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Current Scenario of Rivers in India

India has a systematic network of small rivers. Due to these small rivers, extra water reaches all the big rivers like Ganga, Yamuna, Kaveri, Narmada, and Indus. The tributaries and sub-tributaries of a major river together determine the watershed area of any major river. At present, all the small and big rivers of India are facing three types of problems: scarcity of water, pollution, and encroachment. The big rivers are somehow able to bear this blow, but the small rivers have almost turned into drains. To understand deeply why such problems have arisen with rivers, we must know the scenario of the last five decades.

Many changes took place in the country after the Green Revolution. The side effects of some of the changes made during the Green Revolution are becoming visible with the passage of time. During the period of Green Revolution i.e., after 1970, as soon as the farmer got the freedom to extract ground water by installing private tube wells, the dependence of the farmer on these small rivers and other surface water sources kept decreasing. As soon as the extraction of ground water started in large quantities, its level also started slipping down continuously. Due to the lowering of the ground water level, the relationship between ground water and surface water started breaking. In such a situation, the small rivers were left as rivers flowing only in the rainy season, because the water coming from the ground gradually stopped. Due to human activities in the ravages of time, the annual average rainfall has also started getting less, the rainfall that is also received is received in a short time rather than throughout the year.

Meanwhile, due to increasing industrialization and urbanization in the country, a new tragedy of water pollution started coming to the fore. Industries started disposing their non-treated liquid waste directly in these dried-up small rivers or through a drain. Meanwhile, rural youth started migrating from villages and settled in towns and cities in search of employment and good opportunities. No town or city in the country was ready for such a large population, so chaos was bound to happen. Due to proper and proper means of domestic effluent treatment of cities and towns, it started going directly into the rivers through rain drains. This is the reason that when the liquid waste of industries and houses started flowing in the dried-up streams, the present generation also considered these rivers as drains. Even today, about 20 percent of the liquid waste going into these rivers is from industries and about 80 percent is from towns and cities.

For the last three to four decades, the chemical parts of the liquid waste of industries and cities that have been flowing in these rivers have gradually mixed with the ground water. This is the reason that today the groundwater of the villages on the banks of the rivers is not potable. In such a situation, human agony has come to the fore that the society which once settled, grew, grew, and developed on the banks of the rivers has today reached the verge of destruction due to ground water pollution. While the pollution of the rivers has affected the health of the society living on the banks of the river, agriculture and animals and birds are also facing its brunt. It has been found in various studies that traces of chemical elements have also been found in the vegetables and foods grown on the banks of the river. Due to the pollution of ground water in these villages, all kinds of social evils have also started flourishing, due to which most of the population is facing family problems, while due to the extra economic burden, the society is getting buried under debt. Where society is yearning to get out of this critical problem, society and the government are also

worried. This is the reason that from various orders of the National Green Agency, governments are also working on schemes to provide relief in their own way. But the root cause of this problem is only these rivers dying due to pollution.

In the current adverse conditions of the rivers, the system and the society are trying to improve it in their own way. It is a fact that the rate of improvement is slow in proportion to the speed with which things are deteriorating. There are various reasons behind this, in which the main reason emerges is the lack of mutual coordination. Good efforts being made for the improvement of rivers at the local level are proving insufficient due to lack of coordination. Various types of obstacles are also seen in implementing good efforts from one place to another. It is often seen that in many cases, there is no good coordination between the system and the society. A major problem is the non-permanence of river improvement works. Due to not being able to properly understand the sequence of formation, deterioration and improvement of the river and not being able to proceed properly with the proposals of collective importance, our works are not becoming permanent. The condition of the rivers has not deteriorated in a day, so we will have to make permanent improvements while working to improve them. For this, the river improvement strategy of the River Council of India looks appropriate and better for the country.

