

**EXECUTIVE SUMMARY**

**UGC SPONSORED MAJOR RESEARCH PROJECT**  
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**ON**

**PARTICIPATORY WATERSHED DEVELOPMENT:  
A STUDY OF VILLAGE-LEVEL EXPERIMENTS  
IN MAHARASHTRA**

**Submitted to the  
U.G.C., New Delhi.**

**By**

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### **1. Participatory Development Approach:**

Modernization theory was dominant in the 1960s. The top-down approaches to development was largely a result of Modernization theory which tells that for developing countries to develop they need economic growth along with the path already travelled by western countries.

Participatory development is an alternative approach. Local communities have discovered how they can most appropriately allocate their scarce resources and achieve the highest possible efficiency under their conditions. This knowledge should be strengthened by infusion of relevant, adaptable and locally-grounded innovations. So, the participatory development approach emerged in 1970s-builds on the wealth of the poor and focuses on local populations in development projects. Participatory development was important part of the "basic needs approach" to development and an alternative to mainstream "top-down" development.

People's participation is needed in conservation of natural resources like water, forests etc. People's participation or community participation has become an important approach for watershed development after 1990s. Participatory approach is now being followed by the Government agencies as well as NGOs.

### **2. Water and Participatory Development Approach:**

India receives 400 million hectare-metres (mham) of precipitation primarily as rains. At the same time, there are villages with water shortage. In the villages, when the villagers are involved in the planning and decisions in the watershed development which may be called as from the ground level, it will always be better than technocrat, top-down approach.

Environmental conservation and development are correlated. There is relationship between poverty of the people and the degraded environment. There can be no sustainable natural resources management unless it involves the participation of the people in the concerned environment. Conservation of water in the agricultural sector is essential since water is necessary for the growth of plants and crops. When the rainfall is low, and water is scarce, the people have used water conservation methods. The environmental conservation through participatory watershed development has led to development in certain villages in Maharashtra. Maharashtra has a long history of 500 years in Bhandara's age-old tanks for watershed development.

### **3. Participatory Watershed Development as a Model for Sustainable Development:**

In the villages the natural resource of water will have to be used in such a way that the livelihood will be continued to the next generations and so the sustainable development can

be achieved. One of the methods here is to protect and develop watershed available in the villages. Here comes the role of people in the rural community. If the natural resource of water is conserved and developed by the people in a particular village, then rural development is possible. Thus, the scene of 'participatory watershed development' is emerging in some of the villages in Maharashtra which can be considered as village-level experiment. This scene can be termed as a model for sustainable development in rural areas.

#### **4. Role GOs and NGOs in Watershed Development in Maharashtra:**

The Government of Maharashtra has initiated watershed development programs in the earlier days under Employment Guarantee Scheme (EGS) 1972 and afterwards under Comprehensive Watershed Development Programme (COWDEP) 1982. There are other experiments developed with the assistance of Govt. funds from Center or State under different schemes such as: Drought Prone Area Program (DPAP), Integrated Wasteland Development Program (IWDP), Adarsh Gaon Yojana, etc. There are some NGOs doing watershed development and the Soppecom's work on water users associations in Waghad and Palkhed, work of Paani Panchayat, WOTR, Pani Foundation, Vanarai, AFARM, etc., can be put under this category. In both these cases, the local initiative has a crucial role of peoples participation in watershed development.

There are some social workers, leaders, NGOs which play an important role to mobilise the people. These motivating people or organisations are necessary for implementation of the village level experiments which may be called in brief as 'projects' for bringing community together and motivating them for a cause of watershed development. The maximum participation of the people is required in these projects.

