

Sustainable Development-A Case Study of Mhasavandi Village

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Abstract- For sustainability Plantation and Water shed management programme is most important which will balance the environment. People's education is also vital things which develops the next generation and giving better message for saving environment. There will be the establishment of maximum training centers for developing the villages in each states of the country so that most of the volunteers would be trained and they will start transforming the country by giving training to others in various communities of the society. Environmental Impact assessment (EIA) and Sustainable Development goals [SDGs] are also necessary which will control the adverse impact on environment. All the peoples must have to save the each and every drops of water by using various methods of water saving like Rain water Harvesting, CCT, KT-weirs, Nala Bunds..etc

The various Competitions like Water Cup Competition organized by "Paani Foundation" and "NAAM Foundations" State Govt. different NGOs..etc may arranged for motivating the people. State Govt. and Central Govt. may implement new Schemes for saving the water and improving the ground water table level like "Jalyukat Shivar" and "Paani Adva Paani Jirva" Yojana. So that the sustainability result will be sure in future.

Watershed management plays an important role in protecting drinking water supplies and at the same time ensures that a broad range of other environmental, human health and social concerns are being addressed. The watershed represents a physical unit within which water moves and is influenced by natural processes and the impacts of human activities. Watersheds therefore provide a good basis for management.

The activities undertaken in this project include soil and water conservation measures like construction of Check dam, Bandhara etc. By construction of Bandhara the stored water is use for agriculture purpose and to increase infiltration and to prevent soil erosion. This watershed development relates with increase in economy of village and overall development of village. Village will be on the safe side even if there is drought condition, proper use of available water improves

agricultural yield. It is clear that the person's role in developing a sustainable society is through the promotion and identification of sustainable land uses. The Sustainable Smart Village will enable villagers to look to the future with new found confidence and learn to make a success of their sustainable ecological actions. Promoting poverty eradication in rural areas.

Index Terms- Rain water harvesting, EIA, CCT, KT-Weirs, Paani Foundation, NAAM Foundation, Watershed Management, Soil and Water Conservation, Check Dams, SDGs, NGO.

I. INTRODUCTION

1.1-Definition of Sustainable Development-

Sustainable development is the organizing principle for meeting human development goals while at the same time sustaining the ability of natural systems to provide the natural resources and ecosystem services upon which the economy and society depend. The desired result is a state of society where living conditions and resource use continue to meet human needs without undermining the integrity and stability of the natural system. Sustainable development can be classified as development that meets the needs of the present without compromising the ability of future generations.

It is well conceived that Social, Economic and the Environment [SEE] are the three unbreakable pillars of sustainable development.

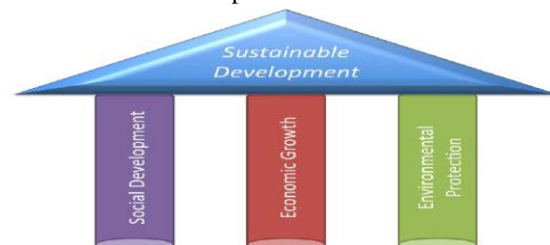


Fig No-01:- Three Unbreakable Pillars [SEE] of Sustainability

1.2-SOURCES OF DATA COLLECTION-

These data have been collected with the help of local people's interviews, participant observation, video clips, focus-group discussions and archival sources and by using websites

