## PUBLICATIONS OF RC- MUMBAI

### STUDY - DOCUMENTATION ON BEST AGRO FORESTRY MODEL DEVELOPED IN JFM AREAS OF GUJARAT

**Executive summary**

It is twenty five long years the farmers have not only sustained the model but have been instrumental in its further spread. The study may be useful for deliberations and consequent development of insight into designing of scientific models of agro forestry in JFM areas of Gujarat.

The practice of growing trees on field bunds or boundaries serves twin purposes of demarcation and economic utilization of unused space. In northern parts of India, particularly in Haryana and Punjab, *Eucalyptus* and *Populus* are commonly grown along field boundaries or bunds of paddy fields. *Azadirechta indica, Prosopis cineraria, Acacia catechu,* and *Acacia nilotica* are commonly found on field bunds in most part of Gujarat. A study to evolve economically and ecologically viable models for different agro-climatic zones of Gujarat was undertaken by Matrix - Poona in 2000, under the IFDP project. They have suggested following models those are perhaps under scrutiny of GFD.

1. Irrigated *Eucalyptus* plantation with or without intercropping
2. Rainfed *Eucalyptus* plantation with or without intercropping
3. *Eucalyptus* plantation on degraded lands without intercropping
4. Irrigated *Casuarina* plantation with or without intercropping
5. Rainfed *Casuarina* plantation with or without intercropping
6. Irrigated *Ailanthus- Eucalyptus* plantation with or without intercropping30’x30’ and 5’x5’
7. Rainfed *Ailanthus- Eucalyptus* plantation with or without intercropping30’x30’and 5’x5’
8. Irrigated *Ailanthus* plantation with or without intercropping
9. Rainfed *Ailanthus* plantation with or without intercropping 30’x30’
10. Rainfed *Ailanthus* silvipasture plantation on fallow land 20’x20’
11. Rainfed Babul silvipasture plantation on fallow land20’x20’
12. Rainfed Neem silvipasture plantation 20’x20’
13. Irrigated Teak plantation 6’x6’
14. Rainfed grass and tree model jamun, mango, teak, sisoo etc
15. Rainfed alternate belts of trees and grass jamun, mango, neem, subabul etc and grasses in *Stylohamata*, marvel etc
16. Irrigated subabul plot 1mx1m
17. Rainfed subabul plantation 1mx1m
18. Dairy based on irrigated subabul fodder plot
19. Dairy based on rainfed subabul fodder plot
20. Goat and sheep rearing on irrigated subabul fodder plot
21. Goat and sheep rearing on rainfed subabul fodder plot
22. Khajuri plantation on ravine lands and Nira production 7’x7’
23. Irrigated sitafal plantation on agriculture land 11’x11’
24. Rainfed sitafal plantation on agriculture land 11’x11’
25. Irrigated Saragwa plantation 10’x10’
26. Irrigated *Emblica officinalis* plantation 7mx7m

***Road side oldest agro-forestry practices in Dangs***
***Gamtalao khurd --Field bund cum wood lot teak planting***

Village Gamtalao and its neighbourhood have enthusiastically demonstrated growing of teak trees in part of agriculture land as well as field bunds and provided useful model. This bund plantation model and block cum bund model for agro forestry leaves unhindered farm land necessary for production of food crop for the household and fodder for their animals. It is a macrozonal spatial arrangement, its function is productivity and socio economically it is it is an intermediate agro- forestry system. It is concluded from the study that it is not intended to generalize the model. It is area specific and operative in neighbourhood of forests under JFM. Teak on account of its industrial importance is highly priced. Removal of this species both legal and illegal is very high. Some 90% of total illegal removal in the state is wood material from teak species. The reduction of teak species from the forest leads to change in structure and function of forests. Self sufficiency at village level may help in protection of natural forest and its ecology. The community around JFM areas are poor and small holders. Introduction of scientific model with teak as main species would in few years change the economy of local farmers. It appears a low cost investment with high returns and needs to be scientifically approached. Due care for vegetative erosion control in sloppy sites is necessary to harvest better returns from field bund model. The prevalent enthusiasms in intercropping of medicinal or aromatic plants, trials of multi-storey model etc have been ignored as those will not be suitable for the farmers practicing the sustenance farming.

