraces, water harvesting structures {low-cost farm ponds, stream (*nalla*) bunds, check-dams, percolation tanks} and focus on groundwater recharge activities.

Agronomic measures which will support soil conservation & improvement that includes suitable crop systems with multi-tier canopy and root characteristics, legumes covering soil for extended periods of time, and adding biomass to soil should

be practiced to improve soil structure, organic carbon and help in harvesting maximum rain water.

19.2.9. In order to support robust biomass building activities by planting multi-purpose trees, availability of quality planting material is a pre-requisite. Arrangements may be made with established government / certified nurseries in the project area or nearby project areas to grow & supply desired saplings. Improved clones of important plant varieties may also be accessed from organizations like Indian Council of Forestry Research & Education(ICFRE) and others. In specific cases, nursery banks may be established toraise required slips, seedlings, saplings, rootstocks etc. The choice of species is important depending upon the outcome being targeted.

19.2.10. Roll out all initiatives to manage crop residues, as they contain soil enriching properties. All crop residues and lopping from trees planted for generating biomass must be collected and utilised properly. Growing of green manuring species like *subabul, dhaincha* and the like on bunds or as alley crops will strengthen biomass supply.

19.2.11. Livestock is integral to any development plan in rainfed areas. This enterprise should be supported by growing palatable grasses of drought tolerant species, fodder trees in commons and fallow lands, and including fodder species into crop systems, in addition to regeneration activities for pasture lands and forests.

19.2.12. Groundwater monitoring systems are to be established following a detailed exercise on hydro-geological mapping and inventorying of the wells (open and bore wells). Reference wells may therefore be identified and tagged for monitoring purpose. Aquifer mapping through such exercises supported by community participation, will promote assessment of 'water balances' and dialogue around it, paving way for rationalization of crop choice in favour of water use efficiency.

19.2.13. Production Systems Interventions

a) Review the existing crop systems and cultivation practices. Adopt diversified agriculture production system, that includes crops, livestock and educate the farmers to take up scientific & efficient cultivation/rearing management practices. For this purpose, arrange for location-specific varieties of crops and breeds of livestock; and ensure soil health card- based fertilizer management along with soil amendments.

   Educate the farmers about suitable Integrated Farming Systems (IFS), conservation agriculture systems like organic farming, natural farming etc. Promote integrated nutrient, and pest management systems, that rely more on biological and agronomic components and use minimal ratio of agro-chemical inputs (fertilizers, pesticides etc.).

b) In order to scale up alternate production systems (organic farming, natural farming etc,) based on the principles of agro-ecology, documentation of observation and field experiences right from the initial stage should be done. Besides, identification of champion-farmers is equally important, for deploying their services in advocating adoption of successful practices at scale.

c) To popularize the usage of agro-met advisories as inputs for climate related risks. Farmers should be brought onboard and trained in use of mobile-based services which shall pave the way for establishment of a strong network exchange system by adopting sharing platforms like the NICE platform developed under Climate Change knowledge network for Indian Agriculture(CCKN-IA) (climate change knowledge network for Indian Agriculture) or similar other platforms. The single aim should be to transfer real time data among the family of stakeholders. For this, a support system from nearby KVK, SAU etc can be built.

d) Help the WC to prepare and Real Time Contingency Planning (RTCP) conceptualized through AICRPDA. Besides, help farmers to be prepared with contingent seeds etc. This has been found useful in responding positively to situations of seasonal droughts and other weather extreme events.

e) The farmers can secure their yields, if protective irrigation is ensured for the standing crop at its critical stages of growth. Hence, implementation of water harvesting plans in the landscape zone that meet this requirement should be given priority. This is best done by adopting different approaches, beginning with farm ponds (preferably lined), moving onto larger water bodies, and accessing groundwater.

f) Link water sources with micro-irrigation systems for benefitting larger cropped area, and realising water use efficiency. For achieving this, convergence with 'Per Drop More Crop' component (PMKSY) should be explored.

g) Promote renewable forms of energy for various agricultural operations, including, pumping of water in particular. The government scheme like PM-KUSUM, that funds solar power in farm sector may be integrated with the protective irrigation plan of the Project area.

h) Link livestock production systems with FPOs to access, health care, feed and fodder needs of livestock. By implication, enable FPO to develop this capacity in partnership with the Animal Husbandry Department. The FPO may build a system of paid services to support & sustain itself.

i) If the water sources created in the watershed, on private lands or/and common property lands are capable of retaining water for length of time adequate to support fishery, fish-seed enterprises may also be promoted.

j) Promote higher quantum of farm power, by tapping the potential of alternate sources of energy for reinforcing the agro-ecology foundations of the watershed. Hence, work with the FPO for setting up CHC, and enable farmers to avail of its rental services for purpose of adopting clean harvesting, threshing and farm gate primary processing facilities.

k) Strengthening of FPOs to serve multiple tasks for the Project area stakeholders is important. In addition to running a CHC, the FPO will do well to set up and manage an Input Sale outlet. This would enable farmers and other stake holders to purchase their requirements at rational cost. The FPO should assess the type and quantum of various inputs (crops, livestock etc.) and other services, and make them available, so that the farmers come to benefit from the economy of scale.

l) Local enterprises may be encouraged to produce bio-inputs/ botanicals etc. and sale services offered to them at the FPO shop. FPO can also play the banking correspondent role to link farmers with small credit requirements. An imaginative role by the FPOs can aid in efficient delivery of multiple services at the doorstep, besides generating a spin-off advantage of shared destiny among the project stakeholders. An effectively organized and efficiently run FPO therefore becomes very critical for a successful watershed.

19.2.14. These Guidelines aim to establish an intervention platform that treats agriculture as a total value system. The approach therefore focuses on all segments of the production system i.e. pre-production, production, and post-production.

The FPO must be equipped to serve post- harvest management needs of the producers. In order to integrate efficiently the local produce with markets, the FPO should focus on establishing minimum required infrastructure (small storages, transport etc.,), training ability for promoting primary processing, and further capacity to avail of alternate market avenues, that include online trade platforms (for direct sale), linkage with physical markets (GrAMs and APMCs/APMLCs), and also bulk buyers (exporters, processing industries etc).

19.2.15. The WCDCs will need to adopt a process of rating and assessment of FPOs from the perspective of multiple expectations from them. An important aspect of such an assessment would be to identify the capacity gaps and thereafter upgrade their capacity through suitable training programs. This implies the need for the WCDC to be able to meet this requirement by identifying an in-house panel of resources or maintaining such a list available in the market.

19.2.16. An 'Assets Register' is to be maintained by the WC. The assets once complete may be transferred to the Gram Panchayat at the end of every year. The GP will maintain a Natural Resources Asset Register – which will be subject to annual audits.

Similarly, the FPO should also maintain its Asset Register for the assets it created, by using its own funds or from the resources made available to it from the Project fund. This can be capitalized by the FPO for accessing credit from institutions.

19.2.17. A climate-resilient/smart watershed development approach generates several co-benefits for the country, linked to both national and international commitments. Some of these emanated from United Nations Framework Convention on Climate Change (UNFCCC), United Nations Convention to Combat Desertification (UNCCD), Sustainable Development Goals (SDG) etc. The data relating to these may be captured by using the parameters /matrix recommended by the Ministry of Environment, Forest and Climate Change, which is the Nodal Ministry is dealing with these issues.

19.2.18. The WCDC should be capacitated to collect and compile such data points at regular intervals for mainstreaming into national platform. The analysed data can be hosted by DoLR on the national portal, for use by the Nodal Ministry of Central Government.

