

BACKGROUND INFORMATION OF THE DISTRICT

3.1 GENERAL FEATURES OF THE DISTRICT

West Singhbhum came into being in the year 1989-90, after East Singhbhum, district was carved out of the erstwhile-undivided Singhbhum district. Again in April 2001 the West Singhbhum was divided into two districts, North part of the West Singhbhum i.e. eight Blocks of Seraikela division was separated and became Seraikela-Kharswan district. Geographically, the district is situated between north latitude $21^{\circ} 58'$ and $23^{\circ} 56'$ and East longitude 85° & 86° . The district forms part of the southern fringe of the Chhotanagpur plateau and is highly upland tract. There are hills alternating with plains, steep mountains, and deep forests on the mountain slope. The altitude varies 205 to 610 meters above mean sea level with hills and hillocks, valleys and rivers. The average elevation (altitude) is 244 meters above mean sea level. In the North side of the district is Seraikella-Kharswan district, south side of the district is surrounded by parts of Orissa state in its east side East Singhbhum and parts of orissa state and in the West side it has Ranchi district and part of orissa state. The geographical area of the district is 5.19 lakh hectare.

For administrative convenience, the district has been divided into two subdivisions namely Chaibasa Sadar and Chakradharpur. Chaibasa being the districts headquarter all district level office are located here. The district has 15 blocks, 204 Panachayats and 1692 revenue villages .The detailed description was given in the table No. 3.1 The important towns of the district are Chaibasa and Chakradharpur.

Agriculture is the main stay of the economy of the district. However, the agriculture is mainly for subsistence and it is yet to be taken up on a commercial basis due to lack of irrigation and other infrastructure bottlenecks.

The district is endowed with abundant mineral and forest resources. Iron ore mines are located in Noamundi, Manoharpur blocks. Other minerals those are available in the district include limestone, china clay, Manganese, soapstones etc.

West Singhbhum is one of the richest districts of Jharkhand in forest resources. The species of forest trees, which are found in the district, include Sal, Dhaura, Mahua , Kendu, Bamboo, Asan, Karan etc. The major products of forest include timber, poles, firewood, Sal Seed, Mahua Seed, Sabai grass.

The district prominently figures in the industrial map of Jharkhand .The industrial centers include Jhinkpani (ACC cement Plant) , Chakradharpur (SSI industry like LOC Industry , Biscuit Manufacturing Industry etc.)

LITERACY

The block wise literacy rate was given in table 3.2. The overall literacy rate of the district is 38.54%

OCCUPATION :-

The percentage of main workers to total population of the district is 37.2 and the percentage of agricultural labour to total main workers is 79.98%. The block wise information on workforce engaged in different occupations is given in table 3.2

HOUSEHOLDS :-

There are total 1692 villages in the district in which 47 villages are un-inhabited.

3.3 LAND UTILIZATION :

Total geographical area of the district is 5.198 lakh hectare out of which nearly 42.5% area comes under net cultivated area, 21% covered forests and the rest 36.5% area fall under barren, cultivable wast, pasture and other agricultural use.

3.4 Agro-Climatic Information

The state of Jharkhand has been divided into three zones namely zone IV central & north eastern plateau zone consisting district of Ranchi, Hazaribagh, Bokaro, Giridih, Kodarma, Dhanbad, Deoghar, Godda, Dumka, Sahibgang & Pakur), zone V (Western plateau zone consisting districts of Lohardaga, Gumla, Palamau, Garhwa & Chatra) and zone VI (South Eastern Plateau Zone consisting districts of East and West Singhbhum)

Agro-Ecological Situation : Based on variation in Topography, Soil type, availability of irrigation & cropping pattern each agro-climatic zones has been divided into several agro-ecological situations or farming situations with a view to generate location specific technologies to cater to the needs of the farmers as described in table no. 3.6

