

CHAPTER I

INTRODUCTION

1.1 Background

Food security is a concept that has evolved over time (Hahn, 2004). The World Food Summit defines food security: "Food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life"(FAO, 2005). Food security comprises four food dimensions: i) adequacy of food availability; ii) stability of supply; physical and economic accessibility of food; and iv) quality and safety of food.

Food security can be segregated into several components. It is not possible without sufficient income, hence it is income security; it is not possible without the supply of food, hence it is food supply security; it is not possible with intra-households biases against a sex or age groups, hence it is socio-cultural security, and it is never possible without good health to productively use the ingested foods and hence it is equally health security (Koirala and Thapa, 1997). At micro level, food security was conceptualized primarily as the ability to successfully weather transitory shocks to food supply.

Food and Nutrition Security in today is becoming the consent for development agencies and serious for far-western Nepal. "A household is food secure when it has access to the food needed for a healthy life for all its members (adequate in terms of quality, quantity, and culturally acceptable), and when it is not at undue risk of losing such access" (RCIW, 2005). Availability, access and equality in distribution/utilization of food are the basic requirement of FANS. Stability of the situation is also a structural requirement to balance the access, availability and distribution of food (Kunwar, 2004)

It is not that the world is not producing the required amount of food to feed the current world population. This is succinctly expressed in an International Fund for Agriculture Development publication, providing food security for all (IFAD, 1993): "If the world's today cereal productions were to be equally distributed, then one kilogram of cereals available per person per day. This is twice the daily minimum requirement. However, since the distribution is unequal, 13-18 million people die of hunger every year."

Moreover, the concern of food security arises as out of fear: "A country and people can be said to be food secure, when their food system operates efficiently in such a way as to remove the fear that there will not be enough to eat". It indicated that food security would be achieved when equitable growth ensures that these groups have sustainable livelihood. (Referred Maxwell, 1988 by Koirala & Thapa, 1997)

Experience has shown that along physical infrastructure development along could not achieve the objectives of the aim of food security on a long-term basis. To achieve the objectives of the programme, social, political and cultural activation is the most needed to break through internal blocks to get the economic activation as well as social capital formation (Adhikari, 2003)

To make inroads in the fight against hunger, government has focused food and cash aid development to boost the rural area where more than 90 percent of the poor and hungry lives. Years of urban bias in the distribution of resources have left rural communities without vital infrastructure and public services in modernization, communication, health care and education. (FAO, 2000)

The food-insecure poor cannot be seen as a homogenous group. Food and nutrition problems among young children, pregnant and nursing mothers as well as the elderly are more complex than undernutrition affecting poor population at large. Among these groups, children are the most nutritionally vulnerable group in the developing world (Rotten, 2004).

Food security can be understood on different level: Macro, meso and micro level: Brazil is one of the world's biggest producers and exporter of soybean products, nevertheless, the nutrition situation of the population in the northeast continues to be extremely poor. India improved seeds and production methods leveraged India to be one of the biggest exporters of rice; in 2002, however, according to FAO, 233 millions (highest numbers) of food insecure people live. A study in Haiti also found a positive correlation between the production levels and under-nutrition. The areas with a food surplus had the highest rate of malnutrition (Rotten, 2004). During the nineties, international development assistance for agriculture dropped by 30% that hampered on food security (FAO, 2003).

Thailand increase of rice production worsened the nutrition situation for children in some areas; due to more work on the fields their mothers had less time for child care. A micro level study in Pakistan showed that the improvement of buffalo milk production and its marketing implicated that milk was less available for the children; their nutrition and health status deteriorated in individual households (FAO, 2000).

Nepal has not real calories estimation of the cultivated crops and no any consumption formulae (NSAR, 1998). The Ministry of Agriculture and Cooperatives mentioned only 2138 calorie is sufficient by national production out of the total required quantity of 2250 kcal (MOAC, 1996). Fifty-one percent population in 1996 shared that there was not food insufficiency for consumption (CBS, 1997).

The national data of food balance stated that the food deficiency in Nepal started from 1989/90 to 1999/2000 (ACTION AID, 2002). There was need of 30% foods items to be imported from the countries. Nearly 68% hill districts, 88% mountain districts were food deficit. Fifty-five districts in Nepal are food unsecured districts (Ghale, 2002). Out of that, food balance of Dailekh district was also found deficit in 2000/01 by 20121 Mt. (ISRSC, 2001). The belt wise food availability and requirement of cereals (2000/01) was estimated as that the five commodities were taken for the food security perspectives that the

deficit of the cereals for mid-western development hill districts was deficit by 30866 Mt. of cereal-based food (MOA, 2002).

ICIMOD (1997) found out the position of Dailekh district is the worst third in poverty and deprivation index, worst 8th in the gender discriminations, worst 71th in farm size(0.38 ha), worst 67th (1556 calorie) in per capita food production, worst 2nd in health and development index, worst 72th in access of agriculture credit/ institutional loan and worst 60th district in road density. Because of these factors, it was categorized as the most food unsecured district (Appendix 7).

Development indicators of Dailekh were fixed to measure the status of the district. In case of food production, it is 51th district, 43th district in population, 75th district in per capita income, 33th in infrastructure development index and 57th in per capita development budget (AICC, 2006).

Considering these pros and cons in the food security status of the Nepal, Rural Community Infrastructures Works (RCIW) programme was created and it was implemented in Dailekh in December 1995. This is one of the government's major poverty alleviation programmes targeting half a millions food deficit people for labor-intensive infrastructure development by using local labourers (RCIW, 2001). This is the multilateral aid programme with the World Food Programme (WFP), Federal Republic of Germany through German Agencies for Technical Cooperation, Development Fund for International Development, and Ministry of Local Development of Government of Nepal (RCIW, 2004). It is perceived as having contributed significantly in rural road access and long-term food availability for the rural poor by the philosophy of "Free from hunger: today" (RCIW, 2005).

RCIW's integrated food security programme has been addressing impoverished communities who have not enough food, opportunities and empowerments to improve their lives. It aims to benefit the poor; those who are socially and economically marginalized, illiterate, and possess very little or no land of assets (RCIW, 2002).

1.2 Statement of Problem

Socio-economic changes have been felt after the implementation of these integrated activities (RCIW, 2003). GTZ-RPN's RBM model has analyzed the data up to the output level. However, extent of impacts on the beneficiaries' level of the particular area has not been studied yet.

Support of rice and cash in infrastructures development and other components, short-term food availability of the people have listed by the active participation of the community (RCIW, 2005). Knowing the value of programme, there is need to evaluate food availability by their production and share of food through purchasing. Sacs of rice and bundles of cash are gone in the community but not still studied their utilization. The present food sufficiency level needs to evaluate for future strategies improvements.

There is need to analyze how many days of employment created for the beneficiaries by food-for-work activities. Trend of saving and credit utilization in the income generation activities and coping strategies in the same time are needed to be analysed to access the impact of the programme

However, project document are not referred about of local employment on what are the activities that attracted peoples participation in RCIW. Without knowing participation level of each household level, further planning in supporting on the insufficient places becomes difficult.

Bhandari et al (1999) found correlation of road and rural development by changing in transportation mode, impacts on cost, increasing production etc. after the road construction of all types of road. Similar results found in Dhanusha. After RCIW implementation in Dailekh, what amount of income

increased by what types of interventions? Are they capable to purchase food by additional incomes? Are market facilities expanded after the road? After road construction and pliability, market access and its changes have not still investigated in Dailekh.

Projects documents are only asking on the food availability but not stressed on the whole components of food security from the nutrition perspective. Are any activities supported in intra-household food distribution? What amount and what types of food items are included in their food intake. If not, what are the problems that adhere for proper food distribution? These issues are needed to determine properly for the future improvement.

Self-help groups are regularly collecting savings and disburse credit as loan in their needs. However, there is continuous source required to collect cash in the group. What are the regular sources of saving and extent of change in saving rate? Is it continued by the present efforts of the RCIW programme? Is savings and credit institutionalized?

In order to divert the community towards the long-term food security, what are the conditions of project activities at that broad issue? What extent of role of micro project and IGA in the line of food security improvement. Are these activities supporting the communities at what way?

In other level, there is also the relation of the other service providers on the same objectives. There is need to identify the types of service providers in that community and to register the group for the substantial future support so that group can receive regular services to stabilize the project activities. Are the beneficiaries ready to continue the programme?

By analyzing the above stated problems, the study will focus the following major issues.

-) What level of short-term food availability of the programme contribution? How many food sufficient and deficient months? If deficient which are the food deficient months?
-) What are the coping strategies done in order to secure food items? Is RCIW helping?
-) In what quantity the respondents purchase food items through local traders?
-) What is the participation level of communities in RCIW interventions?
-) Are the project activities assisting in food security?
-) What level of market access achieved in this condition?
-) What was the status of food utilization in the rural households? Is RCIW supporting in intra-household food security?
-) Are RCIW activities stabilizing? In spite of phase over, are RCIW programme self-sustained?
-) What levels of policy recommendations are required for long- term food security?

1.3 Objective of the Study

1.3.1 General Objective

The general objective of this research is to find out impact of Rural Community infrastructure work Programme in rural food security.

1.3.2 Specific Objectives

To address afore mentioned general objectives, the following specific objectives were set:

-) to assess the change in food availability by the support of project activities and major problems that causes food insecurity,
-) to assess the people's participation in different activities and identify coping mechanisms under food deficit conditions,

-) to find out the major changes in food access and present market access of the supported interventions,
-) to assess intra-household food distribution pattern of beneficiaries,
-) to determine the major changes in the communities after implementation of RCIW programme and,
-) to examine sustainability of RCIW programme.

1.4 Rationale of the Study

The Tenth Plan set the sectoral objective of increasing food availability of food grain per person by 269 kg from the present 264 kg and the availability of other edible foods could less accordingly in proportion (NPC, 2002). Although RCIW also addresses some of the four pillars of poverty reduction, this is the part this study reflecting national plan.

The study findings will help to see what are the best practices that they experienced as well as what are lacking to achieve the desired result. Since MLD has been implementing and executing RCIW programme in twenty-five districts, this study will help to replicate the impact related recommendations to other districts.

We will analyze that how many members are utilizing outcomes of the core, micro projects and complementary activities. Inter-linkage of these integrated activities on the food security is the interesting study for the future generations. Many findings of this study will be the references for the further studies of the programme.

The present study has done efforts on how the programmes are sufficient at the beneficiaries' level. If not, what are the activities need to be continued to make the self-help group interdependent. After the perception of the beneficiaries, there is easy to plan the activities, mode of programme implementation for remaining time of this phase. There is also easy to carry over another phase by making the programmes demand driven, participatory and people centered.

1.5 Limitation of the Study

The key limitation for this review was the timing, which happened to coincide with heightened strikes, disturbances in transport and communication system, and finally people's revolution. Implementing partners demonstrated their skills to work in the conflicts, because of their good effort and people's

participation understanding with the rebel groups, the researcher could visit the project sites without any obstructions.

The researcher intended to use the quantitative and quantitative data available with the field survey and focus group discussion. However, the task of integrating both data became problematic because of recalling problems and inconsistencies in the data keeping systems.

The scope of study is confined to the limited respondents of the Tallo-Mathillo Dungeshwor of Dailekh district because of the limitation of time and resource to the researcher. So, the analyzed discussions and policy implications are completely based on that area and community.

Reliability and validity of the research depends on the expression of the respondents. Efforts are done to collect the reliable information and making the analysis as valid as possible. Therefore, generalizations of the findings cover the sample area and the replication of the research is done in the similar area as per programme perspective.

For the accurately measurement of household level food and nutrition security, anthropometric measurement are recommended. These techniques are not followed in this study. However, efforts are done simply to analyze general practice but advised to follow lab and clinical methods for advance study. The researcher strongly suggests to investigate the household level food security after five years in the same area.

1.6 Organization of the Study

The thesis is organized into seven chapters. Chapter one is introductory in its nature which highlights background, statement of problems, objectives, significance, limitation and organization of the study.

The second chapter is review of literature. This chapter reviews the historical aspect of food security and past efforts of scholars and organization in food security. The third chapter explains about the research methodology adopted for the study. The chapter four and five generally explains about the RCIW programmes implementation status in Nepal.

Chapter six is the heart of the study prevails food and nutrition security situation in Dailekh focusing mainly on the issues of availability and access and intra-household distribution. Chapter seven provides a brief summary and

conclusion of the research findings and recommends some strategies and policies for further implementation of RCIW programme.

CHAPTER II

LITERATURE REVIEW

This describes review of literature on the theory and concepts of the different works that have been done by various scholars and organizations under this study. Review of completed research is one of the most important components of research because the researcher should gain out of the experiences of others. The literature review has been specialized into the following topics;

-) review of food security definitions,
-) past history of food security efforts,
-) past impacts related food security activities, and
-) measuring indicators for food and nutrition security

2.1 Review of Food Security Definitions

Poverty of rural households is grossly defined as food insufficiency at household level: these are households with insufficient subsistence production and unable to meet food requirements because there is no other sufficiently reliable income source to cover the deficit (Rauch, 2002)

According to Gross *et al* (1999) food security is “adequate access to food for all people at all times for an active, healthy life”. Food is here defined as any substance that people eat and drink to maintain life and growth. As a result, safe and clean water is an essential part of food commodities.

The definition of food security stated above emphasizes availability, accessibility and utilization’ of food. The inclusion of utilization underlines that nutrition security is more than food security.

Food security is defines as secure, adequate, and suitable supply of food for everyone.

Food security is as adequate access to food for all at all times for an active and healthy life.

Food security is achieved, if adequate food (quantity, quality, safety, socio-cultural acceptability) is available and accessible for and satisfactorily utilized by all individuals at all times to live a healthy and happy life.

Dr. Herwig Hahn (2005) referring of Gross et al. 1999 analytical framework of food availability, access, utilization and stability. Availability of food defined by Dr. Herwig Hahn that the physical existence of food, be it from own production or on the markets. On national level food availability is a function of the combination of domestic food stocks, commercial food imports, food aid, and domestic food production, as well as the underlying determinants of each of these factors.

Access to food is ensured when all households and all individuals within those households have sufficient resources to obtain appropriate foods for a nutritious diet. It is dependent on the level of household resources—capital, labour, and knowledge and on prices. Food access also is a function of the physical environment, social environment and policy environment, which determine how effectively households are able to utilize their resources to meet their food security objectives.

Utilization has a socio-economic and a biological aspect. If sufficient and nutritious food is both available and accessible the household has to make decisions concerning what food is being consumed (demanded) and how the food is allocated within the household. In households where distribution is unequal, even if the measured aggregate access is sufficient some individuals may suffer from food deficiency.

Focusing on the individual level food security requires also the consideration of the biological utilization of food. This refers to the ability of the human body to take food and translate it into either energy that is used to undertake daily activities or is stored. Utilization requires not only an adequate diet, but also a healthy physical environment, including safe drinking water and adequate sanitary facilities and an understanding of proper health care, food preparation, and storage processes.

Stability or Sustainability refers to the temporal dimension of nutrition security i.e. the time frame over which food security is being considered. In much of the food security literature, a distinction is drawn between chronic food insecurity—the inability to meet food needs on an ongoing basis—and transitory food insecurity when the inability to meet food needs is of a temporary nature.

FAO adopted a globally accepted definition of food security is the one adopted by the World Food Summit (WFS) held in Rome in November 1996,

i.e. "Food security exists when all people at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO, 2003). This definition is extensively used by RCIW (RCIW 2002, 2002a, 2004)

Reutlingers *et al* 1998 found that the economic approaches to food security have traditionally focused on assessing aggregate levels of food supply, agriculture production, and the balance of agricultural trade. Staatz JM *et al*, (1990) referred that in 1970s food security was defined at the macro level as the ability to avoid short-term deficits in aggregate food supply and it was directly linked to grain stocks at the global and national level

At micro level, food security was conceptualized primarily as the ability to successfully weather transitory shocks to food supply. Moreover, the concern of food security arises as out of fear and hence citing Maxwell (1988): "A country and people can be said to be food secure, when their food system operates efficiently in such a way as to remove the fear that there will not be enough to eat".

World Food Programme has defined the four groups of households by surveying sixty-five communities/settlements of Nepal including Dailekh district and gave four types of definition of food security (WFP, 2001).

Table 1: Definitions of Food Secure and Insecure Group

Group	Definition	Remarks
First groups	Households which can obtain sufficient food for themselves in normal times without assistance (gifts/loan) and which are able to provide assistance (gift/loans) to others.	Food secure group
Second groups	Households which can obtain sufficient food for themselves in normal times without assistance (gifts/loan) but which are not able to provide assistance (gift/loans) to others	Food secure group
Third groups	Households which can obtain sufficient food for themselves in normal times, but only with assistance (gifts/loans) from others (including food aid)	Food insecure group
Fourth	Households which can not obtain sufficient food for themselves in normal times, even with assistance	Insecure

groups	(gifts/loans) from others.	group.
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Source: WFP, 2001

In particular food security will be achieved when the poor and vulnerable women, children and those living in the marginal area, have secured access to the food they want. Food security will be achieved when equitable growth ensures that these groups have sustainable livelihood (Koirala & Thapa, 1997).

2.2 Past History of Food Security Efforts

According to Ulrike (2004), the historic dimensions of food and nutrition was listed the efforts of different scholars.

Food security is a concept that has evolved over time. IFPRI (1999) listed approximately 200 definitions and 450 indicators of food security.

Maxwell and Frankenberger (1992) list 194 different studies on the concept and definition of food security and 172 studies on indicators.

A review by Clay (1997) that updates this literature provides an additional 72 references. Both publications are highly recommended to development practitioners who are interested in understanding the development of the concept and strategies of FNS.

Other highly recommended reviews: Riely et al. (1995), Chung et al. (1997), and Christiansen and Tollens (1995). The recent Fourth Report on the World Nutrition Situation (1999) provides insights on the status of nutrition problems and the strategies required to solve the problems in different parts of the world.

Gross et al (1999) listed the food and nutrition security concerns as

- J 1940's and 1950s– Food Surplus Disposal.
- J 1960's – Food for Development
- J 1970's – Food Assurance, food security was defined at the macro level as the ability to avoid short-term deficits in aggregate food supply.
- J 1980's – Broadened food security.
- J 1990's – Freedom from Hunger & Malnutrition.

J 2000's- Food and nutrition for poverty reduction and development.

The study on agriculture policy and strategies for poverty alleviation and food security was conducted by FAO listed out the past activities done in Nepal (FAO, 2003)

- Third century B.C. First and foremost land tax was the earlier principal source of revenue for the rulers throughout the history of Nepal.
- Raja Mahindra Mall was generous king for the civilian food security. He used to his lunch after the smoke shown in the top roof of every household (Koirala and Thapa,1997).
- Raj Kulo /State canal was constructed during the period of Ram Rajya.
- Farmers managed irrigations systems were introduced to increase production.
- Reference to the provision of food with priority to children and elderly persons during the period of severe drought is also found in the history. The state would procure, store, transport and distribute food among the people affected.
- Land tenure System was introduced in 1964 Land Act and 1964 Land Rules for categorizing land as Guthi, Raiker, Jagir, Rakam, Birta, Ukhada and Kipat like tenuous practices of institutions were practiced by the rulers.
- In 2031 Nationalisation of Pasture Act have converted all form of tenure except *Guthi* to either *Raikaar* or state ownership.
- Ukhada, and Zimindari, were introduced later in the history following development in India during Muslim and British rule.
- Perma a form of labour exchange among the rural people during the peak agricultural seasons was started.

The Food security and vulnerability Profile also listed the past efforts on the food security related activities are listed (WFP, 2001) as;

- Nepal Nutrition Survey (NNS) 1975, 6578 children were surveyed in 221 sites covering 68 districts of the country.

- 1956 A.D. First five year plan prepared. Trivuvan gram village programme introduced to focus food production.
- 1967 A.D. MOAC, a lead agency for alleviating poverty and food insecurity was established.
- 1970 A.D. towards country became rice importer from the rice exporter.
- 1975 A.D. Small farmer Development Programme was introduced as community development programme to improve food security.
- 1975 A.D Integrated Rural Development Programme launched.
- 1980-1985 A.D Basic Need Programme was launched, first direct food security concern programme (sixth five years plan)
- 1985-1990 A.D. Basic needs fulfillment programme for food security.
- 1991- 1992A.D. Irrigation and livestock master plan developed.
- 1992 A.D Industrial policy was introduced to diversify the liberalization and diversifying the industrial production through commercialization of agriculture sectors.
- 1992-1997 Eighth plan outlined the major national development policies on food and nutrition

WFP (2006) listed out the history of food security efforts,

- 1995 A. D. Food for Work (FfW) programme was launched in 35 districts.
- 1998-2002 A.D. Poverty reduction, focusing the poverty reduction programme on the ultra-poor living in the remote areas. Improved food availability, distribution provides service of anthropometric measurement of children. Expand snack feeding programme at school level as Food for Education (FfE) programme under WFP support.
- Twenty years (1995-2015 AD) Agriculture Perspective Plan launched in 1995/96 that emphasized on food security.
- 2002/03 QUIP has been launched in Karnali, Mahakali and Seti zones of Nepal through WFP. Similarly, PLICK and EMOF programme have been introduced since 2005 (WFP, 2006).

Ministry of Agriculture and Cooperatives indicated the efforts of food security of from government side (MOA, 2005).

- 2004 April: Nepal became member of World Trade Organization (MOAC, 2005)

- 2004 A.D. Food security programme through MOA has been launching in four districts of Nepal (Kavre, Makwanpur, Mustang and Baitadi) in collaboration with French government since 2004-05 as pilot programme
- Intra-household food distribution system is still ignored. However, a separate food security programme has not yet been formulated. Food deficit districts were designated by Government of Nepal by region (appendix 2).

2002 A.D the tenth plan envisages in target to raise per capita food availability (including potato & pulses) to 286 kg/person from the present 264 kg/person by fiscal year 2006/07(NPC, 2002).

2.3 Past Impacts Related Food Security Activities

Koirala and Basnet (2006) citing the definitions of Dale (1998) stated that "Impact refers to the broad, long-term economic, social and environmental effects resulting from a project or intervention. Such efforts may be anticipated or unanticipated, and positive or negative, at the level of individual or organization. Such effects generally involve changes in both cognition and behavior".

Impact thus refers not to any immediate outputs or effects of a project or programme but to any lasting and sustained changes put in place. Some of the questions commonly addressed in a typical impact assessment task of a project include (FAO, 2000 and Baker, 2000).

How did the project affect the project beneficiaries and other stakeholders?

Were any improvements a direct result of the project, or would they have improved any away?

Could the programme design be modified to improve impact?

Were the project costs justified for the benefit obtained?

What are the poverty implications of the project?

What is the relevance and effectiveness of the particular project in relation to the national (regional) development priorities?

Impacts refers to overall, long-term changes in the project area (positive or negative), which results at least in part, from the project/ programme, such as reduced poverty, improved food security, greater gender equity, and improved natural resources management, measuring and attributing impacts to a particular project/programme is very difficult (Koirala and Basnet, 2006)

The General Result Model used in GTZ to measure the project cycles from the activities to the impact level (RPN, 2003). GTZ-RPN has developed RBM system for monitoring the development projects and programmes resourced through German and partner inputs. Using these inputs, they launch activities that generate outputs. These shall then be utilised by target groups (use of outputs), generating medium-term and long-term development results i.e. outcomes and impacts. Up to the level of “use of outputs”, attribution is relatively easy in most cases. However, as we climb up to the levels of “outcomes” and “impacts” external factors that cannot be influenced by projects and programmes become increasingly important. The attribution gap widens up to an extent where the observed changes cannot be directly related to programme outputs any more. Monitoring tasks beyond the attribution gap by RBM seeks to answer the question of whether these changes can plausibly be linked to the programme. (GTZ, 2003)

An impact study was done by New ERA in UN Model Village -Gankhet VDC of Dadeldhura. Synergy effects of interlinked programmes have provided various opportunities for local people to enhance their skills and knowledge which in term open new avenues for employment. The study describes as external interventions have contributed positively in improving the situation of the targeted beneficiaries. Certain training programmes have able to enhance their capacities and skills which further opened up employment opportunities. That survey found changes in economic condition

have been listed that about 10% households have shifted their occupation to goat raising and vegetable farming. The average income from petty business has increased by about three folds. Better supply of seeds and fertilizers, improved irrigation, introduction of new technology and better linkage with markets have significantly contributed to increase in agricultural income. The food sufficiency of households more than three months has increased from less than half in 1999 to about 60% in 2003. Similarly nutrition uptake of household members increased significantly (New ERA, 2003).

Food and Agriculture Organization citing the gender perspective of food security of UNICEF, 1996 that many studies of nutrition in Nepal and other part of South Asia indicate pro-male bias in the distribution of food within households, so that the nutritional status of women provides a good indicator of intra-household food security. Nutritional status of most rural women of Nepal is extremely low (FAO, 2003)

The same book also highlights the implementation of the RCIW Programme to reduce seasonal labor migration. The economy of nearly all of the mid western and Far- western hills seems to depend on the seasonal migration of nearly all the men folk from poor households, particularly those inaccessible areas, who go to India to find work as unskilled laborers. Some report that the only benefit from migration is the fact that it reduces pressure on domestic food supplies. With increasing poverty migrants are now tending to longer in India in order to pay their debts back at home, or to earn a little to support the families for a few months. Migration emerges as a fairly desperate coping strategy, and it slows significantly whenever local livelihood opportunities became available.

A rapid study on income–expenditure pattern was conducted in 2003 in Karaputar-Salmebhanjyang and Tarkughat–Mohariyakot- Gauda-Dudhpokhari green roads of Lamjung district. The study presents a comparative analysis of expenditure pattern on an average of all workers. It shows that in case of the average worker, expenditure on food consumption was relatively much (36.69%) followed by construction, education, health,

IGA, loan repayment, saving and other unspecified expenses. Likewise *Dalit* laborers expenses the income from the RCIW programmes is spent on food (48.6% of income) followed by construction, health, loan repayment, savings, IGA and education (GTZ-RPN, 2004).

A multi-purpose household budget survey attempted to gauge the minimum calorie requirement in 1984 by the Nepal Rastra Bank, used the Basic Needs Income (BNI) approach. As per this approach, national average was 2250 kcal and it was 2340 for the hills and mountains, and 2140 for the terai. Based on the retail prices of these commodities during 1985/86, the expenditure required for the estimated hills/ mountains and terai requirements were estimated at Rs 3.86 and Rs. 3.06/person/day respectively. (CBS, 1997)

Bhandari *et al* citing Blaikie, *et al* 1976 that the rural roads play a vital role in rural development, roads along might not always brings about the desired results. The comparative evaluation of crop yield rates, after the construction of Lamosanghu- Jiri road in IRDP programmes, indicates higher yield rate after the road than before projects. The rural constructed by GTZ-RPN in Dhanusha effected to increase the area, production and marketing was doubled under vegetable production. They also attempted to analyse correlation between road and agricultural activities. The area under maize, millet, and barley were negatively correlated with road density variables while the variables under paddy, wheat and all types of cash crops have a positive and significant association with all types of road density variables. The relationship of fruit cultivation with road variables was not found to be significant. Improved market accessibility encourages farmers to go for dairy farming and other livestock products by changing their herd composition. Agriculture service has a significant positive relationship with road networks. More extension officers and other staffs are available in the districts where road networks are more extensive. Financial institutions are also highly distributed where road infrastructures was well established. The number of temporary and permanent market centres are positively correlated with all types of road density and found highly significant.

The road played vital role in reducing transportation cost and prices of imports, use of different mode of vehicles to transport the produces, marketing patterns, increased land value, increased on petty business, increased local employments and reduced labor migration, and new market centres were established. Roads have also induced changes in crop composition by enabling the farmers to respond to market opportunities. Areas close to the market centre realised increased production than areas farther from market centres. The road reduced transportation cost also reduced the farm get prices of inputs and increase the farm get prices of agricultural produces. New modes of transportation enabled larger quantities transported to the market (Bhandari, M., K. Banskota, B. Sharma, 1999).

District Development Committee (DDC) under Participatory District Development Programme developed the tool to measure the intensity of food sufficiency in the VDC in 2001 in Baitadi district. In order to understand the food sufficiency level in the VDC, each sample household was asked about the year round level of food sufficiency during data updating in the district. The food security levels were further clustered into four groups as follows: 1) <6 month food sufficiency, 6-9 months sufficiency, 9-< 12 months and =>12 months sufficiency. Each cluster of food sufficiency levels in the VDC was further weighted by its score as defined above on the basis of intensity ratio of households with in the cluster. The calculated indexes of used tools to measure food insecurity have been summarized below:

Food Sufficiency Levels (Fsi) = Ratio score of (%HH served for =>12m*3 + %HH served for 9-11m*2 + % HH served for 6-9m* 1) /6

The calculated score was distributed in the VDC to find its index by deriving actual, minimum and maximum value. The calculated index of each cluster is summarized below.

Food Security Index (FPi) = Ratio score of (% of population served by Rice *3+ ((% of population served by wheat *2 + (% of pop served by maize *1+ (% of pop served by millet *1/7

Food sufficiency and security level is the simplest criterion for assessing the poverty situation of households in the VDC. The type of food sufficiency for the entire year and its household ratio in the VDC were ranked accordingly. The ratio of population with access to food production is calculated on the basis of 180 kg food grains per caput.

Nepal food security and vulnerability profile 2000 included in the rapid assessment for the national food security and vulnerability households are everywhere in the country. The vulnerable settlements as identified by the district stakeholders are generally found with degraded natural resources including soil resources, and were generally located at higher elevations of mountains and hills households. The range of the proportion of the food insecure households ranges from around 25 percent to as high as 90% in the country. The main indicators used for distinguishing food secure and food insecure households in 65 surveyed communities are: lack of able bodied labour, small land holdings, lack of access to service/pension income, small livestock holding, poor land quality/location, working as wage labour, working as semi-skilled labour, lack of foreign remittances, reliance on tenancy arrangements, and lack of occupation in trades. The indicators used by community members to distinguish the food secure from food insecure households suggest that asset poverty is the primary determinant of food insecurity throughout much of Nepal. Of the top ten most frequently cited criteria used to define the food security status, most relate to the lack of access to and quality of land, livestock and (skilled) labour resources within households (WFP,2001)

A workshop was conducted by German Technical Cooperation to evaluate role of RCIW in food and nutrition security status governed by the different activities. The discussions were done and the team workout tabulated interventions played role in the food security status. Total activities related to food availability are production supportive inputs and materials like fertilizer, tools, green house development, area expansion under fruit and vegetables, multi purpose nursery development etc. The food access related activities are rice/cash support, employment from FfW/CfW project, savings and credit,

IGA, rural roads. The food utilization related activities are FNS trainings, latrine, personal/ community cleanliness, RH and HIV, and School gardening. The stability related activities are savings and credit, linkage development, first aid kits, CT training, Flood control, IPM, watershed management activities (GTZ-RPN, 2004).