19.3 Phase III - Consolidation and Withdrawal Phase

Around 3rd to 4th year of implementation of the Project, majority of the planned works would have been executed, and FPO shareholders would have risen to substantial numbers. As planned projects get executed, the role of WC diminishes and that of the FPO, User Groups and SHG increases. Sustainability of economic and ecological benefits from watershed investments is predicated upon effective functioning of these institutions. Sustainability after the completion of project work and withdrawal will also depend upon the quality of works executed. Hence, the phase of consolidation and respectful withdrawal from project work assume importance. In this context, the scope of work during this phase is suggested as follows.

19.3.1. Project Implementation Related

a) Completion and consolidation of all the planned works and activities.

b) Documented experiences of the farmers and identified champion farmers during the 2nd and 3rd years of work can be used to scale up the practices to larger areas.

c) With two years of focus on productivity gains, production increase of targeted commodities can be expected. The FPO now needs to work for a robust post-harvest management by operationalizing basic agri-logistics, primary processing, aggregation and marketing. FPOs will need to prepare an integrated action plan and roll it out during the 4^{th} and 5^{th} years of the project. Promoting warehouse-based storage and electronic Negotiable Warehousing Receipts (eNWR) will address concerns of finances and allay distress sale by farmers.

All such post- harvest issues need to be taken into account while planning production strategies itself, and further needed action plan readied simultaneously. This will make it possible to roll out by 3^{rd} - 4^{th} year of the project period, and exhibit stability as exit begins.

d) Documentation of successful experiences and lessons learnt are useful for course correction and continuous improvement in the quality of implementation. Social media can also be activated to achieve wider dissemination.

e) Prepare for and undertake terminal evaluation of project to evaluate the extent of expected outcomes realized successfully

f) Preparing for and operationalization of capacity building programs for all the community-based organizations (CBOs), so that they will be able to take over management of different tasks after the Project Team withdraws.

19.3.2. Consolidating the Strength of FPO

a) Building capacity of the FPO as a vibrant business organization of farmers is critical to management of the watershed post withdrawal. Annual business plans, linkages with financial institutions, regular updating of books of accounts, legal compliances and functional governance are key responsibilities of a well-functioning FPO.

The outcomes of various capacity building activities and prescribed management processes undertaken as per annual action plans, may be taken stock of, and additional support required to address the gaps provided.

b) Increasing the capital base of the FPO and linkages with financial agencies for credit are crucial for its healthy growth. The WCDC should now ascertain the status of FPO with respect to its areas of activities and annual turnover, bridge the gaps, if any, by offering support from various initiatives of the government. The importance of coordination and convergence cannot be over

emphasized. Facilitating matching grant for the FPO is one such important support.

c) During the 4th and 5th years, FPO must focus on building various backward and forward linkages and infrastructures that will support practice of agriculture as an integrated value system. Convergence with other ongoing Government schemes should be the norm and guiding principle for the FPOs.

19.3.3. Auditing of Natural Resources

a) Natural resources developed need to be used in a sustainable manner by reconciling ecology, equity and economic considerations. The use of, and expected outcomes thereof must be viewed through the prism of balance and harmony. Over-emphasis on any one of these three factors to the neglect of other two should be avoided at any cost.

b) Regularizing the *Annual Audit of Natural Resource Assets: A*ll the natural resource assets created (along with the existing ones) should be visited and assessed by the WC. These assets are to be maintained by tapping different sources of funds – MGNREGS, such other infrastructure funds, and WDF for critical investments and even voluntary contributions in cash or kind.

c) The process of resource audit should also consider, i) implementation of the sharing agreements on usufruct rights; effectiveness of regulatory norms; and ii) health of the natural resource.

d) During the consolidation phase, the core functions of the WC should be institutionalized. Also, the user groups should be active and stable.

19.3.4. During this phase, local-level institutions are expected to reach maturity, and exit protocols now become operative for the PIA. The WCs may begin to use the WDF for repair and maintenance of structures created in Phase II. However, accessing of the fund should preferably happen after exploring sourcing funds from other ongoing schemes.

19.3.5. The classification of activities in the three phases must not be understood in a rigid manner. Many of the Phase III activities may even start in many Project areas during Phase I and/or II itself. Phasing of activities needs to have an internal logic and integrity that must flow through the entire action plan. This will depend on a host of factors such as the prevailing initial conditions, needs and possibilities in each village, response of the community etc. Such flexibility must be built into the action plan and promoted as a distinguishing feature of these Guidelines.

VI

PROGRAM FINANCING

20.0 Allocation of Funds, Approval of Projects

20.1 Allocation of Funds to States /UTs

The National Level Nodal Agency (NLNA) or the National Level Nodal Department (DoLR) would make budgetary allocations in favour of the State Nodal Departments. The guiding principles for fund allocation will broadly be based on:(a) area allocated for new projects, (b) area already sanctioned under ongoing projects & their status of implementation, (c) past performance in utilization of allocated / available funds during last three years, and (d) timely release of State matching share. These guiding principles will take into consideration of unspent balance, pending submission of completion and end-line evaluation reports of projects, outstanding utilization certificates etc. Some specific criteria of fund allocations are as follows:

a) Readiness of State Level 'Perspective and Strategic Plans' to undertake watershed based development projects.
b) The extent of vulnerable rainfed regions in the State, as identified by the NRAA.
c) Within the State, priority to be given to vulnerable Districts i.e. based on, composite index linked to natural resources and livelihood indices of NRAA.
d) For regions heavily dependent on springs for water, springshed development activity to be considered as one of the activities in the watershed projects.Such regions include the Himalayan States / UTs, States having presence of the Eastern Ghats, the Western Ghats, and other hilly areas.
e) The States / UTs will invest or converge their own fundsin watershed projects effectively.

20.1.1 Flow of Funds from GOI to States/UTs

Ministries/Departments of Government of India advise Reserve Bank of India (RBI) to credit the State Government and UTs (with legislature) Accounts held in RBI (except Sikkim) debiting GoI's account (*Ref: OM of MoF, DoE dated 23.03.2021*). On receipt of intimation from RBI for GOI fund receipt, State Govts. shall transfer the Central share along with matching State share into the bank account of Single Nodal Agency (SNA) within a period of 21 days and 40 days respectively as per para 16 of the OM of MoF, DoE dated 23.03.2021 as attached in **Annexure II**. The fund stays in the SNA Account and does not percolate down to the agencies down below. SNAs, if necessary, are permitted to open Zero Balance Subsidiary Accounts (ZBSA) for down the ladder agencies (IA). The funds will be maintained by the SNA in the Single Nodal Account of each CSS. State Governments/SNAs/IAs shall not transfer scheme-

related funds to any other bank account, except for actual payments under the Scheme.

20.1.2 Remittance of Interest Income & other Earnings

The SNAs shall ensure that the interest and other earnings earned from the funds released should be mandatorily remitted to the Consolidated Fund of India on pro-rata basis in terms of Rule 230(8) of GFR, 2017. Also, interest earned should be clearly and separately depicted in PFMS, scheme-specific portals integrated with PFMS and in MIS provided by the banks. Such earnings should not be allowed to be adjusted against future releases.

20.2 Allocation of Funds to Districts

As per the new guidelines of MoF, DoE, PFMS O.M. dated 23.03.2021,the SLNAs will allocate drawing limits to Districts broadly on the basis of following criteria:

a) District Level Perspective and Strategic Plans for watershed based development projects.
b) Extent of net rainfed area under cultivation in District vis-a-vis percentage of the net cultivated area of the State.
c) Extent of wastelands/degraded lands/ panchayat lands in District vis-a-vis percentage of the total geographical area of the State.