Agro-Ecological Situations in West Singhbhum District

Sl. No. A E S	Agro Ecological Situation	Approximate coverage (%)	Special Features	Representative villages	Blocks
1.	Kolhan-Porahat upper plateau rain fed and dense forest	20	Comparatively at higher altitude, hilly tracts, moderate temperature regime, high rainfall, dense forest based, iron rich red laterite soils, presence of natural streams.	1. Lumbai 2. Baraiburu	1. Bandhgaon 2. Nuvamundi

	based		Ber & Palas trees found		
2.	Kolhan lower plateau rain fed moderately high & forest based	30	Comparatively at moderate altitude, high rainfall, forest based, organic matter rich soils, availability of medicinal & aromatic plants and goatery predominant enterprise.	1. Kulaburu 2. Anjedbeda	1. Kumardungi 2. Khutpani
3.	Kolhan comparatively plain and rain fed	50	Comparatively plain lands, rare forest vegetation, less rainfall, higher temperature, soils are sandy & loamy and engulfed with tiny (rainy) seasonal rivulets.	1. Kudahatu 2. Barkundia	1. Jagannathpur 2. Sadar Chaibasa

Climate - The climate in general is classified as sub humid mega-thermal with large winter water deficiency. Climate of the cropping season changes from hot to humid during major parts of kharif (June to Sept), and cold to arid during rabi (Octobers to March).

Temperature - The temperature varies across different AES. In block of Noamundi, place like Kiruburu, Meghatuburu and Tholkobad, those in higher altitude of 600 to 610 meter the average temperature is much lower than the average temperature of the district. In these areas even in summer season the nocturnal temperature is 4 °C to 5 °C less than that of the relatively planer areas of the district. Even in hot summer these areas have dramatically lower temperature & cooler weather. The highest temperature month of this district is May to June 2nd week. Maximum temperature rises up to 43 °C to 44 °C and minimum of that day up to 27 to 30C. December or January are the coldest month lowest temperature are recorded in the month of January. Though the minimum-recorded temperature is 6 °C but it generally varies between 7 °C to 9 °C.

3.5 SOIL

Soils of this region are sedentary which developed from various rack systems mainly Archen Rocks (Granite Granite-Gneiss, Quartzite & Micaschist). Certain isolated areas of Granite are also seen and named as Singhbhum Granite extending from Chaibasa to Orissa. As a result soils developed in the district are very old and due to intensive leaching over the years, soils of the area are of poor fertility status. The soils are old with low base content, low cation exchange capacity (5-15 dSm⁻¹), acidic in reaction low phosphate content. The characteristic of upland, medium land and low land are given below

Upland (64.8% of Cultivable Land)

- ◆ Red, brownish red in colour
- ◆ Light textured
- ◆ Well drained
- ◆ Acidic soil reaction
- . Poor in organic carbon, nitrogen, Ca, Mg, P and S.

Medium Land (23.6% of Cultivable Area)

- ◆ Yellow, Yellowish in colour
- ◆ Light to medium textured
- ◆ Moderately acidic
- ◆ Poor in nitrogen, Ca, Mg and Organic matter

Low Land (11.6% of Cultivable Area)

- ◆ Grey or grayish in colour
- ◆ Heavy textured
- ◆ Neutral to slightly alkaline soil reaction
- ◆ Poor drained
- ◆ Medium in nitrogen and organic matter

Deficiency of Potassium, Sulphur, Boron and Molybdenum are reported in soils of the district.

3.6 IRRIGATION :

West Singhbhum has got 14.68 % of net sown area under different sources of irrigation. The block wise irrigated area is given in Table No. 3.10.

Rainfed Area : West Singhbhum has got 85.31% of net sown area under rainfed condition. Natural calamities such as high or low rainfall, early or late monsoon, high torrention rainfall, its uneven distribution during the monsoon period are the main causes which adversely effect in the progress of agriculture.

3.7 Information on Land based system

Agriculture production system

Agriculture is the main stays of the economy of the district. Since the population of the ST & SC is 70 % of the total population and the literacy rate is 38.54 % most of the farmers take up agriculture as subsistence enterprise. Rice is the major crop of the district. The other important crops of the district are Ragi, Small millet, Maize, Vegetable, horsegram & Niger.

