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The Context of '*WADI*' in Tribal Sustainable Development: An Anthropological Study

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ABSTRACT

Sustainable development means the development of the present generation without compromising the ability of future generations. It reduces the poverty of the backward communities and secures the food, income and quality of life. WADI model of sustainable development successfully use throughout the world as a tribal development model. The concept of WADI first used in India through the hand of NABARD in the western part of the country in the year 1990 onwards then in pan India basis. It is a horticulture farming system in arid tribal areas. In West Bengal the programme first started in tribal dominated districts like Purulia and Bankura with the collaboration of NABARD and Government of West Bengal. The present study focuses on the sustainable development of the tribal people through WADI projects in the remote villages of Bandwan block of Purulia district, West Bengal. It tries to cover various dimensions such as migration, farm production, natural resource management, social mobilization and economic upliftment.

Key Words : Sustainable development, *WADI*, Tribes, Women empowerment, Economic Upliftment, Migration

INTRODUCTION

Indigenous People live in almost every sphere of the world. Now the important question is who are the indigenous people? Indigenous Community lives in a particular territory, they have their own culture which they try to preserve from others and pass on to their successor. Through their own cultural values they have a deep connection with the environment. They protect the environment through their traditional norms and values since time immemorial. Their whole life is interconnected and intermingled with forest ecology. They are the children of the forest and they guard the natural resources of forest as their mother through their age old traditional social systems. In India they have known as Adivasi or *Vanyajati* or Tribe or Scheduled Tribe. According to Roy Burman (1982, 4) forest is associated with tribal life directly or indirectly and it symbolises life in their mind. Forest is their home which provide food, employment, income and they worship it generation after generation. The United Nations made a declaration to protect the rights of indigenous communities in the year 2007 and try to established different policies to preserve their culture, social system, language and natural resources. The main aim is to live them in their own world without harm the environment.

Different policies and programme has been established time to time by the Government and NGOs to develop their situation. But the goal of the sustainable development must be environment friendly and its main emphasis to serve the present generation without harming the future generation. The United Nations in the year 2015 set up different sustainable development goals to develop the situation of disadvantaged indigenous communities. They try to build a world for those people free of poverty, hunger and disease. Their developmental goal is environment friendly and community oriented.

The Bruntland Commission in their report of the 'World Commission on Environment and Development: Our Common Future' in the year 1987 emphasis on the communities over all development but also maintain the environmental balance. Regarding this the most important

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definition of sustainable development as per the report is to fulfill the needs of the present generations without compromising the needs of future generations. So, the baseline of sustainable development is continues economic progress through long term protection of the nature and to integrate the environmental, social, and economic aspects through communities perspectives (Dernbach 2003, 248). The overall emphasis has been given on the concept of needs for the tribal people through their indigenous technology and age old tradition. The development means the positive change of the society. It's mainly related with communities' livelihood and economy. The above developmental approach brings the equality and equity within generations and between generations as well as make a balance between social, economical, cultural and political balance. Thus in a nutshell the target of the developmental process is to provide the sustainability in community's growth and also provide countries economic balance. Plummer (2005, 33) try to established a balanced relationship between human being and natural environment which is the central theme of the sustainable development.

The present study focuses on the *WADI* system of developmental process among the tribal communities of Purulia district in West Bengal state of India. In India the *WADI* project was first launched in the state of Gujarat. In Gujarati the term *WADI* means a piece of land planted with fruit trees. It is nothing but a garden farming process which encircled by different forest species. The main emphasis of this model is to develop the tribal families economically and socially. Every beneficiary family has to contribute at least one acre of land for growing fruit trees surrounded by other forest species as per the rules of this developmental programme. The objectives of this study were carried out to determine how the *WADI* model helps to develop the situation of the studied tribal families. Regarding this it is also important to know the history of *WADI* model in India from its inception and its major components. The study is also emphasizes the success rate and assessment its impact to the studied tribal families.

METHODOLOGY

Area, people and design of the study:

The present study was carried out in three villages of Bandwan block of Purulia district in the state of West Bengal, India. As the block is a part of Chotanagpur plateau the lands are undulating in nature with scattered small hillocks. In India the project was first launched with the hand of NGOs in the parts of Gujarat and other states during 1980s. In West Bengal the NABARD and Government of West Bengal jointly started the project in the year 2006-2007 with the help of Implementing Agencies in Tribal dominated Blocks of Purulia, Bankura and Jalpaiguri districts. Certain parameter has been set by NABARD where preference has been given to the villages where percentage of tribal population is more than 50%. NABARD selected the Gramin Vikas Trust a NGO as implementing agency in the studied block of Purulia district.