1.3-SUSTAINABLE DEVELOPMENT GOALS [SDGs]-

Following are the important Goals for obtaining sustainability-

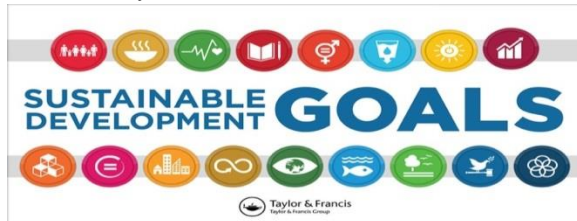


Fig No-02:- Sustainable Development Goals

1. No Poverty- [End Extreme Poverty in all forms by 2030]
2. No Hunger-[End Hunger, Achieve Food security and Improved Nutrition and Promote Sustainable Agriculture]
3. Good Health and Well-being- [Ensure Healthy lives and promote well-being for all at all Ages]
4. Equality Education - [Ensure Inclusive and Equitable Quality Education and Promote life long Learning Opportunities for all.]
5. Gender Equality - [Achieve Gender Equality and Empower all Women and Girls]
6. Clean Water and Sanitation - [Ensure availability and Sustainable Management of water and Sanitation for all]
7. Affordable and Clean Energy - [Ensure access to Affordable, Reliable, Sustainable and Modern Energy for all]
8. Decent work and Economic growth - [Promote Sustained, Inclusive and Sustainable Economic growth, full and productive employment and decent work for all]
9. Industry Innovation and Infrastructure
10. Reduced Inequalities -[Reduce Inequality within and among Countries]
11. Sustainable Cities and Communities - [Make Cities and Human Settlements Inclusive, Safe, Resilient and Sustainable]

12. Responsible Consumption and Production - [Ensure Sustainable Consumption and Production Patterns]

13. Climate Action - [Take urgent action to Combat Climate Change and its Impacts]

14. Life below Water

15. Life on Land

16. Peace Justice and Strong Institutions

17. Partnership for the Goals.

1.4-CHALLENGES -

The major areas of challenge in making growth sustainable in the country may

- 1-Regional Disparities
 - 2- Sanitation and Drinking Water
 - 3-Education Access
 - 4-Inclusive Growth
 - 5- Infrastructure
 - 6-Environmental Quality and Urban Air Quality
 - 7-Water Quality
 - 8-Resource Security, Energy Security
 - 9-Climate Change
 - 10- Natural Disaster
 - 11-Biodiversity related Challenges and others.
- Thus despite India's concerted efforts in achieving sustainable development across the pillars many problems are persistent challenges are many. Therefore, efforts must be continuously on and on so that challenges may be effectively tackled in the continued process of Nation Building.

1.5-ISSUES OF SUSTAINABLE DEVELOPMENT-

The following list shows some of the main known issues

- 1-Acidification [Includes Algal Bloom, Coral Reef Loss, etc]
- 2- Air quality [Air Pollution, Ozone Pollution, ties to human health with Asthma, Diesel Emissions, etc.]
- 3-Biodiversity
- 4-Employee development
- 5-Crime, fear of crime
- 6- Deduction of Wages
- 7- Fair Competition
- 8- Noise pollution
- 9- Air pollution
- 10- Recycling
- 11- Reputation
- 12- Education for all/Lifelong Learning
- 13- Unemployment

14- Energy consumption

15-Lack of Vision in Youth

1.6-IMPORTANCE OF SUSTAINABILITY DEVELOPMENT

1. Environmental Conservation and proper utilization of natural resources.
2. Increase funding for Environment development.
3. Conservation of Biodiversity.
4. Pollution Control.
5. Population Control and Poverty Elevation.
6. Increase Public Participation.
7. Creating INGOs and Local groups for Conservation.
8. Conservation for future Generation.
9. Ecological diversification and its Conservation.
10. To Mitigate/ reduce the Illiteracy within the country

1.7-OBJECTIVE OF THE STUDY

1. The main objective of the Sustainable Development is to raise the Economic and Social level and Living standard in Mhasavandi village.
2. To analyze the challenges of rural life, rural economy and suggest possible permanent ways to mitigate these possible issues in future.
3. To Use of internet for Sustainable development of village i.e. ICT, GIS, IT..etc.
4. Make people aware of imbalance in sex ratio and control the Infant mortality rate.
5. Mobilization of financial resources for the community. And Up gradation of skills of rural youth for the self-employment opportunities.
6. To know all the Government schemes provided for Rural Peoples regularly through media like Radio, FM, Print media, Advertisement and all TV-Channels.
7. DBT [Direct Benefit Transfer] Facilities should be provided to all village peoples i.e. the payments of all Govt. schemes should be deposited in individual bank accounts.
8. Cashless Facilities should be provided in the village community all times.
9. Human Empowerment, Women Empowerment, Compulsory Education to all, Environmental Protection, are the main objectives of Sustainable Development.
10. To Generate Employment to the Youth.