FISH PRODUCTION SYSTEM

Fish cultivation is taken up in Tanks and Reservoirs in the District. There is a great shortage of fish production in the West Singhbhum District. The Area, Production, Productivity of fish is given in Table No. 3.18

Table 3.18 Area, Production & Productivity of fish in West Singhbhum

Sl. No	Year	Area (In Hac.)	Production (in M.T)	Productivity Kg/Hac.	Regi. Fishermen
1	1998	1697	6500	3830	
2	1995	1600	5500	3437	
3	1900	1500	5000	3333	
4	1985	1400	4600	3285	
5	1980	1320	4500	3409	
6	1975	1280	4200		
7	1970	1200	4000		

The activities in the Tanks and Reservoir provide full time direct and indirect employment opportunity for over 1200 fishermen families

SERICULTURE PRODUCTION SYSTEM

Sericulture plays an important role in the development economy of the district. A large number of tribal are engaged in the activity. Sericulture is very crucial in terms of employment and income generation avenues and opportunities to raise the economic status of rural people. These commodities are playing vital role for the upliftment of women and tribal.

ATMA, WEST SINGHBHUM

A. Title: Growing green with none to envy

B. Background:

West Singhbhum is spread over 5.98 lakh hectare of which 42.5 per cent land is under cultivation and forest cover exists over 21 per cent of the district. Around 36 per cent of the district is barren, expanding rapidly due to deforestation.

Realising the potential of the threat, Natural Resource Management has been accorded the thrust area status in the Strategic Research and Extension Plan (SREP). The ATMA, West Singhbhum too decided to play an active role in maintaining the ecological balance in the district and for it joined hands with the Department of Forestry. For the extension of forest cover, it was decided to promote timber plantation on barren land among the villagers. Shiv Shakti Plantation, a private firm from Orissa claiming to have developed fast growing biotechnology teak plants, approached ATMA for the promotion of their concept. The firm gave the assurance that the teak plants would mature in 12-15 years. On ATMA's insistence, they agreed to buy back the teak plants from the farmers. Apart from providing planting materials, the firm also agreed to provide the farmers with organic manure. Sensing that this too won't be enough to convince the farmers, ATMA insisted on replacement agreement. Shiv Shakti then agreed on one-year replacement guarantee. In the meantime, ATMA from its sources confirmed the credentials of the company and about their other ventures in Orissa. ATMA then associated itself with the awareness campaign.

Poresh Chandra Biruli of Surjabasa village under Jhinkpani block was the first to approach ATMA in this regard. Biruli owns about 7 hectare land, of which half lay barren. Regardless of best efforts, he was unable to utilise the land.

C. Intervention and process:

ATMA advised Biruli to go in for timber plantation and sent him along with a team of farmers to New Delhi Krishi-Expo in March 2003 for exposure. He was also sent for training to HARP, Plandu. ATMA furthermore arranged exposure visits to RRTTS, Semiliguda and Koraput in Orissa. After all these, he was convinced that his barren land could be made cultivable by plantation of timber trees. For his convenience, ATMA officials linked him with Forest Department officials. The Forest Department arranged for him saplings of Sal, Mahogani, Gamahar and Neem. The department also acquainted him with the latest plantation techniques.

Biruli embarked on a plantation spree in June 2003 and by the end of the year, he had planted 200 sal saplings, 100 mahogani saplings, and 100 plants of gamhar. He had also planted some saplings of mango, jackfruit, blackberry, neem, karanj and bamboo. All the saplings are now almost a year old and have withstood the harshness of Nature. Baruli had carried out the exercise on two hectare.

Keeping other avenues open, ATMA in April 2003 had arranged a meeting of farmers with Shiv Shakti Plantation officials. During the meeting, Poresh and one more farmer Jairam Devgum of the same village agreed to plant 200 biotechnologically developed teak plants. Later, through the efforts of Farm Information Advisory Committee (FIAC), Shiv Shakti Plantation was able to convince 10 more farmers of the district to grow teak plants. Thus, 10 hectare of

wasteland in the district was brought under teak cultivation. The company officials paid regular visits to the plantation sites and also replaced the 'defective' plants as promised. After around a year, the experts too have certified the condition of trees as excellent. In the coming Kharif season, 20 more farmers are likely to take up teak plantation on their barren land.

Biruli, for his path-breaking efforts, was nominated member of the Governing Board. Enthused further, he took the initiative of organising two animal husbandry camps in his village with the cooperation of Block Technical Team (BTT), Tantnagar.