It is very important for the rich biodiversity of the rivers to be clean and continuous. Human society can lead a healthy life only in rich biodiversity. The remains and stories of the Indus Valley Civilization decide that India's prosperity grew on the banks of rivers. Such concrete information is also available that as soon as those rivers assumed their fierce form due to any reason, those civilizations also ended. It is understood from the ancient wisdom tradition that if treated in a friendly manner, rivers provide life, but if they are tampered with or their potential is challenged, they can also end life. Have strength.

Four types of rivers flow within the boundaries of any district, state, or country.

- Such rivers coming from the first district and flowing through the second district enter the third district.
- Such rivers, which come from the first district and come to the second district, get mixed with any other river, or end up.
- Such rivers start from the second district and flow into the third district.
- Rivers which start in another district and join or end in a river in another district.

Raman River Rejuvenation Model

After an in-depth study of the problems of rivers in India at present and successfully implementing them on three rivers of Ganga-Yamuna doab, East Kali, Pandhoi and Neem, we have prepared a 'river revival model'. Based on this river revitalization model, the origin revitalization work of East Kali, the main tributary of Ganga, was done, for which the National Water Award was received from the Government of India in the year 2020. At the same time, based on this model, the work of rejuvenating the Neem River originating from Hapur district of Uttar Pradesh was started, which was praised by the Honorable Prime Minister in the 'Mann Ki Baat' program on June 18, 2023. Based on our experiences of working with rivers for the last 20 years, we have prepared this inclusive and sustainable river regeneration model, which is suitable for the present scenario. Before preparing this draft, the present conditions of small rivers were thoroughly investigated. The reasons for the present condition of the rivers came to the fore and then a strategy was prepared to improve them. The reasons which led to this situation of the river, solutions have been suggested

one by one for all those reasons in this river revival plan. Through this river revival model, we can also remove the pain in society that now small rivers cannot be revived. This model of river rejuvenation is a sufficient medium to convert the despair of society towards small rivers into hope. This river rejuvenation model will attack the root of the problem and return the river to its old form. The work of River Council of India is progressing based on this river rejuvenation model. Based on this model, countries are making efforts for the revival of various rivers, in which Morva, Noon Dakshin, Kanhan, Karvan, Hindon, Krishna, Lumb, Banganga, Mandakini, Ban and Sot rivers are prominent.

This is a very simple river regeneration model. This river rejuvenation model can be implemented on any small river in the country. With the measures suggested in this, the results of some are visible immediately and the results of some come in the long term. Whichever river this model will be implemented and if 70 to 80 percent of its works are completed, then that river can return to its existence in five to ten years. Along with river revival, this model will also bring prosperity among the society living on the banks of the river, because this model works by connecting the society living on the banks of the river. In all the works of this format, the activities at one kilometer from both the banks of the river are also very effective. Most of the works suggested in this format will be successful only with the collective effort and cooperation of society and the government. Ten points have been fixed for this river revival plan.

Ten Points of River Rejuvenation Model

- 1) Knowledge of river
- 2) Identification of river land
- 3) public awareness
- 4) River Origin Rejuvenation
- 5) Liquid-Solid Waste Management
- 6) Cleaning of river stream
- 7) Pond Rejuvenation
- 8) Intensive Afforestation
- 9) Chemical free agriculture
- 10) Construction of small dams

KNOWLEDGE OF THE RIVER

**Knowledge of the river before work.
Only then will the works of the river be made.**

The river for which we must start the work of improvement or revival, first it is necessary to have the following information about that river.

- History of the river (folklore and scientific side)
- Social and religious importance of the river
- All documents related to the river (Government/Non-Government)
- Accurate information about river origin
- Information about the length and flow area of the river
- Water condition in the river
- Current problems of the river

Before starting the work of revival of the river, first it is necessary to know the origin of the river properly. The medium of flow of each rainy river is the result of meeting both ground water and surface water. The surface water has been mixing with ground water at the place where the level of ground water is highest (CHOYA AANA i.e., formation of bubbles of water on the surface of the ground). That is, it is the lowest and waterlogged place in the area. The places where the situation of water logging has been occurring in an intensive form, such a place itself develops as the origin of the rainy river. Till last about 3 to 4 decades ago, the sources of rainy rivers have remained watery and free from encroachment. As the ground water level continued to go down, the residents encroached on the empty land there and this was the reason that gradually the place of origin of rainy rivers got encroached upon.

