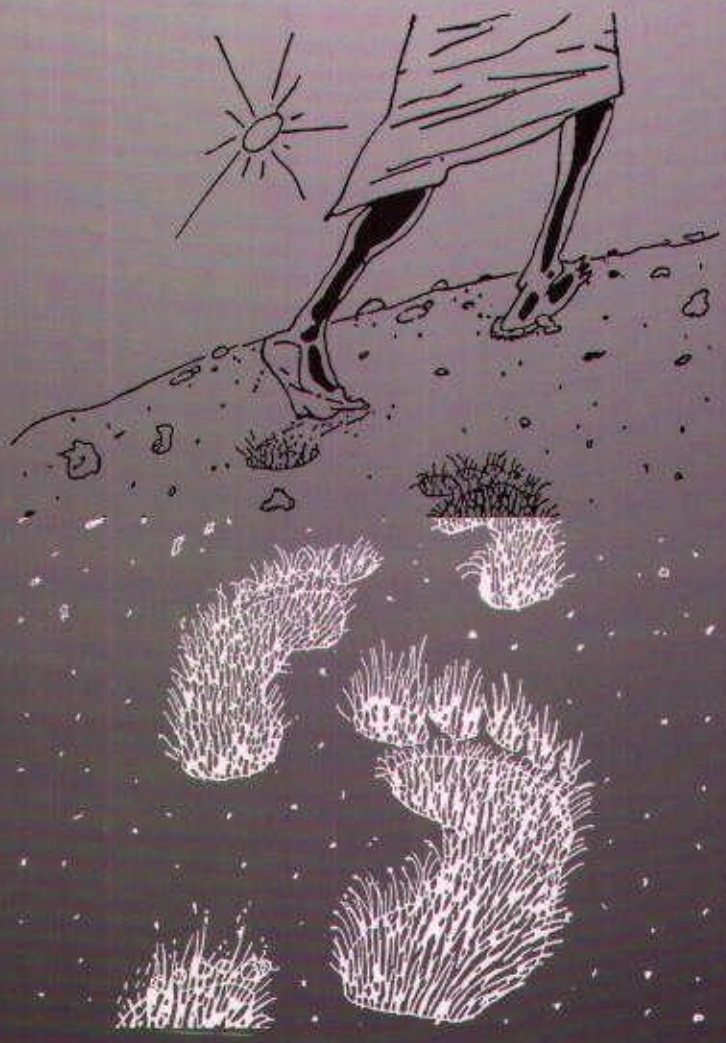
FOOTPRINTS IN THE MUD:

Re-constructing the diversities in rural people's learning processes



David Millar

Stellingen

1. Every good master leaves his footprints in the mud and every good pupil follows those footprints. The size, direction, and nature of the footprints differ from master to master, and the interpretation of these footprints also differ from pupil to pupil (*Farmer Awumbila Akente*).

2. Social configurations, networks, and patterns of organization are flexible and, as soon as they are fixed, they once again become the object of negotiation and struggle (Villarreal, M. *Wielding and yielding: power, subordination and gender identity in the context of a Mexican development project.* PhD Thesis., 1994; p124).

3. Our society is like the human hand: You have five fingers but they are all different. Despite their differences, the fingers need each other to perform effectively, and they are all needed to make the hand complete (*Farmer Francis Zumayea*).

4. Agreement involves giving up some autonomy for the advantages of belonging to a collective (Röling, N. Communication support for sustainable natural resource management. *IDS bulletin vol.25 No.2.* 1994; p129).

5. We are always accommodating your knowledge but why do you not accommodate ours? Inter-cultural learning is like washing your hands before a meal. You wash the inside of the hand to eat but when the soup flows over the back of the hand you also lick it. *(Farmer, Philemon Vuol)*

6. For me and for most of my colleagues from Africa, it is difficult for us to comprehend the special position given to the dog within Dutch families, as it is for 'top scientists' to understand that the small farmer also belongs to the family of researchers.

7. Individuals would always need some kind of personal integration, unity, self-identity or meaning (Habermas, J. *Cultural analysis*: the work of Berger, L.P., M. Douglas, M. Foucault and J. Habermas. Boston; Routledge and Kegen. 1975; p117).

8. Walking on the iced lakes this winter and watching my Dutch friends skate around, the image of Jesus walking on the sea came to me. I wonder what my people would say if I sent these pictures to them. Are the circumstances really very different?

9. Social actors deal, organizationally and congnitively, with problematic situations and accommodate themselves to other's interests and designs for living (Long, N. Creating space for change: a perspective on the sociology of development. *Sociologia ruralis XXIV -3/4. p178)*

10. Professionals are sometimes accused of been romantic about certain positions they take on knowledge. How about a 'knowledge process' that consist of : Romanticizing knowledge, flirtation and courtship, marriage, and production of off-springs as new knowledge?

11. The most important learning of all - for both children and adults - is learning how to learn; the skills of self-directed inquiry (Knowles, M.S. *The modern practice of adult education: from pedagogy to andragogy*. Englewood Cliffs: Cambridge Adult Education. 1980; p40).

12. The most powerful power is the power to relinquish power.

FOOTPRINTS IN THE MUD: Re-constructing the diversities in rural people's learning processes
David Millar - Ph.D. defence - Wageningen Agricultural University, The Netherlands
May 15, 1996

FOOTPRINTS IN THE MUD:

Re-constructing the diversities in rural people's learning processes

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FOOTPRINTS IN THE MUD:

Re-constructing the diversities in rural people's learning processes

David Millar

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Dedication

This book is dedicated to my wife Lydia Mamata Millar, my daughter Katherine Kaunza-nu-dem Millar, and those yet to come.

Wageningen, February, 1996

Table of Contents

List of Figures

List of Tables

List of acronyms and abbreviations

ACDeP	=	Association of Church Development Project
AKIS	=	Agricultural Knowledge and Information System
ASRP	=	Agricultural Services Rehabilitation Project
CDR	=	Complex Diverse Risk-prone
CSIR	=	Council for Scientific and Industrial Research
ELA	=	Empathetic Learning and Action
ERP	=	Economic Recovery Programme
GDP	=	Gross Domestic Product
GNP	=	Gross National Product
GO	=	Governmental Organization
GRAAP	=	Groupe de Recherche et d'Appui pour l'Autopromotion Paysanne
GTZ	=	German Development Agency
HAS	=	Human Activity System
IFAD	=	International Fund for Agricultural Development
IIED	=	International Institute for Environment and Development
IK	=	Indigenous Knowledge
IMF	=	International Monitory Fund
LAS	=	Langbensi Agricultural Station
MOFA	=	Ministry of Food and Agriculture
MTADP	=	Medium Term Agricultural Development Programme
NAEP	=	National Agricultural Extension Project
NAES	=	Nyankpala Agricultural Experimental Station
NGO	=	Non Governmental Organization
PTD	=	Participatory Technology Development
PVO	=	Private Voluntary Organization
RELC	=	Research Extension Liaison Committee
RPK	=	Rural Peoples' Knowledge
SMS	=	Subject Matter Specialist
TAAP	=	Tamale Archdiocesan Agricultural Programme
TOT	=	Transfer Of Technology
T.& V.	=	Training and Visit
UES	=	Unified Extension System

Acknowledgements

Looking back at all who contributed towards this product, I would have preferred that a list of names appear on the cover of this book. Since this is not possible, I will start my acknowledgement by showing gratitude to the rural communities who shared with me their rich secrets about learning. I am sure they would argue that mentioning them here is not enough. They would rather that I come back to help them in dealing with the problems they are plagued with, and this I shall.

To put together what was obtained from what I called 'relaxed professionalism' into a rigorous and academically acceptable product was no child's play. If the academic world finds this material appealing, the compliments should go to my two Promoters: Prof. Norman Long and Prof. Niels Röling. My work was enhanced by the contributions from Prof. Janice Jiggins, Mr. Bertus Haverkort, and Mr. Mahir Salih. I am extremely grateful to them for their input. The short-comings of this book however remain my responsibility.

To Dr Martin Southwold my editor, Ms Jos Michel the secretary, and members of the Department of Sociology/Section Sociology of Rural Development of Wageningen Agricultural University, I am grateful for your support. I also wish to show my gratitude to the unknown designer of the picture on the cover page. The picture has been with me long before I came to write this book; so long ago that I do not remember the source anymore.

At the Dean's office for foreign students, special thanks go to Mrs J. Hermans, Mr E. Kamphuis, Mrs A. Lamberts and Mrs B. Jansen. The same for the International Education's office (especially Mr C. van Heijst). Without the Wageningen Agricultural University's Sandwich Scholarship I could not have arrived at this destination.

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To the Millar family, my wife Lydia Mamata Millar, my daughter Katherine Kaunza-nu-dem Millar, and the Haverkort family; words are not enough to show

how much I appreciate your support and the way you provided home, and 'home from home'.

For those who contributed in diverse ways but are denied mention here by my poor memory, and for those who did not get the opportunity to contribute, I am still very grateful. To the Almighty Father; I THANK THEE.

1 Overview of this Book

1.10 Introduction

The history of development intervention is plagued with ups and downs, with the developing countries having their fair share of it. Despite the good intentions of 'improving upon the living conditions of people', criticisms about failure to provide that better life in a sustainable manner have encountered shifts in intervention strategies. Progress has been made from the earlier 'Transfer-Of-Technology (TOT)' models (Röling, 1988:53) that were based on the adoption and diffusion of innovations, as described in Van den Ban and Hawkins (1988), to present-day participatory processes (Jiggins et al. 1989). Yet such commendable efforts still have a long way to travel.

In Ghana, both within the Governmental (GO) and the Non Governmental (NGO) sectors, similar shifts in strategies have occurred in response to concerns for increasing farmers' participation in development intervention. As a result of differences in philosophy and character, it has been faster within the NGO than the GO sector. The GO sector is currently testing out the Unified Extension System (UES) under various externally funded programmes (MOFA report, 1993). Within the NGO sector the Participatory Technology Development (PTD) process is one such shift developed as a strategy to increasing farmers' participation in NGO programmes (Millar et al., 1989).

In trying to operationalize participation, both sectors have had to deal with a series of questions such as: What is really meant by participation? Whose participation, defined by whom, and who is participating in who's programme? Concerns about social constructions of reality, human agency and the struggles for power (Long, 1984;1989) have been raised. The failures to capture indigenous knowledge of rural people (often described more as technologies they have themselves evolved) both within the GO and the NGO, have been raised by several authors.

I share the view of Warren (1992) that the sort of participation that is integrated within the knowledge of the people is absolutely necessary if gender concerns, protection of the environment, empowerment, and sustainability are to be achieved. Going beyond Warren, I argue for a strong position for rural people's cosmovisions

- the integration of their spirituality into participatory processes (Millar, 1992). I take this position because proponents of indigenous knowledge have focused their interest and attention on that part of indigenous knowledge that can be extracted and re-cycled, which I call the products of knowledge or technologies. In doing this, very little attention is given to the dynamics of the social relations that have evolved through the various communication networks (knowing, passing-on, and sharing information). My experience is that these processes, like the indigenous technologies themselves, are enshrined in their own complex mix of spirituality, materiality, in the dead, in nature, and in rural people's lives as a whole.

This study is therefore about indigenous learning, and how it is conducted in some rural communities in the north of Ghana. Kolb (1993:156) in discussing learning says,

> *'Learning is the process of creating knowledge. Knowledge is a result of a transaction between social knowledge and personal knowledge [...] knowledge results from the transaction between these objective and subjective experiences in a process called learning [...] Learning is a process whereby knowledge (product) is created through the transformation of experience'.*

The subject of study and the results of this research have strayed into social-anthropology, social-psychology, educational-psychology, and development-philosophy. Though not intended, the findings could be used for discussions in all the fields mentioned. In some chapters, I have found myself doing this. Where relevant, I have used theories and concepts from social-anthropology, social-psychology, educational-psychology, and fields related to development-philosophy to illustrate issues. I have however made the choice to situate the research in the field of rural-sociology and extension-science, or communication and innovation studies, because this is my professional field. Even here, I have made a further choice to 'muddy the waters' of the aspect of development intervention referred to as 'participation'. My goal is to come out with alternative strategies that would move participation of rural communities a step further, by re-locating actions within indigenous dialogue and learning processes.

Why so much emphasis on learning? For my community, learning is an issue not only of knowledge, but it is also of survival in a complex, diverse, risk-prone environment (CDR-environment, Chambers, 1983:24), and acceptance hereafter (by the gods and the spirits). It is about shared meanings and reciprocity (even with the other world), and passing this on to posterity. To sustain themselves, the people also draw on that learning which is unintentional, unconscious, and, maybe, termed irrational because it does not follow 'standard logical processes'. It is about people empowering themselves in a multiple and holistic manner in order to develop themselves. Therefore if working with the communities means empowering them, I think it is incumbent upon all interventions to understand how learning is

conducted by the people themselves alongside any influences, adulteration, replacements or impositions.

Weil and McGill (1989) and Hutton (1989), have similar reflections. They are of the view that in learning situations when the future is unknown and outcomes are not necessarily clear, preceding actions, such as learning about learning tend to illuminate the making of judgements. They went on to say that learning and action go hand in hand. People often use their initial knowledge to start actions, learn from them, and then initiate new actions. New learning emerges through that process, and thus ongoing learning and action is fostered. Wildemeersch (1989:60-63) consolidates this view further by showing the role that *dialogue or 'communicative rationality'* plays in learning. He describes learning as

> '[...] *a process of continuous exchange between the life-world of subjects and subjective reality which is present in society as a whole*'. He is of the view that, '[...] *life-world is the theoretical foundation for experiential learning of which dialogue is a means of reality construction and transformation. This reality is socially constructed, hence reality cannot exist without the act of giving meaning to it. Therefore all reality has a strong subjective dimension'.*

It is this subjectivity (experience) and the interactions between people and subjective reality (Wildemeersch's description of learning), that should form the foundation of any meaningful development intervention. But this has not been the case; certainly not in Ghana. The challenge of this study is to ask how this could be done through dialogue that provides the opportunity for all actors to be jointly involved in a learning and action cycle.

I set out with the primary concern of studying processes of indigenous learning, although I have considered the content or products of learning as well. I have drawn attention to specific areas where it can be shown that different technologies have influenced diversities in learning processes. Below is an overview of how the study was done.

1.20 **Part I: Chapters 2, 3, 4, 5.**

The chapters in Part I are based largely on secondary information which is drawn together to provide an entry to the research. The secondary information forms the bases for the research, and the methodology used to collect the data that enabled me to make the findings presented in the following parts of this book.

Chapter 2: General background information: Chapter 2 pulls together pieces of information relevant for introducing the location of the research. It provides a framework and an entry point into the objectives addressed by this study. Most of the material in this chapter is based on secondary data that have been extrapolated

up to the period of the research. The chapter starts with a country up-date, followed by a general picture of agriculture in Ghana. The farming systems in the region, the people, and some indigenous institutions that give meaning to people's way of life are addressed. In doing this, I select from the information issues relating to agricultural production. The nation-wide problems relating to agriculture and hence the need for intervention have been assessed. Narrowing down to the study area, I have discussed the background of the people and their traditional structures, and the movement of other people from different ethnic origins into Damongo - the research location. Lastly, I have summarized the historical evolution of interventions in Damongo to show that Damongo has had its fair share of the age-old problem of development intervention, and the consequences of some development actions.

Chapter 3: The research task: I start Chapter 3 by discussing the problem to be tackled by this research. I look at the evolution, in both theoretical and practical context of **the problem of indigenous learning and its role in development intervention.** In doing this I started with a narration of efforts within both the Government and the Non Governmental sectors to respond to concerns for improving intervention strategies. I describe the path that these trends have followed and query the lack of attention in development intervention to indigenous learning processes. I then challenge myself to definite responses by evolving questions that would help address the problem of how to document indigenous learning processes, and how to integrate such findings into sustainable intervention strategies.

Chapter 4: Theoretical perspectives: In Chapter 4, I operationalize the overall concepts that guided data collection, analyses, discussion, and the recommended actions. Theories are discussed as points of entry for the research and a general framework for the study. In addition to this, I have used various theoretical frameworks to discuss my findings in chapters where it is more relevant to do so. This gave me the opportunity to use existing theories to support my findings, criticise some theories, and contribute towards improving others.

I start the Chapter by looking at the knowledge base that is the subject of concern, and that has attracted the attention of this research; rural people's knowledge, or indigenous knowledge. This is followed by a discussion of the approaches that guided the conduct of this research; the actor-oriented approach and the systems perspective. I conclude the chapter by discussing diversity, and choosing a guide to enable me to manage my findings.

Chapter 5: Methodological reflections: I start my presentations here by reflecting on some methodological experiences during my MSc research, which I refer to as the 'before era'. This discussion reflects on earlier research that contribute to the present. I proceed to describe some unanticipated influences that were relevant in

re-orienting my methodologies. These include the privileged position of a researcher, and how I got enrolled into the research arena.

How data collection was done is separated into two phase: Exploratory and main surveys combined; and in-depth survey. I make a distinction between conventional and un-conventional data gathering techniques just to illustrate departures from the more familiar ways of conducting research. Largely qualitative methods were used for gathering the data, and only in a few instances did I gather quantitative data or use my own research techniques. I have documented some discourses and case studies to show that these form the bulk of the findings. I conclude with discussing the adaptations I made in order to be able to manage the data I gathered. Some of the techniques of data analysis which I describe in this chapter include repetitive investigation, triangulations, focus group approach, and 'three planes analyses'.

1.30 **Part II: Chapters 6, 7, 8, 9.**

Part II is dedicated to data that have mostly been generated by the field surveys themselves. The information in these chapters is largely of a primary nature, and thus forms the bulk of the research findings.

Chapter 6: Indigenous vertical learning: This chapter is dedicated to juvenile learning: in particular how the young learn from the old, and to some extent, how the young learn from each other. This type of learning is therefore largely a vertical learning situation. I have decided to look at the whole learning spectrum between generations. This includes organised, unorganised, and even unconscious or unintended learning.

The environment within which 'knowing' is conducted is re-constructed. To give it structure, it was differentiated into family, immediate and distant environments. I use the categorisation of the people themselves in presenting "wulu" as period of intensive tutelage and apprenticeship, and "bangfu and oogfu" as periods of graduation and passing out. "Bangfu" is synonymous with an evaluation of performance based on information and skills acquired during learning. "Oogfu" is a sort of ostracising, which more or less marks the beginning of individualization.

Most of the findings are about inter-generational learning, but this does not exclude intra-generational learning as well. This intra-relationship is demonstrated in peer group learning, particularly under "gandaalu", which concludes the findings under vertical learning.

Chapter 7: Indigenous horizontal learning: Chapter 7 concentrates on how adults within a rural community learn from each other. This is what I refer to as horizontal learning. This being a continuation of the vertical learning described

earlier, it takes advantage of issues like imagery, knowing environment, and "gandaalu" discussed earlier.

The specific aspects discussed in this chapter include 'the partial commoditization of learning', organised and less organised learning, socially constructed learning distances, and learning orientations. The people's own designation of four learning quadrants, "zanzanbe, Ire-karbe, Ike-brebe, zuudem", is analyzed using the 'three planes of learning'. The use of this technique draws out the transitions and the dynamic interchanges between learning orientations. The chapter concludes with discussions on growth trends of 'knowing'. This discussion re-affirms my position that vertical and horizontal learning (child and adult learning) belong to a continuum. Within indigenous learning, this continuum is characterised by "wulu, bangfu/oogfu", adult learning, and old age.

Chapter 8: Indigenous learning - the role of 'the outside world': Chapter 8 discusses how some of the information that interventions have introduced to farmers have performed when confronted with the on-going indigenous knowledge. Using PRA tools of matrix diagrams and matrix scoring I looked at acquired versus generated information, and utilizations of information. I have also categorized the information into the three generations based on the 'three generational analyses'. The data is further categorized into the three religious groupings that the community thought were important in differentiating their identities - catholics, moslems, and animists.

The findings show the diverse ways in which externally available information is obtained and utilised by different groups, and the intra-group differences. The common community trends include the fact that most of the production resources are in the hands of those above thirty years of age. It is between the ages of nineteen and twenty nine that self-generation of information starts to contest the acquisition of information. There is an inverse relationship between resource ownership and control, and the use of externally-acquired or self-generated information. The use rate of externally acquired information declines with age and with control over resources. The partial use of information, or the re-processing of externally acquired information, is the inclination of this community. Complete adoption of innovations is rare.

I conclude by admitting that the findings here are quite generalized. The responses would differ from technology to technology, as was indicated in some instances.

Chapter 9: social constructions of power - learning as subject and object: Chapter 9 re-visits the various discourses in the entire study and draws out various learning experiences. These experiences are then discussed both as subjects and objects of the social constructions of power. This discussion is based on the position taken that all development interventions have to deal with managing power

relationships. The discussions about power here pave the way for the presentation of the proposed action framework in chapter 10.

Based on a chosen theoretical perspective of power, the issue of indigenous social and institutional constructions of power are then discussed. How the researcher and research got enrolled in these social constructions is identified. The various themes of the research focus - indigenous learning - are re-discussed bringing out the power dimensions.

I have endeavoured to show that the development arena is plagued with conflicts, both observable and latent. In each instance, I have tried to find supporting evidence that point to the fact that there is a tremendous amount of subtle work going on in various constituencies trying to manage conflicts so that they do not become observable. It is this community-based management regime that ELA, described in the next part and chapter, tries to fit into.

1.40 Part III: Chapter 10.

Part III deals with a recommended action resulting from the entire findings of the research. As a recommendation, it draws on both primary and secondary information captured in earlier chapters.

Chapter 10: A framework for Empathetic Learning and Action (ELA): In Chapter 10 I take the position that sustainable dialogue, as exhibited in processes so far developed, is weak in achieving the actual participation of rural communities, and in the management of power differentials of actors. My opinion is that development intervention should shift towards evolving sustainable communication with rural communities. The chapter is dedicated to suggesting one way this can be achieved.

The research findings about indigenous learning have made it possible for me to pull together the results into an action framework referred to as a framework for '*Empathetic Learning and Action (ELA)*'. This learning and action framework, which is yet to be tested in the field, is developed with NGO activities in mind, but it is possible to use it to serve development intervention activities in general.

PART I

2 General Background Information

2.10 Introduction

This chapter pulls together pieces of information relevant for introducing the location of the research. It provides a framework and an entry point into the objectives addressed by the study. Most of the material is based on secondary data that have been extrapolated up to the period of the research. The research itself generated more recent information to complement existing information.

The chapter starts with a country up-date, followed by a general picture of agriculture in Ghana; which remains the focus of this research. The farming systems in the region, the people, and some indigenous institutions that give meaning to people's way of life are discussed. The chapter then zeros in on the study area: Damongo.

Because of the broadly based nature of the information presented, generalization and stereotypes take precedence over the fine details. In subsequent chapters, these same issues are re-visited in order to analyze specific aspects relevant to the arguments.

An added advantage of this chapter is that it provides some background to an area that has been poorly documented hitherto, and provides useful reference material for posterity.

2.20 The country - Ghana

Ghana is situated in the West African sub-region. Although there are numerous local languages spoken, the first official language is English, for it was a British colony till 1957 when Ghana gained her independence.

Geographically, Ghana covers an area of 235,776 square kilometres with a coastline of 560 kilometres. To the west, Ghana is bordered by Cote d'Ivoire, Burkina Faso to the north and Togo to the east (see map.1 in the appendix). The vegetation is of three main types. Moving from south to north is the coastal savannah zone. Here the soils are poor, and the vegetation is characterised by grassland and scattered trees. There is then the tropical rain forest in the middle

zone which carries dense tree canopies and thick under-growth. Guinea savannah in the north is characterised by less dense vegetative cover, tall grasses and bare patches of land. In between these major zones, transitional zones can be identified.

Ghana has a tropical climate with monthly temperatures ranging from 20 to 40 degrees centigrade in the north and 25 to 35 degrees centigrade in the south. The hottest months are March and April, and the coolest is August. The relative humidity rises to 80 per cent in the south during the rainy season, and is as low as 20 percent in the north during the dry season, when the area is under the influence of the dry harmattan winds which commence in November and last until March (MTADP report, 1990).

Rainfall is the predominant climatic factor affecting agriculture. It is highest and most reliable in the southwest corner of the country (average of 2000 mm) and decreases to the north and eastward where it averages 800 mm minimum. The wet season commences earlier in the south than the north, with the south having two rainy seasons of eight months average, and the north one short season of four months average. The bimodal rainfall in the south has maximas occurring in June and October. This climate in the south favours the growth of perennial crops (most cash crops and timber) while that of the north which peaks in August is favourable for annuals (especially cereals and root crops).

The total population of Ghana is estimated to be about 15 million inhabitants, and the density averages around 55 persons per square kilometre, with a growth rate of 2.9 per cent (adapted from the last country-wide population census of 1984).

2.30 **Agriculture in Ghana**

Agriculture continues to be the mainstay of the Ghanaian economy although there are indications that mining and quarrying sectors might be slowly taking over this position. Agriculture employs about 57 per cent of the total labour force, contributes 40 per cent of GNP and provides about 74 per cent of exports by value, especially with the introduction of non-traditional export crops. Due to the considerable neglect of the sector during the 1970s, and the prolonged drought conditions that prevailed in the late 1970s and early 1980s, output of food and cash crops declined at an average rate of about 0.3 per cent per annum, and agriculture's contribution to GDP fell by 0.5 per cent per annum. However, since 'normal weather patterns' have resumed after the droughts, growth rates have become positive (5.2 per cent in 1986, 4.8 per cent in 1987 and 6.0 per cent in 1988 - Medium Term Agricultural Development Programme (MTADP) Report, 1991:22). At present, cereal and root crops account for 66 per cent of agricultural GDP, cocoa for 17.5 per cent, forestry for 9 per cent, livestock for 4.5 per cent and fisheries for 3 per cent.

The total land area of Ghana is 23.9 million ha, of which 12 per cent is cultivated: 7 per cent with permanent crops, 5 per cent with arable crops and bush fallow. Estimates of land use indicate that maize is the most important food crop for subsistence, for small farmer income earnings and as a foreign exchange earner when exported. It accounts for 18 per cent of the arable crop land, followed by sorghum and millet (11 per cent and 13 per cent respectively), while cassava (11 per cent) is also an important root crop (MTADP Report, 1991:31).

Agriculture is primarily rain-fed, with only 0.07 per cent of the cultivated land being irrigated. Land availability for food crop production is not a constraint, except in localised districts of the forest, transitional and savanna zones, where population pressure, reduced fallow periods, and weather conditions are leading to environmental degradation. This has resulted in reduced vegetation cover, loss of soil fertility, and increasing soil erosion. The MTADP Report (1991:16) also identifies post harvest losses and marketing as vital factors in the decline of agriculture in Ghana. These factors, coupled with increase in population, have resulted in decreased food production per person, and it is continuing to decline.

Agriculture in Ghana is predominantly carried out by small-holders. However,the departure of the young persons from agriculture and from the rural hinterland to look for jobs in the cities has contributed to decrease in production. An estimated 84.2 per cent of all holdings are below 1.6 hectare (4 acres) and these account for almost 50 per cent of cultivated land.

The MTADP Report (1991) indicates the average annual population growth between 1960 and 1984 to be 2.9 per cent, and that of the Gross Domestic Product to be minus 1 per cent. The result of the imbalance between population and agricultural growth was a 28 per cent decline in production per capita between 1970 and 1982. With an increase in population, a decrease in cultivated land holdings, and a decrease in the active labour force in agriculture, there is the necessity to increase production. Hence research and extension to supplement farmers' efforts are absolutely necessary.

National policies affecting agriculture: The macro-economic policies of Ghana before the Economic Recovery Programme (ERP) of 1983 were geared towards:

- Maintaining a fixed exchange rate inspite of rapid inflation.
- Price regulation on consumer goods.
- Tight import and export tax quotas.

Specifically for agriculture, the policies during this time included:

- Large export taxes on cocoa.
- State control over the marketing of industrial crops.
- Limited buying of rice and maize by the state through the Ghana Food Distribution Corporation and the rice mills of the northern region (MTADP Report, 1990:5).

These discriminatory policies hindered the performance of the agricultural sector; in addition to other factors such as poor rainfall and food crop production mentioned earlier on.

In 1983 the Economic Recovery Programme (ERP) was introduced with support from the World Bank and the International Monitory Fund (IMF). The ERP was followed by Structural Adjustment Policies from 1986 onwards with a complete reversal of macro-economic policies to include:

- A massive devaluation of the currency.
- Reduction of foreign exchange restrictions.
- Removal of import quotas and freeing trade restrictions.
- Removal of price control.
- Privatisation of parastatals and input supply.
- Reduction/removal of subsidies and price controls.

Specific agricultural policies emphasised were:

- Increasing the producer price of cocoa.
- Raising the minimum price for maize, rice, and palm oil.
- Removal of subsidies on fertilizer.

At the beginning of 1984 the Agricultural Services Rehabilitation Project (ASRP) was established to strengthen Research and Extension in the Ministry of Food and Agriculture. More recently (1990) the Government put in place, again with support from World Bank/IMF, the Medium Term Agricultural Development Programme (MTADP). Under this programme the Government is pursuing a demand-driven agricultural strategy which would be:

- Development oriented.
- Productivity enhancing.
- Competitiveness promoting.