The Commissioner and Secretary (Agriculture & Cane Development), Government of Jharkhand visited Surjabasa village on March 6, 2004 and appreciated Biruli's endeavours. Praising the role of ATMA, the Commissioner said, "Farmers like Biruli are doing a Yeoman's job in adding to the natural wealth of the district."

D. Lessons learnt:

- (i) Policies should be formulated keeping in mind the micro needs of the region.
- (ii) Exposure visits encourage farmers to take up innovative concepts.
- (iii) While negotiating with private firms, the interests of the farmers should always be kept in mind.
- (iv) Incentives like nomination as member of the Governing Board further enthruses the hardworking farmers.

A. Title: From battle grounds to the fields

B. BACKGROUND

Kulaburu village under Kumardungi block in West Singhbhum district is about 40 km from the district headquarters. The village, having a population of 1284, comprises mostly small and marginal farmers. Having a literacy rate of 24.7 per cent, the village fares better than its neighbours. The farmers despite being diligent were unable to become self-reliant in farming, and in the off-season were compelled to work as migrant labourers. Farming here was solely dependent on the monsoons, with 98 per cent of the cultivable land in the district being rain-fed. Farmers here were growing only one crop at a time — paddy, and pulses like arhar and urad. One small seasonal river named Kulaburu Karma Kola flows through the village holds rainwater till January. In 2002, Kulaburu was selected as one of the representative villages of Agro Ecological Situation II in the district and Participatory Rural Appraisal exercises were conducted for the preparation of Strategic Research and Extension Plan (SREP). ATMA saw a potential to develop the irrigation system in the village for year-round farming by building check dams on the river. But there was no one in the village willing to take the initiative. ATMA then came across Manmohan Gagrai, who had retired from Indian Army in 1999 after 32 years of service. Post-retirement, he settled down in his native village and took up farming, but even his disciplined approach could not fetch him two crops from his field in the absence of irrigation facility. Initially he was reluctant to cooperate with ATMA but after much prodding by the ATMA technical team, Gagrai was convinced that need-based and location-specific strategic planning by ATMA could change the face of his village. He soon started taking keen interest in ATMA activities and was nominated the chairman of Farmers Advisory Committee (FAC) of Kumardangi block.

C. INTERVENTION & PROCESS:

The ATMA technical team advised Gagrai to persuade the villagers to build check dams on Kulaburu Karma Kola river but neither Gagrai nor the villagers were ready to realize the benefits of building check dams. ATMA in order to encourage him arranged for his training on leadership development at Xavier Institute of Social Services (XISS), Ranchi, organised by SAMETI, Jharkhand. His visit to MANAGE, Hyderabad was also arranged.

ATMA also provided him one-week training on soil & water conservation and vegetable cultivation at Training Centre, Hehal, Ranchi.

The exposure visits gave him enough confidence to emerge a farmer leader of the block and formed four Farmers Interest Groups (FIGs) with 58 farmers. After the 2003 monsoons, he motivated his group members to built two check dams at a distance of 100 feet apart with locally available stones. They also dug a 15 feet deep well beside the river. This effort resulted in the availability of sufficient water in the Rabi season. During the Rabi season 2003-04, the villagers cultivated crops on both flanks of the river as advised by the Block Technical Team (BTT) of ATMA. ATMA had also arranged Arkel variety of pea seeds for the farmers. One farmer of the village, Kulendra Pad Pingua, earned approximately Rs 8,000 from pea cultivation on a half-acre plot. ATMA also succeeded in introducing for the first time in the village Rabi –maize and farmers from nearby villages are also eagerly waiting to see the produce of this newly introduced crop. Members of the FIG have also cultivated mustard and wheat by irrigating their land from the water of the check dam. FIG members were also confident of successfully growing summer vegetables from the water available in the check dam. They have planted bottle gourd, ridge gourd, bitter gourd, French bean etc. The land now on both flanks of the river projects a green look throughout the year. In appreciation of the villagers' hard work, the Block Development Officer of Kumardungi block has sanctioned two more pucca check dams for the village and work on the project has already started. Because of farmers like Gagrai, the village is all likely to be accorded the model village of the district status.

D. LESSONS LEARNT AND INFERENCES DRAWN:

1. Stress should be given on optimum utilization of natural resources.
2. Risk factor for the farmers should be reduced by formation of groups.
3. Agriculture officers should identify farmers with leadership qualities and arrange for their training and exposure visits for encouragement.

