

BAIF¹: Transforming Dreams into Reality for Rural India

Case Study

Raji M Ajwani² & Yogesh Sawant³

“ **India needs production by the masses, not mass production** – Gandhiji ”

Introduction:

Gandhiji did not receive any formal training in economics. However his teachings have been acknowledged world over for their simplicity and generic relevance. He propagated the doctrine of fortifying the village economy. He felt that villages were the roots that nourished the moral and social fabric of any country. BAIF's founder Dr Manibhai Desai, a disciple of Mahatma implemented that vision. The 'Wadi Program' germinated from an idea of trying to find a permanent solution for the tribals of Vansda. This idea evolved through discussions with the community and was nurtured and brought to life after seeking and convincing the locals of its benefits. Their interest, cultural beliefs and well being formed the building blocks on which the foundation of this concept was laid.

Community participation coupled with regular interaction and the use of situation specific modern scientific techniques were the inputs that helped nurse the drought prone and poverty stricken area of Vansda back to life. The success of the Wadi Program (Wadi⁴ means fruit orchard in Gujarati) came after traversing a long journey covering difficult terrain, vagaries of nature & vested interests. It represents the success of team spirit and conviction to provide a sedge way of financial and economic independence to the local community. It not only represents the power of aggregation but also symbolizes the importance of synthesizing public and industry partnership.

¹ BAIF: Is a Pune based not for profit organization. "DHRUVA" is the legal entity in Gujarat setup by BAIF that manages/executes development programmes in South Gujarat.

² Adjunct Faculty: Symbiosis Centre for Management and Human Resource Development (SCMHRD) -Pune. E-mail: raji_ajwani@scmhrd.edu or raji.ajwani@gmail.com.

³ Senior Project Coordinator: BAIF-Pune E-mail: ygsawant@baif.org.in

⁴ 'Wadi' : Means a small orchard covering approx one acre with suitable fruit crops (eg: mango, and cashew) with forestry species on the periphery of the land holding, bordered by a productive live-hedge.

BAIF brought to the partnership its expertise in the field of horticulture, access to structured finance and knowledge of modern supply chain techniques. The local tribal community contributed by accepting the concept, investing their only assets i.e. land and labor. The community came together to plant common tree species on underutilized lands so as to produce large volumes followed by aggregation of the produce for organized forward linkages.

The unique aspects of Wadi Program are (see *Illustration # 1*):

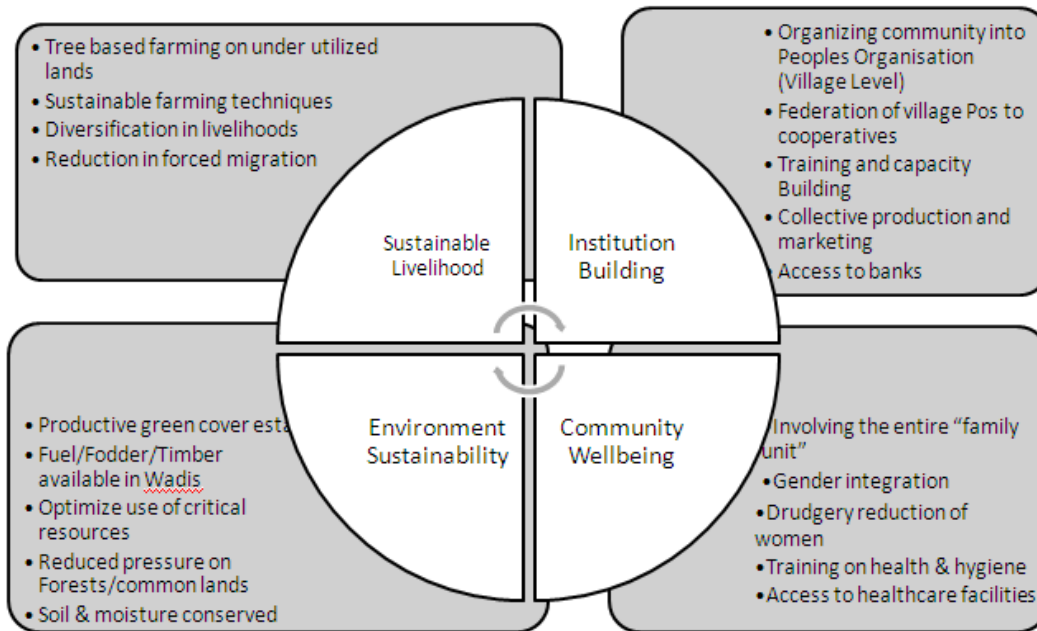
- It creates sustainable sources of livelihoods on underutilized lands for the poorest sections of society
- Enriches environment while promoting livelihoods
- Creates opportunities of direct and indirect local employment
- Drastically reduces forced out-migration of tribals reducing the pressures on cities

The core program focussed on plantation of a combination of fruit and forest trees on underutilized lands, value added layers such as food processing & co-operative marketing (Vasundhara Co-operative). Bank linkages were introduced to multiply the benefits. In order to ensure appropriate price for the produce the co-operatives undertook processing of mango pickle, pulp, jam and cashew. It was a landmark achievement when the tribal wadi farmers co-operative tied up with ITC for supply of certified organic mangoes. In this symbiotic arrangement, ITC helped to sponsor the costs related to obtaining organic certification and paid a premium price for organic mangoes. BAIF played a crucial role of moulding the concept and facilitating processes from plantation to marketing of the processed products. While doing this BAIF built the capabilities of locals and promoted various peoples organizations to take charge of the development process. The Wadis generated incomes from underutilized lands while the forward linkages helped in generating additional value for their produce.

Illustration # 1

The Essence of the Wadi Program

Source: Authors



Relevance of the Wadi Program:

Situation in the Indian Villages: Alarming & Urgent:

The following five factors indicate a trend that needs reversing and gives greater relevance to the Wadi Program as explained below. The factors below reflect the situation of the farmers at large and tribals engaged in agriculture in particular.

A. Distribution of Landholdings: Small & Marginal Holdings on the Rise

About 86 per cent of the marginal and small farmers operate around 43 per cent of agricultural land while 14 per cent of medium and large farmers operate around 37 per cent of the land (Source: *Report on Conditions of Work and Promotion of Livelihoods in the Unorganized Sector* published by National Commission for Enterprises in the Unorganized Sector (NCEUS) in August 2007).

There is a slow but definite shift out of agriculture. The trend has been disturbing as the chasm between the affluent and those barely surviving is widening. This phenomenon has even penetrated traditional agrarian states like Punjab and Maharashtra.