(see MTADP Report, 1990).

The main goals in the document for the MTADP were to:

- Provide food security.
- Create rural employment opportunities.
- Improve balance of payments.
- Improve agro-industrial linkages.
- Bring about balanced regional development.

The Ministry of Food and Agriculture (MOFA) was charged with alleviating various constraints in the policy environment and providing necessary service and infrastructure. Research was charged with,

> '*the development and diffusion of improved technologies appropriate for the socio-economic conditions of the farmers taking into account the concern for environment conservation*' (MTADP Report, 1990:24).

2.40 **The region under study**

The northern region is located in the Guinea Savanna Grassland belt. The region lies within latitudes 8.00 and 10.45 degrees north and longitudes 0.45 and 3.00 degrees west. It is bordered to the north by the Upper East and Upper West Regions, Volta and Brong Ahafo Regions to the south, Togo to the east and Cote d'Ivoire to the west (see map.2 in the appendix). It is the largest region in Ghana but the least populated - 1.2 million inhabitants on 37,400 square kilometres. It is the least developed, and very inaccessible especially during the rainy season (IFAD Report, 1990:14).

The characteristics of this belt (see map.3 in the appendix) are low vegetative growth of mainly grasses, low shrubs, and dispersed trees. Common trees include the Shea tree (*Butryspermum parkii*), African locust tree (*Parkii biglobiosi*), and the Baobab tree (*Adansonia digitata*). The first two are economic trees while the third provides food (Millar and ten Haaf, 1988). The topography is generally flat, but slightly undulating in hilly areas. The soil types range from sandy loams in the northern parts to clayey loam in the southern parts and in valley areas. The climatic features are clearly distinguished between the rainy season and the dry season. The rains begin in May and end in October, and for the southernmost parts which border with the Brong Ahafo Region, a minor and a major rainy season occur. Rainfall in the region is unevenly distributed. Occasional short spells of droughts occur in June or July. The rainfall ranges between 1000 mm and 1200 mm (see map.4 in the appendix). This is however very erratic in start, duration and intensity and often there is a lull in rains during the mid season of four months. During the Dry Season, the Harmattan winds are predominant. These are dry and often carry a lot of dust, sometimes as whirlwinds.

The temperature ranges from 22 to 35 degrees centigrade. In the dry season night temperatures are low. During this period there is virtually no cropping, except for small gardens along the river beds and dams. Agriculture is largely rain-fed. Most farmers practise mixed cropping and also keep livestock like poultry, goats, sheep and cattle. The major crops grown are sorghum, millet, maize, yam, cassava, rice, groundnuts and beans. Rice, cotton and groundnuts are also grown for cash (see map. 5 in the appendix).

Agricultural development in the Region, undoubtedly, depends on the improvement of the infrastructure existing in the area. For the most part, farmers are cut off during the rainy season because of impassable roads, and are therefore unable to sell or buy at the market rates prevailing elsewhere. Middlemen take advantage of this to buy from them at relatively low prices only to retail for over 100 per cent profit. Also the much-needed farm inputs do not reach farmers at the right time and in good condition. This partly accounts for the low productivity. The low prices for farm produce, despite the high cost of production resulting from labour constraints and the cost of external farm inputs, constitute a major

disincentive. The 'guarantee prices' set by Government are not realistic and cannot even be enforced. It is therefore not surprising that there are low incomes and low investment capabilities (Runge- Metzger, 1988:5).

2.50 The farming system in the northern region

General description of the farming system: Farm technology is considered in most communities as basically simple and most farming depends on locally available inputs and resources. The locally produced hoe, cutlass, and sickle are still in use. Storage systems rely on traditional structures and inputs. Food processing technologies are still largely domestic. Bullock traction is used by about 10 per cent of the farmers (Millar and ten Haaf, 1988). The high cost of the implements and animals poses a hindrance to its further proliferation.

Millar and ten Haaf (1988:5) observed that farming systems generally have undergone transformations over the centuries with only those techniques persisting that have stood the test of time. Some of the factors that have transformed agriculture include ecological conditions, economic conditions, technical factors, and some human factors.

However, the farming system as a whole has the following common features:
- A strong tendency and orientation towards subsistence and low cash income.
- Mixed farming (with livestock), emphasis on shifting cultivation and mixed cropping.
- Small fragmented land holdings, mostly not exceeding five hectares for the nuclear family.
- A three year bush fallow.
- Dependence on simple hand equipment.
- Low levels of use of external farm inputs.
- Yields and net returns to resources employed in farming are relatively low on the average.

The objective of the small farmer with his shifting cultivation and mixed cropping is to ensure food supply for himself and his family (the survival question). The very nature of mixed cropping precludes easy application of technological recommendations since most technology is based on monocrops. The unreliable environment has resulted in a high risk of crop failure in this area; a factor that deters researchers although it implies a high rate of innovation and adaptation of farmers. Researchers instead conclude that the small farmer plays safe by developing attitudes, habits, and behaviours towards agriculture which are difficult to change. But there is enough evidence to prove that the small farmer is continuously changing daily in his actions and reactions to his/her world.

Most farmers have small landholdings, but families are large, so there used to be surplus labour to work on the farm until the recent migrations. The average farmer is unlikely to generate sufficient income for reinvestment in his enterprise, which partially explains the simple equipment and the low levels of modern farm input investments.

In the northern region, four broad groups of farming systems may be distinguished (Millar and ten Haaf, 1988:15):

- The millet-based system with sorghum and cowpeas in the north-east.
- The maize, sorghum, cowpea, groundnut system with yam and cassava as root crops, in the central parts.
- The sorghum system with maize or cowpea and yam as root crop, in the west.
- The yam system with maize, sorghum and groundnut, in the south-east.

Cropping patterns change in the course of cultivation of a piece of land over several years. After fallow, which on average is three years, demanding crops like yam are grown first, followed by crop combinations with maize or sorghum and later millet. After this a fallow is allowed once more.

Specifics of the farming system: Farming in this region is rather complex and adapted to the very difficult agro-ecological conditions prevalent in the area e.g. the uni-modal erratic rainfall pattern and the low soil fertility levels. The farming system in the northern region is just like most other farming systems in Africa; very complex and often sophisticated systems of production and adjustment to both internal and external factors. One household with many different skills and abilities provides many different types of inputs to produce a broad set of outputs. In most of these farming systems, maximization of production is not the only objective. A central objective is often also the minimization of risk.

Farms usually consist of a compound farm and a so-called 'bush farm'. Compound farms usually immediately surround the compounds and are normally cultivated year-in year-out. Bush farms are further away between, 5-15 km away from the houses. These are cultivated on a bush-fallow system with fallow periods becoming shorter (2-4 years) as a result of population increase and pressure on land use. The areas around the compound are always fertilized by the waste of the household. Usually they also receive extra manure when livestock is brought in for the night or longer periods. Animal manure is sometimes managed very carefully. For the night, animals are brought into a fenced area or tied to trees or logs. The dung is subsequently brought to specific places (Millar and Ten Haaf, 1988:4). Composting is utilized very rarely within the region. The use of chemical fertilizer is low: It is usually only applied to cash crops, and its use has dropped considerably since the cut in subsidies.

A farm family usually consist of a group of persons living together as one unit and sharing farming and other house-keeping arrangements. Women are involved

in almost all farming practices, however, one can still observe role distinctions based on gender. Men, for example, usually carry out land clearing and ploughing whilst the women gather and burn the cleared weeds and later plant most of the crops. Weeding is also sometimes carried out by women but is mainly done by men. In addition to many farming activities and the processing of produce, women do much of the marketing and are responsible for the daily cooking and child care. They do most of the other work in and around the compound, and are responsible for collecting water and firewood - a very time-consuming and tiring job. They own small livestock like poultry and, occasionally, a goat. The raising of this is part of their identified responsibilities. Young children perform several tasks, usually in close contact with their mother. When they get older they can take up quite independent work, such as: looking after the cattle, helping in the harvesting and chasing birds from the sorghum or rice fields (Hulsman, 1990:12).

Work is significantly different in the different seasons. In the wet season almost all members of the household are very busy with planting, weeding, and harvesting. In the dry season work changes. It largely depends on the availability of water whether there can be agricultural work, since most of the region depends on rain-fed agriculture. Sometimes vegetables or rice are grown in irrigated areas. It is also the time for construction and repair work. However, men generally do much less work. For women the workload hardly decreases in the dry season. Except for the extremely poor farmers almost every farmer has some livestock. Estimates made by Adongo (1990:12) are that:

About 70% of women have 5-10 chickens.
About 20% of women have 2-5 goats.
About 80% of men have 2-5 goats.
About 40% of men have sheep, an insignificant number of women have sheep.
About 10% of men have cattle.

Runge-Metzger (1988) and Hardter (1989) have both discussed the organisation of farms and the farming patterns obtaining in the northern region to include:

- Shifting cultivation using the bush fallow system
- Inter-crop/mixed cropping systems.
- Crop rotation/land rotation systems.
- Mixed farming that combines crops with livestock.

Typically, there is no one system but a combination of systems in operation at the enterprise level. I discuss below examples of what I consider the most common patterns referred to by Runge-Metzger and Hardter.

Shifting cultivation: Shifting cultivation combined with crop and land rotation is practised on bush farms. This kind of landuse obtains in areas where almost every farm family has a bush farm. Long fallow of up to 5 years and more can be found

in most parts. In the very few areas further north, where bush farms exist, the fallow period is very much shorter (two years or even less).

A typical cropping sequence of most bush farms for shifting cultivation, especially for the northern region is as follows:

Table 2.1 A typical cropping sequence

YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Yam or Maize	Maize and Cowpea	Sorghum and Cowpea	Millet and/or Groundnuts	Groundnuts or cotton	Fallow

(Source: this study)

Heavy feeders like yam and maize are usually the first to be planted when fresh or fallow lands are cleared. Light feeding crops (millet) come on before legumes and then fallow. The Bush fallow, shifting cultivation, the intercropping and rotations practised by farmers are all attempts at redressing the low soil fertility levels.

Crop rotation patterns of major crops: In the northern region farmers practice crop rotation along with inter-cropping. The tendency is to move to millet and legumes as soil fertility and thus yield decreases. A typical example of a pattern of rotation is as below:

Table 2.2 Rotation pattern

YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
Yam or Maize	Maize and/or sorghum with Cowpea	Maize minor/ Sorghum with Cowpea	Sorghum/ Millet with Cowpea/ Groundnut	Groundnut with Millet or Sorghum as minor	Fallow

(Source: this study)

In recent years the shifting cultivation system has begun to give way to more permanent cultivation. In many areas the fallow period has been reduced to 2-3 years because of increasing population and inadequate land. This has put a considerable pressure on yields on the plots actually used. The emerging system is that of land rotation combined with intensified land management. Particularly the compound farms are used very intensively, often fertilized with farmyard manure.

Three different mechanisation methods are being used within this system: Tractor cultivation, bullock cultivation (animal traction) and hand cultivation (using hoes and cutlasses). The size of the enterprise and the financial status of the farmer determines which level of mechanisation is emphasised. The normal pattern is that a combination of more than one of them is utilised. There is a rather close

interaction between livestock and cropping system, especially in the use of crop by-products for feeding livestock and the droppings of livestock for crop fertilization. This inter-relationship is gaining prominence as people cannot afford fertilizer; resulting in an emphasis on organic farming and the improvement of the environment.

Crop yields vary greatly between farms, depending on:
- The farming system practised.
- The land preparation method(s) used.
- The level of use of inputs such as high-yielding varieties and fertilizers.
- The location of the farm (compound or bush farm).

Yields also vary in time due to changes in the rainfall pattern.

2.60 **The situation of agricultural land**

The analyses below illuminate the problems associated with a limiting resource, soil and water.

The soils: In the northern region, the topography is predominantly gently undulating slopes ranging form 1% to 5% with iselberg outcrops and some uplands with more than 10% slopes (see map.6 in the appendix). The upland soils have developed mainly from granite rocks with a shallow and complex basement which is low in inherent soil fertility and weak with a low organic matter content. Soil textures in the north vary but coarse textured soils predominate with varying amounts of loosely packed stones and concretions. Even though the slopes are gentle, there is severe sheet and gully erosion, especially during the rainy season. According to Hardter (1989:13), the savanna ochrosols, with red and brown chroma, are less leached and less acidic than the oxysols, but their nutrient status is very low and they have less organic matter in the surface horizons. The ochrosols are relatively well drained, friable porous, moderately permeable and neutral to slightly acidic (pH 6.6 - 6.9) in the surface horizon. This is the most suitable agricultural land which is in very limited supply (40 per cent of the land area) (IFAD Report, 1990:14). The other major savanna soils, the ground-water laterites (Plinthic Ferrasols), are similar to the savanna ochrosols in their acidity and nutrient status, but have much poorer physical characteristics due to the presence of concretionary gravel. In addition, these soils commonly occur in a complex mosaic with very shallow soils developed over hardened lateritic ironpan (see map.7 in the appendix).

The soils in the north show an inherent low fertility and a declining fallow. The declining fallow in turn means an enormous increase in the quantity of nutrients that are taken up and have to be replenished . The effect of population pressure on the

nutrient up-take used to be compensated for by chemical fertilizers, the application of which was however sub-optimal. The elements that were commonly deficient were nitrogen and phosphorus. With the de-regulation of the prices of fertilizer, the new prices assumed by the commodity have made them relatively un-available for small farmer production.

Two important characteristics of the soils stand out as relevant from this analysis:
- The effect of low fertility on a limited amount of suitable agricultural land. The predominant clay minerals are kaolinitic, with low cation exchange capacity and hence a limited ability to retain nutrients, coupled with a low organic matter content, reflecting low nitrogen and phosphorus reserves. This makes the organic matter content most critical.
- Moisture holding capacity is the second factor. Most of the surface horizons are of sandy texture, and this, combined with low organic matter content, severely limits the moisture holding capacity of the soil in the root zone. This is particularly serious because dry periods occur within the growing season (usually in June/July).

Water bodies: Water for livestock and human consumption is also a major constraint in this region. The need for water for food crop production is even more constraining. Apart from the result of a big irrigation project at Bontanga, any other form of irrigation has been farmers' own efforts to use existing small dams or to develop their own means of water management. As a result, there are a number of very small irrigation schemes, developed through the initiatives of community or farmer groups. Despite such initiatives, the bulk of water management is done by either moisture harvesting or moisture conservation. This is done through relevant farming practices such as contour farming, mulching, continuous mixed cropping, minimum tillage, and the inclusion of trees in crop production.

Landuse systems: Studies by Migot-Adholla et al. (1990) found no evidence of tenure insecurity contributing to agricultural inefficiency. Further findings suggested that the issue is not gross inequalities in land distribution, but rather that indigenous land-rights systems, such as the vesting of land under a household head, 'stool or skin' lands, and sacred lands, may be the constraint on agricultural development. This is due to limited access to the use of such land because of rules of collective ownership, and the tendency to preserve such land for posterity. Tenure security in Ghana is very high as measured by rights over land and low incidence of disputes, except for migrant farmers from other regions. Where land is leased out for agriculture, the control over trees and other perennial features on the land remains with the original owner.

McCoy (1988:312) argues that in the early days land in this area was not bought as in Europe or America but was merely used. *The land belonged to the spirits and could not be bought or sold.* The way of acquiring land goes back to the first

settlers in the area. When they arrived, they staked out a considerable expanse of territory, much more than they needed or could farm. When successive settlers followed, they each went to the first settler (the Tendana), and asked for a piece of land which he is compelled by the spirits to give. Though small gifts, such as chicken or some cloth, might pass between them out of courtesy and gratitude to the Tendana who was apportioning the land under his care, no payment as such was made or expected. If it was later found that the petitioner was not making use of the land, the Tendana might reclaim the land for himself or give it to another.

However, recent developments and the pressure on land have resulted in flagrant violation of these traditional regulations on land. Now land is partially commoditized (sold for cash or for kind or both) depending on the contractual arrangements. There are instances when the use of land sold or leased is dictated by the original owner. Some landowners tend to rotate the use of the land they give out each year, which is a disincentive for the user to either manage properly or invest in it.

Land is put into various uses besides crop production and grazing. The various uses are illustrated by the table below. Good land is frequently suitable for multiple uses hence the discrete figures given in the table below can and do have overlaps.

Table 2.3 Land use allocations in northern Ghana

LAND USE FORMS	AREA ('000 sq.km.)	PER CENT OF TOTAL
Forest Reserves	6.3	8.9
Wildlife	4.6	6.5
Cropped land	35.3	50.1
Unimproved pasture	12.8	18.2
Bush fallow and other uses	20.4	28.9
TOTAL	70.4	112.6

(Source: Millar, 1992)

Some of the constraints to increasing productivity: The commonly recognized constraints of the farming system on increase in agricultural productivity, as identified by Schmidt and Mercer-Quarshie (1986/87), include:

- Declining fertility and organic matter content of agricultural land.
- Associated weeds, such as 'striga' which seriously affects the maize and sorghum yields.
- Seasonal lack of labour and labour saving equipment.
- Lack of finance (cash) to buy fertilizer or other external inputs.
- Lack of appropriate and suitable improved technologies.
- Socio-cultural constraints such as gender differentiation, spirituality, and witchcraft and religious limitations.
- Irregular rainfall and a shortening of the wet season.

Whenever and wherever new technologies exist, their operation within the farming system has been found to be limited by the following factors:
- Lack of adequate and timely supply.
- Lack of efficient fuel and transport services.
- Inadequate credit for the small and medium scale farmers.
- Lack of transport equipment and incentives to the extension service personnel.
- Government intervention in market prices leading to unfavourable and unrealistic control prices for the producer.
- Government imports of food items that result in artificial prices which do not favour local products.
- Marketing systems which do not favour the producers who want to invest in improved technologies.
- Lack of continuity in national agricultural policies.

2.70 The people

Box 2.1

Detailed description of the people, traditional institutions, and structures as they relate to specific ethnic groups can be found in the several anthropological studies on Northern Ghana. The studies include the descriptions of inter-family and intra-family relationships, how the various ethnic groups are organized, and how they govern themselves. The documentations of Manoukian (1952), Goody (1956; 1966a;1966b;1972;1990), Fage (1964), Fortes (1969), Oppong (1973), Brown (1975), Hart (1975), and Riehl (1990), have been detail, but rather specific on all these subjects. What I have done in this chapter is to scale-up the commonalities to cover Northern Ghana, thus the information here cuts across the specific ethnic groups covered by the above studies.

Farm families are made of between 2 and 20 members (extended households). In a household or compound, there may be as many as 1 to 10 families. For this region, a household is best described as a place and space where production and consumption units partially co-exist and where reproduction occurs. Goods and services are both produced and consumed within the households, as well as exchanged with others. Each compound has a family head who usually holds the family land in trust for the members.

Planning of farm operations is the joint responsibility of the family. Working out the farm lay-outs and sequencing (home gardens first and later bush farms) is first discussed between a farmer and his wife. The cultural practices that are to be undertaken and their sequencing are jointly discussed, but the woman keeps the mental schedule (Millar, 1992:42-45). The family members provide most of the labour. Farming operations, such as weeding and harvesting, may be carried out by communal labour.

There are distinctions in gender roles in farm operations. Normally, the man does the land preparation, the woman does the sowing and the first weeding. The man does the second weeding and the woman does the harvesting and processing. Deviations from these gender distinctions are not uncommon and they result in joint gender activities. Deviations also result from the differences between crop types (cereals/tubers/vegetables) and the family's particular life style (Oppong, 1973:14-16). On the whole, the women and children do the planting and harvesting of the crops. Most women have their own small farms where they cultivate rice, groundnuts or vegetables. Some women have a few chickens and, occasionally, some goats or sheep. Harvest from the family farm is kept as food for the household, but harvest from the individual farms, whether of men or women, are kept by the individual. This may be sold for cash or kept against the 'hunger months.'

The family or household head has overriding decision-making power after the private negotiations. This power is exercised typically in matters relating to the family; whether in farming operations, marriage, in the use of family assets, or custom, and he does this in consultation with key members or elders of the family. Although many major tribes inhabit the area, the general pattern of life is the same. The traditional form of worship is the cult of the ancestral spirit. They sacrifice to this spirit for various favours and the earth spirit is central amongst the spirits worshipped. The land priest performs the necessary rituals and sacrifices which ensure the prosperity of the land, fertility of the people, their crops and livestock (Oppong, 1973:18-20). While the ritual control of the land is vested in the land priest, the legal control is vested in the chief. The chief acts as the custodian of the communal land for the people. The 'skin' (chiefdom) land is directly under his control. Individual and family land is privately owned because the decisions over its use are privately undertaken. Both bush and compound lands may be individually or collectively controlled.

Trade, domestic crafts and wage labour are the main sources supplementing, but seldom replacing, a living from the land. Christianity, and Islam still more, are gradually creeping into the communities. Young men and women are the hardest workers, as far as farming is concerned. Older men and women with sons and daughters to work for them may assume a largely advisory role and undertake only the highly skilled jobs. However he/she still maintains his/her decision-making role in farming.

Almost every woman becomes a housewife for much, if not all, of her life and is trained in this line while still young. These roles go beyond housekeeping and child-bearing to agriculture and income-generation. In agriculture, the woman is part of the farm decision-making and influences decisions to a large extent, even if the ultimate decision is still taken by the man. With the 'women crops' that are produced on plots allocated to them, production, transformation, and marketing decisions are all taken by the women.

The lure of wage labour has led many young men to the towns and cities down South to earn money to buy luxury goods they cannot get at home. This has depleted the agricultural labour force quite considerably; a factor which is reflected in the decline in agricultural productivity and which is worth consideration in interventions (MTADP report, 1990:46). The results of out-migration from the villages to the cities of Ghana is reflected in the following data on the rate of urbanization (World Development Report, 1990:238):

- Percentage of the total population urbanized: in 1965 it was 26 per cent and 1988, 33 percent.
- Average annual growth rate of urban areas as a result of out-migrations from the hinterlands: in 1965-1980 it was 3.2 per cent and 1980-1988, 4.2 per cent.

Boys under sixteen years of age give considerable assistance to traditional agriculture, especially in the care of livestock and poultry (Oppong, 1973:17). They begin to help from five years onwards, their tasks being commensurate with their size and ability and accordingly graded in scale. By performing the less skilled and more routine tasks, they give adults the time to perform the more arduous jobs of the farm. The pattern is changing, especially so because girls are beginning to share these roles too, and because production patterns are changing. In addition to this, although the illiteracy rate is quite high, there is an increasing number of both boys and girls being sent to school. This has consequences for the availability of both productive and reproductive labour, and for gender roles, with girls doing the job of boys.

The people as a whole have a unique cultural identity with capabilities for change. It is built around beliefs, self respect, the family, the household and the clan. It is also related and integrated into their type of agricultural productivity. The Government, to them, is an anonymous entity on which they lay claims, and irrespective of which they would still continue their life style.

Some indigenous structures and institutions

The family and the village: The household constitutes a residential agnatic family. It is divided into many polygynous households, invariably consisting of a male head, with one or more matrifocal households. The matrifocal household is a cooking, reproduction and a production unit, comprising a mother and her children (Goody, 1956; Fortes, 1969).

Traditionally, people and wealth belong to the extended family, and so are the factors of production. A child's education is provided for by his direct father under the tutelage of the family head. Currently, as a result of colonisation and so-called modernization, the inter-mingling of cultures has resulted in the nuclear family becoming predominant, which means restriction to the father-mother-children. This

concept is replacing gradually and irreversibly the concept of a village as an integrated family in one geographical niche.

Marriage is an important institution that brings together families of different clans. Marriage is impossible between families in the same village who belong to the same clan. Usually the children belong to the father's clan. The diversity in the origins of the wives introduces multiplicity of norms and diversity into the culture. Customs vary from one clan to another because of their ancestral origin and the type of personal gods they worship. During marriage negotiations, the boy's family has to pay the bride-wealth in cash, animals or materials, as deemed fit by norms. The girl moves from her locality to the boy's village. Rarely can the husband leave his village to stay with his wife's family (Manoukian, 1952; Hart, 1975).

One brother inherits his deceased brother's wealth: wives, children and material things. When the wife dies the husband is the heir in the monogamous family, unless he decides otherwise. In the nuclear family, the children inherit. This is accompanied by the reversal of the traditional upward flow of wealth to the elder generation, so that the wealth of the elders is now invested in younger family members.

Decision making is a family affair with a dominant role being played by the male head of the extended family. The women and children obey him. The husband and the wife or wives may discuss some problems but the final decision is generally taken by the husband. In some households this decision making process is rather theoretical and it is the impression given to outsiders. In practice, the wife or wives take the decisions in the night and men publish them during the day. Most farm decisions are taken by the man based on the advice of the woman or in consultation with her (Oppong, 1973).

Chieftaincy: There are two types of historical developments within the institution of chieftaincy. We have the acephalous (without a head) communities which had no chiefs in the beginning until the advent of colonialism imposed chiefs on them (for this study they are the Frafras and Dagaabas of the Upper East and West Regions). The other group that were kingdoms from the start of their histories and had chiefs were the cephalous (with a head) societies like the Gonjas of Damongo. Now both the acephalous and cephalous societies have similar chiefship (Manoukian, 1952).

Assisted by the council of elders, the Chief is traditionally the legislator, judiciary and executive. The legal control of unappropriated land is vested in the chiefdom. As a custodian of the ancestral legacy, he also has a very limited spiritual role. During the colonial period, the Chief's power in the village was very wide, since he could use coercion to oblige people to obey his orders. But after independence this power has diminished. Nowadays the chief has to act according to the law, no coercion is allowed and his power of adjudication has seriously decreased (Goody, 1966a;1966b). The chief's rule is normally a hereditary function, but he is sometimes elected democratically by a council of state. The chief

used to collect the taxes, handle palavers, and report the village problems to the paramountcy or the government administration and solutions back to the villagers.

The earth priest: As indicated in McCoy (1988) for the acephalous societies, this function is the prerogative of the first settlers of the village. They originally owned the entire land which is then held in trust by one member of the family. As new settlers arrive, he gradually gives out parcels to family heads for cultivation. Over time the control over the land is gradually relinquished to the users. However, the earth priest still maintains his judicial functions when there are disputes over land. Since such disputes do not occur too often, his special position of power is felt when regular sacrifices have to be performed before the onset of farming, during farming and at the time of harvesting. It is necessary to do this in order to appease the gods that they grant good harvests. It is almost impossible to start or continue agricultural activities unless these sacrifices are performed. Just as the Chief has a legal control over the land, the ritual control over land is vested in the Earth priest. He performs certain vital sacrifices related to the land and agricultural productivity.

The exception to this is the cephalous societies where the earth priest's functions blend into the chief's functions as well. Hence most of the cephalous communities do not have earth priests, and those that do have a nominal role for that institution (Millar, 1992).

The soothsayer: Various functions and smaller institutions exist under this general name (Fage, 1964). One such function which is linked to agricultural productivity is that of the soothsayers who are rain-makers. The secrecy of the institution does not permit detailed insights into it but their role in relating to the ancestors and the gods is highly valued in agriculture. Their functions are basically spiritual and are linked to rewards and punishments. They provide a vital link between life preceding, here and life thereafter. Hence they are endowed with special powers to communicate with the ancestral spirit and the gods. These powers enable them to heal, reward or punish reproduction and production, cast out evil spirits or protect the people. In times of disaster, misfortune or war, they are very important.

2.80 The research area - Damongo

The Gonjas: The Gonjas are the settler ethnic group and the original inhabitants of Damongo - the first ethnic group addressed by this study. Damongo has been chosen for this study because of the fact that it provides an ideal scenario for analyzing the interactions between three distinct ethnic groups and three distinct religious groups (catholic, moslems and animists) co-existing under various policy regimes. There are also interactions between NGO and GO intervention activities

and the farmers. The vegetation has been transformed from near-forest conditions to grassland conditions with low soil organic matter.

The Gonjas, in terms of population distribution, are in the majority animists, followed by moslems and, lastly, christians. Historically, Damongo is a Gonja town situated at about 140 km west of Tamale. It has a population of about 10,000 farm families (a farm family on average is 6 persons - a man his wife and four children). Because of the localized highlands of the area, it used to be blessed with rains ranging between 1200 mm and 1300 mm, an average of 120 wet days in four months of rain. Due to environmental changes, the range is now about 1000 mm-1100 mm, an average of 120 wet days within four months (Millar and ten Haaf, 1988:4). The ratio of population to land is about 1 person per half a km sq as a result of a large expanse of a National Park (Mole Game Reserve) situated in Damongo. Actual agricultural land holdings are on the average 10 hectares per farm family.

Table 2.4 Population distributions in Damongo district

IDENTIFICATION	TOTALS	19 YEARS & BELOW	20 YEARS & ABOVE
Urban & rural	62,971	37,674	25,297
Male	31,572	18,997	12,575
Female	31,399	18,677	12,722

(Extrapolations from 1984 Ghana population census, 1987).