The NARMA and GTZ-RPN assessment team surveyed the outcomes/ impact of core and micro projects in February 10 to April 20, 2006 in nine districts of Nepal particularly Bajhang, Dadeldhura, Dailekh, Makwanpur, Salyan, Janakpur, Dolakha, and Siraha. The evaluation was done based on the focus group discussion based on the selection of the projects as per checklists. Majority of MPs implemented under the RCIW are relevant and thus appropriate because they are generally focused on all the four pillars of the tenth plan (2002-07) namely broad based economic growth (e. g. agricultural production, additional income generation), physical infrastructure development (construction of water harvesting tanks, irrigation, river training etc), targeting (poor and disadvantaged groups) and good governance (decentralized structure, transparency, accountability, organizational strengthening etc. Despite the concept of MPs had evolved prior to the 10th Plan, its consistency and coherence with 10th plan further reinforces its appropriateness in the present context (NARMA, 2006).

Koirala, G. and G. Thapa (1997) pointed out future directions for the battle for household food security by using a set of policy instruments geared towards ensuring aggregate food availability, creating opportunities for income generation at the household level, empowering women, promoting nutrition education and enabling food movement. These policy can be achieved through following means:

The components of food security, the problems and means to resolve these problems have been presented in Table 2

Table 2: Food Security Components, Requirements and Means.

Food security components	Requirements	Means
Food availability	Increased domestic food production	Technology, extension, input supplies
	Stability in food production	Technology and Irrigation
	Food aid and import	Exploitation of production niche
	Population control	Population education and access to food security measures
Access to food	Increased employment and income generation opportunities	Skill training, Off-farm and non-farm job opportunities, agricultural intensifications
	Equity in income	Targeting
	Distribution infrastructure	Transport facilities linking surplus and deficit areas.
Intra-household food distribution	Women empowerment	Property rights, education
Nutrition	Food habit changes	Nutrition education
	Health facilities	Health education, safe portable water, sanitary food regulations

Source: Winrock International, 1997

The conceptual framework of malnutrition was developed by UNICEF and now accepted and widely used by many institutions, agencies and countries around the world. The underlying basic causes of malnutrition into three levels immediate, underlying, and basic causes. The immediate causes related

to malnutrition are household food security and infectious disease (CBS, 1998)

CBS 1998 citing ADB/M reported in "Nepal Economic Policies for Sustainable Development" that five food grains- paddy, wheat, maize, millet, and barley, occupying 90% of the cultivated area in Nepal, are the chief source of food for most of the population. Sugarcane, oil seeds, jutes, tobacco, and potato are the main cash crops. The amount of food available per capita has been declining in Nepal. An increasing number of districts are experiencing food deficits. The gap between food requirement and consumption is increasing year after year. The per capita food availability was 303 kg per head in 1974/75 and declined to 225 kg per head in 1980/81. More peoples are restricted by their economic conferences for consuming only food that is required for survival.

The main problems on food availability were the insufficient land as per population growth, distribution of unequal land, land fragmentation. Clearly, the productive capacity of lands in Nepal has declined and is believed to be declining even further. Due to land, food shortage becomes acute during the few months before harvest in October in most part of the country.

Lack of quantity as well as quality can impact the nutrition status of both children and adult population. Dal, Bhat is the main meal for most of the Nepali families, with some seasonal vegetables. In summer there is a shortage of milk, green vegetable and fruit. Mixed mush (Sattu) is a common food items given to children. Percentage of households consuming less than recommended levels of foods (per capita calorie consumption) is highest in rural hills (47%) followed by urban areas (40%) and mountain (31%). Though inadequate access to food is clearly not to the sole cause of malnutrition, about 30% households have inadequate access to food.

As estimated 38% of all Nepali people live below the poverty line, and 36% consume less than the minimum daily caloric requirement. Poverty and food insecurity are due largely to a shortage of fertile land and declining per capita availability of food, poor distribution of the available food, and lack of local employment opportunities (NPC, 2002).

National Planning Commission also envisages the target in tenth plan (2002-2007) to raise per capita food availability (including potato & pulses) to 286 kg/person from the present 264 kg/person by fiscal year 2006/07. Likewise,

sugar will reach 9.03 kg from 8.7 kg now and oil 2.30 litre from 2.16. The availability of meat will be 9.94 kg from the present 8.5 kg., milk to 50.85 litre from 47.05 litre vegetables from 66.74 kg to 79.15 kg; fruits from 16.17 kg to 17.89 kg and fish to 1.87 kg.

A study on "conflict induced food insecurity in Nepal" was conducted by NLA-Nepal in four districts in 2002. The study prevailed that the magnitude of the food insecurity in Dailekh was 33%. The food deficit in the Dailekh got fulfilled mainly from the three sources. The study found that the tentative food contribution in the districts was 67% from own production. The other sources to supply the other requirements were local traders (26%) who import food from the terai districts, NFC by 5% and FfW-RCIW programme (2%). The food availability situation was worsened after the declaration of emergency in Dailekh district. The assessment of intensity of impact of insecurity situation on food production was the no of heavily affected VDCs were 15, moderately affected were 33 and no. of least affected were 8 VDCs. The total no. of households that are heavily affected were 23%. The youth, highly affected VDCs were migrated for work in terai districts and even India. The movement of goods and people in the Maoist affected areas was drastically reduced. The supplies of production inputs were also reduced. Local level agriculture office has been invariably shifted to the district headquarters. The food supply tied to development organizations-RCIW programme was only reported to be reaching the target area and target people.

The supply of food from the surplus producers and the by the traders has been the important means of meeting food deficit in the deficit VDCs of the districts. Supply of food thorough the market was severely hindered largely due to the fear of conflicting parties. Similar to food grains, the readymade food items were not allowed free movement and unrestricted trade. Village petty shops were stopped selling such items in bulk. Food supply from NFC was also closed due to insecurity security

This suggested that the overall food security situation in all the study districts has deteriorated and reduced by 10-15%. The main cause of deterioration was due to decrease in the market availability of food crops as movement in food items is restricted in the Maoist hit areas. Another region for the emergence of such a situation was due to decrease in production of food crops in these areas due to lack of extension services, unavailability of inputs on time and decrease in labour supply. (Sharma and Sharma, 2002)

The coping mechanism against food insecurity in Dailekh was found out that mostly used activities were labour work, loan, livestock selling, selling, productive asset selling and migration on time and decrease in labour supply due to migration. Many households combined several of the above mentioned coping mechanism (Weingaertner, L.,1999; Sharma and Sharma, 2002)

The food security and vulnerability profiles reported that there was inverse relation of male and female on the access of food. The explanation implies that women are more food insecure than men at the household level. They eat less and not frequently as men. The level of food insecurity differs by season and economic condition of family. However, women eat more frequently during the agriculture season compared to other season.

In case of the Aryan families, a rule in the order of eating is as follows: men eat before women; and among women there is hierarchy. The youngest daughter-in-law looks after the kitchen and eats last (WFP, 2001).

In case of the food frequency all the surveyed communities, people eat three times a day: brunch in the morning, snacks in the afternoon, and supper in the night. The afternoon snack is not always taken across the communities and households; it is governed by economic condition of family, food sufficiency, and therefore, by season, and also by amount of work performed. Very poor peoples of the vulnerable communities take only two meals a day. Men of the households with better food sufficiency eat four times a day during the agricultural season. But women who generally do not perform wage labour eat two to three times a day. The children eat more often –four to five times than elders. (WFP, 2001)

2.4 Measuring Indicators for Food and Nutrition Security Programme

A selection indicator for food and nutrition security programme was reported by Silvia Kaufmann citing from FAO. Beside food availability and access, other factors determine the actual food consumption of an individual and household. Such factors could be time availability, especially of women, access to food processing technology (mills, dryers, and stoves), food storing capacity, skills and knowledge on food preparation, availability or access to cooking tools or fuel.

Various methods do exist to measure food consumption. Comprehensive food consumption surveys are time intensive and complex, especially if weighing or recall methods are used (Haddad 1994). In addition seasonal variations

make the data hard to interpret. Most common Food consumption indicators are listed as below.

i) number of meals (number of meals for children and women compared to men), ii) numbers of different food items consumed (aggregated by food groups), iii) frequency of most common food items (categorized as daily, weekly, monthly, seasonally or never), iv) frequency of consumption of famine food or wild foods indicates poor or food insecure households, v) number of meals consisting exclusively of staple food, and vi) amount of staple food consumed per consumption unit

He also mentioned that the special consideration is given to the intra-household food distribution; between women and men, old and young household members. Breastfeeding practices, weaning habits, child feeding practices as well as food pattern of pregnant and lactating women are important to be taken into account when planning appropriate action targeted towards the highest risk groups. They are also reliable indicators to monitor

Indicators for food security at household level was also determined. A distinction can be drawn between chronic and transitory food insecurity (FAO 1997). Transitory food insecurity occurs when households face a temporary decline in availability or access. A number of different variables can be used to assess household food security. Indicators reflecting food availability include inputs and measures of agricultural production (including all resources), access to natural resources, institutional development, market infrastructure and exposure to conflicts. Indicators reflecting access to food are various means or strategies used by households to cover their basic food needs, such as economical activities, indebtedness.

An appropriate method to assess food consumption pattern of a household is the food frequency method. The frequency count of (daily, weekly, monthly, seldom or seasonally, never) of common foods consumed within a household are the appropriate indicators of measuring food security.

The compendium on environmental statistics Nepal cited per capita calorie consumption citing the document of NPC (1997). According to this per capita consumption requirement of 2140 kcal per caput in the terai and 2340 kcal per caput in the hills and mountain, based on WHO guidelines adjusted for climate and household composition. The percentage of households consuming less than recommended levels of food is highest in the rural hills (47%)

followed by urban areas (40%), and mountains (31%). The proportion of income spent on food is a good indicator of poverty and of food insecurity. In rural areas food expenditures remain over 60% of total expenditures. It appears that per capita expenditure level of roughly Rs. 200 per month (1984/85 price) is needed before households greatly decrease the proportion of expenditure on food. Only 35% households in rural areas have this level of income. (CBS, 1998)

Mother's food security is another indicator of household food security. In NMIS 1996 indicated that mothers were asked if they had enough to eat in the previous day and if they had to limit their food intake to give food to the child last week. Most mothers had enough to eat in the previous day, but a quarter reported limiting their own food in the last week. Children whose mothers report not having enough food to the previous day are more likely to be stunted or wasted than children whose mothers had enough to eat. During FGD, 50% mother groups mentioned their inability to provide good food including meat, dairy products and beans to their children due to limited resources (CBS, 1998).

Gittelsohn *et al* (1996) did on “Operationalize intra-household food security survey in Pahargaon VDC in the western hills of Nepal. Past, current, and future food stability scale were used to analyze the household food security. Household food consumption patterns were estimated using a weekly food-frequency instrument. The twenty foods recorded in the household food stores and usage instrument were combined into eight food groups. Caste and socio-economic status were more associated with frequency of consumption of the different food groups than the food security scales. Being Brahmin or, to a lesser degree, Chhetri, was associated with significantly more frequent consumption of green leafy vegetables, tubers, and dairy products and significantly less frequent consumption of meat. Households in the upper terciles of socio-economic status tended to be more likely to consume green leafy vegetables and tubers. It is important to note that caste and socio-economic status are highly correlated in this setting. High scores for past and current household food security were associated with more frequent consumption of meat and, to a lesser degree, of dairy products.

Future household food security, represented by the amount of land planted in different crops and by animal holdings, is associated with increased total dietary variety and future consumption of dairy products. Socio-economic

status plays a role in predicting the total dietary variety of foods consumed and the frequency of consumption of food.

Economic studies have found that the income elasticity of staple foods is much less than that of non-staple foods; this reinforces the need to look at dietary quality rather than quantity, since this is where the most variability among households occurs (Gittelsohn J, S. Mookherji & Gretel Pelto, 1996).

CHAPTER III

RESEARCH METHODOLOGY

This chapter describes the process of research that has been used to measure the objectives. Research design is the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data.

3.1 Location of Study Area

The RAP/RCIW programme has been implementing four road corridors (Appendix 6) in nineteen VDCs and one municipality area of Dailekh. Tallo-Mathillo Dungeshwor road corridor covers five VDCs as link corridors, was selected purposively as the study district (Map #2). The survey VDCs under this road corridors were Dandaparajul, Malika, Khadkawada, Gauri and Baraha. The survey research was conducted during January–April 2006. The map 4 shows the survey VDCs of the RAP/RCIW programme working areas.

3.2 Rationale of Selection

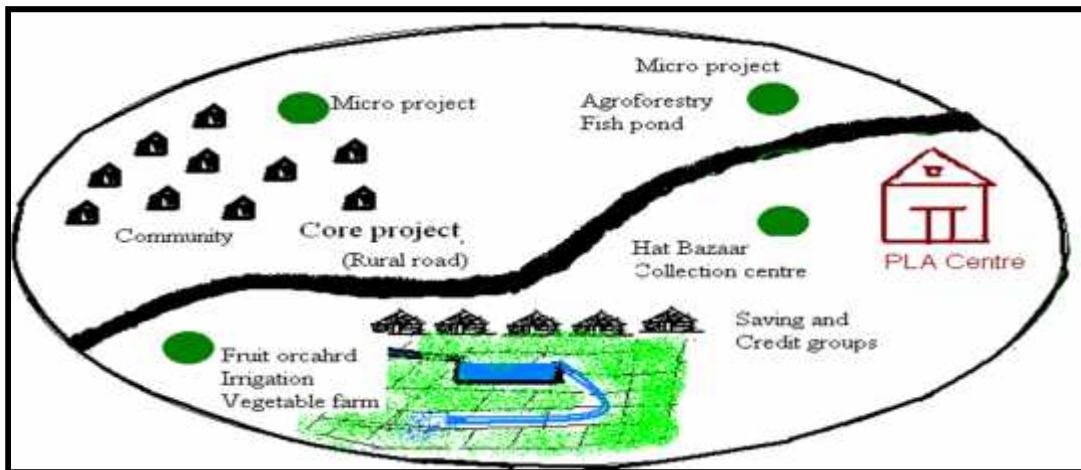
-) The districts as well as selected VDCs are most food deficit in the hill district and RCIW was working in the beginning of the year.
-) The road is only one completed core project and the beneficiaries are getting benefit from the pliable rural road. RCIW programme activities have been launching programme at this corridor continuously since the beginning to till date so that the study purpose was met with the maturity of the programme.
-) The study sites are linked with the Tallo (lower) and Mathillo (upper) local market. On the other hand, all the components of RCIW are also concentrated in these areas. There is easy to analyze the impact through the linkage of various components.
-) No body is done such type of research in this study area.
-) Researcher is well familiar with these locations during his period of job affiliation so that there is felt easy to collect data and information.

3.3 Analytical Framework

For the impact study of the RCIW programme, following conceptual frameworks were cited.

3.3.1 Framework of Different Components in RAP/RCIW Programme

Fig 1: The Relation of Different Components

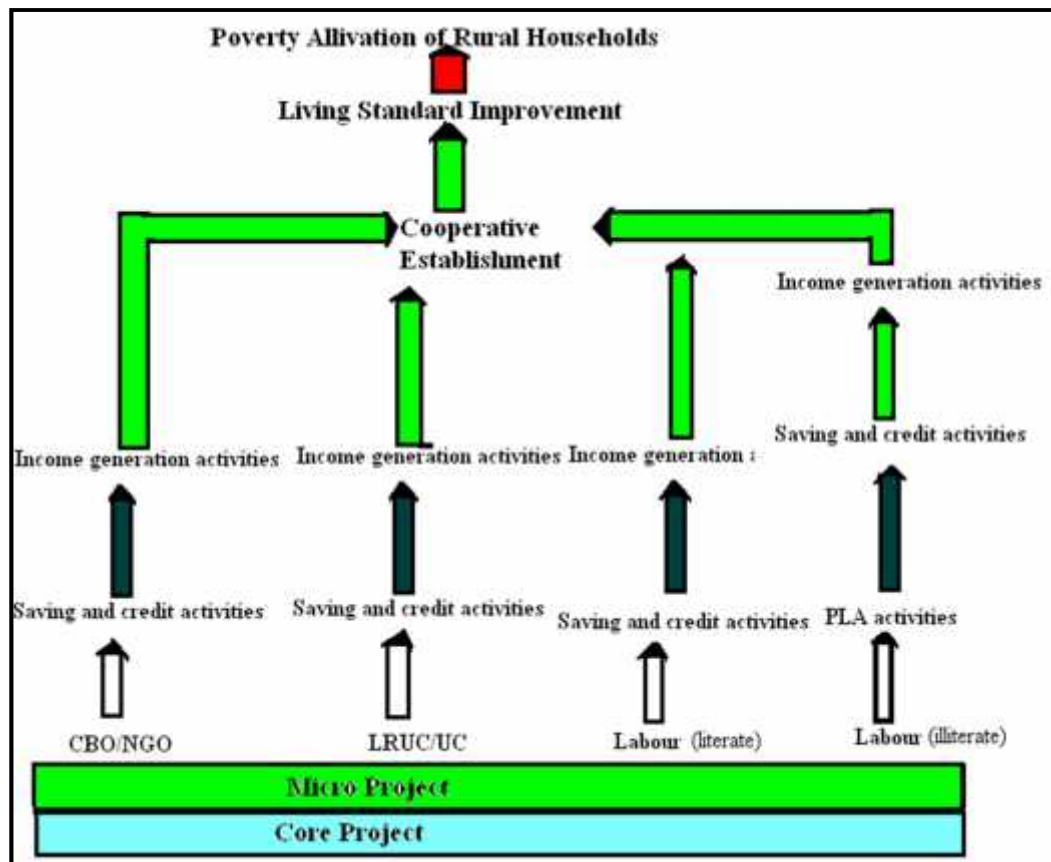


Source: RCIW Micro Project Guidelines, 2002

The figure 1 was the integrated food security concept of the RCIW programme for the long- term food security. The three components: core projects, micro project, and complementary activities are associated under the programme. However, alignments of core projects auto-targets the micro and complementary activities along the sides of 2.5 hrs distance in either side. The productive as well as income supportive activities are implemented to increase the livelihoods of RBG members leaded by local resource users committee. This framework was taken to measure the impact of the overall programme towards the food security issues of the involved households.

3.3.2 Poverty Alleviation Framework

Fig 2: Poverty Alleviation Framework of RCIW Programme



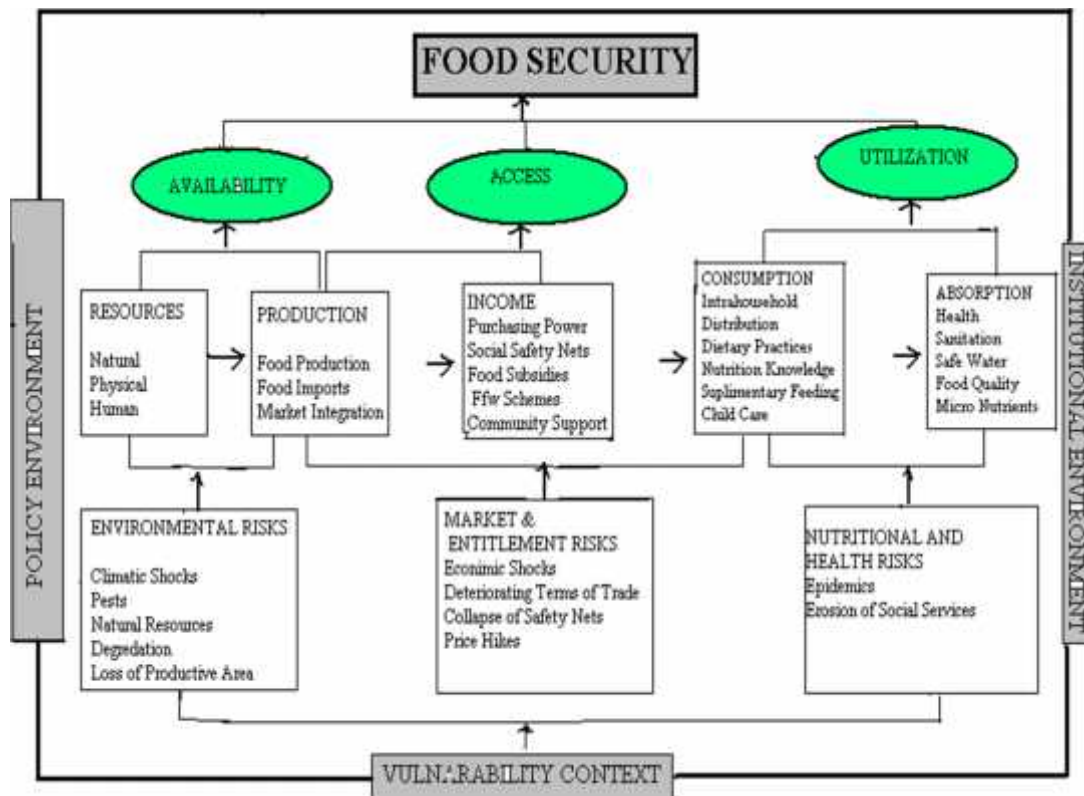
Source: GTZ-RPN, 2006 (Modified for RAP/RCIW Programme).

Poverty alleviation framework of RAP/ RCIW Programme has analyzed the foundation of the root causes of poverty of beneficiaries and implements to reduce poverty. These workers around the road are organized into the road building groups. Those beneficiaries that are illiterate and have also mental poverty are organized into Participatory learning Centre (PLC) and those groups/CBOs, that are literate and empowered, are organized as self-help groups. Saving and credit activities, income generation activities and micro projects are started in these SHGs. After SHG formation, it takes three years duration for the maturation. These SHGs are organized into the cooperatives so that they can capable to operate the cooperatives by their own efforts. After the capacity to run as viable organization, the community people empowered

by skills and information and they start to continue activities then after. They improve their living standard by transforming political, social and economical status. By the way, the household level poverty can be improved.

3.3.3 Food Security Analysis Framework of RAP/ RCIW Programme

Figure 3: Conceptual Framework for Food Security Analysis



Source: WFP Nepal, 2001

This framework accepts the WFS definition that this study makes three major sequentially interlinked components of food security –food availability, food access and food utilization. Food availability is determined by net domestic production and the balance of imports and exports.

Access to food implies both physical and economic access to obtain food. It is determined by income status of people and by other entitlements through transfers. Food distribution, employment and income levels and non-market entitlements reflect access to food.

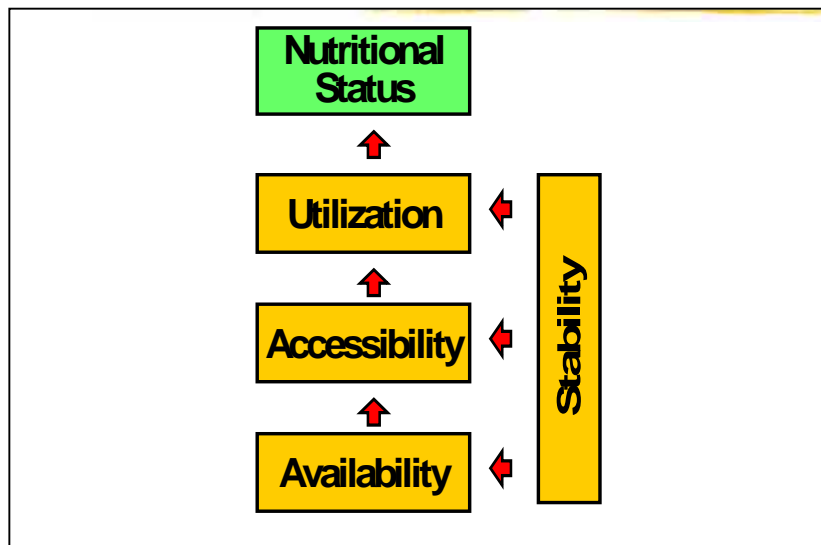
Food utilization relates in part to the capacity to translate food efficiently into energy. This is determined partly by the level of nutritional knowledge and practices. Another important aspect of food utilization relates to food consumption patterns within households.

All of the factors that influence food availability, access and utilization and their by the food security situation of households and individuals are affected by the policy and institutional environment under which they live, over which they have little control. Vulnerability context of households is influenced by time trends in variables like population growth, resources, technology, shocks resulting from factors like bad health, natural calamities, economic evens and conflicts; seasonality of prices, production, employment etc. Therefore, three sequentially linked components of food security –food availability, food access and utilization – are the central focus of the analysis.

3.3.4 Food and Nutrition Security Elements

Dr. Herwig Hahn referred food and nutrition security that the physical determinant is the food flow: Availability, Accessibility and Utilization. Availability is achieved if adequate food is ready to have at people's disposal.

Fig 4: Elements of food and Nutrition Security Frameworks



Source: Gross et al. 1999.

Access is ensured through production, purchase or donation for a nutritious diet. Adequate utilization refers to the ability of the human body to ingest and metabolize food. Nutritious and safe diets, an adequate biological and social environment, a proper health care to avoid diseases ensure adequate utilization of food. In this case, utilization is only discussed as a types of food items consumed during weekend and amount of food items consumed in the households level as per biological perspective.

Stability refers to the temporal determinant of FNS and affects all three physical elements. It is important to distinguish between chronic food and nutrition insecurity (e.g. repeated food shortages before harvest “seasonality” or lack of caring during harvest) and transitory food and nutrition insecurity (e.g. due to natural and man made disasters). In this study we have focus on the stability factor that is affecting on the three components of the food security. Those components are drought, political strikes, structural arrangement of the government etc.

3.2.5 Impact Assessment Steps in RAP/RCIW programme

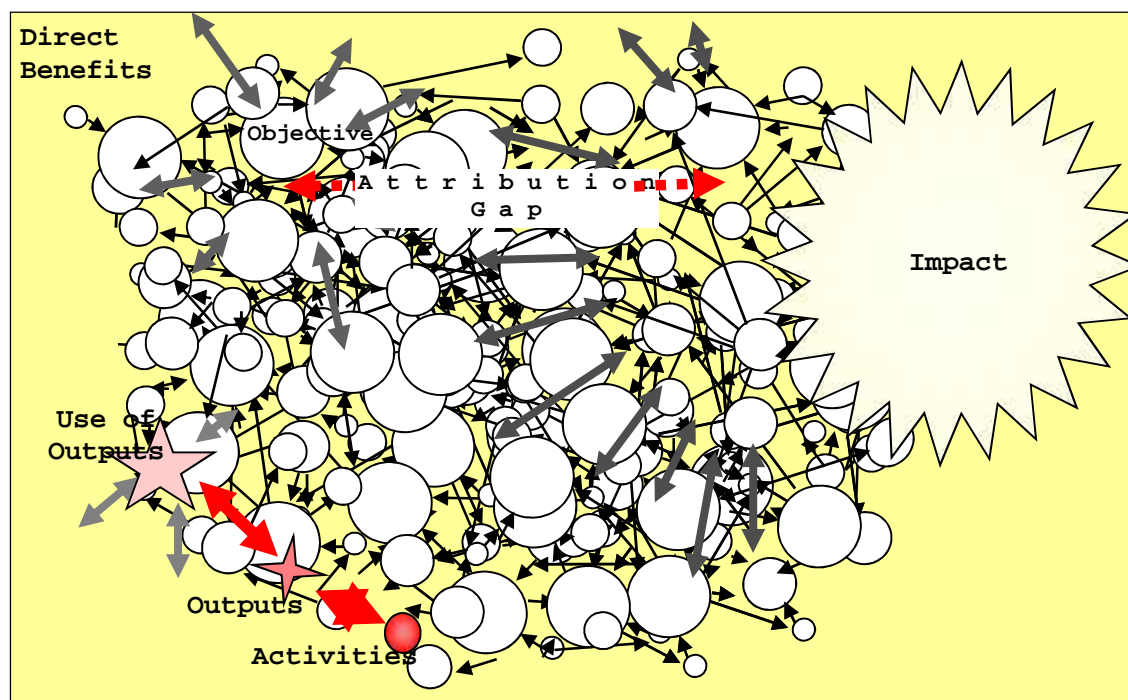
Poverty Monitoring Units (PMU) of GTZ–RPN has been implementing results-based monitoring (RBM-system) in the RPN districts (GTZ, 2003)

This is defined as (RBM) is the collection, evaluation, documentation and dissemination of information on the results of a GTZ project or programme that can be used for further steering. Monitoring is the continuous observation of programme progress and impact. It provides insights into the quality and impact of RPN activities in order to initiate a continuous improvement process.

It is useful to distinguish different types of results:

-) The way intermediaries and beneficiaries use the programme's services is called the use of outputs.
-) The effects close to the programme that can be clearly attributed to its outputs are its direct benefits or outcomes.

Fig 5: Impact Assessment Steps of RAP/RCIW Programme



Source: GTZ-RPN, Kathmandu, 2003

) Beyond those direct benefits there are effects that cannot be attributed to the programme's outputs. These indirect benefits lie behind the so-called attribution gap and are called impacts.

This study focus on output level, use of output and qualitatively in the impact level. However, the study will not analyze to measure the attribution gaps before assessing the impacts.

The red arrows are bold at the activity level but gradually becoming thinner at the impact level while the black arrows are showing vice versa relations.

3.4 Universe, Sampling Frame and Sample Size

A complete list of respondent was first of all prepared in consultation of the RAP/RCIW Dailekh and list was prepared and tabulated in table 3. Total universe of the survey area was 3727 households out of that 1678 are male and 1272 are female. Out of that universe, the participants that were covered by micro projects were selected as sampling frame (1184 households). Samples were drawn only 100 households from five VDCs: 23 households from Danda parajul, 20 households from Baraha, 17

households from Gauri, 20 households from Khadkawada and 20 households from Malika VDCs.

Table 3: Distribution Pattern of Household and Selected Samples.

S.N	Name of VDC	HHs	Sampling Frame			Survey Samples (No of HHs)
			Coverage HHs in CP	HHs coverage in MP	HHs coverage S/C	
1	Danda parajul	939	492	383	558	23
2	Baraha	651	595	330	315	20
3	Gauri	458	320	74	41	17
4	Khadkabada	800	756	168	156	20
5	Malika	879	788	229	213	20
	Total	3727	2951	1184	1283	100

Source: RAP/RCIW Dailekh, 2006.

