Rejuvenation of the Ur River, Tikamgarh, M.P.

Process Documentation of the First Six Months

Sept 2019- Mar 2020

Rajiv Gandhi Institute for Contemporary Studies (RGICS)

New Delhi

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Contents

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https://www.youtube.com/watch?v=Q8ofCM2hn_8&t=13s

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1 Background

The state annual budget for 2019-20 of Madhya Pradesh promised to manage effectively demand and supply side of water resources. The budget speech stressed on problem arising due to drying sources of water in the State. To address these problems the government announced rejuvenation of rivers by approaching integrated water management approach. In the first phase, the government has planned to rejuvenate 40 out to 300 rivers of the state. These selected rivers are located in 36 different districts across the state.

The river revitalization program has adopted the watershed management approach to revive rivers. It aims to increase base flow of rivers by treating river basin area from ridge to valley. To fund this program, the government is heavily dependent on funds available under MG-NREGS. Zilla Panchayat in each selected district has been given responsibility to plan, implement and monitor the scheme. To oversee the progress and coordinate with various other line departments, the Additional Chief Secretary, Department of Rural Development and Panchayati Raj has been closely monitoring the program at the state level. The state government has also provided for inclusion of additional water harvesting activities under MGNREGS in the state to fulfill the objectives of this novel cause. For example, the department has allowed 'farm bunding' activities under MG-NREGS to support rain water harvesting and arresting erosion of the soil.

The river revitalization program announced by the government was timely as water resources are rapidly depleting all across the state. The program focuses on increasing availability of surface and ground water in river catchment, which will eventually increase the base flow of the river even in the dry season. More importantly the announcement of the program stressed on public participation in this process.

The department of rural development of Madhya Pradesh is the nodal department for the river revitalization program in the state. It has been decided that the MGNREGA fund for natural resource regeneration will be used systematically to treat watershed areas in the basin of each selected river. The department has asked concerned district administration to submit detailed project report of river to be revitalized in their district. According to few media reports there seems to be delay in submitting quality Detail Project Report (DPR) to the department. Districts where DPRs have been finalized and approved by the department, the river revitalization activities have started. Tikamgarh is one such district, where some work has already been initiated. The district administration of Tikamgarh has planned to revitalize Ur River that originates from Sudha Sagar a lake located in Tikamgarh district.

[1] The process was led by Prof Sanjay Sharma, RGICS Program Coordinator, Tikamgarh, under the guidance of Shri Achintya Ghosh of Kabil and Mr Vijay Mahajan, Director of the Rajiv Gandhi Institute for Contemporary Studies (RGICS). The process documentation was done by Ms Sabibpreet Kaur, Research Associate, RGICS, under the guidance of Mr Jeet Singh, Fellow, Environment, Natural Resources and Sustainability, RGICS and Mr Vijay Mahajan, Director, RGICS. The support of the village people, the government officials and NGOs working in Tikamgarh is gratefully acknowledged.

Tikamgarh is located in the northern part of Madhya Pradesh and is part of the Bundelkhand region. The district lies between Jamni and Dhasan rivers. Along with these rivers it has few other drainages. Ur river is the major tributary of Dhasan river which has length of nearly 80 Km and traverses from all four blocks of the district.