Purulia is situated in the west side of West Bengal. The present study has been conducted in three villages of Bandwan block of Purulia district in West Bengal, state of India. Bandwan is the most backward block in Purulia district socially and economically. There is total eight Gram Panchayats in Bandwan block but the study has been conducted in three villages of three gram Panchayat such as Kumra, Chirudih and Kuilapal. The studied block is located in Purulia sadar sub-division. Majority of the villages in the block is mainly tribal dominated. According to 2011 Census Bandwan block consist of 51.86% tribal population where as in percentage are 5.8 and 8.6 in West Bengal and India, respectively. The major tribes are lived in the studied villages are Santals, Bhumij, Munda, and Oraon. The studied villages are Bhogidi, Paharpur and Churku which is located under Chirudih, Kuilapal and Kumra gram Panchayet, respectively. The total numbers of studied beneficiary families are 50 from the village Bhogidi, 45 from the village Paharpur and 30 from the village Churku. The study has been conducted in the year 2011, 2013 and 2015, respectively.

In order to get relevant data various anthropological methods have been applied. The data have been collected through both qualitative and quantitative methods. The target beneficiaries have been selected through purposive sampling technique. Collection of information regarding *WADI* programme and its components from implementing agencies mainly involved qualitative approach. On the other hand, some basic family level information, income, education as well as livelihood have been collected through both qualitative and quantitative approach. The success rate of the project and involvement of the beneficiary families have been collected through case study and structured schedule method.

Component wise perception of *WADI*:

It is a comprehensive development programme

among the Tribes of India where it's main aim to promote sustainable tribal development and provide them food security, income security, women empowerment, health improvement and many more. In India the concept was first launched in some villages of Gujarat during 1980s, through interactions between BAIF's founder Manibhai Desai and local tribal families. During 1990s NABARD with the help of a German Bank started the *WADI* programme in the state of Gujarat and Maharasthra through a NGO. *WADI* is a five year horticultural programme where fruit tree are planted in one or two acre of lands. It promotes the orchard farming system among the tribal families in arid dry areas. This project emphasis on family development programme through agro bio diversity and women participation.

In one sentence *WADI* can be mentioned as fruit tree farming system. In the studied villages two tree crops such as mango and cashew are selected for farming with some forest tree like Sishu, segun, Sal, Arjun etc. The land structure is very rough and barren which is unsuitable for agriculture. At least 60 to 70 fruit trees and around 150 to 200 forest trees are planted in one acre of land. The forest trees are planted on the side of the land which plays the role of a boundary. A trench is also dug through the boundary to protect the plants and preserve the water. They sell the ripe fruits in local market which double their income and give some strength for living in a better way. The forest plants are also helpful in lean time because they sell dry woods in local market as fuel and other timber to construct their house of other needs.

There are the two major sections in the *WADI* programme among them one is directly related and another is not directly related. The main components associated with *WADI* are Preparation of land, horticulture orchard plantation and related work. On the other hand empowerment of the women through income generation, sanitation, piggery, creating SHGs, health awareness camps etc are the non *WADI* components. Preparation of the land is the first thing before plantation of the fruit trees and forest species. For preserving water many trench, wells and ring basis are created in the field. To reduce soil erosion different measure are used in the field. Because to protect the soil and preserve water are very important parameter for grow up the fruit trees as the lands are rough and hot weather condition. Initially strong fencing is used to protect the sapling from cattle.

In the studied villages it has been observed that almost all the beneficiaries have their own uncultivated barren land with more than one acre. The area has drought prone and non fertile undulating plateau. The lands are unused before implementing the *WADI* project. The role of implementing agency has very much important because they have selected the plantation tree types based on the location, land structure and climate of the targeted area. The beneficiaries reported that the implementing agency Gramin Vikash Trust selected the orchard types as Mango (*Mangifera indica*) and Cashew (*Anacardium occidentale*) as well as Gamar (*Gmelina arborea*), Arjun (*Terminalia arjuna*), Sishu (*Dalberjia sissoo*) and Segun (*Tectona grandis*) as forestry trees. In one acre of land a total of 70 trees have been planted among them 40 are mangos and 30 are cashew and approximately 150 to 200 forestry trees.