Table 1: Distribution of Operational Holdings and Area by Size: All India

	Operated Area	1953-54	1961-62	1971-72	1981-82	1991-92	2002-03
Operational Holdings as per cent to Total Rural Holdings							
Marginal	39.2	39.1	45.8	55.5	62.8	69.7	70.0
Small	20.9	22.6	22.4	19.5	17.8	16.3	15.9
Medium & Large	40.0	33.3	31.9	25.0	19.5	14.0	14.1
Operational Holdings as per cent to Total Area							
Marginal	4.4	6.9	9.2	11.5	15.6	22.6	21.7
Small	10.0	12.3	14.8	16.6	18.7	20.9	20.3
Medium & Large	84.6	80.8	76.0	71.9	65.7	56.5	57.9

*Note: Marginal (Less than 1.00), Small (1.01-2.00), Medium-Large (>2.00) Hectares.
Source: NSSO Survey on Land Holdings, Various Rounds*

B. Poor Education Levels

The table below summarizes the education level attainment for rural farm workers in India. Legacy as well as contemporary reality has contributed to a situation of low level of education of agricultural workers. The situation of women is even worse than the men folk.

Lack of education leads to exploitation of farmers by middlemen & landlords. Hence they are unable to overcome the barriers which allow them access to fair alternatives. Education is a key ingredient required by the farmers to keep up with commercialization of agriculture, introduction of new techniques and technology.

Table 2: Percentage of Educational Attainment of Rural Agricultural Workers 2004-2005

Education Level	Male	Female	Total	Male	Female	Total
	Agricultural Laborers			Farmers		
Illiterate & Below Primary	65.9	85.5	74.1	45.7	74.0	57.5
Primary	15.7	7.5	12.3	16.2	10.8	14.0
Middle	13.3	5.3	10.0	18.9	9.5	15.0
Secondary	3.7	1.2	2.6	10.3	3.9	7.6
HS & Above	1.5	0.4	1.0	8.9	1.9	6.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: NSS 61st Round 2004-2005, Employment-Unemployment Survey

C. Cultivation is still Predominant Activity

The table below shows that more than 96 percent of the total land possessed by farming households is devoted to cultivation. Only among the near landless (less than 0.01 hectares of land) dairying and other farming activity such as poultry is a major activity. Orchards and plantations are low at 3%. There is minimum diversification of activities among the farmers. The lack of diversification further adds to woes of farmers during adverse times.

Table 3: Cultivation: Predominant Activity across land holdings

Land Size(Hectares)	Cultivation & Allied Agriculture	Orchards & Plantations	Dairy	Fishery	Other activities (Animals, bees, poultry etc)
<0.01	14.3	1.7	68.8	0.0	15.2
0.01-0.40	93.3	5.3	0.8	0.4	0.3
0.4-1.00	95.9	3.2	0.4	0.4	0.1
1.01-2.00	96.5	2.9	0.3	0.2	0.2
2.01-4.00	96.1	3.3	0.3	0.2	0.1
4.01-10.00	96.7	2.7	0.3	0.1	0.2
>10.10	97.5	2.0	0.2	0.1	0.2
All	96.2	3.1	0.4	0.2	0.1

Note: Sub-Marginal (<0.4), Marginal (0.40-1.00), Small (1.01-2.00), Semi-Medium (2.00-4.00), Large (>4.00) Hectares.

Source: NSS 59th Round 2002-2003.

D. Problem of Seasonal Migration

Migration typically takes place when workers in the source area are unable to find suitable employment options. As per NCRL there are more than 10 million seasonal/circular workers. Growth of input intensive agriculture and commercialization of agriculture since the late 1960s has led to peak periods of labor demand often coinciding with a decline in the local labor deployment (*Srivastava & Sasikumar 2005*).

The workers often have to work in difficult circumstances. They are often exploited by middlemen, live and work in deplorable conditions and lack access to medical facilities. Ineffective laws and regulations make their situation (especially women) very difficult.

E. Indebtedness

Lack of awareness and inability to access formal credit channels are some of the reasons complicating this problem. Small and marginal farmers require credit for cultivation. Post the green revolution factors such as liberalization, competition has meant a shift from cultivation of staple crops to cash crops. Cash crops require high investment in input materials and labor. Many states like Andhra Pradesh, Maharashtra and Karnataka recorded a spurt in distress induced suicides among farmers from 2002-2007⁵. The common thread was the failure of cash crops and lack of formal credit channels. Unlike corporate entities that use the legal system to declare bankruptcy, the small farmers have no means to repay the loans when crop fails. Nor do they have access to any kind of social support system or relief. Desperate and burdened with social pressure, the farmers in troubled regions take the final extreme step.

Genesis & The Raison d'être:

The need to find a permanent and people centric solution for the tribals was at the root of the Wadi Program. It was launched in interior villages of Vansda block, Navsari district of South Gujarat by BAIF in 1982. This area was representative of the typical problems affecting most tribal areas/communities viz: The livelihood of the tribal community was severely affected due to indiscriminate destruction of forests, scarcity of food and drinking water. The tribals

⁵ P. Behere - Farmers' Suicides: Across Cultures published in Indian Journal Psychiatry. 2008 Apr-Jun; 50(2): 124-127.

were practicing rainfed agriculture hence cultivation was only during kharif. Production was poor due to lack of improved cultivation practices. After harvest of kharif crop the families had no option but to migrate to adjacent areas (Vapi, Valsad, and Nasik) in search of livelihood. Migration was characterised with exploitation and discontinued education of children. Lack of health care options, weak communication, poor housing and sanitation added to the problems.

The attachment of the tribals to their land was central to the design of the Wadi Program. In addition to cultivated lands the tribal families owned some arid land along slopes. It was decided to put these underutilized lands to use through plantation of fruit trees. However plantation of fruit trees by thousands of families would lead to huge production leading to market glut. This threat was later converted into an opportunity through organized collection and forward linkages. The general objective of this novel approach was to rehabilitate the tribals in their natural environment by promoting sustainable livelihood programs.