For small farmers, farm holdings and fallow periods have decreased from about 20 hectares per farm family and 7-8 years to about 10 hectares and 3 years (Hulsman, 1990:2) as a result of population pressure. About 5 per cent of land holdings are under cultivation each season. A few big farmers are still common in the area, with holdings averaging around 50 hectares and an occasional 100 hectares. Tractorization is beginning to decrease in Damongo as a result of the unsustainable nature of this technology. Average yields have declined from about 2,000 kg maize per hectare to about 1,000 kg per hectare with fertilization (Millar and ten Haaf, 1988:12). Soils have become very loose due to overuse and poor tillage practices (especially the wrong use of tractors), and the use of fertilizer, which together with the slopes, have led to water and wind erosion becoming a serious problem in the area.

Box 2.2

In the documentation of the major tribes of the Northern Territories of the Gold Coast, Manoukian (1952) also captured the Gonjas who, he says, belong to the "Gaung". The people called themselves the "Ngbanya" and their dialect "Ngbanyato". Fage (1964), Goody (1966a;-1966b), Forde and Kaberry (1967) have drawn attention to the traditional social structures of the Gonjas and how they operate. They gave a great deal of attention to the traditional administration - chieftaincy. The detailed information that these writers give dates beyond the period of the influx of the Frafras and the Dagaabas into Damongo.

The Frafras: This is the first migrant group that came to settle in Damongo as a result of forced migration. After the departure of the British Gonja Company, around 1955 - 1956 Frafra families were brought down by Government from the now Upper East Region to settle on three-hectares tracts of already cleared land. This was necessitated by the fact that the Frafra area was under extreme land pressure. A recent IFAD Report (1990:22) reports the pressure on land in this area as 204 persons per square kilometre. Rainfall received in this area is 800 mm-900 mm, 80 wet days and of three months duration. Farm holdings are on average 3 hectares and average harvests of about 400 kg per hectare are recorded (Evans, 1970:14), hence the justification for policy actions. However, most of the settlers chose to return to their former homes leaving only twenty families behind. Today, they have expanded to about 100 farm families. Usually it is the old people who went back home to finish their lives in their birthplaces and to be buried there, but the children stayed on. The Frafras here are predominantly animists, with some christians, and a few moslems.

Box 2.3

Within his list of tribes of the Northern Territories of the Gold Coast, Manoukian (1952) identifies the "Gruni" (now Frafras of the Upper East Region of Ghana). Hill (1963:1970) traces the movements of this ethnic group to the South of Ghana to sell their labour. Fortes (1969), Hart (1975), Goody (1990), and Riehl (1990) are follow-up anthropological studies on the Frafras. Unlike Manoukian, these other studies were specific in focusing on the Tallensi in describing the people living in this area. Despite this focus on the Tallensi, their findings are not very different from what applies to most of the groups that come under the general name "Gruni".

The Dagaabas: This is the second migrant group that came to settle in Damongo as a result of voluntary migration. About the time that the Government was proceeding with its re-settlement programme with the Frafras, another tribe originating form the present Upper West Region, the Dagaabas, had noticed the then formidable agricultural potentials of the Damongo and had trickled into the area to acquire land and farm on their own accord (Evans, 1970:12). Coming from a hard-working farming tribe, they were dissatisfied with the farming opportunities in the Upper West Region, which has rainfalls of 900 mm - 1000 mm, average of 90 wet days of three months duration. The average land holdings were 5 hectares,

and as a result of the pressure on land, only 2 years fallow was possible resulting in average harvests of about 800 kg cereal per hectare. Because of their determination to stay in Damongo, the total farm family size of the Dagaabas has grown to about 200. The Dagaabas are predominantly christians, then follow animists, and scarcely do you find a Dagao moslem in this area.

Box 2.4

Manoukian (1952) also in his documentation made references to the Dagaara and the Lo-Wiili tribes of the Nandom area. Specific references to the Dagaabas are also made in Goody (1956;-1972), and Some (1995). At length, these authors have gone through the cultural and social structures of the Dagaaba in their home in now Upper West Region of Ghana. Goody and Some also dwelled on spirituality and how this influences the lives of the people. Goody makes specific reference to the "Bagri" in discussing spirituality. Hill (1963;1970) sees the Dagaabas as a major labour source for the cocoa farms in the South of Ghana. In her publications, Hill also describes the various types of rural economies that operate in northern Ghana.

Colonial Government intervention in Damongo: According to Evans (1970:2), the first formal intervention in Damongo was in the early 1950s and it took the form of the British Gonja Development Company, which surveyed about 10,000 hectares of land in the area south of Highway NT 25 in Damongo in 1950. Eventually they claimed a tract of 5,000 hectares to be used for groundnut production. The company settled and produced till 1953 when it ran into technical problems and collapsed.

After Ghana's independence (1957): To further exploit this high potential area, the Ministry of Agriculture initiated the Ghanaian-German Agricultural Development Project in the early 1970s (Adongo, 1980:2). Based on a Transfer Of Technology model (Röling, 1988:53) and linked to Green Revolution type technologies and Training and Visit System (Röling, 1988:68), fertilizer and hybrid maize experiments with farmers were concentrated in Damongo. Although the extension services have been handed back to the Government since 1985, the German influence still exists within farm activities in Damongo.

From 1987, the International Fund for Agricultural Development (IFAD) has decided to support the extension activities of the Ministry of Agriculture, with Damongo once more becoming an arena of attention.

With the introduction of the Unified Agricultural System in 1992 (Ministry of Food and Agriculture (MOFA) Report, 1993), based on a World Bank mission to Ghana, IFAD's supportive role at the local level, and the role of the German-supported extension services, have been re-defined to fit into the proposed operations of the National Agricultural Extension Project (NAEP) (see Frempong-Asante, 1995 for the details on the UES).

NGO programmes: The first formal presence of the Catholic Church in Damongo was felt in 1961 when the Damongo Agricultural Project was launched (Evans, 1970:2). The Project involved the establishment of a training institute which provided two-year practical field training, after which small groups were settled based on co-operative principles. The settlement of former students was done on the former Gonja Development Company site. There are about 50 of such settled units and each unit is made up of 4 students, on 600 hectares of land that can be cropped. The students were supported with a bicycle, household utensils, 100 yam seeds, and a tractor with a set of implements, the loan for which was paid back after 5 years. This programme continued till 1980 when it was handed over to the Government and was found not to be sustainable, so the settlement component was dropped and the Project became just a farm training school for first grade pupils.

In 1978, the Catholic Church started a farm inputs programme in the Region. Ten years later, it was modified into an extension programme (the Tamale Archdiocesan Agricultural Programme - Millar and ten Haaf, 1988). Farmers in Damongo found themselves involved in the participatory programmes of the Catholic Church, which combine the use of fertilizer with organic farming. This programme still obtains in Damongo; side by side with the IFAD sponsored Ministry of Agriculture Programmes.

2.90 Conclusion

This chapter has tried to situate the research by starting from a broad view and narrowing the attention down to Damongo. In doing this, the issues relating to agriculture production could easily be inferred form the information. The global (nation-wide) problems relating to agriculture and hence the need for intervention have been assessed. Down to the region and the research area, more specific problems for agricultural intervention have similarly been treated.

To locate the background information, the people and their traditional structures have been summarised. The movement of other people from different ethnic origins into Damongo, noted in the study, formed part of the information base about Damongo.

Lastly, the historical evolution of interventions in Damongo has been summarised to show that Damongo has had its fair share of the age-old problem of external development intervention and the consequences of some actions. The research problem finds its roots within the information given so far. In the ensuing chapter, I intend to use this background information as a basis to lead to a clear definition and focus of research problems and questions.

3 The Research Task

3.10 Introduction

Chapter 3 starts with discussing the problem that is intended to be tackled by this research by delving into some of the practical and theoretical perspectives. I later discuss the trends of development of the problem by looking at both the external and local trends. Some perspectives on the problem that are out of context with the situation in northern Ghana are also mentioned. I then challenge myself to definite actions in terms of evolving questions that would help address the problem. The scope of the research (geographical, subject matter and targeting) is spelt out. I conclude by identifying some of the assumptions that confine the research.

3.20 Research problem

Intervention strategies developed to respond to the needs in agricultural development have suffered various setbacks in northern Ghana. In Ghana, whether it is from Government or from the Non Governmental sector, the general trends are the same, although the NGOs, by their philosophy and character, could be said to be more advanced with responses to change.

Studies conducted by Annor-Frempong (1988) and Amanor (1990), have shown the shifts in emphasis within the Government sector from 'high external input to low external input agriculture' in an attempt to respond to failures of intervention to increase agriculture productivity. These writers were also highly critical about farmers' participation in the Government's agricultural programmes. The Minister for Agriculture in Ghana had the same dismal picture of the strategies used by his ministry in a speech delivered in 1990. He did identify shifts in response strategies but concluded that more still has to be done.

The general trends of the Government of Ghana were dictated by trends within the international community. Since extension was largely funded from outside, the country compromised as a 'testing ground' for the strategies of Donors and hence a rife ground for failures. The broader spectrum of these strategies is discussed below.

Trends within the Government sector: The adoption and diffusion of innovation models (Röling, 1988; Van den Ban & Hawkins, 1988) formed the bases of earlier interventions. The elements of this school of thought, to mention a few, include the seven steps that constitute the normative decision-making model, which was later modified because humans can be and are less rational, linear or systematic than anticipated. The modifications include,

'[...] *awareness creation, goal establishment, diagnoses, review of alternatives, evaluation, choosing, implementing*'.

There is also the adopter distribution curve and the adopter categorisation of Rogers (1983:243-247). Here also the linear model for diffusion is described with its attendant prescribed roles of,

[...] *sources, channels, recipients and feedbacks*'.

The so-called top-down, transfer-of-technology model was assumed for extension services also in Ghana.

The early philosophy of human learning on which extension science was based has come under severe criticism in the developed world. Works of Long and Van der Ploeg (1988), Long (1990), Villarreal (1990), and Leeuwis et al. (1988) have looked at planned intervention, especially extension strategies, from a social scientific point of view (the actor perspective). Flaws have been found with the explanation of human action as assumed by extension science. Issues like technical actions being part of social constructs, human agency, life-worlds and worldview of actors, heterogeneity and diversities were not accounted for by adoption/diffusion models.

To reconcile extension science with the concerns expressed above, scholars of extension science have attempted to develop more adequate theoretical bases (see Röling, 1992; Röling and Engel, 1991). The practical bases still remained problematic since legitimising the theory does not necessarily find expression in the practical. Participatory processes are part of this search for a practical support to re-oriented theory. Although the participatory processes are a major departure from what has obtained until now, limitations nonetheless exist here too (see Amanor, Denkabe, and Wellard (1993), Millar et al. (1989), Alebikiya (1993), Hulsman (1990), Kolbilla and Wellard (1993).

In Ghana similar adjustments have been made within the Government sector in trying to accommodate World Bank theories, policies, and experiences in its intervention packages as described above (see Annor-Frempong (1988), Millar (1992), Frempong-Asante (1995). I will limit the discussions below to most recent developments in Ghana that have not been reflected so far.

The unified extension system: In October 1992 a World Bank mission to Ghana proposed a National Agricultural Extension Project (NAEP) to initiate and

implement a Unified Agricultural System (UES) with strong research linkages in order

> '[...] *to promote the widespread use of proven agricultural technologies and farming practices that would increase farm output, improve the efficiency of labour, conserve soil and water resources and contribute to environmental protection'* (Ministry of Food and agriculture (MOFA) Report, 1993;23).

According to the report, the rationale for adopting the Unified Extension System included:

- That farmers are holistic and should be approached as such.
- That the new system would eliminate contradictions, duplications and confusions of the former independent and uncoordinated extension activities of various projects and institutions.

The emphasis of the UES lay in specialised subject-matter departments and research institutes providing support to the extension programme. Extension is then used as the vehicle to convey messages to farmers relating to their activities, and to receive continuous feedback (Frempong-Asante, 1995). It is worth mentioning here that UES is still based on the Training and Visit System (T&V) of the World Bank (see description of T.&V. in Röling, 1988:68). The only major modification is in the unification of assignments in one front-line staff-member and a wider range of tools to assist performance.

Basically, the MOFA Report (1993) identified the following major tools of the Unified Extension System:

- The use of maps by all field extension staff to orient themselves and for easy location by farmers and supervisors alike. Each operational area divided into 8 with indicated routes.
- Spelling out a fortnightly calendar which indicated:

Visit days	8
Flexible days	2
Meeting days	1
Training days	1

- The forming (organising) and use of Contact Groups - 2 to 3 per each operational area.
- Diagnostic approach to advising farmers, that is: '*What is it that the farmer who gets medium yields is doing that the farmer who gets low yields is not doing and why?'*
- Programming with the farmers, considering the economic ceiling for operations, and assisting farmers to make economic returns.
- That field staff carry out demonstrations, ensuring that demonstration plot sizes are small with not more than one message to be tested.

To facilitate easy flow of information and linkage between farmers, extension and research, a number of things were put in place:
- Research Extension Liaison Committees (RELC) were established at all regional levels.
- On-farm research teams of a multi-disciplinary nature were formed to handle the different ecological zones.
- Bi-monthly technical review meetings were instituted where Extension Staff, Farmers, SMS, Researchers, and policy makers were supposed to meet to review technical messages.
- Monthly training meetings, where SMS train field extension staff on technical messages to be discussed with farmers for the period, were instituted.

This programme is still young (only four years old), but there are signs of teething problems as with its predecessors. The rigorous routines of extension visits are followed even less now than before. This is because of the additional subject-matter responsibilities put onto a single front-line staff-member who used to handle only one subject-matter. The front-line staff are also without sufficient accompanying skills and logistics to back their messages (evidenced by the series of discussions I had with my colleague senior Agricultural Officers within the Ministry of Food and Agriculture). Above all, the farmers are still described as '*lazy and stupid*' by the field staff, and the trouble is not taken to learn about how farmers learn; in order to be able to design more suitable communicative strategies with them. Elements of the Top-down, Transfer-Of-Technology (TOT) approach (Röling, 1988:53), still find legitimacy here, with the attendant '*sock-it-to-them*' attitudes.

In addition to my reservations about the T.& V. and TOT, it is my criticisms of the UES that while front-line actions have been unified the support from the Subject Matter Specialists (SMS) is still not integrated. This means that one would require several SMSs to support one front-line staff-member to resolve a problem at the farmers' level. Do we have that much resources to be effective? Farmers' problems are multi-faceted and thus require several solutions at the same time. Hence the range of subject-matter required by one front-line staff-member in order to perform effectively would be so diverse and voluminous that I doubt the capabilities of the front-line staff to process all that variety of information and to deliver it effectively. My informed guess is that the front-line staff would be submerged in confusion, and in order to earn a living, he/she would transfer the confusion on to the farmer in the '*sock-it-to-them*' manner (Röling 1984:53). I also think that the communicative strategies themselves need addressing. The emphasis on learning as a process is still far from being addressed. Dialogue and negotiating with farmers to develop sustainable learning processes is found wanting within the UES programme.

In the northern region, the German component of the extension service (GTZ/MOFA) has developed the '*step-by-step*' approach more as a tool to make the Unified Extension System more participatory than as an alternative extension

approach. It enhances more the diagnostic phase of the actions. This being so, it means that only information collection to start an extension activity has been improved, while the bulk of the dialogue-enhancement that is necessary between extension and the farmers, necessary to maintain that long-term relationship, is still untouched. (The approach has not been widely tested yet). I would end here with the Government sector by listing in the box below more detailed research in this field. The section after that looks at the NGO sector, which is my current professional field.

Box 3.1

There is an in exhaustive list of documentation about the failure of Government development intervention to attain the intended impact. Within the country, wrong or ineffective policy initiatives that have contributed towards poor performance of development intervention have been documented by Annor-Frempong (1988), Adongo (1990), Adam (1990), and Millar (1995). Unsuitability of technologies offered to farmers is discussed by Schmidt and Mercer-Quarshie (1987), Runge-Metzger (1988), Hardter (1989), Amanor (1990), and Millar (1992). Transfer of technology modes of delivery which have weakened the participation of rural people, and so resulted in unsustainable of technologies delivered by the Government sector have been discussed by Annor-Frempong (1988), Amanor (1990), Frempong-Asante (1995), and Millar (1995).

NGOs' participatory processes: A series of planning and action strategies come under the general name of participatory processes. The general emphasis is for bottom-up or inter-active bottom-up processes, joint planning with beneficiaries, dialogue with negotiations and trade-offs based on '*the agenda of the intervener*'. In actual terms, so far participation is operationalized to mean the client, target category or beneficiary, participating in the intervener's agenda and not vice versa. To continue this digest, I wish to give a few examples to throw more light on what I mean by participation processes.

Jiggins (1983) gives a description of participatory management that is oriented towards rural development. In this piece, she alludes to the necessary background information required and the basic questions asked when dealing with participatory processes. Chambers (1983) gives a more elaborate description of the similar general issues of participation. More specific ways of getting rural communities to participate in their own development include Crouch's (1984) problem census techniques, and Brandin's (1988) wealth ranking exercise with rural communities in Zimbabwe. Other participatory processes can be found in Rhoades' (1985), farmer-back-to farmer model, Ashby's (1986) farmer participation in on-farm trials, Bunch's (1987) people centred agricultural development, Abedin and Haque (1987),

and Norman's (1987) innovator workshop and farmer groups for technology development.

In the West African sub-region, the two participatory processes that seem to endure for some time now are:

- Participatory Technology Development (PTD): Initial work on this was done by Haverkort et al. (1988), and Jiggins et al. (1989) in which five steps of evolving technologies with farmers were identified alongside some concepts and procedures. The five steps include,

  'How to get started, looking for things to try, trying out, sharing results with others and sustaining and consolidating the system of participatory technology development'.

These same five steps were fleshed out and adapted to suit the Ghanaian situation in the ACDeP approach to participatory technology development as in Millar et al. (1989).

- GRAAP pedagogic approach (1984) to self-development evolved in Burkina Fasso. With the aid of picture representations, rural communities are enabled to re-construct their past, on the bases of which future action is planned.

Undeniably, participatory processes, especially among the NGOs, are a break away from the past and a major stride in bringing extension strategies closer to the socio-cultural environments of rural communities. However, some of the processes pursued by NGOs do not show a complete break away from the TOT model (Röling, 1988). NGO extension strategies are still confrontational, they do not concentrate on improving dialogue but prefer the transferring of technologies, and they do not capture spirituality (cosmovisions) of rural people in their planning and actions. Although less here than in the Government sector, the same skills and methodologies of TOT are used to convey extension packages.

After participatory processes like PTD have been used to identify possible actions, demonstration plots, lectures, and high external inputs are still emphasised. The field staff still allocate to themselves specialized power positions as a result of their resource positions. When there is any dialogue or negotiation with farmers, the field staff tilt the balance in their favour, giving the farmers a very limited opportunity to dictate actions. This means that even within the NGO sector, empowerment of rural communities through dialogue and meaningful

communication is still a problem. (Some of the criticisms of NGOs in Ghana is discussed in detail by the references given in the box below).

There is a justifiable need to create space for indigenous forms of learning to find expression in, particularly, the methods that are used by extension in learning situations before sustainability can be contemplated. Participation, from my point of view, is having interventionists participating in rural peoples on-going livelihoods; using the people's own logic, rationale, methods, concepts, and procedures. Rural communities have been learning from us up till now. We need to begin seeing our dealings with rural communities as opportunities for us too to learn from them. It is this opportunity for us to learn that I want to underscore. To do this effectively, I suggest that interveners get involved in the overall learning and life-world of rural communities in a holistic manner.

From the above, it would be seen that the fears that I express about intervention processes within the Government sector do exist, in varying degrees, within the NGO sector too. It is clear from the list of published experiences that NGOs have moved faster into 'low external input agriculture', but have genuine problems with making things more sustainable and arriving at a sort of participation that would be a true reflection of their working environments and the identity of the people they serve.

Box 3.2

The limitations of NGO development intervention in northern Ghana have been studied at length. Amanor, Denkabe and Wellard (1993) treated the weaknesses of NGOs within the national framework of development intervention. Millar et al.(1989) and Alebikiya (1993) reviewed the performance of a regional association of twenty three members in the north of Ghana (ACDeP), showing weaknesses in the individual members and in the association as a whole, for which they evolved new strategies. Hulsman (1990), Kolbilla and Wellard (1993) have traced the developmental changes in technology generation and delivery modes in response to ineffective NGO actions.

The research task: My objective is to document indigenous learning processes. I hope by doing this to generate suggestions as to how to improve upon development intervention strategies that would capture the identity of the people. Such strategies will contribute towards empowering rural people through dialogues that enhance learning and action processes, and enable rural people act in such a way as to increase their agricultural productivity in a sustainable manner.

3.30 **Research questions**

Ensuing from the above therefore, the research is about indigenous learning. As a point of entry, my focus is on the study of learning processes, and social practices that small farmers have evolved with respect to agriculture in northern Ghana.

Very little research work has been done in Ghana on how rural people learn. The dynamic processes that are gone through to 'generate the products of learning' have not been critically analyzed. How information is acquired and passed on, and the power-plays involved in negotiating this information, have yet to be reconstructed. It is my view that these are necessary prerequisites to any intervention strategies. I am of the opinion that all these issues have to be addressed in order to understand the farmers' environment, and therefore the intervention strategies that would provide '*a sustainable fit*', as determined by the people themselves.

On the basis of the above the following research questions were developed. These served as the main areas that guided specific questioning and detailed probing.

The set of questions here are intended to enable me gain insights into Rural People's Knowledge in agricultural production and management techniques. (With emphasis on diversities of such knowledge).

1. What images and socio-cultural constructions do they have of their land and the various agricultural uses they put it to? What is the meaning of those social constructions, and how did they arrived at the ascribed meanings?
2. What local vocabulary is used in describing the kinds of learning that exist and in making distinctions between them?
3. How are information, skills and social practices about agriculture obtained and how are they passed on from generation to generation or within peer groupings? (Their modes of acquisition and utilization would have resulted in the establishing of formal and informal knowledge and social networks).

These questions are to enable the reconstruction of learning processes.

1. What is the socio-cultural development of learning, messages, and meanings within and between generations; within and between religions; within and between ethnic groups?
2. What are the dynamics of learning? How are actors enrolled in these processes? How is power brokered (tutelage/apprenticeship)? What are the trade-offs and spin-offs of this interactive process?

3. What relationships are evolved within the different ways of indigenous learning? What are the similarities and differences of teaching and learning strategies between and within the different groupings encountered by the study?

The set of questions here are intended to enable me to find out, in a limited way (since there is a lot of documentation on this existing already as shown in the box above), and as a back-up to developing a strategy, what place development intervention occupies within the indigenous learning system.

1. Based on experiences already existing (from secondary data), what are the strengths and weaknesses of GO and NGO intervention strategies so far in Damongo and what are the learning experiences emanating from them? What diversities exist and how have the people influenced and been influenced by development intervention?
2. What is the role of the social organizations in this arena of development intervention?. How vital are local institutions in orienting farmers towards external interventions in this area?
3. Based on information so gathered, how can a synergic and sustainable integration of RPK, GO, and NGO learning and action activities be achieved and improved?

3.40 **Research scope**

In addition to the geographical scope of the research (see chapter 2), and the encountered target categorisations (see details in chapter 5), the following is intended to be realised:

- To generate a greater historical understanding of the diversities in rural people's learning processes. This is done in the area of agricultural production and management, within a '*human activity system*' (Engel, 1991, Röling and Seegers, 1991)
- To document the transformation of learning processes in the light of time trend changes in traditional agriculture.
- To reconstruct the learning processes with the communities studied, and come out with ways by which indigenous learning could be used to enhance development intervention.

- To build up the information thus collected into a proposed action strategy which could be used to enhance the performance of development intervention.

3.50 Some working positions

In the developing countries, of which Ghana is one, very little has been done in learning about how rural people learn (rural people's sense-making processes). The situation is worse in northern Ghana where the research is situated. Knowledge about how rural people learn is very relevant in explaining how rural people relate to each other, to the past, to posterity, to spirituality, and to external intervention within a sustainable learning and action process.

The stand-point of this study is that different world views ascribe different meanings to learning. Better learning is achieved when it is an interactive communication of information and skills within a socio-cultural context. The product of learning is an interaction between technical and social constructions.

I am of the view that the societies in northern Ghana are open and dynamic, and indigenous learning has been influenced by both external and internal forces. Despite the influences from the '*outside*', there are certain fundamental aspects of indigenous learning that have persisted over time. These aspects provide the basis for essential heterogenieties in rural people's action processes.

Stresses or discontinuities resulting from limiting critical factors in farmer's productivity provide a rich milieu for creativity and adaptability. This opportunity also provides ample room for identifying new information and creative skills and how such skills are passed on.

3.60 Conclusion

There are ongoing professional debates and designed action strategies about the problem area that has attracted the attention of this research: the failures of development intervention to realize its development objectives. The chapter started with a narration of efforts both within the Government and the Non Governmental sectors. It described the path that trends have followed and queries some of the observations made. From here it focuses on the problem statements and the

questions to address the problem - indigenous learning and how it could be used to improve development intervention. The research scope and the predisposed positions of the research are discussed.

It is my hope that the stated research problem and the finding of answers to the research questions would contribute towards improving NGO work in particular and development intervention as a whole.

4 Theoretical Perspectives

4.10 Introduction

Operationalized below are the overall concepts that guided data collection, analyses, discussion, and the recommended actions. The theories discussed here provide an entry point for the research and a general framework for this study. In addition to this, I have used various theoretical frameworks to discuss my findings in chapters where it is more relevant to do so. The discussions in those chapters still draw heavily on the general framework described here.

This chapter also gives legitimacy to the study by identifying supportive studies that have preceded this research. On the whole, the lengthy citations of other works limits the repetition of some relevant information already documented by other studies.

The discussions here have allowed me to give operational meaning to some of the concepts, as far as this research is concerned, and to also define some concepts that I have introduced myself, which are equally important for this study. I start the theoretical reflections by looking at the knowledge base that is the subject of concern, and that has attracted the attention of this research: rural people's knowledge or indigenous knowledge. This is followed by a discussion on the approaches that guided the conduct of this research: the actor-oriented approach and the systems perspective. I conclude by looking at the polemics of diversity as a guide to managing my findings.

4.20 Rural people's knowledge or indigenous knowledge

I use the two nomenclatures interchangeably without getting into the semantics or the debates. For some, indigenous knowledge (IK) refers to the accumulation of experiences and the sharing or passing down of information from one generation to the next within a society (Wang, 1982; CIKARD, 1988: in Mundy and Compton, 1995). For others rural people's knowledge (RPK) is identified as that which emerges from the interaction amongst individuals/groups and between individuals/groups and their environment, resulting in a product which has been

formed and transformed by the society itself (Chambers, 1983;1990, Chambers and Jiggins, 1987).

Attaching value to the socio-cultural construction of knowledge and learning processes is a novelty and has not received attention until comparatively recently. But now, the exuberance created by this 'discovery' is denying it constructive use to the benefit of the rural communities that developed them. It has once more become the craze for professionals to extract or design ways to extract indigenous knowledge; process it in the professionals' own ways using their own tools, and 'patent' it or re-introduce it as a 'discovery'. If it is a social construct, why not choose for its in situ development; either producing the 'scientific innovations' within the communities, or plugging-in the innovations to be redesigned or adapted by the people, using the people's own tools, techniques and constructs? Let us see what trends the 'capturing' of indigenous knowledge has followed so far, and what more needs to be done.

4.21 Some indigenous technologies

During the seventies, it became clear to research and development that the small farmer is a social being; not just a passive recipient of intervention but an active participant who processes information, internalises it, and strategizes in his dealings with various local actors as well as with external persons and institutions (Röling, 1988; Long, 1990; Leeuwis et al. 1991; Engel, 1991).

One of the consequences of such new thinking was the evolution of the concept of Rural People's Knowledge (RPK). This knowledge, which is socially constructed, is therefore culturally specific and has its distinct characteristics which may be similar to, or different from, other constructs. RPK is in a dynamic relationship with its environment and is in constant evolution over time. In their writings, various proponents of RPK have drawn attention to social constructions of knowledge as a vital component of synergy between RPK and formal science, which should thus be given attention by interventionists (Chambers and Jiggins, 1987; Mundy and Compton, 1995). So far, attempts at incorporation of RPK into research have taken the form of participatory processes (see examples in Jiggins and Röling, 1982: Ashby, 1986;1987: Chambers and Jiggins, 1987). NGO efforts in this respect have been documented by Gubbles (1988), and Farrington and Biggs (1990), among several others.

I will continue this discussion by enumerating a few examples of indigenous knowledge documented from within and outside the region of study, to show that there is quite a library of it, and thereby argue for a more prominent position for it in development intervention.

Various valuable experiences of small farmer experimentation existed with very little recognition given to them. Rhoades (1984), in his book *Breaking new ground*,

drew attention to the tremendous amount of knowledge Peruvian farmers had in potato cultivation. If this had not been consciously studied, it would have remained ignored. Similar revelations of RPK have been documented by Box (1986;1988;1989) on cassava and rice in Dominican Republic. In all three publications, Box reports local experiences with the transformation of planting materials and the up-dating of varieties through rigorous selection procedures resulting in the generation of new varieties.