## STUDY - STUDY ON PREPARATION OF ECONOMICALLY VIABLE PROPOSALS FOR UNDERTAKING IDENTIFIED MAJOR FOREST-BASED MICRO-ENTERPRISES IN GUJARAT

### Executive Summary

Gujarat State located in Western India has a Dry climate. It has a forest cover of 7.46%. Microenterprise is variously defined as industry with an investment less than Rs. 25 lakh or industry with an investment between Rs. 15000 to 1 lakh. NTFP is defined as all forest produce other than timber and fuelwood. Most forest-based enterprises are based on NTFP.

We carried out the survey in eastern districts of Gujarat in East Rajpipla Division, Vyara Division, South and North Dang Divisions, South and North Valsad Divisions and Chhota Udaipur Division.

GSFDC is the agency responsible for collection, marketing and processing of forest produce. GSFDC has ten divisions across Gujarat State for collection of NTFP. It appoints authorized agents for collection of MFP from daily bazaars and gives them 10 to 11% commission. Mahuda flower, Mahuda seed (doli), tendu leaves and all gums are nationalized products and no other agency can trade in these NTFP. There are more than 100 other NTFP collected by GSFDC but the major share of the turnover is from the four nationalized NTFP.

The main objective of the study would be to prepare the economically viable proposals for undertaking major forest-based micro-enterprises in Gujarat, so that willing JFM Committee (JFMC) members can start forest based micro-enterprise in a cluster of villages so that economies of scale in production and marketing of value-added forest products are achieved for sustainable improvement in livelihoods of the JFMC members.

Economics of ten microenterprises was studied during the study. These are described below.
The lac insect *Laccifer lacca* is a type of scale insect. Lac is the secretion of this insect. Lac is grown mainly on Kusum trees starting from January. The brood is purchased from GSFDC by the entrepreneur and introduced on twigs of Kusum tree. Six months later lac is ready for harvesting. It is removed from the tree lightly dried and sold. Every family has 10 to 30 trees. Average production per tree is 7 kg lac and it sold at Rs. 150 to 170/kg. Average profit for person owning 10 plants is Rs. 10200. Labour requirement is low. Lac can also be made from Palas (Butea monosperma), Bor (Zizyphus mauritiana) and Tor trees.

Patraval is plates made of leaves of trees. Commonly use leaves are Palas, Chameli and Kadhai. The leaves are collected by male members and patraval made by female members. The leaves are stitched together by tiny pins made from bamboo. Leaf bowls (Dron) can be made if a hand-operated machine is purchased. The monthly profit of an SHG working part time is about Rs. 63000. The season for this activity is 5 months in a year because the products are required only in the marriage season.

Oil can be extracted from mahua seeds (Doli) using oil miller. People collect the seeds and bring it to the oil miller for extraction. The oil is extracted in the oil miller and handed back to the customer. The oil mill owner keeps the oil cake as payment, which he sells to oil refineries for further extraction of oil. The season lasts for 5 months. During the remaining months oil can be extracted from other oilseeds such as pongamia, cotton or other commercial oilseeds. The estimated annual profit is about Rs. 170000.

Bamboo basket (topla) making is a traditional activity of Kotwali community. Kotwalias traditionally used bamboo from the forest but Forest Department puts restrictions on bamboo collection from the forests so they purchase it privately also. Toplas are used extensively by rural community. The monthly profit from production and sale of bamboo is about Rs. 2500 per person after accounting for self labour.

Agarbatti sticks and kulfis can be made from bamboo. This can be a profitable business for SHGs. Bamboo pieces are cut to required length and then thin sticks are split from it by means of sharp knife. Production can be increased by using a electric saw for cutting bamboo and a press machine for initial splitting the bamboo pieces. The monthly profit of an SHG working part time is about Rs. 25000 after accounting for self labour.