RESULTS AND DISCUSSION

The Table 1 depicts the studied total no of *WADI* or beneficiaries with land and plantation trees village wise. All the beneficiary families have one acre of waste or uncultivated land which have been taken up for developing *WADI* garden. They planted two types of horticulture orchard one is Mango and the other is Cashew trees. They also planted forest trees such as Gamar (*Gmelina arborea*) and Arjun (*Terminalia arjuna*) to control soil erosion. Based on the survey of the proposed programme families it is gathered that 125 acre of land covering 125 families. The Bhogidi village has the highest number (40.00%) of *WADI* plot than Paharpur (36.00%) and Churku (24.00%).

In the studied villages the farmers cultivated various vegetables like tomato, brinjal, pumpkin, chilli, beans, Cucumber, Mustard, Radish, Ladies finger, Watermelon, Beet roots, Carrot, Coriander, Arahar, Leafy vegetables of various types as intercrop as a additional source of income. It fulfills their daily needs as well as provides

Table 1 : No. of WADIs village wise

Sr. No.	Village Name	No of *WADI*/Beneficiary	Land (In Acre)	Plantation trees	Forestry trees
1.	Bhogidi	50 (40.00%)	50	Mango and Cashew	Gamar, Arjun,
2.	Paharpur	45 (36.00%)	45		Sishu, Segun etc.
3.	Churku	30 (24.00%)	30		

some nutritional food to the children of their family. They sale the surplus crops to the local market which increase their income.

Another important parameter of this project is Organic farming. In the studied villages total five vermin compose pits have been prepared where waste of cow and goat used for composing. Vermin compose helps to improve soil productiveness and enhance the dependence of organic products. Besides this many indigenous methods such as neem (*Azadirachta indica*) paste, cow dung etc., have been applied to improve the natural fertility of the land.

Group formation and creating of self help groups has another important aspect of this project. Here the role of implementing agency is very important. They have provided different training related to orchard plantation, income generation, women empowerment, resource mobilization and product marketing. Regarding this they have formed total 12 Self Help Groups with beneficiary family members. Almost all of them engaged themselves in preparing puff rice, making jam jelly and involved in other successful micro-enterprises. Empowerment of women will be crucial for their committed involvement in the project implementation. The component is aimed at empowerment, income generation, sanitation, drudgery reduction. The activities planned under the program are: women have provided with an opportunity to supplement existing income levels and the chance to lead a better life by fulfilling basic requirements of food, education and health. Income generation activities will be undertaken both at group and individual levels.

The major issues related to the health of the community are addressed by the health department but still there are certain aspects of health where such education and treatment is not given to the women at large. Keeping in view the issues and problems among the women in the villages it is proposed to conduct health check camp and provide medicine to the women and adolescent girls in the villages under this programme. The major components of the health programmers' would be: Mother and Child immunization, Post Natal care, Nutrition and Health education, hygiene and health. All these health components shall be addressed in a single camp organized on quarterly basis in each village.

Target, success rate and assessment:

WADI is a holistic developmental approach which covers almost all aspect of tribal life. In general the tribal families of the studied villages have very poor and economically backward. Majority of them have engaged themselves in labour work. As mentioned in earlier section that they have their own land. But all the lands are uncultivated barren and unfertile. Very few portions of the land are cultivatable where they cultivate once in a year due to scarcity of water but it could not fulfill their needs. So, they have migrated in different places for better occupation to fulfill their family needs. Below tables shows the distribution of the population on the basis of sex, education scenario and a comparison of income level before and after the completion of the project.

Table 2 depicts the Total studied population of the three villages on the basis of sex of all the tribal families studied in three villages. The total number of family studied is 125 for this study in three villages among them 267 was males and 257 was female. The percentage of male and female population is 50.95 and 49.05, respectively. Bhogidi has the maximum number of male population where as Churku has the least. On the other female percentage (51.47%) in Churku village is more than other two villages.

The educational scenario of the studied population in all three villages is very important parameter for this study. Education is measured as a key to the success of status and position in a society and it is one of the common factors behind development. Literacy is a very good social indicator which shows the attitude of people towards modern amenities and decision making. The below table depicts the Educational scenario of the studied villagers.