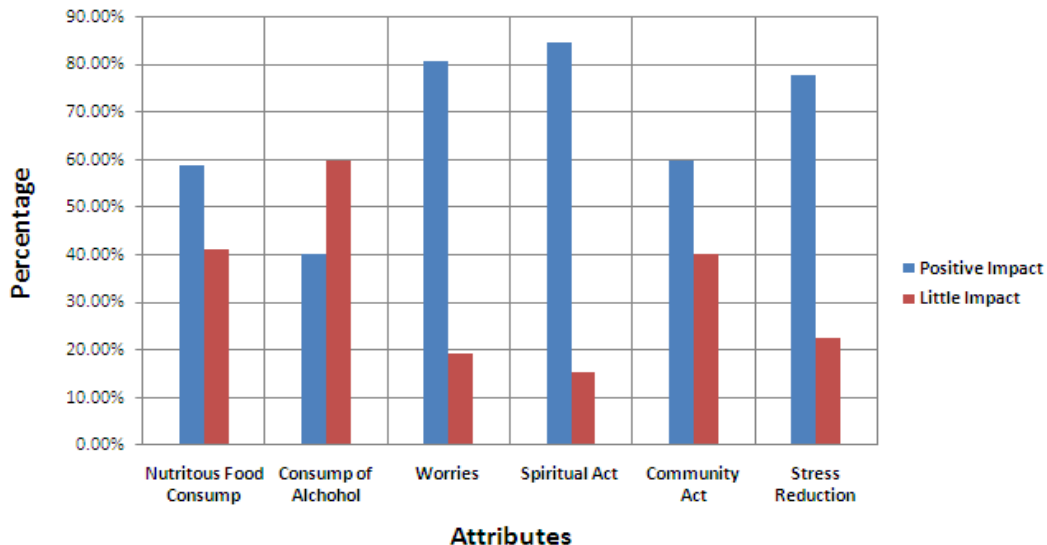
The impact on quality of life of the beneficiaries is shown in *Illustrations # 2*. It is evident that some key factors like food security, reduction in alcohol consumption; spiritual activities had a positive influence. However this information was taken from over nine batches of wadis, only two (planted 1995-97) had reached full maturity.

Illustration 2

Impact on Quality of Life (Beneficiaries)

Figures in Per Cent

Source: IRMA Evaluation III ADP



The Objectives of the Wadi Program:

Promote livelihoods and generate self-employment for poor tribal families in their own localities with parallel improvement in their quality of life

These objectives are met through the following interventions:

- Promotion of fruit and forestry plantations on underutilized land.
- Promote improved agriculture techniques and practices.
- Undertake water resource development and soil conservation to support plantations
- Encourage and develop infrastructure, capable human resource and systems for aggregate plantation, processing and marketing of produce
- Assure better prices for produce through organized production and marketing activities
- Assure food security, improved nutrition and improved health care services to participating members.
- Integrate and involve women in development process
- Development of local capabilities and strong people's organizations to sustain the development process

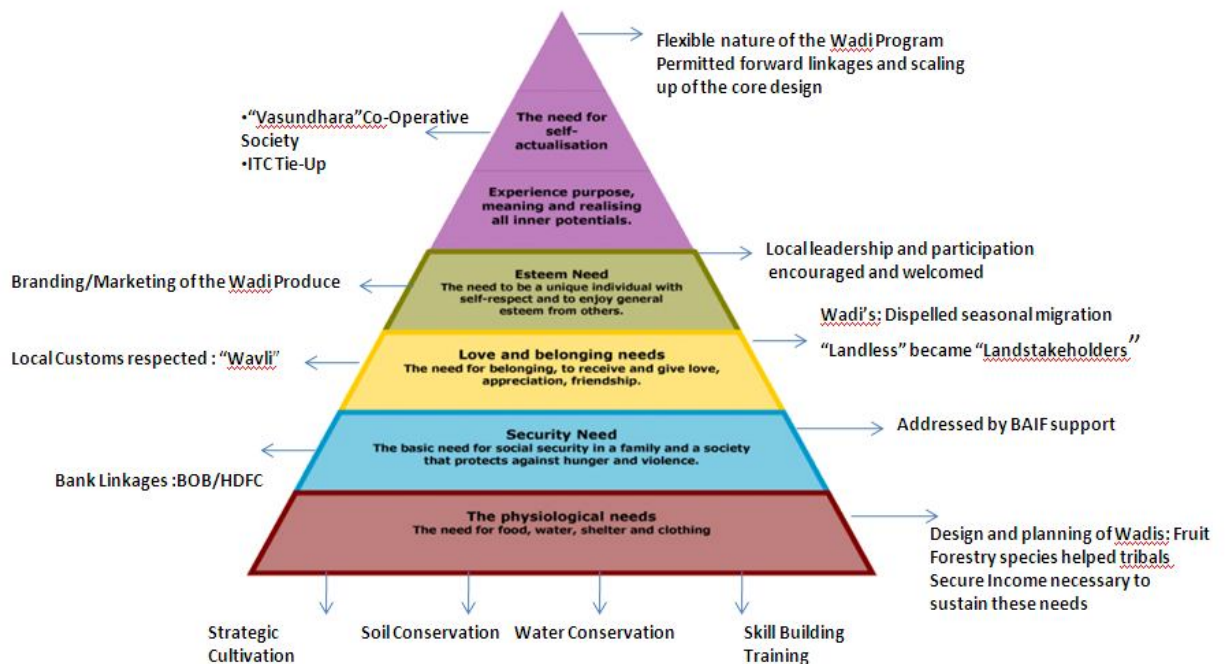
Strategy: The Wadi Pyramid⁶

A holistic approach was adopted such that it addressed the hierarchical needs of the target population (tribals) as illustrated below:

Illustration 3

The Wadi Pyramid

Source: Authors adaptation of Maslow's Hierarchy mapped to the Wadi Concept



The components of the Wadi Pyramid strategy are as follows:

1. Design of the Wadi: Selection of Fruit/ Forestry Species

A typical orchard, promoted under this scheme covering 0.4 ha, involved plantation of 40-60 fruit plants and 300-400 forestry species along the border. Mango, Cashew were selected as main fruit crops. A line diagram of a typical Wadi is presented below:

⁶ Maslow's hierarchy of needs is a theory in psychology, proposed by Abraham Maslow in his 1943 paper *A Theory of Human Motivation*. He had proposed that there exists a hierarchy of needs with the basic needs (viz food, clothing, shelter etc) at the bottom of the pyramid. An individual needs moves upward the hierarchy level as soon as the previous level of need is satisfied

Illustration # 4
Wadi Layout (1 acre)

#	##	##	##	##	##	##	##	##	##	##	##	##	##	##	#
#	*	*	*	*	*	*	*	*	*	*	*	*	*	*	#
#	*	0	0	0	0	^	^	^	^	^	^	^	^	*	#
#	*	0	0	0	0	^	^	^	^	^	^	^	^	*	#
#	*	0	0	0	0	^	^	^	^	^	^	^	^	*	#
#	*	0	0	0	0	^	^	^	^	^	^	^	^	*	#
#	*	0	0	0	0	^	^	^	^	^	^	^	^	*	#
#	*	*	*	*	*	*	*	*	*	*	*	*	*	*	#
#	##	##	##	##	##	##	##	##	##	##	##	##	##	##	#
#															
#	Fencing			*	Forestry			0	Mango			^	Cashew		

Composition:

Mango : 20, Cashew : 40, Forestry : 400

Source : BAIF-Pune

Rationale for Selection: The plant species were selected based upon various factors listed below.