Neera is a nutritious drink from the sap of Indian date palm (*Phoenix sylvestris*). It is produced by tapping by spathe just below the crown. This is done by skilled tappers. Fresh Neera has to be stored in cold condition to prevent fermentation. It is sold to customers in Neera booths. Neera trading and sale needs special license, which is given only to cooperative societies. The annual profit for collection of Neera from 100 trees is estimated at Rs. 62000.

Vermicomposting is the process of composting leaf litter and agricultural wastes using earthworms. The litter is piled in a brick mortar pit and earthworm culture is introduced. The leaf litter is watered regularly. The compost is ready after 45 to 50 days. The sale price is Rs. 3 to 5 per month. At rate of Rs. The monthly profit is Rs. 30000.

Brooms are made from leaves of Indian date palm (*Phoenix sylvestris*). It is a semi-skilled job. One family of 3 persons can make 24 brooms per day. The monthly profit is Rs. 4680 after deducting cost of self labour.

Apiculture is the practice of keeping bees in bee boxes for honey production. The main product is honey which has a high demand. The other products are beeswax, and bee colonies. Two varieties of bees are used *Apis cerana* and *Apis mellifera* but the production from *A. mellifera* is much higher. Training is necessary for bee keeping. The main equipment required is hive boxes and honey extractor and other minor equipment. The honey bee colony has to be purchased and introduced in the hive boxes. One person can maintain 20 bee boxes by working 3 hours a day. The estimated annual profit is Rs. 37000.

Several ayurvedic medicines are made from forest produce such as Awla, Beheda, Hirda, Shatavari and Shikekai. Several other NTFP products are also used. A small scale unit can be set up to process these produce and compound them to make Ayurvedic medicines. The main equipment used is a pulveriser. The NTFP is first dried in the sun. It is powdered, sieved, packed and delivered to the purchaser. The monthly profit for a unit based on a 40 kg/hr pulveriser is about Rs. 1,40,000. Other microenterprises based on forest produce are pickle making from awla, mango and karonda, soap making from vegetable oils andbeedi making.

Lives of people living in and around forests are directly linked to forest. Issues of right and access to forest produce are issues of basic livelihood for them. They are a means of self employment for the entrepreneurs and their families. They are labour intensive and therefore provide employment to poor people. Forest based microenterprises also act as an agent for flow of goods and service between rural and urban areas. If appropriately promoted they have the capacity for brining development to rural population around forests.

NTFP collection can be a threat to forest and biodiversity. It reduces biomass availability, affects the microhabitat of the forest, leads to fires and other hazards. Uncontrolled NTFP harvesting can affect regeneration by removal of flowers fruits and seeds of forest species. NTFP collection can kill plants by removal of vegetative parts or entire plants thereby affecting composition and structure of forest vegetation.

Microenterprises based on forest produce can have positive or negative impact on biodiversity conservation depending on how it is managed. Resource inventory and close monitoring is very important to determine the NTFP available for removal and sustainable removal capacity. Careful planning and management of forest based microenterprises and NTFP harvesting is important for long term benefits of this industry. Augmenting natural production of NTFP may be one of the solutions.