#### **5. Trends in Watershed Development in Maharashtra:**

The overall review of the village level experiments shows that three trends have emerged. The projects which have been implemented during 1970-1986 are by different agencies like State Government, NABARD, NGOs like WOTR, BAIF, Vanarai, Pani Panchayat and local institutions. The examples of organisations like WOTR and IGWDP can be given here. It has contributed for protecting the environment through participatory watershed development programmes in Maharashtra. WOTR initiated in 1989 and operationalised in 1992, for poverty reduction through people-managed environmental regeneration and resource mobilization along watershed lines. The programme has grown to include 88 NGOs working in 442 villages covering over 2,21,000 hectares (5,53,000 acres) and impacting around 3,10,000 people in Maharashtra. Indo-German Watershed Development Programme (IGWDP) has generated a technically sound and participatory

watershed planning methodology, a coherent transition from capacity building to full-scale implementation within watersheds and a practical framework for field-level collaboration among NGOs, community-based organisations and government departments. The works done like wells, farm ponds, lakes during this period have not been continued with the same vigour. The agencies as well as the people from these villages have not shown interest in continuation of the participative watershed development activities. Some of the village in Vidarbha and Marathwada region shows that though the projects were completed, due to scanty rainfall these villages are facing water shortage for drinking and agriculture. Compared to Vidarbha and Marathwada region, Western Maharashtra shows a greater number of watershed development projects and these have been continued for longer period of time.

Some of the experiments received financial assistance from Central or State Government which may be called as government-supported projects but at the same time there were some experiments where people themselves took initiative under some leaders and carried out the activities which may be called as people-initiative projects/ projects supported by the NGOs. The people's participation was the main component of all these experiments.

After 1986-2000 the second type of trend emerges for watershed development. In this phase the Govt. of Maharashtra and the NGOs have done watershed development projects in some of villages. The prominent example of NGO is Vanarai in Pune. During this period Kolhapur Type Ware have been constructed for conservation of water by NGOs.

After 2001 the third phase shows that the Govt. of Maharashtra as well as various NGOs have played a key role in watershed Development in Maharashtra. The schemes of "Pani Aadava, Pani Jirawa" "Jal Swarajya" "Jalyukta Shivar" farm ponds, Integrated Watershed Management Programme, Vasundhara Panalot Vikas Yojana were carried out by Govt. of Maharashtra and NGOs.

## **6. Leaders, NGOs and Watershed Development Projects:**

The initiative of Pani Panchayat was taken by Vilasrao Salunkhe. Anna Hajare took leadership to show the path of watershed development with people's participation in Ralegaon Siddhi. In the village Hiware Bazar participative watershed development was done by Popatrao Pawar. In Maharashtra, there is a background for participatory watershed development and there are successful experiments at the village level. This can be seen at two levels: one, the leaders took initiative and developed the models of watershed development. These experiments include: Dr. Vilasrao Salunkhe and Kalpana Salunkhe's Pani Panchayat at Naigaon, Anna Hazare's Ralegan Siddhi, Popatrao Pawar's Hiware Bazar *etc.* Many farmers

took up soil and water conservation measures in the Gunjawani and Shivganga valleys of the Haveli and Bhore talukas of Pune district, under the guidance of Shri. Appasaheb Bhagwat, a social worker associated with Jnyana Prabodhini.

Today, the state has many pioneering NGOs that work in the watershed development programmes. Social Centre, Ahmadnagar was one of the first NGOs to adopt the watershed approach and it played a key role in launching and designing a state-wide Indo-German Watershed Development Programme. Today many other NGOs prominently WOTR, BAIF, AFARM, ASSIFA, Manavlok, Dharamitra, Gomukh, Vanrai etc. are dominant names in watershed development.

The review of studies on watershed management at Ralegan Siddhi shows that every effort was made to ensure equitable access to the resources generated. Water is distributed equitably. Hazare encouraged the villagers to regard water as a community resource rather than an individual possession and to manage the supply judiciously. World Bank Group has observed that Ralegan Siddhi was transformed from a highly degraded village ecosystem in a semi-arid region of extreme poverty to one of the richest in the country. The key to this eco restoration lies in good management and use of the local rainwater endowment but the entire exercise must be underpinned by community-based decision-making systems and institutions and enabling legal and financial measures which promote community action. The model is environmentally sound and economically viable for sustainable rural development that strengthens rural economy and improves the living standards of the people.