- Agro-climatic suitability
- Relatively sturdy plants (can grow on arid land)
- Raw cashew nuts have a good shelf life
- Both Mango and Cashew can be processed for value addition
- Mango (fresh and processed products) have good demand in Gujarat and adjoining markets
- Cashew has good international market
- Farmers showed inclination for mango cultivation

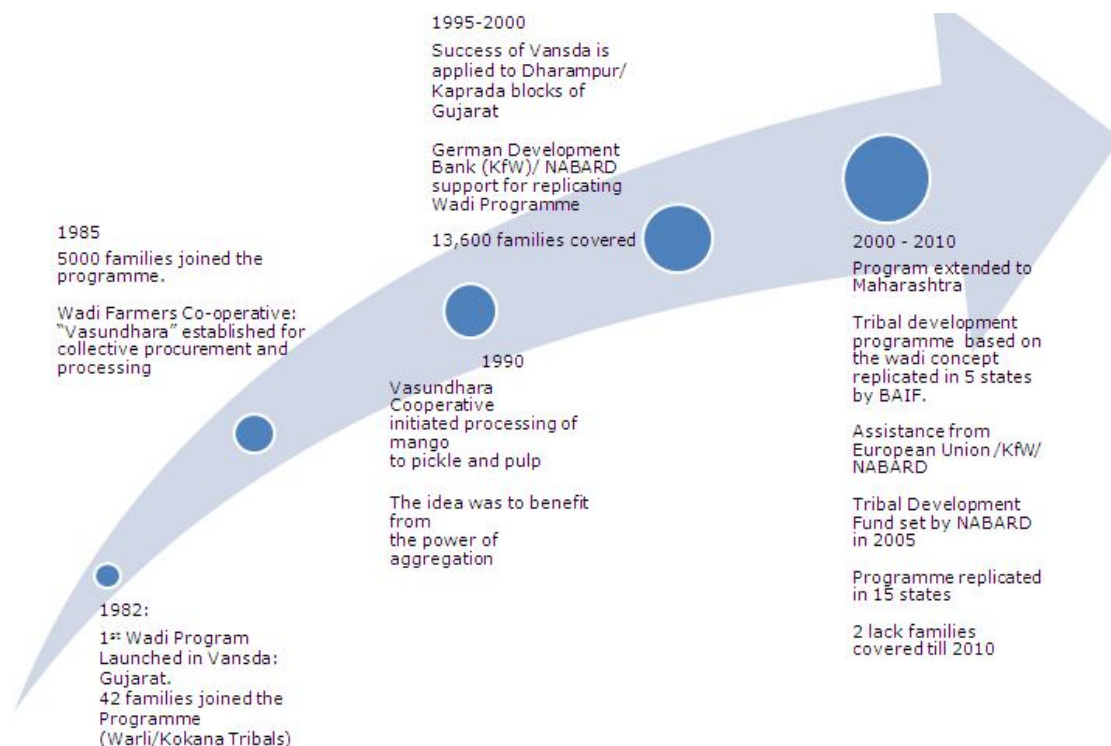
The participating families were encouraged to establish live fence on the field boundary by planting useful thorny plants like agave, jatropha, sagargota, cacti etc. for protecting the fruit plants from stray cattle. The fence plants also earned additional incomes. Farmers were advised to adopt green manuring, composting, vermi-composting and mulching to improve soil productivity.

This program was launched in 1982. In a few years time, the number of families grew from 42 to 5000. In view of the positive effects, German Development Bank (KfW) and NABARD supported a full fledged program namely the Adivasi Development Program (ADPG) in the adjoining areas of (Kaprada and Dharampur) of Vansda. The impact of these programs prompted a wider replication leading to the coverage of nearly 2 lac families in 15 states of India. The important milestones and progression of the project are shown in *Illustration # 5*

Illustration 5

The Wadi Program Milestones

Source: Authors



The year wise coverage of Wadis under ADPG is presented in Table 5 below. Batch I to Batch VIII have been covered under the main program of ADPG, while Batch VIII and IX have been covered through Special Program Gujarat. The cumulative coverage under ADPG is 13,663 families with Wadis established over 12,732.5 acres. In addition to this nearly 5000 families had established Wadis on 5000 Acres during 1982 to 1989.

Table - 5: Batch Wise Wadi Development (Source: BAIF Pune).

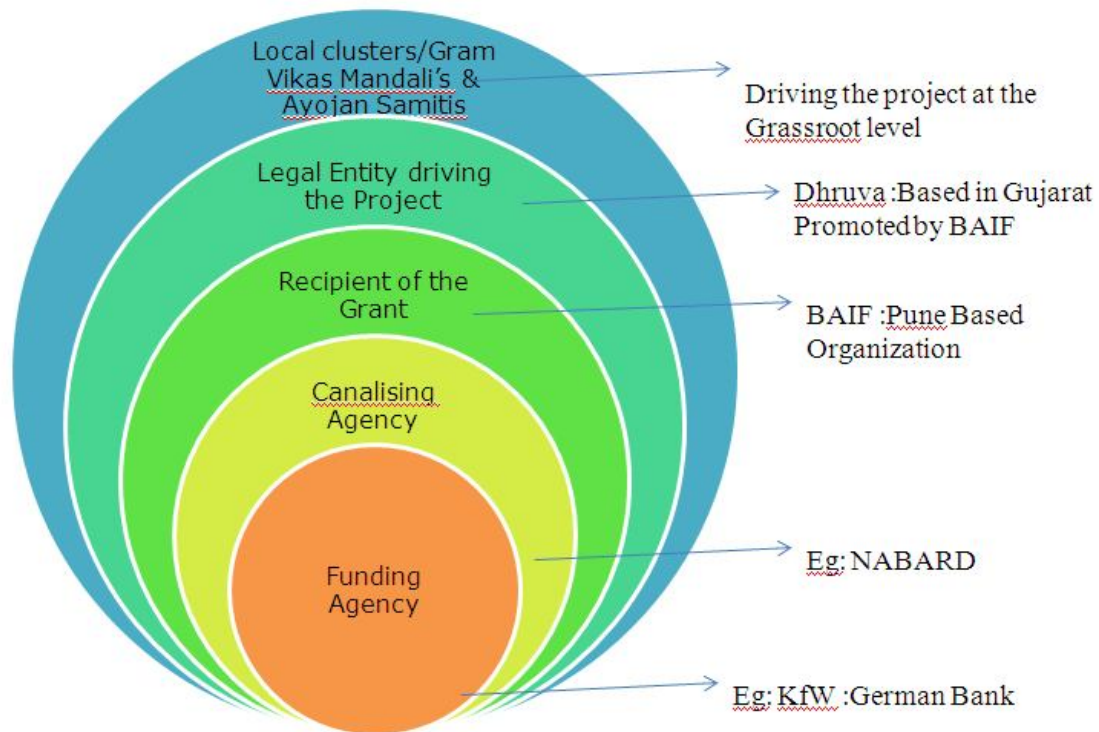
Batch no & Year of Joining	No. of Villages in Batches	No. of New Villages	No. of Families	Wadi Acreage
Batch-I (1995-1996)	40	40	1143	1073.00
Batch-II (1996-1997)	85	49	2841	2442.00
Batch-III (1997-1998)	72	25	2441	2373.00
Batch-IV (1998-1999)	52	19	1522	1449.00
Batch-V (1999-2000)	114	3	3532	3311.50
Batch-VI (2000-2001)	10	8	643	643.00
Batch-VII (2001-2002)	18	18	705	604.50
Batch -VIII (2002-2003)	2	-	69	69.00
Batch- IX (2003-2004)	21	-	767	767.00
Total	NA	187	18663	17732.5

