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GOVERNMENT INITIATIVES FOR WATER MANAGEMENT

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Water is an essential resource for the development, maintenance and sustainability of agriculture and every living organism. Since the existence of this planet the importance of water has been known very crucial for fulfilling prime necessities of all living organisms. Thus land, water, air, fire and sky (PANCH MAHABHOOTAS) are very important for the development of mankind. Among them land and water are the most precious natural resources, they are vital for creation and sustenance of life and its importance in human civilization needs no elaboration. At present, the soil and water resources of the planet are under intensive use and misuse. The needs of agricultural, industrial, domestic and others often result in diversion from one use to the other. Diversion of land use adversely affects the growth in agriculture; even the available land is degraded. Where, water is fugitive. It flows under gravity. The purpose of soil conservation is not only to preserve the soil but also to capture the rainfall, slow down the water flow and to enhance infiltration. These are not new insights. The Upanishad states: if water is running, make it walk; if water is walking, make it stand; if water is standing, make it sit; if water is sitting, make it sleep.

Water seems over-abundant on this planet: three quarters of earth's crust is covered by water. Out of the total available water, around 98.00% is in the oceans, while the fresh water constitutes a very small proportion, 35 million cubic kilometres (2.50%) of this total volume. Of these 68.90% (24 MCKs) lies frozen in the form of ice and permanent snow cover in mountainous and Polar Regions of Antarctic and Arctic while, 29.90% present as groundwater (deep up to 2,000 meters). Effectively available for consumption and other uses is a small proportion available in rivers, lakes (0.30%) and 0.90% in soil moisture, swamp water and permafrost atmosphere. Water plays a pivotal role in agricultural and industrial development and in sustaining human life. Rain fall is the only source of water and it is confined as, soil moisture, stored water in surface storage, groundwater in sub surface, sea water and waste water like sewage and effluents.

With the increase in population, process of development, industrialization and urbanization, the quality and quantity of water and its accessibility decreases day-to-day, this leads scarcity. It is expected to accommodate about 11 billion population in this planet within short period from current population nearer to 8 billion, which will lead water a scarce resource in course of time. Hence, there is a need to conserve moisture/water for supply necessary food as well as utilize effectively and judicially, failing to this can arise the social conflicts. Considering the scarcity of water and problems of soil erosion a holistic Watershed Development Program (WDP) was utilized world over. The WDP is primarily a land based programme, to enhance agricultural productivity through increased in-situ moisture conservation and protective irrigation

for socio-economic development of rural people. It has been essential in a country like India where, majority of the population depends on agriculture and about 60.00% of total arable land (142Mha) in the country is rain-fed. A large portion of the rain-fed areas (65.00%) in India is characterized by low productivity, high risk and uncertainty, low level of technological change and vulnerability to degradation of natural resources.

The Government of India (GoI) has taken a number of initiatives to enhance the availability of water for irrigation and control of flood by constructing a large number of micro, small, medium and large reservoirs across the country. However, WDP with people's participation has given importance in all the developmental plans. It was initiated in India to improve and develop all types of lands - government, forest, community and private lands, which fall within a particular watershed, also to sustain productivity and the production potential of the arid and semi-arid regions.

❖ Watershed Development Program in India: Journey So Far

- The concept and history of watershed management in India was started since 1880 with the Famine Commission followed by the Royal Commission of Agriculture in 1928 laid foundation for organized research in watershed.
- After Independence, the Government supported programme started in mid-1950s, with the establishment of the Soil Conservation Research, Demonstration and Training Centres at 8 locations. In 1956 the Central Soil and Water Conservation Research and Training Institute (CSWCRTI) established by linking all centres and started watershed activities in 42 locations on to understand the technical processes of soil degradation and remedies for soil conservation.
- In 1962-63 first large-scale government supported watershed programme launched to check siltation in the multi-purpose reservoirs as 'Soil Conservation Works in the Catchments of River Valley Projects (RVP).
- Mega-project 'Drought Prone Area Development Programme (DPAP)' started in 1972-73 to mitigate the impact of drought in vulnerable areas. Similarly for the development of desert and for drought management in the fragile, marginal and rainfed areas 'Desert Development Programme (DDP)' was added. These programmes were treated 96.10Mha area.
- In 1986-87, the National Watershed Development Project for Rain fed Areas (NWDPRA) was launched by Ministry of Agriculture for optimizing the production of important rain fed crops. The severe drought of 1987 forced the GoI to give more thrust to rain fed areas.

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- The Integrated Wasteland Development Programmes (IWDP) taken up by the National Wasteland Development Board in 1989 aimed to develop wastelands on watershed basis. Under the administrative jurisdiction of the Department of Wasteland Development in the Ministry of Rural Development treated 4.23Mha and 2.25Mha of wasteland during the Eighth and Ninth Five Year Plan, respectively. The MoRD also initiated 'Watershed Areas for Rain fed Agricultural System Approach' (WARASA) allowing NGOs as implementing agencies.
- In 1989-90 the Ministry of Environment and Forest also launched 'Integrated Afforestation and Eco-development Projects scheme (IAEPS)' to promote afforestation and develop degraded forests by adopting integrated watershed approach.
- A Watershed Development Fund (WDF) established in 1990-91 at the National Bank for Agriculture and Rural Development (NABARD) to help the State Governments to augment their watershed development programmes.