Table 3 reflects the educational status of the studied population and it indicates that overall 26.53 per cent of the population is illiterate which shows their negligence towards education. Literacy rate turns out to be 63.93

Table 2 : Total studied population of the three villages on the basis of sex:

Name of the village	Male	%	Female	%
Bhogidi	105	51.22	100	48.78
Paharpur	96	52.46	87	47.54
Churku	66	48.53	70	51.47
Total	267	50.95	257	49.05

per cent among the studied population but most of the cases are of dropout. The female literacy rate was 23.20 per cent which little behind male literacy rate (34.73 %). Very little number of male and female students is going for higher their studies. The main problem of this is that their habitats are situated in a distant place.

Majority of the villagers migrated to different places for better economic opportunity. This is the trend of that area. In nearby town the migrated villagers mostly do labour work. But after successfully implement of this sustainable development project model the rate of migration is reduce day by day. Below a table shows the migration rate before and after implementation of the programme.

The Table 4 depicts the comparison between migration status before and after implementation of the *WADI* Project family head wise. The rate of migration was higher before implementation of the project both within (40.80%) and outside the district (24.80%). Very few (7.20%) of them have also migrated in outside West Bengal. The rate of non migrant has increased from 27.20 to 73.60 after successfully implementation of the programme.

Level of Income is another parameter to identify the successfulness of this programme. Below table discussed about the beneficiary families income status pre and post implementation of the programme.

The Table 5 depicts the comparative picture of the level of income among the studied beneficiary families pre and post implementation of this project. From the table it was clear that only 8.06 percent household in the study has an average monthly income of Rs.5000 and above before implementation of the project. But after few years of successfully run the project the percentage of families in this above Rs.5000 category has been increased about 15.20%. The table shows that as many as 17.74% and 59.68% families belong to the income group of below Rs.1000 and Rs. 1001 to Rs.3000, respectively. And only 11.29% of them have an income which replaces the income category of Rs. 3001 to Rs. 5000. So, the condition of the beneficiaries has altered quite a bit after the implementation of this project. The positive change has been noticed in all three category of income level after completion of the project.

Table 3 : Educational scenario of the studied villagers

Category	Male	%	Female	%	Total	%
Non-literate	85	16.22	104	19.85	189	36.07
Class I - IV	73	13.93	65	12.40	138	26.34
Class V - X	59	11.26	48	9.16	107	20.42
Class XI - XII	25	4.77	28	5.34	53	10.11
Above H.S.	19	3.63	9	1.72	28	5.34
Graduate	6	1.15	3	0.57	9	1.72
Total	267	50.95	257	49.05	524	100.00

Table 4 : Migration status before and after implementation of the Project (Family head wise)

Types	No. of families before implementation	No. of families after implementation
Non Migrant	34 (27.20)	92 (73.60)
Within Purulia	51 (40.80)	31 (24.80)
Out Side Purulia	31 (24.80)	2 (1.60)
Outside West Bengal	9 (7.20)	0 (0.00)
Total	125 (100.00)	125 (100.00)

Table 5 : Comparison of level of income the studied villager's pre and post scenario of the project

Income range	Before implementation		Post implementation	
	No. of Families	%	No. of Families	%
Below Rs. 1000	46	17.74	21	16.80
Rs.1001 to 3000	57	59.68	39	31.20
Rs.3001 to 5000	17	11.29	46	36.80
Above Rs. 5000	5	8.06	19	15.20
Total	125	100.00	125	100.00

Budheswar Sing, 49 years old man lived in the Paharpur village of Kuilapal Gram Panchayat in Bundwan Block. He belongs to Bhumij community. He migrated to nearby town for better economic opportunity. After participated to this project he resides in that village with his family. He participated in this project since its commencement. He has three acres of land in which he initiated *WADI* garden in one acre of land. He planted 70 numbers of trees as per the scheduled of the programme and 250 forest trees such as Segun, Sal, Gamar etc as border plant. He also reported that to protect the garden from animal dug trenches and used fence. As the area faced drought during summer time he created water reservoir, ring wells and check dams in the *WADI* garden. He reported that last year he earned Rs. 13000/- from his *WADI* garden without any investment. He also mentioned that *WADI* project change the scenario of his economic life. His wife, for example, along with many other members of their community able to form their own self help group through which they sell puffed rice in local market.