## **7. Methodology of the Study:**

### **7.1. Significance of the Study:**

Government of Maharashtra has the Water Resources Department. The State Water resources Department tackles Irrigation projects which irrigate area more than 250 Hectares of the land. When the area lies between 100 ha. to 250 ha. such projects belongs to Water Conservation Department. The projects irrigating area less than 100 ha. are in the control of Local Self Govt. i.e. Zilla Parishads. There are many experiments other than Ralegaon Siddhi and Hivare Bazar which have been carried out in watershed development in Maharashtra through Government, NGOs and initiatives of the dedicated leaders. The significance of the study is that it will document the experiments in different regions of Maharashtra.

## 7.2 Objectives of the Study:

The main objective of the study is to document the successful village-level experiments carried out in watershed development in Maharashtra. The specific objectives of the study are:

- a. To study the salient features of the villages particularly with reference to initiatives taken and people's participation.
- b. To study the situations of the villages before and after the watershed development.

## 7.3 Research Design:

The descriptive research design has been used for the study.

## 7.4 Project Area and Census Study:

The study has been carried out in Maharashtra. The Experiments carried out in the villages under the Study are presented in Table 1. The census study of all the villages was done.

**Table 1: Village Experiments covered under the Study.**

| Sr. No. | Name of the Village | District   | Sr. No. | Name of the Village | District   |
|---------|---------------------|------------|---------|---------------------|------------|
| 1       | Adagaov             | Aurangabad | 18      | Takeghoti           | Nasik      |
| 2       | Dhanora             | Aurangabad | 19      | Tringalwadi         | Nasik      |
| 3       | Gadiwat             | Aurangabad | 20      | Bhoyare Pathar      | Ahmednagar |
| 4       | JatikhedaTanda      | Aurangabad | 21      | Darewadi            | Ahmednagar |
| 5       | Kingaon             | Aurangabad | 22      | Devgaov             | Ahmednagar |
| 6       | Wadgaon             | Aurangabad | 23      | Gunjalwadi          | Ahmednagar |
| 7       | Kadvanchi           | Jalana     | 24      | Hiware Bazar        | Ahmednagar |
| 8       | Rameshwar Rui       | Latur      | 25      | KauteMalkapur       | Ahmednagar |
| 9       | Dornali             | Nanded     | 26      | Mhaswandi           | Ahmednagar |
| 10      | Nagdarwadi          | Nanded     | 27      | Pabhulwandi         | Ahmednagar |
| 11      | Sakrun Tanda        | Nanded     | 28      | Panoli              | Ahmednagar |
| 12      | Ambewadi            | Beed       | 29      | Pimpalgaon Kauda    | Ahmednagar |
| 13      | Balaiduri           | Nasik      | 30      | Purushwadi          | Ahmednagar |
| 14      | Boripada,           | Nasik      | 31      | Ralegaon Siddhi     | Ahmednagar |
| 15      | Kumbhale,           | Nasik      | 32      | Shelkewadi          | Ahmednagar |
| 16      | Palshi              | Nasik      | 33      | Surodi              | Ahmednagar |
| 17      | Pardevi             | Nasik      | 34      | Vaiju Babhulgaon    | Ahmednagar |