20.3 Approval & Sanction of Watershed Development Projects

By the end of February each year, the SLNAs will submit to the NLNA a detailed Annual Action Plan indicating ongoing liabilities as well as new projects which they propose to take up. They will also certify that they are committed to contribute their ratio of matching share. The NLNA will scrutinize proposals based on available information on MIS and recommend to the NLND for consideration of projects and the amount to be sanctioned. Both NLNA and NLND will be guided by the criteria laid down in Paras 20.1 and 20.2, as also the budget available for the year in deciding the specific amounts for individual States/UTs. The NLND will then release sanctions in favour of the State /UTGovernments, which will then add their matching share of funds and release the same to the SLNAs. Thereafter, the SLNA following due process will authorize concerned authorities about project-wise amount to be utilized for implementation. (Referred **Annexure –II**)

20.4 Watershed Budget

The major head-wise distribution of budget for a specific watershed projectwill be as in the Table below:

Major Head	Sub Heads	Percentage of Budget
Administrative	Management Cost	10
	Monitoring & Evaluation	2
Preparatory Phase	Entry Point Activity	2
	DPR Preparation	1
	Institution &Capacity Building	3
Works Phase	Natural Resource Management	47
	Production System	15
	Natural Resource Management & Governance	2
	Livelihood Activities for the asset less persons Micro Enterprises & Business Development	15
Consolidation & Withdrawal Phase		3
	Total	100

Further savings if any (**except** Institution & Capacity Building), in any of the sub-heads may be diverted for activities under any of the head other than Administrative major head, with the approval of the SLNA.

The States/UTs may, set aside 25% of the Scheme outlay (including the Central and State share in a financial year) as *flexi-fund* to be spent on any sub-scheme or component or innovation that is in line with the overall aim and objectives of WDC-PMKSY 2.0. The States setting up such a *flexi-fund*, may take up suitable activities under it by obtaining approval of SLSC. The participation of the NLNA would be mandatory in the SLSC meeting for availing of *flexi-fund* facility. This component can be used to cater to the following objectives:

(a) To provide flexibility to States/UTs to meet specific local needs and requirements withinthe overall objectives of the Scheme at “sub-head level”.

(b) To pilot innovation to improve efficiency within the overall objective of the Scheme at the “sub-head level”.

(c) To undertake mitigation/ restoration measures in case of natural calamities, or to satisfy local requirements in areas affected by severe climatic disturbances.

20.5 Fund Allocation and Approval

Expenditure under various major heads and sub-heads of the budget will be subject to the following conditions:

a) All the administrative expenses incurred by PIA and WC, including the salary of Secretary of the WC, shall be exclusively charged to the Administrative Head.

b) Purchase of vehicles and any equipment, and construction of buildings are strictly prohibited. However, purchase ofcomputers,concomitant paraphernalia and related software is permitted.

20.6 Unit Cost

20.6.1 The unit cost for watershed development projects under WDC-PMKSY2.0 is Rs.22,000/ha for plain areas, and Rs.28,000/ha for hilly & difficult areas (desert areas) and uptoRs. 28,000/ha for LWE/IAP Districts.

The above proposed unit cost norms may form the basis and guiding principle for preparation of DPRs by States/UTs. The Sectoral Group of Secretaries (SGoS), at GoI however, has suggested flexibility in the unit cost norm for States/UTs based on the actual *need* of the project landscape. Accordingly, any cost, over and above the prescribed project cost norm, may be arranged by the State/UT Governments. States/UTs may therefore consider effective convergence with relevant Central and State schemes to ensure development of watershed project areas on saturation basis.

20.6.2 The States/UTs are empowered to sanction and oversee the implementation of watershed projects within their areas of jurisdiction, in adherence to the parameters set out in these Guidelines.

20.6.3 It is expected, that these cost norms will mostly meet expenses on *in-situ* and *ex-situ* initiatives coveringsoil & water conservation in private lands, Integrated Farming Systems, livelihood support activities, secondary agriculture, crop alignment, implementation of contingency plans, climate change adaptation and mitigations measures, strengthening of FPOs and community organizations etc.

Hence, the activities like water harvesting, plantation works in community lands, diversion of water from distant water sources, treatment of forests in the upper catchments etc. may preferably be met from MGNREGS, andafforestation programmes etc. These activities could find place in the*work plan* of the participatory watershed development planning itself.

Mapping of resources from other ongoing schemes should clearly be brought out in the watershed development plan, and once it is approved by SLNA, the concerned District officials of respective line Departments shall be responsible for coordination andconvergence at implementation stage.

21.0 Procedure for Release of Instalments

The applicable sharing pattern of funds between Centre and State shallbe 60:40 for all regions of the country, excluding North Eastern (NE) and hilly States, where the ratio shall be 90:10 or as modified by Government Orders from time to time. For Union

Territories (without legislature),theCentral share shall be 100%. For UTs with legislature, existing funding pattern would be followed. The Central share of funds shall be released to States/UTs based on their Annual Action Plans while considering batch-wise fund requirementson phase of implementation of projects and progress of the projects.

Under WDC-PMKSY2.0, the project period is 3 to 5 years. Accordingly, the project cost is to be released as indicated below to facilitate completion of projects in the prescribed:

Year	First	Second	Third	Fourth	Fifth
Percentage of total cost of projects to be released	25	25	25	15	10

However, if any State /UT complete projects in three years, accordingly the total project cost will be released in three year only.

Funds will be released to the States strictly on the basis of balance funds of the CSS (Central and State share) available in the State treasury and bank account of the Single Nodal Agency (SNA) as per PFMS or scheme-specific portals fully integrated with PFMS in consonance with rule 232(V) of the General Financial Rules, 2017 all as per Ministry of Finance, Department of Expenditure PFMS division OM F.No 1(13) PFMS/FCD/2020 dated 23.03.2021 (**Annexure II**).

The release of funds in a financial year will be made in two installments the. first installment, as 60% of AAP after adjusting unspent balance as on 1st April of the Financial Year.

The second installment shall be released on expenditure of 90% of unspent balance available as on 1st April of FY, and at least 50% of funds released as first installment.The expenditure shall be monitored through PFMS and MIS.

The release of Central funds to States / UTs shall be made on the basis of theirspecific proposals submitted to NLNA. The NLNA will release annual funds, as approved, in installments (Para 21.0) toStates / UTs, who alongwith their State matching share, release / transfer the sum into the SNA account of the SLNA. The fund flow from SNA to various implementing levels should be as per provisions indicated in the PFMS Guidelines given at **Annexure-II**.

21.1 User Charges

The Gram Sabha shall put in place a mechanism for collecting user charges relating to different common assets (whether on public or private land). The WCmay be authorized to collect and maintain accounts for the same. No charge shall, however,

be levied on from the landless, destitute, or differently-abled and women headed households.

The user charges collected shall be credited to the WDF and shall be used for activities as per the extant Guidelines.

22.0 Coordination and Convergence with other Schemes/Programs

22.1 These WDC-PMKSY2.0 Guidelines aims at trinityof targets, of economic growth, equitable sharing of outcomes, and ecological sustainability. The watershed approach of development offers a robust platform for project area inhabitants to be onboard for the common good. While the watershed projects will provide the basic element of rainfed / degraded land development, the realization of trinity of targets will require supplementary and complementary convergence of all Government programmes.

22.2 The District being the basic, integrated and self-contained developmental/administrative unit in the country, the required convergence of various initiatives and coordination of efforts at both, planning and execution stages can effectively materialize at this level. For creating such a conducive environment, the following are suggested.

a) The District Planning Committee (DPC) and the Zilla Parishad to prepare and adopt a "District Perspective Plan on Land and Water Management".
b) The WCDC prepare and adopt a "District Strategy for Watershed Development".
c) The District Administration and Zilla Parishad to offer total support to the WCDC in effecting needed convergence & coordination for comprehensive development at the field level.
d) The PIAs to prepare project-wise convergence matrix and place it before WCDC for approval, which then communicates the Plan to all the line departments and agencies to integrate their respective components into their own program's annual action plans and execute it.