***Tapper on palm***

***Women SH group- plates making***

**Outcomes & Recommendations:**

1. For lac cultivation enterprise:
   - Training of Lac cultivators on techniques for Lac Cultivation
   - Good quality and high yielding variety of brood
   - *Kusum* Plantation should be carried out by Forest Department. Depending on the location and suitability lac can be cultivated on other trees also such as Palas, Bor, Tor etc.
   - Alternative marketing options should be developed. At present *Bohrajis* have monopoly on lac purchase. GSFDC should purchase Lac.
2. For plates making enterprise:
   - People want training for making other articles like *Dron* (leaf bowl)
   - Production will be more if stitching machine, cutting machine and hot die machine for making Dron are provided to the SHG
   - People want guidance for marketing
3. For Oil Miller
   - Production of *Doli* is low so people can't collect it in large quantities. *Doli* is nationalized item in Gujarat so no one can sell it except to GSFDC. GSFDC purchases the *Doli* from tribal at a low rate of Rs. 10 per kg. So people prefer to get the oil for own consumption than sell to the GSFDC. If GSFDC increases the purchase rate then people may sell directly to GSFDC. Since *Doli* will not be available locally this industry will close down. So main competitor is GSFDC. This industry will flourish only if GSFDC stops purchase of *Doli* and denationalizes it.
4. For bamboo enterprises:
   - There is no problem for marketing of bamboo products because there is sufficient demand for the products from villagers and farmers for their daily use.
   - Since bamboo is considered an NTFP the Forest Department does not give permission for sale more than 10 km distance. This is one of the major problems in sale of the product
   - People know only their traditional products. They need training for making new bamboo articles
   - Purchasing bamboo: they collect the bamboo from the forest without permission of the Forest Department. Creates conflict with the Forest Department.
   - Price of bamboo from the market is high. Bamboo should be given on Nistar to Kotwalias. Scheme should be launched to help Kotwalias.
   - No alternative option for the livelihood of *Kotwalias*
5. For Kulfi & Agarbatti sticks enterprise
   - People need training in the process and use of machine press.
   - Financial support should be given for purchasing the machine saw and machine press.
   - Raw material should be provided at concessional rates by the Forest Department
   - They need marketing support
6. For Neera industry
   - Sale of *Neera* needs government permission which is given only to a cooperative not individuals. Permission for Neera sale should be expedited in case of cooperatives.
   - The number of Date Palm trees is low. The Forest Department should carry out plantation of Date Palm trees.
   - Government should encourage byproducts from *Neera* such as Neera jaggery, which has high sale value. Neera is also used in ayurvedic medicines.
   - Government should carry out survey of potential for Neera production. A program should be launched for promoting Neera production in high potential areas.
7. People need awareness and training in production of vermicompost
8. Broom Making from Phoenix Leaves: Regular collection of *Phoenix* leaves hampers the growth of the tree. Excessive collection of *Phoenix* leaves should be avoided.
9. Herbal Medicine Industry and apiculture industries need a scientific training

10. Some more microenterprises during out survey. These were: (i) pickle-making from Awla, Mango and Karonda; (ii) soap-making from NTFP-based oils such mahua and pongamia; (iii) beedi-making; and (iv) leather tanning from hirda (*T. chebula*).
11. There could be three potential options in sustainable management of NWFP i.e. forest centered, people centered and hybrid approach. NTFP resource can be protected by two approaches, either by regulating the extraction of NTFP or by stimulating production of the desired products within the existing vegetation to meet the demand.
12. Encouragement to these enterprises should be matched by a concurrent systematic monitoring program that will determine the current resources of NTFP and regulate its extraction. Development of a sound knowledge base is very important.
13. Simultaneously efforts may be made to augment the production of the valuable and high demand NTFP so that their demand requirements can be met by the forests. A comprehensive strategy needs to be developed in this respect for stimulating this sector as well as for managing and regulating sustainable extraction of NTFP.

**STUDY - ACTION RESEARCH ON STRATEGY AND APPROACH FOR FOREST GOVERNANCE AND CONFLICT MANAGEMENT: UNDERSTANDING FOREST-RELATED LIVELIHOOD CONFLICTS IN JFM AREAS**

The assignment, an action research refers to study the conflicts in collective rights over livelihood resources enshrined in the FRA, i.e. rights over Non-timber Forest Produce, fisheries, water bodies, grazing etc. and to recommend the findings for policy changes if any. The study aims to a) examine and provide insight into forest related livelihood conflict situations in the context of forest management and b) examine the impact of forest management and governance on forest fringe villages and to identify the need for further strengthening of governance to improve forest related livelihoods. The topic is relevant in light of mandate under PESA Act 1996 and FRA 2006 where the forest management is attempted to be democratised.

The investigator took up the research in twenty villages falling in two clusters of ten villages each in Chhotaudepur Forest Division of Vadodara district The insight into forest related livelihood conflict situations in the context of forest management was obtained through the surveys in access to forest resources as provided in the rights those exist in the region and search of conflicts in the areas of practice of rights envisaged under FRA, status of productivity of resource, conflict in use methods, conflicts in protection, threats from neighbourhood etc. The second objective of examining impact of forest governance and identification of areas to strengthen the governance was undertaken through the assessment of administrative bottlenecks, intra territorial conflicts, conflicts in governance, preparedness of gramsabha to address the conflict and research conferencing at JFMC level. The study accordingly is complex and had to traverse wider areas covering economical, technological as well as institutional aspects of the envisaged system of governance as a whole.