| Sr. No. | Name of the Village | District   | Sr. No. | Name of the Village  | District  |
|---------|---------------------|------------|---------|----------------------|-----------|
| 35      | Wankute             | Ahmednagar | 46      | Dhavadashi           | Satara    |
| 36      | Buchkewadi          | Pune       | 47      | Randullabad          | Satara    |
| 37      | Chale               | Pune       | 48      | Chikaladhara         | Amravati  |
| 38      | Degaon              | Pune       | 49      | Nandgaon Khandeshwar | Amravati  |
| 39      | Gavadewadi          | Pune       | 50      | Pimpalgaon Bahinai   | Amravati  |
| 40      | JategaonKhurd       | Pune       | 51      | Pimpalgaon Nipani    | Amravati  |
| 41      | Katewadi            | Pune       | 52      | Hirangi Manglurpir   | Washim    |
| 42      | Muthalane           | Pune       | 53      | JhamrunMahali        | Washim    |
| 43      | Naigaon             | Pune       | 54      | Shivani              | Buladhana |
| 44      | Khalati             | Sangli     | 55      | Garamsur             | Wardha    |
| 45      | Nidhal              | Satara     |         |                      |           |

### 7.5 Data Collection:

In these villages visits were made by the Project Fellow, Co-Investigator and the field Assistants. The actual Project site was seen. The primary data have been collected through Interview Schedule was prepared for four types of respondents which included: Grampanchayt Leaders and Government officials, Farmers, Landless labour and Women in the concerned villages under Project. The secondary data have been collected through books, journals, pamphlets and websites etc. The photographs have been taken to get the visual presentation.

### 7.6 Data Processing and Analysis:

The primary data have been processed through SPSS available in the Dept. of Sociology under UGC-SAP-DRS-Phase III. The primary and secondary data have been edited, classified, tabulated in the light of the objectives of the study.

### 8. Conclusions of the Study:

The present section has been devoted to make concluding observations. The following section briefly brings the conclusions from these people.

The village level watershed development experiments have been covered from Aurangabad, Nasik, Pune Divisions and Vidarbha Region. The village level experiments shows that some of the leaders motivated the villagers for participative watershed development. The Government agencies also have assisted the villagers and they responded positively to work for watershed development. Similarly the NGOs also have contributed for

watershed development in villages from different areas. Thus the initiatives have been taken by different persons, government agencies and groups, organisations which have led to participative watershed development in the villages in different parts in Maharashtra. The overall observations in 55 villages where the study was conducted indicates that the situations of the villagers have definitely improved due to watershed projects. The villagers are in better situation after the watershed development compared to earlier position.

### **8.1 Grampanchayt Leaders and Government officials:**

The environmental awareness programmes were carried out in the majority of villages which have played an important part in these villages. The villagers and Govt. Institutions have arranged such programmes. Even after the Project, the programmes of environmental awareness have been continued and the villagers have understood the benefits of the project and they want to continue it. The villagers themselves have taken important role for arranging such programmes.

More than 4/5 of the Grampanchayt Leaders and Government officials in the villages have reported that Govt. has helped in the project which shows that its contribution is also important. WOTR is the most important organisation which has helped to the farmers for the projects in the villages. WOTR on its own or in association with other organisations and Govt. has helped the farmers for the Projects. The financial assistance was provided by these organisations.

Absolute majority of the farmers in the villages have contributed to shramdan in their villages. When the villagers collectively do voluntary labour, it creates a feeling of oneness and unity which is very important in the projects like watershed development.

Nearly half of the farmers have medium level shramdan and the proportion who had good participation also comes near to 1/3 which shows that farmers in the villages have contributed prominently in shramdan (voluntary labour). Majority have reported that the villagers are complying for kurhadbandi (not to cut trees) which has been beneficial in growing trees. Majority have reported that the villagers are complying for charaibandi (not to allow cattle for grazing in Gairan) which has been beneficial in growing pasture land helping in rain fall.

Election and other criterion which includes age, occupation, financial condition and gramsabha decision are being considered for selection of the committee membership of the watershed development.

Majority have reported that the meeting is held once at least in a month/ three months /six months. Thus, there is a low frequency of such meetings in the villages. The situation

seems to be not good regarding visit to project site by committee. In the majority of the villages the Govt. Officers do visit to the project site once in a month/ three months which is a good trend

The financial usage is good, which is helpful in maintaining the watershed development project but those who have shown their dissatisfaction, the most prominent reason is corruption, followed by politics.