22.3 The convergence & coordination should focuson appropriate interventions at right stages of the production systems and its integration with markets. A regular review by all the supervising and implementing agencies should be ensured in mission mode. Each District strives to adopt 'One District One Product' mode under the watershed project areas.

23.0 Foreclosure of projects

Despite the best intentions and efforts on the part of the authorities and participating communities, there would still be instances of projects not taking off; or having taken off, but not making progress. The option of foreclosure may be exercised in such extreme cases and after due assessment to avoid infructuous expenditure on the projects. The project work should start within two meek of receipt of first instalment by SLNA. The status/progress is to be judged from expenditure statement. An

unsatisfactory project may lead to withdrawal of projects and adjustment of released funds in the projects of the State/ UT.

23.1 Steps can also be initiated for *suo-motu* foreclosure by the State /UTCentral Government under the following circumstances:

a) Consistent apathy on the part of State and District level authorities towards the project
b) Non-submission of watershed plan/approved work plan for 6 months after the expiry of preparatory phase without any valid justification
c) If any matter relating to project is *sub-judice* in any court of law, and no order for staying the project activity has been passed by the court

Any other reasons which may justify foreclosure and as decided by District/State/Centre from time to time.

VII

BUILDING CAPACITIES & PARTNERSHIPS AND EVALUATING OUTCOMES

24.0. Capacity Building Strategy

24.1. Capacity building support is a crucial component in achieving desired results from watershed development projects. Programme Guidelines broadly define the contours of capacity building strategy for watershed development projects in the country.

The DoLR and NLNA may use the services of NRAA as *knowledge partner* for capacity building activities. NRAA will have an MoU with DoLR for undertaking activities enumerated under para 24.2 and 25 below. NRAA couldhelp developing operational strategies for capacity building for States/UTs in consultation with SLNA and other relevant organizations.

24.2. Key Elements of Capacity Building Strategy:

NRAA will collaborate with reputed national resource organizations for developing National and State/UT specific capacity building strategies. Following may be the key components of capacity building strategies:

a) Dedicated and decentralised institutional support and delivery mechanism.
b) Annual Action Plan for capacity building.
c) Pool of resource persons.
d) Well prepared training modules and text materials.
e) Mechanism for effective monitoring and follow-up.
f) E-resources and self-learning modules in the web.

25.0. Resource Organizations and Developing Partnerships

25.1 There are well known national level institutions, which could be roped infor Capacity Building inputs, for orientation & training of senior government officers, other management functionaries and manpower working for VOs/CBOs associated with projects. Some of these are:

National Institute of Rural Development &Panchayati Raj (NIRD&PR), National Institute of Agricultural Extension Management (MANAGE), Central Arid Zone Research Institute (CAZRI), Indian Institute of Soil and Water Conservation (IISWC) and its regional centres, Central Research Institute for Dry land Agriculture (CRIDA) along with its AICRPDA network centres, Water Technology Centres (WTCs), Indian Institute of Remote Sensing, Dehradun, Institute of Rural Management, Anand (IRMA), Indian Institute of Forest Management (IIFM), National Remote Sensing

Centre (NRSC), Indian Space Research Organization (ISRO), Soil and Land Use Survey of India (SLUSI), Central Agro-forestry Research Institute (CAFRI), Indian Council of Forestry Research and Education(ICFRE),National Bureau of Soil Survey & Land use Planning (NBSS&LUP) and Indian Grassland & Fodder Research Institutes (IGFRI). Similarly, support may also be sought from International agencies working in India and having good national and International exposure. These include International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), International Centre for Integrated Mountain Development (ICIMOD), International Water Management Institute (IWMI).

25.2 There are also several reputed voluntary organizations/resource organizations with considerable expertise and experiences related to watershed development projects in particular, and natural resource management in general. Some of them are already functioning as resource organizations for watershed development projects in collaboration with State /UT Governments in different parts of the country. Services of such organizations may also be utilized.

NRAA mayhelp the State /UT governments in preparing a comprehensive list of all such resource organizations (both in public sector and outside) from across the country, and profile their expertise and capacities. As part of this process, NRAA and SLNA may identify National/State/District level resource organizations. Based on this analysis, NRAA may facilitate formal partnerships between and among the Ministries/Departments/SLNA/WCDC and resource organizations from Government/Voluntary/ICAR/CAU&SAU backgrounds. These resource organizations could operate at National/State/District/Sub-District levels, depending on the need and capacity building strategy of each State/UT. SLNA may develop clear Terms of Reference for engaging resource organizations with support from NRAA.

25.3 Depending on the needs, NRAA/NLNA/SLNA could also facilitate Consortium of resource organizations to provide necessary capacity building support to the watershed development projects at various levels.

26.0. Watershed Development Fund (WDF)

26.1 One of the mandatory conditions for selection of villages for watershed projects is people's contribution towards the Watershed Development Fund (WDF). The contribution to WDF may be 10% of cost of NRM works when executed on private lands. However, in case of SC/ST, small and marginal farmers, the contribution may be 5% of cost of NRM works. These contributions may be acceptable either in cash (preferably transferred electronically) at the time of execution of works or in the form of voluntary labour. A sum equivalent to the monetary value of voluntary labour may be transferred from the watershed project account to the WDF bank account that may be maintained in a distinct and independent of the former account. User charges, sales proceeds and other contributions, disposal amounts of intermediate usufruct rights

may also be deposited in the WDF bank account. Income earned from assets created under the project on common property resources constitute another source of funds that can be credited to WDF. Charitable institutions may also be legally facilitated to contribute generously to this Fund.

26.2 The WDF bank account may be maintained as a separate bank account in any of the scheduled commercial bank (public & private), or in cooperative banks under public sector, or Regional Rural Bank (RRB); and is operated jointly by the Chairpersonship of the Gram Panchayat and a representative of the PIA serving as member of the Fund. When the PIA is a Non-Government Organization, a Block level Government representative may be nominated by the WCDC.

26.3 The Secretary, WC should maintain a separate book of accounts for the WDF. The protocol for operation of the Fund should be prepared by the WC and ratified by the Gram Sabha.

26.4 The Fund should be used to take up repair, maintenance and upgradation of common assets created for the benefit of primarystake holders, which may also be supplemented schemes like MGNREGS etc.. When the assets are created on private lands, there should be an agreement between the WC and the owner of the land, to the effect that the asset shall be used for the benefit of the community. This Agreement should be in record maintained by the GP. However, this Fund shall not be used to support activities taken up on private land which benefit the individual alone.

26.5 Initially, the Fund may be invested in long term fixed deposits. The WDF Committee can access this Fund for eligible activities from 3rd year onwards. The idle funds, if available, may be lent to the FPO for using it as working capital for its business operations with the written consent of the full Committee.

26.6 The Gram Panchayat should maintain asset register of natural resources and following registers relating to the WDF:

- Financial status of WDF - receipts and expenditures;
- Receipt book for contributions;
- Assets register & repaired assets register; and
- Cash book, ledger and measurement book.

26.7 The WDF should be managed strictly in accordance with the Guidelines developed for the purpose The Fund must undergo social audit.

26.8 In case cost-intensive farming, system-based livelihood activities/interventions viz. aquaculture, horticulture, agro-forestry, animal husbandry, fishery, secondary agriculture etc. are taken up on private lands, directly benefiting the individual farmers, the project funds may only be spent on the condition of part contribution by

the said beneficiary. Even under this condition, distribution of animals,machinery etc. must be avoided.

26.9 Such individual benefitting activities may be taken up to support the poor households. The contribution of the beneficiary will be 20 % (for general category) and 10 % for (SC/ST members) of the total cost estimate of the activity. However, contribution from project fund shall not exceed two (2) times per hectare cost norm (Rs. 22,000 and Rs. 28,000 for plain and hilly areas respectively). The farmers' contribution i.e. 20% for general category and 10% for SC/ST shall be deposited into WDF, as the case may be.