In response to the focus group discussion (FGD), seven FGDs were conducted by involving 7-10 key informants selected from the core and micro project's beneficiaries, stakeholders, and programme related staffs.

The selection of the households was also based on the different categories of self-help group as listed in focus group discussion. Beneficiaries having involved in core (partially), micro and any types of complementary activities were only selected for the survey by using purposive sampling first and simple random sampling technique then after. Purposive sampling technique was used for selecting *Dalit*, disadvantage, relatively better, women respondents while the simple random sampling technique was used within the categories.

To make the study qualitative following criteria were first prepared in consultation with district staffs for the selection of appropriate group and seven focus groups were conducted during the study.

-) At least two years old MPs where outcome/impact have begun to have been realized;
-) coverage of all types of MPs implemented so far; and

- J balance between relatively successful, mediocre and unsuccessful MPs so that i) the average situation is represented in the aggregate; and ii) that the range of dynamics of performance are understood;
- J The MPs with better access to all weather roads and markets vs areas and MPs with relatively poor access to roads and markets.
- J Inclusion of both rice based and non-rice based MPs.

Based on the following criteria, MPs with a total of seven numbers out of 103 fruit orchards and one core projects out of four core projects were selected in aforementioned five VDCs. While selecting MPs, due considerations were given to select projects that were undertaken by individuals as group in their private land and by groups in public lands.

3.5 Source of Data

Both primary and secondary source of information were collected during this study. Primary data, first hand source of information, were the major tools of the analysis in this research.

3.5.1 Primary Data

Primary data were collected directly through field survey. These were the first hand data collected by the researcher, observe some quantitative measurement with the help of the interpretation of data, researcher examined the trust contains in objectives. Out of the 100 samples, 68 % male, 32 % female respondents were interviewed. In case of cast, 23% were *Bhrahman*, 24% were ethnic, 20% *Thakuri* and *Kshetri* and 33 % were *Dalit* respondents. Majority (98%) of the respondents had the occupation of farming.

3.5.2 Secondary Data

Secondary data were the source of the study. The data generated in the different organizations, either published or unpublished for official purpose, were collected as per the requirement of the study.

3.6 Data Collection Technique

3.6.1 Household Survey

Household survey was conducted for the quantitative data collection by visiting door to door of the individual households.

3.6.2 Focus Group Discussion

Seven to ten key informants from seven group were fully participated in the focus group discussion (FGD). FGD was done with project beneficiaries and qualitative data were collected by the help of checklist. Staffs working in NGOs, GTZ-RPN, WFP and DCC body, line agencies members, LRUC members were also involves as key informants for the study (Appendix 24).

3.6.3 Observation

Direct observation was also applied to get relevant information for the study. In this course of fieldwork, members participations, qualitative participations, numbers of meeting held, orchard status, technology adopted, project book, and meeting minutes were observed in this study.

3.7 Data Collection Tools

3.7.1 Interview Schedule

Interview schedule was designed for the collection of primary data from the selected beneficiaries by preparing structured questionnaires (Appendix 3)

3.7.2 Structured Questionnaire

Investigator used a rigid tool of preparing structures questionnaires for the household survey. Detailed questionnaires (Appendix 3) were first prepared by using coordination schema. Respondents were individually interviewed with the help of well-structured questionnaire. Proper rapport was applied with the respondents for the conduction of interview schedule.

3.7.3 Topic Guidelines

Questioning route or topic guidelines tool was used to collect information during focus group discussion (Appendix 4(1,2))

3.7.4 Checklist

Investigator also used semi structure checklist for the observation of qualitative and quantative information.

3.8 Data Processing, Analysis and Interpretation

In this research, descriptive and exploratory research design was followed. The data sources were mostly of discrete as well as continuous variables. Based on these variables, frequency count in M. Excel, 2003 was done individual basis and they were put in the Dummy table. The tabulated data were analyzed on the basis of percentage, pie chart, bar

diagram, graphs using MS wizard programme. To find out the relationship, some statistical tools i.e. average, range and food security modules were used. Following are the formulae used to analyze data and information.

Percent:
$$\frac{\text{Desired frequency}}{\text{Survey population}} * 100$$

Formula used for Mean ($\bar{\epsilon}$) =
$$\frac{\epsilon}{n} = \frac{\epsilon_1 \Gamma \epsilon_2 \Gamma \dots \Gamma \epsilon_n}{n}$$

Food Security Level = Ratio score of (%HH served for =>12m*3 + %HH served for 9-11m*2 + % HH served for 6-9m* 1) /6

Food sufficiency = Quantity of food produced +Quantity of food purchased in the market + quantity of food from food aid.

CHAPTER IV

DESCRIPTIONS OF RURAL COMMUNITY INFRASTRUCTURE WORKS PROGRAMME

J 4.1 Coverage and Targeting

RCIW, a joint programme of the Ministry of Local Development (MLD), World Food Programme (WFP), German Agency for Technical Assistance (GTZ) and the Department for International Development (DFID), has been implementing its programme in 25 districts of Nepal since 1995/96. RCIW is one of the most important poverty reduction programmes of the Government of Nepal. This programme is addressing 500,000 food deficit families of the country.

As one of the key pro-poor programmes implemented in Nepal since more than 10 years, RCIW's core projects target poor and food insecure groups through a two-pronged strategy- first, during the project design through the selection of the project site and secondly self-targeting-relying on individual decisions by potential beneficiaries.

The first phase of the multi-donor assisted RCIW was started in 1996 and completed in 2000. RCIW's first phase (1996-2001) adopted 'Food for Work (FfW) only' approach, concentrated effort on rural road construction and provided short-term employment to poor and vulnerable population as its target beneficiaries.

This was followed by a bridging phase based on which the second phase was started in 2002. From the first phase work completion, it was realised that the Programme had been successful in auto-targeting the beneficiaries but had relieved only their food insecurities in the short term. Most beneficiaries were found to be in "square one" again after the construction phase was completed. This realization led to the addition of a component to the core road construction component which potentially promised to relieve food insecurity problem in the longer run.

RCIW programme is implemented in 25 districts distributed in seven clusters organized as shown in appendix 5.1 and map 1.

4.2 RCIW Frameworks- Aims, Strategies, Objectives

The overall development objectives is to improve the livelihood of people most vulnerable to food insecurity, living in targeted, food deficit districts. RCIW's immediate objectives area to enable poor people to obtain and maintain assets that increase the availability of food and income both in their community and the individual households.

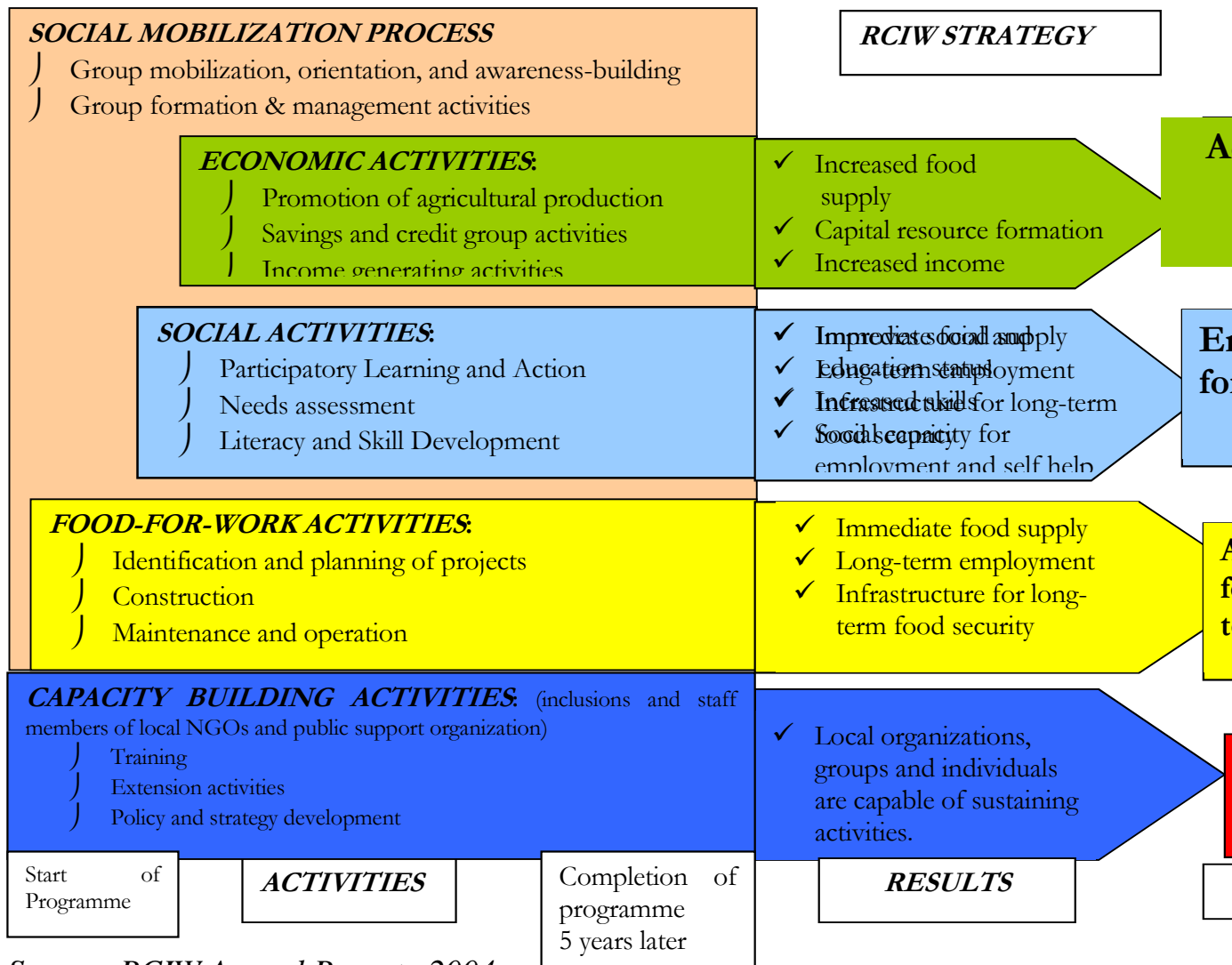
RAP/ RCIW see the development process of groups in three stages:

1. The formation of primary self-help group such as FfW RBG, S/C groups, PLA groups
2. Graduation of primary self-help groups into community based organization that are formally recognized by the DDCs, and
3. The alliance of cooperating CBOs into Cooperatives or NGOs.

It uses the services of locally operating NGOs hired by TA team to offer guidance and support to poor rural communities in four areas:

-) creation of self-help groups
-) mobilization of internal and external resources,
-) human development
-) linking groups among themselves and with external service providers. RCIW activities, strategies, results are listed in the logical framework are presented in the following figure 6.

Fig 6: RCIW Programme Frameworks



Source: RCIW Annual Report , 2004

4.3 RCIW Aid Partners and Responsibilities

The basic element in the implementation of RCIW activities is building partnership approach with DDC, VDCs, UCs, and UGs for the implementation of sub project activities with partnership "Self help" approach

Major aid partners are listed:

World Food Programme (WFP)

Government of the Federal Republic of Germany through Ministry for Economic Development (BMZ)

Danish International Development Assistance (Danida)

Swiss Agency for Development and Cooperation (SDC)

Netherlands Development Organization (SNV)

The programme is implemented under the overall leadership of the DDC. However, the chief implementers of the project are the user groups/committees. The TA agencies perform the role of go-between the DDC and user groups/committees. The programme envisages the user groups and local agencies to take the ownership of the core projects, micro projects and complementary activities.

The agencies playing the central role in the capacity building of users groups are the Central Programme Support Unit (CPSU) at the central level, the District Programme Support Unit (DPSU) at the district level and the Village Development Committees (VDCs) at the village level. The chief responsibilities of the DPSU are to coordinate the programme at the district level; provide food, tools, construction materials and technical services; and monitor the activities of the user committees. The main activities of the VDCs are to assist the user groups in project identification; assist the user committees in work performance and to make available funds for payment to unskilled labour and for the repair and maintenance.

For the specifying the programme partners, the following partners and their role is specified in Dailekh district.

MLD– Executive, Admin. & 50% ITSH (WFP – rice, tools and 50% ITSH)

DFID –cash for construction materials, tools, DTMP updating, Accessibility Planning, DEB preparation, enterprise development, first aid, insurance scheme, skilled and unskilled labour wages etc. through RAP programme.

GTZ-RPN -Technical support and some cash for complementary activities

DDC – Main Implementing agency in district

VDC – Support in road maintenance work

)
)

4.4 RCIW Components

The three main components: (a) core project, (b) micro projects (MPs), and (c) complementary activities (CA).

)

4.4.1 Core Project

Core projects refer to those schemes with a long-term development perspective of the district which could be accomplished within two to three years. The core projects include (a) rural road projects that pass through the densely populated areas of the district or link the district with the national highway or a subsidiary road, and (b) river training, embankments, etc that are within the community's capacity. The core projects are implemented with a view to provide short-term employment to poor households during the agriculturally slack seasons.

While the RCIW is not explicit on the average number of days that it envisages to provide short-term employment to the rural poor, the present trend shows an average of 40 to 50 days and some times even lesser. Of the total rice resource allocated for the district, RCIW requires each district to spend up to 70 percent rice in the core projects.

Road construction under RCIW follows three phases – track opening (1.5 m), middle widening (3 m) and final widening (4.5m). The roads are then fully completed for vehicle operation when all structures (bridges, causeways, culverts and gabion works) are completed. This practice allows the roadbed to stabilize naturally. The hill roads follow a “green road concept and method” which is labour intensive and environmentally sound.

4.4.2 Micro project

Micro projects are those productive infrastructures which are implemented along the road corridors to enhance their capacities to utilize increased

opportunities and benefit from the improved road access. The overall goal of MPs is to ensure long-term food security of core project beneficiaries, increase their income and employment opportunities.

MPs include small irrigation, riverbank protection, fish ponds, water conservation ponds and fruit & NTFP farming identified by beneficiaries.

Of the total rice resource allocated for the district, RCIW requires each district to spend up to 20 percent rice in the MPs and utilize the user's 20 percent the contribution during the work evaluation. Aside from the rice support, TA providers provide other support and services such as feasibility studies, training, inputs and material support, exposure visit, resource person development for MP groups and PLAs.

Appendix 5.2 summarize the number of MPs implemented by year and by district across different types of MPs. This shows that the majority of MPs (42.8 %) belong to fruit farming followed by water harvesting tanks/ponds (19.6%) and surface irrigation (12.7%). From this, it can be concluded that MPs have followed agricultural development priorities and programme envisaged by the APP and the 10th Plan. (NARMA, 2006)

4.4.3 The Complementary Activities

The CA include PLC, saving and credit, income generation, and cooperative formation. The purpose of CA is to enhance capacities and confidence of the target beneficiaries in undertaking productive enterprises. Because this study is focused on MPs and Core Projects, this report has skipped discussing complementary activities. However, the review team is of the opinion that, in many instances, the complementary activities have contributed to the sustainability of the MPs and empowered the disadvantaged, particularly women, groups economically and socially.

Third component was added aimed at the economic and social empowerment of the beneficiary groups through activities such as saving-credit operation and informal literacy classes.

4.5 Beneficiaries, Coverage of RAP /RCIW Dailekh

The RAP/RCIW program has been able to cover 18 VDCs and municipal area and has cover total of 8239 HHs in the district and 3727 households in the TMD corridor. The map showing in the beginning of dissertation depicts the working areas.

4.6 Progress Status of Various Components under RAP/RCIW

4.6.1 Core project

There are four road corridors as core projects were started since 2000 targeting to construct 119.3 km road in the district (MAP 3). Out of that, only Tallo-Mathillo Dungeshwor was completed and become pliable since one year. 3727 households completed 8.3 km of road (2.5 km of Khadkabada, 1.16 km of Baraha, 1.576 km of Gauri, 1.13 km of Malika and 1.9 km of Dandaparajul) (Appendix 6)

This road is working as a linkage between Dailekh-Surkhet feeder road and Surkhet–Jumla national highway. Road building group (RBG) registered after the joining 10-20 members of the similar hamlet to construct the green road.

Local Resource Users Committee (LRUC), the apex body of five to seven members, is formed among the RBG group and act as facilitator in road construction. The LRUC is the main implementation committee of the rural road by agreements done and the facilitation of road engineering team.

The project cost for constructing this road was NRs 30.76 million averaging 3.7 million per Km of road construction. Each household have the share of NRs. 8256.0 expensed in road construction (RCIW, 2006)

4.6.2 Micro Project

Micro project are agriculture-based fruit farming orchards, agro-forestry, vegetable farming, fishpond, irrigation, hat bazaar, collection centre like income supportive as well as production supportive activities. The micro projects have been implemented in seventeen VDCs.

The table 4 depicts that 102 fruit farming groups planted 71237 plants of four types in 405 ha of land. Out of that, Tallo -Mathillo Dungeshwor planted 60%. The mortality rate in plantation was found 42%. Each household belongs of 36 plants. However, it is now reduced to 21 plants (survived till date). The numbers of survived plants per groups were 513 and the area under each household covered only 4.5 ropani.

Table 4: Fruit Farming Groups, Cultivation Area, Plantation and Survival Rate

Name of VDC	Fruit farming Group	Area covered (ha)	Type and number of plantation (No)					No of survived plants
			Temperate	Citrus	Tropical	NTFPs	Total	
Danda Parajul	14	59.93	3232	1355	2371	1226	8184	5059
Baraha	15	78.56	6007	3097	1432	1385	11921	6914
Gauri	4	16.03	667	1143	463	1758	4031	1680
Khadkawada	7	57.08	6487	960	0	2030	9477	5073
Malika	8	63.06	4608	2098	1583	528	8817	5924
Sub-total of TMD	48	274.7	21001	8653	5849	6927	42430	24650
Total of project	102	405.11	30718	11757	7610	21152	71237	44134

Source: RAP/RCIW Programme, Dailekh, 2006

The project resources that are shown in appendix 7 that are expenses still for the micro projects are rice (WFP). Total rice expensed in MP was 185.7 Mt. and 1184 households received average of 49.50 kg rice received. The share of micro projects for temporary food availability for each household was 37.46% that is sufficient for 15 days of food requirement.

ITSH were the expenses from the DDC were NRs. 17153.00 and used for the transportation of rice from EDP to the house of the beneficiaries. This ITSH is not making provision for nearest VDC that touching EDP. Other TA cost was the expenses from RAP/GTZ. The total of NRs 2190948.00 was expensed in the subsidies like seed purchasing, sapling cost, transportation, fertilizers, trainings and materials purchasing. Calculating the total cost, the project cost was NRs 8763.27 HHs and NRs. 245.0/ plant.

4.6.3 Savings and Credit

There are forty eight SHG group in the TMD that all the SHG members, covering 1313 households (male 829 and female 484) have collecting savings @ NRs. 5-30/ month and utilizing the savings (NRS 840441) amount as institutional credits (NRs. 95931) among the groups/cooperatives. The loan recovery rate is found timely and more than 98%. The credits are given as loans with the interest rate of 1-2% interest per month. The loans amount from NRs 200 up to NRs 2000. The time for paying back the loan, differs between 3 months and one year.

4.9.4 Participatory Learning Centre

Twenty one non-formal education centres based on Paulofererian school of thought for social mobilization are running for the adult/ school drop-out younger for literacy, empowerment and organization (LEO) development purpose. The issue related to food security, right based, empowerments based etc are raised by the participants. The participants select a facilitator and facilitator after training facilitates the community issues into the action. The PLC is the social mobilization tools for maturation of SHG and ends after three years of implementation. The PLC in case of Tallo-Mathillo Dungeshwor was started just one year before and 118 females in five centers are involved.

4.9.5 Cooperative

This is the organized formal group of saving and credit activities. Small (5-10) groups of S/C are amalgamated at the certain place and registered them into the cooperatives. Janapriya S/C Cooperative in Malika, Milan Savings and Credits Cooperative in Dandaparajul, Kankritada S/C cooperatives of Dungeshwor, Laligurans Multipurpose Cooperatives-Dandaparajul, Daha Aayaarjan Multipurpose Cooperatives of Gauri are established earlier and are operating by the communities

4.9.6 Income Generation Activities

Three poly-houses, multi purpose nurseries, commercial vegetables farming, cash crop cultivations, retail shops, and goat farming and other off-farm income supportive activities are done under this activity.

CHAPTER V

PROFILE OF STUDY AREA

5.1 Geographical Location

Dailekh, one of the hilly districts of Very Zone, lies in Mid-Western Development Region. It is situated at 28° 35' to 29° 08' northern latitude and 81° 25' to 81° 53' eastern longitude. This district is surrounded by Jajarkot in the east, Achham in the west, Surkhet in the south and Kalikot in the north belt (MAP, 2). Total area of the district is 1505 sq km, 1.2% parts the total area of Nepal. Out of that area 80% area is resembled as hill area and 20% area is resembled as high altitude mountains(DADO, 2002). Lowest point of the district is 544 masl altitudes and upper part is situated at 4168 masl. Politically the district is 27th smallest district and the smallest district of the Very zone. It is divided into 55 VDCs, One Narayan municipality, 11 Ilakas, and two election constituency regions.

5.2 Population

Total population of Dailekh district is 226341 out of which 51.1% are female and 48.9% are male (CBS, 2002). Population growth rate is 1.86 percent and density of population is 150 per square kilometer. The 44.7% is economically active population and 55.29% are dependent population.

Table 5: Population, Households, Agriculturally Suitable Land

Name of VDC	Population (2058 B.S.)			HHs (No)	Agriculturally suitable land (ha)
	Male	Female	Total		
Danda Parajul	2690	2754	5444	938	1093
Baraha	1754	1877	3631	658	779.6
Khadkabada	2151	2211	4362	807	839.6
Gauri	1087	1319	2406	460	379.9
Malika	2429	2543	4972	879	963.7
Total	10111	10704	20815	3742	4055.8

Source: DADO, Dailekh, 2002

The ratio of dependency over the active population shows that every economically active member must be active to rear additional 1.5 dependent members in this district (DDC, 2002). There are 41402 households and average family size is 5.59 per household. 8.63 % population lives in municipality area where as 91.37 live in rural area. Following tables 7 gives the population figure of the study area.

5.3 Religion and Caste System

According to population census of 2048, 99.75% are Hindu, 0.088% is Buddha, 0.098% are Muslims, and 0 .054% are Christians.

In case of caste system, Dailekh has diverse in caste system. Chetri are dominance (35.8%), 16.9% are Kami, 12.5% are Brahmins, 12.4% are Thakuri, 9.3% are Magar, 5% are Damai and 8.1% are other caste.

5.4 Land Utilization and Irrigation Situation

As per the land utilization of the Dailekh, the land is divided into three parts: degraded, forest and agriculture land. 59.91 % area of total is covered by forest species and 2.465% area is covered by grazing land while rocks, rivers and others cover 8.9% area. Total agriculturally potential land is 28.75% of total land out of that 34497 ha is under cultivation Under this area, *Khet* land is 8591 ha (24.91%) and *Bari* land is 25906 (75.09%).

Total irrigated land of the district is 8591 ha (24.9%). These features indicate that monsoon based cropping pattern is dominant. 55-60% rainfall occurs within July to September while October – June are drier months.

5. 5 Climate and Soil

The district is located at the altitude from 544 to 4168 metre above sea level. This altitude and latitude indicate that it has tropical, sub-tropical, temperate and alpine climates out of these climates, temperate climate is dominant. Average maximum temperature is 34.6⁰ Celsius and minimum average temperature lies 2.6⁰ Celsius. Annual rainfall is 1700 mm. It is the dry humid area. Ambient climatic features are dominant in this district.

Sandy loam soil is dominant in the majority of hills and mountain area especially in the *Bari* land. Soil depth except the lower belt, is very small. Lower belt (Tallo-Mathillo Dungeshwor) is located at costal area of Lohore

Khola where clay loam to alluvial soil is found in the *Khet* land. Red, black, gray, while colored soils are mostly found in these study area. (DADO, 2002)

Average pH value is 4.5 – 5.2 (very hard acidic), organic matter content is 1-2.5% (minimum), nitrogen content is 0.1- 0.2% (medium), phosphorus content (30-35 kg/ha-medium), and potash is 110-280 kg/ha-medium). This data value is also deteriorating now due to flood and land slides.

5.6 Area Converge and Food Sufficiency

The appendix 8 depicts that out of total land under cultivation (34497 ha), rice is cultivated in 25% area, 78.27% by maize, 65.4% by wheat, 7.39% by millet. Coverage of fruits, vegetables was 3% and 2.5% respectively. Per family agricultural land is about 1.0 ha. As per concern of land ownership, 3% are landless families, 42% have 0.5 ha and 19% have <1ha of land.

93.86 % population of the districts is doing agriculture as the main occupation and rest of population is engaged in non- farm activities. However, the year round food sufficiency was only for 12%. District and project area scenario depicted from the following table 6 indicates the better targeting of the project area (DDC, 2002).

Tables 6: Food Sufficiency Status of District, Project area and Survey area.

Food Sufficiency population	District (%)	Project area (%)	Survey area (%) (MP covered)
Year round food sufficient	12.39	0.74	0.085
6-11 month	36.52	18.58	18.49
<6 month	46.09	80.68	81.42
Population households	38985	3727	1184

Source: DDC, 2003, RAP/RCIW Baseline Survey Dailekh, 2006

According to the statistics of DADO, per capita food production of the district is 173.5 kg and requirement per capita according to national level food production is 240 kg. After analyzing the situation per capita food deficit is 46.5 kg and

food production deficiency is found 20%. Cropping intensity of this district is found 169% (DADO, 2001).

5.7 Crop Production, Export and Import Status

The appendix 8 depicts production, productivity, export and import situation of the district. Main exportable commodities are fresh vegetables, citrus, potato, soybean, beans, cooked lemon juice, etc. (DDC, 2002). Average per capita vegetable needs 60 kg fresh vegetables and 45 kg fruits. Meat production in the district is 32.46 gram /day /person (DDC, 2002). Per capita income of the households has been estimated as NRs. 5881.0 (DDC, 2001).

5.8 District Road Networks and Market Centre

Dailekh district has very inaccessible and irregular road networks/service.. Birendranagar-Ranimatta-Dailekh district road is 68 km by which Mathillo Dungeshwor is accessed to road networks in 1999.

Agriculture market promotion is seen most essential to promote agro-based business promotion. Market infrastructures are found insufficient. Main market centres for agro-based and livestock based produces are: Dailekh Bazaar, Chupra, Dullu, Dungeshwor (Tallo and Mathillo). The medium market centres are Talpokhari, Ratanagla, Dandimandi, Naumule, Gurase, Jambukandh, and Rakam.

CHAPTER VI

DATA ANALYSIS AND PRESENTATION

This chapter attempts to analyze the information received from the questionnaires, checklist, group discussions, observations, case study and from secondary sources.

6.1 Changes in Food Availability

6.1.1 Status of Food Production

6.1.1.1 Status of Own Food Production

Table 7: Status of Food Items Produced in Survey Year (2004/05)

S.N	Types of food items	Production (Kg)	Max ^m prod ⁿ (Kg)	Share in cereals	No. of HH produced	Average production (Kg)
1	Paddy	26088	1200	25%	85	311.1
2	Maize	39363	1188	38 %	100	421.8
3	Wheat	32436	660	31%	100	335.7
4	Barley	60	20	0.01%	10	6.0
5	Millet	5821	400	6.0 %	68	85.6
6	Rape seed	3145	600		58	54.22
7	Vegetable	16129	5500		100	161.4
8	Potato	10057	1800		77	130.6
9	Pulse	6410	1000		85	72.09
10	Soybean	8283	300		72	115
11	Fruits	2651	350		48	55.23
	Total	155894				

Figure in bracket shows the productivity of the land with comparing the national average.

Source: Field Survey, 2006

The above table 7 describes majority of the survey population produced wheat, maize and green vegetables. Out of the ten food items cereal production, dominance share of maize, wheat, paddy and millet was 39.0%, 31.0%, 24.37% and 5.0% respectively and barley crop was minor in production. Rice was produced irrigated cropland as well as in upland area. Average amount of production was lead by maize food.

Respondents reported that the role of RCIW programme was to support for vegetable production by 60%, producing pulses (25%) intercrops and some portions of soybean (15%). The fruits, supported by the programme, are produced very few (7%) and are in growing stage. RCIW support reported increased productivity of vegetables and fruits by 30-40%. Respondents said that the cereals were supported by their knowledge as well as from the technical support of agriculture office.

6.1.1.2 Share of Production in Food Availability

Table 8: Calorie Supply by Own Production and Share in Food Availability

SN	Types of food item	#Total edible food available (kg/lt.)	* Balance diet requirement of items	Total prod ⁿ (kg)	Food required (kg/day)	Food sufficient days	*** per capita requirement (kg)	Deficit/Surplus in survey area (kg)	Share in FA	Deficit/Surplus
1	Rice	15449	605 gm	76901	336.53	228.51	122833.9	-45932.9	62.6	-37.4
2	Maize	30804								
3	Wheat	27772								
4	Millet	2832								
5	Barley	44								
	Rape Seed oil/ghee	1495	20 gm	1495	11.1	134.4	4060.6	-2565.6	36.82	-63.18
6	Vegetables	13055	300 gm	17748.5	166.9	106.4	60909.4	-43160.9	29.14	-70.86
7	Potato	4693.5								
8	Pulse	3684	60 gm	4102.5	33.4	122.9	12181.8	-8079.4	33.68	-66.32
9	Soybean	418.5								
10	Fruit	939	150 gm	939	83.4	11.3	30454.7	-29515.7	3.08	-96.92
11	**Milk	73875	500 ml	73875	278.1	265.6	101515.6	-27640.6	72.77	-27.23

Source: Field Survey, 2006

J The balance diet has been calculated for above fifteen years of age (FAO, 2003)
(Appendix 9,10,11,12)

J The edible forms of the food items were calculated by reducing: 65% in paddy,
15% reduced in maize, wheat, millet, vegetables, potato, and pulses.

Edibles forms are calculated by subtracting the sales amount of food items.

** The quantity of milk calculated by 197 milch breeds can produce 2.04 lit/day for
six months.

*** Estimation is done for 100 households and average family size (5.5625)

The above table 8 presented in next page depicts that total edible cereal food
amount was found 76901 Kg. 1495 kg of fatty acids, 17749 kg of vegetables,
4102.5 kg of pulse crops, 939 kg of fruits, and 73875 kg of milk were produced in
the farm as their own production.