Hence, the Ministry of Agriculture, Rural Development and Environment and Forests, the Indian Council of Agricultural Research, International Crops Research Institute for the Semi-Arid Tropics, NGOs and International agencies involved in watershed research and development programmes. These programmes also take place in national level policy documents namely 'Agricultural Development Policy', 'Water Policy', 'Land Policy', 'Forest Policy' and 'Watershed Development Guidelines'. From Ist to Xth Five Year Plans various changes made in WDP. On the commencement of XIth Plan, the main challenge was to move nation in the direction of "inclusive growth", as 146 Mha of land was degraded (Private and Govt. Ownership) out of total 329 Mha of geographical area of country. While, out of 142 Mha of net cultivated area, 85 Mha are rainfed arable land and suffered neglect in the past. These areas reveal a grim picture of poverty, water scarcity, rapid depletion of ground water table and fragile ecosystems. Land degradation due to soil erosion by wind and water, low rainwater use efficiency, high population pressure, acute fodder shortage, poor livestock productivity, underinvestment in water use efficiency, lack of assured and remunerative marketing opportunities and poor infrastructure are important concerns to decide policies. Therefore, the National Rainfed Area Authority (NRAA) has been set up in November 2006 on recommendation of Neeranchal Committee (2005), keeping in mind the need to give a special thrust to these regions for improve rural livelihoods through participatory watershed development with focus on integrated farming systems for enhancing income, productivity and livelihood security in a sustainable manner. They also suggested a shift in focus "away from a purely engineering and structural focus to a deeper concern

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with livelihood issues". From 1st April 2008 Integrated Watershed Management Program (IWMP) implemented with a holistic approach in entire country.

The National Water Policy (2012) has been formulated by Department of Water Resources (DoWR), River Development (RD) & Ganga Rejuvenation (GR) advocates rain water harvesting and conservation, conservation and rejuvenation of river and water infrastructure in a scientifically planned manner through community participation. Further, encroachment and diversion of water bodies and drainage channels must not be allowed and restored to the extent feasible and maintained properly. On 14th June 2019 the Ministry of Water Resources was renamed as "Ministry of Jal Shakti or Jal Shakti Mantralaya".

The department of Land Resources (GoI, 2015) has taken up a numbers of initiatives for strengthening the implementation of IWMP with the promotional activities such as; Neeranchal World Bank assisted Watershed Project, Project Financial Management System, Third party monitoring and evaluation, Use of Remote sensing and GIS technology, Use of Bhuvan Geo Portal of IWMP, Convergence of Agriculture and allied sector schemes and Benchmarking of watershed outcomes.

A novel concept was introduced named Pradhan Mantri Krishi Sinchai Yojana (PMKSY) with the objectives; to expand cultivable area under assured irrigation, improve farm water use efficiency, to reduce wastage of water, enhance adoption of precision-irrigation, enhance recharge of aquifers, introduce sustainable water conservation practices by exploring the feasibility of reusing treated municipal waste water for peri-urban agriculture and attract greater private investment in precision irrigation system. The scheme has tried to do otherwise unthinkable in India where different ministries and their departments are expected to work together in a complete harmony and a synergistic manner. Thus it is an amalgamation of ongoing schemes like Accelerated Irrigation Benefit Program (AIBP), Integrated Watershed Management Program (IWMP), and On Farm Water Management (OFWM). The schemes will be supervised by an Inter-Ministerial Steering Committee under the Chairmanship of Prime Minister with Union Ministers from the respective departments. A National Executive committee under the Chairmanship of Vice Chairman of NITI Aayog oversees the program implementation, allocation of resources, inter-ministerial coordination, monitoring and performance assessment addressing administrative issues.

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❖ Recent Initiatives by the Central Government to control water depletion and promote rain water harvesting/conservation.

1. Prime Minister has written a letter to all sarpanchs in June 2019, regarding the importance of water conservation and harvesting for awareness generation amongst the masses.
2. An 'Inter-Ministerial Committee' under the Chairmanship of Secretary (DoWR, RD & GR) constituted to push on water conservation related activities for "Optimum Utilization of Monsoon Rainfall'.
3. A model draft prepared to enact suitable ground water legislation for its regulation and development including rainwater harvesting. So far 15 States/UTs have adopted and implemented on it.
4. Central Ground Water Authority (CGWA) issued directions for mandatory Rain Water harvesting/ Roof Top Rain Water Harvesting, while granting 'No Objection Certificate' for drawing ground water in the Country including UTs.
5. Central Ground Water Board (CGWB) prepared a conceptual document entitled "Master Plan for Artificial Recharge to Ground Water in India" which envisages construction of 1.11 crore rain water harvesting and artificial recharge structures to harness 85 BCM of surplus monsoon water with an estimated cost of Rs. 79,178 Crores.
6. National Water Awards have been instituted to incentivize good practices in water conservation and ground water recharge.
7. Mass awareness programmes are conducted timely in the Country to promote rain water harvesting and artificial recharge to ground water.
8. The MoRD has developed "Mission Water Conservation" to ensure gainful utilization of funds by ensuring synergies between MGNREGS, PMKSY and IWMP.
9. DoLR implementing 8214 WDPs in 28 States covering 39.07Mha. under the Watershed Component of the PMKSY principally for development of rainfed portions of net cultivated area and culturable wastelands.
10. Ministry of Housing & Urban Affairs released Model Building Bye-laws, 2016 recommends Rainwater Harvesting for all building having plot size 100sqm or more.
11. GoI approved Atal Bhujal Yojana (AtalJal) of Rs. 6000 Crore, for sustainable management of ground water resources with community participation in water stressed blocks of Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh.

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