11. Utilisation of youth power in the form of NCC, NSS, NGO, Social Forums, SHGs..etc for the development of Village as well as creating a Benchmarks for other under developing villages.

12. Ensures environmental sustainability in rural areas.

II. TRANSFORMING INDIA- A ROLE MODEL MHASAVANDI VILLAGE

“Action Speaks Louder Than the Words...”

Mhasavandi Village a role model of Transforming India- Mhasavandi village is located near Sangamner Dist-A.Nagar. State –Maharashtra, India. Which is 55Km away from the Sangamner city having population near about 1550 nos. in which males are 850 nos and female are 700 nos. Previously before 1990 the village was not developed because of scarcity of water and the peoples were so illiterate and having uneducatedness, alcoholic, smoking background youth power was having laziness so many disputes were there among the village people .They were doing their livelihood by cutting the forest and selling it and becomes its residents were happy this happens because of less water



Fig No-03:- Mhasavandi Village open Well before development.

It was into this milieu that Fr. Hermann Bacher [Founder of WOTR & IGWDP] entered when he visited Mhasavandi in 1994. Fr. Bacher’s visit was not mere coincidence. In the 1990s, the Indo-German Watershed Development Programme [IGWDP] was launched Ahmednagar district which lies in the rain-shadow region of Maharashtra. Dramatic results from a pilot project in Mendhwan [which, like Mhasavandi, also lay in Sangamner taluka of Ahmednagar district] served to erase some of the fears the people in neighbouring villages had, and with some encouragement they also accepted the programme. Having visited Mhasavandi, Fr. Bacher was convinced that launching a watershed programme there too would help restore the land and

break the cycle of poverty. In this endeavor he was ably supported by the Sangamner Sugar Factory. Which joined this restorative venture at his request and accepted the responsibility of being the facilitating NGO through the entire project period. WOTR would provide support throughout, both during the Capacity-Building Phase [CBP] as well as the Full Implementation Phase [FIP] by way of multiple training sessions, experience-sharing workshops, gatherings called Melawas and Exposure visits. While WOTR would be exclusively responsible for the CBP, NABARD and the IGWDP Programme Coordinator's team, also based in WOTR, would take responsibility for the FIP.



Fig No-04:- Mhasavandi Village Animal situation before development.

The main responsibility would, however, lie with the Village Watershed Committee [VWC] that would be guided to plan, monitor and execute all watershed development activities and to counter the conflicts that might arise during the process. All that was needed now was to win the villagers confidence. nobody can say that whether this problem will be solved or not in ten years or hundred years "Many a Little Manes a Meckler "each and every single drop of water is very necessary but, its management is not proper. At some places installation of drip irrigation and sprinkler is done but that water cannot be used for wider areas due to variation of rainfall in different regions. The crops are destroying is commonly heart it is taking a step forward to save each drop and to use it in extreme conditions. Environmental regeneration is possible only when the concerned people see a reason for it and are fully in control of all aspects of resource mobilization, management and conservation just as human being and their activities are the primary causes of environmental destruction, and they are the reassures for restarting the health of the environment that they are rained. Hence there can be no sustainable natural resources management.

1.8-DEFINITION OF WATERSHED

A watershed, also called a drainage basin or catchment area, is defined as an area in which all water owing into it goes to a common outlet. People and livestock are the integral part of watershed and their activities. The productive status of watersheds and vice versa. From the hydrological point of view, the different phases of hydrological cycle in a watershed are dependent on the various natural features and human activities. Watershed is not simply the hydrological unit but also socio- political-ecological entity which plays crucial role in determining food, social, and economical security and provides life support services to rural people.

Hydrologically watershed is an area from which the runoff follows to a common point on the drainage system. Every stream, tributary, or river has an associated watershed, and small watersheds aggregate together to become larger watersheds.