As per the minimum requirement of the balances diet, cereals foods are sufficient
for only 229 days, fatty acids for 134 days, vegetables for 106.4 days, pulses for 123
days, fruits for 11.3 days, and milk for 266 days. No foods items were found
sufficient for the family consumption as per the recommendation of human
nutritionists.

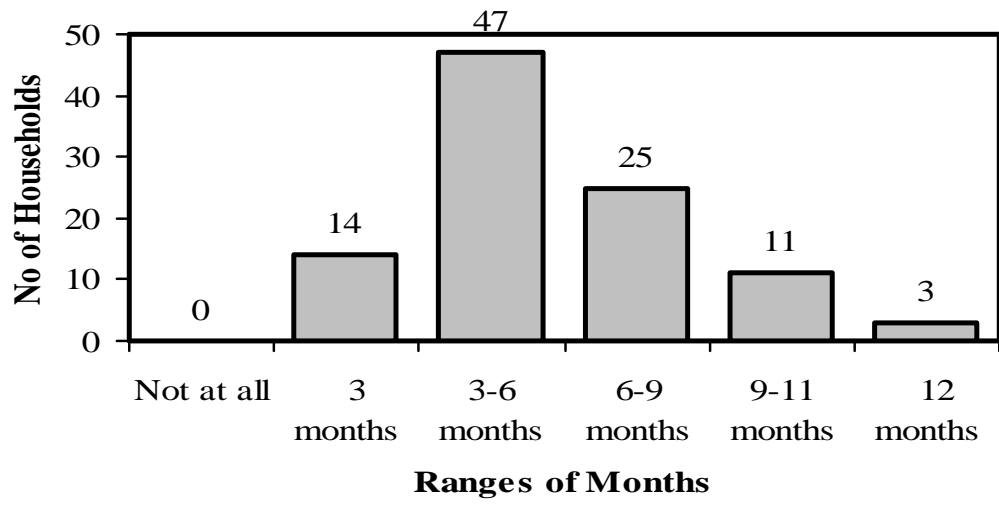
The share of the food availability by cereals was 66.1%, 37% for fatty materials,
29% by vegetables, 34% by pulse crops, 3% by fruits, 73% by milk produced in
homestead. The average food deficiency was calculated by subtracting from the
total requirements of food items. The share of RCIW was 14.5% for vegetables,
9% for pulses and 0.21% for fruit production.

6.1.1.3 Food Sufficiency Months and Level

↳The self sufficiency is understand as the degree to which own production covers
the felt needs of the households and population.

The respondents reported following status, as shown data in the table 18, of food
sufficiency by their production.

Fig 7 : Food Sufficiency Month in Survey Area



Source: Field Survey, 2006

The Figure 7 that the 47% of the population have food sufficiency upto 3-6 months followed by 25% population have 6-9 months and 14% HHs have less than three months of food sufficiency. Only food sufficiency households were 3% and rest 97 % households were food deficit. However, availability of foods through production is insufficient. This shows that the programme was targeted in the food deficit areas.

A mathematical module was also tested to determine the average food sufficiency level of the survey area for cereal based food items.

Food sufficiency levels (Fsi) for cereal based food =

Ratio score of (%HH served for $\geq 12m \times 3 + \%HH$ served for $9-11m \times 2 + \%HH$ served for $6-9m \times 1) / 6$

$= 3 \times 3 + 11 \times 2 + 25 \times 1 / 6 = 9.33$

The calculated food sufficiency level of Dailekh was 9.33 months.

Referring the data of the production quantity, there were slightly different data of 9.33 months although the food sufficiency by cereal production was found 241 days (124 days were found food deficit). The calculated FSL might be true by referring (Table 31) that the some of the male workers consume more cereals food than that of FAO recommendation (605 gram/day/person).

6.1.1.4 Food Deficit Months

The Appendix 15 describes the analysis to find out the food deficit months in the survey area. The months like January 15th –April 15th are the most food unsecured months followed by June 15- Sep 15. The month like Kartik, Jeth and Asauj were counted as half-month insufficiency. 15th November-15th December was only the food sufficiency month for all the respondents.

6.1.1.5 Productive Livestock and Food Availability

The appendix 13 describes that 35 HHs had no kept milch animals. Majority of the households (85%) had risen of two oxen (One Hall) for draft purpose. Raising oxen was found good income source for some households who wage as Hali in the neighborhood area. By observation, 17% households were earned income by working as Hali by their ox. Goats and chickens were the good source of cash income after selling in the local market.

Thirty five percent households said that they had taken loan for purchasing goats, piglets and chickens from S/C, and cooperatives. The quantification of the animal purchased by RCIW only was not studied.

6.1.2 Share of Local Traders in Food Availability

Table 10 describes the food availability by the purchasing at the local market. The deficit cereal food items in the absence of RCIW were completely purchased by the communities for 129.29 days. The share of the mustard oil from the market was 64% (equals to 233 day). Other commodities that were purchased from the market were vegetables (2%), pulse crops (4%) and fruits (08%). Milk was not found purchase from the local traders.

The deficit requirements, through production and purchasing, in terms of the vegetables, fruits, pulses, and milk were not found and analyzed as nutrition insecurity.

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TABLE 9: FOOD PURCHASING AND ITS SHARE THROUGH LOCAL TRADERS

S. N	1.1.2 Types of Food	Amount of food purchased	Food sufficiency Days	Share of food sufficiency (%)
1	Rice	33370	129	37
2	Wheat	8791		
3	Maize	529		
4	Millet	819		
	Sub-total	43509		
5	Vegetables	962	6	2
6	Pulse crop	500	15	4
7	Fruits	24.00	1	0.1
8	Mustard oil	2595.00	233.26	63.91

Source: Field Survey, 2006

6.1.3 Participation Level of Beneficiaries in RCIW Programme

The people's participation was surveyed for analyzing the project share in food availability by employed in the core and micro projects.

6.1.3.1 RCIW Contribution in Short-term Employment

The appendix 14 depicts year wise employment days during the six years of the programme launched.

Beneficiaries reported that total of 8339 man-days (MD) of the working was counted in core and micro projects. Employment status was maximum in 2002/03 and minimum in 2000/01. One hundred forty one members were involved as workers from 100 households. By counting MD by participants in every year, 2 days for beginning years, 21 MD for 2002/03 followed by 10.52 MD for 2001/02. The range of days employed by the core and micro projects was also varied year to year. The maximum and minimum value of employment was 180 days and one day with mean of 59.1 days. Only seven households were employed in 2000/01 while 96 households were employed in 2002/03.

6.1.3.2 Project Benefit and Its Utilization Level

The project benefit by working in FfW was rice and cash. The appendix 14 depicts year wise rice and cash received by the communities employment days during the six years of the programme launched.

Regarding rice payment, 43944 kg rice was received by working in the programme. The average rice received was 5.14 kg/day and 133 kg for a year. The minimum rice received was 10 kg and maximum was 900 kg. The year wise average rice receipt was 80.3 kg (minimum) in 2005/06 and 207 kg (maximum) in 2000/01.

Total cash received in the community was NRs 61542.9 with the average of NRs 615.40. The range of cash receipt was differing from NRs. 20-7085.0. The skill laborer got the maximum cash than that of general labourer.

Table 10: Utilization of Received Rice in Household level

S.N	Types of Utilization	Amount of rice (Mt)	No. of HHs	% of rice
1	Consumed by family members	42.892	100	97.61
2	Sold in market	0.287	5	0.65
3	Bartered at neighbor	0.54	7	1.23
4	Made liquor	0.225	2	0.51

Total	43.944	100
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Source: Field Survey, 2006

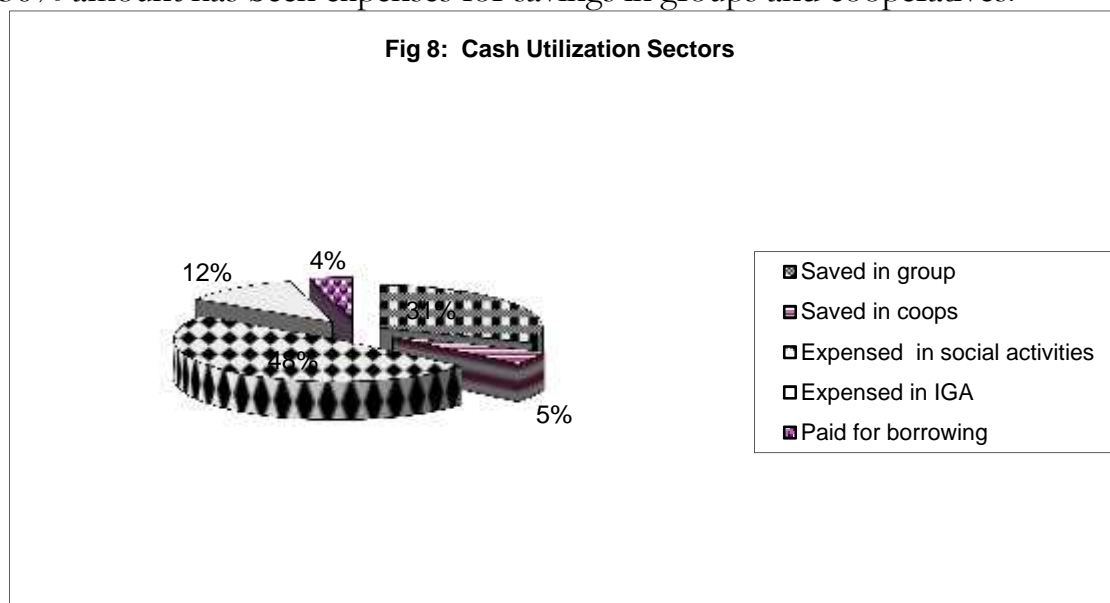
The above table 10 that 97.61% rice was consumed in the households by the cent percent households. However, only 2.39 % rice was used for other purpose; bartered at neighbor (1.23%), sold in the market (.65%) and made alcoholic products (0.51%).

Table 11: Utilization of Cash in Different Sectors

S. N	Cash utilization Sector	Amount (NRs)	% of cash	Remarks
1	Saving in group	18893	30.84	Save monthly @5-40
2	Saving in cooperatives	3175	5.18	Save monthly @20-30
3	Expenses in social activities	29490	48.14	HHs activities
4	Expenses in IG activities	7095	11.58	Seed, goat, off-farm
5	Paying of borrowing	2603	4.25	
	Total	61256	100	

Source: Field Survey, 2006

The above table 11 and the chart shown in fig 10 depict that 48% of the savings expenses in social activities and paying for borrowings. The member expenses 12% in IG activities like purchasing seeds, small animals, and other materials. 36% amount has been expenses for savings in groups and cooperatives.



The overall figure indicates that 52.39% was expensed in the unproductive sectors where as it was found 47.61% was utilized at productive sectors.

6.1.3.3 Share of RCIW in Food Availability

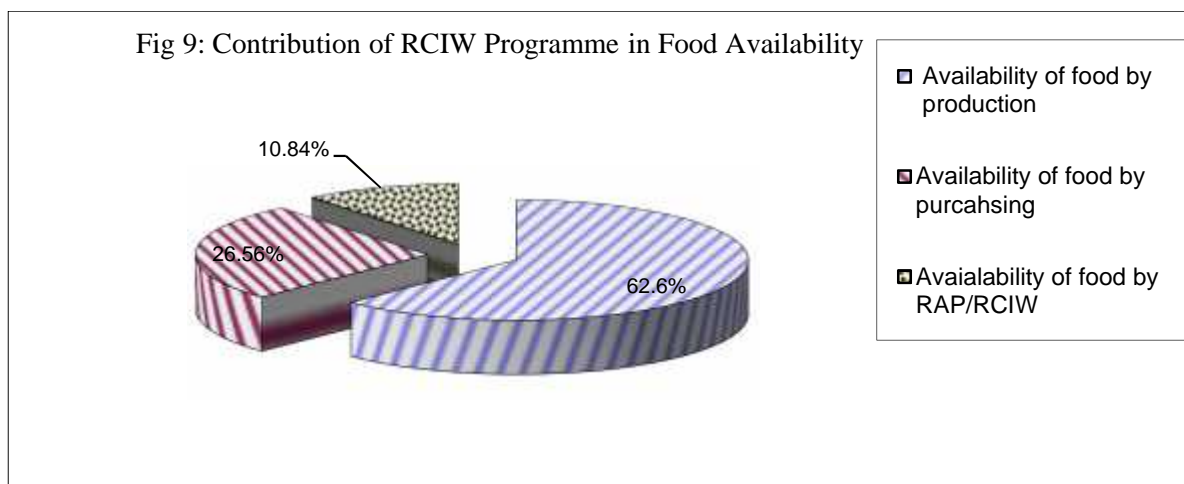
Table 12: RCIW Share in Food Availability

Working year	Total rice consumed (kg)	No. of HHs	Food requirement (Per day /HHs)	Rice sufficiency days	% share of RCIW
2000/01	1450.00	7	24	62	17
2001/02	8059.14	58	195	41	11
2002/03	17007.50	96	323	53	14
2003/04	6870.50	68	229	30	8
2004/05	4850.10	54	182	27	7
2005/06	4655.00	55	182	25	7
Total	42892.24	100	337	125	35
Average	133.7	100.0		40	11

Source: Field Survey, 2006

The above table 12 depicts average rice received was 133 kg/ HHs/ year and family members consumed it upto 40 days (25-62 days). The percentage share of food availability of RCIW was found more in the beginning year i.e. 17% and it was into the declining trend (7%) in 2005/06. The overall average share of RCIW for food availability with the second phase was 11% and it was 7% for 2005/06 year.

Beneficiaries during discussion said that RCIW programme reduced the share of the local traders by average of 10.84%. (Fig 9 and table 12) Therefore, actual share of local traders was found 27% in totality. RCIW programme share for 2004/5 was only 7%. This status of food share is found different than that quoted by Sharma and Sharma (2002).



Source: Field Survey, 2006

The respondents reported that an alternative of food purchasing with the local traders was working with RCIW programme. Beneficiaries purchased food at local traders for the remaining part of food coming from RCIW programme. No foods from Nepal Food Corporation (NFC) and other agencies were reported since four years.

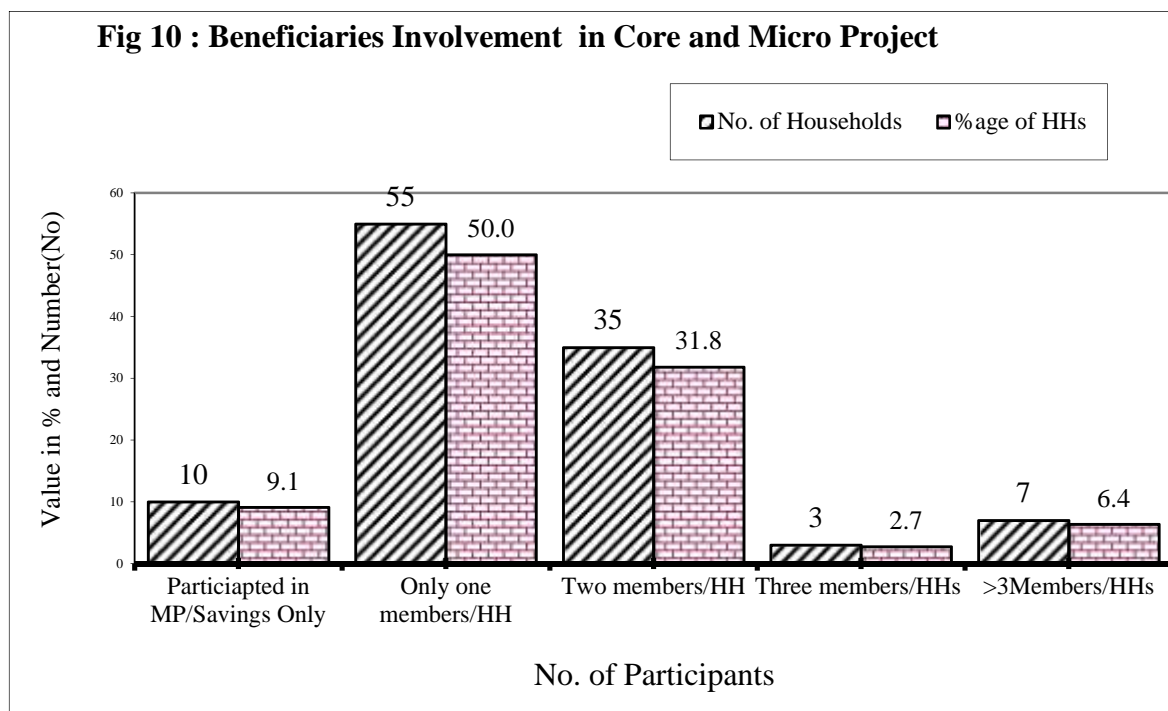
6.1.3.4 Family Members Involvement in Food for Work Programme

Table 13: Number of Family Members Involved in FfW Project

S.N	Family members participated	No. of HHs	% of HHs	Remarks
1	Participated in MP/Savings	10	9.1	Some HHs are absent in CP but involve in MP and CA activities
2	Only one members/HH	55	50.0	
3	Two members/HH	35	31.8	
4	Three members/HHs	3	2.7	
5	>3 members/HHs	7	6.4	
	Total	110	100	

Source: Field Survey, 2006

The above table 13 and fig 10 depicts that 9.1 % households were not found involved in core project but involved in micro as well as complementary activities. One, two, three and more than three members, were participated in 50%, 32%, 2.7%, and 6.4% households respectively This analysis reveals that the project policy to involve only one members per households was an against with the field reality.



Participation by gender perspectives was also analyzed (Table 14) on the study area that 31 female members (22%) out of 141 workers were involved in the programme. This reveals that female participation was much more with referring the monitoring of FfW activities in 1998 (5%) but it was below than that of the targeted (40%) indicator (RCIW,2005).

Table 14: Number of Male/Female Involved in Food for Work

S.N	Types of Gender Involved	No. of workers	% age of members
1	Male members only	110	78.0
2	Female members	31	22.0
	Total	141	100

Source: Field Survey, 2006

Female participants were encouraged in the participation due to the equal wage for males and female, equal right to work for female members to improve the food security of the women member.

6.1.3.5 RCIW Support in Fruit Plantation

1.1.2.1.1.1.1.1

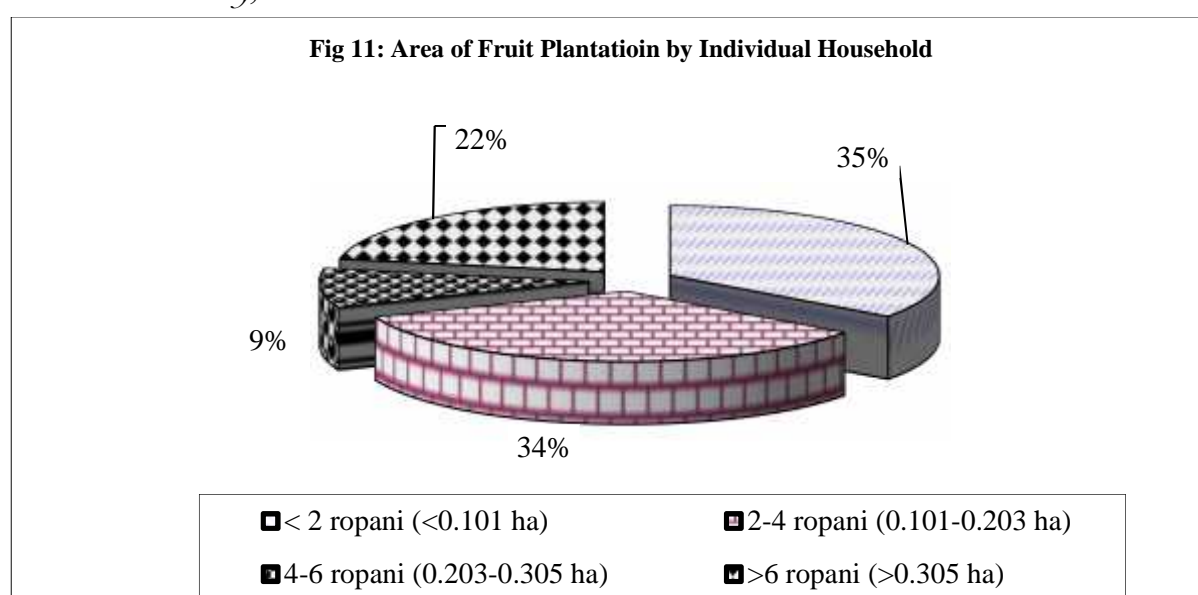
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Table 15: Area of Fruit Cultivation by Involved Households

S.N	Area of cultivation (Ropani)	No. of HHs	% of HHs
1	< 2 ropani (<0.101 ha)	35	35
2	2-4 ropani (0.101-0.203 ha)	34	34
3	4-6 ropani (0.203-0.305 ha)	9	9
4	>6 ropani (>0.305 ha)	22	22
	Total	100	100

Source: Field survey, 2006



The table 15 and figure 11 describes on area of the fruit plantation by households numbers. Thirty five percent households planted fruits plants in less than 2 ropani of land followed by 34% cultivated 2-4 ropani of land. Nine percent and 22% households cultivated 4-6 ropani and more than 6 ropani of land.

The figure shown in appendix 17(1) describes households that were participated in the above table 28 were planting fruit trees by using six types of land for orchard establishment. Out of that 64% farmers established orchards by using public land. Twelve percent farmers used both private and public land followed by 11% in private land. Other 2% each used in health post and leasehold forestry land. There was found risk of group managements in case of public land (appendix 17 (2)).

1.1.2.2 6.1.3.6 Participation in Integrated Activities

Table 16: Households Participation in Integrated Activities

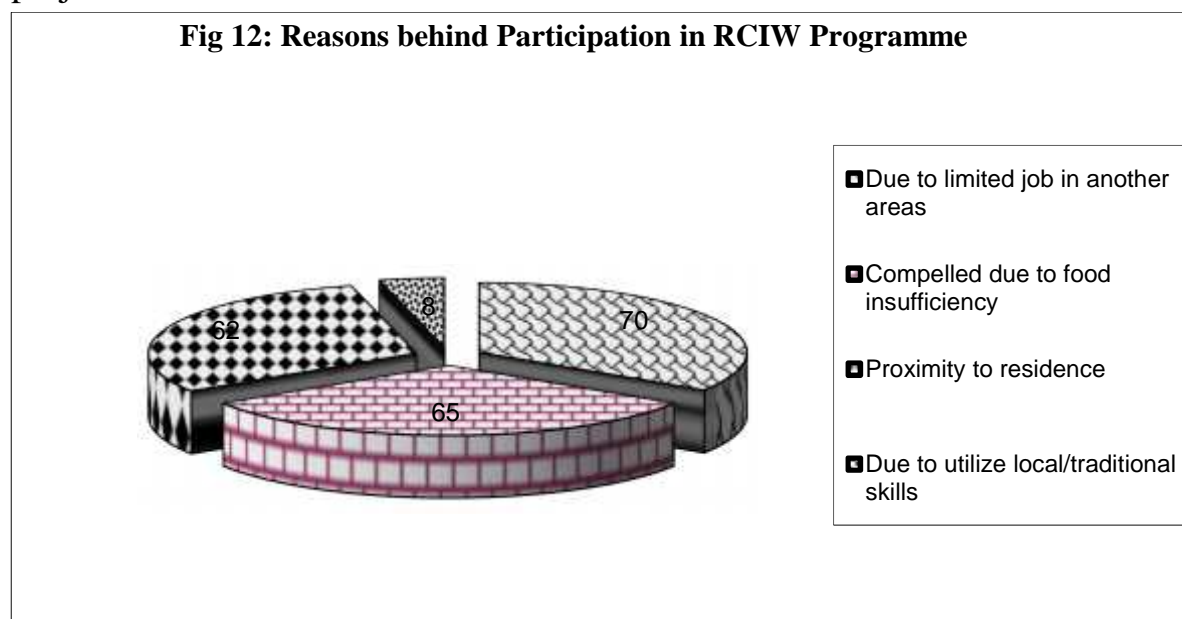
S.N	Name of Programme	No. of HHs	% of HHs
1	Micro project with S/C activities and PLC	86	86
2	Micro project with S/C, multipurpose nursery	14	14
3	Absent in micro project but are in PLA & S/C	0	0
	Total	100	100

Source: Field survey, 2006

The above tables 16 depicts that 86% households had involved in S/C, micro projects along with the 19 participants are involved in PLA. The rest 14% households have additional activities like fruit nurseries and poly-house. All the participants were involved in micro projects.

6.1.3.7 Reasons behind Participation in RCIW Programme

The figure 12 depicts the participation of the community people in RCIW programme due to four reasons. Out of that, 34.15% households said due to limited jobs in another area. 31.71% households compelled to involve in RCIW programme due to food insufficiency. Thirty percent households said that RCIW programmes are near to the residence and nearly 4% households said this programme use local skills to construct road and establish micro projects.



Source: Field Survey, 2006

6.1.3.8 Coping Mechanisms Adopted for Food Availability/Access

The table 17 that 36% households said that rice from RCIW was reported as the best alternatives to cope food insecurity. Twenty two percent HHs reported the incomes from daily wage by working in neighborhood. Nineteen percent households reported earning of jobs through India, pensions and other official jobs. Other income supportive coping activities were by selling vegetables/cash crops (6.43%), by selling fruits (3.21%) and income from retail shop (4.42%)

The beneficiaries reported significant role of RCIW in changing coping mechanism of earlier efforts by supporting food and cash as well as income supportive activities.

Table 17: Coping Mechanism of Households for Food Availability/Access

S.N	Types of Coping Activities	No. of HHs	% of HHs
1	By working as daily wage (in neighborhood)	40	16.06
2	By selling vegetables	16	6.43
3	<i>1.1.3 By working in F/W activities</i>	90	36.14
4	By selling fruits/cash crop	8	3.21
5	Income from retail shops	11	4.42
6	Income from service (Indian job/official jobs/pension)	48	19.28
7	By selling livestock	16	6.43
8	Taking loan for food purchasing	20	8.03
	Total	249	100.00

Source: Field Survey 2006

Note: No of HHs >100 means the households adopting > one works.

6.1.4 Household Level Obstacles for Food Availability

In spite of programme supports concentrated on major aspect of the three components, there are certain limitation and lacking in the following table 18.

Table 18 depicts that majority of 28.30% households reported main cause of obstacles for food unavailability was irrigation. Twenty three percent respondents had lack of fertile land. Seventeen percent households had insufficient land (Appendix 16). Twelve percent households said unfavorable monsoon. Eleven percent households said lack of improves seed

and production tools and 8.68% said that lack of technical knowledge in production.

Table 18: Factors Affecting Foods Unavailability

S.N	Types of household level obstacles	No. of HHs	% of HHs
1	Lack of fertile land	72	23.15
2	<i>1.1.4 Insufficient land</i>	53	17.04
3	Lack of irrigation	88	28.30
4	Lack of improved seeds and production tool	33	10.61
5	Unfavorable monsoon	38	12.22
6	Lack of technical knowledge in production	27	8.68
	Total respondents	311	100

Source; Field Survey, 2006

6.2 Change in Food Accessibility

FAO, 2005 citing Sen (1981) showed that people's entitlements to food arise from their assets, stores, networks, and skills, from their own production, from their produce and labour, and from transfers. People are food insecure when the combination of entitlements is not sufficient to enable the individual or households to acquire the minimum food to meet their requirement.

6.2.1 Income Accessibility from Own Production

6.2.1.1 Marketed Food Items and Income

This table 19 describes the quantity of produce sold in the local market by the respondents. Total of 53092 kg produces were sold in the local market and earned NRs. 440540.0 averaging NRs 4405 per family. Majority of the household sold soybean followed by the potato crop. A minor crop was rape seed. The FGD was done to analyze the role of RCIW products selling. The respondents reported that the role was in the vegetable selling by 30%, pulses by 20%, fruit by 5%, spices by 10%. Total income by selling was NRs 47421.0 and it was found 10% share for RCIW programme.

1.1.4.1.1.1.1

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TABLE 19: LIST OF FOOD ITEMS SOLD IN THE MARKET

S. N	Types of Items	Sold in the local market	No. of HH sold	Farm gate average price (Rs/kg)	Total income (Rs)	Remarks
1	Rice	400	4	15-20	7000.0	
2	Maize	2398	20	8-12	23980.0	
3	Wheat	498	10	12-13	6225.0	
4	Millet	452	11	7-10	3842.0	
5	Barley					
5	Rape seed	315	3	14	4410.0	
6	Vegetables	8560	17	6-20	111280.0	
7	Potato	4842	33	10-15	62946.0	
8	Pulse crops	2410	21	20-25	54225.0	Lentil, beans, black gram
9	Soybean	5818	62	16-22	110542.0	
10	Spices	310	18	15-40	7750.0	Hot chili, ginger, turmeric, onion, garlic
11	Fruits	2417	20	10-30	48340.0	Mango, Orange, Banana
	Total	28420	100		440540	
		53092			4405.0	

Source: Field Survey, 2006

6.2.1.2 Income by Selling Livestock Products

Table 20: Amount of Income Received by Selling Livestock Products

S.N	Range of incomes	No. of HHs	Mid value	Total income
1	Not sold and get any income	24	0	0
2	< NRs. 5000	47	2500	117500
3	NRs. 5000-10000	25	7500	187500
4	NRs. 10000-20000	4	15000	60000
5	Above NRs 20000	0	0	0
	Total	100		365000
	Average household income from livestock/birds			3650.00

Source: Field Survey, 2006

The table 20 depicts that the average annual income earned by selling livestock products by NRs.3650.0 However, 24% households not earned any income. The maximum households received income below than NRs. 5000. The others (25%) households earned NRs. 5000-10000.0. Four percent households earned income ranging from NRs 10000-20000.0.

The share of the RCIW was found only the economic empowerment through social mobilization because of credit (as loan) mobilization at purchasing poultry, pigs, and goats. Respondents did not report any concrete share of income from RCIW support.