1/5 of the Grampanchayt Leaders and Government officials in the villages have not informed on participation aspect. In the remaining, the highest percentage shows participation on all aspects of planning, implementation, maintenance of the project.

1/5 of the Grampanchayt Leaders and Government officials in the villages have given no information when they were asked about difficulties in the project. The highest percentage of Grampanchayt Leaders and Government officials in the villages have indicated that to get people together is the difficulty for sustenance of the project.

The two significant trend which are seen: the importance of the project in the nearby villages and creating environmental awareness among the villagers. The village level experiments in watershed development should not remain isolated islands but these should be role model for the adjoining villages. But the current picture from the data is not good in this regard.

## **8.2 Farmers in the villages under Project:**

Majority of the farmers had land total up to 5 acres only and majority of them had cultivated land up to 5 acres. There was no waste land for nearly  $\frac{1}{4}$  of the farmers which shows that these farmers were cultivating all their land.

Almost all except one were staying in their own house before project. After project two farmers were staying in the rented houses and the reason is with reference to bad financial situation. Majority of the farmers were staying in the mud house before project and only two were staying in the cement concrete house. After the Project, majority of the farmers were staying in the cement concrete houses which shows the improvement in financial situation of the farmers. In the case of  $\frac{3}{4}$  of the farmers were having electricity in their houses before project and in the case of  $\frac{1}{4}$  there was no electricity in their houses. This situation has improved after project as all the farmers had electricity in their houses.

Majority of the farmers have LPG connection and Bio-Gas for cooking in their houses which is a good scene from the environment point of view. This scene is also due to Govt. policies and schemes which gives LPG and Bio-Gas connections.

Majority of the farmers were having drinking water from the well and this has been followed by common taps before project. There is change in this form as majority of the farmers were having their own taps for drinking water after project.

In the case of majority of the farmers, the water uses to remain for the whole of monsoon season and in the case of more than  $\frac{1}{4}$  farmers it used to be from monsoon to winter. After the project the scene has changed completely, and it shows that for majority of the farmers water remained from monsoon to winter. This is because of watershed development project carried out in the villages. The water level of wells gets increased whenever the rain water is conserved.

Majority of the farmers were not having wells to drag water and for those who had wells the water was dragged after a gap of week or month which shows scarcity of water in these villages. After project the availability of water in wells has increased. If the comparison is made, it shows that water was available in wells which used to be dragged frequently after the project. Thus, the watershed development activities have given benefits to the farmers in the project villages.

Nearly half of the farmers were dependent on wells for water supply to the farm before the project. More than  $\frac{1}{4}$  farmers were either having no well facility or dependent on other farmers for water supply. The proportion of the farmers having well has increased to majority after the project. Majority of the farmers have reported no surface irrigation system before project. After the project, the surface irrigation system has started in  $\frac{1}{5}$  of the farmers which shows that the farmers got sufficient water for their farms.

The farmers were not having side business except 2 farmers who were doing fishing and other side business. After project majority of the farmers have started doing side business like fishing, poultry and other side business along with farming.

Nearly half of the farmers were cultivating Jawar, Gram and Bajara before project which are fully dependent on rain water. The other prominent crops were Soyabean and Onion. After the project nearly half of the workers continued with the same crops as before project. The prominent crops remained the same of Soyabean and Onion. Only change noticed is that some farmers have started cultivating sugarcane, wheat and maize and this is due to availability of water for farm under watershed development project.