Fig No-05:- Watershed Management system in Mhasavandi Village

Water travels from headwater to the downward location and meets with similar strength of stream, and then it forms one order higher stream. The stream order is a measure of the degree of stream branching within a watershed.

1.9 -LAND AND WATER CONSERVATION PRACTICES

Soil and water conservation practices are the primary step of watershed management program. Conservation practices can be divided into two main categories-

- 1) In-Situ Management.
- 2) Ex-Situ Management.

1) In-Situ Management-

Land and water conservation practices those made within agricultural fields like construction of contour bunds, graded bunds, field bunds, terraces building, broad bed and furrow practice and other soil-moisture conservation practices, are known as In-situ management.

2) Ex-Situ Management-

These practices protect land degradation, improve soil health, and increase soil-moisture availability and groundwater recharge. Moreover, construction of check dam, farm pond, gully control structures, pits excavation across the stream channel is known as Ex-situ management. Ex-situ watershed management practices reduce peak discharge in order to reclaim gully formation and harvest substantial amount of runoff which increases groundwater recharge and irrigation potential in watersheds.

1.10-WATERSHED MANAGEMENT PROJECT INTERVENTIONS

CAPACITY BUILDING PHASE 1994 –1996

- Hands-on Training for implementation of a micro-watershed Capacity Building of VWC, SHGs & SMS, PLS.
- For Project cycle management, records and accounts keeping, maintenance of the required disciplines, interaction with other projects, workshops.
- Watershed development activities [Area treatment, Drainage line treatment] such as
1-Afforestation 2-CCT 3-Nalabund 4-
Contour bunds 5- Gully plugs 6- Check dams 7-
WAT

1.11-FULL IMPLEMENTATION PHASE 1997 - 2000

- Similar activities and the trainings continue.
- Planning and implementation of the Project fund for women's development.

1.12-IMPACT- CHANGES IN LIVESTOCK THE POST WATERSHED SCENARIO – VWC

- The VWC has a Maintenance Fund of Rs.9.13lakh.
- VWC meeting is held once in three months.
- Agenda discussed are maintenance of the assets in the watershed, expenditures and plans.
- The VWC auctions three check dams for fish rearing and earn annually an amount of about Rs.45000/- and the amount earned is used for village fairs and festivals.
- Also auctions the fodder grass grown in the common lands and earn about Rs.40000 – 45,000/- annually.

1.13-IMPORTANT ASPECTS OF WATER SHED MANAGEMENT ADOPTED FOR TRANSFORMING MHASAVANDI VILLAGE-

1.13.1-EARTHEN BUNDS- REDUCTION IN SOIL EROSION

The ground water table of wells within 1 to 2 km on downstream side of bund increases. The submerged material that has been flown off catchment area can be used as fertilizer.



Fig No-06:- Mhasavandi Village Earthen Bunds after development.

1.13.2-CONTINUOUS CONTOUR TRENCHES [CCT]

Reduces surface water flow velocity, promotes in filtration, and prevents pollutants from draining into water bodies.



Fig No-07:- Mhasavandi Village CCT after development.

1.13.3-FARM PONDS [FP]

Ponds constructed on the upper side of the farms to block and store the runoff rainwater which can be used during emergencies are called farm ponds. The main objective of farm pond is to store the water from the surface runoff in the ponds and use for the irrigation purpose. The water stored in the farm ponds is generally used when irregular rains are received. Places where construction of wells are not possible in such areas, the farm ponds are constructed. In case of Mhasavandi there are many such farm ponds are artificially constructed which are helpful in at the time of emergencies and drought situations.



Fig No-08:- Mhasavandi Village Farm Ponds after development.

1.13.4-KT-WEIRS [KOLHAPUR TYPE BANDHARA]-

A KT weir is a barrier across the horizontal width of a river that alters the flow characteristics of the water and usually results in a change in the height of the river level. There are many designs of weir, but commonly water flows freely over the top of the weir crest before cascading down to a lower level. Such KT-weirs are also constructed in this village for improving the ground water table in nearby area.



Fig No-09:- Mhasavandi Village -KT-Weirs after development.