6.2.1.3 Income by Selling RCIW Produces

The table 21 depicts that the participating households earned total of NRs. 85000.00 amount from RCIW programme. The income sources were the produces from micro project and income generating activities. The average of household's income was only NRs 3864.00. Fifteen percent households did not get any income from the project activities. Nineteen percent households got income below NRs. 5000.0. Cent % households said that plants are in gestation period and will give income later. The future income support from the micro project is analyzed in annex 22

Table 21: Income Status from Micro Project/ IG Activities

S. N.	Income received (NRs)	No. of HHs	Mid value (NRs)	Total amount (NRs)
1	Not get income still	15	0	0
2	Fruits plants are growing stage	100	0	0
3	<5000/year/ person	19	2500	47500
4	5000-10000	1	7500	7500
5	10000-20000	2	15000	30000
	Total	100		85000
	Average income (NRs)			3863.64

Source: Field Survey, 2006

6.2.1.4 Change in Monthly Savings

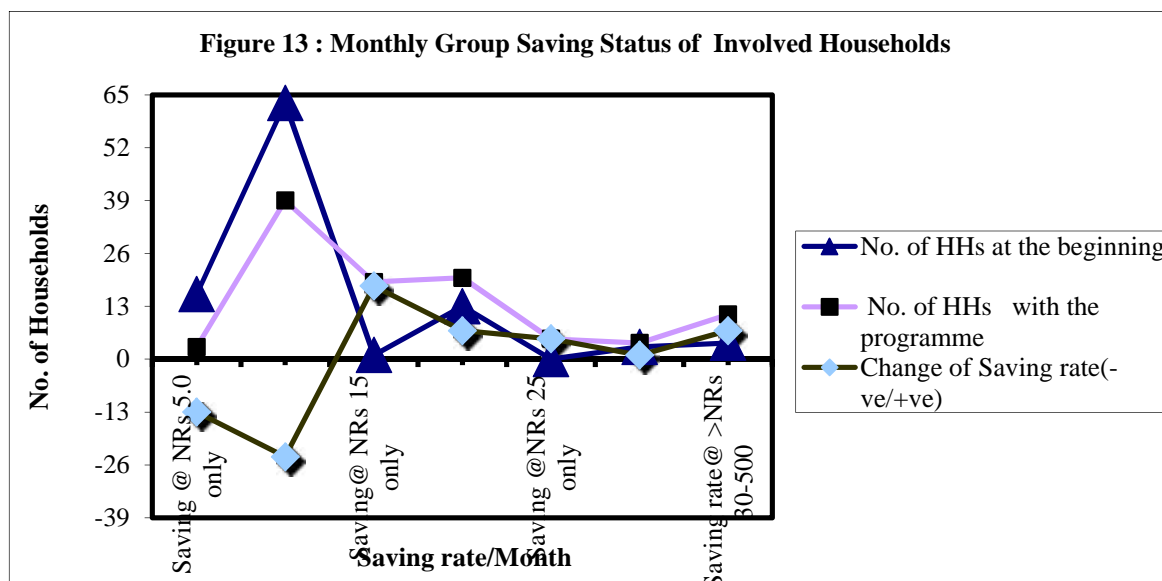
The table 22 and the chart shown in the figure 16 depicts that the most of the households save per monthly NRs 5.0 and NRs 10.0 at the beginning of the programme. The saving rates above than NRs.30 are recorded those participants who are also involved in groups made by other organizations. The low amount of savings rates (NRs. 5.0 & 10.0) are reduced by 81% and 38% respectively while saving rates of NRs. 15, 20, 25, 30, and above than are increased by 1800%, 53.8%, 500%, 33%, and 175% respectively. When comparing the per month savings amount, it was found increased by 129%.

Appendix 18 depicts that 55 % households used the cash coming from the daily wages particularly done in FfW and other neighborhood area. Eighteen percent and 16.38% households collected cash from selling cash crops and livestock. Eight percent households collected cash by the income from retail shop and rest 2.59% households collected cash by borrowing from neighbor/friends.

Table 22: Change in Savings Rate before and with Programme

S. N	Saving rate/month	No. of HHs (beginning)	No. of HHs (Now)	Change (-ve/+ve)	% age of change
1	Saving @ NRs 5.0 only	16	3	-13	-81.3
2	Saving @ NRs 10 only	63	39	-24	-38.1
3	Saving@ NRs 15 only	1	19	18	1800.0
4	Saving @ NRs 20 only	13	20	7	53.8
5	Saving @NRs 25 only	0	5	5	500.0
6	Saving @ NRs 30 only	3	4	1	33.3
7	Saving rate@ >NRs 30-500	4	11	7	175.0
8	Total amount of savings/month	1245	2860	1615	129.7
	Total	100	100		

Source: Field Survey, 2006



6.2.2 Change in Market Accessibility

6.2.2.1 Selling of Produce before Programme

Table 23: Status of Produce Sold before RAP/RCIW Programme

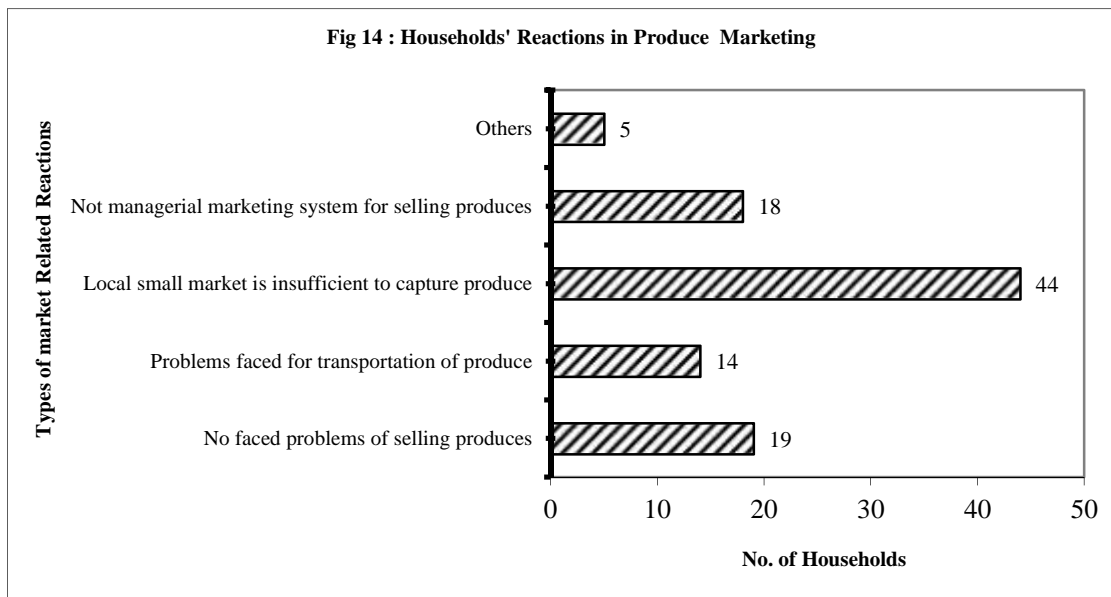
S. N.	Selling Status of produces	Number of HHs
1	Not sold anything	67
2	Sold livestock & pulses	20
3	Sold cash crops	6
4	Sold vegetables	4
5	Sold cereals only	3
	Total	100

Source: Field Survey, 2006

The table 23 depicts the selling status before the RCIW programme i.e. 1998/1999 year. Sixty seven percent households did not sell anything. Twenty percent households sold livestock and pulses. Six percent households sold cash crops. Four percent households sold vegetables and 3% households sold only cereals.

Group said that roads access started from the Department of Road (Surkhet-Chupra) and local market size increased by the vehicle movements then after, the respondents started to sell their produce. Sixty seven percent households started to sell after the RCIW programme started to work in the TMD.

6.2.2.2 Present Marketing Response



Source: Field Survey, 2006

The chart shown in figure 14 depicts that the marketing management of the consumers' produce is insufficient. This reveals that 44% of farmers said that the local market is insufficient for capturing the produce. Nineteen percent of farmers are not facing any marketing knowledge in still but they said there is no problem of market. Eighteen percent said that there is no found managerial marketing system for selling produce. Fourteen percent of farmers felt problems in transporting produce. Seventy-six percent of households said that there is a need to enhance marketing management efforts under the RCIW Programme.

6.2.2.3 Purchasing of Food Items in Different Market Centres

The appendix 19 showed that 57% of households purchased food items in local markets. Twenty-nine percent of households purchased food items at village level as well as local markets. Those who use the other markets were the business persons having retail shops.

6.2.2.4 Time Taken to Fetch Food Items

The table 24 depicts that the local market centre for the majority (58%) of the households are located within the six-hour periphery followed by 40% of households' needs six to one day of time to fetch food items. Those who take more than one day are the retail shopkeepers and used other market centres like Dailekh and Nepalgunj.

Table 24: Time Taken to Fetch Food Items

S.N	Time taken to fetch food items	% of HHs
1	Takes less than six hours	58
2	Takes six hour to one day	40
3	Takes one day to two days	1
4	Takes more than two days	1
	Total	100

Source: Field Survey, 2006

6.2.2.5 Road Access of Tallo Mathillo Rural Road

The case study was prepared by discussing with the Local Resource Users Group those implemented Tallo-Mathillo Dungeshwor rural road is presented in appendix 20.

6.3 Changes in Food Utilization

To analyze the food utilization (distribution) pattern, food items consumed with the weekend period were recorded by recall method. Majority of respondents said three frequencies of time in a daytime. Minority of the respondents said that four times of food taking in a day. Therefore, only three times of food items were analysed in this study.

6.3.1 Food Items Consumed as Breakfast

The table 25 depicts that the breakfast or morning meal taken during the period of 5-9 A.M. Thirty five households used to bread and tea as breakfast followed by ten households used bread, roasted maize and chutney as breakfast. Ninety one households used the bread with other supplementary foods in the morning. Eleven households of the *Magar* and *Dalit* consumed *Jand* and other food items in the morning and did farm activities. Three households used the balance types of breakfast (bread, vegetables, pulses and milk) and two households used no food items due to food items lacking in the morning. Cereal based food items were dominant as a breakfast.

Table 25: Types of Food Items Consumed as Breakfast

S. N	Name of food items consumed	No. of HHs
1	Bread and tea	35
2	Bread, roasted maize, chutney	10
3	Tea only	8
4	Bread, milk, tea	7
5	Bread, roasted maize, tea	6
6	Bread and vegetables	6
7	Bread, fried rice, pulses, tea	5
8	Bread, vegetables, tea	4
9	Bread, veg, <i>Jand</i> , roasted maize & chutney	3
10	Fried soybean/chickpea	3
11	Bread, milk, <i>Jand</i>	3
12	Bread and chutney	3
13	Bread, vegetable, pulse, milk	3
14	Bread, vegetables, milk	2
15	No breakfast	2
	Total	100

Source: Field Survey, 2006

6.3.1.2 Food Items Consumed as Lunch

Table 26 depicts that the types of food items consumed as lunch from 9 AM to 1 PM in the households. Twenty nine households used the food items of combination of cereals, vegetables pulses and milk. Twenty four households consumed food items based on cereals and vegetables only. Fourteen households consumed combination of cereals, pulses and milk. Twelve households used cereals, vegetables and pulses and 10% households used cereals, vegetables and milk. Five percent households used food items of cereals and pulses. In case of the frequencies of carbohydrates (cereals) based food items; the respondents used of rice (76HHs), bread (38 HHs), corn flakes (29 HHs) and *Dhindo* (5HHs), while the balance food items in addition to carbohydrate were vegetables by 82 HHs, pulses by 65 HHs, milk by 59 HHs, meat by 11 HHs and eggs by 2 HHs.

Table 26: Types of Food Items Consumed as Lunch

S. N	Types of food menu consumed	No. of HHs
1	Combination of cereals, vegetable, pulses & milk	29
2	Combination of cereals and vegetable	24
3	Combination of cereals, pulses and milk	14
4	Combination of cereals, vegetable and pulses	12
5	Combination of cereals, vegetable and milk	10
6	Combination of cereals and pulses	5
7	Combination of cereals, veg, pulses, milk & meat	4
8	Combination of cereals, vegetable and meat	2
	Total	100

Source: Field Survey, 2006

The above analysis indicates that 33% households used balanced food while 67% households are limiting one or more food items to be balanced. The beneficiaries while discussing on the consumption of the lunch, RCIW social mobilization helped them to include vegetables, salads, pulses and some fruits in lunch. Some beneficiaries said that RCIW reduced the cereal farm land

6.3.3 Food Items Consumed as Dinner

The table 27 depicts that 32 % households used food items of combination of cereals, vegetables and milk. Twenty households consumed food items based on cereals and vegetables only. Seventeen percent consumed combination of cereals, vegetables, pulses and milk. Thirteen percent used cereals, vegetables and pulses. Five percent households used food items of cereals and pulses. Three percent households used cereals, vegetables and milk. In case of the frequencies of carbohydrates (cereals) based food items; the respondents used of rice (37 HHs), bread (72 HHs), corn flakes (10 HHs) and *Dhindo*(2 HHs), while the balance food items in addition to carbohydrate were vegetables by 92% HHs, pulses by 42% HHs, milk by 56% HHs, meat by 8 HHs and eggs by 3 HHs.

Table 27: Types of Food Items Consumed as Dinner

S.N	Types of food items consumed	No. of HHs
1	Combination of cereals, vegetable and milk	32
2	Combination of cereals and vegetable	23
3	Combination of cereals, veg, pulses & milk	17
4	Combination of cereals, vegetable and pulses	13
5	Combination of cereals and pulses	5
6	Combination of cereals, pulses and milk	3
7	Combination of cereals, veg., pulse, milk & meat	2
8	Combination of cereals, vegetable and meat	2
9	Combination of cereals, vegetable, milk & meat	2
10	Combination of cereals, pulses and meat	1
	Total	100

Source: Field Survey, 2006

As per analysis, 21% households used balanced food while 79% households are limiting one or more food items to be balanced food. The beneficiaries while discussing on the consumption of the night meal, RCIW social mobilization helped them to include vegetables, salads, pulses and some fruits in lunch. Support of RCIW programme in kitchen gardening (Appendix 24) helped them for vegetable production. They said that RCIW reduced the cereal farm land. Twenty percent beneficiaries reported that the use of vegetables improved health condition and reduced food consumption by 10%.

6.3.4 Quantity of Food Items Consumed

Table 28: Average Quantity of Food Items Consumed

S. N	Name food items	No. of HHs	% of HHs	Mean(gm)	Range(gm)
1	Cereal based food	100	21	625.3	300-1300
2	Vegetables curries	95	20	171.8	40-500
3	Pulses	96	20	60.73	10-120
4	Fat and oil	93	19	20.44	5-100
5	Milk	61	13	0.221	0.05-0.5
6	Jand	6	1.2	2.083	1000-3000
7	Meat (egg incl.)	17	4	144.7	10-300
8	Fruits	10	5	35.83	0-300
	Total	478	100		

Source: Field Survey, 2006

The above table 28 depicts that average of 625.3 grams of cereal based meal was consumed by a family member. 171.8 grams of vegetables was consumed by 95 HHs. Five HHs did not consume vegetables and were substituted by pulses. 60.73 gram of pulses was consumed by 96 HHs. 93 HHs used average of 20.44 gram ghee and oil products and rest of 7 HHs were not used any of that amount in their food. 61 HHs used average of 0.221 liters of milk. The average amount of meat was 144.7 grams.

By analyzing, cereal based food is sufficient for 221 days, and its share in food consumption was only 62%. The availability of the pulses was 109 days (share 30%), fatty materials was 78 days (share 21.43%), vegetables for 136 days (share 37.4%). Fruits were only sufficient for 20 days (share 12.85%). The only sufficient was milk when consumed 221 ml per day consuming, there is 64% excess milk due to less consumption. Majority of the community used milk for processing to make buttermilk, curd and ghee. Some respondents used to sell the milk in the local market.

6.3.4 Bottlenecks in Food Utilization/Stability

The table 29 describes about the problems found in the intra household food distribution. Thirty five percent respondents reported that the main cause as the lack of awareness on food utilization. Eighteen percent households reported as lack of adequate income for food purchasing. Twelve percent households said that it was due to the low income and government system. Geographical structures and government lacking in nutritious food supply policy was commented by 10% households. Others were the high price taken by the local retailers/ as well as businessman.

Table 29: Bottlenecks in Food Utilization

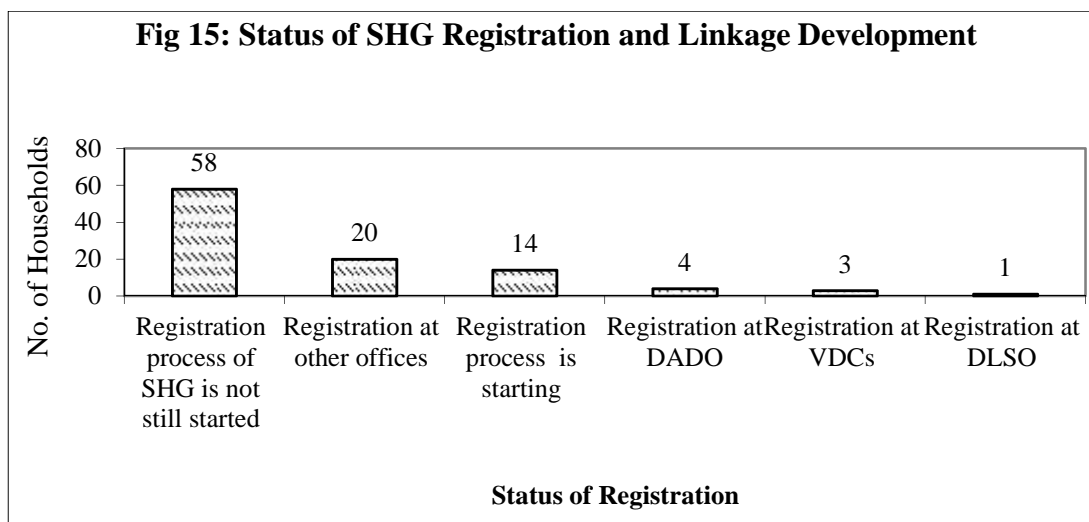
S.N	Bottlenecks in Food Distribution	No of HHs
1	Due to low HHs income	18
2	Due to low HHs income, and government structure	12
3	Due to low HHs income, and high price	5
4	Due to low income, government structure, high price & awareness	4
5	Due to the geographical structures and government policy	10
6	Gov. structures and awareness level	10
7	Price hiked by local businessman	6
8	Lack of awareness/orientation	35
	Total	100

Source: Field Survey, 2006

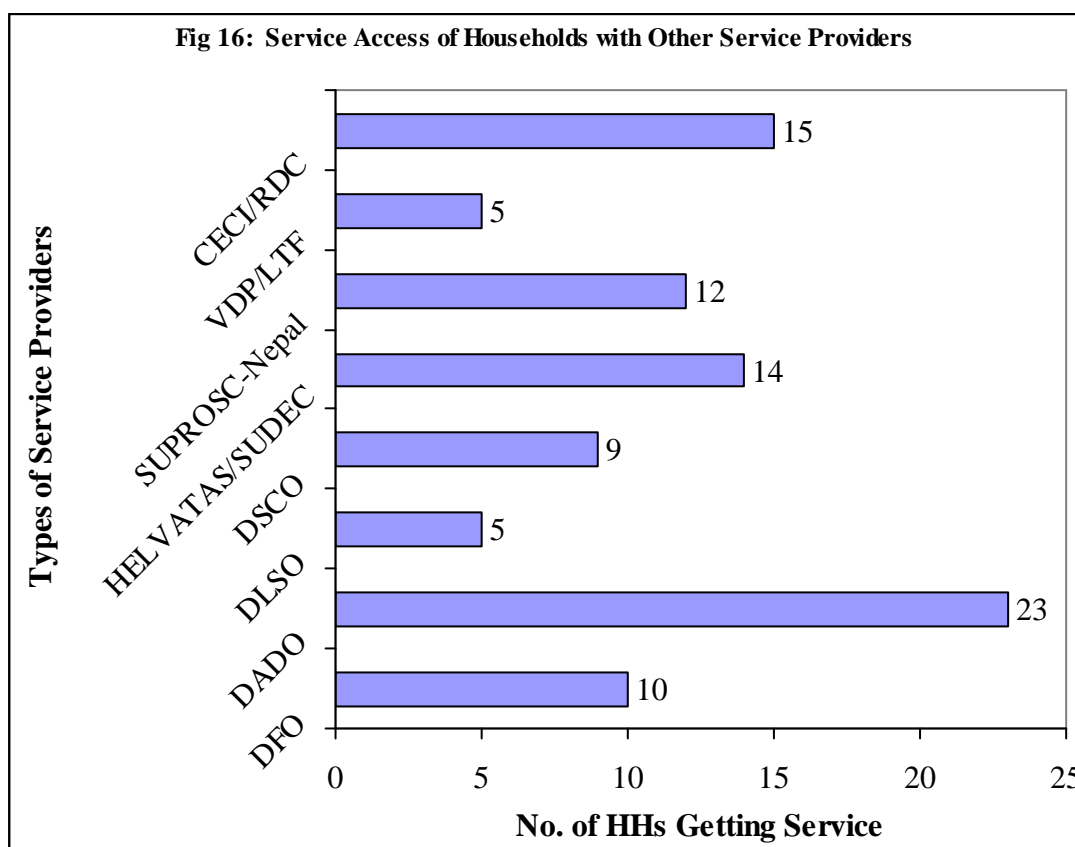
6.4 Sustainability of RCIW in Food Security

6.4.1 Registration Process of SHG

The chart shown in figure 15 depicts the registration of groups in the offices of service providers of related offices. Fifty eight percent respondents said that there is no process of registration in the related organization. Twenty percent households said that the members are registered at leasehold forestry programme of District Forest Offices. Fourteen HHs said registration of the group is starting with DADO, and VDC office. 4, 3 and 1 member's households registered at DADO, V DC and DLSO office respectively.



However, figure 16 depicts that the DADO service was more accessed to the beneficiaries followed by the CECI and SUPROSC Nepal. These organizations have great role in changing food security. However, due to the poor technique of measuring attribution gap, the role of other organization was not assessed.



6.4.2 Change in Food Sufficiency Month by RCIW Activities

Table 30: Future Food Sufficiency Month Improvements by RCIW Activities

S. N.	No. of months improved	No. of HHs
1	Do not believe on income	3

2	Below three months	33
3	3-6 months	29
4	6-9 months	18
5	9-12 months	12
6	> 12 months	5
	Total	100

Source: Field Survey, 2006

The table 30 depicts that three households did not believe on income. Thirty three HHs said that the micro projects income supports for three months. Twenty nine percent HHs said that the micro projects income supports for 3-6 months. Eighteen percent, 12% and 5% households said the improvements 6-9 months, 9-12 months and more than 12 months respectively. This means that the beneficiaries are hoping for better but are still not getting sufficient amount.

Discussion with the group reveals that the beneficiaries will take better opportunity of future food intake. The secondary data of estimation of future income analysis indicated its reality. The table shown in appendix... indicated that 61,7911 kg volume of produce will be sold in the market by which NRs 25.99 million is gross income. This amount will benefit to increase additional income of 21951 for 1184 households of and it is equal to NRs 6973 for the RCIW labour of 3727 households. However, the case study is quite relevant to address the managerial problems of micro projects. The Appendix 17(2) describes to aware on long term food security.

6.4.3 Respondents Reactions on Continuity of Programme

Table 31: Respondents Reactions on Continuity of Activities

S. N	Continuity of programme after phase over	No. of HHs
1	Can not give continuity	7
2	Give continuity without support	61
3	Do not know still	4
4	Asked for group members	28
	Total	100

Source: Field Survey, 2006

The table 31 describes future programme status after the phase over of RCIW programme. Seven percent respondents reported to discontinue activities after this programme due to poverty. These groups were dalit participants and they are now insufficiently supported. Sixty one percent households said that they could handle the project activities (Case study of appendix 23). Four percent HHs said not known about the continuity of the programme and 28% HHs reported that there is need to discuss in group in this issue.

However, focus group discussion was done on this issue. Almost all respondents fully supported to continue the running activities; however, they felt inefficient in technical support of agriculture based activities implemented by the RCIW programme. Some other

beneficiaries suggested starting marketing based activities immediately. The case study for requiring additional years of RCIW programme is presented in appendix 21.

6.5 Summary of Changes before and after RCIW Programme

This section has been described here about the changes in indicators either positively or negatively on the food security site directly or indirectly by RCIW Programme. This summary of data presentation can give glimpse to the reader shortly.

Indicators before RCIW	1.2 Changes in indicators after RCIW
1 Change in Food Availability	
1.1 Production and productivity of fruits and vegetables and pulses was very low.	Backstopping support helped to increase production and productivity by 30-40%
1.2 Vegetables, pulses and fruits were found insufficient in production	Vegetable production increased by 60%, pulses by 25%, soybeans by 15% and fruits by 7%.
1.3 Share of local traders in food supply was 37%	Share of local trades on food supply reduced by 11% after RCIW program.
1.4 Economically active members only busy in their subsistence farming and no additional job opportunities.	Additional employment increased by 59 days per year and 1.4 member/HHs engaged.
1.5 Women participation in development activities was low (5%)	Women participation increased by 22%
1.6 Area under fruit and vegetables was nearly negligible.	Vegetable area increased by 100%/ HH and fruit area has increased by 2-10 ropani /HHs
1.7 S/C, PLC, and fruit nurseries were not existence.	Most of members were joined in integrate activities.
1.8 Social mobilizer assisted beneficiaries for group meeting, and minute taking.	48% SHG older than three years have group meeting regularly without external support
1.9 Leadership position was occupied by male.	68% of leadership position in mixed group are occupied by women
1.10 Coping activities for food	Coping mechanism improved by

insufficiencies were only wage in neighborhood area, selling land and productivity animal, and temporary service of seasonable migration	increasing local employment at proximate area, reduced seasonal migration, started to sell fruit and vegetable.
1.11 There were no technical support, input and materials support, technology transfer, irrigation supports etc.	Increased production supportive and income supportive infrastructures helped in their food availability.
2. Change in Food Accessibility	
2.1 Beneficiaries had not no amount of selling vegetables, fruits and pulses.	The selling of vegetables, pulses, fruits and spices increased by 30%, 20%, 5% and 10% respectively. RCIW improved it by 10%.
2.2 Income from buffalo and cattle was found very low and long duration	S/C activities promoted to invest in small animals and income level increased subsequently.
2.3 Due to limited IGA, additional income sources were insufficient.	Average income of participating household increased additionally by 16%.
2.4 There were no S/C activities in the beginning and RCIW started to save NRs. 5.0/month in their group.	The saving rate of the beneficiaries increased by 130% than that earlier.
2.5 There was no investment of loan in income generating activities.	Fifty one percent loan amount is now invested income generating activities.
2.6 Local market centers were small, insufficient to supply produces and have not capacity to consume the additional production.	Local market now are becoming to sufficient to supply food items and consuming capacity and people's mobility is improving.
2.7 There was single way of difficult road access and seasonal transportation facilities.	Two way road access increased by link road, and year round vehicles are plying from either side. Road volume and truck load improved.
2.8 Transportation cost was relatively high due to single opportunity.	Transportation cost reduced by 5% in vehicle and 38% in portering.
2.9 Mode of transportation in Tallo-Mathillo Dungeshwor was only portering and mules.	Increasing numbers of vehicles (jeep, tractors, trucks mini bus increases and reduced mobility mules and porters.

2.10 People have limited access of road	Additional number of people with access to road within 2.5 hours walking distance was increased for 5000 HHs.
2.11 Farmers confidence level on production and selling was pessimistic.	Commercial farmers increased their confidence level in selling their produces.
2.12 Land value was chief (NRs 5000/ropani) and transitions was low. <u>Bari land</u> had not got significant price.	Land value increased by 50-70% at the road side and value of <u>Bari land</u> increased additionally by 50% due to fruit plantation.
2.13 Limited retail shops and no wholesalers.	Retail shops in TMD increased by 50%. People reported that collectors generally go to the villages of survey area to collect the village produces. The road increased farm get price of farmers by 15%. Some beneficiaries started retail and wholesale shops in the local market centre.
2.14 Food purchasing was mostly at village level and partly at local market.	Purchasing was dominated through local traders and share of village was found partly.
3. Change in Food Utilization	
3.1 Share of cereal based food items was more in food intake.	There is significant improved in food intake by including fruits, vegetables, and pulses in their meal.
3.2 No awareness on food items consumption.	PLC play non-significant role to increase awareness in food utilization and other programme supports are also found insufficient.
4. Change in Sustainability	
4.1 There was limited service access from government and non-governmental organization.	Service access of DADO, DLSO, DFO and DHO increased relatively and many donors are working in this area. Registration is proceeded to make access of regular service from LAs.
4.2 Farmers were not in organized way. There was no access of formal loan to	Farmers are now organized into the informal SHG. Total members now

the beneficiaries.	organized and operating themselves by amalgamating into cooperative. These cooperatives are growing their turn over and acting as village bank.
4.3 Additional improvement in future food improvement access critical.	Majority of households felt that future food availability will be improved by 3-12 months. Not only, people committed to continue existing programme even after phase over
4.4 Regular landslide and sheet erosion was frequent in their <u>Barj land</u> .	Due to bio-engineering programme and fruit plantation in the adjoining area, decreased landslides significantly.

This Summary indicated that many changes in the indicators for future food security were found positively. However, data that are represented these indicators by few amount of support. Role of RCIW programme has found the best model for future food security perspectives.

CHAPTER VII

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

7.1 Summary of Findings

The conceptual definitions indicated that the food security as the state of affairs where all people at all time have access to safe and nutritious food to maintain the healthy and active life. Food security is used as a macro, meso and micro-level indicator of agriculture stability.

Understanding realities on the food insecurity perspectives the food deficit districts of Nepal, Government of Nepal signed the agreements with the World Food Programme, German Development Cooperation and Development Fund for International Development for the implementation of RCIW programme in Dailekh District in 1995/96. However, the integrated activities were started in the last of the first phases 2000/01.

The main objectives of this research study were: to assess the change in food availability, food access, and food utilization, by the support of project activities and major problems that causes food insecurity, to assess the people's participation in different activities of the programme and identify coping mechanisms under food deficit conditions, to determine the major changes felt by the communities after the implementation of the RCIW programme and to examine the prospect of beneficiaries in the continuity/sustainability of the RCIW programme.

Many literatures were reviewed to understand the food security in the past, and to fix indicators. The literatures have segregated food security into several components. It is not possible with out sufficient income, hence it is income security; it is not possible without supply of food, hence it is food supply security; it is not possible with intra-household biases against a sex or

age group, hence it is socio-cultural security, and it is never possible without good health to productively use the ingested food and hence it is equally health security. Many conceptual frameworks were used to study the food security status of the RCIW programme.

The study is mainly about the impact of RCIW programme in rural food security; a case study of Tallo-Mathillo Dungeshwor of Dailekh District by understanding this problem and scope, the survey research was conducted in February to May, 2006. The main rationale behind the selection of rural parts of Dailekh was: district is one of the food deficit districts in the hill districts, pliable rural road, the study sites were ranked as more food deficit VDCs and are found linked with the Tallo and Mathillo local market.