In the case of majority of the farmers, the expenditure was up to Rs. 10,000/ only and the number of farmers having more expenditure was less before project. In the case of majority of the farmers, the expenditure was up to Rs. 10,000/ only and the number of farmers having more expenditure was less after project also. Thus, with the exception of few

farmers the expenditure has not changed much. Majority of the farmers before project were getting profit from crop per acre up to Rs. 20000 and more than 1/3 were getting Rs. 20,001 to 50,000. Majority of the farmers were getting profit from crop per acre up to Rs. 20000 and the percentage of farmers getting Rs. 20,001 to 50,000 has increased. There was also increase in the percentage of farmers getting highest profit per acre after project. It shows that the farmers have started taking crops from which they were getting good results.

Majority of the farmers were having 1 to 3 cattle and other domestic animals before project and this scene remained the same after project also. There were also some farmers who were not having cattle and other domestic animals, but their proportion has come down after project. So, in both the situations, the farmers have cattle and other domestic animals.

Majority of the farmers have used herbs and trees before project as firewood. Some have used it as a fodder. Majority of the farmers have used herbs and trees after project as firewood but here the percentage has come down and it may be due to the change in use of such items after watershed development.

There was no saving in case of some farmers. The saving was prominently in the range of above Rs. 10,000. After the Project, there was saving in case of all farmers. The saving was prominently in the range of above Rs. 3,000 to 5,000 which shows better financial situation after the watershed development project. The absolute majority of the farmers were not having loan and this shows better situation of the farmers before and after project.

Only one farmer indicated that there was migration after project which may be considered as an exception as all the remaining farmers reported that there was no migration after project. It shows that the farmers may be getting better returns from farm which has prohibited migration to other places from the villages covered under the study.

### **8.3 Landless labour:**

Majority of the landless labour is coming from the nuclear families and except one all the others were having age group of 31 -50. Majority of them have studied up to 10<sup>th</sup> Standard. At the same time there were few workers who were illiterate, and this is being observed in the class of landless labour.

Before project  $\frac{1}{4}$  of the landless labour were not getting daily work and the percentage of getting daily work was very less. After project few of the landless labour were not getting daily work and the percentage of getting daily work was majority.

Majority of the landless labour were staying in their own house and this a better situation. The percentage of hired house has remained constant whereas the two landless

labourer who were staying with the relatives have built their own house and so the percentage in this category has increased. Majority of the landless labour were staying in their mud house. The percentage of cement concrete house has increased after project which shows better position after project. The electricity facility was not available for nearly 1/3 of the landless labour but in the majority of cases electricity was available. After project the electricity facility was available to all the landless labour and there has been change in the villages.

Before project all the landless labour except one were using chula and this is the scene before watershed development project. This scene has been completely changed and percentage of landless labour using LPG connection and Bio-gas has increased tremendously.

For the majority of the landless labour, well was the main source for drinking water before project whereas own tap was the main source for nearly half of the landless labour. After the watershed development project, the tap water was available and so in majority of the villages, the landless labour have taken their own taps, this proportion has increased or depends for common taps for drinking water, here also the proportion has increased.

Majority of the landless labour were using herbage and trees as a firewood before project and few were using it as fodder and house building and the scene remained same, but the percentage has come down. This has turned to those who are not using it as firewood.

Majority of the landless labour were unable to save before project and those who were saving were in the lowest bracket of up to Rs. 500 and in the higher saving brackets the percentage went on decreasing which is a natural trend emerging before project. Majority of the landless labour were having savings of Rs. 501 to 2000 and the persons who were unable to save before project have been able to save some amount after project. This can be pointed out as a result of the better opportunities to work in the field due to availability of water.

One member of these landless labour have migrated to other places for work before and after project. The change in situation can be seen that the proportion of families from where migration used to take place has been reduced to half of the total. In the duration of migration also, the situation wherein the number of persons used to stay for 4 or 6 months have been reduced due to availability of work after the project. The migration pattern was for every year before and after project. The difference noticed is in case of from six families it has been reduced to three families and that is because of watershed development project.