To know the origin of the river, it can be done through British Gazetteer, Irrigation Department's documents related to river-drain and GIS mapping. The British Gazetteer contains information from the origin of the river till it merges with another river. Similar information is recorded in the documents of the Irrigation Department. The information about the length of the river, its water catchment area, the place of its origin and other rivers and streams found in it is also recorded in the documents of the Irrigation Department. The British Gazetteer can also be accessed online while Irrigation Department documents can be obtained from the drainage section of the local Irrigation Department. Information regarding the origin of the river is recorded in these documents. The origin can be properly identified through Khasra-Khatauni and Sijre from the concerned Tehsil. In this work, the help of Patwari of that area, engineer of local irrigation department, old experts of the area and some aware citizens will be taken from Tehsil of the concerned area, then the work will be possible easily.

MARKING OF RIVER LAND

**The river will be free from encroachment.
Only then will it become watery.**

Most of the land on the banks of rainy rivers is occupied in one way or the other. From where any rainy river starts, either a pond, lake, lake, empty space, or agricultural work will be found there. Encroachments will be found on both the banks of the river even in the total length of the river flow beyond the origin of the river. Somewhere the farmers have built their fields by mixing them with the river, and somewhere others have encroached upon the river land. At some places, where the area of the river's flow is more, farmers start doing agricultural work inside the river as well. In such a situation, just like the origin of the river, it is necessary to free the land from encroachment on both sides of the river flow area. For this, by making coordination with the local administration and giving proper information about the river to the administration, the land of river origin and river flow area should be identified. The total area of the length of the river flows through which districts? According to him, this work will have to be done in each district of the river flow through the administration of different districts. It should be marked by measuring the river land on both the banks of the river. If possible, pillars should be installed on the identified river land. On both sides of the river flows almost as much land as the river flow, belongs to the river. Somewhere more land is also present. Somewhere in the documents it is also seen that the flow of the river is in the land of a farmer, while the farmer is doing agriculture in the land of the river.

PUBLIC AWARENESS

**Village by village when hands will go up.
River improvement works will be done.**

Public awareness work towards the river will have to be promoted in villages, towns, and cities within one kilometer from both the banks of the river. Public awareness will work in two ways. One, the river should not be harmed in any way through the village, such as any type of liquid and solid waste should not go into the river, and the other, knowingly, or unknowingly, the river is being harmed by any work of the village, to improve it. The following works can be done for river draining public awareness -

- street play
- wall writing
- Competitions in schools
- Traveling from one village to another
- Street meetings
- CHAUPAL
- conference

Such a program of public awareness will have to be conducted so that all the residents of the banks of the river agree to fulfill their responsibility towards the river. Public awareness will have to be created among the villagers on all those subjects which are necessary for river revival. In which chemical-free agriculture, tree plantation, pond conservation, balanced use of water, garbage disposal and cleanliness are the main subjects. Whatever work a common citizen can do for the revival of his river, the information about all those works will reach the village/town/city through public awareness, then its message will be spread to other people of the society. In all these works, the help of block/tehsil/district plans should be taken. Public awareness can be expanded by including village schools in this.

RIVERBED REGENERATION

**When there is water at the source.
Only then there will be flow in the river.**

The mother of any river is the water present at its origin, so it is necessary that the origin of the river should be watery. Therefore, it is necessary that efforts should be made to revive the river source first. This work can be done in the following way.

Marking the origin of the river according to the revenue records, gazetteer, and other related records.

To inspect the origin of the river. Is the amount of land available at the place of origin of the river as recorded in the revenue records? We may not be aware of this. For this, the sub-collector/tehsildar of the concerned tehsil will have to measure the land at the origin of the river. For this work, cooperation of high officials, dignitaries and people's representatives of the concerned area can also be taken. If there is no encroachment on the land of river origin, then it will also be clarified through the Tehsil team.