Self help groups have been created from the beneficiary family members to support the community's development. These groups basically organized to create some extra scope for supplementary income through small scale agro based initiatives like horticulture, vermin compost, marketing of produces, saal leaf processing unit, and etc. There are total 11 *WADI* women self help group and all of them have their bank count where they deposit their group income and whenever any one of them wants loan can borrow the cash from their own group. The money along with its interest later after a certain period of time is distributed among the members. Presently 04 women groups got grain husking machine and spray machine from implementing agency by which they earn a good amount of cash. There are one each vermin compost unit run by women group at Paharpur and Bhogidi village. Last year they produce 19 quintal vermin compost which market price is Rs. 23000. Beside all these, plants of various seasonal fruits, Sal plate, Goatery, Puffed rice, rope from Babui grass etc. as income generation activities. Another important work done by the SHGs are promotion of family health awareness and use of water filters. Water filter supplied to all the members of the women *WADI* groups in all the studied villages. These water filters are supplied as an awareness programme by the implementing agency. Fruit plants are also supplied to the families through women *WADI* groups for preparing a kitchen garden for their household nutrition. Halogen tablets and bleaching powder distributed among selected families initially as a measure for health and sanitation. But after completion of *WADI* project the condition of the studied people is developed through income generation scheme like making jam, jelly, tomato sauch, puff rice making and sell into the nearby market, goatery, pigery and vermin compost. Member of the SHGs is also taking some loan from the group and reported that when they needs some money for their family need such as food for children, children education etc., they depends to their husband but now they earn some money from the SHG which benefit their family needs. So, the *WADI* programme covers to connect almost all aspects of tribal livelihood. It also covers the development of the unfertile barren land and its inhabitants through economically, environmentally, good health, soil conservation, water resource development, agriculture development, women development etc.

Conclusion:

In general it has a holistic developmental approach and takes account of all aspects of rural life. Income generation is the major outcome of the *WADI* project for the poor tribal families in the studied villages. The studied tribal families live in very poor condition. They live with poverty in generation after generation. In decades they have exploited by the others for control over the forest natural resources. As a result due to non availability of forest resources, infertile land causes low productivity and poor crop led to low income and shortage of food, majority of the tribes migrated to nearby towns for better economic opportunity. In this situation the *WADI* project give them a new light of home for living in a better world. This project also involves the introduction of border plants with different forest species to fulfill the fuel wood needs of the marginalized tribal families. In one word it can be said that through *WADI* project the studied tribal households have change their quality of life through economic empowerment, women empowerment, sustainable horticultural development, health development and many more. From this study it is observed that the studied tribal beneficiaries improve their income level which reduces the migration rate. As a result it secures the food, income, health and environment for the studied people.

REFERENCES

Burndtland Report. 1987. Report of the World Commission on Environment and Development: Our Common Future. United Nations Website, Accessed on 12/12/2017, available online at

Dernbach, J. C. 2003. "Achieving sustainable development: The Centrality and multiple facets of integrated decision-making." *Indiana Journal of Global Legal Studies* 10 (1): 247-285.

http://www.exteriores.gob.es/Portal/es/PoliticaExteriorCooperacion/Desarrollosostenible/Documents/Informe%20Brundtland%20(En%20ingl%C3%A9s).pdf

http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf

Plummer, Ryan. 2005. "A review of sustainable development implementation through local action from an ecosystem management perspective." *Journal of Rural and Tropical Public Health* 4: 33-40.

Report of the United Nations Conference on the Sustainable Development. 2012. Rio de Janiero, Brazil: United Nations. UN website Accessed on 20/12/2017, available at https://sustainabledevelopment.un.org/rio20

Roy Burman, B.K. 1982. *Report of the Committee on Forest and Tribals*. Government of India, New Delhi: Himalaya Publishing House.

The United Nations General Assembly Summit. 2015. Transforming our world: the 2030 Agenda for Sustainable Development. UN website accessed on 20/12/2017. Available at http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E

United Nations Declaration on the Rights of Indigenous Peoples. 2007. UN website, Accessed on 12/12/2017. Available at

United Nations General Assembly. (1987). *Report of the world commission on environment and development: Our common future.* Oslo, Norway: United Nations General Assembly, Development and International Co-operation: Environment.

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