#### **8.4: Women:**

Majority of women told that the daily agricultural work was seasonal before project and nearly ¼ told that it was not available. Compared to this, majority of the women told

that the work was available either for the full year or seasonal. The percentage of those who replied in negative has also come down after project which shows that the daily work opportunities have increased.

More than 1/3 of the villages the daily wages for agricultural work was Rs.50. In four villages the daily wage rate was very meagre of Rs. 30. For 2/5 of the villages the daily wage was more than Rs. 70.

Total  $\frac{3}{4}$  of the women have participated in the shramdan (voluntary labour) in watershed development activities which shows that women also have contributed to the activities meant for the village as a whole. More than 1/3 of the women used to attend watershed development project committee meetings and this is a good indication of women participation in the watershed development committee activities.

Tap water facility was not applicable to nearly half of the village women before project. For the remaining villages also, number with tap facility was lower. This was a troublesome situation for the women in villages before project which has changed afterwards.

The women reported that for in more than  $\frac{3}{4}$  of the villages water from well was available only in monsoon before project. This situation has changed after project and the water from well was available whole monsoon and monsoon to winter for nearly  $\frac{3}{4}$  of the villages. Women in the villages have reported that the availability of water for other use for majority was not there before project whereas it was available for other use for majority after project. The women in majority of villages have reported that there was not sufficient water for cattle and other domestic animals before project and this scene has been changed after project. The women reported that there was water scarcity for the absolute majority of villages before project and there was no water scarcity after project in the case of majority of the villages due to watershed development project. Majority of the women had their practices of saving water before and after project and this proportion has increased after project due to environmental awareness programmes in the villages.

Absolute majority of women were using chula before project and after project though majority of them were using the same, the proportion of other measures like LPG connection/ Bio-Gas has increased considerably after project. This has happened due to the Govt. programmes, environmental awareness and for healthy practice.

There were nearly half of the women who were having no saving before project and this proportion has come down considerably and they have saving after project. Another striking feature is that the number of women having saving before project in the lowest range was more which has been decreased and this number has increased saving in the higher

brackets. Thus, the better financial positions of women can be seen in the villages due to watershed development project.

**9. Other Village Experiments in Maharashtra.** The present section has been devoted to document other village experiments in Maharashtra. The other Village Experiments in Maharashtra are presented in Table 2.

**Table 2: Other Village Experiments in Maharashtra.**

| <b>Sr. No.</b> | <b>Name of the Village</b> | <b>District</b> | <b>Sr. No.</b> | <b>Name of the Village</b> | <b>District</b> |
|----------------|----------------------------|-----------------|----------------|----------------------------|-----------------|
| 1              | Sundarwadi                 | Aurangabad      | 27             | Bahinai                    | Amravati        |
| 2              | Pimpalgaon<br>Wagha        | Ahmednagar      | 28             | Yevat                      | Yavatmal        |
| 3              | Pimpale                    | Nandurbar       | 29             | Dharani Chikaladhara       | Amravati        |
| 4              | Mandwa                     | Nagpur          | 30             | Manglurpir                 | Washim          |
| 5              | Gondavle                   | Satara          | 31             | Vava                       | Aurangabad      |
| 6              | Pimpri Gawali              | Ahmednagar      | 32             | Umare Erandola             | Jalgaon         |
| 7              | Ramanwadi                  | Kolhapur        | 33             | Kouthali                   | Jalgaon         |
| 8              | Pingori                    | Pune            | 34             | Dounapur                   | Jalgaon         |
| 9              | Medsinga                   | Osmanabad       | 35             | Dharmapuri                 | Jalgaon         |
| 10             | Surnarwadi                 | Beed            | 36             | Pattivadagaon              | Jalgaon         |
| 11             | Kudashet                   | Thane           | 37             | Ghatnandur                 | Jalgaon         |
| 12             | Borasar                    | Aurangabad      | 38             | Revali                     | Jalgaon         |
| 13             | Ekanathwadi                | Ahmednagar      | 39             | Sirasala                   | Jalgaon         |
| 14             | Bori Budruk                | Pune            | 40             | Vaka                       | Jalgaon         |
| 15             | Bodakewadi                 | Satara          | 41             | Nathra                     | Jalgaon         |
| 16             | Kasari                     | Pune            | 42             | Ujani                      | Latur           |
| 17             | Shiroli                    | Yavatamal       | 43             | Vitthalawadi Madha         | Solapur         |
| 18             | Velu                       | Satara          | 44             | Gardi                      | Sangli          |
| 19             | Bidal                      | Satara          | 45             | Khanapur                   | Sangli          |
| 20             | Kumathe                    | Satara          | 46             | Nayagaon                   | Ahmednagar      |
| 21             | Padsali                    | Solapur         | 47             | Jamakhed                   | Ahmednagar      |
| 22             | Sangamner                  | Ahmednagar      | 48             | Bodad                      | Vardha          |
| 23             | Bairewadi                  | Ahmednagar      | 49             | Aarvi                      | Vardha          |
| 24             | Khandeshwar                | Amravati        | 50             | Ganganer                   | Nagpur          |
| 25             | Bairewadi                  | Ahmednagar      | 51             | Mouda                      | Nagpur          |
| 26             | Khandeshwar                | Amravati        |                |                            |                 |