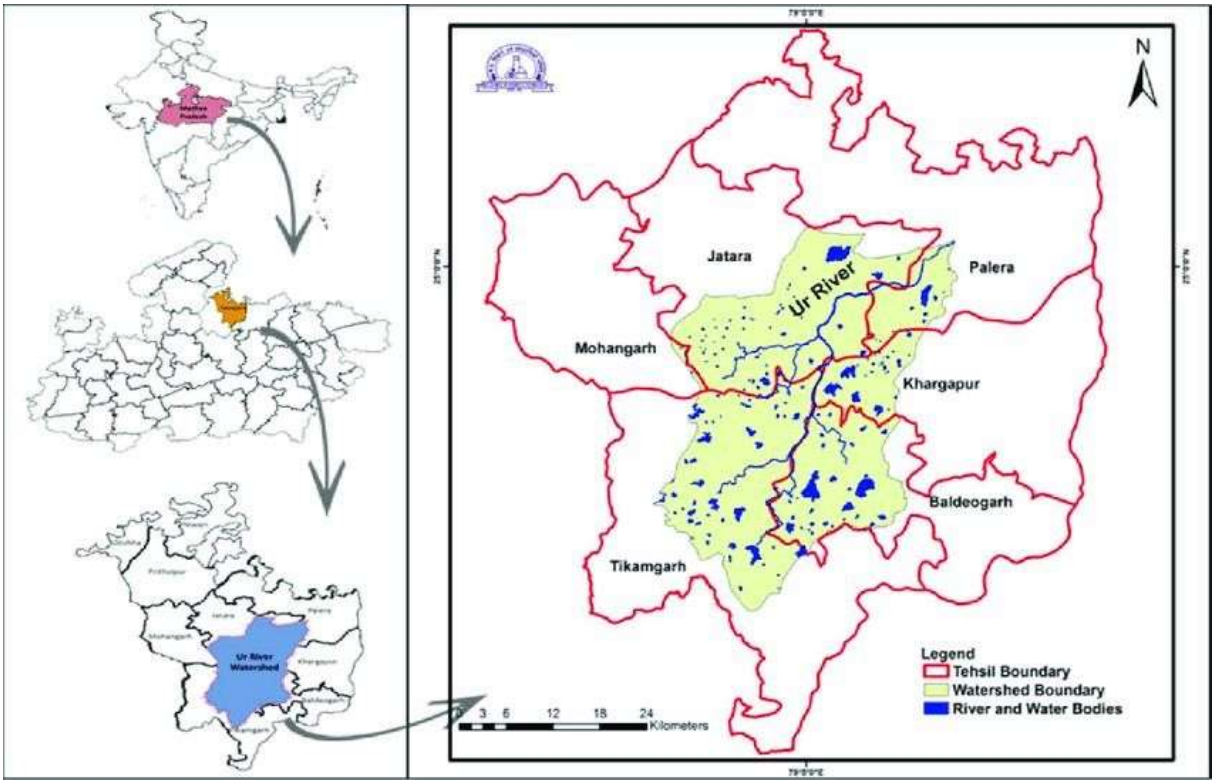
2 The Ur River

2.1 Area and Geography

Ur is the biggest River of Tikamgarh block and a tributary of the river Dhasan. The river originates at the Sudha Sagar Lake and has a length of 83 km. The total geographical area of the UR River watershed is 993.42 sq. Km (99342.20 ha). The maximum length of the watershed is about 119 km from North to South with an average width of about 80 km. The mainland extends between latitudes 24°35‘0‖ N and 25°05‘0‖ N and between 78°50‘0‖ E and 79°10‘0‖ E longitudes and has an elevation of 400 m above the mean sea level. The Ur River flows in the South to North-East direction. The Ur river watershed area falls under four

development blocks of Tikamgarh district (Jatara, Palera, Baldeogarh and Tikamgarh). The catchment area of the river is shown in the image below.

The Tikamgarh district is part of the Betwa sub-basin, which is part of the larger Ganga basin. The major rivers of the district are the Dhasan and Ur rivers which ultimately join and drain into the Betwa River. The Ur River is a seasonal river and follows the dendritic drainage pattern of the district. (CGWB 2017).



Ur River Catchment Area, Source: Gupta et al. 2017

The total geographical area of the Ur river watershed is 993.42 Sq. Km. The entire watershed is further sub-divided into 10 different micro watersheds. The block wise distribution of its watershed is mentioned in the following table.

Block wise area falling in Ur watershed

Block Name	Area of Block falling in watershed (sq km)	% area of watershed
Jatara	326.94	32.91
Palera	77.86	7.83
Baldeogarh	272.65	27.44
Tikamgarh	315.97	31.80
Total	**993.42**	**100.0**

Source: Development Alternatives, 2015

Agriculture is the main source of livelihood for people living this catchment area. According to MPCST, 2011, nearly 635 sq. km of the area is covered with sandy loam soil and another 267 sq km of the area is covered with sandy clay loams soil[2]. Soil with shallow depth and poor moisture content along with the unique geomorphology of the region consisting of harder rock material decreases the availability of ground and surface water in the region.

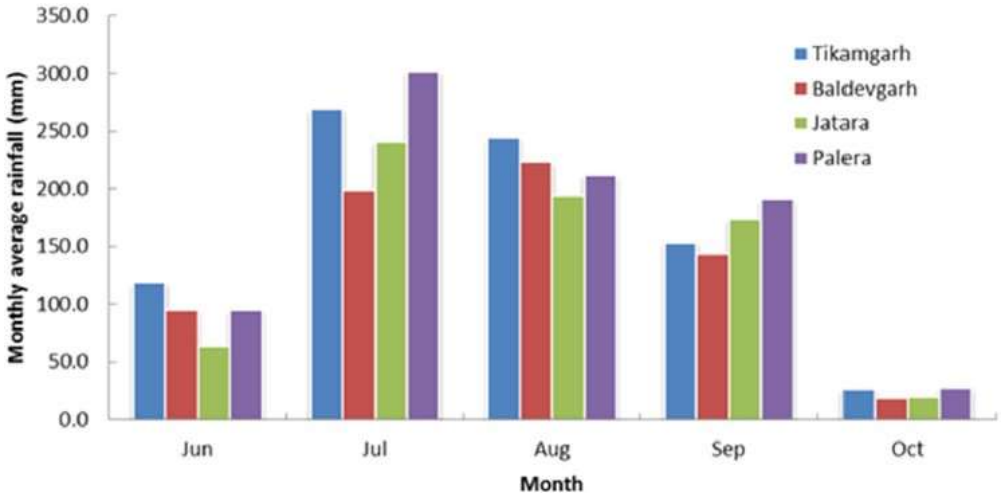
The area of the watershed is a dry land region and characterized by hot summers with temperature going up to 43^0C and can dip to as low as 7^0C in winters in the month of January. The months from June to September receive the maximum rainfall from the south west rainfall, the average annual rainfall being 854mm (1990-2013). Light showers are also received in the months from October to December and January (IMD). The normal annual rainfall of Tikamgarh district is 1057.1 mm (CGWB, 2017)

3 Water Resources and Management in Tikamgarh

The rain water is the only source of water in Tikamgarh district. While the district is drought prone, the average annual rain fall is not very low. According to Gupta et al (2017) the average annual rain fall of Tikamgarh from 1990 to 2013 was 854mm. Of the total rain fall, the district receives nearly 91% shower in four months i-e June to September.