Five VDCs was purposively selected based on the performance of the programme. One hundred households were sampled randomly by the purposively. Structured questionnaires, questioning routes and checklist were the major tools to collect qualitative and quantitative data and information through the individual interview and participatory discussion. Secondary data were collected from the relevant development organization. Out of the hundred samples, 32% were female respondents. Major findings of the study were drawn basically by the interpretation of the primary and secondary data.

The majority of the respondents produced the cereals based food dominating maize (39%) and wheat (31%). The reduction of the productivity was that low rainfall and prolonged drought condition.

The total food sufficiency was found for 229 days and share of cereal food was nearly 63%. The share of the other food items by their production was 37% for fat materials, 29% by green vegetables, 34% by pulse crops, 3% from fruits, and 73% by the milk product.

Food availability for 47% households by their production was 3-6 months. Food sufficient households were only 3%. Food sufficiency level for the survey area was 9.33 months. Maximum food deficient months by the survey were (January 15 – April 15) followed by June15- September 15).

The respondents had arranged their food requirements by the purchasing foods through local traders for 129 days and its share was as equal with the 37.4 % for the year of no RCIW interventions were started. The share of traders was 64 % for mustard oil. Ninety-six households purchased rice and its share was 71% in cereals. Ninety percent purchased about 28.29 litres of mustard oil in a year.

Total of 59 days of local employments created for 141 members to work in core and micro projects by which community received 133 kg rice and NRs. 172.0 cash. The rice supported from the RCIW was sufficient for average of 40 days. The share of the rice for food requirements by micro project was 37.46%.

Households consumed 97.61% rice and 48% received cash was used in the productive sectors. The share of rice consumption by RCIW programme was found 11%. The share of foods items purchased through local traders 26.56%.

The coping system of the beneficiaries were: 36% households worked in the Food-for-Work activities followed by 19% households earned cash by pensions, official jobs, and seasonal migration either from inferior job in India. Sixteen percent earned cash by working in daily wage in the neighborhood area

Thirty four HHs participated in programme due to the limited job in other areas. Other factors were: compelled due to food insufficiency and proximity to their residence.

Fifty percent households sent only one member from a house in core and micro projects. Averages of 1.41 participants were found participation in the programme out of that female participation was only 22%.

Regarding RCIW's fruit farming support, 35% participants cultivated less than 2 ropani of land followed by 2-6 ropani for other households. Eighty-six percent participants found involved in almost all integrated activities.

The income secured food items were mostly cash crops and less of cereals and pulses. The average income by selling these items was NRs 4405.0

whereas mean income by selling livestock was 3650.0 per households. The average income from the selling of micro project produces was NRs 850 .0 per households. The share of the RCIW programme in these three sections was calculated as 16%.

Saving rate per month at the beginning and with RCIW was increased significantly by 130% per month. Fifty five percent households did monthly savings by taking cash from daily wage.

The recalling before RCIW, majority of households did not sell anything however, 20% household sold livestock and pulses. After RCIW, rapidly change in the selling behaviors of cash crops and livestock.

Regarding the local market issue, the purchasing food items, local market centres were seasonally sufficient to supply the food items. Twenty one percent households purchased locally produced foods like maize. Eighty one percent community members demanded marketing related infrastructures and skill.

The average time taken to fetch the food items was found below half days for 58% households. Eighty two percent household self -porter food items themselves to their residence.

The role of Tallo-Mathillo rural road for market access was found in the beginning stage. It linked the food products in two ways, reduced porter fare by 38%, and reduced the transportation fare by NRs. 5% per kg.

Intra-household food distribution was studied by examining food habit. Three frequencies of food taking; breakfast, lunch and dinner times were assessed. Majority of the households consumed bread and tea as breakfast. Thirty three percent households used balanced types of food items in their lunch period. As per the night meal, 79% households were limited nutritionally required food items. RCIW supported them to include the vegetables, pulses and fruits in their food items. Consumption of the vegetables, fruits and pulses also helped to save the cereal based foods.

Comparing standard amount of food items requirements; vegetables, milk and fruits consumption per members per households was found 57%, 55%

and 77% less while cereal based foods, pulses and fatty materials were found slightly more.

In case of intra-member meal distribution, 40% families ate meal together with all family members. Thirty two percent family prioritize first for children.

The major causes of the food unavailability were: lack of irrigation (28%) followed by lack of fertile land (23%) and quality land (18%). Major bottlenecks to utilize the food were due to low awareness (35%) and low income (18%).

The improvement of the living condition of the people and stability of RAP/RCIW program was assessed. Some of 14% households reported that GTZ-RPN facilitated to register at VDC, DFO and DADO office. DADO and DFO staffs were committed to register SHG for further service.

Thirty three percent households reported that future food improvement by RCIW micro projects for less than three months while 29% household said 3-6 months. The rest of 30% household reported for 6-12% months. The progress report from secondary data indicated the improvement for about 4-6 months

The individual household's perception was varied with FGD view and 61% respondents expressed and committed to continue the RCIW activities in future. The focused group discussion prevail that RCIW programme should continue its technical backstopping in the economic promotion sectors.

7.2 Conclusion

Above stated summary prevailed to draw following conclusions.

Farmer's production supplied per capita calorie supply was limited and no other food items were optimum for family consumption. Overall food sufficiency was nine months. January 15th to April 15th were the most food deficit months.

Short-term employment generation and food support from RCIW programme found insufficient.

RCIW programme was found insufficient to supply the rest of food than that of production. Share of food supply was found much more from local trader.

Participation level of community in the RCIW programme was satisfactory.

Limited jobs, food deficiency play great role in participation.

RCIW programme were concentrated in production and income supportive activities. Economic promotion activities were relevant to support future income security however the supports were found subsistence based. RCIW involved as labour at food for work activities, reduced migration, increased fruits and vegetables selling as the best coping activities.

The main source of households incomes were cash crops and livestock by which they earn NRs 8055.0. Fruits plants supported by RCIW programme have insufficiently producing and are in growing stage however, small income of NRs 850/members was received by selling the produces of micro projects and income generation.

Savings and credit programme found highly successful programme however, sources of generating savings are still found irregular and unstable.

Local market access for selling and purchasing food items found in growing stages and selling behavior is increased. The time taken to fetch the food items was below six hours to one day via self-portage Majority of respondents requested RCIW to start market related infrastructures (including link road) and other promotion activities.

Role of Tallo –Mathillo Dungeshwor rural road is just started in operation. Beneficiaries were happy by two way road link.

One third households used optimum balance food. Preference was found for cereal food security rather than nutrition security. The role of RCIW was focused to produce vegetable, pulses and fruits.

Major problems in rural food security were: lack of irrigated land, insufficient land, technological insufficiencies, less income, lack of awareness, poor supply of nutritious food items and geographical locality.

Registration, linkage, and coordination of SHG and CBO are in starting point and found insufficient.

The respondents' expectations and project estimation on future income security from economic promotion activities meet the objectives for micro project beneficiaries but insufficient for other road beneficiaries.

Majority of respondents were committed to continue programme activities even after the phase over. The groups are still insufficient to fulfill technical support and marketing based skills.

The impact level was more focus at the food availability, access and stability and it was found lacking at food utilization part. The impacts were found cumulatively by the aggregated efforts (results) of the district based organizations. Future impact of RCIW programme is highly studious.

7.3 Recommendations

After having these summaries of the findings and conclusion drawn from the above descriptions, the researcher felt to request following recommendations to improve programme focus in these areas as soon as possible.

Recommendations for UG/UC/CBOs

Invest to facilitate income supportive off- farm and on-farm activities by cooperatives

Increase coordination system locally with the other organizations. Be active to improve first to improve food security to reduce poverty.

Recommendations for NGO

Mobilize SHG to increase self-help and local resource utilization.

Enhance women's participation by implementing off-farm activities. In that case continuous efforts to increase SHG's empowerment are recommended.

Make clear cut contractual arrangements of leasing land by fixing duration and benefits whom.

Recommendations for District Programme Management Committee

Implement activities that support to increase production and productivity of the farm in close collaboration with DADO, DLSO and ARS. Promote crops that supply more vitamins, minerals, proteins (drumstick) and other food crops (appendix 11).

Support irrigation based infrastructures like micro irrigations, drip irrigation and water harvesting technologies in the remaining period.

Distribute rice and other cash items in food deficit months.

Assist SHG group by investing short duration crops and other off-farm skill based activities like: weaving, sewing, dalmot making, etc.

Plan to implement short duration crops in commercial packages like; papaya, banana cum pineapple, vegetable/cash crop farming, and seed production programme to increase the income promptly. Implement short duration non-land based enterprises by diversifying micro project like; goat keeping, bee keeping, mushroom practices.

Make rural road pliable for all vehicles to enhance commercial agriculture production. There is recommended to maintain the rural road for year round vehicle mobility.

Implement market related activities to enhance economic promotion activities. Market infrastructures like collection centre, cellar store, rustic store, haat bazaar shed at local market centres. Emphasize group marketing channel through cooperatives.

Capacitate micro project beneficiaries by training and exposure visit on integrated pest management, post-harvest operations and handlings.

Expand cultivation area by further plantation in that insufficient area so that there must be at least four ropani of plantations per participant or there is need to increase other support alternatively. Emphasized intercropping with more support.

Increase additional linkage and coordination by the district team and attract to pull more resource at the RCIW support area. In that case facilitation of group for the registration process is highly recommended.

Recommendations for Central Programme Support Unit

Implement RCIW programme as Nepal's pro-poor programme in rhetoric and reality. The researcher highly recommend for the replication of this food security model to the other food deficit and conflict sensitive districts of Nepal.

Increase rice and cash resources as per district demand to operate core and micro projects by ensuring at least one hundred days of minimum guaranteed employment in every fiscal year.

Prepare policy to support link roads to join growth centers.

Enforce policy by bringing out special programmes for rural youths to reduce seasonal migration.

Make ZOPP by analyzing each sub-sector.

Suggest district to implement semi-commercial and commercial package of production to increase income by additional NRs. 9000 per HHs. For that purpose, internalize "one village one products" model for commodity commercialization and specialization.

The objective of RCIW programme looks vague and ambitious with the short period of time. Implement activities to address all the dimensions of food security. Prolong at least two additional phases of five years each to fulfill definition of food security.

Make phase over policy by fixing time and sustainability.

REFERENCES

- Acharya, K. R. 1999. "Impact Assessment of Self-help Programme to the Local Beneficiaries in Kapilvastu District, Nepal". Unpublished Dissertation, Faculty of Humanities and Social Science, Trivuvan University Kathmandu.
- ACTION AID. 2002. Food Security: Challenges and Opportunities in Mid and Far-Western Nepal 2002. Draft Report. ACTION- AID Nepal, pp: 5-6.
- Adhikari, S. 2003. "Food Insecurity in Nepal: Problem and Issues of Concern". *Ugratara Sandesh*, Karmachari Melan Kendra, Dadeldhura pp:129-134.
- Adhilari, R.K. 1991. *Trends in Nutritional Status in Nepal since 1975*. UNICEF
- AICC. 2006. *Agriculture Diary, 2006*. Agriculture Information and Communication Centre, Lalitpur.
- Bhandari *et al.* 1999. *Roads and Agricultural Development in Eastern Development Region: A Correlation Analysis*. Winrock International (Ser: 40) pp:1-7.
- CBS. 1997. *Nepal Living Standard Survey 1996*. Central Bureau of Statistics, Kathmandu, Nepal.
- 1998. "Situation of Childhood Malnutrition in Nepal: Challenges and Opportunities". *A Compendium on Environment Statistics 1998*, Nepal Central Bureau of Statistics pp: 503-504.
-2004. *Four Monthly Statistical Bulletin*: Central Bureau of Statistics. 26 (2).
- 2004. *Nepal Living Standard Survey*. Vol. 2. Central Bureau of Statistics, Kathmandu, Nepal.
- DADO. 2002. *Annual Agriculture Development Programme and Statistical View*: District Agriculture Development Office, Dailekh
- DDC. 2001. *Periodic District Development Planning (2001/02-05/06)*: District Development Committee, Dailekh.
- FAO. 2000. *Food and Agriculture Organization Bulletin* Information Division, Rome.

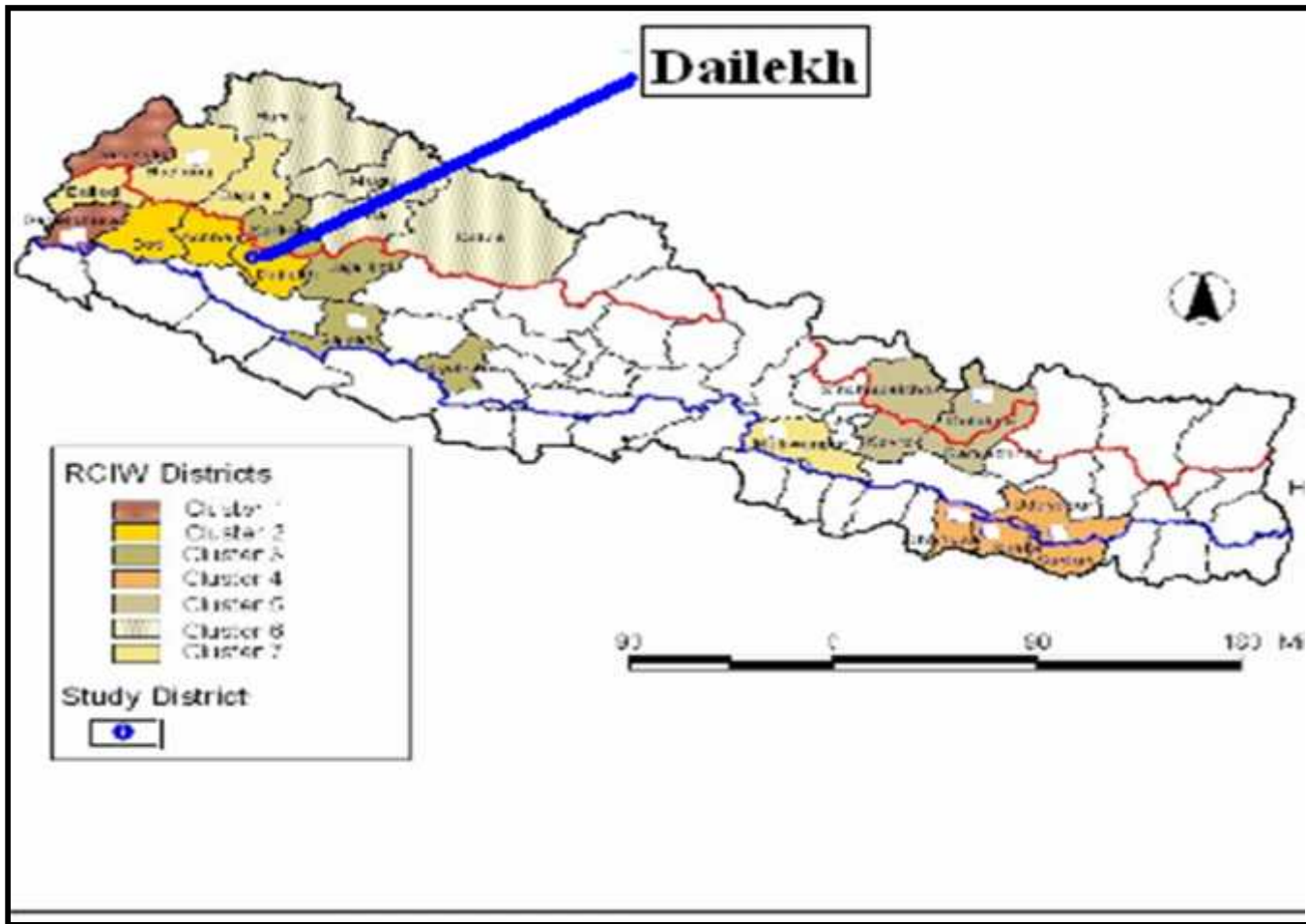
- 2003. *Agricultural Policies and Strategies for Poverty Alleviation and Food Security*. Main Report, Kathmandu: Food and Agriculture Organization.
- 2005. *Food Security and Agricultural Development in Sub-Saharan Africa: Building A Case for More Public Support*. Main Report. Food and Agriculture Organization and NEPAD. Rome.
- Ghale, Y. 2002. "Food Security: Who Guaranteed?" A report submitted to Food Security Workshops in Far Western and Mid Western Development Region (May 23-25), Nepalgunj: ACTION AID.
- Gittelsohn, J. S. Mookherji and G. Pelto. 2001. "Operationalizing Household Food Security in Rural Nepal". Centre for Human Nutrition. Johns Hopkins University. Geneva.
- Gross *et al.* 1999. "Community Nutrition: Definition and Approaches". In: *Encyclopedia of Human Nutrition*. Editors: Sadler MJ, Strain JJ, Caballero B (eds.) Academic Press Ltd, London, 433-441.
- 2000. "The Four Dimensions of Food and Nutrition Security: Definitions and Concepts". *Nutrition and Food Security*. GTZ. Germany.
- GTZ. 2002. *Baseline Survey Report*. German Technical Cooperation.
- 2003. *Result Based Management System*. Rural Programme Nepal, Kathmandu.
- 2004. "Income–Expenditure Draft Report of Green Road Labourer". Survey Study on Utilization of FfW and CfW in GTZ-RPN Lamjung District pp: 1-11.
- Hahn, H. 2001, " Conceptual Frameworks of Food and Nutrition Security". *Nutrition and Food Security*. GTZ. Germany.
- Hoddinott, J. 1999. *Operatonalizing Household Food Security in Development Projects: an introduction*, Technical Guide No 1, Washington, D.C.: International Food Policy Research Institute.
- ICIMOD. 1997. *Districts of Nepal: Indictors of Development*: International Centre for Integrated Mountain Development Kathmandu, Nepal
- ISRSC. 2001. *District Development Profile of Nepal.*, Kathmandu: Informal Sector Research and Study Centre pp: 559-563.

- Kanal, N. R. 2003. *Guidelines to Format Thesis and Dissertations*: New Hira Books Enterprises, Kathmandu.
- Kaufmann, S. 2004. "A Selection of Indicators for Food and Nutrition Security Programme". *Nutrition and Food Security*. GTZ. Germany.
- 2004. "Assessments within the Cycle of a Food and Nutrition Programme". *Nutrition and Food Security*. GTZ. Germany.
- Koirala, G. and B.B. Basnet. 2006. *Assessment of Output/Impact of Core and Micro Projects on the Food Security Situation of RCIW Targeted Beneficiaries*. Technical Proposal Presented to GTZ-Rural Programme Nepal and United Nations World Food Programme, Kathmandu. NARMA, Pvt. Ltd.
- Koirala, G. and G. Thapa. 1997. *Food Security Challenges: Where does Nepal Stand?* Research Report Series 36 (22): Winrock International.
- Kothari, C. R. 1999. *Research Methodology Methods and Techniques* (2nd Ed). Wishwa Prakashan, New Delhi, Pp: 15-24.
- Kunwar, B. 2004. *Food and Nutrition Security*. Paper Presented in Food and Nutrition Security, Kathmandu: Unpublished Handout. GTZ-RPN.
- Maxwell, 1995. "Measuring Food Insecurity: The Frequency and Severity of Coping Strategies". FCND Discussion Paper No 8, Washington, D.C.: International Food Policy Research Institute.
- MOA. 2002. *Statistical Information on Nepalese Agriculture (2001/02)*. Agri-Business Promotion and Statistics Division, Ministry of Agriculture and Cooperatives, Kathmandu, Nepal.
- 2005. *Annual Progress Report*. Ministry of Agriculture and Cooperatives, Kathmandu, Nepal.
- NARMA. 2006. *Assessment of Output/Impact of Core and Micro Projects on the Food Security Situation of RCIW Targeted Beneficiaries*. Final Report Presented to GTZ-Rural Programme Nepal and United Nations World Food Programme, Kathmandu. NARMA, Pvt. Ltd.
- NESAC. 1998. *Nepal Human Development Report 1998*. Nepal South Asia Centre, Kathmandu p: 41.

- New ERA. 2003. *Impact of UN Agencies Collaboration in UN Model Village of Dadeldhura: Survey Report Submitted to United Nation Development Programme* pp: 13-15.
- NPC. 2002. *The Tenth Plan (2002-2007)*. Poverty Reduction Strategy Paper: A Summary Report: National Planning Commission, Kathmandu pp: 37-38.
- Ojha, D.P. 1998. "Impact Monitoring-Approaches and Indicators". *Experiences of GTZ Supported Multi-sectoral Rural Development Projects in Asia*. GTZ Eschborn.
- PDDP. 2001. *Poverty Mapping in Baitadi District*. Participatory District Development Programme and District Development Committee, Baitadi, Nepal.
- RAP/RCIW. 2006. *Annual Progress Report*. Rural Access Programme/Rural Community Infrastructure Works Programme, Dailekh.
- Rauch, Theo. 2002. *The Poverty Targeting Approach: An Experience of German Technical Cooperation-Rural Development Programme*. GTZ, Kathmandu, P: 5.
- RCIW. 2002. *Agriculture Promotion Strategies*. Rural Community Infrastructures Work Programme, Kathmandu.
- 2003. *Micro Project Guidelines*. Rural Community Infrastructures Work Programme, Kathmandu.
- 2003. *Annual Report*. Rural Community Infrastructure Works Programme, Kathmandu.
- 2000. *Fifth Annual Report*. Rural Community Infrastructure Works Programme (1995-2000), Kathmandu.
- 2004. *Progress Overview (2001-2006)*. Rural Community Infrastructures Works Programme, Kathmandu.
- 2004. *Progress Report. Fourth Year of Phase II (Mid-July 2003 to Mid-July 2004)*. Rural Community Infrastructure Works Programme, Kathmandu
- 2005. *Annual Progress Report. Fourth Year of Phase II (Mid-July 2004 to Mid-July 2005)*. Rural Community Infrastructure Works Programme, Kathmandu
- Rotten, U. 2000. *Who Are the Food-insecure Poor? Food and Nutrition Security, Problems and Perspectives* p: 2

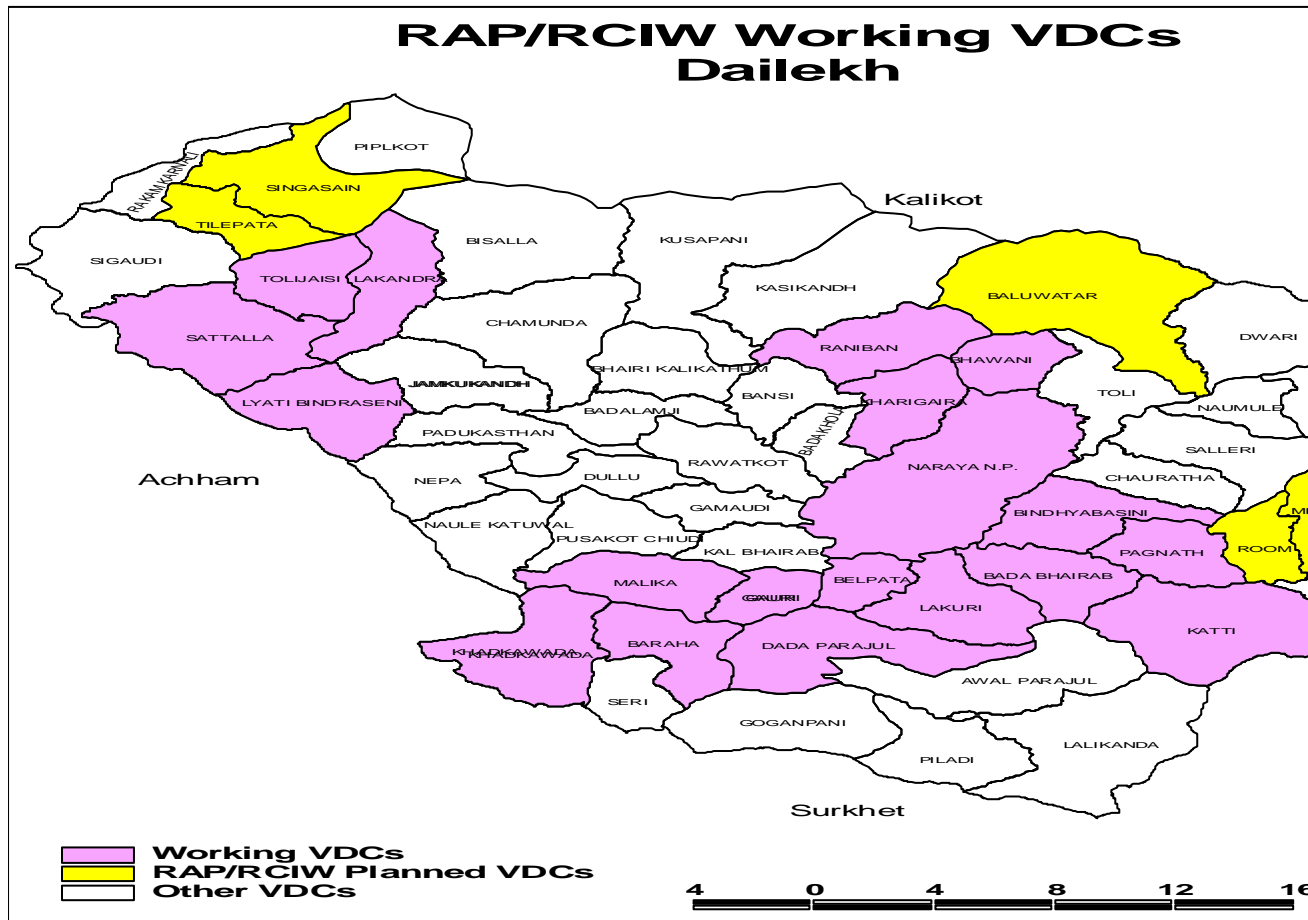
- Sen, A. K. 1981. "Poverty and famines" *An Essay on Entitlement and Deprivation*. Oxford: Clarendon Press.
- Sharma, P. 2003. *An Outline of the Project Work Report*. Chapter I, III. Social Science Research Methods in Practical Use (1st Ed) Kshitiz Publication.
- Sharma, S. and R. K. Sharma. 2002. "A Study on Conflict Induced Food Insecurity in Nepal". A Report Prepared for United Nations World Food Programme, Nepal. National Labour Academy-Nepal. Kathmandu.
- Swaminathan, M.S and K.N.N.S, Nair. 2004. "Approaches and Strategies towards Sustainable Rural Livelihoods and Households Nutrition Security Systems" ICPMD, Rome.
- Weingaertner, L. 1999. *Results of Monitoring Activities in Dailekh District (Adust1997-July1998)*. Rural Community Infrastructure Works Programme Working Paper (22), Kathmandu.
- WFP. 2001. *Food Security and Vulnerability Profile*, Kathmandu: VAM Unit, World Food Programme.
- 2006. Annual Progress Report (2005-2006). Sub Office, Nepalgunj.
- World Bank. 1986. *Poverty and Hunger: Issues and Options for Food Security in Developing Countries*. World Bank Policy Study. Washington, D.C.