Extensive documentation of RPK has been done by Warren (1990;1991). In both publications he has shown the ingenuity and the logic behind a wide range of small farmer activities. He highlighted the role of mixed cropping and forest gardens as risk aversion and biodiversity conservation strategies. Farmers use trees as soil fertility indicators, for savings and security. Warren draws attention to ethnoveterinary medicine, indigenous crop and pest management techniques, moisture harvesting and management strategies that have been evolved by small farmers. He has convincingly shown that small farmers have their indigenous soil classifications which have comparative potential to that made by formal science. In his studies of three ecological zones of Nigeria, he successfully documented seven different indigenous soil taxonomies and the reasons behind the differences in labelling.

Millar (1990) documented RPK in storing traditional yam, a crop which has until now received very little attention from formal research in Ghana. I argued that it is the lack of know-what that has limited research in this area, although the small farmer is well advanced in storage processes for various yam species that result in remarkably low losses. This study has made me realise that the gap between 'how to grow yams and how do yams grow', is quite wide. Skills and techniques amongst small farmers in the area of soil and water conservation in Mali have been described by Kassogue et al. (1990). These include the use of mounds, terraces, stone lines, bonds or low walls, square basins and planting-holes. Here, ingenuity is exemplified.

Farmers' adaptation to changes in their environment within the livestock sector in Senegal is elucidated by Toure (1990). The progressive decline of the great seasonal transhumance patterns for short-range nomadism within grazing areas around boreholes reflects a significant knowledge adjustment. He also mentions knowledge adaptations reflected in moving away from systems of controlled herding requiring permanent human supervision to the use of auxiliaries, such as sheep-dogs, to drive the herds. A whole set of traditional pastoral techniques and practices had to be either modified or abandoned in this process. The strategies which evolved benefited very little from formal Research or Extension inputs.

Richards (1988) in his essay on Africa and indigenous agricultural revolution, argues that successful rural development depends on inventive self-reliance, enabling small farmers to make changes which are potentially of benefit to them in particular, and to society in general. This seems to be a reasonable starting point

for the re-orientation of efforts by interventionists.

Warren (1991;1992) traces historical reasons why RPK has escaped the attention of national Governments until now. I do share the view that the basis for this lack of attention has been international donor perspectives about RPK and the type of professionalism obtaining at that time. The top-down transfer-of-technology paradigm provided very little room for the introduction of local knowledge into research. The reactive and proactive decision-making processes of farmers could not be accommodated by the existing research methods. Admittedly, trends are changing in both local and international spheres but the trends of these changes make one apprehensive. Once more 'extractionism' is taking the best part of the efforts, and the holistic nature of most rural communities is ignored. One such example is described below.

4.22 **Indigenous experimentation**

Rhodes and Bebbington (1988) observed that farmers' experimentations resulted from actions related to curiosity, the need to solve problems and to adapt to situations. Although their new purview is enlightening, it would seem as if farmers' innovations, through experimentation, were only defensive - reacting to situations only. I am of the view that farmers' innovations, and for that matter experiments emanating therefrom, are not only defensive but also offensive as seen in peer/social pressure experimentations. A very brief explanation of the various types of experiments as identified by Rhoades and Babbington is as follows:

- Curiosity experiments: The driving force for these types of response to innovations is the farmer's own curiosity and quest for additional knowledge as a result of some skills which he has acquired or encountered, or an idea he/she just wants to try out.
- Problem-solving experiments: Problem-solving in the rural farmer's innovations results when he or she encounters a situation out of the normal or different from that which he/she is used to in the enterprise. The situations might include factors resulting from responses to 'external changes', such as population pressure on land where agricultural land is very scarce, reduction in yield or a diseased situation. Climatic variations as reflected in decrease in rainfall or moisture-holding capacities of the soil also result in innovativeness.
- Adaptive experiments: No matter the form or source of an idea, farmers, if left on their own, would always modify somewhat, what they have to do in using the idea. Besides modifications, re-invention is part of farmers adaptation to innovations. During the conscious process of adapting, they may come across some ideas that existed at some time in the past but have died out or have been abandoned due to lack of use. The processes of curiosity or problem-solving normally give rise to adaptiveness in the use of innovations.

Social/peer pressure experiments: In addition to the three types of situations that result in innovativeness mentioned above, Millar (1992) also identified a set of examples which do not fit into the earlier categories of Rhodes and Bebbington. This is the type of innovation that has resulted from *'social pressure or peer pressure'*. It is unique in the sense that it goes beyond agronomic-factor innovativeness to combine with socio-cultural, religious or spiritual factors of crop production. It also combines all three previous forms of experimentation discussed in various degrees. Evidence that serves to illustrate this, and examples from northern Ghana have been extensively described in Millar (1992).

Some of this pressure results from the fact that each farmer looks at what his neighbour does and tries to see whether the neighbour is likely to do the same thing again the coming year. When the neighbour repeats the previous year's practice, he is judged by his peers not to be innovative and thus considered a 'bad farmer'.

I found that in reality these separated forms of experimentation do not operate in isolation but in various degrees and levels of aggregation and overlap. Farmers follow interactive and iterative innovative processes that are organically linked to each other in time, space and technique. The position taken by Fairhead and others on rural people's management strategies helps me to criticize the simplistic fractionating of farmer experimentations presented by Rhoades and Bebbington. Fairhead (1992) takes the position that the various management regimes that farmers operate involve a variety of decisions on resource allocation and use; decisions that are taken in isolation and\or in combination with others. The entire organisation of the farm as an enterprise, within its socio-cultural context, involves a set of decisions, actions and actors in constant and dynamic co-evolutionary processes. Time- and location-specific resources that are limiting, have to be allocated to livestock, crops, non-farm and off-farm activities, people, nature and wildlife. Posterity has to be catered for in this allocation of scarce resources. McNeely (1989) has the supporting view that small farmers depend almost totally on the resources available from within their own ecosystem, so they are compelled to take decisions and act judiciously in the use of renewable resources. Conserving biological and cultural diversity and marshalling that diversity to the advantage of production and reproduction, is an essential managerial skill of the small farmer. Such a holistic management tendency runs counter to isolationism.

It is however satisfying if one looks back at the catalogue of indigenous knowledge harvested by the professional world in recent studies. The major limitation to all these studies is that they have isolated aspects of their knowledge as is done in formal science, and have thus failed to capture the holistic nature of RPKs, and the inter-relationships between and within activities or subject areas. In so doing, most of the studies mention spirituality in passing, or fail to identify the central role given to the dead, ancestral spirits, and spirituality in general, within nature and materiality. This view is buttressed by studies done by Mcneely (1989), Shengji (1991), and Fairhead (1992), which show that much research into

indigenous knowledge has, invariably, stopped at biological diversity, ignoring the issue of cultural diversity. Dorm-Adzobu et al. (1991), Huizer (1991), and Muchena et al. 1992 draw attention to the fact that in the few instances that cultural diversity was addressed, little attention is paid to spirituality as vital in farmers' tendencies. Anthropological studies in northern Ghana (Hart, 1975: Riehl, 1990: Goody, 1990) have also shown the relevance of people's culture, especially their spirituality (people's relationship with the spiritual world and their creator), in their attributes and attitudes towards agricultural activities.

Fortunately, a couple of recent studies of cosmovisions in the Netherlands are also addressing these concerns for spirituality on a wider scale. This research is beginning to highlight the spiritual identities of rural people, not only as anthropological studies, but in relation to development intervention strategies in agriculture. An earlier example of this type of study is illustrated below, alongside operationalizing the cosmovision concept.

4.23 The cosmovision concept

The Cosmovision concept was brought to light by PRATEC, a Peruvian NGO (PRATEC in Haverkort et al., 1991). The cosmovision notion originates from a culture which has a holistic worldview; integrating the world with the cosmos. In this perspective, the whole of nature is conceived as a living being, like an animal, with all parts interrelated and needing each other to perform. Human society is part of nature and man works with and communicates with nature; nature does not belong to man but man to nature. Thus, human society does not stand in opposition to nature (as in the Western view where man is considered the conqueror of natural forces), rather, man works and communicates with nature. This relationship is not static but dynamic and involves a continuous domestication and transformation of the environment which must not be abused or flouted. For the ancient Peruvians, providing nourishment is the primary goal and this requirement puts agriculture in the very heart of their vision of the cosmic world. This perspective is also tied up with the notion of 'earth goddess' which is traced to the origins of the Inca people (Haverkort et al., 1991).

The concept of cosmovision thus includes the assumed interrelationships between spirituality, nature and mankind. It describes the role of supernatural powers, the natural processes that take place and the relationship between man and nature, and it makes explicit the philosophical and scientific basis on which interventions in nature take place (Haverkort and Millar, 1992). It must be established here that there is not one cosmovision but as many as perceptions and beliefs of the cosmic world differ.

Though not a uniform concept, cosmovisions often indicate a hierarchy of divine beings, spiritual beings (especially the ancestors), natural forces (such as climate,

diseases, floods), soil, vegetation, animals, man and woman. These hierarchies, when they exist, give rise to several rituals in which the elders, priests and soothsayers play prominent roles and prescribe the way problem-solving and general experimentation can take place. This predisposes the way people go about knowledge and technology development. Consequently, RPK and the cosmovisions inherent in them determine how society organizes itself and how effectively it achieves its goals (Millar, 1992;29-31). Because of the holistic nature of this 'worldview' the hierarchies are often difficult to discern.

This cosmovision paradigm is a critical basis for the analysis of small farmers' learning processes in agriculture that I intend to pursue. I am making the assumption that, in my research environment, one can only do a thorough and fair reconstruction of farmers' learning processes if one recognises the importance of the cosmovision of farmers. Below is a diagrammatic representation of the inter-relationships mentioned above:

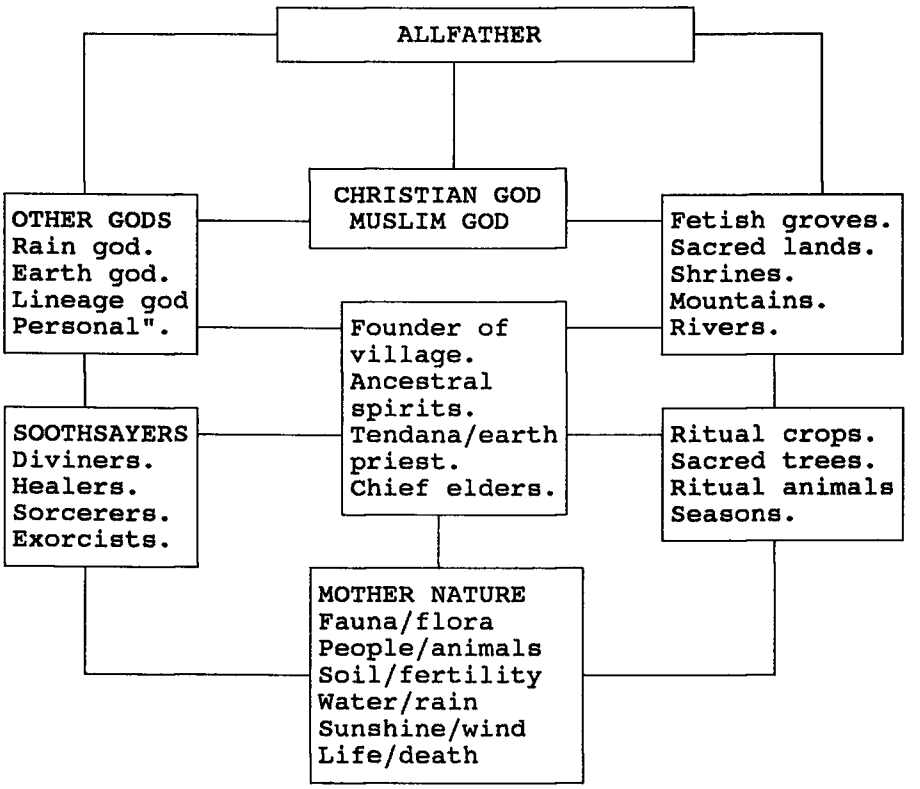

Fig. 4.1 An illustration of the cosmovision paradigm in northern Ghana (Adapted from Millar, 1992).

The box below shows earlier works that draw attention to spirituality as an essential component of rural people's way of life. Though research in this field is by no means exhausted, the cosmovision paradigm provides an added framework for studying indigenous knowledge, with emphasis on wholeness. This paradigm has been a major determinant of the course of this research.

Box 4.1

Spirituality as a vital component of the lives of the people of northern Ghana has been documented by the earlier anthropologists. Fortes (1969), Goody (1972), and Brown (1975); although they do not refer to cosmovision and do not make the inter-relations spelt out above, have underscored the importance and the need for studies in northern Ghana to take into account the people's relationship with the ancestral spirits. Kassogue et al. (1990) have thoroughly discussed the role of nature and man in relationship with the spirits among the Dogon people in Mali. A more advanced form of this discourse can be found in Firth (1967;1970) in which he describes 'the freeing of the land' which takes place before the yam planting among the Tikopia. With a few differences, the Tikopia also make a clear link between spirituality, materiality (nature), and man. Over time, the Tikopia have evolved and developed their cosmovision resulting in a '[...] *two-way communication relationship with their creator*'. (Firth, 1967;262). Recent attempts at drawing attention to agriculture and spirituality are also documented in the studies of Huizer (1995).

Another component of the research problem that has received even less attention than spirituality in Ghana is the subject of indigenous learning processes. This has been weakly addressed by studies in other parts of the third world along the lines of mental processes of cognition, formal education/schooling and all the philosophical and social-psychological discourses about knowledge; but not in terms of social constructions of learning processes. Most writers refer more to teaching or instructing (didactics), the role of the teacher - rather than looking at what is happening to the one doing the learning; for I think most of learning is a rather personal affair. Because of this default, learning is discussed in terms of conscious internalizing of information and therefore the mental processes involved in doing conscious learning have to be understood (see Lewinian model, John Dewey's model, Piaget's model in Kolb, 1993). What about unconscious or uncoordinated learning: the learning that happens inadvertently? Kolb (1993:151) states that

> '*[...] to learn is not the special province of a single specialized realm of human functioning such as cognition or perception. It involves the integrated functioning of the organism - thinking, feeling, perceiving, and behaving.*'

Relatively recent developments in the area of experiential learning have attempted to take care of unconscious learning (Weil and McGill, 1989; Wildermeersch, 1989; Squires, 1993; Hamilton, 1995). Although this is a worthwhile improvement, the problem I have with all these writings is that they often stick to experiential learning (witnessing a learning process), but not 'learning from experiencing'

(learning from doing the act yourself). Added to this is the fact that they also try to structure and formalize experiential learning, losing sight of the informal, unconscious, and chaotic learning, which is important if learning is a personal and a social construct. I introduce below preliminary discussions on learning, with the intention to pick up the details in later chapters in the discussions of my results.

4.24 Indigenous learning

In discussing more elaborately the theoretical perspectives about learning, I have used the grounded theory approach of Strauss and Corbin (1994:273),

> '[...] *a general methodology for developing theory that is grounded in data systematically gathered and analyzed'.*

The outcomes of the data I have collected and analyzed are discussed in terms of existing theories. In so doing I have confirmed, elaborated or modified theories that are currently in existence. This style of presentation is used especially for chapters 6 and 7.

In the presentations in chapters 6 and 7, I have referred to adult learning as 'horizontal learning', meaning learning among peers or age groupings. From this it should be noted that children also form a peer group and therefore 'horizontal learning' occurs there too. However, my chosen focus is on adult learning as 'horizontal learning', and I discuss child indigenous learning as 'vertical learning'. I am also tempted to refer to adult learning as andragogy and child learning as pedagogy (Knowles, 1980;1984). This would have dragged me into the 'gerogogy' of Lebel (1978), 'eldergogy' of Yao (1982) or 'humangogy' of Knudson (1979) debates about learning. Without getting into the debates, I do agree with Davenport (1993) that pedagogy and andragogy are two ends of a learning continuum and that, irrespective of persons, learning modes could be fitted into this frame. I therefore posit that my vertical learning or inter-generational learning and horizontal learning or intra-generational learning are to be seen as a continuum, with the two opposite ends labelled as child indigenous learning and adult indigenous learning respectively.

Now let us see what is happening in the Ghanaian front with respect to indigenous learning.

The local scene in indigenous learning: The academic world has done very little justice to the subject of indigenous learning, that is learning about how rural people learn (both as adults and as children) in the third world. Hence literature on this is very thin and the area has remained grey. The few instances that I have found are more on how adults learn from each other in the rural setting, those about children are more on schooling or formal education; and more from the teacher's perspective

than from the learners'. In my effort to find references to this subject, I stumbled across one instance when a child learning from an adult was alluded to in passing and the discourse shifted back to adults learning from each other. I refer to that instance below.

In starting his paper on problem census technique, Crouch (1984:4) quotes Knowles as follows,

> *'[...] to a child, experience is something which happens to him, to an adult, experience is who he is. So in any situation in which an adult's experience is being devalued, or ignored, the adult perceives this as rejecting not just his experience, but rejecting him as a person'.*

Taking inspiration from this, Crouch goes on to state that farmers adopt practices in a definite and logical order. In general terms, all farmers within an area who operate the same farm enterprise (as determined by their resource positions and operational scale), will adopt the same set of practices in the same order. He established a logical relationship between farmers' mental development and farm development. Crouch concludes that farmers' mental development and farm development go hand in hand, hence it is important to time learning and experience to coincide with the learner's developmental tasks. This partially satisfies my line of thinking but misses out on the unorganized and the holistic actions within human activities. I also do not agree with a linear correlation between mental development and farm development, with the over-generalization about farms. Hence from a constructivist perspective, Crouch's philosophy about learning breaks down when confronted with issues of life-worlds being social constructs, the actor perspective of human agency, multiple realities and adoptive rationalities, heterogeneity and diversities.

Even here, there was a rapid digression into concentrating on how adult indigenous learning takes between them, and self-learning. It is difficult to find similar efforts put into how children are developed to take over farming from their parents; learning in the rural setting (apprenticeship or tutelage). It is my view that learning in the rural setting has still to be understood. The purview of this study is to supplement this deficiency, within the socio-cultural context of farming in northern Ghana.

There are warnings as to choices to make in the reconstruction suggested above. One such warning is the statement by Martin and Martin (1979:53) thus;

> *'It is known that despite his exuberance the African hardly reveals his inner thoughts. He often allows uncertainty to cloud the essence of his thought or, even worse, he is content to leave his interlocutor in error when the latter has not succeeded in penetrating the workings of meaning of an act or institution. As a general rule, an African rarely anticipates the curiosity or the research purpose of an investigator and why he is suggesting clarifications concerning problems he would like to resolve. The African prefers above all to be*

examined on his own cultural values and, when he agrees to answer, he surrenders only that which strictly pertains to the question posed. In so doing he observes time honoured pedagogical principles and perhaps, the rules dictated by the conservation of knowledge. These spare the master by saving his energies and thus encourage the pupil's research by stimulating his desire for knowledge'.

The writers went on to say that this attitude expresses itself more in the religious domain because of secrecy than in other socio-cultural domains. I disagree with their view from the constructivist point of view of this study. As in Leeuwis (1993:2), positivists are of the belief that objective statements can be made about the world by means of 'scientific procedures'. Constructivists are of the stance that our understanding of the world is necessarily socially constructed. Leeuwis also makes reference to objectivists or realists who assume that the world is composed of facts and knowledge is aimed at accounting for what the world is like. They assume a world independent from observations.

To draw out a few limitations from the earlier description; Martin and Martin postulate a 'general rule' for Africans, missing out on diversities and the openness of the system in responding to exogenous factors. The rationalities of rural people, described by Nitsch (1991) as '*adaptive rationalities*', is glossed over by the perspective taken by Martin and Martin. I would like to discuss the issue of 'adaptive rationalities' by referring to an article written by Rev. Fr. Boi-Nai (1994) who works in the same area as the primary focus of this study. His article was a reaction to his European Students who complained that there was no privacy in the villages when they lived there. He argues that the real reason was the meaning of 'privacy' as perceived by the two discourses. Going to toilet in the bush, eating or being at home were seen by the student as private activities but not by the citizens. Kissing, hugging, sacrifices, rituals and some festivals were considered by the people as private but not by the students. He concludes by saying that privacy was culturally determined. This revelation questions the position of Martin and Martin. Let us get a feel about what people themselves think about their world. I illustrate this with an anecdote about learning (this, for me is so informative that it has captured a place as the title of this publication).

'Footprints in the mud' is a rather succinct description of how the community studied says learning is organised:

Farmer Awumbila Akente says, 'Every good master leaves his footprints in the mud and every good pupil follows those footprints. The size, direction, and nature of the footprints differ from master to master, and the interpretation of these footprints also differs from pupil to pupil'.

Teaching for him is more like leaving behind 'landmarks', and learning involves

interpreting and internalising those 'landmarks' to form the basis for actions. This creates room for heterogeneity and diversities in teaching and learning. It also allows for differences in orientations towards what is thought and that which is learnt, which differs from Martin and Martin's general description of the African. From a similar perspective, Rev. Kirby (1994), working in the north of Ghana, advocates '*action learning*' which is a combination of classroom situations with supervised fieldwork. Kirby enumerates the positive features of this type of learning to include allowing for the principles of enculturation taught in the classroom, to find expression in originality and creative ministerial response. It also allows for the deepest levels of worldviews; of symbols, myths and spirituality to interact and come out with ultimate realities.

Kirby chooses this position based on his wide anthropological knowledge of rural communities in northern Ghana, but his article lacks attention to the learning processes pursued by rural people, to support his choice for 'action learning'. I intend to contribute towards this by looking at the subject of learning. Although I treat the subject generally, my reference is more about male learning. The research sample has been largely male and resources did not permit a gender treatment of the subject. However, I must say that I do not expect very major differences between men and women when it comes to the general principles of learning.

Both studies done on rural communities in northern Ghana mentioned above underscore the issue of diversities and the social constructions emerging thereof. There are two dimensions to the diversity issue: - The first is a complete swing of the pendulum from homogeneity of research and natural sciences to 'individualising' human actions and reactions. - The second is to steer a mid-way course combining the elements of diversities and heterogeneity with the commonness of purpose based on the community's self-constructed identity or commonness. In discussing this issue further, I make the choice for the latter dimension of diversity, which finds expression in the holistic nature of the worldview of rural communities in northern Ghana.

With the task of the study clearly defined, theoretical perspectives are necessary to guide the investigation and management of data. It is in the light of this that '*the actor oriented approach and the systems perspective*' appear to be appropriate. In my opinion, the actor oriented approach has its strengths as an analytical concept and is weaker as an approach to guide the generation of interventions. The systems approach supplements this with its strength more as a tool for managing information, and less so as my choice for the analyses of rural communities. The flexible and unrestricted use of these perspectives, in my view, is a useful way to proceed.

4.30 The actor-oriented approach

My intention here is not to 're -discover the wheel' in terms of the current debates on this subject but to translate relevant portions of the actor-oriented approach for this study.

Long (1989:8) conceptualizes peasants, like all social persons, as social actors who are '*knowledgeable*' and '*capable*' who,

> '[...] *attempt to solve problems, learn how to intervene in the flow of social events around them, monitor actions continuously, observing how others react to their behaviour and taking note of various contingent circumstances*'.

The role of the state and policy as a power base and the power relations between the state and social actors is illustrated in Long (1984;1989). Long further showed how the state attempts to manage development and how farmers strategize within this arena of limited opportunities; creating space to realise their own agendas. He further argues that the state consists of social actors who also strategize within the policy frameworks in which they find themselves and the relationships they have with other actors. Hence note is taken of the fact that 'the state' is also made up of actors who are heterogenous, with different and sometimes conflicting interests and agendas.

Long (1984:3) recommends taking full account of 'human agency', which means

> '[...] *recognizing that individuals, whether they be peasants, landlords or bureaucrats, attempt to come to grips with the changing world around them and that they do this both cognitively, on the basis of existing cultural categories and ideologies, and organizationally in the way they interact with other individuals and groups*'.

This paradigm formed the genesis of actor-oriented analysis of social processes. The aspect of 'human agency' draws attention to the that actors are social beings who construct their own world, making use of faculties that go beyond cognition.

Some basic concepts that, for the purpose of this study, form essentials of the paradigm are networks, interfaces and linkage mechanisms. Engel (1991:3) defines a knowledge network as

> '[...] *a number of individuals that share knowledge and exchange information concerning a specific field of interest or knowledge domain and these networks may exist within organisations or across organisations and institutions*'.

He makes a distinction between formal knowledge networks and informal knowledge networks. The former is the institutionalised network made up of researchers, extensionists and policy makers. Farmers are part of this network for as much as they are interacting with other key actors. This forms the basis for continuities in knowledge networks. Villarreal (1994) takes this discussion further

by identifying networks as loose power relationships that are constantly being formed and transformed by actors. They are social constructs that are viable as long as the power positions persist.

However, I have found the discontinuities of such linkage relationships to be more revealing and informative than the continuities. From this position therefore, the view of Engel (1991) that emphasised formal/institutionalised networks and linkages, gives way to focuses on informal networks and linkage structures constructed by farmers themselves (Box, 1986;1989).

In an earlier study (Millar, 1992), I tried to indicate that in the case of northern Ghana it is very difficult to separate knowledge networks of small farmers from their social networks. In that study, I described a 'direct environment' and an 'indirect environment' as a result of social relationships influencing knowledge networks. Villarreal (1990) alludes to a similar phenomenon in her discussion of 'life worlds' of actors. She asserts that the life world of an actor extends to that of his kin, his friends, neighbours, and peers. This is linked to the issue of power, of multi-strand networks and orientations for whatever linkage relationships they enter into. Actors cannot afford to be isolated in their social actions as a result of their quest for knowledge and innovations. In the case of northern Ghana, informal networks would appear to be more important than formal (institutionalised) networks because the formal institutions do not deliver reliable services. Networks are not static but dynamic/ fluid relationships, that keep changing in composition; determined by what choice or choices of action or in-action are made by actors.

Long (1984:19) defines a social interface as

'[...] *a critical point of intersection or linkage between different social systems, fields or levels of social order where structural discontinuities, based on differences of normative value and social interest, are most likely found*'.

The issue of boundaries and interfaces being areas of encounter of actors and 'windows' to components of the Agricultural Knowledge and Information System is elaborated by Long (1990). Millar (1992:54) however, argues that the view taken by Long that interfaces are 'windows' is apt if the addition is made that they are without 'shutters'. Normally intervention introduces 'shutters or blinkers' as a result of its inherent biases and subjectiveness. Most researchers and extensionists walk into communities with 'shutters on' and try to actualise the interface in the researchers' own way. By doing this, the interface becomes a different type of window - 'with shutters on'. This type of 'controlled vision or controlled interaction', to a large extent, explains why farmers' cosmovisions, (Haverkort and Millar, 1992), are ignored by interventionists. The consequence is that intervention imposes arbitrary boundaries on actors, components or systems and makes dynamic situations static. Villarreal (1990:22) argues that boundaries should be delimited by the people themselves, in their own language and from their own perspectives. Boundaries are themselves objects of study when they are identified by actors.

While not differing from this view, I further state that an indigenous knowledge network has its own internal dynamics and characteristics. These characteristics give rise to certain attributes that are particular to that linkage relationship, thus differentiating networks from each other (Millar, 1992). These networks also process external modules, transforming and integrating within them relevant portions as they deem fit. Interfaces are therefore points of intersection of different 'realities'. It is from this basis that this study is conducted - a combination of farmers' attributes and, as an actor, the researcher's own.

Linkage mechanisms are seen as operational devices that actualise the interfaces. Long and Van der Ploeg (1988;1989) further elaborated this by making reference to the issue of multiple realities. Multiple realities relates very closely to van der Ploeg's (1990) discourse on heterogeneity as a major concept to understand what farmers do and how they operate their enterprises. He argues that different resource combinations give rise to different 'farming styles'. Similar views about heterogeneity are expressed by Engel (1991) in his discussion on multiplicity and diversity within an agricultural knowledge system.

Linkage mechanisms allow parts of the system to become an integrated whole. According to Röling (1988:25),

> '[...] *these arrangements could involve concrete procedures, regular events, any device, channel or other arrangement that could bridge the gap between components of the system. It allows communication between and amongst actors and should serve the function of knowledge transformation rather than just information transfer. Functional linkages are seen as activities which aim at forming a bridge between research and technology transfer with the system performance as an objective*'.

The different sub-systems involved in the linkages might be coordinated in different manners as a result of different linkage mechanisms, depending on the situation in question. Each relationship represents a design of linkage mechanism and a differential power positions (Röling, 1992; Röling and Engel, 1990a).