ATMA, WEST SINGHBHUM

A. Title: Sweet is the fruit of labour

B. BACKGROUND

Due to random deforestation, large tracts of land in West Singhbhum district are lying barren. As most of this fall under the category of tar land, the laborious farmers were unable to use it for agriculture purposes. Lack of awareness was also posing hurdles on the path of extending the cultivable land. The farmers depending on traditional techniques had, in the past, tried to cultivate the land, but in vain.

However, Benjamin Purty of Gulruwan village in Goelkera Block was determined to fight the adversity. He had inherited large tracts of barren land. Benjamin after matriculating in 1978 wanted to be a teacher in his village school, but economic hardship came in his way. Having no other alternative, Benjamin along with his brothers Jhon Purty and Ignasius Purty decided to take up agriculture for a livelihood. The brothers with limited resources were at their wits end on how to utilise the barren land in their possession. Benjamin during a block-level Kisan Mela met Block Agriculture Officer (BAO) Janakdhari Singh and discussed his problem. Singh gave Benjamin the solution of planting fruit bearing plants, which would not only fetch him good returns but also make his land fertile. The Purty brothers after due consideration successfully planted some local variety of mango saplings. On Janakdhari Singh's guidance, Benjamin went to Ranchi Mullik Nursery, which incidentally was his first visit outside the district to purchase grafts of mango, litchi and guava. Further encouraged by the result, the brothers planted mango, papaya, banana, and naspati saplings.

The land on which not even a blade of grass grew was fast transforming into a green field. However, the villagers were still sceptical about their success, as the plants were yet to bear fruit. In 1993 when the plants started to bear fruit, the Purty brothers faced the problem of marketing it. The produce in the local market was not fetching adequate returns. The brothers decided to take their produce to Rourkela in the hope of better returns. They were pleasantly surprised, when their litchi in the Rourkela market not only fetched them good returns, but also became an instant hit.

C. INTERVENTION & PROCESS:

After the establishment of ATMA in the district, a team of experts visited Gulruwan village in November 2002. The team was surprised to know that no other farmer in the village had implemented the Purty brothers' success story. The team after interacting with the villagers realized that absence of good saplings had prevented them from following suit.

The team advised the Purty brothers to set up a nursery of fruit plants for business purpose. The ATMA team also arranged a training programme for the Benjamin at Horticulture and Agro-Forestry Research Programme (HARP), Plandu, Ranchi. Apart from visiting some private nurseries, Purty also learnt the art of cutting, grafting and air layering. He had started to sell saplings from his nursery to other farmers of the village by 2003 and was also imparting them advanced know-how. To replicate Benjamin Purty's success story, ATMA, West Singhbhum, decided to rope in Benjamin as a resource person and arranged for his visit to MANAGE, Hyderabad, for training and exposure. ATMA, in association with SAMETI, Ranchi, also organised training and exposure visits for Ignasius Purty to RRTTS, Semiliguda and ATMA, Koraput in Orissa. Now, eight farmers in the village are fully engaged in fruit

farming and have successfully planted Dasher variety of Mango on their barren land. ATMA now plans to develop the village into a model village and has tagged the villagers with NABARD officials for grant of loan or subsidy for purchasing a vehicle to take their produce to the market. The group expects a favourable response from the bank by April-end.

D. BENEFITS & IMPACTS:

The annual income from the orchards in the village is expected to be around Rs 1.5 lakh. From the 'added' income, the villagers are able to send their children to Ranchi for higher education. Benjamin Purty has already bagged the best farmer award from the Chief Minister of Jharkhand.

Learning from experience, Benjamin adopting modern technology this Rabi season reaped a rich harvest of peas too. He, apart from forming a group of 20 farmers, is also promoting a woman farmers group on the lines of the one he saw in Andhra Pradesh. During his Koraput visit, he saw the farmers use perforated earthen pots for drip irrigation, which he successfully implemented in his village. Under ATMA's guidance, the village is fast prospering.

E. LESSONS LEARNT & INFERENCES DRAWN:

1. The success story of Purty brothers can be replicated in other regions of the State as well.
2. Timely intervention of experts holds the key.
3. Exposure visits and training programmes work wonders for enterprising farmers. If they encourage their brethren to take to similar ventures, the message disseminates easily.