Map 1: RCIW Districts of Nepal



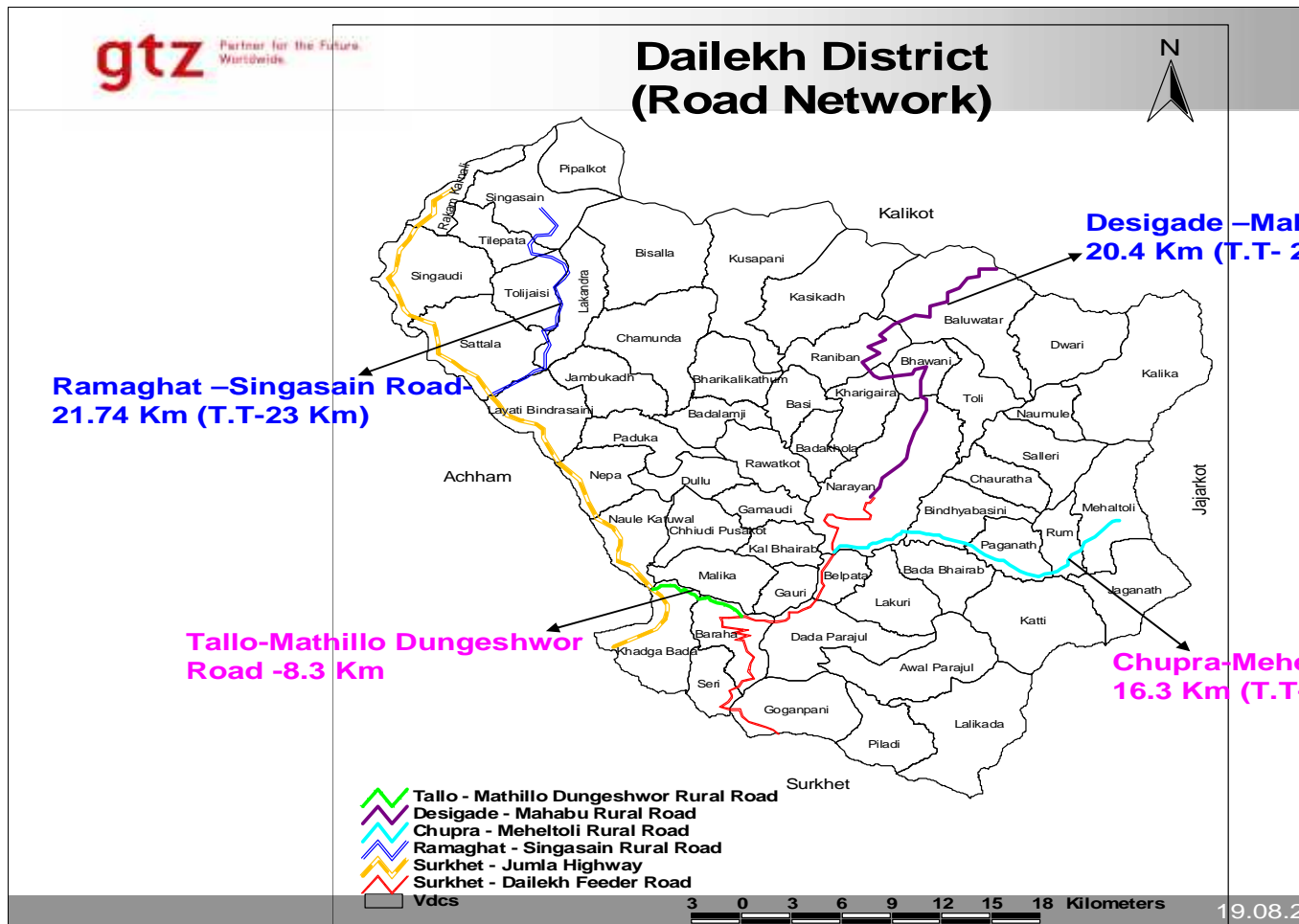
2 Source: GTZ-RPN, 2006

Map 2: RAP/RCIW Programme Working VDCs of Dailekh District



3 Source: RAP/RCIW, Dailekh

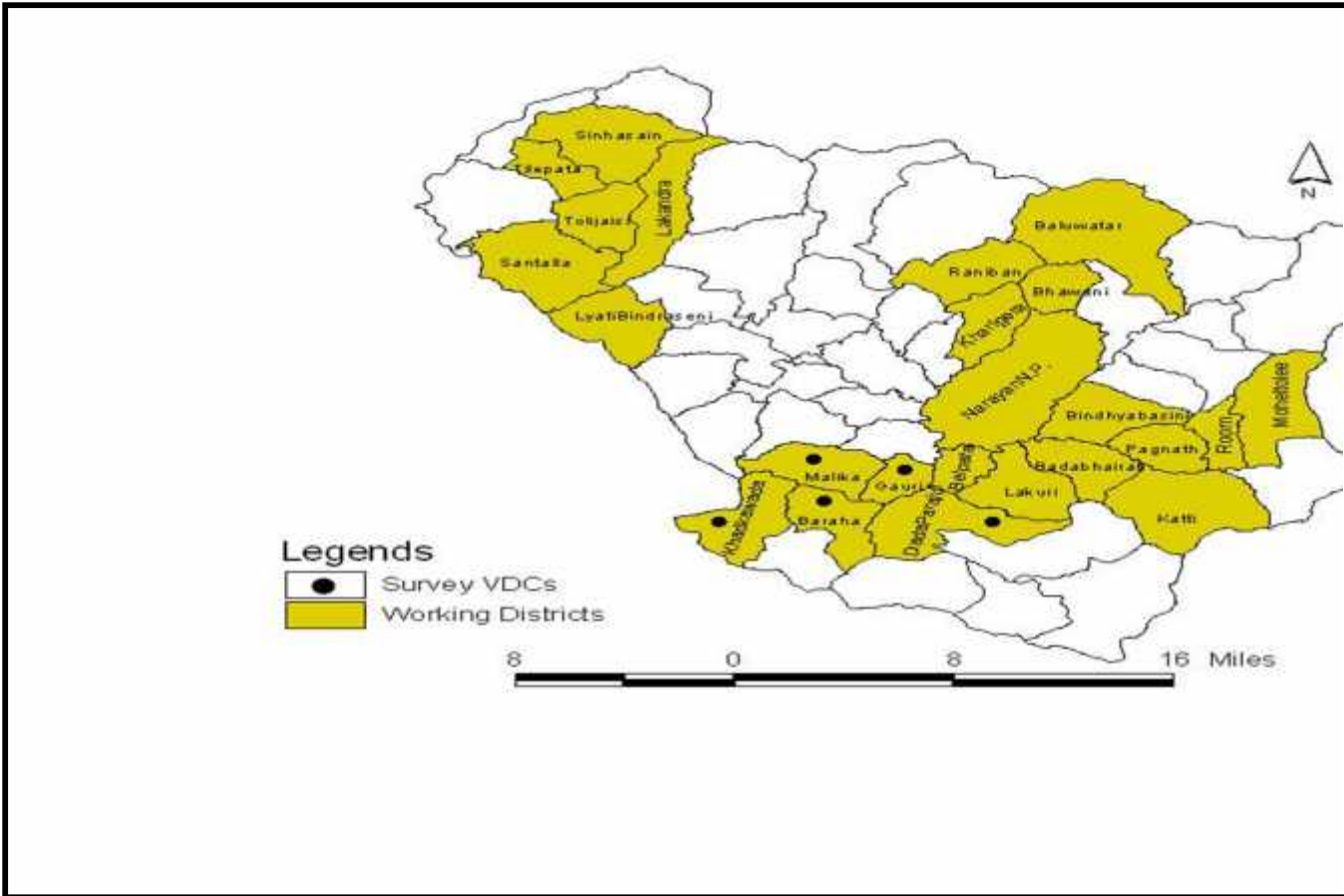
Map 3: District Road Networks by RAP/RCIW, Dailekh



4

Source: RAP/RCIW, Dailekh, 2006

Map 4: Administrative Map of Dailekh Showing Survey VDCs.



Source: GTZ/RPN, 2006

Appendix 1
Position of Dailekh (Based on Indicators of Development) over the
Country, Nepal

S.N	Development Indicators	Definition/Measurement	Position	Rank
1	Socioeconomic, infrastructural dev. index		Worst	4th
2	Poverty and deprivation index		Worst	3rd
3	Overall composite index of dev.		Worst	10th
4	Women empowerment index		Worst	18 th
5	Gender discriminations		Worst	8 th
6	Access of Agri. Credit/ institutional loan	% age of farm HHs reported to have institutional agrl/ credit	Worst (3%)	72 th
7	Health and dev. index		Worst	2 nd
8	Ratio of non-cultivated to cultivated area		Intermediate (4.23%)	35th
9	Bank facility for credit	No. of banks/pop ⁿ ÷ pop ⁿ distance –(A/P) ^{1/2} ; where A= Area, P= Population	Worst (0.02)	55 th
10	Cooperative	No. of coop./pop ⁿ ÷ pop ⁿ distance	Worst (0.011)	39 th
11	Farm size	Operational area divided by the no. of farm HHs	Worst(0.38 ha)	71 th
12	Per capita regular budget allocation		Worst (NRs) 294	53th
13	Per capita dev. budget allocation		Worst (Rs 322)	52 th
14	Per capita food production	Caloric value of (paddy, wheat, maize, millet, barley & potato)÷ rural pop ⁿ	Worst (1556 calorie)	67 th
15	Road density/100 km ²	Weighted sum of different categories of road in km as a % of 100 Km ² of total surface area	Worst (0.001)	60 th
16	Infrastructure dev. index		Intermediate	48 th
17	Livestock/ farm HHs	of weighted livestock (cattle, buffalo, goat, sheep & <i>Chauri</i>) ÷ farm HHs	Intermediate (4.13)	35 th
18	Cropping intensity	Area under temporary crops divided by arable land.	Intermediate (169.58%)	48 th
19	Gross rural pop ⁿ density		medie (1.25)	35th
20	% age of cultivated area	Net cultivated area as a % of total surface area	Intermediate (18.91%)	39th
21	% of share of females in non-agri. occupations		Intermediate (13.28%)	49th
22	Percentage of irrigation area	Year round irrigated land as a % of net cultivated area.	Intermediate (8.72%)	45 th

Source: ICIMOD, 1997

Appendix 2

✂ 2.1 Food Deficit Districts by Region



Zone	Food deficit districts/Total	Districts' Names
Eastern	6/16 (38%)	Taplejung, Panchthar, Illam, O/dhunga, Udayapur, Sunsari
Central	11/19 (58%)	Dolakha, Rasuwa, Sindhuli, Ramechhap, Laitpur, Bhaktapur, Kathmandu, Dhading, Makwanpur, Mahottari, Rautahat,
West	5/16 (31%)	Manang, Mustang, Kaski, Myagdi, Gulmi,
Mid-west	9/15 (60%)	Dolpa, Jumla, K/kot, Mugu, Humla, Pyuthan, Rolpa, Dailekh, J/kot
Far-west	7/9 (78%)	Bajura, Bajhang, Darchula, Achham, Doti, Dadeldhura, Baitadi
Nepal	38/75 (51%)	

Source: GTZ- RPN, Central Office, 2005

2.2 Food Grain Balance in Nepal

Ecological Zone	District	Balance (MT)	Districts
Mountain	16	-130,223	-16
Hill	39	-385,277	-26, + 13
Terai	20	+408,952	-3, + 17
Nepal	75	-106,548	-45, +30

Source: GTZ- RPN, Central Office, 2005

Appendix 3

Questionnaire for Participating Households

Name of respondent:
 Address:
 Occupation of household head:
 Size of family: Male Female:

FOOD AVAILABILITY RELATED

1. In what amount of land have you cultivated in your household.

a) *Khet land*ropani b) *Bariland*ropani

2. What are the crops have you grown in a year?

Name of crop	Production (Kg)	Name of crop	Production (Kg)
<input type="checkbox"/> rice			
<input type="checkbox"/> maize		<input type="checkbox"/> vegetable	
<input type="checkbox"/> wheat		<input type="checkbox"/> fruits	
<input type="checkbox"/> millet		<input type="checkbox"/> rape seed /oil crops	
<input type="checkbox"/> barley		<input type="checkbox"/> soybean	
<input type="checkbox"/> pulse			

3. How many economically important livestock and birds are rising in your house?

a) Milch cow b) milch buffalo..... c) oxen
 d) goats e) chickens..... f) pigs.....
 g) rabbits..... h) pigeons.....

4. How many month of food sufficiency by your farm production?

a) Not at all b) Below 3-5 months c) up to 6-8 month
 d) 9-11 month e) >12 month

5. If insufficient to eat, which months are the slacks months to your family

Pau Mag Pha Chait Bais Jest Asar Shra Bhad Asauj Karti Man

6. If you purchase, what types of food items were purchased before RCIW programme

Name of crop	Purchased amt. (Kg)	Name of crop	Purchased amt. (kg/ lt.)
<input type="checkbox"/> rice		<input type="checkbox"/> potato	
<input type="checkbox"/> maize		<input type="checkbox"/> vegetables	
<input type="checkbox"/> wheat		<input type="checkbox"/> pulse	
<input type="checkbox"/> millet		<input type="checkbox"/> fruits	
<input type="checkbox"/> barley		<input type="checkbox"/> rape seed /oil crop	
<input type="checkbox"/> Soybean		Total	

7. How do you coop the food deficit condition of your family?

a) Due to daily wage in neighborhood area b) by selling vegetables/ cash crop
 c) Working in FfW d) by selling fruits
 e) Income from retail shop f) official job/ pension
 g) By selling livestock h) by taking loan

8. While you involve in road/micro project, what is found difference in purchasing the food items in a road construction or without road year for your family?

Name of food items	RR cons. year	RR non-construction year
<input type="checkbox"/> Rice		
<input type="checkbox"/> Maize		
<input type="checkbox"/> Wheat		
<input type="checkbox"/> Millet		
<input type="checkbox"/> Soybean		
<input type="checkbox"/> Potato		
<input type="checkbox"/> Vegetables		
<input type="checkbox"/> Pulse		
<input type="checkbox"/> Fruits		
<input type="checkbox"/> Oil crop		
Total		

9. If you got work in rural road construction, how many family members are involved in rural road building?

- a) One member b) two members c) three members d) >3 members

10. If you have gone to do work in rural road how many family members are involved in rural road building?

- a) Not gone b) One member c) Two member d) three members
e) >3 members

11. How many male and female members are in involved in core and micro projects from your house?

- a) Male b) Female c) total

12. Why are you involved in this RAP/RCIW micro project/core project programme?

- a) Proximity to household b) non-skill based programme
c) Compelled due to food insufficiency d) not get job in another area.

13. If you are working in core and micro project; how long you worked and how much rice and cash you receive from this programme?

Working year B.S.	Core project			Micro project		
	Total working days	Received rice(kg)	Received cash (Rs)	Total working days	Received rice (kg)	Received cash (Rs)
<input type="checkbox"/> a) 2057						
<input type="checkbox"/> b) 2058						
<input type="checkbox"/> c) 2059						
<input type="checkbox"/> d) 2060						
<input type="checkbox"/> e) 2061						
<input type="checkbox"/> f(2062)						
Total						

14. How do you utilize wage amount after receiving rice and cash from this programme?

S.N.	Utilization of rice	Quantity (kg.)	Utilization of cash	Amount (Rs)
<input type="checkbox"/> a	Consumed by household		Saving in group	
<input type="checkbox"/> b	selling purpose		Saving at coop	
<input type="checkbox"/> c	bartering purpose		household expenses	
<input type="checkbox"/> d	making liquors		IG activities	
<input type="checkbox"/> e	Others		Others	
<input type="checkbox"/> f	Total amount		total amount	

15. What are the other activities of RAP/RCIW that you are involved?

- a) PLA b) PLA and S/C c) S/C & Micro project
d) S/C, Micro project & nursery e) Other

16. What area of fruit orchard you have planted fruits/Veg/ cash crops?

- a) <2 ropani b) 2-4 ropani c) 4-6 ropani d) > 6 ropani

17. Can you tell about the ownership of land that you have planted fruits?

- a) Own private land b) Public land c) Health post land
d) Leasehold forestry e) leasehold under community forestry

18. In your experience, what was the causal factor in an unavailability of food in your house?

- a) Unfertile land b) insufficient land c) no irrigation
d) Lack of seed and tools e) unfavorable of monsoon f) technical knowledge

19. What was the support obtained from RAP/RCIW programme for food production?

- a) Technical assistance b) skill- based training
c) Fruit and vegetables seedlings in nursery rate d) Seeds and tools
e) Irrigation facility f) others

20. Are you obtain supports for food production improvement from other organization? if yes, what type of support you are getting?

Name of office	assistance for group	Name of office	assistance for group
DFO	<input type="checkbox"/>	LTF	<input type="checkbox"/>
DADO	<input type="checkbox"/>	CECI/Gramin Bikash	<input type="checkbox"/>
DLSO	<input type="checkbox"/>	HELVATAS/SUDEC	<input type="checkbox"/>
SFDP	<input type="checkbox"/>	WDO	<input type="checkbox"/>

B. Access to food

21. What type of produces have you sold in this year?

Name of crop	Sold amt. (Kg)	Mar. price (Rs/kg)	Name of crop	Sold amt. (Kg/ lt.)	Mar. price(Rs/Kg)
<input type="checkbox"/> Rice			<input type="checkbox"/> Potato		
<input type="checkbox"/> Maize			<input type="checkbox"/> Vegetables		
<input type="checkbox"/> Wheat			<input type="checkbox"/> Pulse		
<input type="checkbox"/> Millet			<input type="checkbox"/> Fruits		
<input type="checkbox"/> Soybean			<input type="checkbox"/> Rape seed /Oil crops		
<input type="checkbox"/> Other			Total		

22. How much of income you get by selling livestock/ bird produces in this year?

- a) No sold b) <5000 c) 5000-10000 d) 10000-20000
e) >20000.

23. How much of income you get from the micro projects/IG, what is your part in average income production annually?

- a) No income get b) plants are growing c) <Rs. 5000
d) Rs. 5000-10000 e) Rs >10000

24. Where do you take the cash amount for monthly saving?

- a) by taking loan from neighbor b) money from partial wage
c) from pension business d) by selling cash crop e) other incomes

Appendix 4

4.1 An Impact evaluation Topic Guidelines for Focus Group Discussion

Name of SHG group:

Steps	:	Details
First	:	WARM UP , <i>BHALAKUSARI</i> , Winning confidence in order that the partners would be open, frank and transparent, Introduction to the study and study team members
Second	:	BRIEFING, <i>PARICHAYA</i> , How are they organized, where are they working, what are their service delivery strategies, resources and achievements- crosscheck, questions in between, attempt to get evidences, go on appreciating what they have done so far;
Third	:	<p>FOCUS ON MCPS and CORE PROJECTS</p> <p>Number and geographical location of projects (Core and MCPs)</p> <ul style="list-style-type: none"> ▪ Selection criteria and processes ▪ Coverage: Households, Categories (Ultra-poor, Poor, Non-poor etc) ▪ Target groups (Ethnicity, indigenous groups, poorest of the poor etc) ▪ Level of confidence with regard to the support/services available to the ultra-poor and poor ▪ Distance from HQs <p>Support provided to MCPs by type</p> <ul style="list-style-type: none"> ▪ Rice ▪ Cash and other Subsidies (Materials) ▪ Training/technology transfer <p>Performance (General)</p> <ul style="list-style-type: none"> ▪ Linkages and coordination with other stakeholders ▪ Activeness ▪ Sustainability ▪ Effect of conflict and mitigation measures ▪ Evidences <p>Monitoring, supervision and technical backstopping</p> <ul style="list-style-type: none"> ▪ Frequency, responsibility ▪ Support from government line agencies ▪ Effect of conflict <p>Opportunities, Problems and Constraints</p>

4.2 An Impact evaluation Topic Guidelines for Focus Group Discussion

Key informant:

Steps	:	Details
First	:	WARM UP , BHALAKUSARI , Winning confidence in order that the respondents would be open, frank and transparent, introduction to the study and study team members
Second	:	BRIEFING, PARICHAYA , Requesting chairman/secretary etc to tell about the project, how was it selected, who selected it, who was key to the selection of the project, how the group is organized, when does group meet, resources and achievements- <i>crosscheck, questions in between, attempt to get evidences, go on appreciating what they have done so far;</i>
Third	:	<p>FOCUS ON MCPs/ CORE PROJECTS</p> <ul style="list-style-type: none"> ▪ Membership ▪ Composition of executive boards and committee (representation of gender and deprived sections of the community) ▪ Activities carried out <p>Support provided to MCPs</p> <ul style="list-style-type: none"> ▪ Rice support ▪ Cash and other Subsidies (Materials) ▪ Training/technology transfer ▪ Agencies other than RCIW/GTZ and its partner organization <p>Performance (General)</p> <ul style="list-style-type: none"> ▪ Linkages with other stakeholders ▪ Activeness ▪ Role of farmer expert, leader farmers ▪ Contribution to long-term food security (households and community level) ▪ Sustainability <p>Monitoring, supervision and technical backstopping</p> <ul style="list-style-type: none"> ▪ Frequency, responsibility ▪ Support from government line agencies <p>Problems and constraints</p>
Fourth	:	Review minute of meetings, and any other documents as available
Fifth	:	Assess the support/assistance of partner organization, TA providers, DDC and other line agencies
Sixth	:	Recommendations for the TA providers (SAPPROS, RPN/GTZ, MDI etc.), DDC , VDC and others
Seventh	:	HH food security situation, intra household, community level, contribution of the RCIW in general and micro project in particular
		Intended and unintended effects and impacts

Appendix 5

5.1 RCIW Districts by Clusters

Cluster	Name of Districts	No. of Districts
I	Darchula, Dadeldhura,	2
II	Dailekh, Doti, Achham	3
III	Kalikot, Jajarkot, Salyan, Pyuthan	4
IV	Udayapur, Dhanusha, Siraha, Saptari	4
V	Sindhupalchok, Dolakha, Kabhre, Ramechhap	4
VI	Humla, Mugu, Jumla, Dolpa	4
VII	Bajhang, Bajura, Baitadi Makwanpur	4
Total district		25

Source: GTZ-RPN Kathmandu, 2006

5.2 Types and Number of Micro Projects in RCIW Programme, Nepal

Type	Total	Percent
Agro-forestry	90	10.5
Fruits Farming	366	42.8
NTFP	6	0.7
Ponds	168	19.6
Surface Irrigation	109	12.7
River Training	73	8.5
Livestock	4	0.5
Infrastructure	36	4.2
Others	3	0.4
Grand Total	855	100

Source: NARMA, 2006

Note: This includes MPs implemented from the start of the RCIW. However more than 90% MPs have been operated in the second phase.

Appendix 6
6.1 Progress Status of Core Project in Dailekh District

S. N.	Name of Projects	Total Target	Status	Remarks
1.	Tallo – Mathillo DUNGESHWOR Rural Road	8.3 Km	8.3 Km (Whole length has been made vehicle pliable)	Construction work started in 2000/01 following RCIW modality
2.	Chupra - Meheltoli Rural Road	31 Km	16.0 Km (Full width – 7.1 Km, Middle widening – 8.9 Km)	Construction work started in 02/03 following RAP/RCIW modality
3.	Desigade - Mahabu Rural Road	37 Km	20 Km (Middle widening - 20 Km)	Construction work started in 2002/03 following RAP/RCIW modality
4.	Ramaghat- Thantikhand - Singasain RR	43 Km	21.74 Km (Middle widening – 21.47 Km and track opening – 0.27 Km)	Construction work started in 2002/03
Total road length		119.3 Km	66.04 Km (Full width -15.4 Km, middle widening – 50.37 Km and track opening – 0.27 Km)	

Source: RAP/RCIW Joint Project, 2006 Dailekh

6.2 Beneficiaries of Core Project, Dailekh

S.N	Name of VDC	T-Mathillo Rural road				
		HH	Male	Female	Dalit	Ethnic
1	Baraha	593	283	310	171	76
2	Danda Parajul	490	322	170	165	104
3	Gauri	316	210	106	125	7
4	Khadkawada	752	382	379	11	41
5	Malika	788	481	307	214	1
	Grand total	3727	1678	1272	686	229
Summary of district		8239	6583	1656	2391	626

Source: RAP/RCIW Programme, Dailekh, 2006

Appendix 7
Resource Used in Micro Projects

Name of VDC	Resource Used										
	Rice (Mt)	ITSH (Rs)	User's contribution	TA Cost (Rs)							Grand Total (Rs)
				Seed	Saplings cost	Fertilizer	Irrigation	Training	Materials/Others	Total	
Danda parajul	40466	2343	341458	149139	1378186	25900	174356	72464	55580	615257.6	1768376
Baraha	47628	5717	440797	93355	2007496	27750	186810	77640	59550	645854.6	2044928
Gauri	20501	6528	171030	12778	67882.04	7400	49816	20704	15880	174460	762029.3
Khadkawada	41342	1669	367819	17899	1595927	12950	87178	36232	27790	341641.7	1537967
Malika VDC	35792	896	328851	77656	1484783	14800	99632	41408	31760	413734.3	1459329
Total of TMD	185729	17153	1649954	350827	7145212	88800	597792	248448	190560	2190948	7572629
Total of Dailkeh	200700	53890	2214528	451493	1199631	93058	685527	395044	270897	3095650.1	9378061.8

Source : DDC/RAP/RCIW Joint Programme, Dailekh, 2006

Appendix 8

Agricultural Production, Export and Import Status, Dailekh

Name of crop	* Production status of the district			**Import status (Mt)	**Export status (Mt)	Remarks
	Area (Ha)	Production (Mt)	Productivity (Mt/ha)			
Paddy	8600 (25%)	20296	2.36	960	0	rice imported
Maize	27000 (78.27%)	40158	1.94	0	0	
Wheat	22570 (65.4%)	31824	1.41	0	0	
Millet	2550 (7.39%)	3443	1.35	0	0	
Barley	230 (0.7%)	276	1.2	0	0	
Oil crops	785 (2.3%)	683.7	0.78	0	0	
Pulse	845 (2.6%)	930.2	0.74	0	0	
Potato	670 (1.94%)	7617.9	11.37	8	600	
Spice	288 (0.82%)	1563.83	4.78	0	105	ginger & garlic exported
Vegetables	856 (2.5%)	8726	10.19	0	700	
Fruit	1032 (615) 3%	6844.24	11.12	0	0	bracket for bearing fruits area
Lemon juice (processed)					610 lt	Cooked lemon juice

Source: *DA DO, Dailekh, Annual report, 2059 B.S.

** District Development Committee, Dailekh, 2059 B.S.

Appendix 9

Daily Requirement of Different Human Nutrients

Type of Human beings	Body Weight (Kg)	Calorie Need (kcal)	Protein (gm)	Fat (gm)	Calcium (Mg)	Iron (Mg)	Vitamin A	
							Rational (μ gm)	Keratin (μ gm)
Women	50						600	2400
General work		1876	50	20	400	30	600	2400
Medium work		2225	50	20	400	30	600	2400
Heavy work		2950	50	20	400	30	600	2400
Pregnant	54	+300	+15	30	1000	38	600	2400
Lactating woman		+550	+25	45	1000	30	950	3800
Women with 0-6 month baby	4.6	104/kg	2.05/kg		500		350	1200
Mother with 7-12 month baby	7	94/kg	1.65/kg		500		350	1200

Source: Agriculture Diary, 2063 B.S.



✎ Appendix 10

✎ Average Individual Protein and Calorie Requirements per Day

Types of person	Male		Female		Male + female	
	Energy (kcal)	Protein * (g)	Energy (kcal)	Protein * (g)	Energy (kcal)	Protein * (g)
Active persons, 18-60 years	2895	55	2210	49	n.a.	n.a.
Active persons, > 60 years	2020	55	1835	49	n.a.	n.a.
Pregnant women			+ 200	56		
Lactating women			+ 500	69		
Energy requirements for emergency affected populations	2250	47.8	1910	43.2	2080	45.6
Energy requirements for emergency affected populations (industrialized countries)	2400	55.1	1980	53.9	2180	54.4

Sources: FAO (1997): Human nutrition in the developing world. Rome, pp. 458; WHO, UNHCR, IFRC, WFP (2000): The management of nutrition in major emergencies. Geneva, pp. 142

*Diets based on cereals and pulses (and little animal protein)
n.a =not available

Appendix 11

Calorie and Protein Availability from Various Food Items

(per 100 gram dry weight)

Name of Food	Kilo Calorie	Protein contents
Polish rice	360	67
Wheat	334	122
Maize	356	95
Millet	350	97
Sugar	399	0
Oil	896	0
Lentil	346	242
Barley	332	120
Beans dry	341	221
Bran Rice	276	133
Chickpea	358	201
Fat of goat	847	20
Fat of sheep	902	0
Ghee cow	873	3
Ghee buffalo	873	3
Ginger	347	91
Goat meat	123	140
Goat milk	69	36
Ground nut	414	187
Walnut	291	60
Honey	298	4
Mango pulp	65	5
Meat Poultry	185	17
Meal/husk rice	360	64
Olive oil	884	0
Mustard oil	884	0
Soybean	335	380
Tea	86	15
Yam	101	13
Pork	220	134
Pear	54	4
Orange	24	11
Papaya	24	4

Source: www.fao.org/nfm

Appendix 12

Energy Requirement for Emergency -Affected Population (Kilocalorie/day)

Age/sex Group (Years)	Male ^a		Female ^b		Male and Female ^a	
	% of total population	Energy requirement per caput	% of total population	Energy requirement per caput	% of total population	Energy requirement per caput
0	1.31	850	1.27	780	2.59	820
1 ^b	1.26	1250	1.20	1190	2.46	1220
2 ^b	1.25	1430	1.20	1330	2.45	1380
3 ^b	1.25	1560	1.19	1440	2.44	1500
4 ^b	1.24	1690	1.18	1540	2.43	1620
1-4	6.32	1320	6.05	1250	12.37	1290
5-9	6.00	1980	5.69	1730	11.69	1860
10-14	5.39	2370	5.13	2040	10.53	2210
15-19	4.89	2700	4.64	2120	9.54	2420
20-59 ^c	24.80	2460	23.92	1990	48.63	2230
60+ ^c	3.42	2010	3.82	1780	7.24	1890
Pregnant			2.4	285 (extra)	2.4	285 (extra)
Lactating			2.6	500(extra)	2.6	500 (extra)
Whole population	50.84	2250	49.16	1910		2080

Source: Weingartner, 2004, Germany

a: Adult weight male 60 kg and female 52 kg

b: Population estimates for years 0,1,2,3,4, years

c: the figures given here apply for light activity level. (1.55X basal metabolic rate for male, 1.56 X BMR for women)

The BMR is the rate of energy expenditure of the body when at complete rest (Example: at sleeping). It is estimated at 1355 kcal/person/day.

Appendix 13

Status of Livestock Raised in the Survey Area

S.N	Types of Animals/Birds	Total no. of keeping	Frequency of HHs keeping	Average size of animal	*Purpose of Keeping	*Source of nutrient
1	Milch animals (cow/ buffalo)	197	65	3	milk, ghee, manure, ox	protein, fat, vitamins, minerals
2	No of HHs having no milch animals		35			
3	Ox	167	85	2.0	Draft, manure	
4	Pig	24	8	3.0	meat, manure	protein, fat, vitamins, minerals
5	Goat / castrated / buck	662	88	7.5	meat, manure, wool	protein, fat, vitamins, minerals
6	Chickens	514	72	7.1	meat, egg, manure	protein, vitamins, minerals
7	Rabbits	2	1	2.0	meat, wool	protein, fat, vitamins, minerals
	Total	1466				

Source: Field survey, 2006

**Agriculture Diary, 2063 B.S.*

*** Human Nutrition diary (2005)*

Appendix 14

Status of Employment, Rice and Cash Received in Food For Work Activities

Working year	Employment days (MD)		Rice received (kg)		Cash received (NRs)		No. of HHs involved	Range of days employed	Range of rice received (kg)	Range of cash received (NRs)
	Total	Mean	Total	Mean	Total	Mean				
2000/01	280	40	1450	207.1	1575.0	225.0	7	13-90	50-650	75-1500
2001/02	1482	23.6	8059.14	139.0	4049.5	69.8	58	5-112	17.5-500	40-536
2002/03	2903	30.2	17007.5	177.2	29656.4	308.9	96	2-180	12.5-735	30-7085
2003/04	1354	19.9	6870.5	99.6	13552.5	202.3	68	1-120	10-500	30-3500
2004/05	836	17.1	4850.1	99.0	3072.0	60.2	54	1-90	10-900	37-1260
2005/06	1484	25.6	4655	80.3	9637.5	169.1	55	3-155	20-320	20-4042
Total	8339	59.14	43944		61542.9		100	4-316	35-3004	30-8600
Average Amount/Hs	59.1	26.1		133.7	436.5	172.6	141			

Source: Field Survey, 2006

Appendix 15

Name of Food Deficits Months

S. N	Month	Name of English month	No. of HHs	% of HHs
1	Paus	15 Dec-15Jan	21	4.78
2	Magh	15 Jan- 15 Feb	69	15.72
3	Phagun	15 Feb-15 March	76	17.31
4	Chaitra	15 Mar-15April	85	19.36
5	Baishak	☞ 15 Apr-15 May	30	6.83
6	Jest	15 May-15 June	9	2.05
7	Asar	15June-15 July	31	7.06
8	Shrawan	15 July-15 Aug	58	13.21
9	Bhadra	15 Aug-15 Sep	45	10.25
10	Asauj	15 Sep-15 Oct	12	2.73
11	Kartik	15 Oct-15 Nov	3	0.68
12	Mansir	15 Nov-15 Dec	0	0.00
				100

Source: Field Survey 2006

Note: No. of HHs >100 means HHs was food deficit for > one month.