The Wadi Program is executed through a five tier structure which is illustrated below:

Illustration 6

The Wadi Program – Five tier structure

Source: Authors



2. Soil Conservation

The Wadis were established on marginal lands on hill slopes which were not very productive. The soil quality was very poor. The survival of trees was impossible. Hence soil and moisture conservation was very essential. This was undertaken through land treatments like trench cum bund and tree platforms. The benefits of soil conservation are as under:

- Better survival & growth of plants due to extended period of water availability.
- Increased area under cultivation

3. Water Conservation

The area receives good rainfall (nearly 2000 mm per annum), however due to the hilly terrain most of the water is lost. Hence the need to harvest and conserve water is necessary. Decentralized sources were developed for wells, springs, small check dams, micro-lift irrigation systems, etc. Each source met the need of 5 to 10 Wadis. The farmers were oriented in collective use and maintenance of water resources.

The benefits of water resources development were realized through

- Water available in close vicinity – therefore reduced drudgery for irrigation
- Ensure better survival in dry conditions during summer
- Better growth and yields
- Additional crop cultivation

Illustration 7

Soil Conservation

(Source – BAIF – Pune)



4. Involvement of the Family Unit using Local Customs

Apart from income generation activities, it was equally important to ensure good health and well being, of the community. Activities were undertaken for ensuring maternal and child health care. Immunisation of children and distribution of feed supplements to malnourished children were priorities. Assurance of clean drinking water through chlorination of open wells and installation of borewells with hand pumps and construction of washing platforms was introduced as a part of the program. Women empowerment was focused on drudgery reduction, gender sensitisation and capacity building. In all 410 SHGs have been promoted under the program (Source: BAIF Pune). This helped improve quality of life.

Illustration 8

Involvement of the Family Unit in the Wadi Program

(Source – BAIF – Pune)



5. Peoples Organization

In order to promote active participation of the community and ensure capacity building the tribals were organized into groups at various levels. All the participating members in a village form a Gram Vikas Mandali. At primary level they were organized into groups of seven to ten members each. These groups select a leader to represent themselves in the executive committee i.e. the Ayojan Samiti at the village level. The Ayojan Samitis are critical channels of communication and they perform important functions such as planning and review of activities to be undertaken in Wadi. Further a co-operative has been promoted in a group of 10 to 15 villages. Two members from each Ayojan Samiti are selected by the participants to represent them in the co-operative.

The Ayojan Samitis are actively involved in collection/ procurement of produce (mango and cashew) on the behalf of the co-operatives and are paid for the same. The co-operatives are involved in commercial activities especially pertaining to processing of fruits and forward linkages. At present 12 co-operatives are operating under the program one of which was established in 1989 while the other 11 around 2000-2001. The 11 new co-operatives are involved in primary processing of mango and cashew (which is brought to Vasundhara). The

oldest co-operative (Vasundhara) functions as a mother co-operative, mainly involved in packing and marketing of the processed products under the Vrindavan brand.

There is active participation of women in Ayojan Samiti as well as co-operatives. This has helped in identifying and grooming local talent who have assumed important positions at the cooperative level and have become catalysts of change. *Illustration # 9* highlights the structure of various peoples organizations promoted under the program.

Illustration 9:

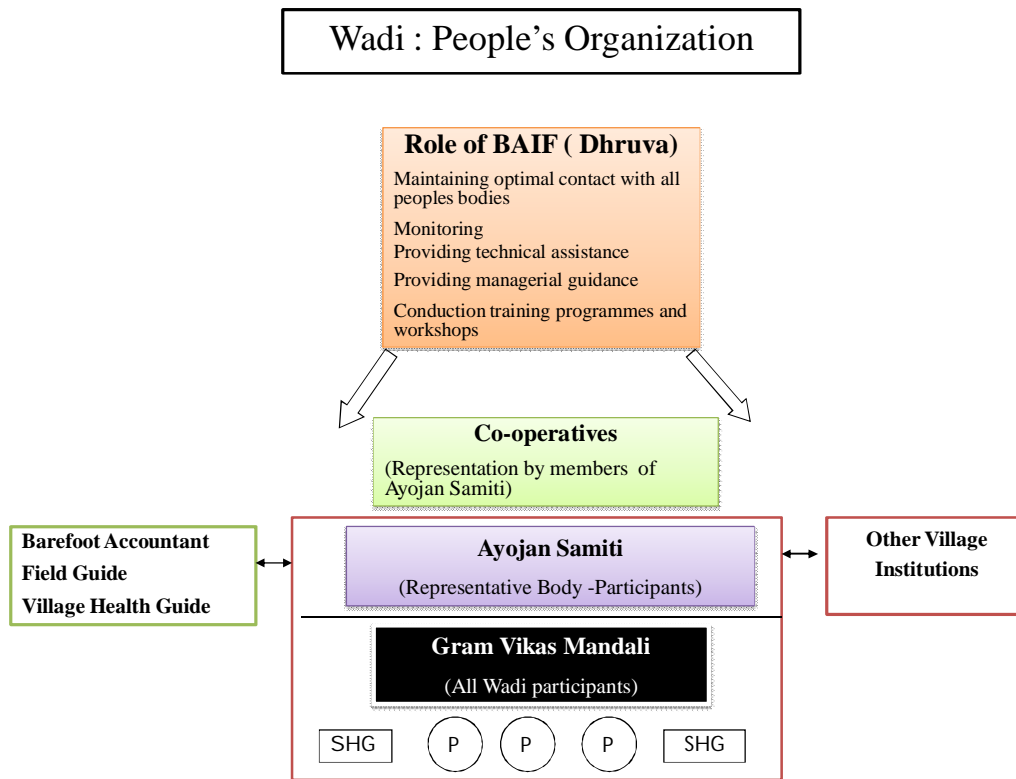


Illustration 10:

Wadi : Building Teams & Self Reliance

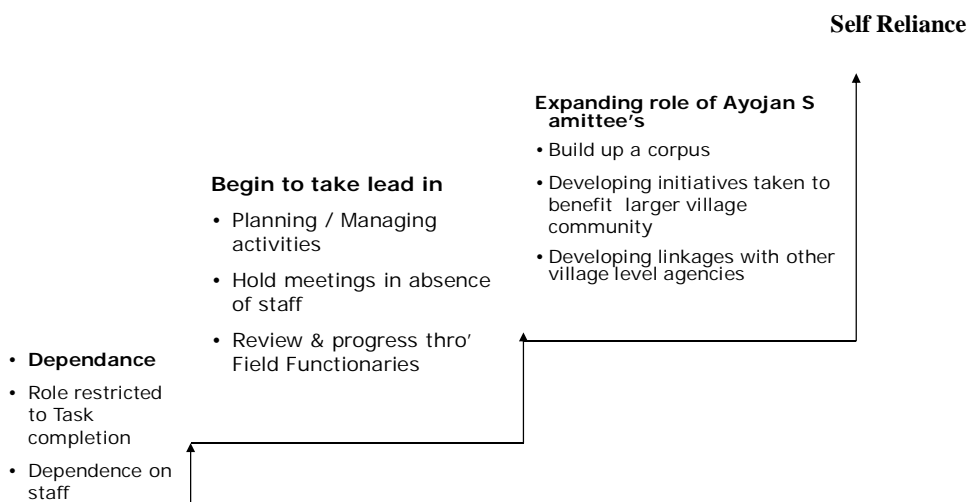


Table 6: Status of the Gram Vikas Mandalis promoted under the program are (as on March 31st 2010-Source BAIF)

Particulars	Status
Total number of villages	162
Ayojan Samiti	184
Members of Ayojan Samiti	2523
Field Guide	130
Village Health Guides	120

Innovations

The program was faced with several obstacles during various stages. Innovative approaches were adopted to overcome these obstacles. A few examples are:

1. Cashew in Gujarat:

Cashew can grow on poor soils, while the cashew nuts fetch good value in national as well as international markets. Cashew was a new crop in Gujarat introduced through this program. A few cashew trees were growing in the wild however it was introduced as a plantation crop for

the first time through the project. This was done through rigorous study of the agro-climatic, soil and water studies involving scientists from National level Research Institutes.

The co-operative processing units now collect the produced cashes for processing and marketing. The yearwise quantity of cashew nut procured and processed is presented below:

Table - 7: Raw Cashew Nut Procurement and processing by Co-operatives

Year	Procurement (T)
2008-09	260
2009-10	410
2010	225
Total	895T

2. Mango Processing:

Once the mango trees started yielding fruits, huge quantity of mango came into the market. The traders started exploiting this situation by reducing the price of mangoes. In order to overcome this situation the wadi holders ('Vasundhara') and BAIF (Dhruva) planned to aggregate the produce and undertake processing of the fruit in 1989. The processing activity increased the shelf life of the fruits besides generating additional value for it. To start with a cautious experiment was undertaken in this direction by hiring a manually operated machine. Initially the sweet and juicy varieties of mangos like kesar, langda and alphonso were selected and approximately 2 tonnes of processed pulp was obtained. The manual method was followed for two years. To improve productivity mechanized processing was adopted. Presently the cooperatives are processing more than 200 tonnes of pulp and 100 T of pickles per annum. In addition to this nearly 1500 T of fresh mango is traded at a premium price by the co-operatives.

Illustration 11
Mango processing in progress



3. Enhancing Water Use Efficiency

Water scarcity is a prominent problem in the area. Pot drips were introduced to address this problem. Pot drips are low cost alternatives for drip irrigation systems. In this method, an earthen pot with minute holes at the bottom was placed near each plant in a way that the hole is close to the root system i.e. about 15-30 cm below the ground level. Water from the pitcher is released slowly into the soil around the plant. These pot drips minimize water loss up to 50%

4. Launch of Sachet Packing of Pickle

This accidental foray into the pickles market happened when a large anticipated order for brined mangoes did not materialize. The entire team had to think of an innovative and remunerative solution. Marketing the finished product was also an exercise in creativity. About 10-12 tonnes of the pickle was sold to local canteens and restaurants the rest was sold in bottled form (250 gms) in the nearby towns. When it was realized that the 250 gm bottle was beyond the reach of the local tribal communities, the Vrindavan co-operative introduced small sachet packing priced at Rs 1. The sachets were an instant hit! Today, Vrindavan pulp and Vrindavan pickles dominate the market in South Gujarat.

5. Bank Linkage

As the Wadi Program matured, the participants undertook diverse livelihood activities like dairy husbandry, poultry farming, cash crop cultivations, preparing & selling mango grafts etc. In order to meet the aspirations of the community bank loans were made available through a tripartite agreement between BAIF (Dhruva), Vasundhara Co-operative and Bank of Baroda in 1996-97. The project also had an in-built provision for loans. The total loan consumed by the Wadi participants so far is Rs. 5.5 crores. The Wadi Program has been instrumental in increasing the credit worthiness of the tribal community and their self confidence.

6. CNSL Processing

Cashew nut shell is a by-product produced from cashew processing. The cooperative identified the potential for extracting CNSL from it. One co-operative (Mandava) established CNSL processing unit. Cashew nut shell waste from all processing units is aggregated by Mandava

