Socio - Economic Status of
WAYANAD DISTRICT

P. Indira devi. T. S. Devadas. K. M. Sunil
A. K. Sreelatha. T. S. Baburaj. E. B. Abhilash

National Agricultural Innovation Project

Base-line survey report of
"MULTI ENTERPRISE FARMING MODELS
TO ADDRESS THE AGRARIAN CRISIS OF
WYANAD DISTRICT OF KERALA"

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Kerala Agricultural University

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SOCIO-ECONOMIC STATUS OF WAYANAD DISTRICT

Dr. K. R. VISWAMBHARAN
VICE CHANCELLOR
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THRISSUR

FORWARD

Wayanad District of Kerala State is identified as one of the 150 backward districts listed by the Planning Commission of Government of India. About 17% of the population of the district is tribal. The Regional Agricultural Research Station, Ambalavayal of the University in association with the Indian Institute of Spices Research, Calicut, Vegetable and Fruit Promotion Council, Keralam, Wayanad Social Service Society, Mananthavady, Regional Coffee Research Station, Chundale and District Panchayath is implementing a scheme "*Multi Enterprise Farming Models to Address the Agrarian Crisis of Wayanad District of Kerala*" in a consortium mode approach in selected nine Panchayaths of the District in three Taluks from 2008–09. This is a World Bank aided project, implemented and monitored through ICAR, New Delhi.

The Scientists associated with the implementation of the project has brought out the report of base line survey conducted during the initial stages of the project. This would be helpful to understand the socio-economical status of the cluster areas prior to implementation of the project, and to assess the result and impact of the project on its completion. I am happy to introduce this report for information of all concerned, and congratulate the scientists for their efforts to bring out this publication.

Acknowledgement

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Preface

Wayanad district which lies in the north eastern part of Kerala State is one among the most underdeveloped regions in India. The District lies between northern latitude 11⁰ 27' and 15⁰ 58' and east 75⁰ 47' and 70⁰ 27'. This is the only district of Kerala, categorized as backward by the Planning Commission of India. The social fabric of the district is distinctly different from the rest of Kerala, with the highest proportion of tribes, low sex ratio and environmentally most fragile ecosystem (the highest proportion of geographical area under forests/high gradient). The district has a purely agricultural dependent economy with no industry to boast of. The total geographical area and population of Wayanad district are 2, 12,560 ha and 7, 80,619 respectively, which account for 5.48 per cent and 2.31 per cent of Kerala (2001 census). Tribes form 17.4 per cent of the total population of the district.

The district is endowed with rich forest cover (37%) to suit the designated national standards. The gross cropped area is 97.82 per cent of the geographical area, mainly dominated by the cash crops. The major plantation crops tea, coffee, pepper and arecanut together constitute 38 per cent of the cropped area. Coffee, with a total area of 67,429 ha, is grown as monocrop in the homesteads of more than 80 per cent of small and marginal farmers. Wayanad grows black pepper in 42,287 ha which forms 71 per cent of total area under spice crops in the district. Paddy based cropping system involving paddy, vegetables and banana is also prominent. Moreover, out of the total estimated 1,55,855 holdings in the district of Wayanad, 83 per cent belong to either small or marginal farmers. Mono-enterprise agriculture is prevalent among most of these homesteads and the inherent instability of this mono-enterprise system has upset the livelihood security of the farmers leading to serious agrarian crisis in Wayanad since 1998. The falling agricultural income of households is

reflected in rising indebtedness and poor performance of rural institutions. The farmer suicide rates also reflect the serious state of affairs. According to official statistics from 1999 April to June 2006, 379 farmers have committed suicide in Wayanad. The actual number would be, by all means, much higher than this.

Main reasons for the low productivity of commercial crops of the district are unproductive and senile plantations, local varieties, incidence of pest and diseases, natural calamities, changes in climate, etc. An integrated approach to address the above areas in a mixed farming approach can solve the problem. Commercial activities like production of organic inputs and bio-control agents, marketing, value addition ecotourism etc. are to be promoted through well trained self – help groups as a remedy for unemployment.

Area under paddy has decreased drastically from 30,000 ha to 4000 ha during the last three decades. The productivity has also come down. Another side effect to this is severe drop in ground water storage. When paddy crop is taken the land will be maintained in a standing water condition for seven to eight months. During seventies, the entire area of paddy cultivation (about 30,000 ha) was acting as a site for rain water collection and ground water recharging and this has reduced to 4000 ha over the past few decades. This has resulted in severe drought and climatic change among other factors. So it is the need of the hour to restore the paddy cultivation to enhance the ground water recharging and improve agro-ecological situations. It is also necessary to expand rain water harvesting mechanisms and to adopt water saving agro-techniques and irrigation.

Tribal population, amounting to 17 per cent of the total population requires empowerment through trainings on agricultural and livestock production for alleviation of poverty. Many of the farmers and majority of women and tribal population are unaware about new technologies and opportunities in farming practices, value addition, marketing, organic farming, farm mechanization, production and use of bio inputs

etc. Women and tribal empowerment can be ensured through their financial security. This is possible if some sources of income are available for these groups. The farmers, women and unemployed youths are to be given practical training to enhance their capability and skill. Goats and backyard poultry are one of the best options available for Wayanad.

Wayanad is endowed with rich population of animal wealth. Scientific feeding practices in calves and heifers are very much necessary for proper growth and production from these animals. But during this period the animal being unproductive the farmers are reluctant to spend money on these aspects. So it is highly essential that the benefits of feeding calf starter to calves and special ration to heifers need be demonstrated. The high yielding cows require high energy ration. Hence supplementation of high energy ration as carbohydrates or fats need be emphasized and demonstrated.

The sustainable agricultural development in Wayanad can be achieved through an integrated approach to maintain the quality of ecosystem where the technological advancements are adopted. A model of development through an appropriate blend of social institutions and scientific practices can address the agrarian problem of the district. This Project is an attempt on these basis.

<div align="right">Authors</div>

Contents

List of Tables

List of Figures

CHAPTER 1

BACK GROUND

"From 1999 April to 2006 June, 379 farmers have committed suicide in Wayanad."

1.1. Introduction.

Wayanad district which lies in the north eastern part of Kerala State is one among the most underdeveloped regions in India. The District lies between northern latitude 11^0 27' and 15^0 58' and east 75^0 47' and 70^0 27'. This is the only district of Kerala, categorised as backward by the Planning Commission of India. The social fabric of the district is distinctly different from the rest of Kerala, with the highest proportion of tribes, low sex ratio and environmentally most fragile ecosystem (the highest proportion of geographical area under forests/high gradient). The district has a purely agricultural dependant economy with no industry to boast of. The total geographical area and population of Wayanad district are 2, 12,560 ha and 7, 80,619 respectively, which account for 5.48 per cent and 2.31 per cent of Kerala (2001 census). Tribes form 17.4 per cent of the total population of the district.

The district is endowed with rich forest cover (37%) to suit the national standards. The Gross Cropped Area is 97.82 per cent of the geographical area, mainly dominated by the cash crops. The major plantation crops tea, coffee, pepper and arecanut together constitute 38 per cent of the cropped area. Coffee, with a total area of 67,429 ha, is grown as mono crop in the homesteads of more than 80 per cent of small and marginal farmers of Wayanad district. Wayanad

grows black pepper in 42.287 ha which forms 71 per cent of total area under spice crops in the district. Moreover, out of the total estimated 1,55,855 holdings in the district of Wayanad, 83 per cent belong to either small or marginal farmers. Mono-enterprise agriculture is prevalent among most of these homesteads and the inherent instability of this mono-enterprise system has upset the livelihood security of the farmers leading to serious agrarian crisis in Wayanad since 1998. The falling agricultural income of households is reflected in rising indebtedness and poor performance of rural institutions. The farmer suicide rates also reflect the serious state of affairs. According to official statistics from 1999 April to June 2006, 379 farmers have committed suicide in Wayanad. The actual number would be, by all means, much higher than this.

Among the 150 districts in India categorized as backward by the Planning Commission, Wayanad is the only one in Kerala. The major reasons for the poor performance of agricultural sector in the district are both micro and macro level factors like,

- Policy changes (Free Trade Agreement and Preferential Trade Agreements favouring large scale imports).
- Institutional (A sizable proportion of farmers still depending on non institutional sources of credit for farm/ consumption expenses.)
- Socio economic factors (large proportion of tribal population low literacy and resultant barriers to technology adoption)
- Geographical peculiarities.
- Climate change effects.
- Poor investment in agriculture (both private and public sector)
- Poor infrastructural facilities.

Agriculture in Wayanad was passing through a very difficult period as a result of steep fall in prices of most of the farm commodities, especially black pepper. '*Wayanadan pepper*' which used to enjoy a premium price in the domestic market have witnessed steep fa

consequent to the policy changes favoring imports. The social and environmental forces were also equally contributing to this.

Parity Index which is constructed to assess how price situation affects the farming community, is the ratio of prices received and prices paid, by them. An Index of more than 100 is found desirable to the farmers while the reverse is unfavorable. The value of index is below 100 over the last several years, reflecting the adverse terms of trade to the farmers of Kerala. While the prices of farm products rose at a rate of 2.4 per cent annually, the farm cultivation cost increased at 7.5 per cent. The situation naturally resulted in severe financial crisis to the small and marginal farmers whose major dependence is on agriculture and the resource base is poor. This situation is more pronounced in Wayanad. It was in this background the project focusing on the concept of Sustainable Rural Livelihoods (SRL) was proposed for the integrated development of the system through improving household welfare.

The project under NAIP (component-3) aims to adopt and implement the technology of **multi-enterprise approach in rural development** in an ecologically fragile, socially weak and economically backward district in Kerala, Wayanad. Apart from the socio economic backwardness of the district due to historical reasons, the twin forces of ecosystem degradation (internal) and global pressures (external) resulted in severe blow to the agrarian economy, resulting in social problems (suicides). In this juncture, it is most appropriate and timely to have a technology intervention package for the system aiming at social equity and sustainability.

The concept of Sustainable Rural Livelihoods is basically built upon sustainable agriculture, as agriculture form the backbone of rural economy in India. SRL is a multifaceted concept and refers to maintenance or enhancement of access of rural families to food and income generating activities on a long term basis. It encompasses secured ownership of, or access to resources, assets and income earning activities, to offset risks, ease shocks and meet contingencies (Kumar *et al*, 2006).

Multi layered and mixed farming systems combining all feasible technologies form an ideal technology mix for rural areas as evidenced by a host of studies in this field. Diversification of agriculture is a technology option that ensures sustainable income, while providing a protection against risk. Diversification in rural agricultural settings encompasses,

- Diversification in enterprises
- Diversification in crop (intra and inter)
- Diversification in technology for production (Organic/IPM, Chemical)
- Diversification in product forms (minimal processing to high tech)
- Diversification in target markets (domestic and export)
- Diversification in non-farm activities.

The proposed project aims to achieve the following specific targets:

Implementing innovative technologies for boosting the productivity of traditional crops /agri based enterprises of the area, in a multi-enterprise farming concept

— Production and supply of quality planting materials / other inputs in sufficient quantities at appropriate timing for important crops like spices, coffee, coconut, fruits, vegetables and paddy .

Evolve cost effective strategies for ensuring the profitability of the farming system

— Forming SHGs, disseminating the ideas of group approach in farming.

— Marketing support through effective institutional interventions.

Implementing a technology mix to suit the new farming system that is technologically feasible, socially acceptable, economically viable and environmentally safe

— Field trials and demonstrations for technologies and practices.

— Farmer centered participatory action research.

Assist in promoting the public and private investments in rural sector for infrastructure development ensuring efficient system for input supply and produce marketing

— Presence of specialized agencies like VFPCK, Commodity Boards, Local Self Government.

Explore fields of public private partnership in investments in agro processing, value addition and marketing, for betterment of the social system

— Setting up of model processing units

— Setting up of market facilities

— Handling cum sales unit

Developing specific development modules for the tribal community, considering the social and economic settings of the target group.

— Improving household nutritional status through self production and utilisation of vegetables and fruits

— Income generation through utilisation of traditional knowledge on medicinal plants / NWFP

Effect welfare gain to rural households through total development ensuring gender balance and social equity through capacity building

— Training support in various sectors

— Awareness creation

Effect programme for conservation of natural resources and indigenous technical knowledge

— The project, at the end of the project period (five years) aims to come out with a demonstrated model for development of an environmentally fragile ecosystem and socially backward farming community. This can be emulated in similar settings elsewhere in India.

The project is envisaged to effect measurable gains in social welfare of the households through direct and indirect technology, policy and institutional interventions.

1.2. Project Objectives and components.

Objectives

i.   Productivity enhancement through optimal use of resources and technologies including organic farming.

Hypothesis: Resource optimisation forms the basis of productivity enhancement in a cost effective manner.

ii. Women and tribal empowerment through agri based self employment programmes.

Hypothesis: Gender and sectoral disparities hinder the quality of economic growth.

iii. Developing a viable system for procurement and marketing of agricultural produce with or without value addition.