[2] Madhya Pradesh Council of Science and Technology, 2011, Resource Atlas of Tikamgarh Studies, Madhya Pradesh.

The Ur River gets water from its catchment, the Sudha Sagar and various other streams. According to Agarwal et al (2018) there are total 555 stream segments that feeds into the Ur River[3]. A recent report of Central Ground Water Board reveals that of 421 of the total 962 ponds constructed during Chandella period in the districts are still surviving. Moreover, over the years, many artificial water bodies such as tanks and dug wells were constructed under various publicly funded schemes.



Monthly average Rainfall at the influencing rain gauge. Source: mp.gov.in

The geography of the Ur river watershed comprises of high hills elevated at a range of 200-300m above mean sea level which drops from South to North along the ridge line. The soil of Tikamgarh district is characterised by weak horizon development as it largely belongs to the category of Entisols or Inceptisols, meaning they have generally low organic content. Within the watershed, two major soil types can be found- sandy loam soils and sandy-clay-loam soils (MPCOST, 2011).

According to a report of Central Ground Water Board (CGWB) in 2017, of the total agricultural land (2.76 lakh hectare) only 2.21 lakh hectare agriculture land has access to irrigation. These sources of irrigation comprises of large numbers of dug wells and tube wells. More than 77% of irrigation in the Tikamgarh district is dependent on ground water.

Irrigation Facilities in Tikamgarh		
Net Sown Area	**Area irrigated by surface water**	**Area Irrigated by GW**
(In Ha)	(In Ha)	(In Ha)
2,76,480	51,427	1,70,532

Source: CGWB, 2017

Over the year, various efforts were made to construct surface water capacities in the district under various schemes. These structures includes ponds (887), Stop Dam (148), Check Dam (20) and Dug well recharge (466). These structures were constructed by various state

[3] Agarwal Sunny, Jyoti, V.C. Goyal and Ajai Singh, 2018, Assessment of Water Supply-Demand Using Water Evaluaiton and Planning Model for Ur River Watershed, Madhya Pradesh, Springer, October 24, 2018

agencies under schemes such as MGNREGA, Integrated Watershed Management and schemes related to department of agriculture (CGWB, 2017). The high dependency on ground water and very few efforts for conservation of rain water has led to depletion of ground water table in the district. This leads to the successive crop failure in the district.

3.1 Status of Ground Water

The entire district is under stress due to over exploitation of ground water. All four development blocks of the districts are semi-critical with average ground water development more than 75%. According to the latest report of the Central Ground Water Board, of the total ground water draft of 380.59 MCM more than 92% is being used for irrigation in the district. The report also suggests that, while there is huge space for artificial ground water recharge, the ground water recharge is very less compared to the consumption demand.

Block	Ground water Development	Category
Tikamgarh	81.11%	Semi-critical
Baldeogarh	78.52%	Semi-critical
Jatara	70.62%	Semi-critical
Palera	77.13%	Semi-critical

Source: CGWB 2017

The monsoon rainfall majorly accounts for the ground water recharge. Other sources are canal seepage, return flow from irrigation and seepage from water bodies amongst others. The annual replenishable ground water resource for the district was calculated in 2013 at 521.72 MCM. The same during non - monsoon was calculated at 104.98 MCM. The annual ground water draft or water withdrawn for Tikamgarh district was 380.58 MCM in 2012-13. Out of which, 92.57% was used for irrigation. The rest, around 28.40 MCM is used for domestic and industrial purposes.

Area suitable for groundwater management plan

Blocks	Total Geographical Area Sq Km	Hilly Area Sq Km	Recharge worthy area Sq km	Wet area (Sq Km)			Area suitable for artificial recharge Sq km
				Command area	Water spread area of tanks	Total	
Baldeogarh	858.96	36	822.96	60.28	28.17	88.45	734.51
Jatara	1008.6	42	966.6	50.14	41.37	91.51	875.09
Palera	748.22	32	716.22	0	15.43	15.43	700.79
Tikamgarh	867.6	18	849.6	71.17	27.74	98.91	750.69
Total	**3483.38**	**128**	**3355.38**	**181.59**	**112.71**	**294.3**	**3061.08**

CGWB, 2017

Groundwater levels have decreased in all blocks. In the pre-monsoon season, in Palera, the decrease has been between 0.10 and 0.20 m/yr will in Tikamgarh and Baldeogarh blocks,

the same was calculated at around <0.10 m/yr. In Niwari and Prithvipur blocks, the decrease is more at >0.20 m/yr.

3.2 Agriculture and Irrigation

According to the latest State of Environment Report only 6.02% geographical area of the Tikamgarh has forest. The total forest area of the district accounts to 403 Sq Km. Of the total forest land only 94 Sq Km is covered with very dense and moderately dense forest. The landscape in Tikamgarh has been exposed to settled agriculture. According to a study by Development Alternatives nearly 58.59% of landscape in the Ur catchment is under agriculture. Land use pattern of the Ur catchment is given in the following table.