*Note: Model Guidelines at **Annexure I**, can serve as a template for the States/UTs to design their own.*

27.0. Monitoring & Review, Evaluation, Learning and Documentation

27.1. Monitoring & Review

27.1.1. Regular monitoring of project status may be undertaken at all levels – WC, PIA, WCDC, SLNA and NLNA. The national and State Level Nodal Departments may also take up reviews from time to time. Online monitoring must become a feature of the MIS. This will enable monitoring at all levels on same set of real time data. An IT enabled dashboard with access to all responsible for the monitoring may be developed for this purpose. Monitoring should include process, performance and outcomes.

The PIA shall upload progress reports countersigned by the WC Chairman on real time basis to enable monitoring at various levels.

The WC and PIA should adopt an internal system of review and monitoring, for which the PIA may design its own MIS format.

Review meetings at fixed intervals are also necessary – monthly meetings with all the PIAs in the district by the WCDC; and quarterly reviews by the SLNA; six monthly reviews by the NLNA.

The National and State Nodal Departments may also undertake reviews at their levels at suitable intervals.

To facilitate a qualitative monitoring & review system, NLNA and SLNA may design and develop suitable MIS.

27.1.2. The NLNA and SLNA may ensure overseeing various functions :

a) Internal monitoring by project teams (PIA/WCDC)

b) Progress monitoring
   - GIS/ Web based on-line monitoring;
   - Self -monitoring by communities;
   - Sustainability monitoring;
   - Social audits;
   - External monitoring by independent agencies; and
   - Process monitoring.

c) Evaluation based on Key Performance Indicators (KPIs)

27.1.3. Basis of KPIs: End Results & Success Criteria linked to principles of economy, ecology and equityshould form the basis for defining location- specific KPIs for evaluating the watershed projects. NLNA/DoLR may prescribe set of KPIs to maintain uniformly in reporting.

The SLNAsadd other such specific KPIs in partnership with the WCDCs.

27.2. Evaluation

In order to support timely evaluation of projects, both National level and State level Panel of Agencies shall be maintained by NLNA and SLNA respectively.

27.2.1. A minimum percentage of evaluations and impact studies will be carried out by national level agencies which may help in deriving strategic lessons for course correction, if any, in the approach and designs of the project and its implementation, and assess whether vision of economy, equity and ecology is being realized at ground level.

27.2.2. The SLNA, by utilizing the services ofState panel of evaluators, may also take up evaluation studies with focus on State/UT-specific issues. The findings should help effecting necessary changes in implementation strategy and reorienting focus on different components of the project development plans, if required.

The project-wise evaluation may be undertaken by the WCDC by deploying the State empanelled evaluators.

27.2.3. The purpose of project-wise evaluation would be to identify process gaps and assess performance and quality of outcomes. The evaluation will be on physical, technical and financial aspects of the project.

27.2.4. Each project will be subject to two evaluations, namely, ‘mid-term’ and ‘end-of-term’. While mid-term evaluation shall be taken up at the end of 2nd year, the end-of- term evaluation shall be taken up at the end of the project completion.

27.2.5. A separate set of Guidelines on evaluation may be evolved for this purpose by NLNA in consultation with States / UTs.

27.2.6. Assessment co-benefits

In addition to direct benefits from watershed/springshed development projects, there accrue a number of co-benefits over the project period which support the ecosystems and benefit the societyat large. Hence, they are valuable data points for reporting the national achievements *vis-à-vis* its international commitments, on United Nations Framework Convention on Climate Change (UNFCCC),United Nations Convention to Combat Desertification (UNCCD), Sustainable Development Goals (SDGs), NDCs platform etc. An appropriate methodology and template may be developed to collect data points on definite periodicity and on a defined metrix so as to assess the progress on co-benefits accrued to the communities.

DoLR with the help of a specialist group of experts and in consultation with States /UTs, may facilitate development of the framework and modalities of such an assessment. These methodologies will be incorporated into the regular monitoring mechanism of the watershed projects.

27.3. Learning

The development strategy to succeed needs dynamism at both, the planning and the implementation stages. This necessitatesorganic integration of the two through a two-way exchange of inputs. This can be effected by adopting a cycle of "Implementation-Learning-Design Change".

Learning related to institutions, technology, processes, resource allocation and impacts, besides other aspects of implementation can feed as valuable inputs for effecting necessary modifications and designing of the course of implementation. Parallelly, the best practices can be shared with others, thereby promoting the universalization of learning.

Some of the indicative activities envisaged may be as follows:

a) Establishing experience sharing and exchange platforms for practitioners within and across the Districts,States/UTs, and at National Levels.

b) A two day annual State level 'Watershed Experience Sharing Meet' may be organized by the SLNAs. All the State WCs and PIAs may present their work progress, their learning (Do's and Don'ts), their success stories and innovative practices etc.. The purpose is to trigger and create a culture of cross learning among the project communities. Participants from other States/UTs may also be invited to bring vigour in the process of learning.

Instituting and presenting 'Awards' at such meets will help in recognising performance and building an *esprit de core* among those working for these development projects. It is important that such meets be *independent* of 'project reviews' for successfully creating a learning ambience.

c) An exercise similar to that at the state level may be conducted by organizing National Meet / Manthan on Watershed Development. An *Annual Status Paper on Watershed Development* may also be released on such occasions. Further, a compilation of success stories and innovative practices may be published for promoting their adoption.Instituting National Awards to best performing States/UTsand other categories may also be taken up.

d) A system of open access to data and information about projects, proactive exchange and engagement with academic and research bodies would be highly beneficial for the SLNAsto bring about systemic improvements.

27.4 Documentation:

Documentation may includes activities like:

i. Publication of success stories, pamphlets, brochures.
ii. Documentation of the project area through Satellite pictures (if possible, through Drone services for better resolution) before implementation of the programme. It will helps in comparing the post project impacts of the project.
iii. Documenting and uploading the Geo-tagged photos of all activities before implementation, during implementation and after implementation for better transparency will be mandatory.
iv. 3-4 Video documentation of the Successful activities in each of the project in both local and English language.

28.0. End Results

Each of the Watershed Development project is expected to achieve following results by the end of project period:

a) All planned works and activities have been successfully completed, and there is visible reduction in soil erosion, increase in ground water table, and enhanced green cover over both arable and non-arable lands surfaces in the project area.
b) The Gram Panchayat has willingly taken over operation and maintenance responsibility of assets created and transferred to them.
c) The community organizations namely, FPO, WDF, SHGs, User Groups etc. are operating well.

d) The FPO has large number of shareholding members and a healthy capital base; and has well managed CHC, Input Sale Outlet, basic agri-logistic infrastructure and market facilitation for local agri-commodities.
e) There are increase in productivity levels of various crops and livestock.
f) There exist alternate livelihood options for all members of project community – farmers, landless agricultural labours, livestock keepers, artisans etc.
g) The project community finds value in sustaining the treated land areas under projects and is well capacitated to manage it as a collective group.
h) There is increase in cropping intensity, greater diversification of agricultural production system, and the total agricultural output rises substantively.
i) Various regulatory norms for use of water (viz water budgeting) and access to usufructs rights over assets are in place, and are adhered to by the local communities.
j) There is increase in average income of the project farming communities.
k) The project communities adopt watershed project to ensure economic growth and ecological rejuvenation of the landscape.