Hypothesis: Forward linkage in agriculture facilitates profitability in farming.

iv. Conservation and management of soil and water resources to mitigate drought and other natural calamities.

Hypothesis: Sustainable management and conservation of resource base forms the basis of sustained agricultural production and mitigating risks.

v.   Capacity building for human resources development.

Hypothesis: Training on advanced agricultural practices, processing and marketing are required to improve livelihood security of farmers.

1.3. Rationale and Objectives of Component 3.

1.   The district of Wayanad has basically an agrarian economy, characterised by homestead farming at subsistence level and small holder plantations. Agricultural production and productivity has

come down drastically over the years due to various reasons. The major focus of the project is to increase production and productivity of the traditional crops of Wayanad through farming system approach in organic mode involving livestock and fishery.

2. Currently the state of Kerala is depending on neighboring states for most of the basic food needs (rice, fruits, vegetables) with the domestic production sufficient to meet only 15 per cent of the rice requirement. At the same time, large untapped potential exists in this sector as evidenced by a wide gap in realised and potential yield in most of the crops. The project aims to boost the food production through innovative technologies suitable for the geographic, socio economic and climatic peculiarities of the district.

3. The plantation economy of the area is adversely affected by the twin forces of trade liberalisation and climate change. The project aims to implement programme for revitalising this important sector, through institutional and technological interventions. The major crops like black pepper, cardamom, coffee, ginger and turmeric have comparative qualitative advantage in Wayanad.

4. The geographic settings of Wayanad make it highly sensitive to environmental stresses. Wayanad, with the highest forest cover has an influence on the total ecology of the region. The environmental problems of the area needs focused remedial measures. This project proposes to implement conservation of the soil, water and other natural resources of the area, aiming at sustainable development.

5. The socio economic fabric of the district is distinctly different from the rest of Kerala. The proportion of tribes is the highest, making it one of the backward districts in the country. For fulfilling the social objective of equity, special programmes for improving the living standards and quality of life of this section of population are envisaged in the programme.

6. Gender balance in development ensures social equity at a spatial and temporal plane. The project proposes special programme for

capacity building, awareness and income generation of rural women.

7. The extent of unemployment among educated youth in Kerala is reported to be highest among Indian states. It is proposed to train and equip the rural youth in self-employment programmes in agri-based activities, thus addressing one of the major social problems of the district.

8. The post harvest losses of fruits and vegetables in India are reported to be very high (40-45%). The project while promoting production, aims to promote farm level value addition and agro processing as thrust areas. This is expected to reduce the wastage and simultaneously generate employment and income to the rural mass.

9. The investment pattern in infrastructure development in agriculture has been showing a declining trend over the years, especially that of public sector. This has resulted in serious setbacks in agricultural growth and income. The project aims to promote the investment in infrastructure (marketing) in a Public- Private Partnership mode, wherever possible. The small holdings also have marketable surplus in small quantities. This is not marketed at present. A novel approach for procurement and profitable marketing of agriculture produce from small holdings is, therefore, an issue to be solved.

10. Low wages and lower social status drive agriculture labourers out of agriculture. By increasing farm profitability, a better wage structure is anticipated. Also by popularising user friendly farm machines, dignity, profitability and status of agriculture worker is proposed to be enhanced.

1.4. Activities under component 3

Objectives	Activities
1. **Productivity and profitability enhancement through optimal use of resources and technologies including organic farming**	❖ Restoring the paddy cultivation in wet lands.
	❖ Production and supply of bio-inputs, mother cultures/nuclear seed/ large scale seed and planting materials of spice crops, rice, vegetables, fruit crops, fodder, livestock and poultry.
	❖ Popularisation of fisheries through demonstration units of cage, pen, paddy cum fish and ornamental fish units.
	❖ Establishment of different models of multilayered and mixed farming systems.
	❖ Augmentation of livestock based production systems through scientific intervention in quality of stock and feeding, management, record keeping practices.

2. Women and tribal empowerment through agriculture based self employment programmes	❖ Cultivation, primary processing and marketing of medicinal plants and monitoring of extraction practices of tribal food crops.
	❖ Establishment of backyard poultry and goat units for livelihood security of women.
	❖ Domestication and cultivation of selected crops and drugs in a farming system model including primary processing
	❖ Popularisation of women friendly farm machinery (paddy transplanter, paddy reaper and garden tiller)
	❖ Involving women for income generating activities like nursery production, vegetable and mushroom cultivation
3. Developing a viable system for procurement and marketing of agri produce with or without value addition	❖ Procurement, transportation and marketing of marketable surplus of agri-produce from farmers.
	❖ Arranging GI registration for speciality rice (*Jeerakasala, Gandhakasala*) of Wayanad.
	❖ Strengthening value addition units of spice products (curry powders, dried ginger and spice powders), livestock and dairy produce, fruits (integrated processing of jack fruit, mango pickling), rice (rice flour for different end uses) herbal and medicinal produce and NWFP.

4. Conservation and management of soil and water resources to mitigate drought and other natural calamities	❖ Preparation of contour and resource maps and addressing constraints of water scarcity.
	❖ Renovation of public ponds and strengthening of water harvesting and storage structures.
	❖ Waste management programmes for biogas and organic manure production.

5. Capacity building for human resources development	❖ Training programmes for farmers and other stake holders on advanced production technologies in spices, vegetables, medicinal plants, fodder, farm mechnisation, organic farming, rain water harvesting, animal husbandry, fisheries, micro irrigation methods, mushroom cultivation and value addition.

1.5. Outcomes and outputs

The expected outcome of the project is:

- Generation and implementation of technologies for boosting the productivity of traditional crops/agri based enterprises of the area, in a mixed farming concept

- Evolving cost effective strategies for ensuring the profitability of the farming system

- Implementing a technology mix to suit the new farming system that is technologically feasible, socially acceptable, economically viable and environmentally safe

- Assist in promoting the public and private investments in rural sector for infrastructure development ensuring efficient system for input supply and marketing of agricultural produce.
- Explore fields of public private partnership in investments in agro processing, value addition and marketing for betterment of the social system.
- Developing specific development modules for the tribal community, considering the social and economic settings of the target group.
- Effect welfare gain to rural households through total development ensuring gender balance and social equity.

1.6. Objectives and use of baseline survey

Baseline surveys are designed to establish initial conditions against which the effort of a finished project can be compared. Thus, baseline survey primarily aims at the measurement of "Key Variables" before the implementation of the project, to facilitate empirical description of the social, personal, and economical attributes, i.e the quantification and valuation). Such an exercise facilitates the statistical treatment of the data. This further helps in testing of hypothesis, policy decision making, prediction and comparisons. The basic data collected in a baseline survey reflects the socio- economic conditions and psychological attributes of the population in the study area, at the time of implementation of the project. This can form the basis for monitoring of project implementation and evaluation of project impact

The baseline survey conducted for this study aims to support

- ▫ The estimation of indicators to reflect the existing socio-economic conditions and farmer psychology in the study area
- ▫ The decision making process on beneficiary selection, decision on mode of project intervention and mode of implementation
- ▫ The monitoring of implementation process of the project and mid term corrections. The data collected during the proposed mid term evaluation programme can be compared with the

baseline data to see whether the project is moving in the right direction.

▫ The information on the impact of the project at the end of the proposed implementation.

The indicators of development estimated at the beginning of the project can be compared with that at the end to assess the impact. Moreover, baseline survey provides an occasion to develop informal contacts with the development departments, LSGs and stakeholder groups.

The proposed project in Wayanad aims to improve the welfare status of farm households through various interventions in agriculture and allied sectors and through provision of better services in farming sector. These interventions are thus both qualitative and quantitative in nature. Through the data collected in the baseline survey, it is aimed to generate quantified indicators (base) for the measurement of the effects of the project.

1.7. Methodology of data collection for baseline survey.

1.7.1 Project area and selection sample beneficiaries

Wayanad district lies in the north eastern part of Kerala State. The District lies between northern latitude 11° 27' and 15° 58' and east 75° 47' and 70° 27'. It is bounded by the states of Tamil Nadu and Karnataka as well as by the Kannur, Kozhikode and Malappuram districts of Kerala State. (Fig. 1)

The social fabric of the district is distinctly different from the rest of Kerala, with the highest proportion of tribes (17.4%) the low sex ratio and environmentally most fragile ecosystem (the highest proportion of geographical area under forests/high gradient). The district has a purely agriculture dependant economy with no industry to boast of. The total geographical area and population of Wayanad district are 2, 12,560 ha and 7, 80,619 respectively, which account for 5.48 per cent and 2.31 per cent of Kerala (2001 census).

The project is proposed to be implemented in three clusters in Wayanad district. The selection of the cluster is purposive, based on the backwardness of the area, which was decided based on the following indicators:

1. Per capita agriculture income (dependence on agriculture)

2. Sex ratio

3. Percentage of tribal population

4. Literacy ratio.

The most backward clusters are selected as project area. The map of the District demarcating the clusters is presented in fig.1.

It is proposed to select 1600-1700 families from each cluster having a gross area of 1600 ha as total land holding size. Thus, the project plan to cover 4800 ha of land and 5000 families, more or less equally distributed among the three clusters. The beneficiaries mainly constituted marginal farmers (less than 0.4 ha of holding) and belonged to group of low income farmers.

For the purpose of sample selection, the activities proposed under NAIP were grouped under three sub headings as individual, group and community based on the beneficiary status. Thus, the activities like mixed farming models, demonstration plots, animal husbandry were grouped as individual projects. Activities like paddy area expansion, seed and nursery production, agro processing, composting etc which are to be managed by groups of beneficiaries are included under the second group. The third group includes mainly activities for conservation of soil and water which are undertaken at a community level. The beneficiaries for these activities were also chosen based on broad eligibility criteria of holding size, family income and gender/ST/SC balancing.

Fig.1. Map of Wayanad District

From among the beneficiaries thus selected in the three clusters a representative sample of beneficiaries were randomly selected as sample respondents for the benchmark survey. Thus the sample included 30 samples from each of the nine villages in the study area and two control villages. The sample (30) from each village included the random selection of proportionate number of beneficiaries under each project activity implemented in the area (Fig.2.). The total sample size was 362 from the project area and 54 from the control group.

Fig. 2. The Sample Selection
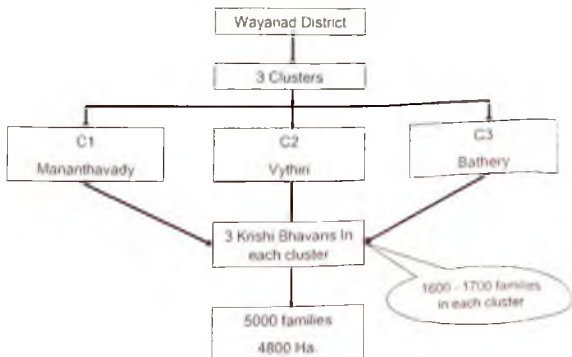
1.7.2 Data

The primary aim of the proposed project is to effect welfare gain to the marginalized sectors of the society through science and technology interventions. To reflect the specific impact areas data on following aspects were gathered:

- o Land holdings
- o Enterprises, cropping pattern, cropping intensity, crop rotation.
- o Production management.
- o Yield and income
- o Credit / Repayment
- o Technology
- o Demographic profile
- o Literacy

- o Gender concerns
- o Health/Sanitation
- o Asset position
- o Access to facilities
- o Infrastructural facilities
- o Animal /fisheries wealth

1.7.3 Data collection

The data collection was done by the personal interview method using structured, pre-tested schedule developed for the purpose. For this purpose the schedules furnished by NAIP programme secretariat was suitably modified to suit specific cases. Situation analysis exercises/group discussions and discussion with local level officers and local bodies were also   conducted wherever necessary.

The data collection works were done by local skilled assistants employed for the purpose. They were given two day orientation for the purpose. The Research Associates in the project conducted random checks and close monitoring during the entire process. The collected data were cleaned and entered and analysed to get the required information.

1.8. Documentation of the baseline report.

CHAPTER 2

BASELINE DATA OF SAMPLE VILLAGES

2.1. Introduction

This section tries to provide a general understanding of the socio economic indicators of development /performance of various sectors of the economy of Wayanad, based on the macro level information from local bodies of selected sample villages of Wayanad district and Kerala State.

The district is demarcated into three taluks, Sultan Bathery, Vythiri and Mananthavady, for the purpose of administration. From each of these taluks, three panchayats each were chosen as the project area based on the indicators described in the methodology section (Table 2.1). For the purpose of comparison, two panchayats were identified as control area. (Edavaka and Padinjarethara.)