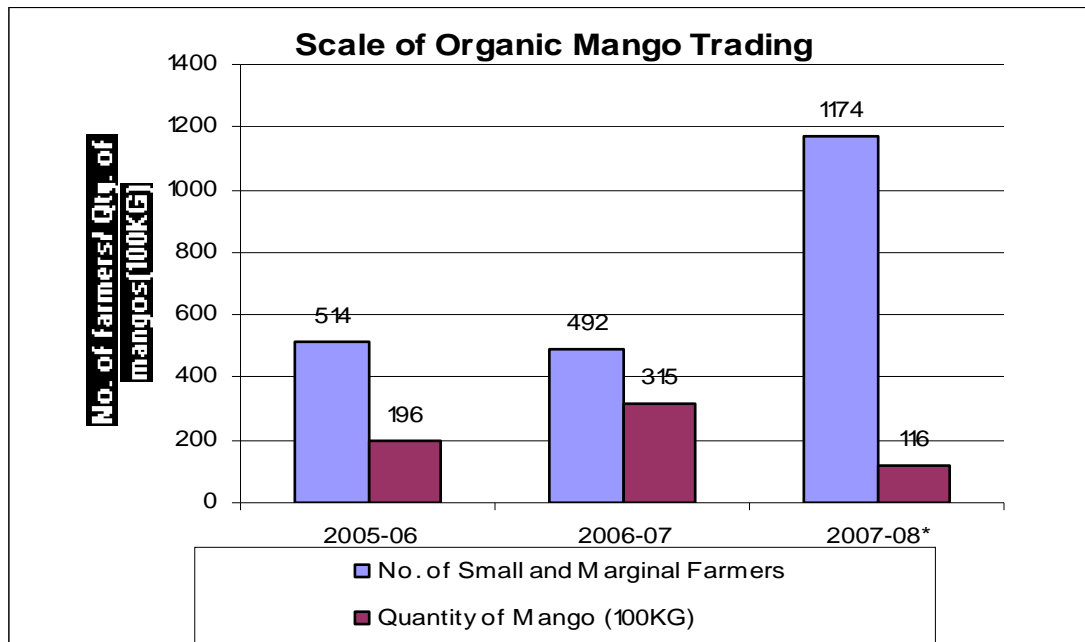
co-op and processed to CNSL. The unit was established through partial grant and partial loan from NABARD. Earlier cashew nut shell was sold at Rs.1.50 per Kg, now CNSL is sold at around Rs.20 per Lt. (20% is the recovery). Therefore a value addition of more than 200% was achieved.

7. ITC-BAIF (DHRUVA) Tie Up for Production and Processing of Organic Mangoes

In 2005-06 a corporate partnership with ITC was formed. ITC was on the lookout for organically produced mangoes for its processed foods. BAIF facilitated a mutual agreement between Vasundhara and ITC for certification and supply of organic mangoes. ITC extended financial resources for certification of the orchards through SKAL International, a reputed Certifying agency. BAIF trained the village level people’s organizations and “Vasundhara” in maintaining records and logistics management. The organically certified mangoes received a premium price with an assured market. Several farmers have been attracted by this concept leading to rising number of farmers opting for organic certification. The graph below indicates the year wise scales of operation.

Illustration 12

ITC-BAIF Organic Mango Production



* 2007-08 was a low production year

Table 8 illustrates some of the parameters which were addressed under the aegis of the Wadi Program and the impact therein.

Table 8:

Programs	Actual Progress	Remarks
Horticultural Plantn	13,663 Acres <i>Projected : 10,000 Acres</i>	13,663 H.Holds covered
Soil Conservation	11,990 Acres <i>Projected : 7,500 Acres</i>	12,896 H.Holds covered
Irrigation	2000 Acres	
Income Generating Programs (For Landless)	1500 families	1050
Wadi & Plant Sanitation	9819 families	Target : 12,896
Soil Loosen ing etc	3701 families	Target : 8016
Organic Manure Production	4689	Target : 12,896
Drip Irrigation	252 Beneficiaries Involved	
Vermi Composting	673 Members	117 Groups-Income Generating
Mango Nursery	101 Members	23 Groups-Income Generating
Forest Nursery	72 Members	12 Groups-Income Generating
Vegetable Sale	181 Members	50 Groups -Income Generating
Extension Meeting	6612 Participants	Training & Capacity Building
SHG Training	10 Groups	Training & Capacity Building
Training on Wadi	357 Participants	Training & Capacity Building

Impact Analysis:

From providing a stable livelihood to energizing the village unit, the direct impact of the benefits of the Wadi Program have been illustrated below:

Illustration # 13
Impact of the Wadi Program

Source: Authors



1. Impact on Income

Through the Wadi programme wastelands were converted into productive assets. The fruits, forestry and agriculture crops contributed to increase in income of the families. The income of a typical Wadi family with well established Wadi at various stages is presented in *Illustration # 14* below:

Illustration # 14 : Annual Income Generated Through Wadi Program at Various Stages*

	Source of Income	Age of Orchard	
		6-7 Years	10-12 Years
I	Income from Core Wadi activities		
	a Fruit Trees (Cashew and Mango)	2,700	18,000
	b Intercrops in Orchards	5,000	7,000
	c Forestry	5,000	5,000
	Sub-Total I	12,700	30,000
II	a Other Enterprises (Fruit Nursery, Forest nursery, Vermicompost, etc.)	1,400	12,000
	Sub-Total II	1,400	12,000

All figures in Rs.per annum / family

Source : Authors-Prepared based on BAIF data

Note: *This information is based on Wadi Program in South Gujarat

- > The data is based on various studies conducted by external agencies and internally by BAIF
- > A complete farming systems approach is followed in the Wadi Program. Hence the sources of income includes orchards and other on-farm enterprises of the family
- > Other Enterprises: This includes average income from other enterprises promoted through the Wadi Program. It is observed that about 40% families take-up such enterprises.

What is more important is that this income enhancement has been achieved from the resources within the village itself.

2. Distress Migration Checked:

Since livelihood requirements are met from their own land and other sources from the local area itself, forced migration has been reduced significantly. A few wadi beneficiaries continue to migrate occasionally but this migration dose not involve the entire family and is mainly for

earning some surplus income during leisure time. Reduction in migration has resulted into continued education to their children while they are not forced to live in unhygienic conditions in the towns and cities while they migrate.

3. Benefit of Aggregation: Procurement/Processing/Marketing Channels.

The aggregation, processing and forward linkages have created major positive impacts as under:

- Value addition to the Wadi produce
 1. Cashew sold at Rs. 40 in local market. Post processing it was sold between Rs. 200 to 300 per KG.
 2. Higher price and better end product (as was highlighted in the BAIF-ITC Mango tie up). See *Illustration # 15* given below

Illustration # 15:

ITC-BAIF :Organic Mango Tie Up
Comparative Returns in a Typical Case (Year 2007-08):
 Source: BAIF-Pune

Particulars	Traditional Supply Chain (Rs./KG)**	Public Partnership (Rs./KG)**	Private
A) Price of Mango	15	18	
B) Transport Cost (at farmers end)	0.25	00	
C) Commission to Traders	1.20	00	
Net Selling Price of Farmer (A-B-C)	13.55	18	

On an average a farmer sells approximately 650 KG mangoes. In a typical case, certification of the produce will fetch Rs. 11,700/- against Rs. 8,807/- under the conventional system.
 ** US \$ 1 = Rs. 40/-

- **The producers are no longer prey to the dominance of middlemen and traders.**
- **Increased capacities and confidence of the tribal community to take-up market interventions.**

4. Environmental Impact:

- Nearly 17,000 Acres of underutilized land converted to productive assets.
- Tonnes of soil conserved through soil conservation treatments on 17,000 acres.
- Plantation and nurturing of more than 9 lac fruit trees and 55 lac forestry trees on people owned lands.