ACRONYMS

AICRPDA	All India Coordinated Research Project for Dry land Agriculture
AKRSP	Aga Khan Rural Support Program (Gujarat)
APMC	Agriculture Produce Market Committee
APLMC	Agriculture Produce and Livestock Market Committee
ARAVALI	Association for Rural Advancement through Voluntary Action and Local Involvement (Rajasthan)
CAFRI	Central Agro-forestry Research Institute
CAMPA	Compensatory Afforestation Fund Management and Planning Authority
CAU	Central Agricultural University
CAZRI	Central Arid Zone Research Institute
CCKN-IA	Climate Change Knowledge Network for Indian Agriculture
CGWB	Central Ground Water Board
CHC	Custom Hiring Centre
CIG	Commodity Interest Group
CRIDA	Central Research Institute for Dryland Agriculture
CSOs	Civil Society Organisations
CYSD	Centre for Youth and Social Development (Orissa)
DFI	Doubling Farmers Income
DHAN	Development of Humane Action Foundation (Chaminade)
DLNA	District Level Nodal Agency
DPC	District Planning Committee
DPRs	Detailed Project Reports
DSC	Development Support Centre (Gujarat)
eNAM	electronic National Agriculture Market
eNWR	electronic Negotiable Warehouse Receipt
FIG	Farmer Interest Group
FPOs	Farmers Producer Organisations
GHG	Green House Gas
GIS	Geological Information System
GP	Gram Panchayat
GPDP	Gram Panchayat Development Plan
GrAM	Grameen Agriculture Market
GS	Gram Sabha
ICAR	Indian Council of Agricultural Research
ICFR	Indian Council of Forestry Research
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ICIMOD	International Centre for Integrated Mountain Development
IEC	Information, Education and Communication
IFS	Integrated Farming System
IGFRI	Indian Grassland & Fodder Research Institutes
IOT	Internet of Things

IIFM	Indian Institute of Forest Management
IIRS	Indian Institute of Remote Sensing
IISWC	Indian Institute of Soil and Water Conservation
IMD	India Meteorological Department
IRMA	Institute of Rural Management
ISRO	Indian Space Research Organization
IWMI	International Water Management Institute
IWMP	Integrated Watershed Management Programme
JFMC	Joint Forest Management Committee
KVK	KrishiVigyan Kendra
LDN	Land Degradation Neutrality
MANAGE	National Institute of Agricultural Extension Management
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MIDH	Mission for Integrated Development of Horticulture
MNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MoEF&CC	Ministry of Environment, Forest & Climate Change
MYRADA	Mysore Resettlement and Development Agency (Karnataka)
NABARD	National Bank For Agriculture & Rural Development
NAP	National Afforestation Programme
NBM	National Bamboo Mission
NBSS&LUP	National Bureau of Soil Survey & Land Use Planning
NCDEX	National Commodity & Derivatives Exchange Limited
NDC	National Data Centre
NDCs	Nationally Determined Commitments
NDVI	Normalized Difference Vegetation Index
NER	North Eastern Region
NFSM	National Food Security Mission
NGM	National Gokul Mission
NGOs	Non-Government Organizations
NICE	Network for Information on Climate (Ex) Change
NIRD	National Institute of Rural Development
NLNA	National Level Nodal Agency
NMSA	National Mission for Sustainable Agriculture
NRAA	National Rainfed Area Authority
NRLM	National Rural Livelihood Mission
NRSC	National Remote Sensing Centre
PIA	Project Implementing Agency
PM	Project Manager
PMKSY	PradhanMantriKrishiSinchayeeYojana
PPPs	Participatory Project Plans
PRA	Participatory Rural Appraisal
PRADAN	Professional Assistance for Development Action (Jharkhand)
PWDP	Participatory Watershed Development Plan
R&D	Research & Development

RKVY	Rashtriya Krishi Vikas Yojana
RS	Remote Sensing
RTCP	Real Time Contingency Planning
RWUE	Rain Water Use Efficiency
SAUs	State Agricultural Universities
SC	Springshed Committee
SDC	State Data Cell
SDGs	Sustainable Development Goals
SHG	Self Help Group
SI	Springshed Institution
SLNA	State Level Nodal Agency
SLSC	State Level Sanctioning Committee
SLND	State Level Nodal Department
SLUSI	Soil and Land Use Survey of India
SMAF	Sub-Mission on Agroforestry
SOC	Soil Organic Carbon
SoI	Survey of India
SPS	Samaj Pragati Sahyog (MP)
TGA	Total Geographical Area
UG	User Group
UNFCCC	United Nations Framework Convention on Climate Change
UNCCD	United Nations Convention to Combat Desertification
VLI	Village Level Institute
VO	Voluntary Organization
WASSAN	Watershed Support Services and Activities Network (Andhra Pradesh)
WC	Watershed Committee
WCDC	Watershed Cell cum Data Centre
WDF	Watershed Development Fund
WDP	Watershed Development Project
WDT	Watershed Development Team
WI	Watershed Institution
WOTR	Watershed Organisation Trust (Maharashtra)
WTC	Water Technology Centre
ZP	Zilla Parishad / Panchayat

Annexure I

Model Guidelines - Creation and Utilization of Watershed Development Fund

1.0 Introduction

The experience of watershed development projects in India over the last more than two decades has been a mix of success and shortcomings. Poor sustainability of treated projects especially, post withdrawal of project implementation team pose serious challenges.

Various developmental initiatives encompassing engineering & biological activities are not sustained, leading to degradation over time. An important reason for this situation is absence of ownership of assets created during the treatment phase and the concomitant responsibility for their management. And this is compounded by lack of dedicated funds to undertake Operation &Maintenance (O&M) activities by an appropriate agency.

It is important, that a comprehensively treated watershed is maintained, so that it continues to serve the ecological demands of the project area and economic needs of the project community on a sustainable basis.

Hence, the creation of a Watershed Development Fund, will serve the critical needs of maintenance of assets.

1.1 Watershed Development Fund (WDF)

The ‘New Generation Watershed Development Projects Guidelines, 2021’now being rolled out withan aimto ensure comprehensive development of watershed development projects. Hence, the Fund created shall be called ‘Watershed Development Fund (WDF)

2.0 Creation of Fund

2.1 Watershed Development Fund (WDF) shall be created at each watershed level in all the Watershed Development Project for ensuring post-project maintenance of so created community assets. One of the mandatory conditions as per the Guidelines for selection of villages for watershed projects is people’s contribution towards the Fund.

The Guidelines envisage that a part of contribution of natural resource management (NRM) works shall be contributed by the owners of land, when executed on their land. This norm has been fixed at 10% for general category farmers, and 5% in case of SC/ST farmers. This can serve as the seed money for the Fund (Para 26.1 of the Guidelines).

2.2 **Sources of Fund**

2.2.1 The following sources may contribute towards this WDF:

a) Contributions made by the farmers against NRM works taken up on private lands @ 10 % and 5 % in case of general category and SC/ST category farmers respectively (Para 26.1 of the Guidelines).
b) Contributions made by the farmers when receiving benefits from individually livelihood activities (horticulture, animal husbandry, agro-forestry, aquaculture, water bodies and the like) on their privately owned lands(Para 26.8.1 of the Guidelines). The contributions shall be @ 20 % and 10 % of the estimated cost of the farming system activity (example at **Table A**).
c) Collections made by the Watershed Committee on account of user changes, sale proceeds and recurring incomes earned from the assets created in the project area (this includes existing ones too) over common properties (land, water, pastures etc).
d) Contributions received from philanthropic individuals and institutions. (Due process of law will have to be followed to receive such nature of funds, when contributors can benefit from exemptions under the provisions of Income Tax Act against their contributions).

2.2.2 The contributions made by the farmers vide 2.2.1 (a) and (b) above will be accepted either in cash (preferably transferred electronically) or in terms of voluntary labour-manpower, machine power, draught animals etc. in execution of the work/activity. When the contributions are in kind, a sum equivalent to the monetary value of the said contribution(s) shall be transferred from the Project development account to the WDF account.