There have been some experiments which were not covered when the Major Research Project was submitted. After the Project was sanctioned, the new watershed development activities were performed in certain villages. The Investigators read some of the village level experiments in Maharashtra. All these village level experiments in Maharashtra available through secondary sources of data like newspapers, websites and other materials have been recorded in the above table.

These projects have been carried out with people initiative at the village level under the assistance of Government agencies and NGOs. The projects also have been carried out under guidance and awareness created in the minds of villagers due to Awards like Satymeva Jayate Water Cup.

#### **10. Concluding Observations:**

The top-down approaches to development was largely a result of Modernization theory of 1960s which tells that for developing countries to develop they need economic growth along the path already travelled by western countries. People's participation or community participation has become an important approach for watershed development after 1990s. Participatory approach is now being followed by the Government agencies as well as NGOs.

The environmental conservation through 'participatory watershed development' is emerging in some of the villages in Maharashtra which can be considered as village-level experiment. This scene can be termed as a model for sustainable development in rural areas. There is a significant role Government agencies, social workers, leaders and NGOs to mobilise the people in Watershed Development in Maharashtra.

The overall review of the village level experiments shows that three trends have emerged. The projects which have been implemented during 1970-1986 are by different agencies like State Government, NABARD, NGOs like WOTR, BAIF, Vanarai, Pani Panchayat and local institutions. After 1986-2000 the second type of trend emerges wherein Govt. of Maharashtra and the NGOs have done watershed development projects, prominent being Vanarai in Pune and Kolhapur Type Wares. After 2001 in the third phase Govt. of Maharashtra and NGOs have played a key role and schemes of "Pani Aadava, Pani Jirawa" "Jal Swarajya" "Jalyukta Shivar" farm ponds, Integrated Watershed Management Programme, Vasundhara Panalot Vikas Yojana were carried out by Govt. of Maharashtra.

The documentation of the successful village-level experiments carried out in watershed development in Maharashtra has been done. The salient features of the villages particularly with reference to initiatives taken and people's participation were studied. The

situations of the villages before and after the watershed development have been studied. For this the interview Schedule was prepared for four types of respondents which included: Grampanchayat Leaders and Government officials, Farmers, Landless labour and Women in the villages under Project. The primary data shows that the Govt. agencies, leaders and NGOs have taken initiative and the watershed development has been carried out with the people's participation. The overall situation of the people from different strata has improved considerably after the watershed development project.

There have been some other experiments which were not covered when the proposal for Major Research Project was submitted. These projects also show similar results. Thus, the participative watershed projects have been contributing to the better changes in the villages and are leading to sustainable development.