If there is encroachment on the river origin land, then the first task will be to get that encroached land encroached upon. For this, one should first sit and talk to the occupants along with other

eminent people of the society and telling them the importance of the river, they should also be told that if not today or tomorrow you will have to vacate this land because the government never leaves its land. Even after this, if there is no success, then the cooperation of the local administration should be undertaken.

Is there any type of domestic effluent or untreated liquid waste of industries coming from anywhere at the river source. If this is happening, then first this pollution will have to be stopped or a proper solution will have to be found by getting the help of the local pollution control department.

If neither there is any kind of encroachment nor any kind of pollution is coming there at the origin of the river, then the work should be started immediately.

Let it be assumed that if there is 10 hectares of land at the origin of the river, then a lake of about 8 to 10 meters depth should be constructed there, leaving a track of ten meters around it. In order that the rainwater to enter the lake from all sides, it is necessary to make ways for water to come from under the tracks. It will be decided on the land of origin of the river what kind of lake, pond and dam can be built there. For this, advice can also be taken from the local Minor Irrigation Department, Irrigation Department, or any subject expert.

The origin of any rainy river should be such that maximum rainwater can be collected there. If it is possible to bring extra water from any canal or river there, it can also be done. Every proper arrangement should be made for the source of the river to remain full of water throughout the year. Intensive plantation will also have to be done around the place of origin with the advice of the local forest department or any subject expert. When slowly the place of origin of the river slowly fills with water, then the ground water level there will start rising gradually. The day the ground water level comes near the surface, on that day the water will automatically start flowing beyond the point of origin. The release of this water will be the first step in getting our river back on its course.

LIQUID-SOLID WASTE MANAGEMENT

**Garbage discharge should not go into the river.
The river flow will become pure.**

In the process of liquid and solid waste management, the work of any social organization or other groups working for the river is limited, because preventing domestic and industrial effluents is a complex process, while its treatment is a matter related to technology. While a lot of rules and regulations are used in this work, its financial burden is also high. In such a situation, social organizations or groups can help the villages to use natural water purification methods to stop the flow of dirty water into the river.

Although the participation of villages and towns and cities will be more in this work, for this the work of awareness should be done in the villages as well. While the liquid and solid waste coming out of the cities and towns will have to be managed, the industries which dump their liquid and solid waste in the river by any means will have to be curbed. Governments are making efforts for this. It is the responsibility of the pollution control department i.e. the government to ensure that ETP is installed in every industry and it is operated properly. In every city and town, there should be proper arrangements for disposal of S.T.P. and solid waste for liquid waste, it is the responsibility of the local body, that is again the government. Villages whose liquid or solid waste goes directly into the river or through a drain, society should stop it and easy natural methods

should be adopted for its purification. The help of an expert can also be taken in this. For the flow of the river to be uninterrupted and pure, it is also necessary for the path of its flow to be clean. It is very necessary to completely clean the dirt of the river stream or flow path once.

CLEANING OF RIVER STREAM

**When the river route is clear.
Only then will the water flow continuously.**

To make the flow of any river, it is necessary to clean the main route of its flow area. It is often seen that the flow areas of small rivers are littered with dirt or illegal encroachment is done on them. Although once a year in the rainy season, all the rivers are cleaned naturally, but if the river should remain clean throughout the year. Because at present the liquid and solid waste of domestic effluents and industries is coming from somewhere in the rivers, so after the rains, the river starts getting polluted again. If there is no pollution in a river, but if there is not enough water in it to make it flow, then different types of dirt start accumulating in the river. Water hyacinth spreads on a large scale in some rivers. In such a situation, the flow of the river is not made. The program of cleaning the river stream should also be conducted once in a year. In such a situation, we should clean the area of river flow from both the banks and bottom also. This work can be done in a better way by fixing the responsibility of cleaning the village/town/city in which the area of the river flows. The filth coming out of the river is not to be dumped on the banks of the river but should be thrown so far away from the river so that it does not come back into the river by any means.