3.0 **Composition of WDF and Joint Bank Account**

3.1 **Composition of the Committee**: The WDF will be handled by a Sub-committee approved by the Gram Sabha, comprising of members of the project area. All members of the Watershed Committee including its selected Chairperson and excluding the selected Secretary shall become *ex-officio* members of this Fund. The Sarpanch/ Chairperson of the Gram Panchayat, and not the Chairperson of the WC shall serve as the Chairman of the Fund.

3.2 **Joint bank account**: An exclusive joint back account shall be opened in any of the scheduled commercial bank (public or private), or public sector cooperative bank or Regional Rural Bank (RRB) in the name of the Chairperson of the Gram Panchayat, and the PIA representative on the Fund Committee. In case of the PIA being a Non-Government Organization, the DLNA (District Level Nodal Agency) shall nominate one of the Block level Government officers to hold and operate the joint account. This too shall be placed before the Gram Sabha for its approval.

Fund shall be used optimally and in a transparent manner. It may be invested in medium/long term deposits after assessing current and future the requirements.

4.0 Registration of WDF:

The Committee constituted by the Gram Sabha in accordance with the procedure vide Para 3.1 *ibid* may either be registered as an independent society under the provisions of the Societies Registration Act,1860 or be considered as a Sub-committee of the already registered WS, by incorporating a specific provision to this effect. In the alternative, the Gram Sabha may consider recommending to the Gram Panchayat recognise this as one of its Sub-committee.

5.0 Utilisation of the Fund

5.1 The money from the Fund can be utilized for post-project activities, when the project implementation team has withdrawn at the end of completion of the developmental activities. The utilization shall be as follows:

a) A sum amounting to 50 % of the Fund shall be reserved for maintenance of assets created on community properties (land, water, pastures, etc.) or/and common uses under the project
b) The remaining 50 % may be used as 'Revolving Fund' for advancing loans to the stakeholders of the project area.

5.2 After the end of project implementation phase, the project area may be visited by different agencies like Gram Panchayat member(s), Project Implementation Agency (PIA), Watershed Committee either individually, or preferably jointly. During such visits, they may take stock of the health of the project area, and also identify community assets and common benefit resources that may be in need of repair, renovation, upgradation or general maintenance for upkeep. This list may be submitted to the Gram Panchayat who shall then get Plan and Estimates (P&E) prepared following due process/procedure applicable to MGNREGS activities.

The proposed activities along with P&E may be placed before the Gram Sabha for consideration. The GS may scrutinize and prioritise the works to be taken up based on important and funds available.

The GS approved works may then be processed by the GP, and sanction obtained from the competent authority following due procedures in currency.

The money required for execution of the sanctioned works/activities may then be withdrawn from the WDF, as the case may be. The Gram Panchayat may also consider supplementing the expenditures from the Fund if it feels necessary and appropriate.

All works/activities shall be taken up in strict accordance with the eligibility criteria as laid down for use of WDF.

The inspecting Team may also assess the maintenance needs of the NRM works executed on private lands, and advise the individual farmer to repair, renovate etc. Since such works cannot be funded from WDF, the GP may support the farmer under any of their schemes, if the relevant provisions allow it. Both private and public interventions are organically linked in a watershed and therefore, this support is advised.

6.0 Operational Guidelines for WDF

6.1 **Assets that need maintenance**: Various types of engineering structures & biological interventions like water harvesting structures such as check dams, *nala* bunds, diversion drains, percolation tanks, vented dams, farms ponds, artificial recharge structures, equipment for natural resource governance, specific interventions for spring rejuvenation etc., created in the watershed are prone to damages by stray cattle, rain, sunshine, wind and unexpected natural calamities. Over the period there can also be natural damage or there may be need for its renovation for better results.

There may be need strengthen or rejuvenate biological activities like block plantations pastures etc.

In such cases, if the assets exist on common properties, resources from WDF may be accessed and works taken up in strict adherence to Para 4.0. Expenditure can be incurred also on assets built on private land but serve the community, and an agreement to this effect has been created between the WC and the land owner, and this has been shared with the GP.

6.2 **Monitoring of the Fund**: The amount available in the WDF account can be spent for post-project maintenance activities in the manner as shown in the Table below:

S.No.	Year	Principal amount	Interest accrued
1.	1st year	10%	30%
2.	2nd year	15%	25%
3.	3rd year	20%	20%
4.	4th year	25%	15%
5.	5th year	30%	Remaining interest

6.3 Maintenance of Registers: The Gram Panchayatshould maintain the following registers relating to the Fund, for each of the Projects executed in its jurisdiction:

i. Financial status of WDF;Receipt book for contributions;
ii. Asset register & repaired asset register; and
iii. Cash book, ledger & measurement books.

6.4 Inspection of works and accounts: The State Level Nodal Agency (SLNA), State Level Nodal Department and their authorized officers, WCDC and the Project Manager, as also the officer(s) authorized by him are fully empowered to check the accounts of WDF, and quality of works undertaken from time to time.

Table-A: Example showing contribution pattern by farmers for individual activities assuming the total cost of farming system activity / intervention is Rs. 60,000:

Sl.	Activity/Item	Amount (in Rs)
1	Assuming cost of farming system activity per hectare	60,000
2	Cost of farming system activity to be met from Project fund (@Rs 28,000/ha project unit cost assuming it a case of hilly area)	
	General category	56,000
	SC/ST	56,000
3	Farmers' contribution towards WDF	
	General category, 20% of Rs.56,000	11,200
	SC/ST category, 10% of Rs.56,000	5,600
4	Cost of farming system activity to be met from Project fund	
	General category	44,800
	SC/ST category	50,400

Note:

a) In the above case, the project fund to be spent is restricted to 2 times per ha. norms of Rs. 28,000 i.e., Rs. 56,000(assuming hilly area). Hence, both GC and SC/ST category farmers are entitled to the project fund on the farming system activity that costs less than Rs. 56,000 for hilly areas and Rs. 44,000 for general areas. In such case proportionate contribution based on actual cost has to be made by the beneficiary.

b) Farmers' contribution to WDF in such case would be acceptable in cash (including electronically transferred) at the time of execution of works.

c) The farmers' contribution will vary according to the unit cost of the farming system activity taken up for implementations in his land.

Table-B: Example showing contribution pattern by farmers for individual activities assuming the total cost of farming system activity / intervention is Rs. 40,000:

Sl	Activity/Item	Amount (in Rs)
1	Assuming cost of farming system activity per hectare	40,000
2	Cost of farming system activity to be met from Project fund (@Rs 28,000/ha project unit cost assuming it a case of hilly area)	
	General category	40,000
	SC/ST	40,000
3	Farmers' contribution towards WDF	
	General category, 20% of Rs. 40,000	8,000
	SC/ST category, 10% of Rs.40,000	4,000
4	Cost of farming system activity to be met from Project fund	
	General category	32,000
	SC/ST category	36,000

****

Annexure II

F. No. 1(13)PFMS/FCD/2020
Government of India
Ministry of Finance
Department of Expenditure
PFMS Division

Block No.11, 5th Floor,
CGO Complex, Lodhi Road,
New Delhi, dated 23.03.2021

OFFICE MEMORANDUM

Subject: Procedure for release of funds under the Centrally Sponsored Schemes (CSS) and monitoring utilization of the funds released

The General Financial Rule 232(v) prescribes the release of funds to the State Governments and monitoring utilization of funds through PFMS. For better monitoring of availability and utilization of funds released to the States under the Centrally Sponsored Schemes (CSS) and to reduce float, the Department of Expenditure vide letter of even number dated 16.12.2020 had shared a draft modified procedure for release of funds under CSS with all the State governments and Ministries/Departments of the Government of India to seek their comments. The comments received from the State governments and Ministries/Departments of the Government of India were considered and the procedure has been suitably modified.