Table.2.1. The Project Area

S.No.	Particulars	No.	Details
1	Total No. of Taluk	3	Mananthavadi, Vythiri & Sulthan Batheri
2	Total No. of Cluster	4	1. Mananthavadi 2. Vythiri 3. Sulthan Batheri & 4. Control
3	Total No. of Panchayath	11	1. Thavinjal, Thondernad & Vellamunda 2. Kaniyampetta, Kottathara & Muttil 3. Ambalavayal, Nenmeni & Meenangadi. 4. Edavaka & Padinjarethara

2.2. Population and Literacy

Kerala's population as per 2001 census was 318.41 lakhs consisting of 154.69 lakh males and 163.72 lakh females. It is 3.1 per cent of India. 74 per cent live in rural areas. Wayanad is the lowest populated district in the state with a population of 7.87 lakhs. The average annual growth rate of population in Kerala is the lowest in India at 0.91 percent. The welfare indicators of infant mortality rate and life expectancy rate are also at a favorable level for the state. Kerala is the only state with an above equal sex ratio, females outnumbering males. But the ratio in Wayanad district shows slightly different trend with 3,93,397 males and 3,93,230 females. The ratio is distinctly in favour of males in Mananthavady and S. Bathery Blocks. (Table.2.2a)

The project area covers 46.20 per cent of the population of Wayanad covering 14240 scheduled castes and 43569 scheduled tribes. The native Adivasis mainly consist of various sects like Paniyas, Kurumas, Adiyars, Kurichyars, Ooralis, Kattunaickens, etc. The details of working population is furnished in Table 2.2b.

The literacy in Wayanad is 86 per cent as per 2001 census and was only 57.33 in 1981. Thus there is an appreciable growth in the literacy rate in a decade. This is still below the state average of 91 per cent. Among the panchayaths and municipality, Mullankolly has the highest rate of 77.11 followed by Vythiri, 75.71 per cent and Edavaka 73.7 per cent.

2.3 Land Use Pattern

Wayanad district consists of 5.47 per cent of the total geographical area of the state. The district has the highest proportion of area under forests (37.07 per cent) higher than the state average of 27.83 per cent. The District is placed on the southern tip of Deccan Plateau. The region forms part of Western Ghats. The northern area has hills with major peaks like Vellarimala, Banasura, Brahmagiri and Chembra. The eastern part is flat and open. The low hills are mainly planted with tea, coffee, cardamom, pepper etc. The valleys were paddy fields which are now slowly being converted. The altitude ranges from 700 to 2100 meters from MSL. The land use pattern in the project area, Wayanad district and the state is furnished in Table.2.3.

Table.2.2a. Population Statistics and Literacy Level (%) in the project area

Sl. No.	Cluster	Village	Population				Literacy Rate (%)		
			Male	Female	Child-ren	Total	Male	Female	Total
1	Mananthavady	Vellamunda	18213	18574	3614	40401	91	91	91
2		Thavinjal	19326	18981	4085	42392	92	91	92
3		Thondernad	11316	11139	8000	30455	75	64	70
4	Vythiri	Kottathara	8480	8478	2592	19550	54	46	50
5		Kaniyampetta	15602	13456	NA	29058	90	91	91
6		Muttil	15302	15460	NA	30762	98	98	98
7	S.Batheri	Meenangadi	16176	15891	NA	32067	93	92	93
8		Nenmeni	21825	22271	NA	44096	96	92	94
9		Ambalavayal	17363	16793	NA	34156	93	92	93
Subtotal of nine Panchayats			143603	141043	18291	302937	-	-	-
Average			15956	15671	4573	33660	87	84	86
10		Wayanad	393397	393230	NA	786627	90	81	86
11		Kerala	15468664	16369955	NA	31838619	94	88	91
12	Control	Padinjarethara	13308	13261	2767	29336	91	91	91
13		Edavaka	15859	13309	NA	31168	NA	NA	91

Table 2.2b Working Population in Project Area

Sl. No.	Cluster	Taluk	Working Population				
			Agriculturists	Rural Artisans	Landless labourers	Others	Total
1	Mananthavady	Vellamunda	6214	1290	874	2701	11079
2		Thavinjal	6984	1315	918	3650	12867
3		Thondernad	4900	220	3000	3931	12051
4	Vythiri	Kottathara	3000	NA	252	NA	3252
5		Kaniyampetta	7430	1430	495	NA	9355
6		Muttil	4800	180	NA	NA	4980
7	S.Batheri	Meenangadi	NA	NA	NA	NA	NA
8		Nenmeni	13325	NA	NA	NA	13325
9		Ambalavayal	NA	5005	NA	NA	5005
	Total		46653	9440	5539	10282	71914
	Average		6665	1573	1108	3427	8989
10		Wayanad					
11		Kerala	80080				
12	Control	Padinjarathara	8565	NA	NA	NA	8565
13		Edavaka	30112	NA	3011	NA	30112

Table 2.3. Land Use Pattern in project area (ha)

Code	Cluster	Village	Total Geo.Area	Forest Area	Barren land	Net Area Sown	Total Cropped Area	Current fallow	Permenant Fallow	Culti vable Waste Land	Area under Misc trees	Area under nonagri use
1	Mananthavady	Vellamunda	6696	NA	19	536	2561	94	160	200	62	80
2		Thavinjal	5518	NA	NA	NA	NA	NA	NA	NA	20	
3		Thondernad	14230	4923	250		8000	150	100	50	200	100
4	Vythiri	Kottathara	13115	66	75	3500	25	10	250	250	1000	
5		Kanivampetta	3175	4.5	130	3045	390	150				
6		Muttil	6938	10	83	60	63	200	300	84	18	110
7	S.Batheri	Meenangadi	5351	145	0.5	0	4219	0	0	0	0	0
8		Nenmeni	3782		20							
9		Ambalavayal	6065				5126	5				292
	Total		64870	5148	577	7141	15258	609	810	583	1300	582
	Average		7208	1029	82	1785	2179	101	202	146	260	145
10		Wayanad	212966	78787	274	115059	213994	1363	274	1706	212	10920
11		Kerala	3886287	1081509	26125	2101431	2917541	81651	26125	90288	8959	358684
12	Control	Padinjarethara	4737	91	18	3900	4050	NA	NA	2	50	90
13		Edavaka	4726		21			NA	NA	20	NA	NA
	Total		9463	91	39	3900	4050	NA	NA	20	50	90

Source: Compiled from data collected from re-
spective panchayath

2.4. Cropping Pattern and Agricultural Activities

The Gross Cropped Area in the district is 97.82 per cent of the geographical area, mainly dominated by the cash crops. The major plantation crops like tea, coffee, pepper and arecanut together constitute 38 per cent of the cropped area. (Table.2.4) Coffee, with a total area of 67,386 ha, is grown as mono crop in the homesteads of more than 80 per cent of small and marginal farmers of Wayanad district. Wayanad grows black pepper in 36,488 ha which forms 77 per cent of total area under spice crops in the district. Moreover, out of the total estimated 1, 55,855 holdings in the district, 83 per cent belong to either small or marginal farmers. Mono-enterprise agriculture is prevalent among these homesteads and the inherent instability of this mono-enterprise system coupled with fall in prices of produce have upset the livelihood security of the farmers leading to serious agrarian crisis in Wayanad since 1998.

Wayanad, once known as '*Wayalnadu*' owing to the extensive paddy fields, along the planes now has only 4000 ha (2006-07) of paddy cultivation. The area has reduced drastically in recent years. Most of those fields are now used for banana cultivation. Wayanad was traditionally known for special varities of scented and medicinal rice.

Over the years, the cropping pattern in Wayanad shows shifts from traditional crops (black pepper, coffee, rice) to other crops like banana, vanilla, medicinal plants, rubber, coconut etc. Ginger and turmeric are also grown in this area on a commercial scale but bud rot has destroyed the crop and now farmers are slowly shifting the cultivation of these crops to the neighboring state, on lease land farming arrangements.

Wayanad was once known for the cultivation of citrus varieties Later, owing to the decline of citrus and also due to climatic forces large tracts of the crops were lost and since then citrus cropping slowly disappeared. Citrus no longer find a place among the crops now in Wayanad.

Table.2.4. Cropping pattern in project area (Area in Hectares)

Crop		Study area	Control	Wayanad	Kerala
1.Paddy	Virippu irrigated	480	450	0	15828
	rainfed	825	0	0	68031
	Mundakan irrigated	0	0	6363	121454
	rainfed	250	300	2902	22270
	Puncha irrigated	1425	0	2538	35786
	rainfed	1785	0	29	160
2.Plantation	Rubber	625	375	8090	502240
	Tea	3694	10	5616	35365
	Areca nut	3566	820	12737	102078
	Coffee	11348	3250	67386	84571
	Coconut	2005	405	12034	872943
	Cashew nut	900	40	1275	70463
	Cocoa	7	17	147	10708
	Oilpalm	1	NA		
	Others	0	15		
3.Spices	Pepper	800	800	36488	216709
	Ginger	1270	182	5901	11082
	Cardamom	82	10	4106	41362
	Turmeric	32	8	369	3917
	Clove	114	NA	18	841

Cropping pattern continues (ha).........

Crop			Study area	Control	Wayanad	Kerala
		Nutmeg	5	3	32	10780
		Vanilla	71	17	274	3668
4.Fruits		Banana	3512	1016	11885	59143
		Jack fruit	361	237	12421	88358
		Mango	1015	25	5560	76709
		Sapota	27	NA	NA	NA
		Papaya	43	0.4	412	17693
		Pineapple	22	0.4	61	12486
		Guava	7	NA	NA	NA
5.Vegetables		Bindi	7	NA	NA	NA
		Bittergourd	7	NA	134	2408
		Amaranthus	6	NA	15	430
		Cucumber	5	NA	34	1517
		Snakegourd	3	NA	2	1148
		Other veg	450	10	863	26837
		Pulses/cowpea	40	NA	333	6870
6.Tuber crops		Tapioca	56	30	2600	87128
		Others	300	NA	3836	28240
7. Medicinal plants		Medicinal pants	123	5	8	544
8.Floriculture	Floriculture		37	0	NA	NA

Source: Farm guide, 2009 for Kerala State and Wayanad District Statistics

2.5. Sources of Irrigation

Kerala state is often considered as rich in water resources. There are 44 rivers and annual rainfall of more than 300cms. The gross irrigated area in the state is 16.44 per cent of gross cropped area. Wayanad has only 2.5 per cent of net irrigated area of the state. (3.5 per cent of gross irrigated area).

The major source of irrigation in the district are lift/ground water sources followed by canal. (Table 2. 5) There are no major irrigation projects in Wayanad. The mean average rainfall in this district is 2322 mm. Lakkidi, Vythiri and Meppadi are the high rainfall areas in Wayanad. Annual rainfall in these high rainfall areas ranges from 3000 to 4000 mm.

Table 2.5 Sources of irrigation (ha)

Sl No	Cluster	Village	Canal irriga tion	Well/ Pond	Lift from river/ ground water	Net area irrig ated	Gross area irrig ated
1	Manan thavadi	Vellamunda	3	40	200	1025	88
2		Thavinjal	4	300	200	100	1215
3		Thondernad	4	815	120	1100	1100
4		Kottathara	9		60		
5	Vythiri	Kaniyampetta	2		52	315	435
6		Muttil	2	2842	0	446	850
7		Meenangadi	1	0		0	0
8	S.Batheri	Nenmeni	8	6	60		
9		Ambalavayal	1	312		622	700
	Total		34	4315	692	3608	4388
10		Wayanad	1028	53	8072	9719	15693
11		Kerala	92462	131002	122321	387545	455310
12	Control	Padinjarathara	3	50	100	385	425
13		Edavaka	3	50	150		

2.6 Farm Machinery

The use of farm machinery in agriculture in Kerala is limited. The smaller farm size, low resource base and traditional farming practices limit its use. However, in recent times the demand is growing due to the scarcity of farm labour, and lower efficiency. The use of machineries in plantations are also limited which is confined to the processing sector. In homesteads and small sized farms the human labour is the major input.

The data furnished by LSGs/Agricultural Department show that there are 60 power tillers, 43 tractors, 10 thrushers and two transplanting machines being used among the farming community. Apart from this rubber rollers are also there. Coconut de-huskers are popular among farm households.

2.7. Allied sectors

The details of other farm and non farm economic activities in the project area is furnished in Table 2.6

Table. 2.6. Economic activities

| Sl. No. | Cluster | Village | Milk Production | | |
			No. of milk co-opera tives	No.of farm families involved	Quantity of collected milk (ltr.)
1	Manan	Vellamunda	3	1170	4925
2	thavady	Thavinjal	4	1215	6100
3		Thondernad	4	530	3490
4		Kottathara	9	269	1400
5	Vythiri	Kaniyampetta	2	2828	15200
6		Muttil	2	970	6200
7		Meenangadi	1	1200	8400
8	S.Batheri	Nenmeni	8	NA	NA
9		Ambalavayal	1	1570	8560
	Total		34	9752	54275

10		Wayanad			
11		Kerala	3238		22.5lakh tones
12	Control	Padinjarethara	3	630	3150
13		Edavaka	3	1120	7000

Table.2.6 Economic Activities continues.......