1.13.5-GABION BANDHARA

A gabion [from Italian gabion meaning "big cage" from Italian Gabbia and Latin cavea [meaning "cage"]] is a cage, cylinder, or box filled with rocks, concrete, or sometimes sand and soil for use in civil engineering, road building, military applications and landscaping. For erosion control, caged riprap is used. For dams or in foundation construction, cylindrical metal structures are used. In a military context, earth- or sand-filled gabions are used to protect sappers, infantry, and artillerymen from enemy fire.



Fig No-10:- Mhasavandi Village Gabion Bandhara after development.

A gabion wall is a retaining wall made of stacked stone-filled gabions tied together with wire. Gabion

walls are usually battered [angled back towards the slope] or stepped back with the slope, rather than stacked vertically. Such Gabion Bandhara is mostly constructed in this village and getting results of raising water table level.

1.13.6-PERCOLATING BANDHARAS-

Basic requirement is for recharging the ground water reservoir is as follows

In case of Mhasavandi percolating lakes or percolating bandhara also constructed near the hill side so that at the time of rainy season water comes from hills and collect naturally in the lakes so that percolation of water is highly takes place in nearby area and raising the ground water table. Black cotton soil gives better results in such case.

1-Availability of non-committed surplus monsoon runoff in space and time.



Fig No-11:- Mhasavandi Village Percolating Bandhara after development.

2-Identification of suitable hydrogeological environment and sites for creating subsurface reservoir through cost effective artificial recharge techniques

1.13.7-ESTABLISHMENT OF GOVERNMENT ASHRAM SHALA [SCHOOL]-

The provision of Government Asharam shala to all Tribal areas and provide quality education to all SC, ST, and NT categories students. Also provide all facilities to tribal students like food, cloths, and shelters and other important facilities required for day to day life activities. This is provided in Mhasavandi village.



Fig No-12:- Mhasavandi Village Ashram Shala [School] after development.

1.13.8- ESTABLISHMENT OF WOMENS CENTRAL TRAINING CENTER

For the sustainable development Women Empowerment is the key factor in this every women and girls should have give skilled development education like Self defence, Tailoring works,ITI education like computer operator, mobile repairing work, Typing education, Embroidery work on cloths, Bachat gut, Packing works..etc can be



Fig No-13:-Women’s Central Training Center Mhasavandi Village

Provided to the women so that they can stand and help to the progress of the village and ultimately the GDP will also increases. In Mhasavandi such types of skilled educations are compulsorily provided to all women and girls in Central Training Centers.

III. RECOMMENDATIONS

1. Needs improvement in quality of drinking water which is drinking directly by agricultural workers and farmers.
2. Needs of eradication of poverty founded in some community of rural area.
3. Fostering the human capacities and Traits, attributes of local people as well as youth which are mostly required for sustainable development for Mhasavandi.
4. Implementation of Solar Energy projects in all houses of village is required.
5. The MNC’s must provide Funds and other sustainable activities under CSR activity.
6. It is most important that do the Social work professionally so that the targeted work must be completed within the stipulated time.

IV. CONCLUSIONS

The villagers can list out several benefits that have resulted because of the Planation, Education, and Watershed development project.

1. Income opportunities are now available within the Mhasavandi village itself and there are no distress migrations anymore.
2. There is increased moisture in the soil and water is easily available in the wells i.e. Perennial Wells throughout the year.
3. Not only has the area of cultivable land increased, but the existing land productivity has also multiplied manifold.
4. Access to quality education is provided for all children. That’s why number of school drop-outs is reduced in this village.
5. Women [Women Empowerment] are better trained, providing them with the skills needed for business start-ups and employment. e.g. tailoring business, Bachat Gut, starting of small and medium scale business..etc
6. This village has been Stimulated the creation of new jobs and income opportunities in rural areas.
7. Actively promoted sustainable forest management.
8. They have Strengthen the links between agriculture and other sectors of the rural economy.
9. Develop sustainable ways to add value to agricultural products locally, sub regionally and regionally to generate additional income.

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