***Usufruct sharing of communities under JFM***

The findings of the study suggest that there are no conflicts in respect of right to way, right to water resources, right to grazing or collection of fuel wood and fodder and even right of collection of NTFPs. Indeed the pressures of collection of fuel wood, encroachment or claims on forest land and dependence of neighbouring villages for NTFPs appear high. Also there appear issues in right of free trade in respect of nationalised NTFPs viz. Mahua flowers, Mahua seeds, Timru and gums of all types and its transport outside the territory. The conflicts are also expected in rights over bamboo resources of Gujarat those leased out to paper mill. The gatherers also feel that the prices offered by Gujarat State forest Development Corporation (GSFDC) in respect of NTFPs both nationalised and non- nationalised are less remunerative. Incidentally GSFDC with simultaneous addressal of this issue is currently operating NTFP trade on no profit no loss basis on behalf of Panchayats and transferring the revenue to District Panchayats. Productive use of funds available to district Panchayats appears necessary.

The study reveals that the richness of forest has improved because of protection offered by JFMCs and there is no sharp fall in produces being harvested. The communities are not aware of these gains and they look for "what next?" JFMCs in Gujarat hitherto practice of co-management lacks in inter and intra institutional sustained contacts either through the activities or informal associations or both. There is necessity to precisely define the roles, expectations and limitations both of JFMCs and of FD that sufficient clarity exists at both the levels. Transparent communication both in words and actions is basic to establish trust amongst the members of the institutions involved in the process.

More important contributor for livelihood support has been the non timber forest produce (NTFP) than the logging activity. With the increase in population the number of NTFP trees per capita would fall. The stake holders too, suggest encouraging planting NTFP trees under agro forestry or regular forestry to sustain the livelihood support to the communities. This demands thoughtful intervention of forestry personnel in harnessing the opportunities those available at village level.

The study further reveals that there are gaps in reassuring the importance of the natural resource that recurrently provides support income to families in forest fringe villages. There is an evident concern to save the forests from enormous pressures of fuel wood and encroachments. The FRA 2006 has unfortunately contributed in diluting the importance of conservation of natural resource. No gram sabha has put forth any claim for conservation/ management of tract of forest traditionally used by the community. The current conflict in status of JFMCs vis a vis PRIs is further aggravating the issue. JFMC or an apolitical body constituted by gram sabhas can only contribute to sustainable development. Such body in each village is essential to strengthen the cohesiveness of the community for an involved participation by the community in

meaningful development. Currently JFMC can only be the meeting point for GFD and GSFDC. Both these institution with their expertise can rejuvenate JFMCs and convert those into sustainable local organisation for economic conservation of natural resources. The JFMCs with their expanded membership overlapping the Gram Sabha has potential to unite the community in multiple spheres of rural reconstruction along with conservation of natural resources. A difficult path of course, yet there is no soft option.

Incidentally the situation in study area as elsewhere is rapidly changing. The increase in education, exposure of seasonal migrants working in intensive agriculture practices in developed areas and multiple development activities at local level are contributing to intensification of search for opportunities and rise in expectations in economic development. The collection of most NTFPs except Mahuva and Timru produce and fuel wood has started being reckoned as socially inferior activities. The poor and weak, of course sizeable in number, yet have definite income support from NTFPs.

The action research reveals that the people in general are adaptive. They want a transparent system of leadership that can fulfil their dream of sustainable cultural prosperity and un-intruded happiness. The study area rich in folk art, with appropriate apolitical developmental interventions, would continue to throb with dance and songs in serene natural environment. All not to amuse the urban elites but to live a life the residents are wedded to. The PESA Act and FRA carry the same message both in spirit and deeds. Summing up it is felt that a drive to build up capabilities of gram sabhas, forest committees, other stake holders and forestry personnel through meaningful communication, technology inputs and socialization processes, is the need of the day.