Land Use in Ur River Watershed	**Area**
Double crop Agricultural land	48.01%
Dense forest	4.37%
Scrub forest	15.87%
Barren rocky land	20.11%
Built-up areas	1.54%
Rivers and Water bodies	3.58%
Fallow land	2.33%

Source: MPCOST, 2011

Similar to other parts of the country, agriculture is a major consumer of water in Tikamgarh. Though the soil productivity of the region is very low, a large population is dependent on agriculture for their livelihood. Crop failure is common in this region of the state due to drought, which leads to distress migration of local people to big cities in search of jobs. In the Kharif season Black gram and Soybean are most popular crops. Both these crops occupy more than one lakh hectare land. In the Rabi season Wheat is the main crop which occupies more than 1.13 ha of land. Major crops of the district with sown area and production is given in the following table for year 2012-13.

KHARIF CROPS				**RABI CROPS**			
Crop	Area (000, ha)	Production (000, tones)	Productivity (kg/ha)	Crop	Area (000, ha)	Production (000, tones)	Productivity (kg/ha)
Paddy	12.32	12.56	1020	Wheat	113.20	241.50	2222
Sorghum	2.16	2.79	1295	Barley	10.00	26.70	2676
Maize	1.89	2.56	1354	Gram	34.4	49.00	1150
Black gram	78.80	71.55	908	Pea	14.40	5.40	376
Moong	6.64	3.70	557	Lentil	5.30	4.40	329
Groundnut	20.46	28.71	1402	Mustard	40.70	21.90	539
Sesame	30.50	11.75	379				
Soybean	48.13	66.03	1372				

Various official data suggests that around 54% of the agriculture land of the district comes under irrigation system. According to the CGWB, of the total water used for irrigation, 77.63 comes from ground water and 22.37% from the surface water. In the undivided Tikamgarh district there were more than 17 lakh Dug wells more than 33 thousands tub wells for irrigation. These structures together irrigate 1.97 lakh hectare land. The irrigation infrastructure for surface water is very limited and only 62 thousand hectare of land is irrigated by the surface water. See table below.

4 Major Challenges in the Watershed Area

A study on water supply-demand assessment in Ur River Watershed in Tikamgarh district by Goyal et al. (2018) revealed that the district has been receiving deficient rain. The major challenges along with that have been the outflow through surface run off and evapotranspiration demands of cropped and forested areas. The dry years especially suffer through water scarcity crisis in the watershed region. A similar situation is reiterated in another study on vulnerability assessment that showed that the Tikamgarh block of the Tikamgarh district is the most vulnerable to the impact of climate change and communities here have started relying on adaptive measures.

Below normal and delayed rainfall has caused disrupted the cultivation cycle and impacted yield. Increase in temperatures have been beyond what crops can tolerate and due to sudden, delayed downpours, crops face water-logging and are destroyed. This has also impacted fodder availability, and along with water scarcity and increasing temperature, livestock health and milk produce in this region has taken a hit. This has led to reduced interest in livestock rearing.

Forest cover decline due deforestation, urbanization and lack of adequate rainfall has led to increased rate of erosion as land is becoming barren. This has led to a decrease in the water holding capacity of the soil. Loss in agriculture, increases people's dependence on forests for livelihood options, but the yields too have been impacted.

Degradation of traditional ponds and encroachment of forests as well as blocking of catchment areas of watershed regions has led to low groundwater recharge. Groundwater is heavily relied upon for household and irrigation purposes, especially in the Tikamgarh block, leading to further scarcity during dry seasons. All of the above have led to an increasing trend of distress migration in the region. Along with environmental factors, the high cost of inputs and increasing incidences of drought are pushing farmers out of agriculture, and trends of seasonal to permanent migration as unskilled labourers to urban areas was noted in the study.

A watershed score card of the Ur River prepared by a group of scientists from TERI and National Institute of Hydrology in 2016 assessed five different indicators in the watershed. These indicators includes Surface water quality, ground water quality, forest condition, agriculture condition and soil condition. The overall score card of the Ur River is given in following table.

Overall Grades for Ur River Watershed		
Indices	**Grades**	**Description**
Surface Water Quality	B	**Good ecosystem conditions.** Some areas may require enhancement
Ground Water Quality	B	**Good ecosystem condition.** Some areas may require enhancement
Forest Condition	D	**Very poor ecosystem condition**. Considerable improvement required.
Agricultural Condition	A	**Excellent ecosystem condition.** Some protection may be required.
Soil Condition	C	**Poor ecosystem condition.** Overall improvements necessary.

Source: Gupta, M., et al. (2017)

This score card of the Ur River found that there is diversification in cropping pattern and therefore it gives a high rank for agricultural condition. However, the soil condition as per the score card is very poor. The study noted that the soil has shallow depth in the watershed and not really suitable for irrigation. According the study 33% of the total agriculture land is not suitable for agriculture but well suited to forestry, pasture, silvi-pastoral system, wild life and recreation (Gupta, et al, 2017). Various reports suggest that the ground water development is in critical or semi-critical stage in the Ur watershed, however, the score card mentioned above did not take that factor into consideration. For the revival of the Ur river focus on water harvesting and increasing availability of surface and ground water is essential. Moreover, the score card of the Ur River suggests that people need to rationalize the use their agriculture land by promoting agro-forestry and horticulture for better yield and enhancing overall ecosystem of the watershed.

5 The Ur River Revitalization Initiative

The WALMI in association with Rajiv Gandhi Foundation and Indian National Association of Club of Rome in August 2019 organized a workshop on identifying strategies to regenerate natural capital like Water, Land and Forest in Madhya Pradesh. The workshop resulted in listing of number of recommendations both for policy level changes and intervention strategies at grass root level. The workshop endorsed a framework called 'Panchmukhi Samvaay' (Collaborative Pentagon) to further the idea of common responsibility and action to regenerate our natural resources.