To conclude, I want to re-state the fact that I am a practitioner and one who chooses for a certain type of intervention in the rural development arena. I find these concepts associated with the actor approach to be handy analytical tools. However, I find it extremely difficult to arrive at concerted action relying on the actor approach only. I will show in later chapters that the desire for some form of action at the community level compels a merger of the ideals of the actor perspective for analytical purposes and a systems approach for a designed action. There are many very rich analyses from the actor-oriented approach that have exposed the weaknesses of development intervention, but with very few action proposals suggested to improve intervention strategies (Long, 1984;1989: Leeuwis,1993: Villarreal, 1990;1994: Mongbo, 1995). I am of the view that a merger between a systems perspective and an actor-oriented approach should draw

on, and be guided by, knowledge that has been developed by rural people themselves. What are the attributes of rural people's system from the systems perspective?

4.40 Agricultural Knowledge and Information Systems (AKIS)

The Agricultural Knowledge and Information System (AKIS) is defined by Röling and Seegers (1991:5) as

> '[...] *the articulated set of actors, networks and/or organisations, which potentially work synergically to support knowledge processes in agriculture, so as to improve the goodness-of-fit between knowledge and environment, and/or the control provided through technology use*'.

This view takes into account both hard systems and soft systems perspectives. The perspectives are conceptualisations of organizations, organizational change and decision making as influenced by philosophical, biological or sociological insights of the proponents. Checkland et al. (1990) stated that hard systems are goal-seeking systems. Organizationally, they can be and are engineered and optimized towards previously determined goals in a rational manner. In the same breath, he criticises this school of thought and advocates 'a soft systems approach' for 'human activity systems'. Checkland went further to explain that 'human activity systems' are complex wholes in their organization but in which people have different world views. These worldviews support different interpretations of problems. Following earlier arguments that I have advanced, and based on my study, I do not entirely subscribe to that view. I maintain that despite the differences in interpretations of worldviews, there are points of commonalities and congregation where commonness occurs. I will show that it is this commonness and self-identity of rural people that allows 'wholeness' to be identified.

Röling and Engel (1991:9) have referred to various aspects of knowledge as follows:

> '[...] *a property of the mind. It cannot be heard, seen or touched. People use knowledge to operate in the real world. Knowledge utilization is man's mechanism for survival and might be his downfall if he proves greedier than is sustainable.*

In another publication Engel (1991) describes knowledge transformation as the process by which individuals or groups continuously change and adapt their knowledge in response to changing intentions, opportunities and circumstances. Havelock (1986) analyzed knowledge generation, exchange and utilisation process as envisaged within a knowledge and information system. He talks about vital components of generation, verification, transformation, transfer, reception, and

utilisation. Analyzing knowledge in such static manner does not lend itself to understanding the dynamics of knowing. This view therefore challenges me to pay attention to the dynamic interchanges and the various social attributes and constructions of knowledge, rather than sticking to strait-jackets.

This study adopts the definition of cognitive knowledge system by Röling (1989b:3) that,

> '[..] *an agricultural knowledge system is a system of beliefs, cognitions, models, theories, concepts, and other products of the mind in which the (vicarious) experience of a person or group with respect to agricultural production is accumulated*'.

Both the cognitive and the institutional knowledge-systems thinking emphasize the system state and the relationships between the constituent parts required for system performance, (Röling and Engel, 1990a). In the definition of agricultural knowledge and information system, Engel (1991), stated that the components of an agricultural knowledge system could be institutions, organisations, networks and/or persons and their linkages and interactions. These components form part of the discussions of my results.

The views expressed by the systems thinking above, though relevant, have been complemented by recent developments in that subject area which I mention below. The new developments cannot do without the old. As stated by Jiggins and Röling (1994:1),

> '[...] *it would be foolish to throw away all the achievements of the past in search for the new and push the new idea at the expense of the old*'.

Recent developments in systems thinking: I am of the view that a combination of reflections about the actor perspective and the systems approach have resulted in paradigm shifts, especially within those of the systems school of thought. Among the shifts that I find very informative are the general acceptance of the concept of social actors who are involved in a process of struggle. Hence negotiation, accommodation, and consensus building have been identified as farmers' way of managing (Jiggins and Röling, 1994). Such a view reflects the differential power relations that exist in life, and so disagreements do not mean negations but opportunities for negotiations. This paradigm shift has also resulted in systems being viewed as

> '[...] *social constructs with arbitrarily defined boundaries of discourse about complex phenomena to emphasis wholeness, inter-relationships, and emergent properties*' (Röling, 1994:390).

Sustainability has been re-defined to emphasise not adoption of an innovation but a learning that would result in changes to more sustainable practices. Röling and the other writers mentioned here have also described a different role for the donor and

the change agent. They recommend that these stakeholders' focus should centre around providing for and facilitating learning through dialogue and effective communication (Röling and Fliert, 1994). After all, farmers have the tendency to trust and learn from colleague farmers rather than from change agents. It is intriguing that the 'goal of synergy is more now on facilitation of dialogues by getting stakeholders to get their acts together and form platforms for negotiations', than just getting the best fit of innovations. The encouraging part of all this is the fact that learning and dialogue is beginning to gain its rightful attention in intervention. Simultaneously therefore, my research objective coincides with these positions and would thus contribute towards developing the debates and various aspects of the shifts, and also help deal with power implications in development intervention. I shall revisit these developments in detail when discussing the results of my research.

Furthermore, my choice of a blend of the two conceptual perspectives for my study is vindicated by Leeuwis (1993:90) who criticises the actor-oriented approach by stating that,

> '*Given its rather limited systematic attention to practical issues, it also provides a challenge to translate the actor approach into a workable 'tool' or method that can be used to improve intervention in general* [...]'.

I am thus guided by a combination of this view and recent developments in systems thinking. In doing this balancing act, diversities have attracted my attention. There is the tendency with studies of this nature to relapse into over-generalization or stereotyping. I am of the view that generalities and commonalities exist, but diversities offer the best prospect for understandings. I would therefore discuss here my operational definition of diversity.

4.50 The polemics of diversity

The discourses surrounding the complex, diverse, and risk-prone (CDR) areas make one hesitant in trying to systematize, stratify or classify rural people's knowledge; whether as a product or as a process. Arguments advanced by scholars who advocate diversities (see Giddens, 1976; Leeuwis, 1993) appear to reduce human actions to units, ignoring collectivities and conglomerates of such actions. They have the tendency to argue that human activity systems are as diverse as there are individual actors. While going along with that debate for a distance, I however wish to argue that based on one or several factors driving or propelling systems (Engel, 1990), one is able to find commonalities inherent in diversities. This is more true when the factor is seen by the actors as an identity of themselves. It is when this self-identification aspect is de-emphasised, as is done by positivist, objectivist or realist approaches, that there is cause to take exception. Most often this is done by

positivists in order that they may make broad scientific recommendations as most interventionists do.

To come close to the community under investigation, there is the need for me to underscore the relevance of diversities, differences in life-worlds and heterogeneity of social constructions of reality. There are two dimensions to the diversity issue illustrated above:

- The first is a complete swing of the pendulum from homogeneity of research and natural sciences to near 'individualization' of human actions.
- The second is to steer a mid-way course, combining the elements of differences and heterogeneity with the commonness of purpose; based on the society's self-constructed identity or commonness.

As a professional guide for this research, I make the choice for the latter dimension of diversity - steering the middle course. This choice draws my views about diversity closer to the concept of **heterogeneity**. Van der Ploeg (1990a:7) discusses the concept of heterogeneity by analyzing homogeneity. He criticises structuralists who view agriculture in terms of

'[...] *economic, institutional, and ecological homogeneity*'

with examples form the heterogeneity he identified within the Dutch agriculture which was hitherto perceived as homogenous. He identified styles of farming that are farmers' own classification of their heterogeneity. This will be my guide to discussing diversities in indigenous learning among rural communities in northern Ghana.

My choice of stand on diversity might partly be explained by the fact that I was first trained as a natural scientist before I got into the field of social science. Being a practitioner, I have come to realise the relevance of both worlds. It is easy to argue that the polemics are themselves constructions of actors in some type of negotiation and power-struggle process; for me this is what most discourses are about. This said, my desire is to come back to the issue of diversity as viewed in recent times.

4.51 The 'new era' of diversity

Having woken up to the concerns for diversities, some recent studies in the industrialized countries are beginning to highlight the fact that the so-called homogeneity in advanced agriculture is, after all, not that homogenous. Van der Ploeg (1990) extensively illustrates the issues of differentiation in his article on heterogeneity and farming styles of Dutch farmers. He identified six 'styles of farming' in the hitherto homogenous category of dutch dairy farmers. In doing this Van der Ploeg underscores the inseparable relationship between technical and social factors in orienting farmers. Engel (1991) refers to it in discussing the issue of

multiplicity of actors, diversity in sources and types of information, and the need for integration. Nitsch (1991) posits the same issues from the point of view of 'adaptive rationalities' of farmers. On the basis of this, he takes issue with the rationale behind computers as models of human behaviour and possible substitutes for human action. A more in-depth professional debate has recently been documented in the PhD thesis of Cees Leeuwis (1993). He de-mystified the role of computers by looking at issues from a point of view similar to that of Van der Ploeg, with the added argument that knowledge or information is a social construct. He treats the separation between technical and social strategies as purely academic. From an actor perspective, Leeuwis introduces the element of power, politics, negotiations, and enrolment in generating diversities. The likes of such detailed work are currently being done in the developed countries with respect to heterogeneity amongst large scale farmers, and the role of computers is being critically reviewed.

Researchers in the developing countries were confronted by the heterogeneity of small farmers much earlier than their counterparts in the developed countries. Collinson (1965;1987), Chambers (1983) and Richards (1986;1988) have made diversities in small farmer agriculture in the Third World their focus. In Ghana, the developments in this field are very recent (Annor-Frempong, 1988: Amanor, 1990: Millar, 1990;1992).

The major critique I make about the efforts of researchers in Ghana dealing with the subject of diversity among farmers is that the researchers 'label' the attributes of heterogeneity based on technical factors alone; never on the interaction of technical and social factors as in the case of the Dutch dairy farmers in Van der Ploeg (1990). Whether in the First or in the Third World, almost invariably, products, tools, scale of enterprise or rate of adoption often form the factor for differentiation; rarely processes or some socio-cultural phenomenon.

I would endeavour to show in the later chapters of this research that learning processes, as influenced by social constructs or people's worldviews (spiritual being a vital component), are reliable attributes of diversities and also form the basis of collectivities or the people's self-imposed system.

4.60 Conclusion

The chapter has tried to define, describe, operationalize, and develop critiques on the concepts and theories related to the study.

It starts with a theoretical purview about indigenous knowledge and the achievements of the small farmer as captured by literature on this subject. In doing this I highlighted the limitations thus far: too little concern for spirituality (cosmovisions) and indigenous learning processes.

As a guide to managing the research, two main analytical paradigms: the systems

perspectives (as in Agricultural Knowledge and Information systems), and the actor-oriented approach, were discussed and my views reflected. The discourses relating to these paradigms and the power struggles within them were also analyzed.

The discussions on these discourses and power struggles culminated in discussing diversities, by identifying the ramifications and polemics of diversity. This done, I then chart for myself a course to follow in conducting the research.

5 Methodological Reflections

5.10 Introduction

Although the actual PhD research period extends from 1992 to 1996, the observations and findings analyzed here could not be restricted to this period only. I drew experiences from my over fifteen years of work in development intervention with rural communities in northern Ghana. This research period is even a conservative estimate if the fact is considered that I am a son of northern Ghana; that is, I was born and grew up in the Upper West Region, I had my secondary education and early working life in the Upper East Region (where I also got married), and I now live and work in the Northern Region. I have worked both with the Government and the Non Governmental sectors and I cannot pretend that all these experiences are not part of this write-up.

It is therefore clear that the journey started a long way away; even from childhood. However, I would want to limit the critical period to the time immediately preceding 1992 (1990 - 1992) which was the time I was doing my MSc research work. Some of the experiences of this period that made relevant contributions specific to this research are re-visited here as the 'before era'.

I start the presentations here by reflecting on some experiences during my MSc research, which I refer to as the 'before era'. I proceed to describe some unanticipated influences that were relevant in re-orienting my methodologies. The ensuing description of a combination of exploratory and main survey ushers in the core PhD research. This then leads to discussions about the in-depth survey phase. The chapter concludes with techniques used to manage the data collected during the research.

The 'before era': In Millar (1992:30) the following learning experiences in relation to methodologies were listed, and these serve as points of entry for this research. During that research, it was informative to learn that the small farmers' world was heterogenous because this view gave the research a multi-dimensional starting point and influenced the general approach. However, noticing this fact did not provide the tools

to confront the issues. For example, the choice of the 'snowball technique' (Bernard, 1988) resulted in the interview of only close family relations or friends, unless the cycle was arbitrarily broken by me. It also limited the contact to male farmers because every male farmer contacted referred you to another male until the sequence was again arbitrarily broken and women farmers were purposefully sampled. The farmers interpreted 'experimenting and non-experimenting farmers' (my categorisation), to mean resource-rich and resource-poor farmers because for them there was no farmer who at one point or the other was not experimenting. At the end of the study, it was impossible to find a completely 'non-experimenting farmer'.

Separating the study into distinct phases of exploratory, main, in-depth surveys, and case study analysis was found to be rather academic. It was more practical to carry out exploratory and main surveys together and combine the in-depth survey and the case study analyses. This took less of the farmers' total time, and reduced repetition and duplication. It was important to allow farmers to decide whichever answers or information they wished to share. For example, during the exploratory survey, some farmers introduced important cases that they wanted analyzed in detail. Such opportunities, if postponed, might never occur again. Also some farmers wanted a question and answer process, while others preferred to tell a story which normally throws the structure of discussion out of place.

Formulation of detailed methodologies and guidelines for questions were found to be counter-productive because it was difficult for the researcher to put aside such hard work, even when they proved too formal and rigid (which they did most of the time). But preliminary analysis in the field at the end of the study proved extremely rewarding for it allowed the opportunity to pick up more information to re-design the research.

I found it extremely difficult to interview farmers alone and next to impossible to do so with farmers' wives. Even when the farmer was met alone, he insisted on others being around before the interviewing could start. This confirms the observation made by Crouch (1984) that in every face-to-face discussion with the farmer there are always 'faceless farmers' who are part of the responses and do influence answers. Group presence is usually very high initially but decreased with subsequent visits. The case studies and participant observations on farmers' fields are useful in obtaining individual responses. On the other hand, the presence of other farmers enabled group interaction and the formulation of group opinion on some of the questions.

I carried these experiences with me for this assignment. Below is a diagrammatic illustration of the path that the PhD research followed. The main-stream conventional methods are depicted by the double lines in the middle and the 'unconventional methods' feed into the structure as single lines. It may be noticed that there is some overlap between data collection and analyses. There was often the opportunity for the simultaneous collection and analysis of information that cannot be separated.

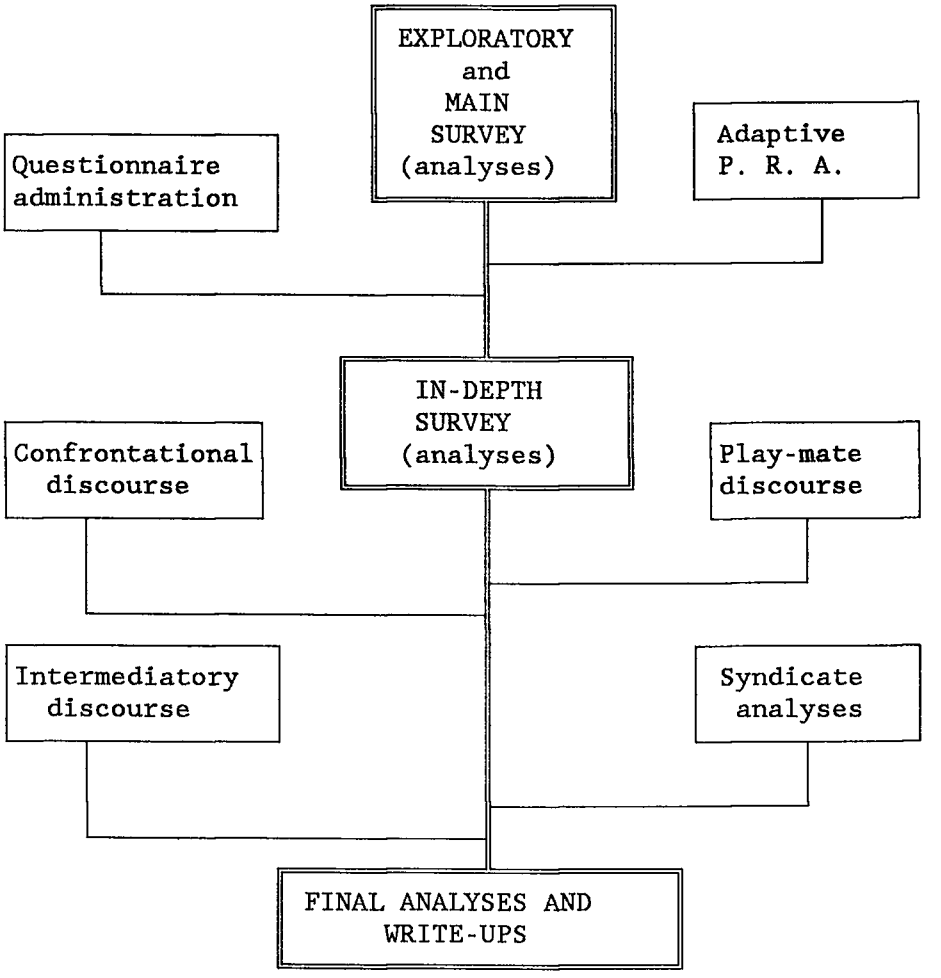

Fig. 5.1 The research path

I also wish to state here that the general methods I used for data collection and analysis are discussed in this chapter. Some of the data-gathering techniques, which are rather specific in their generation of information, have been discussed in their specific chapters as additional to those already discussed here. I have chosen to decentralize this chapter because some of the methods are also part of the results or flow directly into my observations and conclusions.

5.20 Unanticipated influences

Being part of the research environment: In fairness to the entire research process, and looking at things in retrospect, there is a need at the beginning of this chapter, to discuss some socio-cultural undertones that have overtly or covertly contributed to the findings. It is particularly relevant for those of socio-cultural backgrounds different from mine. It may on the other hand enable those who are familiar with this setting to appreciate the various experiences I have gone through during my research journey.

In Ghana, coming from a particular ethnic group is very important for several reasons. In most cases, one cannot enter a community and obtain maximum cooperation without an identification of which ethnic group you originate from. This form of identification, with its strengths and weaknesses, cannot be held back for long since one way or the other, you are made to identify yourself in any discussion that you would have with farmers (especially when you look like them and yet ask very naive questions).

If you are already known in the community, it is the naivety of your questioning that gives you away. This situation is further complicated by the fact that you are a "bru-ka-che karachi" (a corrupted form of 'agricultural karachi' - a professionally trained agriculturist), who in the eyes of the rural people is supposed to know everything about agriculture. This position is demonstrated by either getting some of your questions thrown back to you for your responses or, in the extreme form, there is swapping of roles between interviewer and interviewee.

There is yet another socio-cultural factor referred to here as the 'joking relationship'. We have some ethnic groups that by historical relationship can and do 'joke' with each other. For some groups, the practical jokes could assume very extreme forms that otherwise would have resulted in serious fights and yet this never happens. This also means that when a member of one ethnic group is serious, the other could take it to be a practical joke.

Why all this socio-cultural narration? Inadvertently, I found myself a victim of all these ramifications and more. The choice of the study area was one of my programme sites where I have been working for the past seven years amongst the Gonjas (the indigenous ethnic group). Through a Government re-settlement programme, the Frafra, who are 'joking partners' to the Dagaabas, have immigrated into Damongo. The third immigrated tribe in the study area are the Dagaabas, to which ethnic group I belong. As and when relevant, I shall draw on this background to explain some methodological issues that I encountered in the study.

Negotiation and accommodation: Two major shifts occurred very early in the research. The first was in the change in research topic and hence focus, and the second

was in the anticipated stratifications that were intended to give the opportunity for studying diversities. When doing the exploratory study on the initially proposed research topic: *'Reconstructing small farmer's knowledge in natural resource management within changing environmental concerns: enhancing diversities'*, it was apparent that this would result in me documenting knowledge or technologies as packages that have been generated by rural people. My desire was rather to look at the dynamics of learning processes - how learning is conducted around the technologies generated or their generation processes - so I had to make modifications to my research agenda. During my MSc thesis, I had already done the documentation of indigenous knowledge and how small farmers experimented and their four types of experimentations: curiosity, problem-solving, adaptive, and social/peer pressure experimentation (Millar, 1992). I therefore did not see it professionally challenging to do more of the same.

The other change in the focus of study was influenced by the farmers. My choice to make soil- and water-management my entry point was re-defined. The community saw soil and water in terms of land and their general landuse systems (see transect and farmland mapping in the appendix). Landuse was what they could identify, and within that situate agriculture. For them, agriculture meant anything from productive and reproductive activities in crops, animals and soils, water and rain, credit, markets; to activities such as health, education and constructions (see appendix for the tabulation of these responses), all these woven into their spirituality. Hence I had to compromise with my soil and water, and deal with their operational definition of agriculture.

My unit of analysis was intended to be the farm family. Again this was a very limited view which was expanded by the farmers to include concentric circles of relationships and social networks. The villages I chose were described to me more as 'locational human activity systems', with intra-linkages and linkages to various other human activity systems. Within these systems they conspicuously featured their cosmovisions (see diagrammatic illustration in appendix).

Stratifications: As indicated in background information about Damongo (see chapter 2), I made a choice for Damongo because of the three different ethnic groups that co-existed there; and so the co-existence and interactions of the three different ethnic groups, following my pre-determined structural interfaces, would be interesting points for discourse analyses. I identified these interfaces as:

- Dagaaba - Gonja interface.
- Dagaaba - Frafra interface.
- Frafra - Gonja interface.
- Frafra - Gonja - Dagaaba interface.
- Each pairing above interfacing with GO and NGO.

- Individual ethnic groups interfacing with GO and NGO.
- The interactions of GO and NGO separately.

During the exploratory work, it was realised that diversities could not be maximised by looking only at the structural interfaces I had chosen above. My structures were prescriptive and restrictive to the realities on the ground. Though they still formed part of the stratification, discontinuities within the community were described more in terms of religious and generational differences. Hence I had to extend the categorisation of my samples to include those with christian (catholic), moslem, and traditional religious backgrounds, and also to look at three age groupings of below twenty years, below thirty years and above thirty years; and the interactions of these. The new categorisations were added to my major forms of stratification. There were isolated cases where formal schooling, migrant workers, contacts with Projects coming from outside, and even gender differences (although gender did not form part of the research plan), where relevant, were referred to as illustrating diversities in learning processes.

These experiences have shown me that research methodologies are mere frameworks within which negotiations take place, and accommodations and consensus are constructed. The methodologies themselves thus become subjects of research in any social research processes. I therefore intend to discuss the research methodology in a comparative way.

5.30 **Research area and the actors**

The first choice of the research area was guided by the fact that the sandwich PhD research programme run by Wageningen Agricultural University requires that the students combine the field research phase with their official jobs back home. Since there was no budget foreseen for this, resources could be advantageously combined and the product of the research could be translated into practical work to the benefit of the job. Having done my MSc on the same region, the arrangement was all too appealing to expand my professional base by building upon my earlier work.

Why Damongo? Damongo provides a confluence of three different ethnic groups co-existing and interacting. Since it was my desire to do an interface analysis and also look at diversities in learning processes, it provided an ideal environment. Although my research focus is one location, the actual research journey led me to four different locations; the Frafras in their original home near Bolgatanga in the Upper East Region, Dagaabas from the Nandom area in the Upper West Region, Gonja villages outside the influence of Damongo and then Damongo itself. This was to enable me retrace, cross-check, and reconcile the various reconstructed realities with their places of origin. In

addition to these areas, I visited GO and NGO institutions of research, training, and extension that have direct or indirect working relationships with farmers in Damongo.

Combining the research with my official job as a Coordinator of a regional programme gave me wider opportunities for coverage. I took advantage of my presence in other parts of northern Ghana to cross-compare my findings; which meant that although my direct research area was Damongo, my in-direct research area covered the three regions that constitute northern Ghana. Extensive research work was also possible because of the flexibility in the PhD research programme that enabled me to extend the field research phase from two to three years (1993-1995).

Analyzing the roles of the various actors in the research gave rise to the notion of 'orderly systematization verses constructive chaos'. This was first encountered with the choices of translators and survey farmers. Quite early in the research, it was clear that the orderly assignment of roles as researcher, translators, and farmers was not going to work and regular swapping of roles would occur. My western education and classroom information on research suggested a systematized order and positions for various categories of actors. I was made to compromise this view because the practical realities in the field confronted me with an unexpected chaotic situation which, in the end, turned out to be very constructive. The survey sample suffered the same fate. I had to deal regularly with Crouch's (1982) view of face-to face discussions with farmers that always have several 'faceless farmers' influencing responses.

I could not find a translator who could speak all three languages very well so I made a choice of a translator who could speak Gonja, since this was the language I knew least well. I shared the Frafra translation with him because I understood more of it than I could speak, and I took care of all of the Dagaari translations. This also meant that the role of recorder had also to be swapped to meet the re-arrangements.

As an extension worker and thus known to the some of the farmers, I occasionally had to swap with them their role of respondent. I was made to spend a considerable period of time responding to the farmers' questions and getting involved in lengthy discussions. It exposed me to the idea of enrolment and being enrolled by others. I started off with the plan to put the actors (farmers) central in my research, but in a couple of instances, I found myself central in their researches. My sample size, questioning methods, and survey time had to undergo similar disruptions. Though very frustrating, this type of 'relaxed professionalism' provided an ideal milieu for both the researcher and the farmers to enter into a profound, pragmatic, and natural working relationship that enabled us share secrets (including sharing a beer). It built between us a rapport of acceptance and acceptability and encouraged trade-offs that erode resistances to the 'outsider' by the community. The alternation of roles reflected the realities of working with rural communities. I had to go through tutelage that was based on mutual trust and confidence for each other. Quite regularly we laughed and made

jokes about the 'stupidity of the knowledgeable' - which was the impression I gave them when I could not intelligently respond to some of their questions. Sometimes it was humiliating but it provided the opportunity for the fact that 'learning about learning requires a lot of learning'. On the whole, the research saw a lot of planning and spontaneous re-planning, on the spot adjustments, flexibility, and compromises.

Although an effort was made to follow systematic process in terms of phases (i.e. exploratory, main and in-depth surveys), the unorthodox techniques involved in data gathering in each phase could not be restricted as a result of the exigencies of the situation. I now will, in the following, try to disentangle my data gathering according to the phases I tried to follow. This is intended to enable me give detailed descriptions of the type of data collected and the techniques used.

5.40 The exploratory and main surveys

Exploratory and main surveys were the actual start of the PhD field research period. This phase coincided with my job to go round the districts in the Northern Region, with a formal questionnaire, and gather information about what farmers see as their main agricultural activities. The techniques used for this exercise included the use of direct interviewing, involving the administration of structured and semi-structured questions (Yin, 1984). The formal questionnaires were administered by field staff resident in those areas. A gender profile analysis and needs assessment based on what the communities saw as their agricultural activities, formed part of the results collected in the regional exercise. The questionnaire for the gender analysis was developed based on the Havard Analytical Framework (1985), adapted to enable a more extensive use of the data. The questionnaire was administered in eight of the twelve districts in the Northern Region (see appendix).

A total sample of 480 individuals, comprising 290 men and 190 women were reached. Of these 60 men and 40 women were from Damongo - the research area.

The results so obtained not only satisfied my job requirements but also provided feed-back on what rural people saw as their agricultural activities region-wide. Since my entry point to indigenous learning was from agriculture, the information provided a broad basis for addressing this subject; particularly the gender analysis on the access and control of production resources was helpful in my later discussions about the social constructions of power, with reference to learning. Such broad based data provided some legitimacy for some of the positions I take in my analyses.

This period was also used to introduce the research. I used the period to go through all the traditional protocols required for acceptance and cooperation. Most of the issues about negotiations and accommodations, stratifications, and re-definition of research

scope were tackled at this time. Having lived and worked in the research area, I was quite familiar with some of the vocabulary, perceptions and worldviews of the people. With my focus on learning now, I used this period to refresh some of these experiences.

Going back to be resettled into the family of professional agriculturalists in Ghana, my colleagues both in the Ministry and in sister NGOs were keen to find out how my studies went and what my plans were for the future. I informed them about my research intentions and we, very early in this phase, started discussing their activities in Damongo that were relevant for my studies. Some time within this period was spent in digesting all my exploratory findings and also organising and re-organising my research strategies.

The conduct of research after this I am tempted to call the main survey. Re-categorising my sample to take cognisance of the discontinuities resulting from religious and generational differences, I decided to use a questionnaire once more to collect basic data that would show how my sample was distributed in terms of these new parameters. I needed to differentiate my sample along religious inclinations, and among the three generations based on age. Later, the sample was further differentiated by social practices, such as traditional ceremonies that distinguish the various generations (see den Ouden, 1989). The same exercise was conducted for some of the sample who were women. The differentiation along the 'three generations' coincided with the thirty year period that was foreseen by the research proposal as the period of active immigration into Damongo.