POND CONSERVATION

**Let's pick up the pickaxe.
Clean your pond.**

When the ponds in the villages up to one kilometer from both the banks of the river will be clean and full of water, then where the ground water level of the village will rise, while the amount of pollution present in the ground water will gradually decrease. It will be easier for the river to flow when the ground water level comes up, because the river flows with both ground water and flowing water. The ponds of all the villages within one kilometer from both the banks of the river should be revived by identifying them on the basis of revenue records. If there is a lake or lake etc. on the banks of the river, then it is necessary to revive it. If there is any government land lying on the banks of the river where a pond can be constructed, then this should also be done with the help of the local administration. For this the following procedure can be followed -

To mark the ponds of the villages on the banks of the river.

Getting the furrows of those ponds removed and preparing the data of their measles number and area.

Planning for pond revival after seeing the present condition of those ponds.

To include those ponds in the related schemes of the district for the revival of the ponds.

Reviving some ponds with the help of society.

INTENSIVE AFFORESTATION

**The riverbank should not remain empty.
Trees take care of it.**

Intensive tree plantation should be done on the land of the river and pasture etc. within one kilometer radius from both the banks of the river. In this, such plants should be planted on the banks of the river, which collect water from their roots and prevent erosion. Special schemes should be run for farmers to plant orchards in the villages falling within this radius of one kilometer, so that more and more farmers can plant orchards on their agricultural land. By doing this, when there will be more rain in a few years, the ground water level will also rise, which will help the river to flow clean and uninterrupted. Full cooperation of local forest department, local society and social organizations should be taken in the work of intensive afforestation.

CHEMICAL FREE AGRICULTURE

**The crop will be chemical free.
The river will flow only when it is full of virtues.**

Agriculture up to one kilometer from both the banks of the river will have to be made chemical free. By stopping the use of any type of chemicals and pesticides in any crop, agriculture will have to be done through natural methods. With this, where the crop products will be pure and nutritious, the quality of agricultural soil will improve. Due to the continuous use of chemicals since the Green Revolution, their particles have slowly seeped into the ground water. Chemical-free agriculture will also improve the quality of ground water and the elements of chemicals and pesticides used to flow into the river along with irrigation water or rainwater will also be prevented. In this work, the benefits of the schemes related to agriculture of the concerned district can be taken.

CONSTRUCTION OF SMALL DAMS

**When the dam will be built on the stream.
Then the ghat of the river will be filled.**

When the disposal of liquid and solid waste in the river is completely restricted, then small dams should be constructed in it at certain distance according to the circumstances. Small dams must be built where there is no pollution in the river. Through these dams, where we will retain water on the surface of the river, we will also be able to send it to the ground water. Due to this, water will also be available to the residents, birds and animals etc. The type and distance of dams should be constructed on the river only after getting technical cooperation from the local minor irrigation department, soil conservation department, irrigation department or subject expert. According to the situation, dams can be built at the source of the river to make the river flow.

Note: The river on which even if 80 percent works of the above 10 basic elements are completed, then that river will return to its existence in 5 to 10 years. To implement all the 10 elements, it is necessary to prepare a detailed outline for a particular river.

Action Strategy

The Meri Nadi-Meri Pahal (My River – My Initiative) program can be operated to implement the river rejuvenation model, because the works with ten basic mantras can be completed systematically through it. MNMP should be started as a social initiative for river improvement. Its objective is to connect and cooperate with the riverside society with the positive efforts of the governments. All the works to be done under this program can be done only with the cooperation of the society and the local administration. This is such a social initiative in which any common man can contribute in any way in the conservation of his river. Under this initiative, the society situated on the banks of the river and the society affected by the river in any way, realizing their responsibility, can contribute from their own level. To do the task of reviving any river, the only thing that the volunteers must do is to get complete information about all the government schemes being implemented in the villages and implement the schemes related to the ten basic mantras of the river on the ground. Only by doing this, good can be done to the river.