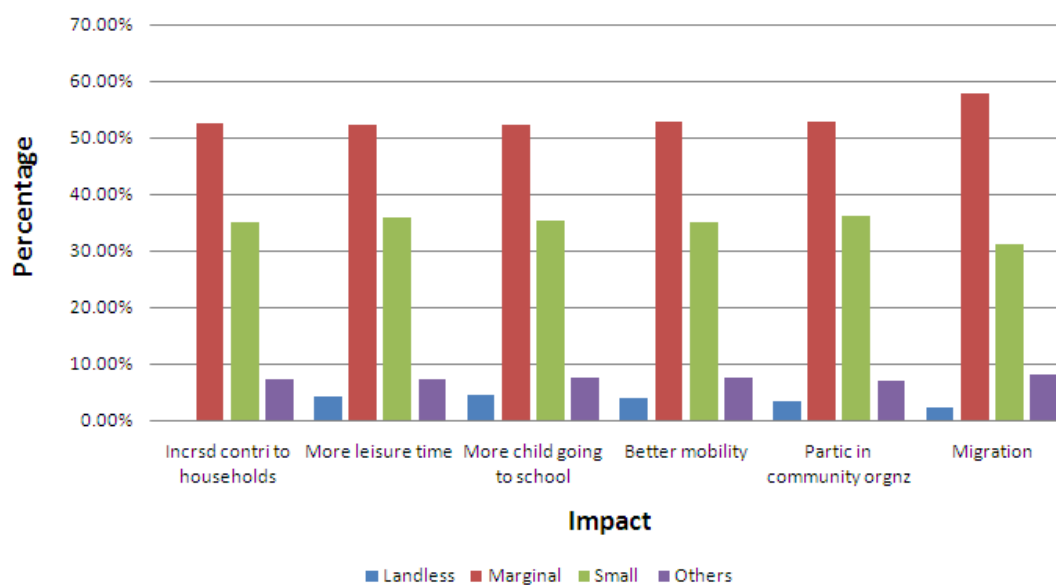
- Biomass recycling through composting techniques – nearly 30,000 tonnes of biomass recycled.

Source: BAIF Pune: Agricultural Finance Corporation Survey

5. Improved Status of Women

As seen in (Illustration #16) Wadi has brought significant impact in the lives of the women in the area. This impact is visible in the increased contribution in household income, increased mobility, and more girls going to school.

Illustration 16
Impact on Women –Post Wadi
 Source: IRMA Evaluation III ADP



6. Development of the Bank Linkages

Enhanced incomes have led to increased credit worthiness. Credit access has been facilitated through BAIF supported SHG's as well as bank linkages.

Replication of the Wadi Concept:

The success of the Wadi Program in Gujarat paved the way for it to be extended to other states. Since it addressed critical requirements such as food and employment security, increase in income, etc; it was rolled out to the other states (Maharashtra, Rajasthan, Karnataka) through funding support from state Governments and other funding agencies. Presently 1.55 lack families have directly benefited through Wadi Program implemented by BAIF in seven states. The state wise coverage is presented in the table below.

Table 9: State Wise coverage under BAIF Program

State	No. of Villages	No. of Participant families	Area covered (ha)	Major Fruit Crops
Maharashtra	2737	81600	31401	Mango, cashew, amla, guava, lemon, citrus
Gujarat	644	32942	11959	Mango, cashew, sapota, amla, lemon, custard apple, drumstick, coconut, date palm
Karnataka	432	15246	5986	Mango, coconut, cashew, tamarind, guava, sapota, custard apple, amla, lemon, jackfruit and coffee
Rajasthan	669	18879	5663	Amla, mango, guava, pomegranate, lemon, orange
Uttar Pradesh	104	4115	1031	Amla, mango, bel, ber, guava
Madhya Pradesh	84	1981	792	Mango, custard apple and guava
Chhattisgarh	16	260	260	Mango, cashew, amla
Total	4686	155023	57092	

Source: BAIF-Pune. Data as on July 2010

In 2005, NABARD introduced the “Tribal Development Fund” for emulating the program in various parts of the country. Through TDF the Wadi Program is being replicated in 15 states through nearly 75 NGO’s. The cumulative coverage of the Wadi Program so far is around 2 lac families hence nearly 75,000 Ha of underutilized lands have been converted into productive assets. In Gujarat alone nearly 400 families have introduced Wadis through credit and own contribution.

Key Insights

The resounding success of the Wadi Program is a fitting tribute to an idea that may seem simple on the surface but embraces and solves key problems in a creative way. The fact that this program has grown both in membership and also in its quantitative impact is because its

principles have always kept the common man at heart. The techniques and innovations listed above can be successfully applied to various grave situations facing our country today. Some insights gained are as follows:

1. **A Composite Approach** amenable to backward and forward linkages as illustrated by the Wadi Program is essential for ensuring a positive impact and sustained development.
2. **Aggregation** helps reap the benefits of collective bargaining especially in low income/low education strata of people. It helps minimize direct losses (those associated with higher procurement costs) and indirect losses (those associated with cheating, exploitation, unfair trade practices)
3. **Technology** has to be made simple for it to have an impact at grassroots level. Farmers can be trained in all the aspects of farmland management viz. procurement of materials, plantation, processing and marketing.
4. **Leadership** skills in tribals need to be nurtured and can produce excellent results if channelized properly. The leader selection process has to be perceived as democratic, fair and transparent.
5. The **versatile and eco friendly** program design of the Wadi approach makes it a perfect mitigant of the two main problems affecting India and the world: viz food scarcity and climate change (greenhouse effect).
6. One of the major cause of the **farmers suicide's** is the over reliance on a single crop. The diversified nature of the Wadi Program enhances multiple livelihood opportunities like agriculture, tree based farming, dairy husbandry etc. Hence multiple income streams are opened up. This acts as a hedge against concentration of too much reliance/risk on a single survival option.
7. **Extremist activities** have been on a rise especially in tribal dominated parts of central India. The main participants are the unengaged rural youth. Lack of employment opportunities, poverty and lack of hope are some of the main causes that breed extremist activities. The Wadi Program can help channelize the rural youth to undertake constructive work. The result is a win-win situation for the society (at a micro level) and the world (at a macro level).

Illustration 17

Employment opportunities for the rural youth