To implement this framework the workshop led to formation of a committee called 'Panchmukhi Samvaay Committee'. The committee is anchored by WALMI in Madhya Pradesh and comprises of members from different civil society organization, research institutes, business association, independent researchers and retired bearcats. A follow-up meeting of the committee decided to work with state government in its mission to revitalize Ur River in Tikamgarh.

The Panchmukhi Samvaay keeps community in the center of a pentagon as the target of intervention. The objective is to bring social, economic and cultural change without exploiting nature. In fact, it believes that the re-generation of natural capital will catalyze the process of community level change. It promotes strengthening of co-existing relations between human and nature allows both human, other creatures and natural resources to flourish. The ultimate objective of this framework is to not create from nature but to create with nature. This aim of the progress can be achieved by meaningful collaborating effort by five different types of institutions. These five segments create five corners of the pentagon or five faces (Panchmukhi).

These five segments are (1) Government; (2) Business/Financial Institutions; (3) Civil Societies; (4) Panchayati Raj Institutions (5) Knowledge Institutions. The collaborative action by these five segments is the Panchmukhi Samvaay. While the sustainable livelihood framework gives us, conceptual base for planning community development initiatives the Panchmukhi Samvaay provides pragmatic structure for the implementation of sustainable livelihood framework in the current context.

The Panchmukhi Samvaay as an open membership consortium of various stakeholders has initiated its pilot project in Tikamgarh to make use of Panchmukhi Samvaay framework to regenerate UR River in close collaboration with the district administration. The Samvaay has taken following five initial tasks to help district administration:

1- Preparing detail watershed treatment plan for UR-5 catchment of the UR river basin which will be Participatory, Affordable and Sustainable Solution.

2- Mass mobilization to make the task of UR revitalization a people's movement, using modern and traditional methods of communication.

3- Nurturing a cadre of volunteers in all 173 villages of UR basin by providing them training on watershed management also on climate resilient agriculture.

4- Research on climate resilient agriculture and crop diversification in Tikamgarh district

5- Orientation and training of grass root government officials on watershed management.

5.1 Strategy and Approach

Our collaborative effort in Tikamgarh under Panchmukhi Samvaay attempts to catalyze the process of UR river revitalization in the Tikamgarh district in collaboration with various departments of the state government involved in this process. To catalyze the process focuses on following major strategies and approach.

1- **Improving Watershed Treatment Plan for River Revitalization:** The district administration has already prepared a plan of more than Rs. 200 crore for revitalization of Ur River. As directed by the Department of Rural Development, the plan is based on watershed treatment approach. However, the district administration is apprehensive about their own plan. The administration has asked the Panchmukhi Samvaay to improve their plan by involving local people and government officials. The Samvaay also believe that scientific treatment of watershed with involvement of community is key to rejuvenate the Ur River.

2- **Coordination and Collaboration with District Administration:** the district administration of Tikamgarh is responsible for the rejuvenation of the Ur River. Organizations proposing this project along with their partner organizations will coordinate and collaborate with district administration and various other line departments to work on stated objectives of the project. We believe that regeneration of natural resources is huge task and cannot be achieved without active involvement of all stakeholders. The group of organizations proposing this project attempts to bridge gaps between various stakeholders and create platform for joint action.

3- **Convergence of Fund, Function and Technology:** The project proposers believe that the inter-disciplinary convergence can help us to move faster and yield better results. The group along with district administration brings together diversity of skill, experience and capacity. The Manjari Foundation is known for their excellent work on watershed management and community mobilization, The Kabil Foundation has vast experience of facilitating MGNREGA work in Chhattisgarh, West Bengal and Assam for watershed management. The Rajiv Gandhi Institute for Contemporary Studies (RGICS) a policy think

tank promoted by the Rajiv Gandhi Foundation has long experience of carrying policy research and advocacy.

Participatory planning for watershed management in a village in Tikamgarh

4- **Community Mobilization and Capacity Development:** To involve people in the process of river revitalization, their mobilization and enhanced capacity is important. The Zilla Panchayat has agreed to help training of community leader at block level with their own resources. A cadre of grass root volunteers will be nurtured through training and exposure visit to facilitate watershed activities in their respective villages. These cadres may be named as 'Jal Jankar' and accredited by the district administration/WALMI/State Government.

5- **Research and Policy Feedback:** While the regeneration of natural resources is a key national strategy, careful documentation and research of UR river revitalization can have potential to constructively contribute in the policies related to river revitalization in India. Various policy paper will be generated during the process and disseminated through policy consultation.

5.2 Major Organizations and Institutions Involved

The Panchmukhi Samvaay is an open membership platform of institutions/organizations to be part of the mission of regenerating natural resources. In this project, several local, national and international level organizations are collaborating with each other for a common cause of regenerating natural capital in the UR river basin to ultimately revive the river. However, for the logistic purpose following major organizations are part of this process:

Water and Land Management Institute (WALMI), Govt of Madhya Pradesh: The Water and Land Management Institute (WALMI) is an organization working under Panchayat and Rural Development Department, Government of Madhya Pradesh, and has been successful in building capacities of different stakeholders such as community, peoples' representatives, policy makers on issues related to water and land management. The Governing Body of the First Party is chaired by the Chief Secretary, GoMP while regular activities of the institute are guided by the Executive Committee chaired by the Additional Chief Secretary, Panchayat and Rural Development Department, GoMP and the key functional areas of the First Party include training, research, consultancy, advisory functions, extension and transfer of technology and feasibility and evaluation studies.