ATMA, WEST SINGHBHUM**A. Title: Tapping the prosperity crawling beneath****B. Background:**

ONE DAY an unemployed graduate named Lalit Mahato of Chainpur village under Chakradharpur block came to ATMA office at Chaibasa seeking job. He had read about ATMA in some newspaper. Chainpur is about 28-km from the district headquarters Chaibasa. The ATMA officials gave him a patient listening and came to know that he owns only a one-acre plot. The Project Director (PD) convinced him to go for self-employment and gave him some literature on off-season vegetable cultivation published by ATMA. However, he was not convinced about the success of off-season vegetable cultivation and was reluctant to take up the activity.

C. Intervention and process:

The ATMA, in order to clear his doubts, then decided to send him on exposure visit to Ranchi in May 2003. In course of his training, Mahato met some successful vegetable growers. The visit gave Mahato enough confidence to take up vegetable cultivation on his one-acre plot. The ATMA team advised Mahato to take up cultivation of tomato in Kharif Season. Mahato's effort was a path breaking exercise in the district. Cultivation of tomato in Kharif was an unheard of concept for the farmers of the districts. While several farmers made fun of him, Mahato was undeterred and abided by ATMA officials' advice. Those who made fun of him were surprised when Mahato reaped a 'moderate' harvest of Kharif tomato. Though the yield was much lower than expected, it fetched Mahato over Rs 10,000. His tomatoes were an instant hit in the local market.

D. Benefits and Impacts:

ATMA officials then realising the geographic limitation of his land advised him to take to vermicompost production and use the same to augment vegetable yield. ATMA officials saw reluctance in him to take up the venture and taking into account his hard work decided to include him in the select group of farmer leaders. These farmer leaders were sent to MANAGE, Hyderabad for training in vermicompost. At Hyderabad apart from undergoing extensive training on vermicompost production, Mahato also visited the field of farmers who have successfully adopted vermicompost production.

The ATMA officials were pleasantly surprised when he one day informed them that he has started vermicompost production on his field. Earthworm the basic ingredient for vermicompost production was found in abundance in his field and being an enterprising farmer he used them for vermicompost production. The ATMA team during one of the visits found that his vermicompost venture was totally indigenous and self-dependent. Apart from earthworms, Mahato was using household waste and cow dung for production of vermicompost. He was producing enough vermicompost to meet his own agricultural needs.

In 2003, he took one more acre of land on lease for vegetable cultivation. He successfully grew brinjal, cauliflower, pea and pumpkin in the 2003-2004 Rabi season and was the first farmer to sell brinjal in Chakradharpur and Chaibasa markets. The brinjals of other farmers, which arrived late at the market, could not match his quality

and Mahato went on to earn over Rs 20,000 from brinjal alone. By selling other vegetables like pea, cauliflower and pumpkin, Mahato earned another Rs 20,000. Mahato had a couple of years ago in his wildest of dreams had not thought of earning this much in one season.

With success behind his back, Mahato now contemplates to take up mushroom cultivation and has already undergone a training organised by Farm Information Advisory Centre (FIAC) of Chakradharpur.

Mahato's successful experiments have enthused other villagers to take up off-season vegetable cultivation and he volunteers in giving them the right advice. Other farmers of the village have now approached the ATMA to organise training for them in vermicompost production.

E. Lessons Learnt:

1. Even farmers with small landholding can prosper if the land is put to judicious use.
2. Off-season produce fetches a better price.
3. Farmers should be encouraged to adopt production of vermicompost as it is not only cost effective but also augments yield.
4. Enterprising efforts of farmers should be encouraged by agriculture officers in form of recommending their names for training programmes.

ATMA, WEST SINGHBHUM

A. Title: Hybrid rice breeds content

B. BACKGROUND:

There is very little lowland in Guda village under Jhinkpani block of West Singhbhum district. In the absence of any irrigation facility, the farmers of the village depend on the monsoons to grow Kharif crops like paddy and this too they are unable to do successfully because of the poor land quality. There was no dearth of laborious farmers in the village and the villagers had more or less resigned to their fate in the face of adverse Nature.