Sl. No	Cluster	Village	Bee Keeping	Poultry	Cottage/small industry	
			No. of families involved	No.of families involved	No. of units	No. of persons employed
1	Manan	Vellamunda	10	1	24	1022
2	thavadi	Thavinjal	20	NA	NA	NA
3		Thondernad	NA	NA	1	18
4		Kottathara	6	NA	26	NA
5	Vythiri	Kaniyampetta	6	1	27	720
6		Muttil	15	5	35	95
7		Meenangadi	6	0	0	0
8	S.Batheri	Nenmeni	65	NA	NA	NA
9		Ambalavayal	1	2	3	22
	Total		129	9	116	1877
10		Wayanad				
11		Kerala				
12	Control	Padinjarathara	NA	1	51	NA
13		Edavaka	NA	5	NA	NA

2.7.1 Veterinary Facilities

Kerala's cattle population account for 1-13 per cent of that of India (2003). Palakkad district account for 12.4 per cent and Wayanad has the lowest share at 4.89 per cent. There is a wide gap between the requirement and production of animal products in the State (ER.

2009). The per capita availability of milk in the State is lowest, among the South Indian States. The marketing of milk in the state is handled by 3238 diary cooperatives of which 2546 are under KCMMF (Kerala Cooperative Milk Marketing Federation). Animal husbandry has considerable scope for development in Wayanad. Though its potential has not been properly exploited, it is one of the sectors capable of bringing about speedy economic and social transformation in the rural areas. The predominance of forests and grasslands is congenial for the development of cattle wealth. There are 51 milk cooperative societies in Wayanad. The production of milk in the district for 2001-2002 is 2,22,56,207 litres.

The egg production in Kerala is largely confined to backyard poultry farming and the gap in production is to the tune of 25 eggs / year/ per capita.

The estimate of meat production in the State is not authentic (Economic Review, 2009). The estimated amount is 145016 Tonnes of meat from cattle, buffalo, goat, pig and chicken.

There is a strong network for veterinary health care in the district, comprising 211 hospitals, 883 dispensaries, 47 poly clinics, 14 district centres, 9 mobile unit, 13 district level labs and other related arrangements. From the reported information from the LSG, in the study area, the access to veterinary health care is a maximum distance of 6 Kms. (Table.2.7). Wayanad has a District Veterinary Center, two Veterinary Poly Clinics, one Regional Artificial Insemination Center, six Veterinary Hospitals, seventeen Veterinary Dispensaries and 74 I.C.D.P Sub Centers.

Table 2.7 Infrastructural Development Indicators in the Project Area

SL No	Cluster	Village	Infrastructural Development Information												Others specify if yes distance in K.M
			Post office		PCO		Health care center		Veterinary services		Primary agriculture coopratives		Financial institutions bank if yes distance in K.M		
			No	Distance in Km	No	Distance in Km	No	Distance in Km	No	Distance in Km	No	Distance in Km	No	Distance in Km	
1	Manan thavady	Vellamunda	NA	0.5	NA	0.5	NA	1	NA	1	NA	1	NA	0.5	1
2		Thavinjal	NA	1	NA	1	NA	3	NA	5	NA	NA	NA	10	5
3		Thondernad	NA	1.5	NA	0.1	NA	0.1	NA	0.5	NA	2	NA	0.05	0.03
4		Kottathara	NA	1.5	NA	2	NA	0.025	NA	0.02	NA	0.05	NA	0.05	0.05
5	Vythiri	Kaniyampetta	5	NA	65	NA	9	NA	2	NA	2	NA	NA	5	0
6		Muttil	5	2	NA	0	8	2	1	4	4	3	1	3	0
7		Meenangadi	NA	0.1	NA	0.4	NA	1	NA	1	NA	0.8	NA	0.1	0
8	S.Batheri	Nenmeni	NA	1	NA	1	NA	2	NA	3	NA	3	NA	4	0
9		Ambalavayal	NA	0.5	NA	0.3	NA	0.4	NA	6	NA	0.4	NA	0.4	0
10	Control	Padinjarethara	NA	1	NA	0.5	NA	1	NA	2	NA	1	NA	1	0.3
11		Edavaka	6	2	NA		8	4	4	NA	18	NA	3	NA	0
12		Wavanad	177	NA		NA	245	NA		NA		NA		NA	NA
13		Kerala	5070	NA	127369	NA	6397	NA	2498	NA	1594	NA	3920	NA	NA

2.8. Infrastructure

2.8.1 Telecommunication

Kerala has an impressive record of performance in telecom sector. The circle with a population of 3.19 crores has a telephone density of 520. per thousand population. The rural telephone density is 164. Wayanad district has 31 exchanges (2.5% of State) with a capacity of 755491 connections. The district, thus have 50 telephones/sq km and 136.3 telephone/thousand population. Apart from this, the private mobile operations are also serving the area and the district is well connected (table.2.7)

2.8.2 Postal Services

There are 5070 post offices functioning in the State. Wayanad district alone have 177 Post Offices. Covering a service area of 2131 sq km i.e on an average one post office covers an area of 12.03 sq km, and 4789 people . (table.2.7)

2.8.3 Human Health Care

The health care facilities and its network in Kerala is often reported as much better than that of rest of India. But the per capita health expenditure is the highest. Only half of the households depend on Government facility as against 67% in India. The health care facilities in rural and urban areas are fairly wide spread in the State, though the major share is that of private sector.   The reports from study area shows a maximum distance of 4Kms for access to health care, which is Allopathic, Ayurvedic, Homeo or other systems of medicine. (table.2.7)

2.8.4 Financial Institutions

The density of institutional financial agencies in Kerala is often projected as one among the highest in India. The total number of commercial bank branches in the State shows a steady increase over the years. Of total commercial bank branches, public sector banks account for the major share. As on June 2008, one branch caters to

9000 people in Kerala, against 15000 in India. But the CD ratio is low at 69.32 against 73.66 at national level. (table.2.7)

Wayanad district has 13 branches of State Bank group, 28 branches of nationalized banks, 27 branches of RRB, 9 branches of other commercial banks, totaling to 77 branches. The CD ratio is a high 157.4, highest for the State. (March 2008)

Kerala has a wide network of cooperatives engaged in various promotional activities, such as credit supply, marketing, agro-processing, consumer activities, public health, education, insurance and infrastructure development. There are 13197 cooperatives under the Registrar of Cooperative Societies, of which 10449 are functional. The cooperative credit structure comprises 1594 Primary Agricultural Credit Societies, 14 District Cooperative Banks and one State Cooperative bank for Short and Medium Term loans. The long term loans are managed by the Primary Cooperative Agriculture and Rural Development Banks and State Cooperative Agriculture and Rural Development Bank. (table.2.7)

The Agriculture advances in Wayanad by the cooperatives accounted to Rs.65770 (2007-08) which is 4.1 per cent of total for the State. There are 327 co-operative institutions. There is a District Co-operative Bank, three Co-operative Urban Bank. 29 Primary Agricultural Service Banks, a Land Mortgage Bank, and one Farmers' Co-operative Bank. There are 25 SC-ST Co-operative Societies and 39 Agricultural Marketing Societies.

2.8.5 Education

The performance of Education sector in Kerala is unparalleled. Kerala tops in indicators like literacy rate, enrolment of girl students, number of schools and colleges in each village and dropout rate. There are 12446 Schools in the state, of which 57.6 per cent are aided, 35-585 Government and 6-82 per cent unaided. Kerala's literacy rate is comparable with that of most of the developed countries. It is 90.92 per cent in 2001 (94.2% for male and 87.86% for female). The respective figures for Wayanad are 85.52 per cent, 90.28 per cent and 80.81 per cent (table.2.8)

Table 2.8 Educational Development Information

Sl. No.	Cluster	Village	Primary school No.	Primary school No. of students	Middle school No.	Middle school No. of students	High school No.	High school No. of students	Plus two/ VHSS No.	Plus two/ VHSS No. of students	Technical Institutions No.	Technical Institutions No. of students	Training for cottage industry
1	Mananthady	Vellaramula	12	266	7	968	1	968	1	160	NA	NA	NA
2		Thavinjal	12	1478	4	405	3	100	2	600	1	NA	NA
3		Thookmad	NA	949	NA	328	NA	NA	NA	NA	NA	NA	NA
4	Vythiri	Kottathara	NA	708	NA	347	NA	95	3	12	NA	NA	NA
5		Kaniyampetta	2	370	3	190	2	100	3	130	1	120	NA
6		Muttil	7	NA	3		4		5	NA	NA	NA	NA
7	S.Bathery	Meenangadi	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8		Noolpuzha	8	NA	4	979	NA	NA	NA	NA	1	NA	NA
9		Ambalavayal	14	1700	3		NA	323	2	870	0	125	12
	Total	Wayanad	55	6948	24	12441	14	10755	13	3005	3	NA	NA
10		Wayanad	150	5180	26	4079	68	3680	NA	NA	NA	NA	4
11		Kerala	6804	1665603	305	165740	308	142203	207	12303	NA	260	NA
12	control	Padinjarethara	NA	NA	1	NA	NA	NA	NA	NA	NA	NA	NA
13		Edavaka	NA	367	4	385	3	166	4	NA	1	NA	NA

The drop out rate of students in Wayanad, however is on the higher side, especially at UP and HS stages. It is 1.92% (UP) against 0.52 for the State and 2.56% (HS) as against the State average of 1.38.The details of educational institutions in the study area is presented in Table.2.8. There are at present 294 schools (150 Lower Primary, 77 Upper Primary and 67 High schools) in Wayanad district. Six Vocational Higher Secondary Schools, 24 Higher Secondary Schools and three Teacher Training Institutes are there under the Department of Education. There are residential Upper Primary School for Scheduled Castes at Muthanga, High School at Nallurnad, Ambedkar Memorial Residential H.S at Kalpetta and Rajiv Gandhi Model Residential School at Lakkidi. There are six colleges, one poly technic, and three B.Ed Centers in Wayanad.

2.9. Awareness Level

The responses to queries on the awareness level on IPM (Integrated Pest Management), INM(Integrated Nutrient Management) and Waste Management practices in the respective villages are based on the opinion of the Agricultural Officer/ LSG Officials. This response is based on outlook / personal opinion and is not based on micro level data support. (Table. 2.9)

Table 2.9 Awareness Level

SL.	Cluster	Village	Awareness and adoption		
			IPM	INM	Waste Management
1	Manan thavady	Vellamunda	Satisfactory	Poor	Poor
2		Thavinjal	Satisfactory	Satisfactory	Satisfactory
3		Thondernad	Poor	Satisfactory	Poor
4		Kottathara	Satisfactory	Poor	Poor
5	Vythiri	Kaniyampetta	Satisfactory	Satisfactory	Satisfactory
6		Muttil	Satisfactory	Satisfactory	Poor
7		Meenangadi	Poor	Poor	Poor
8	S Bathen	Nenmeni	Satisfactory	Satisfactory	Satisfactory
9		Ambalavayal	Satisfactory	Satisfactory	Poor
10	Control	Padinjarethara	Satisfactory	Poor	Poor
11		Edavaka	Satisfactory	Poor	Poor

** Seven out of nine villages reported satisfactory adoption of IPM and six villages reported the same pattern of INM

** Waste Management is emerging as a serious concern for most of the LSGs as revealed by the response. Only three villages report satisfactory position. Same is the case with control area

2.10 Extension services

Kerala state has a fairly good network of extension system for the primary sectors .The state owned institutions (Departments, Commodity Boards, and other specialized institutions), and Non Governmental Organisations play an active role. The Kudumbasree Mission – the state owned poverty eradication programme has a base level strong presence in all villages

The Department of Agriculture has the Krishi Bhavans in all panchayats. The Vegetable and Fruit Promotion Council Keralam (VFPCK) shows its presence through active interventions in production and marketing support in vegetables and fruits. Apart from this, the Commodity Boards have their extension activities in all potential production centres. (Table 2.10)

2.11. Transport System

Kerala had over the years, developed a good infrastructure in transport sector. The most vital mode of transport is the road transport, which directly aid in economic development facilitating social upgradation and trade. Total road length in the state is 173592 Km (2007-08), showing an increase of 7.06 per cent than the previous year. The road density is 446 Km/100 Sq. km. The road traffic in the state grows at 10 per cent.

Wayanad district has the lowest share of PWD roads (state owned) (970 Km) among the districts in Kerala. Of this 177 Km of roads are State Highway and 793 Km are major district roads. The Kozhikode – Vythiri - Gudalur Road, Kozhikode – Mysore Frontier road and Thalasseri – Bauli roads are the most important roads in the district. Despite the undulating terrain, the road network is fairly good in Wayanad. The district does not have access to railway network. (Table 2.11)

Table 2.10 Extension Services

Sl. No	Cluster	Village	Extension Agencies and Approximate no. of visits						
			AGRI Dept.	HORTI Dept.	Animal husbandary Dept.	Water shed Dept.	Co-op eratives	NGOs	Any other
1	Mananthavady	Vellamunda	30 Nos	14	25	19	13	NA	NA
2		Thavinjal	25nos	10	20	18	1	NA	NA
3		Thondernad	24	NA	48	NA	NA	NA	NA
4	Vythiri	Kottathara	NA	NA	NA	NA	NA	NA	NA
5		Kaniyampetta	17	17	NA	NA	NA	NA	NA
6		Muttil	36		4	3			
7	S.Batheri	Meenangadi	NA	NA	NA	NA	NA	NA	NA
8		Nenmeni	22	22	7		1	3	
9		Ambalavayal	1	NA	NA	NA	NA	NA	NA
10	Control	Padinjarethara	40	5	25	NA	20	NA	NA
11		Edavaka	2	2	2	1	1	4	

The data base with respect to the basic sectors of economy is not complete in many local self government institutions. The information on infrastructure status and agricultural status are often lacking or incomplete. This aspect may be considered and efforts to build up solid data base may be initiated, as it forms the basis for effective planning process.