The administration of this second questionnaire was limited only to Damongo, the main research area. The sample for this second part was taken from the 60 men and 40 women, the sample interviewed in Damongo during the earlier region-wide survey. The sample size of 53 (see appendix for some characteristics of this sample) is the actual basis for the findings here.

The purposive sample enabled me to do two types of network and linkage analyses: the first type resulted from interfaces based on their religious inclinations, and here relations are amplified by religion as a common good, service, and power, which is traded by actors based on some form of negotiation (Villarreal, 1990; Long, 1984).

Also the issue of the common struggle for agricultural resources of which land is central helped to define actor networks. The second was on general discontinuities and heterogenieties as amplified in the works of Box (1986) and van der Ploeg (1990). The recent 'northern conflict' of February 1994 in northern Ghana provided a situation for analyzing struggles for power and the strategies constrained by limited resources, i.e. land; this analysis was guided by the actor oriented discourses of Long (1989) and Leeuwis et al. (1990). Although some of these discourses started in this phase, they were evoked more constructively during the in-depth phase.

(I found that in my sample of 53, the three generational father-son-grandson linkages that were actually available were very few. They were in 2 Dagaaba families, 5 Frafra families and 8 Gonja families; a total of 18 of the 53).

I would conclude this phase by mentioning that I also decided to make preliminary official contacts with the secondary research areas that were the home origins of the Dagaabas and the Frafras during the exploratory phase. The findings required this early plunge into retracing origins, and more so because some of my informants suggested that I go there first before coming to discuss things with them.

Table 5.1 Some characteristics of the in-depth survey sample

RELIGION	NUMBER	SEX	AGE RANGE	FAMILY SIZE RANGE
Catholics	20	13 men 7 women	17 - 76 16 - 48	2 - 8 2 - 7
Animists	17	12 men 5 women	18 - 85 16 - 78	3 - 26 3 - 12
Moslems	16	10 men 6 women	15 - 79 18 - 63	2 - 11 3 - 9
TOTALS	53	35 MEN 18 WOMEN	15 - 85 16 - 78	2 - 26 2 - 12

Source: This study

Table 5.2 'Three generations'- showing age categorizations

	10 - 19 yrs	20 - 29 yrs	> 29	TOTALS
Catholics	4 men 2 women	6 men 3 women	3 men 2 women	13 men 7 women
Animists	2 men 1 woman	5 men 2 women	5 men 2 women	12 men 5 women
Moslem	3 men 2 women	3 men 2 women	4 men 2 women	10 men 6 women
TOTALS	9 men 5 women	14 men 7 women	12 men 6 women	35 men 18 women

Source: This study

5.50 The in-depth survey and case studies

As a strategy, I chose for more qualitative research than quantitative. The in-depth survey was used very extensively to do the qualitative analyses after having established some social and research networks, and having generated some basic data during the exploratory/main survey phase. To a large extent therefore, the in-depth survey was focused on case study, discourse and conversational analyses (Mitchell, 1983; Yen, 1984; Bernard, 1988), with built in constant validity checks of the emic (insider's perspective) and the etic (outsider's perspective). My choice to look at the social construction of learning meant that I had to make use of rigorous social scientific analytical tools.

Indigenous knowledge and learning in particular are issues related to historical developments of human attitudes, behaviours, and life-worlds which have developed over time by rolling together day-to-day individual and collective experiences, confronted with facts, to generate new learning with different rationalities and different attributes. As it has been my style of work, participant observation, both obtrusive and unobtrusive, was also used extensively. Guided questions and check lists were used interchangeably to construct farm/field histories (Hakim, 1989), since farmers do not write or keep written records and had to rely on their memories in exploring their experiences. I found out that farmers' wives, especially the first or most senior wife, served as the 'data bank'. She often sat in, saying very little but I saw the man constantly falling back on her to provide the most vital statistics of yields, farm layouts, sequencing, incomes, and problems stretching back several years.

5.51 Discourses and case studies

I discuss below some of the specific discourses encountered during the in-depth survey that were very informative as tools for data gathering. I have chosen one from among the Frafras, one from the Gonjas, and one from the Dagaabas to illustrate their usefulness. Reference to other discourses are in the discussions under relevant chapters. I classify them as tools that fit into what de Vries (1991) refers to as 'critical arena' analysis because some of them occurred in markets, weddings, and other social ceremonies.

Box 5.1

David: "I find it defeating that you Frafras would abandon your home town, Bolgatanga, and come to settle in Damongo to farm."
Agana: "Foolish Dagarti man. Have you not left Nandom to be here to talk to me?"
David: "As for you Frafras, paah! I am only talking. I am not farming and I do not farm. You know, farming in Frafra land is different from that of the Gonja land. Is it not so?"
Agana: "Sure it is and ours is better than what they do here".
David: "Do you Frafras know how to farm at all? How can your farming ever be better than anybody else's?"

Then Agana took the trouble to explain to me various aspects of what he referred to as better Frafra farming techniques in order to convince me that Frafras were good farmers. In so doing, he brought up also what he thought were the differences between their styles of farming and that of the Gonjas, and showed me what he thinks the weaknesses were of Gonja farming. He conveyed this to me in its own vocabulary, meanings, and attributes, and that farming was more than simply producing food.

David: "How did you know all this?"
Agana: "Stupid! Didn't I say my father learnt it from his father and taught me?"
David: "How did he conduct this teaching process and how did you conduct your learning such that you would know and remember all that he thought you?" ... *Again a detailed explanation of this.*
David: "Now that you are here with your children how have you been teaching them what your father thought you?"

Some more detailed description and discussions about learning techniques.

David: "Which aspects of Gonja farming have you adopted. Why, and how did you do this?"

Then the discourse continues and ends with a few more insults, and an argument about who eats dog heads and who eats 'dog eggs'. There are exchanges of some other pleasantries, and a promise of a follow-up.

The 'joking partner' situation: It is identical to the 'phased assertion' method of detailed probing (Bernard, 1980). As mentioned in the very early parts of this chapter, it takes the form of 'a quarrel' between two ethnic groups; in this case me a Dagao and my Frafra sample. There is a legend about the two ethnic groups and dog meat as a delicacy. The summary of the story is that there was a dispute between the two ethnic groups as to who eats the head and who eats the 'eggs' of the dog. This has never been resolved so up till now, we are allowed to make very expensive jokes about each other in whatever way we think fit. This legend was re-lived here to generate useful research information thus:

Confrontational situation: Very recently (February 1994), the northern region of Ghana erupted in a tribal war between two ethnic factions in northern Ghana. The

Konkonbas, Nawuris and Nchumburu on one side against the Gonjas, Dagombas and Nanumbas. During a visit to Solipe, a village 10 km from Damongo and one of my research areas, I met a group of Gonjas discussing their war successes over the Konkonbas and the deficiencies of their enemies (the Konkonbas). Since I was well known there my opinion was sought by the farmers on this subject.

Box 5.2

"Master! Who do you think is the stronger side and who would win this war?"

"You people, of course!" I said.

I took the advantage then to warn them that the Konkonbas were great farmers and were responsible for feeding the whole of the north together with the national capital and so going to war with them meant hunger for all. This statement provoked the group and because they felt offended, they went to extreme lengths to explain to me the nitty gritty of Gonja farming that guaranteed that they would not be hungry and that they never depended on the Konkombas to survive.

"Our ancestors were not only good warriors but were also good farmers. They have passed on the skills of both war and good farming to us".

"Could you tell me something about those skills and how you acquired them?" I asked.

"We would tell you about the farming since that is our common field but not about war because that is our big secret. The secret we have harboured till Today, which we are going to use to defeat the Konkonbas".

The farmer told me about how his ancestors were hunters, who acquired excellent skills in farming and passed them on. He drew interesting parallels between farming and hunting, and between farming and war. He accompanied this with a few songs, body movements, and a couple of demonstrations. The process of educating the young was expatiated on in profound detail. They tried to convince me that the Konkonbas stole their skills in farming from the Gonjas (surreptitious learning). Asked about how they got this information without a written history, they told me to go and come the following day for some details which I did over a longer period than just the next day.

Intermediatory arena: On one of my visits to a predominantly Dagaaba village near Damongo (Dakpalakuraa), I met a father and his eldest son involved in a brawl. Zumayea's eldest son, Bayor, had decided to go down south and settle into mining instead of staying back to farm. The father felt slighted by this decision and so there was a big brawl. I suspended my agenda and immediately assumed a mediatory role between father and son. The old man, convinced that he had found an accomplice in me, took the trouble to convince me that farming was the noblest profession on this

earth and so should be perpetuated through the generations. It was his duty to pass it over to his son, as his father did to him. Someone had to listen to him and he found that someone in the mediator - me.

Box 5.3

"My son! I do not know what is wrong with the spirits of the young today. It is not in the hoe any more". He told me. "Look! I have been preparing this boy to take over from me but now he wants to bring me disgrace".

I asked him what preparations he had given to the boy that he would not want to see wasted.

"He is my first son and this other big boy is his son; my grandson. As a first son his naming ceremony was different; including offering him to our ancestors to bless him and get the gods of the land to reward his labour in the soil". I could not tell him that mining was also of the soil. " Then I spent the rest of his up-bringing teaching him our ancestry. Farming starts from afar, you know?".

For him farming was responding to the command of the ancestral spirits. This response he would yield to even if his farm is no more productive. There are also certain crops he would produce no matter what the yields are because he would need them for sacrifices. When farming is gone, then life is gone, no matter what one ate or drank.

Haven built this rapport between us, I made a series of visits later when the old man was more relaxed and the atmosphere was different. I then tried to discover from him what it was that his ancestors had bestowed on him that he cherished so much and how he had prepared his prodigal son to take over.

I later followed-up to detail some of his pronouncements, and cross-check some of my research findings with him; at different locations (on the farm, in the market, and at home) and at different times of the day (on a couple of occasions it was late evening - by the fire side). He is my most important informant and has largely influenced the results I discuss about indigenous learning in the later chapters.

Conversational analyses: I used my visits to farmers' farms to generate dialogues that have contributed to the findings. In such conversations (Dwyer, 1979; Heritage, 1986), I often played the 'devil's advocate' by feigning naivety and so got myself schooled. Two very important conversations that I analyzed were as follows:

Box 5.4

Scene one: This was on a Dagao man's farm. When we were talking about his farm, I suggested to him that making mounds for cereals as is done in the Upper West Region would be useful here too; and why is he not mounding since that was his culture?

He told me among other things, that mounding was advantageous on shallow soils where the fertility was low. There you have to collect together as much soil and therefore as much fertility as possible to support the crop, conserve moisture, and also provide a firm root base. In Damongo, the soils are loose, deep' and relatively rich so you do not have to waste labour.

The conversation then discussed the learning that went with changing and adapting to new farming environments when you are brought up in another.

Box 5.5

Scene two: This time it was on a Frafra man's farm. After visiting all his farms I noticed that he had not planted early millet; a crop typical of the Frafras. I told him I would bring him the seeds of early millet to plant. Would it do well in Damongo?

He told me that it would grow but that he has not tried it. Why? Because the early millet matures much earlier than all the traditional cereals grown in Damongo area. It is the first crop after the long dry season when there is very little for the birds to eat. So he calculates that if he plants early millet, his crop would be the only one that would be maturing at that time and would become a food source for all the birds. He is prepared to produce it if a large number of others would join him so that they could share the bird population. He is not prepared to invest any productive labour at that time of the year in scaring the entire bird population.

The conversation continued on how such deductive skills are acquired and how they are passed on to the younger generations.

5.52 Diagrammatic illustrations

Cognitive mapping (Lightfoot and Minnick, 1991) was one of the techniques I tried to use during the in-depth survey. However, this attempt was not very productive, either because of its limitation for the analyses of learning or because of my own lack of competence in its use. I instead chose for a Topical Rapid Rural Appraisal technique (IIED publication number 19, 1994) which turned out to be a useful tool for me to arrive at comparative similar results.

I used this method because I wanted to generate more data to confirm the discourses and conversations mentioned above, and also create an opportunity for detailed discussion about the community's mental picture of the agricultural transformations that they were quick to draw to my attention. The impression I gathered from my interviews was that the agricultural environment was most favourable in the olden days which had their accompanying learning strategies. With the perceived changes, learning had to be adapted. How did it look like then and how does it look like now? How has learning changed too? What vocabulary do they have for learning and the accompanying changes? I thought that pictorial illustrations would help farmers discuss the answers to these questions better (see transect and time-trend illustrations in the appendix).

Adapted topical Participatory Rural Appraisal (PRA): Taking inspiration from Lightfoot and Minnick (1991), I decided to introduce the element of imagery and cognitive mapping to my data-gathering processes using adapted topical PRA techniques. Below is what happened.

Box 5.6

Diagrammatic illustrations of farmlands: In small mixed groups and on the bare earth, the farmers were asked to draw their farm lands; showing how it was like when they were young, today, and how it would be in future for their children. They were asked to use their own symbols to do the illustrations. The first picture showed a lot of forest, wild life, and rivers engulfing the village. The second picture showed diminished forms of this and located further away from the village. The third was more bareness.

The first set of discussions was about the implications of their illustrations. That is, how this came about, their role in the changes, and what the changes meant to them. How these practices were taught, learnt, and passed on to others. Their role and the role of intervention in mitigating these effects.

The second set of discussions was to generate and develop a common understanding of the symbols used. Further to this, I explored the cognitive meanings behind their choice of symbols. What were the socio-cultural attachments to these symbols and how such skills can be and are perpetuated.

5.53 Impact matrix and matrix scoring

My only quantitative data generated during the in-depth study were produced using these tools. It was my purpose to find out the common sources of agricultural information and skills for improved production among the respondents, in order to be able to make rough inferences as to how much learning was acquired from 'the outside or generated from within' (acquired meant sources such as development intervention or beyond the family, and generated meant by self or family). I intended with these results to show slants, inclinations or tendencies in emphasis, though not as strict separations, for it is too artificial to make strict distinctions in such a dynamic environment. For similar reasons, I was interested in the magnitude of the utilization of externally acquired information by the communities. How much of the acquired information was actually used? The discussions that ensued about the results were more rewarding than the results themselves.

Using a matrix diagram, respondents were just to say whether they were inclined 'to generated or to acquired' agricultural knowledge based on listed productive and reproductive factors. The number of respondents giving preferred choices were counted and registered. The respondents were classified according to the age groupings and

religious categories described earlier.

For the utilization of acquired information, the same categories and variables were used but the respondents were asked to score on a diagram on the ground, using their own choice of symbols. The scores were between 1 and 10 (1 meaning not utilized and 10 meaning utilized completely). They went along factor by factor giving varied and different scores and I later calculated average scores for their matrix scoring diagram (see IIED publication number 19, 1994 for details of techniques).

The results were used in discussing diversities in horizontal (within age or peer group) learning tendencies. Again the outcomes were very fascinating to the group and they spontaneous went into trying to justify and refute the results depicted.

5.60 Constructing the information and data

General methods of data analyses: The data/information was gathered in field notebooks, supported by the use of a small tape recorder to record the interviews and discussions. A camera was also used to make both slides and pictures of vital informative evidences. Some of the analysis was done at the same time as the data collection so that the opportunity offered itself for simultaneous synthesis. In addition to the daily and weekly analyses, a detailed periodic analysis involving examining data/information, categorizing, tabulating/mapping/diagramming, and recombining evidences (of both primary and secondary data) had to take place from time to time. Based on an analysis continuum (Krueger, 1988) the following types of analyses was done:

- Raw data: Exact statements, facts and figures ordered, categorised or classified.
- Descriptive statements: Summaries and brief descriptions, illustrations, the provision of typical or illuminating quotes, especially showing diversities.
- Synthesis: Filtration of preconceptions, expectations, personal opinions and separating biases and stereotypes. Cross-checking and validating/in-validating.
- Interpretations: Combining statements, field notes, and observations with secondary data. Analyzing consistencies and inconsistencies with a view to providing understanding.

The analysis of the case studies and participant observations was based on making logical connections between a number of variables, with the actors, through detailed and purposeful scrutiny, constructing evidence and checking the constructs. The case study analyses were compared with the information gathered through interviews. The combination of the use of field notebooks, the tape recordings, and the photographs facilitated the analytical processes and allowed for end of phase re-visits.

5.61 Modified focus group approach

The use of this modified Focus Group Approach (Krueger, 1988) to give groups the opportunity to discuss some of my findings enhanced group interaction and enabled me have insights into tendencies, attitudes, perceptions and opinions of both individuals within the group and the group as a whole. It allowed for societal and local environmental influences on the information about the history of the learning that was being re-constructed. The group dynamics was handled in such a way that differences and minority opinions were identified for further individual probing. These discrepancies and minority views provided vital insights into some group commonalities and differences.

Syndicate analysis: This is an example of the modification of the Focus Group Approach. What it implies is that for each of the three religious categorisations, two small mixed groups of men and women are formed. Based on the results of the first two surveys, I gave the same assignment to each of the groups. The assignments were basically deduced questions or statements wrongly deduced from the information they had earlier provided. I challenged each group to validate or invalidate the statements, giving their reasons for the positions they took.

Each small group later presented its observations at a plenary meeting giving others the chance to contest them. The strong desire to score points or to be defensive generated an extensive debate which yielded very valuable information. Even the women were challenged to be vigorously vocal amongst their men.

5.62 The 'three-planes analyses'

Similar to van de Ploeg's (1990) styles of farming, my research discovered that the farmers had four quadrants of learning tendencies, which are discussed in later chapters. In order to analyze these 'learning quadrants', I evolved the 'three planes of learning'. This tool helped me to manage qualitative descriptions of the learning tendencies, and most importantly, the dynamic inter-positional changing of learners (the details of this are presented in chapter 7). The planes showed that although the communities described the quadrants as static, the quadrants were rather temporary and fluid. I found the development of such a tool useful in capturing the diversities that the various tendencies exhibited, the reasons behind their social construction, and their relevance to indigenous learning as a whole.

It consisted of a graphical placing of the four quadrants of learning orientations, and then developing vertical, horizontal, and diagonal planes cutting through the quadrants

(see chapter 7 on usage). The discussion then was to identify what transitions occur up and down the opposite side of each plane. These transitions result in different scenarios which are discussed in detail by the communities. The starting point is to find out whether the transitions are real, and if they are when do they occur and why?

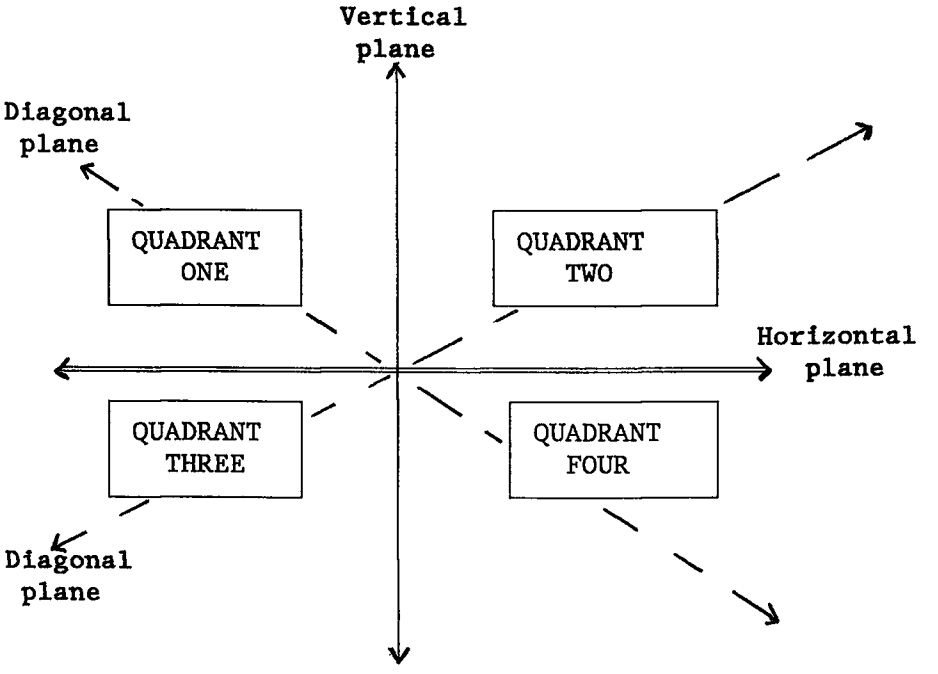

Fig. 5.2 An illustration of the 'three-planes analyses'

(Vertical plane analyses captures shifts between quadrants 1 and 3, and between 2 and 4. Horizontal plane is movements between 1 and 2, and between 3 and 4. Diagonal plane shows shifts between 1 and 4, 2 and 3).

The issue of 'constructive chaos': My assumption of homogenous groupings of Gonjas, Frafras, and Dagaabas and, possibly, their interactions within a homogenous social stratification was weakened when I discussed the result of my three-plane analyses. It showed that there were additional differentiations within ethnic categories into those who were born in Damongo and those from their original homes outside Damongo (generational differentiation), and people of inter-marriages (inculturational differentiation). The added influence of external intervention (those who were available

to different interventions at different times) was portrayed in the shifts between quadrants. The amount of complexity that resulted from the discussion made everything look chaotic, but for the three planes of analyses.

5.70 Off-field analyses of findings

Daily analyses: At the end of each research day, I adapted de Vries' (1990) style of recollecting the day's 'text', consisting of conversations, interviews, small events recorded in my field notebook and tape recorder. I tried to connect the pieces with previous pieces of information. This enabled me build a mental picture of events, cross-check this picture with informants the next day, and also discern 'research topics' for subsequent development.

Weekly analyses: For the weekly analysis, I looked back on all the daily analyses and identified some characteristics common to the categories formulated. The analyses resulting from atypical and typical cases were verified with informants the following week, and the outcome of this determined whether they formed a basis for further investigation as case studies or not. This helped to clarify specific contextual features that define a specific issue. The weekly analyses were basically intended to enable me to contextualize diversities by reconstructing the discourses that have resulted from the comparisons. The products were then verified with informants during the next week.

End of phase analyses: This reflected the daily and weekly analyses at the end of each phase (the phases are exploratory and main survey combined, and in-depth survey). In addition to the daily and weekly analyses, a more thorough and rigorous periodic analysis was pursued to enable me to proceed with specific areas of investigation. The piecing together of findings and most of the detailed verifications and fleshing-out took place during these end-of-phase analyses.

5.80 Research programmes and write-ups in related fields

In order to enrich my experiences in the three-year period of gathering PhD field data and also to build up more data for the thesis work, I took on short term, time-bound research programmes and write-ups. This compelled me to keep in constant touch with the field and with the professional developments in terms of literature reviews. Since these were jobs from internationally reputed organisations, quality was demanded and paid for. This financing went in part to pay for my thesis work which had no budget

of its own. The assignments also served as catalysts for keeping me working.

The following papers have been written and presented during the research phase:
- Indigenous soil and water conservation in Africa: The role of gender differentiation in a case study from northern Ghana.
- Information technology in support of NGO based extension and education in Ghana: A case study form northern Ghana.
- Sustainable landuse research on Tamale Archdiocesan Agricultural Programme: encounters with people's cosmovisions.
- Indigenous landuse systems, agrarian transformations and the environment: the sustainability issue.
- Traditional values, social controls and ecological preservation: the cosmovision perspective and with specific reference to shrines and groves.
- The kitchen, farm fields and external actors: cosmovision as a dominant paradigm in rural people's knowledge.

5.90 Conclusion

The chapter started with a background to earlier research that contribution to this one, it then goes through my privileged position as a researcher and how I got enrolled into the research arena. How I conducted the data collection has been separated into two phase; exploratory and main surveys combined, and in-depth survey.

I make a distinction here between conventional and un-conventional data-gathering techniques just to illustrate departures from the more familiar ways of conducting research. It also reflects a rich blend of rigorous and less rigorous data collection. Largely qualitative methods were used for gathering the data, and only in a few instances did I gather quantitative data or use my own research techniques. Many repetitive investigations and triangulations were done to access information and to insure that information gathered was validated. A similar approach was used to analyze the results.

The paths that have been followed in this research journey were plagued with what I term, 'orderly systematization verse constructive chaos'. I start by admitting that my entire life experiences form part of the outcomes of this study as well.

One significant contribution is that the chapter illustrates the fact that researching is an issue of negotiation, compromises and consensus building. It is an accommodation process where enrolment and being enrolled is the rule. The events unravelled here show the immense power that 'the researched' have and that researching people gives them the opportunity to express this power, and in the process they also become empowered.

PART II

6 Indigenous Vertical Learning

6.10 Introduction

This chapter is about juvenile learning, in particular how the young learn from the old and, to some extent, how they learn from each other. This learning is therefore largely a vertical learning situation. The reconstruction here spans the entire pedagogic period, from apprenticeship to graduation. In order to avoid the criticism that Knowles attracted from Lebel and others (see Davenport, 1993), I shy away from calling it pedagogy. Because, rightly so, some of the methods of learning identified here with the young cannot be confined to the young alone, for they are also to be found among adults. The learning methods are therefore more circumstantial than age-linked. Also, I have decided to look at the whole learning spectrum between generations. This includes organised, unorganised, and even unconscious or unintended learning - that learning that occurs when you are not being taught. I am of the opinion that most learning is a voluntary exercise which is both conscious and unconscious. These results were achieved using the research methods described in chapter 3, particularly of the discourses described for the in-depth survey and case study analysis. Syndicate and focus group analyses were used to validate the findings. The indigenous vocabulary used for discussing the findings here, and those in subsequent chapters is basically that of the Dagaabas, cross-checked with those of the Frafras and the Gonjas for their equivalence.

Before I go into a discussion of the findings, I start with aspects of imagery. Imagery is very important to understanding how the rural communities I studied learn. The images of their productive resources described here have been influenced by the people's cosmovisions. Cosmovisions influence the dynamics of cultural constructions of learning. Because of this influence, images have become very central in rural people's lives and so the presentations here are relevant for the entire findings.

I introduce the subject of imagery by referring to studies done by Sheehan. He states that imagery results from a conceptualized relationship between

> '[...] *a subjective phenomenological concept and two other kinds of entities: the hypothesized events in the brain that accompany it, and the observable public behaviour that permits us to infer it'* (Sheehan, 1979;6).

Unlike perceptions and metaphors that result from selective processes, he argues that images are by nature subjective, and may be expressed either consciously or unconsciously. On page 10, he makes a further distinction by reserving the term 'image' for

> '[...] *a phenomenal content of a sensory or quasi-sensory nature'* and hence *'all images are the product of a process of construction of the brain and observable behaviour'.*

I share these and the final position taken by Sheehan (1979:13), that imagery'

> *[...] should be understood to refer to a subjective phenomenon that may have any combination of external and internal influences'.*

Imagery, as defined above, is very important within the community, particularly that related to land and agricultural productivity. Learning would be incompletely covered if this important value of theirs was not captured and dwelled upon. With very limited written history, the reconstructions in this research depended on imagery, and as suggested in Hakim (1989); farm histories had to be re-constructed based on imagery. Although some of the findings here are similar to those of chapter 2, they are slightly different because they are specific for the primary research area and might not be the same for all of northern Ghana. In this research the multiple diversities that characterise the area are captured. The following is therefore about the people in the Damongo area, their perceptions influenced by the images they construct about agriculture.

6.20 Images of land, environment, and agriculture

I discovered that despite the external influences of christianity and islam, the images described here simmer through in people's learning orientations. The ensuing is a narrative on their image of land, environment, and agriculture from the perspective of traditional religion and practices, since this is the basis of the people's origins. Although the traditional environment is dynamic, open and thus constantly changing, the elderly members of the community were easily able to mind-map their farm histories (Hakim, 1989).

The earth and land: The "Tendanba" (the family of "Tendanas") are the original settlers on the land either through occupation, conquest, purchase or as a gift. The Tendana is usually a male head, with brothers and sisters, and has a family support. The "Tendana" is the custodian of the "Tengani" - the abode of the earth god. Almost invariably the piece of land ear-marked as the "Tengani" is a raised piece of ground on the outskirts of the village. It is normally chosen by the first settlers as a sacred place for worship and for sacrifice to the spirit of mother earth. With

such specialised function, that area usually becomes the home for other spirits or gods that are communally owned. The community argues that the "Tengani" protects the land and influences agricultural productivity. The image that spirits live together on a commonly chosen place, and also live with the people, is a vital link between the people and their spiritual world. The "Tendana" then becomes the mediator between these two worlds.

The earth, which is female, is considered as living, and encompasses flora, fauna, and water bodies which co-exist with stones and rocks. 'It is where we go when we die and the final abode of this body'. Mother earth is charged by Allfather to support his children. The children are expected to treat their mother with respect and the mother will duly reward them for that. Because of the spiritual nature of mother earth, the Allfather has appointed the earth god's child (the "Tendana") to arbitrate, intervene, and interpret actions and issues between the children and the mother. So the earth is not only a support for the living, but also a home for the dead. Those who have gone before us live there. When we die, an eventual end for all, our home would be the earth so we have a special responsibility for regarding that home in a special way.

Traditional communities hold the view that the most alive component of mother earth, besides man and animals, is the trees. They believe that there is a direct replication of human kind in trees. Trees talk, walk, feed, live, die, and we have good and evil trees, and even they have a spiritual component. Trees get annoyed and when they do, they have human-type reactions.