But Sanjay Balmuchu, a tribal farmer of the village was determined to change his lot. He was holding five acres of land, of which 3 acres fell under upland category and 2 acres was midland. He also owned a pair of bullocks and a country cow. He has taken education up to the Intermediate level. From farming he was managing his six-member family. He had been growing direct sown paddy and some vegetables in his kitchen garden, which could hardly fulfil his family's need.

Balmuchu came in contact with ATMA during the formation of Farmers Advisory Committee (FAC) at the block level. The Project Director, ATMA, saw in him leadership potential and acquainted him with the activities of ATMA. Balmuchu too was impressed and became a frequent visitor to the ATMA office. He even took the initiative to organise a meeting in his village in which the ATMA officials participated. After the meeting, Balmuchu started forming Farmers Interest Group (FIG) and soon became the chairman of the FAC, Jhinkpani block.

C. INTERVENTION AND PROCESS

Being the FAC leader, he had the opportunity to participate in various training and exposure visits organised by ATMA. He underwent training in "Leadership Development" at Xavier Institute of Social Service (XISS), Ranchi, and also visited MANAGE, Hyderabad, where he interacted with various Self Help Groups (SHGs) of Andhra Pradesh. He was also given training in off-season vegetable cultivation at the Horticulture and Agro Forestry Research Programme (HARP), Palandu, Ranchi.

Balmuchu was convinced that the land in his possession was capable of giving him a good yield if cultivated using latest techniques. The experts from ATMA advised him to grow arhar-based intercropping in upland areas of his village on community basis. As an antidote for the acidic soil of the village, the ATMA advised the farmers to use locally available dolomite. Deputy Project Director, ATMA, also gave demonstrations on the use of *Rhizobium* culture for arhar seed inoculation. As *Rhizobium* culture was an alien concept for the farmers, ATMA distributed *Rhizobium* culture packets for arhar.

The farmers planted maize, urad, paddy, moong etc, depending on their choice, between two rows of arhar. Altogether 25 acres of land in the village was brought under arhar cultivation and the farmers despite a drought succeeded in having a good yield.

A small nullah also flows through the village and ATMA intended optimum utilization of its water for agriculture purpose. Though the farmers having land on the banks of the nullah were using it for cultivation but were unable to get high returns for adopting primitive farming technology. ATMA counselled Balmuchu, who had a one-acre plot on the bank of the river, to grow hybrid rice on a trial basis. Earlier he was cultivating local variety paddy, which fetched him hardly 4-5 quintal yield worth Rs 1,500. The high cost of the hybrid seeds acted as a deterrent for which ATMA offered him the seeds at 50 per cent subsidy. To cut down on fertilizer cost, ATMA suggested Balmuchu to use neem cake during puddling, which was found in abundance locally. Soon farmers from neighbouring villages came to see his crop of hybrid rice. VS Pangtey, Director (Extension Management), Ministry of Agriculture, GoI and Dr AK Sarkar, Director (SAMETI), also visited his field. They all praised Balmuchu for daring to experiment and showing the villagers the road to prosperity.

His hybrid rice crop has given him a 25-quintal yield, whose market price is Rs 12,500. Balmuchu was immensely satisfied for he had invested only Rs 2,000. Commissioner & Secretary, Department of Agriculture and Cane Development, Government of Jharkhand, met Balmuchu on March 6, 2004 and sought his experiences of growing hybrid rice. The Commissioner was particularly interested in knowing whether Balmuchu had faced any difficulty in controlling the menace of pests. He was pleasantly surprised when the farmer told him that the locally available neem cakes he had applied to the fields before transplanting took care of the pests.

Apart from hybrid rice, Balmuchu also cultivated capsicum. This he had learnt during his training programme at HARP. The cultivation of high-value vegetables like capsicum was a pioneering effort in the district.

D. LESSONS LEARNT

- 1. Seasonal rivers and nullahs should be exploited to the hilt for developing irrigation systems.**
- 2. Cultivation of high-yield hybrid rice should be promoted among farmers above the poverty line, and help should be extended to them for developing irrigation systems.**
- 3. Training and exposure visits for such farmers can do wonders.**
- 4. The concept of cultivation of high-value vegetables should be promoted among the farmers for supplementing their income.**