The Rajiv Gandhi Foundation (RGF) was set up on June 21, 1991, to realize the vision of Shri Rajiv Gandhi, former Prime Minister of India. Shri Gandhi dreamt of a modern India, secular, and progressive; a country that enshrines the democratic principle of equality and blends progress with rich cultural traditions. He imagined a country with an educated people free of prejudice; where women participate as equals; a nation with the space and will to empower all citizens, and especially the underprivileged. The Rajiv Gandhi Institute for Contemporary Studies (RGICS) is a policy think tank promoted by RGF to carry out research and policy development on contemporary challenges facing India.

The Club of Rome Indian National Association (CoR-INA) is the Indian chapter of the pioneering international organisation, Club of Rome, which had sponsored the path-breaking study Limits to Growth in 1976, which brought out the dichotomy between environment and development. The CoR-INA has signed a MoU with WALMI Bhopal to jointly work on resource regeneration activities and research in Madhya Pradesh.

Zilla Panchayat, Tikamgarh: Under the overall guidance of district collector of Tikamgarh, the Zilla Panchayat has been rolling out the UR river rejuvenation program. It has prepared the detailed action plan for the rejuvenation. With the help of MGNREGA fund, they have also started constructing water harvesting structures in the catchment areas of the river.

Other Organizations: Apart from above mentioned organizations, various other organizations will take active part in this project. Names of major organizations and their roles are as follows:

Role and Responsibilities of Different Organizations

Organization	Role
District Collector, Tikamgarh	Overall strategic planning and review
CEO, Zilla Panchayat, Tikamgarh	Coordination of implementation
Rajiv Gandhi Institute for Contemporary Studies	Policy Research and Advocacy
Prof Sanjay Sharma, RGICS Program Coordinator based in Tikamgarh	Overall planning and coordination
Kabil Foundation, New Delhi	Technology convergence
WALMI, Bhopal	Training and Capacity Development
SARTHAK, Tikamgarh	Community Mobilization, Planning and Capacity Development
Margshree Charitable Trust, Jhansi	Community Mobilization, Planning and Capacity Development
Bundelkhand Seva Sansthan, Lalitpur	Community Mobilization, Planning and Capacity Development
Pragati Samaj Bharat, Lalitpur	Community Mobilization, Planning and Capacity Development
Manjari Foundation, Dholpur	Planning, implementation and monitoring of grass root level activities
Club of Rome- Indian National Association, Delhi	Policy Research and Advocacy

6 Design of Ur Rejuvenation Plan

6.1 Scoping Visit and Coordination with District Administration:

Two visits in the month of October and November 2019 were conducted by the members of the Panchmukhi Samvaay to Tikamgarh and the Ur river watershed area to do a scoping visit. They also visited Anora village in Lalitpur district where a similar intervention had occurred in 2011-12 with the help of the NGO Bundelkhand Seva Sansthan. The success of the farm pond structures in Anora, and a visit to the Ur River and surrounding villages familiarized the team with the context and possibilities of successful interventions in the area along with some civil society organisations with experience of working in the area.

Subsequently, a meeting was sought with the district collector, Tikamgarh, in which it was decided that the Ur 5, a part of the river's watershed which had been divided into 10 parts will be given to the Panchmukhi Samvaay team to do a pilot project on river rejuvenation. Ur 5 is constituted of 13 villages under 7 panchayats. It was stated by the administration that the MP government had already made a plan and they needed technical expertise and experience of NGOs to make it better. In this meeting with district administration, it was decided that the Panchmukhi Samvaay will pilot their idea in Ur-5 catchment of the Ur River. The administration in this meeting provided us support for preparing participatory plan of 13 villages in Ur-5, training of community resource person, training of grass root level government officials and community mobilization.

Successful implementation of the plan would require four activities simultaneously which are the mobilisation of the community, participatory planning, capacity development of community and hand holding of government officials. The process of implementation officially began on 7th December in the village Raipur, of Tikamgarh block where the community was made aware about the project and experts from Kabil foundation trained the team on the ground as well as some 'jal jaankars' for conducting the procedure of plan-making. On the 9th of December, a plan for village Raipur was submitted to the block development officer. This plan focused on construction of farm ponds to serve two distinct but related purposes, one to conserve water for irrigation and second to recharge ground aquifers by controlling run of water. This village decided to construct 110 farm ponds in the village.

Farm pond under construction in Raipur Village

6.2 Mobilisation of Community and Capacity Development

The budget speech of the Madhya Pradesh government for financial year 2019-20 made it clear that efforts of river revitalization will be initiated by involving people. To involve people, their mobilization is necessary. To ensure maximum participation of the community, the team went to the villages of Ur 5 and demonstrated the benefits of harvesting water. The focus was on nurturing a thought process that would help them connect their water harvesting efforts in their farms to that a larger phenomenon of river rejuvenation. The benefits of water harvesting in an area that faces frequent droughts are many, and this was

recognized by the villagers as well. Following major activities were done to mobilize community.