Appendix 16

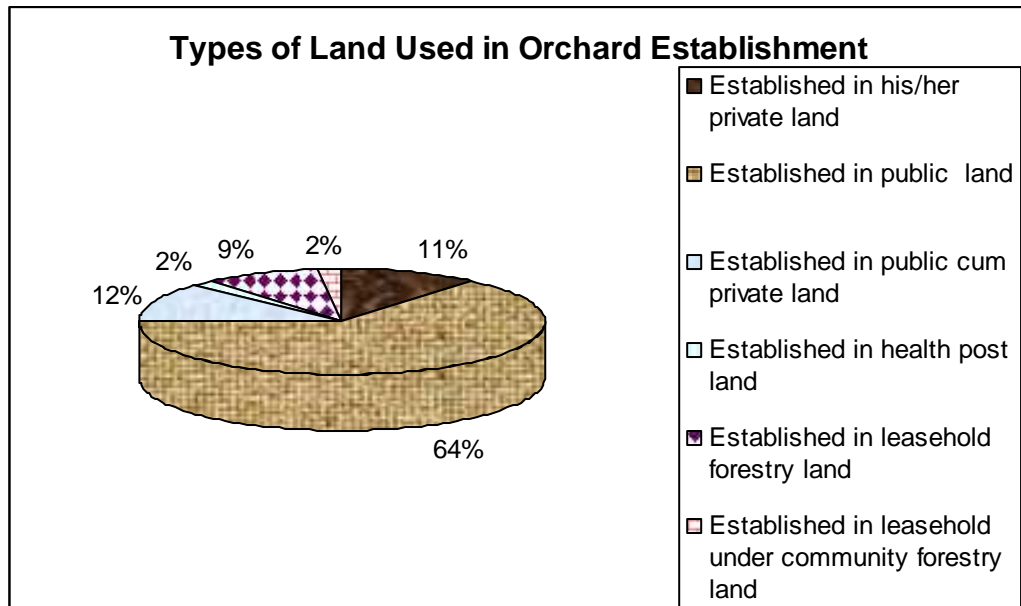
Land Size Pattern in the Survey Area

S.N.	Size of land (Ropani)	Types of cultivated land (Ropani)				Total land (ropani)
		<i>Khet Land</i>		<i>Bari Land</i>		
		Frequency of HHs	Amount of land	Frequency of HHs	Amount of land	
1	No land	20	0	0	0	0
2	<1-5	48	150	34	120	270
3	5-10	29	196	55	420	616
4	10-15	3	35	9	99	134
5	>15	0	0	2	38	38
	Total	100	381	100	677	1058
	Average land size		3.81		6.8	
	Maximum land size		12		22	

Source: Field Survey, 2006

Appendix 17

17.1 Types of Land Used in Orchard Establishment



Source: Field Survey, 2006

17.2 : Can Micro Project Managed Properly After RCIW Programme?

Box 1: A Case of Conflict on Micro-project Management.

Total of twenty-two households, established Jana Sahamat fruit farming orchard in 2001/02 in the public land of 4.5 hectares and planted 631 mango plants. 2003/04 the group approached to DFO to register land in leasehold forestry. DFO registered the land in the name of nine households (each having 0.5 ha) due to policy problems. Registered members unanimously shared their land right but not the rest of 13 households. These thirteen households dissatisfied with DFO's registration process and they started to neglect orchard caring. Now 80% plants died due to conflict land right arrangement.

Man Bahadur Gurung, vice chairperson and is active than other collaborating with DFO to extend area and convince group members. DFO is expressed positively to handle the cases immediately in close collaboration with RCIW/RAP team. This is the kind of failure cases of micro project due to of structural problems that can affect negative impact in long-term food security.

Appendix 18

☞ Source of Cash for Monthly Saving

S. N.	Source of Cash Funding	No. of HHs	% of HHs
1	Borrowing from neighbor/ friends	3	2.59
2	Cash received FfW/ daily wage	64	55.17
3	Cash from retail business	9	7.76
4	Cash from selling cash crops	21	18.10
5	Cash from livestock	19	16.38
	Total	116	100.00

Source: Field Survey, 2006

Appendix 19

Households Purchasing Food Items in Various Market Centres

S. N	Market levels for food purchasing	No. of HHs	Remarks
1	Purchased at village area only	0	Home productions like cereals, pulses
2	Purchased at village cum local market	29	Home produces + food items available in shop
3	Purchased at local market	57	Dungeshwor, Talpokhari
4	Purchased at headquarter markets	0	Dailekh bazaar
5	Purchased at other markets	4	
6	Purchased at village, local & other markets	1	
7	Purchased at village & other market	2	
8	Purchased at local cum other market	7	
	Total	100	

Source: Field Survey, 2006

Appendix 20

Box 2: Outcomes of Tallo-Mathillo Rural Road, Dailekh

Tallo- Mathillo Rural Road Increased Access for Highway

Tallo-Mathillo rural road, as link road, became pliable for vehicles since September 2005. Surkhet-Dailekh road is 72 km and it is 52 km long upto Mathillo Dungeshwor, this road was became pliable since 2046 B.S. This road linked for headquarter- Dailekh Bazaar, since last two years except rainy season. It takes about eight hours for Mathillo Dungeshwor from Surkhet. The another route was from the Surkhet-Jumla Highway also connects for Tallo Dungeshwor (82 km) and forwards for Jumla (232 Km).

After the link road constructed between the point of Tallo-Mathillo Dungeshwor and in operation, the gateway of both road opened. Truck drivers after plying vehicles in the RCIW road said that they save 22 liters of diesel in two way of the vehicles because of plainer highway than it crosses the other rout crosses 15 zigzag area, 30 km of climbed up and 50 km of down). Due to this road they could capable to reduce the per Kg transportation cost by 5%.

The porters generally took NRs 4.0 / kg of goods from the Tallo to Mathillo Dungeshwor but now due to easy road alignment and competitions with the tractors, they now portering upto 2.5 kg per kg.

The UC member said that the UC had not still given permission for using road. This was due to the delaying in registration of repair and maintenance plan, after that they are in the in the process of charging vehicle tax. DDC and VDC are now also collects maintenance budget for the stability of this road. The full utilization of this road is not done still.

100 beneficiaries reported "It has linked two bazaars and two roads and made closer than earlier. Northern Dailekhi's access on highway increased. The impact on reducing the price of the commodities is certain, however, due to early in operation, we have not realized fully. It certainly helps market chain."

Appendix 21

Box 3. RCIW Programme Needs to Extend for Five to Ten Years

"Dhungelsthan Savings and Fruit Farming Group Purposed RCIW's support for Five to Ten Years"

Dhungelsthan Savings and Fruit Farming Group was established in 2001/02 in Gauri VDC. In the beginning, seven members joined in road and established fruit orchards. During FGD, group expressed that the group used fund by regular savings for fruit plantation. They planted fruit samplings in individual as well as public land. After one year, other 15 members involved in this group. Now they are growing 10-300 mango trees and started to bearing from this year.

The user's committee registered the group in close support of SuDECC at DADO, DLSO and Helvetas office and now benefited taking support in micro irrigation, seeds and materials. The group has build up such capacity but has not quality support like GTZ.

Among them *Mr. Lok Babadur Khatri* shared that "I became food secured after the involvement in RCIW program. I have a retail shop in Mathillo Dungeshwor bazaar. I annually earn incomes about 30,000-50000 by vegetables farming and business. I am also a LRUC member and have build up my capacity to implementing core and micro project.

"Group members are grateful for RCIW programme and now realize the support at marketing of produces. They said that RCIW must work upto 10 years to continue helping hand for our self sufficiency"

Appendix 22

Income Calculation of Fruit Orchards, Agroforestry and NTFP, Dailekh

S. N.	Categories/Items per HHs	Varieties of Fruit Plantation and Expected Income Calculation										
		Walnut	Mango	Citrus	N. Pepper	Litchi	Pea r	Plum	Peac h	Apricot	Jackfruit	Total
1	Sub-total of Gauri	667	463	1143	225	540	210	200	31	100	452	4031
2	Sub-total of Dadaparajul	3559	2044	1355	365	314	155	169	53	200	37	8251
3	Sub-total of Baraha	6007	1432	3097	558	62	363	229	173	0	0	11921
4	Sub-total of Malika	4608	1583	2098	437	45	16	25	5	0	0	8817
5	Sub-total of Khadkawada	6487	0	960	1968	0	62	0	0	0	0	9477
	Total of TMD	21328	5522	8653	3553	961	806	623	262	300	489	42497
A	No of survived plants (56%	11943.68	3092.32	4845.68	1989.68	538.16	451.36	348.88	146.72	168	273.84	23798.32
B	No of fruits/plant	1900	850	420		5000	500	2000	450	700	150	
C	No. of kg produced/ plant	22	142	42	9	200	83	80	56	28	450	
D	40% consumes in HHs	8.94	56.67	16.8	3.6	80	33	32	22.5	11.2	180	
E	10% post harvest handling loss	2	14	4	1	20	8	8	6	3	45	
F	Net produce ready for sell (kg)	11	71	21	5	100	42	40	28	14	225	
G	Total marketable surplus (F*A)	133488	219039	101759	8954	53816	18807	13955	4127	2352	61614	617911
H	Current farm get price (Rs/kg)	110	25	20	70	40	10	8	10	25	10	
I	Gross income (H*G)	14683701	5475983	2035186	626749	2152640	188067	111642	41265	58800	616140	25990172
J	Max avg year of production	40	27	15	20	30	25	15	15	15	30	
K	Avg. income for 1184 HHs /yr	12402	4625	1719	529	1818	159	94	35	50	520	21951
L	Average Income for 2951 HHs	4976	1856	690	212	578	73	38	14	20	165	6973

Source: Secondary Data: RAP/RCIW, Dailekh, 2006 and modified by GTZ-RPN, Nepalgunj, 2006

Note: Calculation was done Based on the National Productivity.

Appendix 23

Box 4: RCIW Facilitated Constructing Self Reliant and Sustainable Group

'RCIW Changed our Life'-Buddha Fruit Farming Members, Dailekh

Total of twenty two-household of homogenous cast *Thapa Magar* establish "Buddha Fruit Farming" in 2002, May at Dandaparajul-9 of Dailekh. Chair person Mr. Dil Bahadur Thapa said that "In the beginning, RCIW staffs said to establish Swabalamban samuha for saving and credit activities and fruit farming facilities during road construction periods. We gathered in my house and associated in group. Our group is participating now in every activity of RCIW programme."

In the beginning, they reported limited land to plant the fruit trees individually and requested to make lease health post's land. In collaboration with RCW, the health post leased land to the group by making terms and condition of paying 30% of total annual incomes.

They reported that RCIW supported 3.776 mt of rice and they did same work and received same per household. They generally work in the core and micro projects and receive rice one month later. GTZ/RAP supported service to plant 2.8 have of land, pipe for irrigation, boundary preparation, seeds for intercropping, technical support for plantain, and tools and orchard maintenance activities. Participatory learning and action program is started for illiterate and unorganized groups

The group reported that they have equal works contribution for equal benefit, that they first prioritize group work otherwise committee punish the absentee. Group decides to work by decision making in every monthly meeting. Savings, credits and work division are done in the meeting.

The group has strong coordination among the member. By observing the record keeping system, speaking skills, orchard maintenance, awareness of insect and disease and pest etc, this group is really found the best in the Dailekh district and it teach many of groups and individuals for their group cognition and proper management

Last year group has got 71 kg of mango fruits as the first production of the orchard and earned NRs 568. Since the beginning the groups is annually earning of NRs incomes 4500-6000 by selling intercrop. The cash is mostly used as credit for purchasing seeds, pesticides. The group has expected to earn about 85000 per year/per households by this orchard.

Now the district soil conservation office supported them reservoir tank, DADO supported them a small irrigation schemes, and Helvetas supporting for drinking water. Now fifteen members are participated in Milan savings and cooperatives.

Now this SHG is matured. They can conduct meeting without any external support. They have demanded for 500 metre of link road to join the orchard with road, improvements of market yards and additional training for women's' skill enhancement.

Appendix 24

Photographs Showing Changes Due to RAP/RCIW Programme, Dailekh

24.1 Inauguration day of "Tallo-Mathillo Dungeshwor Rural Road



24.2 Beneficiaries of Buddha fruit farming are happy by fruiting mango, Dungeshwor



24.3 Mixed Group contributed to construct Tallo-Mathillo Dungeshwor Road Corridors



24.4 Cauliflower Farming by Beneficiaries by the Supports from RAP/RCIW



24.5 Mathillo Dungeshwar Bazaar-Local Market Centre Connected by RCIW Link Road.



24.6 Vegetables under Kitchen gardening



24.7 The beneficiaries women participated in celebration of *International Women's Day* in Mathillo Dungeshwor, Dailekh



24.8 Intercropping in Orchards have provided short-term benefit for the group members.



24.9 Researcher assisting to fill up questionnaire -Silinge, Dailekh



24.10 Goat support from RCIW programme as the best IGA.



24.11 Focus Group Discussion By Using Checklist with Lekhroti Fruit Farming Group, Dailekh



24.12 The Vegetables Seedlings Grown Inside the Modern Greenhouse Supported by RCIW Programme



24.13 Household Survey: Researcher doing Interview Schedule with Respondents - Mr. Man Bdr. Gurung of Janasahamat FF



22.14 Oh! Mango plant giving fruiting, Buddha farming, Dandaparajul Dailekh.



24.15 Participatory Learning Centre increased the Literacy of Women



12.16 Gender Equality, Beneficiaries of Lekhroti Fruit Farming weeding around walnut plant.



24.17 Bio-Engineering work under RCIW Programme establish vulnerable soil



24.18 Kitchen gardening done by beneficiaries under RCIW Programme



24.19 LRUC members distributing rice of RBG- Mathillo Dungeshwor, Dailekh



24.20 Citrus Nursery – A good income source under RCIW Programme



24.21 LRUC has kept Rate Board along road corridors to maintain transparency on wage.



24.22 Commercial Vegetable farming for Better Income Security



24.23 Intercropping in Fruit farming has taken Double Income by Surendra Shahi, Mathillo Dungeshwor



24.24 The Walnut Nursery as income Generation Activities, Supported by RAP/RCIW Programme



Appendix 25

Definitions of Food and Nutrition Security Concepts

Acute food insecurity: A state of extreme food deprivation, i.e. famine

Availability of food: The physical existence of quantitatively and qualitatively adequate and safe food items at all times, either through own production or trade. In this study, it is understood as the production, food aid, food purchasing to sustain life.

Calories: Calorie is defined as the amount of heat required to raise the temperature of one gram of water through 1⁰C. The bigger unit of heat is Kilocalorie (1000 Joule) as the amount of heat required to raise the temperature of 1 kg of water through 1⁰ C. In case of food utilization, the heat and energy produced by food to maintain the human body. The daily calorie requirement for survival was estimated as 2256 kilocalories/person. This required a net daily consumption of 605 gm of cereals and 60 gm of pulses, contributing respectively 2042 and 214 K cal /capacity/ day.

Chronic food insecurity: A long-term condition of having too little food for a healthy and productive life.

Diet: Variety of food, which a person/a family is eating during a given period of time, e.g., a day

Dietary energy deficit: The difference between the average daily energy intake of a population or a person and its average minimum energy requirements.

Dietary energy requirements: The amount of dietary energy required by an individual to maintain body functions, health and normal activity.

Famine: Famine is the state of prolonged food intake deficiency which ultimately leads to serious consequences in an individual, a community, district, region or

country as a whole. Such consequences are starvation, increased morbidity and mortality as well as other serious damage.

Food consumption: Food and drink ingested, synonymous with food intake and dietary intake. Household food consumption is either the aggregate intake, according to nutritionists, or total food used or purchased, in household budget surveys

Food insecurity: A situation that exists when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life. It may be caused by the unavailability of food, insufficient purchasing power, inappropriate distribution, or inadequate use of food at the household level. Food insecurity may be chronic, seasonal or transitory.

Food security: Food security exists when all people, at all times, have physical and economical access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (World Food Summit (1996): Plan of Action, p. 1).

Macro-level: The macro level is the highest level of social-organization. The macro-level refers mainly to the national level. Sometime the supra level (regional level, several neighboring countries) as well as global level (world wide level) is included into the macro level

Malnutrition: Physiological condition resulting from inadequacy (either too high or too low) or imbalance of food intake or from poor absorption of food consumed (FAO (1999): The state of food insecurity in the world, p. 11).

Meso-level: The meso level refers to the community, sub-district, district or province.

Micro-level: The micro level refers to the individual and household level

Micronutrient deficiency: Lack of essential vitamins (e.g. vitamin A) and minerals (e.g. iron, iodine) resulting from unbalanced food intake and specific problems of absorption of food consumed

Nutrition security: This is achieved if every individual has the physical, economic and environmental access to a balanced diet that includes the necessary macro- and micro-nutrients and safe drinking water, sanitation, environmental hygiene, primary health care and education so as to lead a healthy and productive life

Nutritional status: The physiological state of an individual that results from the relationship between nutrient intake and requirements and from the body's ability to digest, absorb and use these nutrients.

Overnourishment: Food intake that is in excess of dietary energy requirements continuously.

Seasonality: Variation in, e.g., availability of food, or accessibility, use and utilisation of food during specific times of the years.

Sustainability: The use of natural, environmental and human resources for the development of human beings in a way which does not endanger the possibility and changes of future generations (UNDP, Human Development Report, 1998, p.17). In the context of development cooperation sustainability refers to the extent to which the partner organization and target groups are willing and able to self-reliantly continue and further develop the innovations effected by the project (GTZ (1997): The world of words, p. 307).

Undernourishment: Chronic food insecurity, in which food intake is insufficient to meet basic energy requirements on a continuous basis (FAO (1999): The state of food insecurity in the world, p. 6).

Undernutrition: Measurable result of prolonged low level of food intake and/or poor absorption of food consumed. Manifestations include wasting, stunting or

underweight, reduced cognitive ability, poor health status and low productivity (FAO (1999): The state of food insecurity in the world, p. 6).

Use of food: This term reflects the socio-economic dimension of food at household level. If sufficient and nutritious food is available and accessible the household has to make decisions concerning what food is being demanded, how the food is prepared and how the food is allocated within the household.

Use of output: is the utilisation of programme outputs by the target group.

Utilization of food: This term reflects the biological dimension of food at individual level. It refers to the ability of the human body to take food and use it for growth, physical activity, metabolism and storage within the body.

Vulnerability: Presence of factors that place people at risk of becoming food insecure or malnourished. People are vulnerable because of physiological or socio-economic factors. Vulnerable groups are e.g. young children, pregnant and lactating women, victims of conflict, migrant workers and their families, marginal populations in urban areas, people belonging to at-risk social groups, some or all members of low-income households within vulnerable livelihood systems, dependent people living alone or in low-income households with large family size (FAO,1999).

CHAPTER VII

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

7.1 Summary of Findings

The conceptual definitions indicated that the food security as the state of affairs where all people at all time have access to safe and nutritious food to maintain the healthy and active life. Food security is used as a macro, meso and micro-level indicator of agriculture stability.

Understanding realities on the food insecurity perspectives the food deficit districts of Nepal, Government of Nepal signed the agreements with the World Food Programme, German Development Cooperation and Development Fund for International Development for the implementation of RCIW programme in Dailekh District in 1995/96. However, the integrated activities were started in the last of the first phases 2000/01.

The main objectives of this research study were: to assess the change in food availability, food access, and food utilization, by the support of project activities and major problems that causes food insecurity, to assess the people's participation in different activities of the programme and identify coping mechanisms under food deficit conditions, to determine the major changes felt by the communities after the implementation of the RCIW programme and to examine the prospect of beneficiaries in the continuity/sustainability of the RCIW programme.

Many literatures were reviewed to understand the food security in the past, and to fix indicators. The literatures have segregated food security into several components. It is not possible with out sufficient income, hence it is income security; it is not possible without supply of food, hence it is food supply security; it is not possible with intra-household biases against a sex or age group, hence it is socio-cultural security, and it is never possible without good health to productively

use the ingested food and hence it is equally health security. Many conceptual frameworks were used to study the food security status of the RCIW programme.

The study is mainly about the impact of RCIW programme in rural food security; a case study of Tallo-Mathillo Dungeshwor of Dailekh District by understanding this problem and scope, the survey research was conducted in February to May, 2006. The main rationale behind the selection of rural parts of Dailekh was: district is one of the food deficit districts in the hill districts, pliable rural road, the study sites were ranked as more food deficit VDCs and are found linked with the Tallo and Mathillo local market.

Five VDCs was purposively selected based on the performance of the programme. One hundred households were sampled randomly by the purposively. Structured questionnaires, questioning routes and checklist were the major tools to collect qualitative and quantitative data and information through the individual interview and participatory discussion. Secondary data were collected from the relevant development organization. Out of the hundred samples, 32% were female respondents. Major findings of the study were drawn basically by the interpretation of the primary and secondary data.

The majority of the respondents produced the cereals based food dominating maize (39%) and wheat (31%). The reduction of the productivity was that low rainfall and prolonged drought condition.

The total food sufficiency was found for 229 days and share of cereal food was nearly 63%. The share of the other food items by their production was 37% for fat materials, 29% by green vegetables, 34% by pulse crops, 3% from fruits, and 73% by the milk product.

Food availability for 47% households by their production was 3-6 months. Food sufficient households were only 3%. Food sufficiency level for the survey area was 9.33 months. Maximum food deficient months by the survey were (January 15 – April 15) followed by June15- September 15).

The respondents had arranged their food requirements by the purchasing foods through local traders for 129 days and its share was as equal with the 37.4 % for the year of no RCIW interventions were started. The share of traders was 64 % for mustard oil. Ninety-six households purchased rice and its share was 71% in cereals. Ninety percent purchased about 28.29 litres of mustard oil in a year.

Total of 59 days of local employments created for 141 members to work in core and micro projects by which community received 133 kg rice and NRs. 172.0 cash. The rice supported from the RCIW was sufficient for average of 40 days. The share of the rice for food requirements by micro project was 37.46%.

Households consumed 97.61% rice and 48% received cash was used in the productive sectors. The share of rice consumption by RCIW programme was found 11%. The share of foods items purchased through local traders 26.56%.

The coping system of the beneficiaries were: 36% households worked in the Food-for-Work activities followed by 19% households earned cash by pensions, official jobs, and seasonal migration either from inferior job in India. Sixteen percent earned cash by working in daily wage in the neighborhood area

Thirty four HHs participated in programme due to the limited job in other areas. Other factors were: compelled due to food insufficiency and proximity to their residence.

Fifty percent households sent only one member from a house in core and micro projects. Averages of 1.41 participants were found participation in the programme out of that female participation was only 22%.

Regarding RCIW's fruit farming support, 35% participants cultivated less than 2 ropani of land followed by 2-6 ropani for other households. Eighty-six percent participants found involved in almost all integrated activities.

The income secured food items were mostly cash crops and less of cereals and pulses. The average income by selling these items was NRs 4405.0 whereas mean income by selling livestock was 3650.0 per households. The average income from

the selling of micro project produces was NRs 850 .0 per households. The share of the RCIW programme in these three sections was calculated as 16%.

Saving rate per month at the beginning and with RCIW was increased significantly by 130% per month. Fifty five percent households did monthly savings by taking cash from daily wage.

The recalling before RCIW, majority of households did not sell anything however, 20% household sold livestock and pulses. After RCIW, rapidly change in the selling behaviors of cash crops and livestock.

Regarding the local market issue, the purchasing food items, local market centres were seasonally sufficient to supply the food items. Twenty one percent households purchased locally produced foods like maize. Eighty one percent community members demanded marketing related infrastructures and skill.

The average time taken to fetch the food items was found below half days for 58% households. Eighty two percent household self -ported food items themselves to their residence.

The role of Tallo-Mathillo rural road for market access was found in the beginning stage. It linked the food products in two ways, reduced porter fare by 38%, and reduced the transportation fare by NRs. 5% per kg.

Intra-household food distribution was studied by examining food habit. Three frequencies of food taking; breakfast, lunch and dinner times were assessed. Majority of the households consumed bread and tea as breakfast. Thirty three percent households used balanced types of food items in their lunch period. As per the night meal, 79% households were limited nutritionally required food items. RCIW supported them to include the vegetables, pulses and fruits in their food items. Consumption of the vegetables, fruits and pulses also helped to save the cereal based foods.

Comparing standard amount of food items requirements; vegetables, milk and fruits consumption per members per households was found 57%, 55% and 77% less while cereal based foods, pulses and fatty materials were found slightly more.

In case of intra-member meal distribution, 40% families ate meal together with all family members. Thirty two percent family prioritize first for children.

The major causes of the food unavailability were: lack of irrigation (28%) followed by lack of fertile land (23%) and quality land (18%). Major bottlenecks to utilize the food were due to low awareness (35%) and low income (18%).

The improvement of the living condition of the people and stability of RAP/RCIW program was assessed. Some of 14% households reported that GTZ-RPN facilitated to register at VDC, DFO and DADO office. DADO and DFO staffs were committed to register SHG for further service.

Thirty three percent households reported that future food improvement by RCIW micro projects for less than three months while 29% household said 3-6 months. The rest of 30% household reported for 6-12% months. The progress report from secondary data indicated the improvement for about 4-6 months

The individual household's perception was varied with FGD view and 61% respondents expressed and committed to continue the RCIW activities in future. The focused group discussion prevail that RCIW programme should continue its technical backstopping in the economic promotion sectors.

7.2 Conclusion

Above stated summary prevailed to draw following conclusions.

-) Farmer's production supplied per capita calorie supply was limited and no other food items were optimum for family consumption. Overall food sufficiency was nine months. January 15th to April 15th were the most food deficit months.
-) Short-term employment generation and food support from RCIW programme found insufficient.
-) RCIW programme was found insufficient to supply the rest of food than that of production. Share of food supply was found much more from local trader.

-) Participation level of community in the RCIW programme was satisfactory. Limited jobs, food deficiency play great role in participation.
-) RCIW programme were concentrated in production and income supportive activities. Economic promotion activities were relevant to support future income security however the supports were found subsistence based. RCIW involved as labour at food for work activities, reduced migration, increased fruits and vegetables selling as the best coping activities.
-) The main source of households incomes were cash crops and livestock by which they earn NRs 8055.0. Fruits plants supported by RCIW programme have insufficiently producing and are in growing stage however, small income of NRs 850/members was received by selling the produces of micro projects and income generation.
-) Savings and credit programme found highly successful programme however, sources of generating savings are still found irregular and unstable.
-) Local market access for selling and purchasing food items found in growing stages and selling behavior is increased. The time taken to fetch the food items was below six hours to one day via self-portage Majority of respondents requested RCIW to start market related infrastructures (including link road) and other promotion activities.
-) Role of Tallo –Mathillo Dungeshwor rural road is just started in operation. Beneficiaries were happy by two way road link.
-) One third households used optimum balance food. Preference was found for cereal food security rather than nutrition security. The role of RCIW was focused to produce vegetable, pulses and fruits.
-) Major problems in rural food security were: lack of irrigated land, insufficient land, technological insufficiencies, less income, lack of awareness, poor supply of nutritious food items and geographical locality.
-) Registration, linkage, and coordination of SHG and CBO are in starting point and found insufficient.

-) The respondents expectations and project estimation on future income security from economic promotion activities meet the objectives for micro project beneficiaries but insufficient for other road beneficiaries.
-) Majority of respondents were committed to continue programme activities even after the phase over. The groups are still insufficient to fulfill technical support and marketing based skills.
-) The impact level was more focus at the food availability, access and stability and it was found lacking at food utilization part. The impacts were found cumulatively by the aggregated efforts (results) of the district based organizations. Future impact of RCIW programme is highly studios.

7.3 Recommendations

After having these summaries of the findings and conclusion drawn from the above descriptions, the researcher felt to request following recommendations to improve programme focus in these areas as soon as possible.

Recommendations for UG/UC/CBOs

-) Invest to facilitate income supportive off- farm and on-farm activities by cooperatives
-) Increase coordination system locally with the other organizations. Be active to improve first to improve food security to reduce poverty.

Recommendations for NGO

-) Mobilize SHG to increase self-help and local resource utilization.
-) Enhance women's participation by implementing off-farm activities. In that case continuous efforts to increase SHG's empowerment are recommended.
-) Make clear cut contractual arrangements of leasing land by fixing duration and benefits whom.

Recommendations for District Programme Management Committee

-) Implement activities that support to increase production and productivity of the farm in close collaboration with DADO, DLSO and ARS. Promote crops that

supply more vitamins, minerals, proteins (drumstick) and other food crops (appendix 11).

-) Support irrigation based infrastructures like micro irrigations, drip irrigation and water harvesting technologies in the remaining period.
-) Distribute rice and other cash items in food deficit months.
-) Assist SHG group by investing short duration crops and other off-farm skill based activities like: weaving, sewing, dalmot making, etc.
-) Plan to implement short duration crops in commercial packages like; papaya, banana cum pineapple, vegetable/cash crop farming, and seed production programme to increase the income promptly. Implement short duration non-land based enterprises by diversifying micro project like; goat keeping, bee keeping, mushroom practices.
-) Make rural road pliable for all vehicles to enhance commercial agriculture production. There is recommended to maintain the rural road for year round vehicle mobility.
-) Implement market related activities to enhance economic promotion activities. Market infrastructures like collection centre, cellar store, rustic store, haat bazaar shed at local market centres. Emphasize group marketing channel through cooperatives.
-) Capacitate micro project beneficiaries by training and exposure visit on integrated pest management, post-harvest operations and handlings.
-) Expand cultivation area by further plantation in that insufficient area so that there must be at least four ropani of plantations per participant or there is need to increase other support alternatively. Emphasized intercropping with more support.
-) Increase additional linkage and coordination by the district team and attract to pull more resource at the RCIW support area. In that case facilitation of group for the registration process is highly recommended.

Recommendations for Central Programme Support Unit

-) Implement RCIW programme as Nepal's pro-poor programme in rhetoric and reality. The researcher highly recommend for the replication of this food security model to the other food deficit and conflict sensitive districts of Nepal.
-) Increase rice and cash resources as per district demand to operate core and micro projects by ensuring at least one hundred days of minimum guaranteed employment in every fiscal year.
-) Prepare policy to support link roads to join growth centers.
-) Enforce policy by bringing out special programmes for rural youths to reduce seasonal migration.
-) Make ZOPP by analyzing each sub-sector.
-) Suggest district to implement semi-commercial and commercial package of production to increase income by additional NRs. 9000 per HHs. For that purpose, internalize "one village one products" model for commodity commercialization and specialization.
-) The objective of RCIW programme looks vague and ambitious with the short period of time. Implement activities to address all the dimensions of food security. Prolong at least two additional phases of five years each to fulfill definition of food security.
-) Make phase over policy by fixing time and sustainability.