Table. 2.11 Transport system

Sl.	Cluster	Village	Transport system		
			Local market	Ware house	District town/city
1	Manan thavady	Vellamunda			
2		Thavinjal	headload, jeep		jeep, lorry
3		Thondernad	truck		Truck
4	Vythiri	Kottathara	bus, truck		bus, truck
5		Kaniyampetta	bus, auto, taxi		
6		Muttil	bus		Bus
7	S.Batheri	Meenangadi	bus		
8		Nenmeni	jeep, pvt vehicle		jeep, pvt vechicle
9		Ambalavayal	bus		Bus
10	Control	Padinjarethara	truck		Truck
11		Edavaka	bus, taxi, auto		

2.12. Environmental and social safe guard issues

The project area which lies in the high ranges of Kerala has a purely agriculture dependant economy. It has a gross cropped area of 97.82 per cent of the geographical area, dominated by cash crops viz coffee, black pepper, arecanut, ginger etc. About 83 per cent of holdings belong to either small or marginal farmers. Land use pattern of this district has undergone drastic changes over the years, major being

large-scale conversion of paddy fields to other remunerative crops like banana. Now there is a striking imbalance in the area occupied by food crops and cash crops, thus affecting the food security of the population. Homestead farming based at subsistence has given way to mono-enterprise agriculture with over dependence on chemical inputs. The inherent inability of this mono-enterprise system coupled with the fall in prices of the produce has worsened the situation affecting the livelihood security to a larger extent, thus leading to the agrarian crisis. Unscientific land management practices, crop husbandry and the unpredictable weather, especially the recurring droughts adversely affected the crop production.

The project aims at scientific management of natural resources for sustainable productivity. Drought mitigation measures, which demand priority, are addressed by way of intervention in soil and water conservation measures and watershed management, thus preventing soil erosion, run off and resultant loss of soil fertility and productivity. Interventions under organic farming are aimed at gradually reducing the application of chemical inputs in a phased manner, leading to a sustainable environment friendly production system for the hills. The monoculture system prevalent at present would be replaced by multi storied cropping system involving both food and cash crops. Whereever feasible, mixed farming/ multilayered farming systems involving agriculture, horticulture, fishery and livestock employing regenerative resource enriching and energy efficient technologies is proposed as an approach to improve the livelihood security. Natural biodiversity (both flora and fauna) will be sustainably utilised, thus ensuring their utilisation and conservation. Interventions in the dairy sector aim at strengthening the sector through scientific livestock and fodder production. Tribal empowerment programmes envisaged are aimed at ensuring food, nutritional and livelihood security of the tribes, at the same time preventing further destruction of forests. Only market driven production programmes are envisaged with backward and forward linkages for profitable agribusiness and with strategies to address the threats of globalisation. All the income generating activities are envisaged in SHG mode supported by capacity building programmes, thus building up

social capital for welfare gain. Above all, the technological interventions will be standardised and would be implemented taking into account the social acceptance (Table 2.12 & Table 2.13)

Table.2.12.Level of Environmental Concern in the study area

Land	Project Area Scale	Control Area Scale
Carrying capacity of land (Pressure on land Resources)	2	2
1. Soil erosion	3	3
2. Salinity and alkalinity	2	2
3. Loss of soil nutrients	3	3
4. Degradation of soil biological status	4	4
5. Loss of water holding capacity	3	3
6. Soil water logging	1	1
Soil contamination/ pollution		
1. Heavy metals	1	1
2. Pesticides and others	4	4
3. Harmful chemicals	2	2
4. Misuse of chemical fertilizer	4	4
5. Bio-wastes and non-degradable products	3	3
Effects of change in cropping pattern on		
1. Soil	3	2
2. Water	4	4
3. Environment	4	4

Increase in agricultural wastes	4	4
Effects on beneficial		
1. Flora	3	3
2. Fauna	4	4
Loss of forests/ vegetation cover	4	4
Development of resistance in pests (Insects, weeds, microbes)	4	4
Effect on agro biodiversity		
1. Horticulture/Crop Plant	4	3
2. Livestock	4	3
3. Fish	1	1
4. Other aquatic resources	0	0
Effects on general-biodiversity		
1 Plants	3	3
2 Animal	3	3
3 Microbes	3	3
Water		
1 Availability of water resources	5	4
2 Water quality for irrigation	2	2
3 Water quality for drinking	2	2
Air Quality		
1 Pollutants	1	1
2 Green house gases	1	1
Human Health		
1 Through the food chain	1	1
2 Through soil / water/air/wastes	1	1

Table.2.13. Social safeguard issue of the study area

Areas	Scale	Suggestive mitigation measures
Agriculture		Excessive labour involvement and mitigation through farm mechanism
1. Vulnerability to economic loss	5	Risk bearing through other farm enterprises, Farm Enterprise diversification, Social safety nets
2. Greater competition for natural resources (land, water, forests, fodder)	4	Farm production of inputs resource cycling
3. Change in Land use affecting long term profitability of land	4	
4. Loss of land to non-agricultural use	4	Policy measures and measures to make agriculture more profitable
5. Change in income patterns	4	
6. Unbalanced displacement of food crops by cash crops affecting food & nutritional security	5	Nutrition gardens, restoration of paddy
7. Fodder/grazing area shortage-loss commons	2	Fodder production in of farms, increase in paddy cultivation
Community		
1. Unequal access to inputs	4	Streanthing of LSGs
2. Marginalization and increasing disparities	4	Capacity building for marginalized section

3. Increased poverty and indebtedness employment generation	3	Capacity building
4. More dependence on external resources	4	Houseled cultivation
5. Increased drudgery for women	1	Gender friendly machines
6. Effect on child care/health	1	Rural health care facilities/ awareness
7. Change in occupational patterns	3	
8. Increased incidence of diseases	0	
9. Health and safety hazards	3	Awareness creation
10.Effect on community ownership of natural resources & intellectual property	1	Institutional intervention
11. In-migration	1	
12. Out-migration	1	Employment generation
13. Unemployment	3	Employment generation
14. Increased role of middlemen/contractors	4	Institutional intervention infrastructure support
15.Increase pressure on local infrastructure	3	infrastructure development
16. Cultural impacts	4	
17.Gender discrimination	2	Awareness creation capacity building
18.Social conflicts	1	
19.Increased risk of encroachment	4	Policy intervention
20. Risk of life	0	
21. Effect on international relations/ agreements etc. (if any)	4	Farmer support mechanism through policy intervention

Rating
0: Nil; 1: Very low; 2: Low; 3: Moderate; 4: High; 5: Very High

CHAPTER. 3

SOCIO ECONOMIC PROFILE

3. 1. Introduction.

The economic and environmental shocks over the past few years have seriously affected the agrarian economy of Kerala, (George, 2005; Nair et al, 2007; Subramanian, 2007). This is more evident in districts which are dependent on agriculture for livelihood and farm income. Wayanad district suffered severe shocks due to sharp fall in pepper prices (Mohandas, 2007), drastic changes in land use pattern and changes in weather parameters. The short and long term strategies developed by the households varied across socio-economic groups. It included expenditure management, cropping pattern adjustment, migration etc (George, 2005; Nair et al, 2007; Subramanian, 2007). Along with this, mitigation measures (such as PDS, NREGP), activities by LSGs and farmer groups have helped to manage the stress, to some extent. The adaptive strategies to shocks and production management depend to a large extent on the social and economic aspects of the population.

In this section we discuss the basic socio-economic status of the sample respondents in the project area. The respondents are categorized as Marginal Farmer (MF with holding size less than one acre) ,Small Farmer (SF with holding size 1 to 2 Acres) and Large Farmers (LF with holding size more than 2 acres). (0.4ha, 0.8ha and > 0.8ha)

3.2. Family size and occupation

Majority of households have members in the more than 60 age group (table 3.1). This reflects the general pattern in the State. The average size of the family is 3.27. Most of the responds report their condition as having no permanent job. Such members who depend fully on agriculture for their livelihood. 18 per cent work as labourers either in agriculture sector or others. Only two per cent are employed

in government and eight per cent in private sectors. One fourth has some self employment activities (table 3.2).

Table. 3.1. Age Group Classification of respondent's family members

Particulars	<18 Years	18-25	25-60	>60 years	Total	
					Male	Female
Project Area	25	11	29	35	49	51
Control	29	11	22	38	50	50

Table.3.2. Occupation of the respondents (%)

Particulars	Government	Private	Temporary	Self	Wage labour	No Job	Total
Project Area	2	8	17	21	18	34	100
Control	4	9	8	22	17	40	95

3.3 Education Status.

Most of the respondents and family members have studied up to class ten. A few are graduates. Many have ended their formal schooling before completing ten years, and have no formal certificates. But all of them claim to know reading and writing.(table.3.3)

Table 3.3 Education status of the respondents (%)

Particulars	<10		10		+2		Degree		P G		Other		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Project Area	21	47	39	29	28	15	5	1	0	0	7	78	43	113
Control	42	56	34	33	23	10	1	1	0	0	0	212	105	299

3.4. Family assets of sample farmers.

Land is considered as the basic livelihood asset and the average household land property is estimated as 0.57 ha. The details of land

use pattern are discussed in the next section. The status of possession of house and other consumer durables are furnished in table 3.4. Majority of the respondents in all size groups have permanent house structures with concrete/ tiled / sheet roofs. On an average 69 per cent of houses are electrified. 58 per cent own television and 30 per cent possess radios. 38 per cent have separate cattle sheds. Communication facilities are fairly good, 44 per cent with land phones and 52 per cent with mobiles. But it is to be pointed out that those households with landlines have mobiles and the remaining ones do not possess both. 11 per cent own vehicles of their own and modern sanitation facilities are there for 59 per cent. Fire wood is a common source of cooking energy in the project area. LPG is also commonly used (Table 3.4.A)

Table.3.4. Family Assets position (% of households)

Particulars	Project Area	Control
House		
Concrete	19	21
Sheet	9	6
Tile	43	62
Electrified	69	85
TV	58	69
Radio	29	69
Cattle shed	38	69
Land phone	44	69
Mobile	52	69
Sanitation	59	69
Vehicle	11	13

Table.3.4.A Cooking method (% of households)

Particulars	LPG	Firewood	Kerosene	Others
Project Area	48	65	4	0
Control	43	53	6	0

3.5 Water sources

Public water supply system or common pool resources are the major sources of water for the households in the project area (41%)(Table 3.5). Most of the large farmers depend on electric motor for water lifting. Others depend on traditional methods. The erratic and declining rainfall patterns have affected the water availability in the district and drought is reported many a times. The water table decline is to the tune of 1-2 mts during peak summer. Wayanad experiences gradual decline in rainfall since 1991. During 2008-09 the monsoon was only 72 per cent of the normal, which is predicted to have an adverse impact on agriculture sector. Female members in more than 65 per cent of the households that depend on outside sources for water, have to carry it from a distance. This may be public taps, rivers, ponds or lakes. During summer months the average time spend for these activities further goes up. Many studies report this as a major activity for women in rural areas that lead to the drudgery and fatigue (Rajalakshmi, 2000; Narayana, 2005). Some times, even if water sources are there nearby, due to poor quality, drinking water is to be brought from a distance.

Table 3.5 Source of domestic water (% of house holds)

Particulars	Own			Public tap/ Purchased	Neighborhood
	Open well	Tube well	Common resources		
Project Area	35	16	41	0	8
Control	34	3	47	3	13

3.6. Average Annual Family Expenditure

Household consumer expenditure is often taken as a proxy for household welfare, and household income. It is the sum total of expenditure towards various items like food materials, clothing, fuel, medical and other miscellaneous goods and services. MPCE (Monthly Percapita Consumption Expenditure) is the expenditure per individual in the household. The average MPCE in the study area is estimated at Rs. 1015/- which varies across the size groups. The MPCE varies widely across occupational groups, as also reported by Nair, 2007.

However, it may be noted that this estimate of MPCE, is only indicative in nature as it is based on the data collected as a part of larger exercise and not as a targeted study for the purpose. So the reporting bias can be sizeable.

CHAPTER 4

LAND USE PATTERN

4.1. Introduction.

Land is the basic livelihood asset in any agrarian society. Since this survey is based on samples from a population of farmers who depend mainly on agriculture, the land use pattern / cropping pattern in the holdings assumes importance with respect to the income generated. This section describes the land use pattern in the holdings.