Nature and the environment: Nature is considered to be the visible part of the spiritual world. Nature (feminine) is revered to such an extent that it is treated as a collection of smaller gods. From this perspective arose the earth god, rain god, god of the skies (sun, moon, stars and the wind); that is giving essence to the material aspect of life. A special tree, mountain, river or stone for some reason would be classified as a god; once again giving essence to otherwise mundane things (see cosmovisions in chapter 4).

The material world comprises land and water for farming, the trees and the environment (an expression of nature), the village, clan, and family, brothers with their wives and children, livestock, crops, and vegetation. Their farm tools (science and technology), and other inhabitants of the world together constitute the material world in which, to them, agricultural is central. This image has influenced their culture, language, taboos and rituals, and general worldview.

The soil: Among the Gonjas the soil is a living being, the base for the sustenance and proliferation of earth life (crops, livestock, trees, and man). The land, and for that matter the soil, is governed and controlled by the land spirits. At the on-set of rains, the farmer approaches the ancestral spirits of his family/clan to assist him in his production endeavour. Fowls are slaughtered and their blood drained and

presented as offering to the spirits. This is done as an act of appreciation for anticipated assistance. In some cases, when a vow is undertaken, the farmer promises to offer a particular sacrifice if his aim or objective is achieved. There are cases where a farmer can approach the spirits through respective fetish priests for blessings during a coming rainy season. Apart from these, there are specific rituals which can be performed during which certain supernatural powers are transferred to the farmer. These powers are called farming "juju". It enables the farmer to work for very long hours and can make him wealthy.

Cultivation: When the Gonjas solicit the assistance of spiritual power (ancestors, land spirits, gods, and Allfather) to enable them to produce nourishment for their sustenance, they relate to the spiritual life as the benefactor of their wills and pleasure. In return, they offer the first fruits of their labour as an honour to the spiritual world. Agriculture starts from this spiritual intercession.

However crop production begins with land site selection. Farmers when looking for new land sometimes pay visits to soothsayers who are representatives/priests for the body of spirits. If it is new farmland, during the rituals the direction and specific location of farmland whose fruits will be beneficial to the farmer are given. With this insight, the farmer then goes about his production with the faith that his efforts will be rewarded. Afterwards he solicits the blessings of the "Tendana" (the earth god's child) on his farmland. In specific cases, dedication rites are performed at various stages on the farm; implements (especially the hand-hoe), on seed, and on the farm itself. When performed on the hand-hoe, it is believed that the labour-consuming task of digging and preparing the soil is lightened, and it should then be done with greater ease so that the farmer covers a larger acreage.

Seed: New seed is believed to be viable after special dedication rituals are performed on it. It is believed that all of the 'purified' seed sown will germinate and not one seed grain will remain in the soil after these rituals are performed. Also supporting materials, such as for staking, are sometimes processed through dedication before use. These rites are performed by the family head. The women and children are not allowed to attend these rituals, except for the children who are due for apprenticeship. These apprentices have to learn the 'language of the spiritual world' and the 'how to perform good sacrifices' so that they would be acceptable by the gods. A bad sacrifice or a sacrifice wrongly performed would lead to negative consequences so the skills have to be properly mastered. Such sacrifices are always performed on the farm.

Moisture: Water is another resource needed for agricultural production. In the form of rain, water is controlled by rain gods. Rain gods have representatives called the 'rain-makers'. The 'rain-maker' is believed to have considerable influence on the rain gods. The Gonjas believe that the rain gods are male and female. Storms are

attributed to male rain gods and light torrents are attributed to female rain gods. The 'rain-maker' is normally contacted by the community leaders on behalf of the village chief in the event of protracted drought. After performing the appropriate rites, the 'rain-maker' begins to evoke and appeal to the rain gods to gather the clouds from the skies and send down rain. As a basic requirement for heavy rain, the 'rain-maker' necessarily has to beaten by the rain he has called for. However, there are instances when the rain gods 'travel' to other places and the 'rain-maker' has to wait sometimes for over two weeks before getting his request through. During this period, the rain-maker eats only millet, the food prescribed by the gods.

Droughts are interpreted as spells of anger or displeasure of either the rain gods or land (earth) gods when aggrieved by the whole village, or community, or individuals. However, there are instances when it is believed that witches who have occult powers trap the rain gods or influence them not to send down rain. When identified these witches are summoned in secret to the chief's house and cautioned; should they refuse to heed the caution, they are chased out of the village by young men.

Pests and diseases: During instances of insect attack on crops, certain rituals are performed asking the earth spirits to drive away those insects. Various rites are performed on farms to dedicate them to protective spirits. These spirits work in the form of snakes or other dangerous and harmful creatures. Names mentioned during the ritual are exempted from the attack of these creatures. To protect his farms from other sources or agents of evil, the farmer dedicates his farms to spirits capable of dispelling evil forces from the farms. The farmer symbolizes this by making marks on flat pieces of stone, and places these at the four corners of his farmland. These protective spirits are contracted for only one season. After the harvest a rewarding/appreciation ritual is performed to fulfil the farmer's part of the contract. Though these procedures are normally used for whole farms, specific crops can be protected by spirits.

Livestock: Livestock plays a very significant role among the Gonjas, and owning a combination of the various livestock types integrated into crop production is the goal of every household. Animals are kept for agricultural, economic, prestige, social, and religious reasons. The aspiration of every male adult is to own the various types of livestock, especially for meeting the religious and social obligations. Cattle are the highly placed livestock for the men, but the women desire and possess small livestock used to satisfy their personal and household needs. Most stock is acquired by inheritance of both private and family property. Individuals or households which are not lucky enough to have inherited stock strive to obtain some herd, no matter how small. They will then consciously build this up as a sort of collateral for the family. In such a situation, from the humble beginnings of successful poultry keeping, from sale or exchange, the stock would

grow to sheep and goats, and finally to cattle. This process of herd accumulation requires the management skills that are basic to effective livestock health and husbandry. Even for families that are lucky to inherit livestock, inefficient management can and does result in total losses. These are the skills that have to be developed and passed on from generation to generation.

Nearly every farmer (male and female) has at least chickens or guinea fowls. Although there are management regimes in connection with keeping livestock, most of it is kept as free range. Intensive and semi-intensive systems are adopted during specific times of the year. For the large ruminants in particular, tutelage (of the military disciplinary type) is required for the cattle boy to mature into a herdsman.

All sacrifices to the spiritual world are preceded by 'the pouring of water', that is libation. This is either as pure water, the locally prepared alcohol ("pito") or flour mixed in water ("zon-kuo"). The "zon-kuo" could be of millet, guinea corn or maize flour, but in certain special cases the choice of cereal flour is determined by the soothsayer. When this water is poured on the ancestral spirits to cool or soothe them, dry flour may be sprinkled on them before the killing of the animal and the pouring of the blood on the ancestral spirits (offering the animal to the gods). Whatever larger ruminant is asked for, it is preceded by the sacrificing of poultry.

The combination of crop and animal products, especially in sacrifices, partially explains why every traditional farmer is in mixed farming (mixed cropping and mixed livestock rearing); to be prepared to meet the demands of the ancestral spirits. Generally, any animal would do for a sacrifice but the people say that your own animal is often the best, and beyond that, some of the very serious sacrifices require the specific use of one's own animals.

Hence, learning is conducted within a mixed farming and a mixed cropping system. Right from the start, vertical learning is conducted from the general view of providing skills that will enable the young to master a wide spectrum of agricultural practices. This spectrum is further complicated by the fact that it hinges on spirituality. Their learning orientations and perceptions are therefore shaped by their images about agriculture as expressed in the ideas above.

6.30 **The 'knowing environment'**

The family homestead is the nerve centre of all learning. It is here that primary learning (self-generated learning) occurs, and here that secondary learning (externally induced learning) is refined. I use the terms primary for the learning that is given outside formal and non formal education programmes (religious or secular), which all come under the category called secondary learning. All past and present knowledge is processed and proven by that which has been acquired within the family. Most socio-cultural and religious (spiritual) learning occurs here. The

'family tree' is built here, family trade introduced, some secrets divulged, and the challenges for each member of the family are exposed to the apprentice.

In general, the learning processes involve confronting old experiences with new developments and pieces of information, to result in new actions. Some of these confrontations are done intentionally, others unintentionally. The apprentice is taken through these processes of confronting and re-discovery, using imagery as a major teaching tool, till the family head is satisfied the trade secrets have been acquired. Intensive education of the pupil, and the intensive processing of information through their cosmovisions, is also done here. I describe below the aspects of this 'knowing environment'.

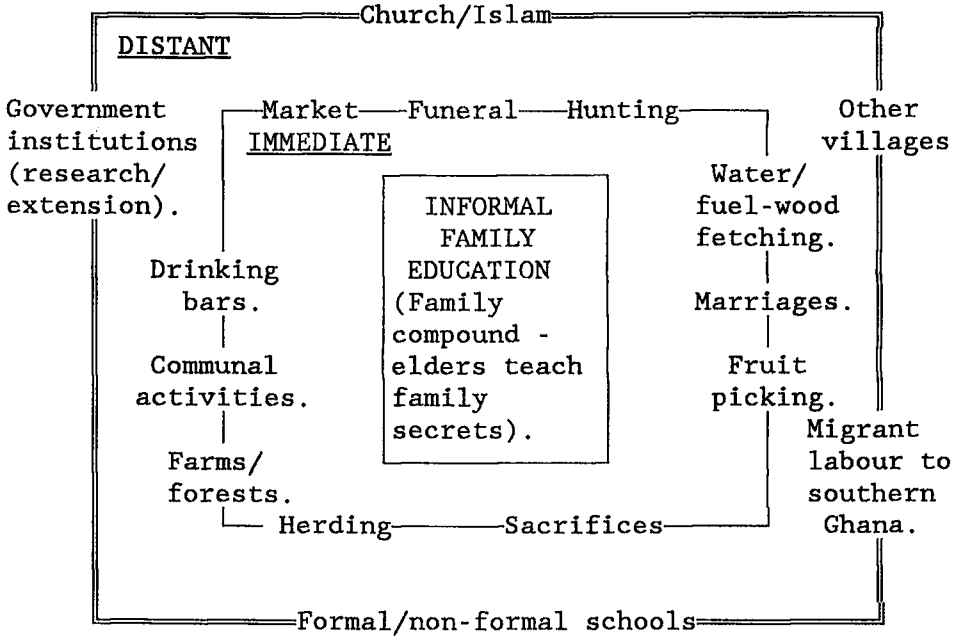

Fig. 6.1 'Knowing environments' of rural communities

The family unit is surrounded by an active environment referred to as the immediate environment, which is a combination of locations and functions. The boundaries of the immediate environment are defined by markets, drinking bars, farms and forests as locations; funerals, hunting, herding of livestock, water/fuelwood fetching, fruit picking, communal activities, marriages, and sacrifices as functions. My experience is that interactions between people and the immediate environment for purposes of learning is more aggressive and spontaneous than with the 'distant environment'. There is more regular intercourse here, especially for adult learning, and learning

occurs in the form of giving and taking. There is more confidence in the information that is available in this environment than elsewhere, and people have the tendency to pit this information against other findings. When there is a conflict of information, that of the immediate environment is given the benefit of the doubt. They also have the tendency to fall back on this information when the information acquired from the outside is not delivering as expected.

The second level of knowing environment which I refer to here as the 'distant environment' is similarly characterised by functions and locations. Government institutions, external religious institutions, and formal/non-formal schools are some of the locations; whilst migrant labour and visits to other villages are functions. Migrant labour and visits to other villages are described as functions because of the functional relations that bring people together for sharing. Migration is often generally described as a wage- and a labour-activity but it is also important for its exposure, and particularly providing a milieu for learning. Learning in this region is done in a more relaxed and selective manner. There is no compulsion as to what is learnt, and often fragmentary pieces of information and technologies are picked up from here. These new experiences are re-processed rigorously in the immediate environment before incorporation.

The boundaries of these two environments are social constructs rather than rigid geographical boundaries. The only factor that I know that delimits the boundaries are the cosmovisions of the people. The worship of the ancestral spirits and the role of this higher level discourse in shaping people's lives are strong here too. This is particularly so because of the notion of '*the evil eye*'. This notion weakens with interaction with the distant environment but does not die out completely. We fall back on it when there are some inexplicable happenings, or seemingly intractable situations. With modernization we lose these boundaries but are quick to retrace them when we get an inkling of the presence of '*the evil eye*'.

I re-state that there is a constant interaction between what the people generate themselves using their indigenous knowledge and the influences of 'external knowledge'. The various environments identified in this study reinforce the interactions and overlaps of the two knowledge bases. This observation is similar to the findings of Brouwers (1995) among the Adja people of Benin, which capture the heterogeneities in more detail. Beyond this, the 'knowing environment' deals with the different degrees of interactions of the two bodies of knowledge; showing the differential emphasis within a socially constructed relationship.

Although chapters 6 and 7 are dedicated to indigenous learning, the learning described in both chapters is influenced by the interactions of the two bodies of knowledge. Chapter 8 concentrates more on the effects of 'external knowledge'.

I would end my discussions on the learning environment by using this anecdote to illustrate a principle underlining one of the general rules of the learning that we went through when we were young:

Box 6.1

The legend is told about a famous hunter who went out hunting and met an old bush cow and its calf. He shot and killed the bush cow but the calf escaped. After some time this calf grew up and charged itself with pursuing and killing that hunter who killed its mother. One day the hunter went out hunting and came across a very beautiful lady whom he married and brought home. The hunter's mother was very happy to have such a beautiful daughter in-law.

During the first night together, the young lady told the hunter how she admired his skills, and asked him how he managed to kill dangerous animals which can change their forms, like bush cows. In order to show off, the hunter told his bride that he first shoots at them and then turns into a stone, when they turn into that, he turns into a grass, when they turn into that he turns into a tree, and when they turn into that he lastly turns into.....

Then his old mother interrupted with "fari jog" - meaning 'it is enough - don't let out the family secret. Not even to you new wife'.

The story continued that the next day the wife asked the husband to accompany her to fetch firewood which he willingly did. When they got into the forest, his beautiful wife turned into a bush cow and came at him. He turned first into a stone and she did the same. Then he went through all the stages he had mentioned the previous night and she followed through. Lastly, he turned into a needle and entered the tail of the bush cow. This kept pricking the cow and it kept hitting itself against the trees until it died.

The moral lesson is; never to tell all (especially family secrets), to those outside the immediate environment.

6.40 The "wulu" - tutelage

"Wulu" in agriculture among the Dagaabas living in Damongo, as it is in their places of origin, is a protracted period of apprenticeship that is intended to capture both the spiritual and material imagery described above. The subjects of land, environment, and agriculture have been chosen to enable a focused discussion and also to draw out the complexities and interlinkages of learning in the traditional setting. "Wulu" goes on for all ages and therefore spans an unlimited period. However it is particularly pronounced with vertical learning when the young are learning from the elderly. It is pronounced here because the end of a "wulu" cycle is marked by certain social practices, and particularly the beginning of individualization as expressed in the allocation of productive resources.

The environment and tools chosen for "wulu" processes are defined by the subject and the situation in question. In some instances the learning is not conscious or purposeful; it includes unintended learning which builds on the child's experiences.

Organized forms of "wulu": These include the conscious educational process the young go through at the hands of the elderly by way of following the 'footprints'

that they have left behind for them. Modern development polemics has confused this with child labour exploitation. What it implies is instructing and observing the performance of the instructed, demonstrating and giving the task to try out, or sometimes doing the task together with the apprentice. A triangulation of all three is often evoked to develop knowledge and skills in the young. Whichever form it takes, it is often done in its most strict form, and it sometimes leaves some 'landmarks' which are intended to remind the learner of what is learnt or as learning signals that others peers would refer to.

This form therefore involves giving a set of instructions and a body of information, and demanding an output in the form of fulfilling a task. Another form is demonstrating the action and asking that it be repeated. I witnessed the planting of cassava when the father demonstrated the cutting and the angle of planting and then asked his son to do the same. After a few trials, the father went round to inspect the cuttings and placements. In another situation, a man gave a set of instructions on seed selection during the harvesting of maize, and then asked the son to select maize seeds for the next season. These are often not 'one shot occasions' but repeated over and over until the skills are properly mastered. 'Redundancy' is therefore one of the techniques they use to ensure that effective "wulu" takes place.

Box 6.2

The community studied believe in the saying that,"tulu me kpe zanzan ku 'la".

Literally, it means,'it is heat that enters the oyster before it opens up'. Oysters are a common delicacy and they are harvested enclosed in their shells. The harvest is not for the shell but for the flesh within. To get the best part of the oyster, you have to access the flesh through heating.
Similarly, to get the best out of their children, some 'heat' must be applied to the learning process very early in life.

Thus the instructing component of "wulu" is similar to formal schooling where a set of instructions are administered before performance and are accompanied by supervision and support during performance.

Unlike in formal science where we have method and result demonstrations, in "wulu" method and result demonstrations are processed within costs and consequences (especially the spiritual cost and their consequences on the ancestral heritage). For example if the use of a tool is demonstrated, and there is an injury when the learner tries, this could be attributed to a higher order discourse which is that improper handling of the tool has annoyed the land cultivated. It is the same in herding when an attack from one's own bull is seen as the use of bad management practices that have annoyed the "muor" (the god of the bush).

Sometimes, prototypes of knowledge being taught are developed for the young to try-out on their own. There are miniature musical instruments, farming tools, and hunting equipment meant for teaching the young. In Damongo where land is not

under stress, some of the young are given a small piece of land (their own learning laboratory) where testing takes place. It was common to find peer groups playfully trying things out in their plots.

The most common form of apprenticeship in agriculture is farming with your father (also sacrificing with your father). Here the pupil is called upon to do intensive participant observation to its fullest. There is very little instructing but a lot of the elder asking that the young 'do exactly what I do'. The community says it is these formation processes that make 'the total man'. The observation skills developed along side the learning processes are found constantly relevant all through the formative years of juvenile learning. During the working together with the parent some unintended teaching from the parent goes on as does the unintended learning. These idiosyncrasies are responsible for the richness of the diversities of learning, and often result in a difference between what is taught and what is learnt.

I commonly observed the young people staying back to try out what they had been learning from their parents during the day, or going to the farm a little earlier the following morning to begin testing out the previous day's experiences. Taking initiatives in one's own learning is thus an effective part of "wulu".

Less organised forms of "wulu": The rich cultural heritage that abounds in these communities expresses itself in "wulu" as well. As an indigenous way of leaving 'footprints in the mud', the unorganized forms of "wulu" are interesting and entertaining as well. This qualifies the notion that "wulu" is all unpleasantries. The tools used here are also used in managing indigenous information technologies. They consists of images and symbols, rituals and ceremonies, proverbs, riddles, stories, and songs. I have tried to recall some of these tools in presenting these findings because the anecdotes often contain more wisdom than what the mere words express.

Among the Gonjas, births, naming ceremonies, circumcisions, and deaths, by themselves to do not offer as much learning as do the ceremonies surrounding them. There are histories narrated in connection with these occasions, culture is evoked, and knowledge so acquired is exhibited in both content and processes. Whether celebrated by a family or a whole community, the perpetuation of knowledge is deliberate. Puberty and initiation rights are forms of this where the young are taken 'into hiding' to be prepared for the occasion. In addition to 'schooling' in culture, history, and geography, the occasion serves in perpetuating religious ideas and passing them on to succeeding generations.

Imagery and symbols are very active learning tools that are utilised by rural communities for performing rituals and the young learn from them. A pot, calabash, carving, the decorations on a building, and even tribal-marks are unconsciously taught and learnt; not only as a craft but also as an information system. The symbols presented on them may be those of fauna, flora, or humans, or their combinations to tell a story. As an information system, the example below

illustrates how the young are taught to communicate in symbols.

Box 6.3

Zumayea, an elderly Dagao man in his early sixties gave me a brief account of how training in symbols is given to enable one to find the way through the forest.

"I first teach the young one to understand that the grasses we see growing can be helpful in identifications. My instructions after that are simple. I tell my son that, 'When you are going through an unfamiliar part of the bush, you tie knots on grasses at regular intervals. When you tie the knot (a special type of knot and he demonstrated it), you bend the top of the grass towards the direction you came from. If you find grass cut and arranged in a forked shape with some twigs and leaves, it means there is a trap around so beware. A forked stick with a stone placed in the centre means water is in the direction of the stone'. After demonstrating to them how to do this, I take them far into the bush (hoping that they would have been making the marks) and then ask them to bring me home".

Among other forms, songs are a very powerful way of communicating, and the art to communicate skilfully using songs has to be learnt. It is not so much the songs that do the teaching but the words of the songs. They had composed songs about pupils very good at farming, and there are those about poor students. There are songs of the various crops and their cropping times and sequences (like those we have in English about the days and months of the year), and they have songs of the various seasons of the birds and trees. The old man called his son to sing for me some of the songs he has taught him.

Another set of songs that the people had composed were historical songs like those of when the first 'whiteman' came to the village. Songs serve as a means of retaining and propagating information across communities and across generations. They had songs about religious practices that allowed for emotional expression of the inner self and a link with the ancestral spirit. These the old man himself sang for me, and he asked the son to interpret these songs for me.

Proverbs and wise sayings are the prerogative of the elders. It is an advanced form of tutelage and it is that which best expresses the wisdom of old age. It is a value laden way of teaching the young, and although it is the elderly who most frequently teach in proverbs, a measure of an excellent student is his ability to translate his/her teacher's proverbs, or even also to speak in proverbs to his peers and subordinates, but not to his superiors. It is very common to have a riddle/proverb session during moonlight evenings in rural communities; just like quiz competitions. I had several evenings of this during my research period in the communities. Proverbs test knowledge, convey learning, and perpetuate skills.

Mimicry: This is another form of learning that is common with the young but rarely found with the elderly. It is more like role playing but it combines role playing with imitations that are a blend of humour and learning.

During the research I came across children who had decided that they were a farm family and therefore tried to live it out. The roles were shared and the boys played man and boys, while the girls played girls and women. Some became children and others identified as farm animals. One of them insisted that he had gone to school and come back so he was going to be the extension agent. There were initial disputes about who was to do what, a few quarrels, but compromises were achieved.

Box 6.4

What happened next was for me one of the very educative moments of the research for the children exhibited what they were learning from their elders, what they were assessing and modifying in their own way, and especially what they have been learning unconsciously. The whole farm history was reconstructed and no role play could have been better orchestrated or been more natural. I observed at a distance, and initially they noticed me but when they got going, I belonged to history.

Very early in their game they were prepared to evaluate the players and changes were made immediately. The key roles for them were those of the father and mother, and they were very strict on how those roles were played. Hence those persons were changed regularly, and the contents of their roles were regularly edited. I noticed that an attempt was made to give as many as possible the opportunity to play those roles. When they got their act together, I noticed that the extensionist was played out of the exercise completely. Asserting himself at the beginning by announcing his presence was about all he could do, and then because he was out-played by the other events, he quickly swapped roles and joined the regular farm activities.

I took a cue from this incident.

It is also common to find children choosing a personality (sometimes either of the parents) and imitating them. This, for me, is an exhibition of what has been internalized. They could just look at what was being imitated and say who it was and how well it was done - a practical exhibition of observational learning.

6.50 The "bangfu" and "oogfu"

Box 6.5

There is the proverb that: "Bangfu na so a gbilanteeb chere e dere kanyir". (It is knowing that makes the chameleon take its time when moving).

"Bangfu" is that sort of experiential learning (Cross, 1982) that often occurs simultaneously with "wulu". It means establishing proof that knowledge and skills have been acquired, by being challenged to confront the experiences acquired so far with new sets of information. The common form of this is similar to the western notion of examination. However since general testing goes along with the

acquisition of the knowledge, "bangfu" is only additional. Within the community, it is uncommon to find phases of apprenticeship that are examined, and certified before one is allowed to continue as is done in formal schooling.

During "bangfu" most often live situations are used, unlike the use of prototypes in "wulu", and therefore risks have to be minimised. For example, the young boy is taught to prepare the land or weed on the actual family farm, and therefore the elder does not sit back and allow him to make a mess of it, but provides continuous surveillance. Similarly, the pupil is aware that what he is doing is contributing to actual production and so he is more challenged to put in his best. The combined action of these 'push and pull forces in learning' gives a basis for "bangfu", which sometimes runs concurrently with "wulu".

The advanced form of "bangfu" has a distinct phase. This is towards the end of the learning processes. Although the initial "wulu" and "bangfu" combination starts as early as age four years (with the opening, feeding and driving in of the chickens), this last phase of "bangfu" occurs between ages sixteen and nineteen years. Here the apprentice is called upon to demonstrate his prowess to the full. This is done by giving him a couple of younger apprentices to supervise on very specific assignments. His performance is closely monitored and assessed (there are no failures but there are poor performers). At this stage there is a tendency for the pupil on his own to start testing out what he has learnt on others and also start developing, informally, his skills as a trainer (or a potential trainer).

"Oogfu", the final expression of formalised "bangfu", is a type of graduation or passing-out. Literally it means to ostracize but it does not get that far; it is more like weaning. This happens normally between the ages of twenty and twenty five years. What it means in practice is that some factors of production and consumption are given to the graduating pupil.

It is not uncommon that he marries around this time and is beginning to establish his own living quarters. Everything is done to show him that he has come of age but is still linked to the larger family. He has to serve the elder who developed him and contribute his labour to the general pool of family production. The expression, "kye kukru kub" is generally used for this period which means 'manufacturing a hoe for him'. Symbolically and outwardly, he is given a new hoe - the iron and wood combination - as a graduation symbol (a certificate of some sort). This is preceded by processing the entire graduation ceremony through the ancestral spirit to obtain clearance. He thus starts life with a set of tools and, above all, blessings from the gods.

This is the signal of individualization within the community. There are other additional sacrifices done to signify that this is happening. The sacrifices are intended to inform the gods that part of the ancestral property is being passed on to a member of the clan, and their second purpose is to ask for their blessings that the skills the young person has acquired be productive. The community told me that even those who are not in agriculture, or are not farming at home, do come back

for this ceremony to be performed, between the ages of eighteen and twenty two, before they go to continue their lives.

During the very early parts of "Oogfu" , the young person revisits (on his own now) that which was learnt during "wulu" and "bangfu" in a relaxed, semi-autonomous manner. He makes a conscious effort to do things over and over again and also copiously, which gives an impression of youthful exuberance. For example, he might be seen destroying apparently sound structures just to rebuild them in a quest to test his prowess. It is during this stage that the diversities in learning are further sharpened by the person himself. The graduated pupil realises that doing the same thing does not necessarily produce the same results and that, 'after all the master also makes mistakes'.

Despite his seemingly being ostracised, the graduate is still linked to the family by a 'learning umbilical cord'. Follow-ups and back-stoppings are offered from the elders, and the graduate still can and does request assistance from the family head. He in turn still renders services to the larger family, and his labour is still under the control of the family head. The differences between learning now and then is that most learning and sharing for him takes the form of consultations, negotiation, accommodation and consensus building.

6.60 The "gandaalu" - showing off

Box 6.6

> The people's wisdom has it that: "Gandaalu ina me nyaa toba. Fu pour nu me kpeme efu tuo to fu nyaa". (Showing off is like knocking one's chest. It is when your back is strong that you can knock your chest).

This is the sort of learning that is generated by social or peer pressure. It is both horizontal and vertical learning for the young but also exists among the old. The young on their own provide tutelage for themselves, based on that which they have acquired vertically, set tasks and challenges, and realise them judged by their own standards. "Gandaalu" means showing-off and "gandaa" stands for the excellent. It is appropriate for learning that has resulted from showing prowess and excelling. It is the aspiration of every young man among his peers to attain these heights by showing what he has acquired from his master. The immediate rewards are the high esteem among one's colleagues, and the songs and poems that would be composed to one's name. The person also assumes the position of authority and can instruct or order others below him. If one regularly and consistently performs badly, one is given the opposite treatment.

In farming, the peer groups set themselves "ko nea" (farming targets) out of which the one who is able to regularly and consistently finish first and well becomes the "ko gandaa". The young in every community would have their "ko

gandaa" who normally leads them to other communities for competitive farming. Often when the "ko gandaa" is not there, they would not enter into competitions. The different components of farming are processed along similar lines to have leaders emerge. For example you have one who can shape the handle of the hoe very well and so he regularly does it for others, the one who excels in the making of catapults, and the one who makes the flute.

Within the community, this phenomenon is very well expressed in the herding of animals. The "naachi gandaa" is the one who has a combination of knowledge of the forest (in trekking, herbs for first aid, various grass, tree and bird types). Herding skills, as expressed in his ability to find lost animals, or predicting how heavy rainfall will be, are some of the skills of the "naachi gandaa". He is able to find water, to give names to the animals, and to teach the animals how to respond to their names. He uses his colleagues to develop his survival skills, especially in wrestling. He is also responsible for teaching the bulls how to fight. All this is done in preparedness for the intercommunity herders' wrestling matches between the leaders, and also between their animals. His authoritative position is overwhelming. He is the one who rides the cow when all the others are walking behind the animals, he takes his share of the food first, and he sits around while others do the gathering of the animals that stray away. There is a complete hierarchy, and the "naachi gandaa", a sort of family head in the bush, observes the total behaviour of all working with him and punishes those who perform badly. In payment for this, he guarantees them their safety (note that he is not necessarily the oldest, but certainly the strongest member of the group). There are rare cases where this prestigious position is occupied by girls who are herding).