**Outcomes & Recommendations**

1. The investigation in the study area brings out that there are no conflicts in respect of right to way, right to water resources, right to grazing or collection of fuel wood and fodder and even right of collection of NTFPs.
2. There however appear issues in right of free trade in respect of nationalised NTFPs *viz.* Mahua flowers, Mahua seeds, Timru and gums of all types and its transport outside the territory.
3. The conflicts are also expected in rights over bamboo resources of Gujarat those leased out to paper mill. The gatherers also feel that with rising cost of living, the prices offered by Gujarat State forest Development Corporation (GSFDC) in respect of NTFPs both nationalised and non- nationalised are less remunerative. The GSFDC appears aware and revise the rates annually. GSFDC can consider mid season review of rates depending upon the quantum of fruiting, flowering and markets prevalent in Gujarat as well as neighbouring states. The GSFDC can consider motivating JFMCs and gram sabhas in the venture of collection and marketing the NTFPs.
4. The study reveals that the richness of forest has improved because of protection offered by JFMCs and there is no sharp fall in produces being harvested. The communities are not aware of these gains and they look for what next.
5. JFMCs in Gujarat hitherto practice of co management lacks in inter and intra institutional sustained contacts either through the activities or informal associations or both.
6. There is necessity to precisely define the roles, expectations and limitations both of JFMCs and of FD that sufficient clarity exists at both the levels.
7. Transparent communication both in words and actions is basic to establish trust amongst the members of the institutions involved in the process.
8. More important contributor for livelihood support has been the NTFP than the logging activity. With the increase in population the number of NTFP trees per capita is falling. It is necessary to manipulate the vegetation through enrichment of indigenous multi-product trees within ecological limits. This demands improved capabilities of forestry personnel to harness the indigenous knowledge of the communities and incorporate in village level planning.

9. The forests constitute an invaluable natural heritage on which our progeny has the rightful claim. The sustainable management of the natural heritage warrants constituting capable communities those guard against any avoidable destruction, that the heritage so preserved is handover safely to the progeny. This necessitates the capability of transparency in communication leading to an effective mobilization of the communities.
10. Summing up it is felt that there are no serious conflicts in practice of forest rights. The conflicts are more in governance. A pragmatic drive to build up capabilities of gram sabhas, forest committees, other stake holders and forestry personnel in the areas of communication, technology and socialization processes is the need of the day. Self regulated masses so oriented would undoubtedly achieve the goal of development with conservation.

**STUDY - ROLE OF SHGS/SHGS FEDERATION IN THE MANAGEMENT OF FOREST AND NATURAL RESOURCES IN THE FDA AREAS OF MAHARASHTRA**

The Role of SHGs/SHG Federation in Management of Forest and Natural Resources in FDA areas of Nashik District of Maharashtra has been embodied in this report. The Objectives of the study were: To study the role played by SHGs/SHG Federation in restoring degraded forests and augment forest resources; To suggest viable income generating activities based on forest/non forest resources in order to improve the income of the forest dependents; To ascertain the constraints faced and suggestions to overcome them. The Study Area: Nashik district has been purposively selected for the present study. The reason being there are good number of SHGs is formed under JFMC which are instrumental in forest and natural resource management in the district. In the district, Nashik west and Nashik East FDAs have been purposively selected on the basis of maximum area under forest and good number of SHGs/Federation operating in these FDAs. Amongst these FDAs two ranges each i.e. Harsul and Peth from West Nashik and Kalwan and Kanashi from East Nashik has been purposively selected owing to maximum forest area and number of SHGs are formed.