- **Use of posters and slogans**- Various slogans on water harvesting and posters were generated to disseminate information about the project and also to show the commitment of the team in bringing about positive change.

- **Use of Local Festival:** The 'Dunai' mela is an annual festival which is held every year at the convergence of the Ur and Parai river to celebrate Makar Sakranti. The festival is attended by villagers from all surrounding regions. The Panchmukhi Samvaay team insisted the district administration to use the mela platform to announce the Ur-river revitalization program. The Samvaay team installed a camp at Mela site and propagated the idea of Ur river revitalization. The team used various methods to convince people in this mela. These include meetings, speeches, posters, pamphlets, songs and puppet shows.

- **Puppet show and Folk songs-** The team decided to hold a puppet show on water conservation at the festival. The show was conducted by Mr. Mithilesh Dubey and his team from Benaras. A nearby village was home to a group of singers who also joined the festival to sing songs on the importance of water. The idea of *'jalgullak'* or *'jal dhan khaata'* was popularised through the puppet shows. The show was staged multiple times a day in between 14 and 21st January 2020 and was a major attraction at the mela. The puppet show was recognised as unison of science and art to bring together social change.

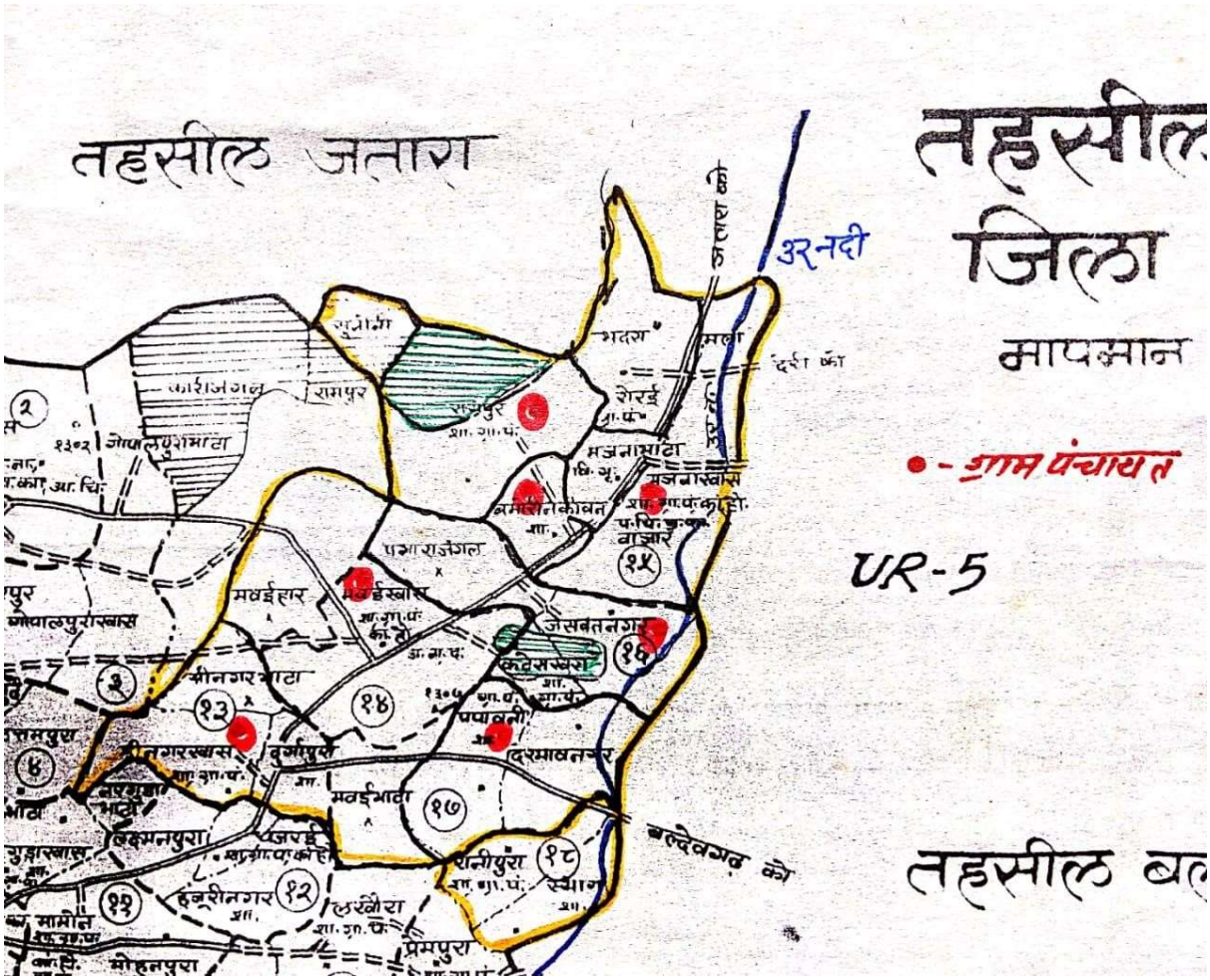
Spreading awareness though puppet show and music

6.3 Exposure through videos and visits:

The villagers were shown pictures and videos of farm ponds and land bunding done in other places by experts from Kabil who had conducted similar initiatives in Assam, West Bengal and Jharkhand. Exposure visits were conducted to village Anora in Lalitpur to show the villagers the success of the ponds which had been constructed nine years back and were still functional, with better ground water levels in and around Anora. Villagers from 10 villages of Ur 5 were taken to Anora with 10-15 participants from each village in December.