4.2. Profile of Land Use

The total holding size of 362 samples is 205.68 ha. Thus the average is 0.57 ha. In the control area, it is 0.88 ha. There existed wide variability in the size of holdings. About half of them were having a holding size of more than 0.8 ha, and more than 50 per cent were with an average holding size of less than 0.2 ha. 94.75 per cent of the land is reported as cultivated. 4.73 per cent is waste land which can be brought under cultivation. 0.53 per cent is waste land, which is economically not suitable for farming (Table 4.1). Of the total 194.88 ha of cultivated land, one fourth is with assured irrigation. It is to be pointed out that, many of the places which are considered as irrigated, the water supply is not assured.

Table 4.1 Land Utilisation Pattern

Particulars		PA (ha)	% Land	CONTROL (ha)	% Land
Total land owned		205.68		47.86	
Cultivated	Rain fed	154.24		41.68	
	Irrigated	40.64		6.18	
	Total	194.88	94.75	47.86	100
Cultivable waste		9.73	4.73	0	0
Waste Land		10.80	0.53	0	0
Area leased in		32.28		27.40	
Area leased out		35.80		3.00	

4.3. Soil testing and use.

Table 4.2. Furnishes the details of soil testing and management. Only one fourth of the respondents have ever tested their soil. Unfortunately only a meager 10 per cent follow the management practices as per the soil test based advice. Most of the farmers' perception of the organic matter content of the soil is, as of medium range. Owing to the high gradient and undulating terrain soil conservation measures are important in the district. Half of the respondents have adopted some form of soil conservation

Table.4.2 Soil/land management pattern

Particulars	% of farmers who tested soil	% of farmers who follow management	OM Content			% of farmers who have under taken Soil conservation measures
			Low	Medium	High	
Project Area	40	10	4	56	4	58
Control	26	8	7	63	3	51

4.4. Irrigation Facilities

Apart from well / pond, major source of irrigation in the project area is termed as canal irrigation, by the respondents. But these are not canals from irrigation projects. Rather they are natural / man made streams which depend on natural sources of recharge. Check dams are constructed in many places to control the flow. But many a times these dry up and farmers find it difficult to irrigate the crops. Bore wells are not very common.(Table.4.3)

Small farmers resort to manual methods of irrigation, due to cost factor. Micro sprinklers and sprinklers are there for irrigating coffee. Only 10 farmers were there in the sample with this facility. The household level expenditure for sprinkler irrigation was found to be Rs.45,556/-. Micro sprinklers were not there in any of the sample house holds. The purchase / sale of irrigation water are not reported. It seems that water market in irrigation sector does not exist in this region.

Table 4.3. Irrigation details (ha)

Particulars	Well/Pond	Canal	Bore/Tube well
Project Area	65	32	3
Control	57	39	4

CHAPTER 5

CROPPING PATTERN AND
NET AGRICULTURAL INCOME

5.1. Cropping Pattern

Reflecting the general agricultural scenario of Kerala the commercial plantation crops like coffee, rubber, arecanut and coconut account for a sizable proportion of total cropped area. Coffee is the major crop followed by black pepper. Coffee-based cropping pattern is the notable feature of the district. Coffee is grown both as pure crop and as intercrop with pepper. But, pepper is generally grown as a component of home gardens which are trailed on live standards. The study by Mohandas, 2007 has established the direct link between share of pepper in cropping pattern and suicide rate among farmers during the crisis period

Wayanad, believed to be originated from the local name 'Wayalnadu-the land of paddy fields', now shows only six per cent area under rice. The estimates made from village level data also show the same level (table 5.1). Wayanad is known for speciality rice varieties like *Jeerakasala* and *Gandhakasala* which are the scented varieties. But its area of cultivation has decreased to mere 15 per cent (Girigian 2003). Conversion of paddy fields for non paddy and non agricultural proposes are commonly observed. Recent interventions by the state government and Local Self Governments (LSGs) are showing some positive signs and more area is brought under rice farming.

Table.5. 1.Cropping Pattern in the Study Area

Sl. No	Crops	Project Area	Control
1	Coffee	21.00	23.10
2	Black Pepper	11.10	8.72
3	Banana Plantain	0.72	1.43
4	Arecanut	8.41	7.90
5	Cardamom	0.52	0.92
6	Ginger	5.10	4.91
7	Rubber	5.12	5.79
8	Coconut	5.23	3.21
9	Tubers	1.10	1.41
10	Rice	6.01	6.20
11	Tea	0.32	0.39
12	Turmeric	0.12	0.52

The change in cropping pattern over the years in Wayanad is attributed to both climatic and socio economic factors. The declining rainfall and its erratic behavior have resulted in the gradual introduction of crops like rubber and coconut, replacing the traditional crop like citrus.The cultivation of food crops like banana, tubers and vegetables are also there which is rigorously promoted by the Department of Agriculture and Vegetable and Fruit Promotion Council Keralam (VFPCK). Banana cultivation is mainly on a commercial scale .The use of plastic ropes as a propping material and chemical pesticides cause serious environmental problems in the fragile ecosystem. Moreover commercial banana cultivation is mostly in paddy lands. which also poses threat to the ecosystem.

The paddy fields in the area are initially altered for commercial banana farming and later on to arecanut plantations. In the remaining paddy lands the varietal diversity is slowly getting eroded and cultivation

has narrowed down to a few varieties. This shift has severely affected the tribal communities due to their inherent vulnerability. The farming communities of the Kuruichiyars and the Wayanadan Chettys face the dilemma of poverty reduction or agro-biodiversity decline, while endangering ecosystem functions. The Paniyas are affected severely, because their livelihood depends entirely on employment in the paddy fields and further utilisation of that ecosystem (Padmanabhan, 2004)

Wayanad agro-ecosystem is a part of Western ghats, the richest "hot spots" of biodiversity in India (Rengalakshmi, 2002). The trend of turning multifunctional paddy fields into monoculture banana plantations has economic, cultural and ecological consequences (Vedavally, Anil Kumar 1998:96). The extent of the loss of agro-biodiversity is accelerating and is accompanied by weakening food security. Coffee cultivators are reportedly switching away from coffee cultivation to other crops such as pepper and arecanut due to economic reasons. The price of coffee has been falling more rapidly than the prices of all other plantation crops.

Cardamom, vanilla, ginger, turmeric, banana, tubers, vegetables and medicinal plants are grown as mono-crop and also as intercrop in coffee, pepper, coconut and arecanut gardens.

5.2. Household income

The average household income was estimated at Rs.34643/- per annum. In the control area it is Rs. 34765/-. This included both farm and non farm income. Since the beneficiaries of NAIP programme was selected based on specific criteria, an average 52 per cent of income was from direct agricultural activities (table 5.2).

Table 5.2. House hold income (Rs. per house hold / year) in the study area.

Particulars	Total household income	Farm Income	% of farm income to household
Project Area	34643	18109	52
Control	34765	18773	54

However it may be pointed out that there is a general tendency among farmers to understate the income and overstate expenditure. This is more relevant now, as the farmers in Wayanad are exposed to large number of surveys which include those conducted for research purpose, for development purpose and also for policy decisions with respect to selection of beneficiaries for livelihood support programmes. So the response to income and expenditure is to be interpreted with caution.

5.3. Forest dependency for livelihood

Wayanad District has the highest proportion of tribes in Kerala. The Scheduled Tribes (ST) households depend on forests for their livelihood. The major tribes in area are Atiya, Kurichear, Thenkurumal, Vattakurumar and Uralikurumar. They usually collect firewood, fodder, honey, bamboo, medicinal plants, tubers, and food items for commercial and domestic purposes. Fish and crabs are caught from rivers.

Scheduled tribes in the Study area were specifically focused for the following activities

\# Cultivation, primary processing and marketing of medicinal plants and monitoring of extraction practices of tribal food crops.

\# Domestication and cultivation of selectED crops and drugs in a farming system model including primary processing

These activities were implemented through existing SHGs of tribes (*Panchatheertham* and *Papanasini*)

The tribal medicine has emerged as an alternative system of treatment. There are many traditional Vaidyas who are engaged in treatment. They prepare the medicines themselves, primarily depending on forest, for the raw material. This creates a local market for the medicinal plants collected from the forests and this has emerged as an economic activity. Nair 2007 estimates the average value of forest produce collection to the tune of Rs. 447 to 637 per tribal household, in Pulpally area of Wayanad district.

Table 5.3 furnishes the details of medicinal plants and food materials collected from the forests by the tribes. Many medicinal plants of common domestic use are also grown near the dwelling house as well.

Table.5.3. Medicinal Plants & Food Materials collected from forest by tribes in project area

Sl. No.	Item	Collection/ year (kg)	Market price/ kg
1	Phyllanthus emblica	800	15.00
2	Sida ulnifolia	300	5.00
3	Vateria indica	40	55.00
4	Solanum indicum	1200	2.50
5	Strobilanthus ciliatus	3000 (once in 4-5 years)	3.00
6	Acacia sinuate	1500	10.00
7	Honey	2500	85.00

CHAPTER 6

POST – HARVEST ACTIVITIES

6. 1. Introduction

Farm level value addition of primary produce helps to improve the income of farmers, through better price realization. This includes cleaning, grading, minimal processing and packing. This section describes the farm level practices on value addition in the project area.

6.2. Cleaning and grading

The farm level value addition such as cleaning grading or minimal processing is not found very common among the respondent farmers. Only eight per cent of farmers resorted to such practices. and only five per cent of them opted mechanized methods for that. The farm level processing was limited to coconut de-husking, or drying cleaning of pepper. Coffee berries are not generally processed before sale (table.6.1)

Table 6.1. Farm Level Processing / Value addition (% of farmers)

Particulars	Project Area	Control
Cleaning/Grading/Value added	8	8
Farmers who adopt machines for the purpose	5	-

6.3. Disposal of produce / Market information

Despite the access to information through News Paper, T.V., Radio etc, majority of respondents got the information regarding market from fellow farmers. The second major source is news papers. Mostly they sell their produce in the nearby markets. (table 6.2)

Table.6.2. Source of information on marketing or price (%)

Particulars	No. of farmers who adopted the source				
	Fellow Farmers	Paper	TV	Radio	Others
Project Area	60	26	6	6	2
Control	62	25	10	2	1

6.4. Storage of produce

Mostly farmers sell the produce immediately after the harvest. This is on account of their low resource base. The produce is stored for later sale, in response to better prices, only by few farmers who belong to Large Farmer group. All of them store it at house premises following the traditional practices. The practice of scientific storage at CWC/SWC is not observed among the respondents. On an average the farmers store for a maximum of 12 months. This is more common in crops like black pepper and coffee. (table.6.3)

Table.6.4. Storage methods among farmers

Particulars		Project Area	Control
Storage	Home level	26	25
	WC/SWC	Nil	Nil
Duration of storage		3-12 months	4 -12 months

CHAPTER 7

LIVESTOCK, POULTRY AND FISHERIES ACTIVITIES

7.1. Introduction

In Kerala 96 percent of the agricultural holding fall below 1 hectare, nearly 94 percent of the livestock population is concentrated in rural areas. As a consequence, 80 percent of the livestock farmers are marginal farmers/ or agricultural labourers. As per the 17th Livestock Census, Kerala had 21.22 lakhs of cattle population (1.15%), 0.07 percent of buffaloes, 0.01 percent of sheep, 0.98 percent of goats and 0.57 percent of pig population of the country. Besides, Kerala has 2.5 percent of the country's poultry population. Nearly 82 percent of the cattle in Kerala are crossbreds. (Table.7.1)

Contribution of Kerala's livestock sector to the economy is estimated at Rs.2,400 crores per annum, which comes to about 1.7 per cent at the national level. As per the Livestock Census of 2003 cattle constituted 61 per cent, goat 35 per cent, buffalo two per cent and pig two per cent of the livestock population in the state. Of the poultry population, 90 percent are fowls, 5.4 per cent ducks and 4.6 per cent other birds. Of the fowl population, 70 per cent are desi fowls and 30 per cent are improved varieties.

Table 7. 1. Species-wise breakup of livestock population in Kerala

Sl. No.	Species	Livestock population			
		1997		2003	
		Number	%	Number	%
1	Crossbred cattle	1957	45.60	1735	49.80
2	Indigenous cattle	533	12.40	387	11.10
	Total cattle	**2490**	**58.00**	**2122**	**61.00**
3	Buffaloes	111	2.60	65	1.90
	Total bovines	**2601**	**60.60**	**2187**	**62.80**

4 Sheep	3	0.10	4	0.10
5 Goats	1598	37.20	1213	34.80
6 Pigs	88	2.10	76	2.20
Total livestock	**4290**	**100.00**	**3481**	**100.00**

Source. 17th Livestock Census, 2003

The Quinquennial Livestock Census data shows a declining trend in the livestock population in the state since 1996. While Palakkad district accounted for the highest (12.4%) percentage of cattle population in Kerala, Wayanad showed lowest (4.89%).

With the shift in cropping pattern of Kerala, the area under rice has come down by 50 per cent over the last two decades leading to drastic reduction in the availability of straw for feeding cattle. It is estimated that the state produces only 60 per cent of the roughage requirement for cattle in Kerala. This is the main constraint for increasing milk production in the state. The potential daily requirement for concentrated cattle feed in Kerala has been estimated at 5372 MT. At present the State has three cattle feed plants functioning at Pattanakkad (300 MT/day capacity), Malampuzha (200 MT/day capacity) Kallettumkara (500 MT/day).