The first five chapters give background information with respect of importance of participatory forest management, promotion of SHGs and SHG Federations, importance of NTFPs, Review of literature, selection of study area, objectives of the study, approach and methodologies employed, the profiles of the study area, availability and management of NTFPs, causes of injuries to forests and natural resources tec. Tahal lopping for rab, illicit felling of trees, heavy grazing and fire, these are the factors seriously affecting the forests of these areas. Chapter 6 deals with the identification of NTFPs based Small and Medium Micro-enterprises (SMFEs) in both West and East Nashik FDAs. The SMFEs like leaf plate making unit, pickle making, herbal products, bamboo crafts, honey bee keeping, pond fisheries have been identified for the West Nashik FDA. While Rosha Grass (*Cymbopoon martini*),Gangotri or Ghaneri (*Lantana camera*), Palas (*Butea monosperma*), Honey (By Bee Keeping), Mulberry (Not NTFP), Mulberry (Not NTFP and is cultivated crop), Aloe Vera ( Cultivated crop) have been identified for East Nashik FDA. Chapter 7 pertains to status of SHGs and SHG Federations in India, Maharashtra and Nashik District. Nashik district is now getting momentum in SHG-Bank linkage programme due to wide branch net work of Nationalized Banks.

However the formation of SHG Federation has not got any momentum except few NGOs like BAIF-MITTRA and MAVIM have initiated the process. So far only one federation has been established in Kalwan Taluka of East Nashik FDA by BAIF-MITTRA. Chapter 8 deals with the role of State Government, International Organizations and NGOs in Participative Forest Management. State Government has already issued guidelines to give more preference to Rural and Women SHGs in Participatory Forest Management. While World Bank in its report "Unlocking Opportunities for Forest- Dependent People in India" suggests that national and state level reforms that increase communities' involvement in forest management, along with improved forest productivity, can help tap the full potential of India's forests and reduce rural poverty significantly. They can also help the country to conserve its valuable forest resources. Conservative estimates show that rural forest incomes in India can rise ten-fold – from US$ 222 million in 2004 to about US$ 2 billion by 2020 if national and state level reforms are introduced to implement these measures. The success

stories of the various developmental programs like Wadi, Agro-Horti-Forestry program and live stock development programs implemented by BAIF-MITTRA in both the FDAs by strengthening peoples organizations have been highlighted. Chapter 9 pertains to the role of SHGs/SHG Federation in management of Forest and Natural Resources. The likely contribution would be participation in the various programs like Afforestation, soil and water conservation, stopping soil erosion, social forestry and forest protection etc.

***Discussion of the development plans***
***Horti-forestry model under Wadi Project***

**Outcomes & Recommendations of the study**

1. Alone SHGs cannot attain this individually. They have to come together and form Village/Cluster level federations and finally Block level federation to reap the harvest.
2. Since it will be a registered body funding to such organizations will not pose any problem for the financial institutions like commercial and co-operative banks.
3. Because of broadening the capital base the quantum of loans will also be more which can be gainfully utilized for the forest based income generating activities.
4. The ultimate aim should be to reduce the dependence of the village dwellers on forests which will lead to development of forest and natural resources.
5. On the basis of Forest Resources identified by the individual FDAs in Nashik district, SHGs promotion work should be initiated.
6. The district has good banking network. The branches of Nationalized, Private and Co-operative Banks should be utilized as local MFIs for credit and other services.
7. After establishing good network of SHGs in both the forest areas, the work of SHG Federation may be initiated to enable them to work as MFI.
8. Marketing tie-up should be developed with the established brands in NTFP especially those who are working in the medicinal field.
9. Interactions between district level BAIF-MITTRA, MAVIM, KVIC, other line departments and FDA is very essential for effective implementation of Income generating activities through SHGs in the forest areas.
10. The tenure of the implementing officer should not be less than five years to ensure continuity of the project.
11. Promotion of Local MFIs has to be initiated after establishing good network of SHGs, through formation of SHG Federations.
12. Individual FDAs should act as anodal agency for effective co-ordination between different stake holders and SHGs/SHG Federations.
13. There should be integration of Tribal SHGs of the forest areas with the Urban SHGs.
14. The Tribal SHGs will collect the forest produce and hand over it to the forest department or FDA.

15. This will form the raw material for the Urban SHGs for its further processing and marketing.
16. This will ensure the gainful deployment to the women members of both the SHGs.
17. Credit based intervention SHGs model would be more effective to enhance the holding capacity of household for better price realization.

***Facilities at GSFDC Pharmacy in Varodara***
***Processing Packaging of Ayurvedic Medicine at Rajpipla Govt. Pharmacy***