6.4 Participatory Planning of Integrated Natural Resource Management:

The district administration has asked the Samvaay team to develop a participatory Integrated Natural Resource Management planning of 13 villages in the Ur-5 catchment of the Ur River. With the help of local villagers and Panchayat the team has already prepared a plan of Raipur villages in the Ur-5 watershed. This village has planned construction of 110 farm ponds. The team is currently preparing similar plan for another six villages of this catchment.



The red mark denotes the 7 Gram Panchayats under the Ur 5, these cover 13 villages

6.3 Orientation of Local Government Officials

The Panchmukhi Samvaay team is thrilled with the support and willingness of the district administration of the Tikamgarh. The actual activities of watershed treatment under this program will be carried out under MG-NREGA program. To facilitate financial, technical approval and actual implementation of the planned activities for Ur-river revitalization requires better understanding and willingness of grass root level government officials. Therefore, the team has been attempting to orient grass root officials such as Jr. Engineers, Rojgar Sahayak and Patwari to understand this program and its importance.

The team has been able to successfully submit participatory plan of 11 out of 15 village of Ur-5 watershed by the March 15, 202 to the district administration. The plans were submitted through concerned Gram Panchayats for incorporating in MG-NREGA planning. All farm ponds proposed under these plans have been listed in the website of MG-NREGA for next level of approvals. The local administration has already started construction of two such pond in the Raipur village.

7 Lessons, Challenges and Opportunities

The RGICS believes that regeneration of natural resources is crucial to sustain life on the earth and reverse the adverse impacts of climate change. It is one of the basic interventions that has featured in almost all global strategies to combat disasters due to climate change. However, many estimates reveal that the regeneration of natural resources is a costly solution and allocating such a huge amount of financial resources is not an easy task for most of governments across the globe. On the contrary, we believe that the financial resources required for regeneration of natural capital must be seen as investment rather expenditure. It should be linked with job creation, livelihood sustenance and sustainable industrial growth along with rich ecological return.

This changed perspective towards regeneration of natural resources can help in convergence of financial, human, institutional, infrastructural and social capital. This convergence further reduces the financial burden, knowledge inefficiency and skill gap on the one hand and improves the quality of result on the other. Our work under Panchmukhi Samvaay in Tikamgarh related to Ur-river revitalization is an effort to establish this new perspective. While being on the ground for more than six months, we discovered various challenges, opportunities and learned lessons. Some of them are highlighted below.

1- **Policy Framework:** The river revitalization program announced by the state government was very timely. It is now almost a year since this announcement was made. However, in terms of policy/program designing to actualize this decision on the ground remained unaddressed. There is no clear guidelines and mechanism for district authorities to take this noble idea further. A clear policy/program is required to be developed with professional institutional arrangement.

2- **Financial Collaboration:** It was decided that the river revitalization will be funded through existing programs/schemes. However, in practical terms, only MG-NREGA is the source of funding under its NRM component. The government and other stakeholders must explore other sources of funding.

3- **Nodal Agency:** The MG-NREGA commissioner of the state has been coordinating with district administration in terms of planning, as the fund is available under MG-NREGA. Apart from this there is no mechanism to assist district administration in terms of technical, managerial and financial support. A group of professional institutions including WALMI, Civil Society organizations and policy think tanks should be involved in this process to take the river revitalization in mission mode. Probably a professional state level agency of the state government can take lead in coordination of planning, implementation and monitoring of this program.

4- **Policy Harmonization:** Since the MG-NREGA is the main source of fund for this program, and it will remain a major source, so, there is need to harmonize MG-NREGA guidelines and requirement of river revitalization. For example, the MG-NREGA does not allow construction of farm pond in the fields of big farmers. However, river revitalization in many regions requires farm ponds in big numbers. Thus, exceptions should be made for the collective good. Big farmers' ponds also recharge overall groundwater.

5- **Role of the Forest Department:** Forest department is another crucial stakeholder if we want to revitalize any river. So, far it has been treated as a program of Department of Rural Development. The forest department is required to mobilize to work in the forest area. The district level plan should incorporate treatment of forest area falling in the catchment of river to be revitalized.

6- **Capacity Building of the Government Officials:** The program of river revitalization through existing programs/schemes cannot be carried out without mobilizing and drawing attention of grass root level government officials from different departments, such as the Watershed Department and the Forest Department. They need to be oriented and trained to implement activities with the goal to revitalize river. They also need effective and separate mechanism/institutional set-up to deliver effectively.

7- **Community Mobilization:** The government in its budget speech for 2019-20 stated that rivers cannot be revitalized without involving community. Therefore, to involve community, they need to understand the purpose; they should become active partner in planning and implementation. So awareness among people is highly required. Their suggestions and demands needs to be taken into account. People must be aware about importance of water harvesting. Since agriculture is the most water consuming sector, villagers needs hand holding in management of water through technology, dissemination of information, application of knowledge and crop rationalization.

8- **Support Activities and Funding:** While most of watershed activities required for revitalization of a river can be funded through MG-NREGA, this mission also requires additional financial resources for activities such as capacity development, community mobilization, effective planning, technical support, monitoring and overall coordination. The state government may find some way to fund these essential components of river revitalization program.