With a view to have more effective cash management and bring more efficiency in the public expenditure management, it has been decided that the following procedure will be followed by all the State Governments and Ministries/Departments of the Government of India regarding release and monitoring utilization of funds under CSS with effect from 1st July, 2021:

1. Every State Government will designate a Single Nodal Agency (SNA) for implementing each CSS. The SNA will open a Single Nodal Account for each CSS at the State level in a Scheduled Commercial Bank authorized to conduct government business by the State Government.

2. In case of Umbrella schemes which have multiple sub-schemes, if needed, the State Governments may designate separate SNAs for sub-schemes of the Umbrella Scheme with separate Single Nodal Accounts.

3. Implementing Agencies (IAs) down the ladder should use the SNA's account with clearly defined drawing limits set for that account. However, depending on operational requirements, zero-balance subsidiary accounts for each scheme may also be opened for the IAs either in the same branch of the selected bank or in different branches.

4. All zero balance subsidiary accounts will have allocated drawing limits to be decided by the SNA concerned from time to time and will draw on real time basis from the Single Nodal Account of the scheme as and when payments are to be made to beneficiaries, vendors etc. The available drawing limit will get reduced by the extent of utilization.

5. For seamless management of funds, the main account and all zero balance subsidiary accounts should preferably be maintained with the same bank. However, State Government may choose different banks for opening Single Nodal Accounts of different CSS.

6. Only banks having a robust IT Systems and extensive branch network should be chosen for opening the Single Nodal Account of each CSS. The bank chosen should have the facility to open the required number of subsidiary zero balance accounts and a robust MIS for handling accounting and reconciliation at each level. The bank should also provide a user friendly dashboard to officers at various levels to monitor utilization of funds by IAs.

7. The bank's software system should be able to monitor the drawing limits of the IAs who should be able to draw funds on real time basis from the SNA's account as and when payments are to be made. The selected bank should ensure proper training and capacity building of branch managers and other staff for smooth operation of these accounts.

8. The Ministries/Departments will release the central share for each CSS to the State Government's Account held in the Reserve Bank of India (RBI) for further release to the SNA's Account.

9. Funds will be released to the States strictly on the basis of balance funds of the CSS (Central and State share) available in the State treasury and bank account of the SNA as per PFMS or scheme-specific portals fully integrated with PFMS in consonance with rule 232(V) of the General Financial Rules, 2017.

10. The SNAs shall ensure that the interest earned from the funds released should be mandatorily remitted to the respective Consolidated Funds on pro-rata basis in terms of Rule 230(8) of GFR, 2017. Interest earned should be clearly and separately depicted in PFMS, scheme-specific portals integrated with PFMS and in MIS provided by the banks.

11. Except in case of schemes/sub-schemes having no State share, States will maintain separate budget lines for Central and State Share under each CSS in their Detailed Demand for Grants (DDG), and make necessary provision of the State share in the State's budget. While releasing funds to SNA, State's Integrated Financial Management Information System (IFMIS) should provide these budget heads and the same should be captured in PFMS through treasury integration.

12. In the beginning of a financial year, the Ministries/Departments will release not more than 25% of the amount earmarked for a State for a CSS for the financial year. Additional central share (not more than 25% at a time) will be released upon transfer of the stipulated State share to the Single Nodal Account and utilization of at least 75% of the funds released earlier (both Central and State share) and compliance of the conditions of previous sanction. However, this provision will not be applicable in case of schemes where a different quantum of release has been approved by the Cabinet.

13. After opening of Single Nodal Account of the scheme and before opening zero balance subsidiary account of IAs or assigning them drawing rights from SNA's account, the IAs at all levels shall return all unspent amounts lying in their accounts to the Single Nodal Account of the SNA. It will be the responsibility of the State government concerned to ensure that the entire unspent amount is returned by all the IAs to the Single Nodal Account of the SNA concerned. For this, the State Governments will work out the modalities and the timelines and will work out Central and state share in the amount so available with IAs.

SNAs will keep a record of unspent balance lying in the account of IAs and the amount refunded by IAs.

14. Refund of balance amount by IAs and the amount available in the SNA's account should be taken into account by the Program Division of the Ministry/Department while releasing funds under the scheme. Concerned SNAs shall keep a record of the unspent amount lying in the account of IAs to be deposited in the Single Nodal Account while assigning drawing rights to IAs.

15. Ministries/ Departments will ensure that releases under all CSS are made strictly as per the actual requirement on the ground, without resulting in any material float with the implementing agencies at any level.

16. The State Government will transfer the Central share received in its account in the RBI to the concerned SNA's account within a period of 21 days of its receipt. The Central share shall not be diverted to the Personal Deposit (PD) account or any other account by the State Government. Corresponding State share should be released as early as possible and not later than 40 days of release of the Central share. The funds will be maintained by the SNA in the Single Nodal Account of each CSS. State Governments/SNAs/IAs shall not transfer scheme-related funds to any other bank account, except for actual payments under the Scheme.

17. State Governments will register the SNAs and all IAs on PFMS and use the unique PFMS ID assigned to the SNA and IAs for all payments to them. Bank accounts of the SNAs, IAs, vendors and other organizations receiving funds will also be mapped in PFMS.

18. Payments will be made from the zero balance subsidiary accounts up to the drawing limit assigned to such accounts from time to time. Transactions in each Subsidiary Account will be settled with the Single Nodal Account daily through the core banking solution (CBS) on the basis of payments made during the day.

19. SNAs and IAs will mandatorily use the EAT module of PFMS or integrate their systems with the PFMS to ensure that information on PFMS is updated by each IA at least once every day.

20. SNAs will keep all the funds received in the Single Nodal Account only and shall not divert the same to Fixed Deposits/Flexi-Account/Multi-Option Deposit Account/Corporate Liquid Term Deposit (CLTD) Account etc.

21. The State IFMIS should be able to capture scheme component-wise expenditure along with PFMS Scheme Code and Unique Code of the Agencies incurring the expenditure. State Governments will ensure daily uploading/sharing of data by the State IFMIS/Treasury applications on PFMS. PFMS will act as a facilitator for payment, tracking and monitoring of fund flow.

22. Release of funds by the Ministries/Departments to States towards the end of the financial year should be avoided to prevent accumulation of unspent balances with States. Ministries/Departments will arrange to complete the release well in time so that States have ample time to seek supplementary appropriations from their respective legislatures, if required, and account for all the releases in the same financial year.

23. In case of CSS having no State share and where as per the scheme guidelines, funds are released by the Central Ministry/Department directly to the districts/blocks/Gram Panchayats/Implementing agencies, the requirement of notifying a single Nodal Agency and opening of a Single Nodal Account at the State level may be waived by the Secretary of the Central Ministry/Department concerned in consultation with the Financial Adviser.

24. UTs without legislature work directly in PFMS. Therefore, there is no need for them to open a Single Nodal Account. They will ensure that the funds are released to the vendors/beneficiaries 'just in time'. In case funds are to be released to any agency as per scheme guidelines, provision of Rule 230 (vii) of GRF 2017 will be strictly followed to avoid parking of funds, with agencies.

25. Ministries/Departments shall undertake monthly review of the release of funds (both the Central and State Share) from the State treasury to the SNA, utilization of funds by SNAs and IAs and outputs/outcomes vis-à-vis the targets for each CSS.

This issues with the approval of Secretary (Expenditure) and shall supersede all earlier guidelines on this subject.

23/3/21

(Subhash Chandra Meena)
Director (FCD)
011-24368543
E-mail: subhash.meena@nic.in

To,

1. All Secretaries to the Government of India
2. All Financial Advisors to the Government of India
3. All Pr. CCAs/CCAs of all Ministries/Departments

Copy to:

1. PSO to Secretary (Expenditure)
2. PPS to CGA
3. Sr.PPS to Addl. Secretary (Expenditure)
4. PSO to Addl. Secretary (Pers)
5. Sr. PPS to JS (PFC-II)
6. Sr. PPS to JS(PF-S)