MNMP requires a systematic way to operate the work. To take forward the work on the concerned river, the work can be carried forward by forming a river council. For example, we can understand through **X River Council**.

X River Council

The X River Council is such a group that will take all social decisions regarding the arrangements for clean and uninterrupted flow of X and its tributaries. It will not be a constitutional organization, but a social organization formed at the level of society. This organization will worry about its river and take decisions for its betterment. All the decisions will be under Indian rules and regulations and will be taken without any discrimination. At the administrative level, it will be necessary to inform in writing the District Magistrate/Chief Development Officer of all the seven districts of the river flow, regarding the decisions taken by the X River Council in relation to the X river and to obtain their consent in the works under the authority of the administration. X River Council will be provided technical support by the River Council of India.

Structure of X River Council

The X River Council will be constituted consisting of heads and secretaries of the villages situated on the banks of the river in all the districts of the river flow area. Out of all these Pradhans, because of majority, one will be elected as the President, Vice President, and Secretary of the Council. The president and vice-president will be elected from among the Pradhans, while one will be elected from among the savich village secretaries. Because X River flows through seven districts of Saharanpur, Muzaffarnagar, Shamli, Meerut, Baghpat, Ghaziabad and Gautam Budh Nagar, in such seven districts separate councils can also be formed. By doing this there will be no problem in working administratively. Along with this, a separate river council can also be constituted for two major tributaries of X, Krishna and Kali West, which will be a part of X River Council only.

Village Committee

Heads of the villages along the river flow will be included in the X River Council. It will be the responsibility of the Pradhan of every village to form a committee of ten or more such conscious people in his village under his chairmanship, which will do the work of river improvement in the part of that village. The village secretary will be the secretary of this committee. The village head will appoint a conscious person as the vice-president because of majority. The meeting of the village committee will be held on the 2nd of every month at the place and time fixed with the

consent of the head and the secretary. In the meeting, old works will be reviewed, and new works will be outlined. The work of writing the agenda of the meeting and the decisions taken during the meeting will be done jointly by the Vice President and the Secretary. A register will be created for this.

Although this village committee will also be a part of the X River Council, only the village head and the village secretary will participate in the meetings of the council.

Functioning of X River Council

X River Council will meet on one date of every month at a place (the place will be a village on the banks of the river) and on time, with the consent of the chairman and secretary. The previous work will be reviewed, and future work will be planned in the meeting. The work of writing the agenda of the meeting and the decisions taken during the meeting will be done jointly by the Vice President and the Secretary. The cooperation of the administration will also be taken in planning for the decisions that will be taken in the meeting and in putting those works on the ground, then the work will be completed in a better way.

Decision making powers of X River Council

- The X River Council will have the following powers to take decisions.
- Regarding cleaning of the river.
- Regarding plantation on the banks of the river.
- Regarding the revival of ponds on the banks of rivers or in villages on the banks of rivers.
- Regarding stopping liquid and solid waste in the river.
- Regarding public awareness in the villages on the banks of the river.
- Related to tying bananas in the river.

Apart from this, the X River Council will be able to take any decision regarding the betterment of the river under the administrative rules and regulations. It will be the responsibility of the Secretary of the X River Council to bring all the matters related to the decisions and works of the X River Board to the notice of the District Magistrate, correspondence, and approval of those works etc.

Media

A WhatsApp group will be formed of the members of the X River Council. All the members of all the Karwan River Councils will be involved in this. Apart from this, people participating in the works of river improvement in the village can also be included with the consent of the chairman of the council. From time to time, the news regarding the works of the river and the decisions of the meeting can also be given to the local newspapers with the consent of the Council President. To make this program successful, the help of various publicity mediums can be taken. This includes Facebook, Twitter, mobile app, portal, website, logo, mouthpiece (Hindi-English-local language), pamphlets, pamphlets, stickers, banners, wall writing and documentary film etc.

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