7.2. Livestock status in sample farms

Livestock rearing as a livelihood activity was observed in 52% of house holds. Cows are the most common species followed by poultry and goats. Pig rearing and buffaloes were found in one each house hold.

Among the house holds with cow, two thirds were one cow units and less than a third were two cow units. Most often, livestock rearing is a subsistence level activity mainly depending on family labour. Traditionally, domestic/local sources of feed (green grass, fodders, straw) were available which reduced the cost of feeding. Due to changes in cropping pattern the local sources became scanty and there

is more dependence on concentrates and other manufactured cattle feeds. This, along with high labour cost has made livestock farming uneconomical, in Kerala. Currently, those households engaged in livestock farming mainly depend on family labour. This makes the enterprise relatively profitable. The nutritional security of family members, assured supply of quality organic manure etc. are the other attractive aspects of this. The expenditure of one cow unit was estimated at Rs.22880/- per year. This does not include the farming labour expenses and accommodates only the paid out costs. With a total returns worth Rs. 26250, the annual net income is Rs 3370. All the farmers opined that livestock rearing is no longer a financially attractive enterprise. (table.7.2)

Table 7.2. Livestock status and economy in sample households (Rs/Year)

Type	Unit	Annual Expenditure (Rs/Year)	Annual Income (Rs/Year)	Net Income (Rs/Year)
Cow	1	22880	26250	3370
Goat	1	7280	10725	3445

Goat rearing also is practiced among the respondents (31%). The average net income over the paid out expenses is estimated at Rs.3445/- per annum. Poultry farming is basically on a backyard system and no special feed or management expenditure is incurred. The income through sale of eggs and house hold consumption of eggs/meat etc are considered as desirable attributes and poultry farming is mainly managed by the women folk. 28 per cent of the households rear poultry.

More than the realised income from livestock farming, the importance of the component in a mixed farming model is often realised among the respondents. The household nutritional security is also highly valued.

7.3. Income from marine fisheries

The District has no access to sea and hence there are no marine fisheries. Fresh water fishery enterprise is emerging as a feasible activity

INCOME FROM OTHER SUBSIDIARY OCCUPATIONS AND WAGE EMPLOYMENT

The non-farm sources of income in the study area mainly constitute salaries through private and Government jobs, self employment activities and wage labour. The average earnings of a wage labourer is estimated at Rs.9470/- and that through salary is Rs.24744/- per annum. Self employment activities earn an income worth Rs.14735/- and other (remittances, interest etc) come to Rs.5765/-. (table.8.1)

As mentioned earlier, these are estimates based on reported figures by the respondents and the posibility of understating may be bring in this. They believe that the information furnished in the survey form the basis of taking decisions regarding social security programmes, beneficiary selection and / or tax payments. So they make deliberate attempts to provide information which reflect lower levels of income and high levels of expenditure. There are instance where the respondents declined to furnish these information.

Table 8.1. Non Farm Income in sample households.(Rs/Year)

Source	Project Area	Control
Wage labourer	9470	10732
Salary	24744	31732
Self employment	14735	13573
Others	5765	6143
Average	13679	15545

CHAPTER 9
SOURCES OF KNOWLEDGE

9.1. Introduction

High level of literacy and better infrastructure in Kerala generally favours the conditions for information dissemination. This section explains the farmer's dependence on different sources of information.

9.2. Source of Information

Mass media (News Papers, Tele Vision and Radio) is the major source of information on agriculture and related aspects. This is mainly for the information as to the new projects and other farmer support programmes. The idea on new technologies, varieties and the like are also gathered through mass media.(table.9.1)

Fellow farmers form the next major source. The choice of varieties, fertilizers, pesticides and application pattern are mainly governed by the practices and opinion of fellow farmers. Devi, 2004, 2009 in her study on pesticide use among food crops in Kerala also notices this behavior.

Table.9.1. Source of Information on Agriculture and allied sectors (% respondents)

Source	Project Area	Control
Fellow farmers	24	23
Intermediaries	6	4
Mass media	63	66
Melas/Exhibition	4	6
Field demonstration	1	-
Others	2	1

9.3. Suggestions for strengthening knowledge base

Only eight per cent farmers in the project area and 10 per cent farmers in the control area are currently exposed to any sort of training in agriculture and related areas. However, they have expressed their interest to get trained. 64 per cent farmers in the project area and six per cent in the control area have expressed their willingness and interest to attend training programmes in agriculture and allied sectors. Majority to attend training programmes in agriculture. Notably, it is the large farmers who want to get trained in agriculture training (56%). Most of the MF and SF mainly opt for agriculture training (56%). Most of the MF and SF prefer dairying, poultry farming, agro processing or fisheries. Many farmers have identified fisheries as potential area as currently this is not a popular agribusiness in this part. (table.9.2)

Table.9.2. Areas of interest for which additional exposure is required (% respondents)

Subject	Project Area	Control
Agri. Cultivation	56	51
Dairy/Goat	9	7
Poultry	9	11
Seed Production	7	3
Agro Processing	10	8
Fishery	19	20

CHAPTER 10
PERCEPTION OF FARMERS

10. 1 Introduction

Scientific remedies to problems can be effectively implemented only if the user level understanding of the problem is scientific. The farmers can be convinced of the causes, consequences and remedial measures if they have a better perception and knowledge level. This section discusses the farmer level understanding, observations and opinion on issues related to the performance of agricultural sector. This forms the basis for evolving strategies for formulation and implementation of the project components, for realising better results.

10.2 Farmer's perception on reasons for low yields

Majority respondents perceived pest and disease problems and weed menace as the major agricultural problems. At the same time pesticide misuse is highlighted as a serious problem in agriculture, by 38 per cent of respondents. The study on banana cultivation by Devi, 2009, observed the use of chemicals which are suggested for restricted use in Wayanad area and also have reported unscientific practices in the handling and use. Water shortage, is felt as a serious issue by 40 per cent. 50 per cent complain about the high and rising trend in the costs of agricultural inputs. Use of low quality seeds and low levels of fertilizer application is considered as reasons for poor agricultural performance by 39-45 per cent. Acidity problems are reported by 15 per cent, in paddy fields.(table.10.1)

Table.10.1. Major Constraints in Agricultural Production as perceived by the respondents (% respondents)

Reasons	Project Area	Control
Water shortage	40	38
Acidity	15	0
Low quality seeds	39	25
Less fertilizer use	45	50
Weed	66	54
Pest & disease	66	54
Pesticide misuse	38	42
Non-availability of loan	32	42
Non-availability of farm implements	39	38
High cost of Inputs	50	46
Others	2	0

10.3 Suggestions for improving the yields

Most of the farmers requested for some arrangements to make available quality inputs at cheaper rates. They opine that the Government has a role to subsidise the inputs further, to make it affordable. 62 per cent wants effective weed control to improve farm yields. Water availability and drought management is viewed as the important aspect by many farmers .42 per cent make it explicit statement, while 12 per cent suggest canal renovation and 39 per cent suggest water conservation measures. 46 per cent wants more and easy credit delivery. Nearly 50 per cent suggest improved extension arrangements. There are not much variation among the study area and control, on these general aspects.(table.10.2)

Table 10.2 Suggestions for improvement (% of farmers responded)

Suggestions	Project Area	Control
Availability of water	42	50
Low cost inputs	63	63
Canal Renovation	12	8
Water conservation	39	42
Availability of farm implements	52	54
Weed control	62	58
Quality inputs	59	54
Credit availability	46	54
Better extension services	47	50

10.4 Source of Purchase of inputs

79 per cent of farmers buy the seeds from market. For fertilizers and plant protection chemicals the market dependence, presumably, is much higher. For farm machinery, leasing is the usual practice. The dependence on Krishi Bhavan (Government) or own sources are found to be very less, in the case of almost all inputs used in agriculture. This heavy dependence on external sources cause severe resource drain as well as affect the quality of many of the inputs they use in crop production. This forms an important reason of rising scale of cost A_1, in cost C and resultant vulnerability. (table.10.3)

Table. 10.3. Source of Purchase of inputs (% of respondents)

Particulars		Project Area	Control
Seed	Krishi Bhavan	17	23
	Own source	4	10
	Market/ Others	79	57
Fertilizer	Krishi Bhavan	4	4
	Own source	0	0
	Market/ Others	96	96
PPC	Krishi Bhavan	13	8
	Own source	0	0
	Market/ Others	87	92
Farm implements	Krishi Bhavan	0	1
	Own source	0	1
	Market/ Others	100	98

10.5 Use of HYVs

Currently, the coverage of HYV in the project area is reported as only 37 per cent. Poor extension machinery, non availability and absence of collective action are identified as the major causes of poor acceptance of HYVs. Credit is not a major constraint in this aspect. If the extension agencies can effectively intervene, to educate and organize the farmers, arrange for quality seeds in time, the chances of better HYV coverage is quite high. (Table. 10.4)

Table 10.4. Reasons for poor adoption of HYVs

Reasons	Project Area	Control
Non availability of seeds	46	52
Lack of proper guidance	42	38
Non acceptability	19	24
Lack of extension service & Cooperation of Farmers	42	36
Absence of credit	19	22

CHAPTER 11
MIGRATION STATUS

Migration is often adopted as a coping strategy to deal with stress conditions. Many of the labourers were reported to be migrated to the neighboring state of Tamil Nadu and Karnataka as wage labourers in the plantations there.

Wayanad district's agrarian population largely constitute migrants from other parts of the state, mainly Kottayam, Eranakulam, Thrissur, Palakkad etc. They are engaged in commercial production of crops like ginger and banana. Owing to the large scale loss of ginger crop due to ginger rot, the farming activities are shifted to Karnataka. These farmers pay small lump sum amount to the tribal youth in Wayanad and take them as labourers in these farms. Usually they are treated like bonded labourers and the payment is very low. Owing to the lack of adequate employment in Wayanad due to the agrarian crisis migration is opted as a strategy to find alternate livelihood by many tribal communities. But the practice was not very common among the small and marginal population. Only one per cent among them has reported as migrating to other districts or states which cannot be attributed to the crisis. This can be due to normal pattern or other social reasons. There was no difference in behaviour with respect to migration pattern between the project area and control area.

CHAPTER 12
EXTENSION SERVICES

12.1. Availability of extension services for Agriculture

Generally the respondents are not much satisfied with the role and functioning of extension agencies, both in agriculture and livestock sector. Majority reports a need based or rare visit of officers and are not satisfied with the performance. However, this may be taken as a general response in the background of their problems in the wake of a crisis. (table.12.1 and 12.2)

Table 12.1 Availability of extension services for Agriculture

Particulars		Project Area	Control
No. of visits to the Govt agency	Once in a week	4	5
	Twice in a month	0	0
	Once in a month	13	11
	Need based	31	37
	Rarely	33	32
	Never	19	15
Opinion	Not satisfied	54	59
	Satisfied	8	17
	Good	25	18
	Excellent	13	6

Table 12.2 Availability of extension services for Livestock

Particulars		Project Area	Control
No. of visits to the govt agency	Once in a week	2	5
	Twice in a month	-	0
	Once in a month	5	11
	Need based	56	59
	Rarely	33	22
	Never	5	3
Opinion	Not satisfied	54	59
	Satisfied	16	20
	Good	25	15
	Excellent	5	6

CHAPTER 13

ACCESS TO MICRO CREDIT FACILITIES

13.1. Credit facilities (% respondents)

More than 62 per cent of the surveyed holdings have availed credit during the period under study. The dependence on institutional sources is less compared to non institutional sources. But, Nair et al 2007 reports a gradual shift in favour of institutional source based on a study in one of the villages of Wayanad. Nearly 45 per cent of the farmers who borrowed from institutional sources have availed the loan from commercial banks, followed by cooperatives.

Micro credit activities of rural Self Help Groups are emerging as potential source of credit for the poor households. There are institutions like Kudumbasree (State Sponsored), and other institutions sponsored by religious organizations and Non Governmental Organizations. Many a times these social institution's activities are confined to credit support for consumption purpose and no income generating activities are undertaken. Non institutional sources still comprise a major source of rural credit, despite the large network of commercial banks and cooperatives.

38 per cent of respondents report as repaying the loans in time without default, irrespective of the source. 42 per cent report that they use the loan for the purpose shown in the application and there is no diversion of funds. There were several debates during the crisis period as the farmer's dependence on non-institutional sources, diversion of loan amount for consumptive purposes and excessive social spending as the reasons for the farmer suicides. The response to questions on this aspect may be taken in this background as a deliberate effort to disprove such allegations. Moreover, in an effort to ensure social prestige also they claim that they have repaid the loan

in time, even when it is not rue. As we have not tried to verify their statements, this response may be viewed considering all these things. Only eight per cent have availed fresh loans to pay off the old ones. (table.13.1)

Table 13.1 Credit support in the study area

Particulars		Project Area	Control
Source	Institutional	37	34
	Non Institutional	63	66
Type of loan (Rs)	Short Term	82	84
	Medium Term	22	32
	Long Term	16	19
Prompt repayment (%)		38	31
Prompt utilization for the purpose for which it is availed (%)		42	37
Taking fresh loans to repay previous one		8	8

13.2 Insurance Protection

Despite the high production and economic risks in agricultural sector the insurance coverage in this sector is dismally low compared to the life and vehicle insurance. Only six per cent farmers are covered under the scheme, currently.(table.13.2)

Table.13.2 Status of insurance protection (% respondents)

Particulars	Project Area	Control
Crop	6	5
Farm machinery	2	2
Life Insurance	21	17
Home animals	2	1
Vehicles	100	100

CHAPTER 14
CONTRACT FARMING

Contract farming is yet to get legal protection in the State of Kerala. Informal contracts exist in all parts of the state as pre-harvest contracts (with or without price specification) on sale of the produce and resource providing contracts coupled with sale agreements. No written agreements are there in these arrangements and they are mainly based on mutual trust.

The commission agents of wholesalers or wholesalers themselves arrange for these agreements for the standing crops and advance payments are effected based on some visual assessment of the production level. The harvesting and other post-harvest handling is done by them regularly. Mostly small and marginal farmers are entering into these agreements. The practice is more common in crops like black pepper, arecanut, etc.

CHAPTER 15
CONCLUDING REMARKS

NAIP project on "Multi Enterprise Farming Models to Address the Agrarian Crisis of Wayanad District of Kerala" was prepared in the background of severe agrarian crisis in one of the backward district of Kerala (Wayanad), South India. The situation led to suicide of large number of farmers in the area. The project proposes to apply the concept of achieving sustainable rural livelihoods through ecofriendly technologies that suit the socio economic and agronomic settings. The project area covers three clusters (3 Thaluks in the District) with a total population of 3,63,441. The direct beneficiaries are expected to be 5000 farm families.

The baseline survey is conducted to gather the benchmark information on the social and economical aspects of the farm families in the project area based on the information gathered from a sample of 320 farmers and comparison of 54 farmers from the control area.

The general social and economic background in Wayanad is poor compared to rest of Kerala and the gender development index and Human development Index for Wayanad is occupying the 12 th and 13 th position among 14 districts in Kerala. Wayanad has the highest proportion of tribes in the state.

The cropping pattern in Wayanad is mainly based on coffee and pepper. Owing to economic and environmental changes, it is getting transformed slowly in favour of crops like rubber, coconut etc. The rice area has shown a decline, eroding the diversity base of traditional, medicinal / scented rice varieties endemic to Wayanad. Commercial banana cultivation emerged as a profitable enterprise in this area, which is cultivated in rice fields. Currently vegetables, medicinal plants and floriculture are also gaining importance in the cropping pattern. This transformation of the ecosystem cause serious adverse impacts on the

livelihood status of the people, as majority is depending on agriculture. Further the fragile ecosystem is also very sensitive to these changes.

The total household income in the project area is estimated at Rs.34643/-, 52 per cent of it being realised from agricultural enterprises. The average household income from subsidiary sources amount to Rs.13675/- in the project area and Rs.15540/- in the control area.

As subsidiary activities, dairying (cow), goat and poultry are practiced. The dairy enterprise is not found remunerative, if all costs (Cost C) are taken in to consideration. The net income at paid out cost level (cost A_1) is only Rs.3370/- per animal unit per annum. In goat farming it is Rs.3445/-. However, owing to house hold nutritional advantages and resource cycling prospects farmers maintain these enterprises. Poultry farming is of backyard rearing in nature and is managed by women folks. Fisheries enterprise is not yet a popular activity and there is no scope for marine fisheries.

Only eight per cent of farmers in the project area are exposed to scientific training in agriculture and allied sectors and 63 per cent have expressed their willingness and interest in the programme. 19 per cent of the farmers have expressed their interest in fishery enterprise.

Most often farmers depend on purchased (market) sources for all important inputs in crop production (79% - 96%). Only four per cent of seed requirements are met from own sources despite very low HYV coverage (37%). Poor extension machinery, non-availability of required inputs and absence of collective action are reported as the major reasons for this.

More than 62 per cent of surveyed holdings are indebted and the major dependence is on non-institutional sources. 38 per cent reports prompt repayment and 42 per cent say that there is no diversion of loan amount. Despite high degree of risk in agriculture sector. only six per cent have protection under the crop insurance scheme.

Many of the problems in agriculture sector reported by the farmers are related to the supply of quality inputs, crop management and

extension support. They have requested to make arrangements for quality inputs at affordable rates (63%), and cost effective technologies to address the problems associated with pest/disease/weed menace. Scientific water management programmes and water conservation efforts are demanded by some (42%). Nearly half of the respondents suggest improved extension arrangements.

Despite the severe shocks due to decline in farm prices and production base, the farming community in the area is in the path of revival efforts with the support extended by the State Government, Local Self Governments and other organizations.

Table. 15.1. Key indicators and their baseline levels in the study area in relation to NAIP approved subprojects.

Objectives	Activity	Key indicators	Unit	Present Status
1. Productivity and profitability enhancement through optimal use of resources and technologies including organic farming	* Restoring the paddy cultivation in wet lands.	1. Current area under paddy 2. Production 3. Productivity.	Ha. Tons Kg/Ha	4.79 1.22 2543
	* Production and supply of bioinputs, mother cultures/ nuclear seed/ large scale seed and planting materials of spice crops, rice, vegetables, fruit crops, fodder, livestock and poultry.	1. Cropping pattern 2. Cropping intensity 3. Farm income	Rs/house-hold /yr	Table 5.1 139 18109
	*Poularisation of fisheries through demonstration units of cage, pen, paddy cum fish and ornamental fish units.	1. No. of units 2. Farm income from fisheries	Nos.	nil
	*Establishment of different models of multilayered and mixed farming systems.	1. Cropping pattern/ intensity 2. Farm income 3. % of purchased inputs	Rs/year/ Household	Table 5.1 139 18109
	* Augmentation of livestock based production systems through scientific intervention in quality of stock and feeding, management, record keeping practices.	1. Net income from livestock – House hold / year 2. No. of farmers with livestock component		3370 166

2. Women and tribal empowerment through agriculture based self employment programmes	* Cultivation, primary processing and marketing of medicinal plants and monitoring of extraction practices of tribal food crops.	1. Species harvested from forests for medicinal purpose 2. Quantity harvested		Table 5.4
	* Establishment of backyard poultry and goat units for livelihood security of women.	1. No. of house hold with the component. 2. Present income from such activities Rs/hh/year	Percentage Rupees	Goat 31 Poultry 28 3445 (Goat)
	* Domestication and cultivation of select crops and drugs in a farming system model including primary processing			
	* Popularisation of women friendly farm machinery (paddy transplanter, paddy reaper and garden tiller)	1. Current knowledge 2. Ownership status		low nil
	* Involving women for income generating activities like nursery production, vegetable and mushroom cultivation	1. Present level of income (Women) 2. Present employment level.		Nil Nil

3. Developing a viable system for procurement and marketing of agri produce with or without value addition	* Procurement, transportation and marketing of marketable surplus of agri-produce from farmers	1.Present marketing system 2.Distance to nearest market.	Percentage kilometers	Nearby market 21 On farm sale 49 0-5
	* Arranging GI registration for specialty rice (*Jeerakasala, Gandhakasala*) of Wayanad.	1.Present status of registration.		No registration
	* Strengthening value addition units of spice products (curry powders, dried ginger and spice powders), livestock and dairy produce, fruits (integrated processing of jack fruit, mango pickling), rice (rice flour for different end uses) herbal and medicinal produce and NWFP.	1.% farmers who adopt farm level value addition 2.% farmers following scientific storage 3.% farmers who store for future sale.	Percentage Percentage	8 Nil 26

4. Conservation and management of soil and water resources to mitigate drought and other natural calamities	* Preparation of contour and resource maps and addressing constraints of water scarcity.			
	* Renovation of public ponds and strengthening of water harvesting and storage structures.	1. Water table decline during summer months. Drinking water sources	Meters	1-2 Public Supplies /Common Property Resources
	* Waste management programmes for biogas and organic manure production.	1. Waste management pattern 2. Method of cooking 3. Source of manure	Percentage	Fire wood-65 LPG – 48 Own – 49 Purchased -51
5. Capacity building for human resources development	* Training programmes for farmers and other stake holders on advanced production technologies in spices, vegetables, medicinal plants, fodder, farm mechanization, organic farming, rain water harvesting, animal husbandry, fisheries, micro irrigation methods, mushroom cultivation and value addition.	1. Major source of income. 2. Allied activities 3. Farm income	Rs/hh/yr	Agriculture livestock 18109

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EXECUTIVE SUMMARY

NAIP project on "Multi Enterprise Farming Models to Address the Agrarian Crisis of Wayanad District of Kerala" was proposed in the background of large number of farmer suicides due to severe agrarian crisis in the backward district of Kerala (Wayanad). The project proposes to apply the concept of achieving sustainable rural livelihoods through economically viable, ecologically safe and socially acceptable technologies.

The project area covers three clusters (three Taluks) with a total population of 3,63,441. The direct beneficiaries are expected to be 5000 farm families. The baseline survey is conducted to gather the benchmark information on the social and economical aspects of the farm families in the project area based on the information gathered from a sample of 362 farmers and comparison of 54 farmers from the control area.

The value of Gender Development Index and Human Development Index for Wayanad is occupying the 12th and 13th position among 14 districts in Kerala. The average family size is 3.27 and majority of members have crossed the age of 60. All the respondents could read and write and people are formally educated. The asset possessions in households, communication facilities and the exposure to mass media are fairly good. One third of the population fully depends on agriculture for livelihood. But, during summer months the water table declines to the tune of 1 – 2 meters, often leading to severe water scarcity. The average holding size is 0.57 hectare., and one fourth of cultivated land is with assured irrigation.

The cropping pattern in Wayanad has been mainly coffee and pepper based. Owing to economic and environmental changes, it is getting transformed slowly in favour of crops like rubber and coconut. The rice area has shown a decline, eroding the diversity

base of traditional, medicinal / scented rice varieties endemic to Wayanad. Commercial banana cultivation is a profitable enterprise in this area. Currently vegetables, medicinal plants and floriculture are also gaining importance in the cropping pattern.

The total annual household income in the project area is estimated at Rs.34,643/-, 52 per cent of it being realised from agricultural enterprises. The average household income from subsidiary sources amount to Rs.13,675/- in the project area and Rs.15,540/- in the control area.

The farmers do not generally adopt value addition practices at farm level and sell their produce in nearby markets or through pre-harvest contractors. But pepper and coffee is stored and retained at home mainly by large farmers (26%), for future sale when prices are better. Livestock rearing is confined to only 52 per cent of respondents. Generally, dairying (cow), goat and poultry are practiced. The dairy enterprise is not found remunerative, if all costs (Cost C) are taken in to consideration. The net income at paid out cost level (cost A_1) is only Rs.3,370/- per animal unit per annum. In goat farming it is Rs.3,445/- However, owing to house hold nutritional advantages and resource cycling prospects farmers maintain these enterprises. Poultry farming is of backyard rearing in nature and is managed by women folks. Fisheries enterprise is not yet a popular activity and there is no scope for marine fisheries.

Though mass media is a major source of general information most of the farm level decisions are based on the advice by fellow farmers. Only eight per cent of farmers in the project area are exposed to scientific training in agriculture and allied sectors and 63 per cent have expressed their willingness and interest in the programme. 19 per cent of the farmers have expressed their interest in fishery enterprise.

Most often farmers depend on market for all major inputs in crop production (79% - 96%). Only four per cent of seed requirements are met from own sources. But, the HYV coverage among sample

households is reported as low (37%). Poor extension machinery, non-availability and absence of collective action are reported as the major reasons for this.

Generally, the respondents are not satisfied with the functioning of extension agencies both in agriculture and livestock sector (54%). Need based (31 – 56%) or rare visit are the common practice of these agencies and regular visits are reported by only 7 – 17 per cent in both livestock / agriculture sector.

More than 62 per cent of surveyed holdings are indebted and the major dependence is on non-institutional sources. 38 per cent reports prompt repayment and 42 per cent say that there is no diversion of loan amount. Despite high degree of risk in agriculture sector, only six per cent have protection under the crop insurance scheme.

Many of the problems in agriculture sector reported by the farmers are related to the supply of quality inputs, crop management and extension support. They requested to make arrangements for quality inputs at affordable rates (63%), and cost effective technologies to address the problems associated with pest / disease / weed menace. Scientific water management programmes and water conservation efforts are demanded by some (42%). Nearly half of the respondents suggest improved extension arrangements.

NAIP

This book is based on a baseline survey on the socio-economic, agrarian, natural resource and institutional status in the most backward areas of Wayand district, Kerala State, India which is the only one categorized as backward by the Planning Commission of India. The reader gains an idea on the social fabric in a ecologically and economically fragile ecosystem, and its interplay with agricultural systems. The study was done as a part of the National Agricultural Innovation Project.

Socio - Economic Status of
WAYANAD DISTRICT

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