According to the eldest son of Zumayea, the learning processes under "gandaalu" start with establishing proof of prowess. This is a type of competitive learning which brings out the best in themselves among their peers. When this is done then a responsibility is given to the "gandaa" to develop others and ensure excellence. He conducts a continuous monitoring and supervision of performances and reports to the elder, or is consulted by the elders for his report. This position is earned and has to be both justified and maintained on merit. Because of these challenges the "gandaa" has to constantly develop himself to stay ahead of others and maintain his position. He does this by being a faithful pupil of his master, combining that which he was taught with taking initiatives - matching experience with new information and developing new learning. It is common knowledge that his peers then task themselves with the responsibility to overthrow him and become "gandaas". The younger ones see him as a role model and make strenuous efforts to develop themselves like him. The parents use the "gandaas" as references to ginger up their children to achieve the best of their abilities.

"Gandaalu" is therefore a learning technique more among peers, and has its own internal rules, regulations and dynamics, with the accompanying rewards and punishments.

6.70 Theoretical contributions and debates

Many of the studies on child learning are about formalized, conscious acquisition of knowledge and skills. Knowles is recognized as the father of andragogy, not because he invented the word but because he brought to light the link between pedagogy and andragogy. In Knowles (1980) he makes the distinction between pedagogy (from the Greek PED, meaning, child. AGOGUS, meaning, leading), and andragogy (ANDR meaning, man, not boy). Andragogy is therefore the art and science of helping adults learn, in contrast to pedagogy as the art and science of teaching children. In elaborating further, Knowles says that in pedagogy, the responsibility of learning depends on the teacher, and he decides what is to be learnt, when, how, and if it has been learnt. In andragogy, the learner is responsible, grows gradually into self-directedness, with different rates for different people, and the teacher's role is to facilitate and encourage learning.

He maintained this distinction throughout his writing but concluded that these two models are best seen not as dichotomous but as two ends of a spectrum, and so pedagogical and andragogical strategies should be used interchangeably for any age if it is the most suitable form of learning. In addition to trying to confine ways of learning to ages, I think he sees them more as teaching techniques; from the teacher's perspectives (the didactics of it), not from the perspective of those doing the learning. This is supported by the fact that he goes on to recommend a curriculum for the improvement of didactic skills.

These views are supported by some of the findings I make about "wulu" and "oogfu". However, my findings differ because I include the motive to want to learn. Although for the child the learning is largely teacher-dependent, it is also pupil-dependent. The pupil dependency is motivated, among other factors, by peer pressure. My data suggest that self-directedness exists among the children also in the case of mimicry. Beyond that the data suggest that advanced stages of child learning - "oogfu" - have the characteristics of what Knowles calls andragogy.

Writings in the field of educational psychology such as those of Havighurst (1961), Cross (1982), Davenport (1993), Thorpe et al., (1993) advocate allowing for teacher-centred and learner-centred activities. They express the fact that both a child leader and an adult leader may find occasions to be directive or non-directive, authoritative or facilitative. Cross (1982:148) identifies the characteristic transitions between pedagogy and andragogy as follows:

> '*The self-concept moves from dependence to independence or self-directedness. The reservoir of experience gets richer through learning. Their readiness to learn becomes oriented towards developmental tasks or their social roles. The time perspective changes from postponed application of knowledge to immediate application, so learning changes from subject-centredness to performance-centredness.*'

For the writers, children enter this world very dependent and so their learning role becomes a passive one of receiving and storing up the information adults have decided children should have. Their first experiments start on things that do not impinge on the adult world. Havighurst (1961:145) says that,

> '[...] *to children experience is something that happens to them; it is an external event that affects them, not an integral part of them. Their self identity is largely derived from external sources. But adults derive their self-identity from their experience. Adults are what they have done, hence they have a deep investment in this value; so if this is not being used they find themselves rejected. Hence adults have more to contribute to the learning of others so they themselves are a rich source of learning; they have a rich foundation to which they refer new experiences before learning is meaningful to them; they have some fixed habits or patterns and so are less open to disrupting these patterns'.*

There is beginning to emerge an emphasis on learning that depends on people's experiences. It would be noted from the results above that learning from experience is the corner stone of vertical learning. That was how the old learnt and that is how they teach the young. The writers saw it as logical to proposed a shift towards the concept of learning that involves people's experiences;

> '[...] *an interaction between persons and their environment'*. After all, as Kolb (1993:151) argues, '[..] *to learn is not the special province of a single specialized realm of human functioning such as cognition or perception. It involves the integrated functioning of the total organism - thinking, feeling, perceiving, and behaving.' Learning is more holistic.*

Hutton (1989) adds his view that learning can be understood as a process of continuous exchange between the life-world of subjects and objective reality which is present in society as a whole. The most active agents of this are the immediate group of friends and family, and this exchange process is generally experiential.

My findings about the 'knowing environment' are vindicated by the position of Hutton. I have gone further to make the distinction that the closeness to family in the learning process is particularly with reference to 'family trade secrets'. In so doing, I leave the rest of the issues involved in learning to whichever environment best offers the learning opportunity. If the source of the learning is from the 'distant environment', the acquisition has to be re-processed within the immediate family environment.

Coming back to the subject of experiential learning in particular, Brah and Hoy (1989:70-80) have made an informative distinction between experiential learning and learning from experience. They state that,

> '[...] ***experiential learning*** *is an educational ideology from the practice of starting from a persons experience as a vehicle for learning. It is an educational process used in developing learning techniques. This is recent and*

*different from **learning from experience** which has a longstanding history*[...]'.

Kolb (1993) takes the discussion further by drawing attention to the central role that experience plays in learning processes, which differentiates it from rationalist or other cognitive theories of learning which give emphasis to acquisition, manipulation, and recall of abstract symbols, and from behavioral learning theories that deny any role for consciousness and subjective experience in the learning process. Keregero (1989;201) seals the position with the statement that,

'[..] *anything worth knowing does not always have to be taught. Learners could simply be given the opportunity to discover - this is also true for children as well'.*

I conclude that the opportunities that children themselves create for discovery should be encouraged through encouraging dialogue on the basis of facilitating learning. A similar position is taken by Hamilton (1995) about adult learning. Often rural communities enable young learners to be critical thinkers and not objects of assistance, which makes learning a continuing endeavour that reflects the transformational character of reality.

6.80 Conclusion

Chapter 6, though intended for juvenile learning, started with the aspect of imagery. For a society where writing is very rare and therefore there are hardly any written histories, it would appear logical to rely on imagery as a way of expression. Because of this dependency, that faculty has been highly developed. Taking a cue from the society, therefore, the chapter also starts with imagery, and particularly the images of land, agriculture, and the environment. The images here then permeate the entire findings.

The environment within which 'knowing' is conducted is reconstructed. To give it structure, it was differentiated into family, immediate, and distant environments. This differentiation also captures what is going on in the learning processes, how much is going on, and what are the commitments to learning. Family secrets are traded within the family in the immediate environment, and information from the distant environment is re-processed within this immediate environment before complete integration. To a limited extent, the role of external influences of religion, schooling, and intervention is identified (the detailed influence of intervention is discussed in chapter 8).

The chapter then plunges into the general characteristics of the various juvenile learning dimensions. It borrows the categorisation of the people in presenting "wulu" as period of intensive tutelage and apprenticeship and "bangfu and oogfu" as periods of graduation and passing-out (the concepts are from the Dagaabas but

are echoed by the other two ethnic groups as well). The characteristics of each are discussed in detail, reflecting the diversities and the generalities.

"Bangfu" is synonymous to an evaluation of performance based on information and skills acquired during learning. "Oogfu", is a sort of ostracising, which more or less marks the beginning of individualization. This period is characterised by some independent resource acquisition, and the relevant social ceremonies that signal the beginning of individualization.

Most of the findings are about inter-generational learning, but as the theoretical debates show, inter-generational learning includes some aspects of intra-generational learning as well. The organic linkage is demonstrated in the peer group learning particularly under "gandaalu". The findings of intra-generational or peer group learning (what I call horizontal indigenous learning) is the subject of the next chapter.

7 Indigenous Horizontal Learning

7.10 Introduction

This chapter discusses how adults learn from each other within their indigenous environment - the learning that goes on when people are not necessarily being taught. I start the empirical findings by looking at the 'exchangeable value' put on knowledge and its resultant effect on learning. I term the process as the 'partial commoditization of learning'. Having shown this value of learning, I looked at its organised and less organised forms. Whatever form learning takes, it is so socially constructed that distances are discernible. I discuss these distances next and proceed to look at what orientations exist within these social distances. The farmers had their own designations of their learning tendencies. This is presented next. Haven stated in chapter 6 that vertical learning and horizontal learning are part of a continuum; I draw this spectrum out with an additional reference to 'old age learning'. This covers the empirical findings on horizontal learning, the main findings of which then formed the basis for discussing the theoretical contributions that these findings attract. The main conclusion then close the chapter.

As stated in chapter 6, this chapter shares the experiences about imagery described for land, agriculture, and environment, and 'the knowing environment' with the findings about 'vertical learning'. The two categorisations,vertical and horizontal learning, co-exist and operate simultaneously. It is only by analyzing these interfaces that the diversities were discerned.

"Wulu" and "bangfu" can also be found in adult learning but here they are expressed in shared responsibility, and a swapping of roles. This dynamic inter-change of learning among actors depends on the issues at stake or what types of skills are to be learnt, which is different from the earlier uni-dimensional position, that the young learn from the adult. "Gandaalu" among elders, though not very common because of the shared positions, has similar characteristics to that of the young. It is the sort of learning that is generated by social or peer pressure, and it is also learning that has resulted from showing one's prowess and excelling. The immediate rewards are high esteem among your colleagues and the songs and poems that would be composed in your name. During the inter-group farming, the group of adults also set themselves "ko nea" (farming targets), from which the one

who is able to consistently finish first and well becomes the "ko gandaa". However, there are no inter-community competitions. For this age category, "gandaalu" is a relatively stable position that might not be usurped.

7.20 **Partial 'commoditization' of learning**

As described above, "gandaalu" is rarely contested among the elderly. This is because the issue of showing-off is linked to a spiritual and a material reason. The spiritual one is the fact that if you show off, 'the evil eye' might rob you of the special gifts that the ancestors have given to you, or someone with witchcraft might be-witch you. The material component is that learning is a competitive venture among rural communities. As much as possible you keep the secrets of some of your trade to yourself, develop it further, and try to be ahead of your peers in translating this knowledge into productive advantages.

In the wider sphere of horizontal learning, I found out that most knowledge is largely family-owned. That which is acquired in common in the 'open market' is further processed and transformed within families to perfect it for their comparative advantage. The phenomenon that 'knowledge is power' is closely adhered to and exhibited especially among the elderly. After making additional efforts to perfect knowledge, it is patented as family secrets, and such special skills are jealously guarded. That knowledge which does not belong to the category of family secrets is traded for payments of some sort. This accounts for the 'partial commoditization of learning'.

Most often in horizontal learning, knowledge is traded for knowledge, either paid for immediately in cash (payment in form of a tool) or in kind (in harvest), or deferred as an indebtedness against the future. There are also existing knowledge networks (learning networks) that are built on confidence, dependence, and trust. There is a mental value put on traded knowledge which is used in determining what should be traded-off, and the magnitude of the expected payment. All these when pulled together often result in some form of social network. These types of knowledge networks often have their roots in previous generations and invariably get passed on to younger generations. In the more advanced forms of social networks there are brokers ("ning sobe") who matchmake two adult parties interested in trading off information or skills. At each particular instance of the matchmaking, there is 'the one who has' ("sore") and the 'one who has not' ("beterra"). These are not fixed positions but regularly swapped roles based on the exigencies of the situation.

Within this 'learning by marketing strategy', a fluid administration has evolved; with its internal power differentiations, roles, regulations, and loyalties. The details on cultural constructions of how this administration is done was beyond the findings of this research. I was told by colleagues that I could get this far with my research

into the 'partial commoditization of learning' because of the fact that I was a Dagao studying Dagaaba, my 'joking partners' were the Frafras, and I was providing essential farm inputs to the Gonjas, so the idea of indebtedness made them enrol me and confide in me.

7.30 Organised learning

Unlike in the 'partial commoditization of learning', the learning types discussed here are less discrete, most common, and are dynamic in their inter-role changes. I was able to identify three forms based on the responses I received. These I categorise as pro-active, inter-active, and reactive types.

Pro-active learning: In their description of farmers' experimentation types, Rhoades and Bebbington (1984) identify three forms: Curiosity, Problem Solving, and Adaptive Experimentation. All three forms describe farmers' experimentation in its reactive forms - responses based on an earlier action. In my latter work on the same subject (Millar, 1992), I discovered peer/social pressure experimentation which is more spontaneous and thus closer to pro-active forms of learning, in the sense that it is an action preempting future actions - peer ridicule or chastisement. In this research on adult learning, just as was also found for the young learning from the young, a similar situation of peer/social pressure learning is encountered confirming the pro-active nature of farmers' reactions.

"Gandaalu" as influenced by people's cosmovisions (see chapter 6), is an example of situations where pro-active learning is exhibited. In a quest to learn, people might be seen de-constructing apparently strong structures just to rebuild them as a test of their prowess. This activity sometimes results in re-inventions in preparation towards an uncertain future. The person is often using his own generative capacities. He is the pupil, teacher, and the user of the results of his re-invention. Basically pro-active learning is intended to be preemptive or to stay ahead of others and maintain one's lead over one's. The box below illustrates the point.

Box 7.1

In my field work I met farmer Albano Dabuo who was a specialist in making xylophones (musical instrument commonly used by the Dagaabas for various events including farming-related practices -eg harvest festivals). He had two adult apprentices studying the art under him. I noticed that all the xylophones under construction were facing one direction but one of them was facing the opposite direction. I asked him why the difference and then he told me that was for a left-handed person. I happened to know that a left-handed person had no problem with using the conventional xylophone. The person just sits on the opposite side from where the right-handed person sits and plays normally and so I told him this. He

agreed with me but asked me whether I have ever seen an 'oppositely constructed xylophone' all my life. My response was in the negative. He then told me that there was only one of its kind because he has constructed it. And now he was just in the process of developing his art further that is why he himself is working on the equipment.

Inter-active learning: This describes the iterative processes that some adult learning involves. Most adult learning is not continuous apprenticeship, and the interchanging of roles between 'pupil and master' is common. It is also interactive in persons, in subjects, and in processes.

The position is often taken that there are complete gender separations in tasks among rural communities in northern Ghana, and that men do not perform women's roles. It is within this learning process that I encountered gender overlaps in roles and functions.

Among the Gonjas and the Dagaabas, its is rare to find girls being developed in 'male farming activities', such as land preparation, mounding, and some aspects of weeding. However it is common to find younger boys doing reproductive jobs that are meant for girls. Boys fetch water and fuelwood, cook on the farm and wash the dishes. As they grow, part of their adulthood is expressed in graduating out of these reproductive activities. On the other hand the reverse occurs for women. A girl would only go through tutelage in farming under her father if she is either the only child or the man has no sons. Otherwise their farming activities as girls is limited to sowing and harvesting, except for the Frafras who teach their daughters also how to execute the so called 'men's activities'.

Women eventually get integrated into a wide range of farm activities later in life, then they have to go through horizontal learning on how to farm the so called 'men's crops'. Sometimes such women are heads of female-headed households. This new role imposes on them new demands that include operating within the 'learning market', developing her own secrets about farming, and even teaching her children about how to farm. The woman would then have her vegetables to produce, have a farm for the production of legumes and sometimes a cereal farm, and keep some livestock. Even in herding livestock, there are women shepherds, and girls who are compelled by being the only children of their parents to learn the skills and ultimately become "nachi gandaa" (a sort of herdswoman queen). In order to survive, she has to learn the 'secrets of farming' in an interactive manner with the men.

Re-active learning: This is the most common and is reflected in the three types of farmer experimentation of Rhoades and Bebbington (1990). It is developed on the problem-solving model (van den Ban and Hawkins, 1988). It is learning that is purposeful, and the purpose could be just wanting to satisfy one's curiosity. In a diverse risk-prone agriculture (Chambers, 1984), the unpredictability of the weather demands learning and sharing, and supporting one another because the information

horizons are broader for adults, and the knowing environment (as described in chapter 6) has to be explored to the maximum.

Every farmer is involved in re-active learning at all times and in all stages of his farm operations. It is done both as an individual and jointly with others. The following forms were described by the farmers:

Box 7.2

- Farmers are curious like every human so they sometimes set up their own learning. A farmer told me of how he has used drugs he got from the hospital to give to his animal which had diarrhoea and it was cured. Since then he had been recommending it to other farmers.
- Another farmer told me of how he planted some wheat and according to him it grew but never formed seeds. Wheat was given to him as food aid. For him the wheat resembled rice so he planted some along with the rice.
- Adaptation of technologies is the most common among the ways farmers learn. They told me that when they acquire a new technology promoted by an extension agency, they are interested in adapting that and by so doing, learn. For them it is particularly necessary when they are testing an unknown component or technology in a known environment or when they are testing a known component or technology in an unknown environment.

7.40 Less organised learning

These are less formalised forms of learning but they do play a vital role in describing how rural people learn, keep informed, and develop together as members of one community. I discuss them under two categories: surreptitious and non-surreptitious learning.

Surreptitious learning: 'Surreptitious' is loosely used to connote in part the idea of understudying or picking up skills without being aware that you are doing so. The other part is that the one who has the information is not aware that he is being studied. The first type is unconscious internalization of information. It is unorganized and often unintended as well.

Box 7.3

A farmer described how he had gone for the regional 'agricultural show', and on his arrival at the show grounds, he was so overwhelmed by the occasion that he was too confused to see the learning objective that the extensionist said it would offer. But when he came home, he found that he could reconstruct a lot of the events, and there are a few technologies on bonding he is using resulting from this experience.

The others agreed with him that it was common to them, every first time they are exposed to such occasions. Their conclusion was that the mind, during those occasions, was playing 'hide-and-seek' with them.

The second form of surreptitious learning I refer to as a form of 'legal pirating', because all three tribes interviewed agreed that it exists among them and it is permissible though not legalized.

It is this type of learning that accounts for 'the illegal', partial extraction of research information from research plots by farmers who live next door to research stations, or when an extension agent finds some of his demonstrations far away from the demonstration plots. One characteristic of this type of learning is that it is incomplete in the sense that it is only portions of the knowledge which are 'stolen'. There are no punitive measures for this even when a farmer's own trade secrets are pirated (they tell me that if there is any punishment to be meted out, the gods and the ancestral spirits would take care of that).

Non-surreptitious learning: This is a spontaneous learning which is administered through a variety of tools that are of the mass communication type. The talking drum ("gong gong"), the horn, flute/whistle ("wear/welle") are the most common of the tools used. To the outsider it might seem that only music is being provided but for the people, learning and sharing of knowledge is actively taking place. The "gong gong" could tell the history of the village, summon people, announce the seasons, and convey an educational package. The "wear or welle" can make announcements, sing a list of the different ancestral lineages, and when used to lead farming, convey issues of excellence in performance.

Yodelling or 'night calls' ("hieru") is a local calling system that is used to educate and inform. This technology has been developed to such an extent that it is known to be most efficient during the nights and has a vocabulary of its own. There are also some people in the community who have specialized in this and teach others how to yodel.

There are also certain individuals who facilitate exchanges within the community. These I call 'walking or riding postmen' (they convey information by word of mouth either on foot or on bicycles). Within this category you find the "ko yere" (the funeral announcer). Funerals are so central to the life of the three tribes studied that the role and functions of the "ko yere" is very important in their knowing processes. Although he is to carry information about funerals, invariably he also carries gossip about the villages he moves through. There are instances when he is involved in information peddling, facilitating exchanges between communities.

Box 7.4

'Why all these several and confusing ways of learning?' I asked one elder. 'Why not have it streamlined like we have in our schools?'

'There are several fishes in the river and there are many different types of them', the elder told me. 'It has to be that way because there are different ways of swimming against the strong current of the river. If the river had no current and was stationary, then maybe, one type of fish would do. Our learning is a river with a very strong current but your river is not even flowing'.

7.50 The 'learning distance'

Social distances, that are not geographic but socially constructed, are discernible among families within the communities. These distances affect the learning among members of the community and this I refer to as 'learning distance'. Basically 'learning distance' is an expression of the extent to which learning interactions occur or to what extent family 'trade secrets' can be or are actually shared. Similar to the 'knowing environment' of chapter 6, it shows the heterogeneity in learning within one family and between families. Thus within one family, the relative social distances depict the intensities of the heterogeneity of what is learnt as a result of interactions.

Within the communities studied are family lines that have been endowed with special skills by their ancestors, and they tell me it is only within that line that one can perform those functions creditably. One example is the family of the blacksmiths in the making of farm tools. Since the secrets of the trade are a spiritual gift, they have to be processed and protected in a special way by the family line. Under "gandaalu", I mentioned how special skills could also be evolved and patented as a family property. Also in chapter 6, I have demonstrated how the family homestead was the nerve-centre of all learning. It was in the family homestead that primary learning occurred, and secondary learning was refined. All present and future knowledge is processed and proven by that which has been acquired informally within the family. Most socio-cultural and spiritual learning occurred here.

Below is an overlap diagram of two communities. 'z' is the immediate family of one clan, 'y' is the extended family and 'x' is a clan member. The second clan has 'a' as the immediate family, 'b' as the extended family, and 'c' as the clan member. For each of the cases, the family homestead described earlier is in the centre. As described in the 'knowing environment' of chapter 6, the closer you are to the centre the higher the chance that you will be exposed to the family secrets, and the further you are away from the centre the less are the opportunities for you to be exposed to the family/trade secrets/skills. In locations 'x' and 'c' you might have secrets/skills of your own, but relative to the centre you are an outsider. Those

in the centre (a,z) have the spiritual obligations (their cosmovisions) of restricted sharing but the further away the less obliged you are and so you can freely share or trade information.

The interaction of the two communities takes the debate a step further. Literally, sharing of secrets/skills seldom occurs between the two centres ('z' and 'a'). They do share knowledge and experiences but the sharing does not stray into their indigenous trade secrets. The extended families of 'b' and 'y' do share information, and there are indications of various degrees of possibilities of exchanges with respect to the skill in question. The most active 'marketing of a skill in question' goes on in the region of 'x' and 'c'. That is where knowledge is most differentiated as a result of interactions.

These positions are skill-dependent because different skills would change the relative positions, but the structure of the 'learning distance' is relatively stable. I found out that the structure obtains its form largely from spirituality (their cosmovisions).

This situation I encountered supports my earlier finding that cosmovisions were dominant in determining the persistence of commonly shared ways of acting; enabling the perpetuation of shared values, attributes, and action domains (Millar, 1992).

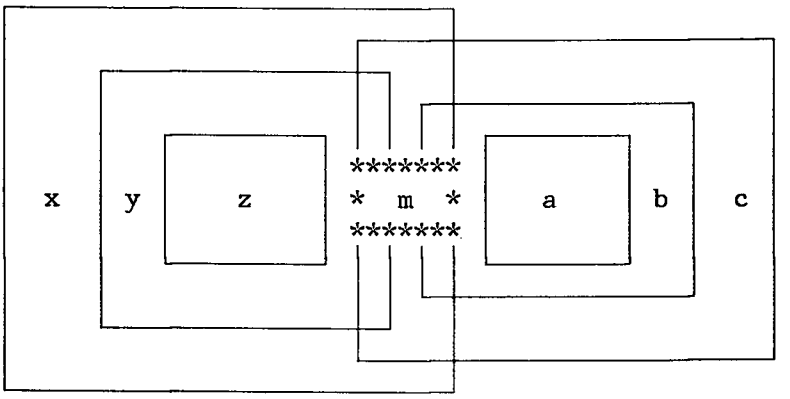

Fig. 7.1 Learning distances between two communities

In concluding this discussion on 'learning distances', I wish to draw attention to the fact that 'a' and 'z' provide the area of maximum homogeneity (commonness and shared values and actions) in learning. 'x' and 'c' are regions of maximum heterogeneity where diversities in learning are best expressed within the system.

The point region 'm', characterised by all the overlaps, is very critical in the interactions, for it is the point where the interactions are at a maximum. It is the most active exchange point, and the most opportune place for change to occur.

Most interventions so far are located in this region where spirituality (cosmovision) is marginalised. True to its nature as a dynamic exchange point, it is also where change is less stable. The challenge is to have intervention capture areas 'z' and 'a' where cosmovisions provide an entry point, and then work towards synergic development of the family secrets/skills.

7.60 Emerging planes of learning

"Zanzanbe", "zuudem", "I-keberbe" and "Ire-kaarbe" are four quadrants used by elderly farmers to classify learning in their communities. The discussions that led to their making these classifications were about how innovative people are in taking advantage of situations, and how people change with time. It was as a result of this that my informants told me that whatever innovation you look at (whether externally introduced or internally generated), if it is communally shared, you would always find the four cultural constructions of learning in their various degrees of combinations. If one or more of these are absent then the learning process is still immature or incomplete, or it has not yet stabilized. The communities differentiated them in the following way:

- "Zanzanbe" are those who are relatively new in the learning process with regard to the innovation and are developing themselves. They are very committed to the task of learning and would be willing to go through whatever learning processes are recommended for the acquisition of that knowledge or skill.
- "Ire-karbe" are a group that is constantly shifting in and out of the technology. They are a mobile learning group who come into the learning process, pick a few skills and knowledge, move out to test them and come back in as fresh learners. They are less committed to the process and have a tendency of slowing down the learning process. The respondents say such people are not convinced by the benefits of this learning but still want to be identified with it for covert reasons. They are opportunists and often come in just to take advantage of what new offerings are available.
- "I-kebrebe" are those who have had a very early contact with the technology, acquired the knowledge and skills, and have abandoned the use of it. They normally do not come back and have very vague knowledge of that which they have learnt. They have the tendency to want to show that they are sufficiently informed, but if you pursue them further they are found wanting.
- The "zuudem" (equivalent to head-men) are those who have acquired the technology and worked with it so long that they have become authorities. The community acknowledges them as experts and accords them that due respect. Invariably, they would have made many modifications to the technology and thus evolved secrets of their own. Their modifications then become the trade secrets which are restricted to the family (blacksmiths are an example of this). (During my

research, when I wanted someone good in the production of a particular crop, I was often sent to one such person or family).

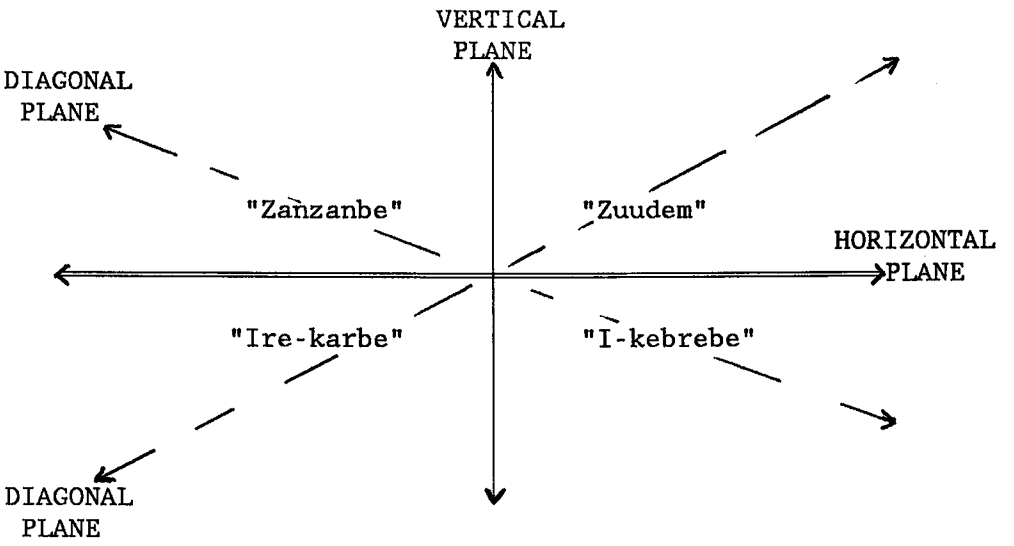

Fig. 7.2 Four quadrants of adult learning tendencies

Having described the quadrants as indicated above, I will proceed to analyze the dynamics and the diversities according to 'learning planes' which I evolved for analytical purposes.

I identified three planes of learning: the horizontal plane, the vertical plane, and the diagonal plane. These are imaginary lines cutting through the quadrants (see chapter 5 on methodology). On the upper half of the horizontal plane you will find the "zanzanbe" and "zuudem". These two are the active learning group with reference to the technology in question. The "zanzanbe" because they are beginners are intensively involved in acquiring information and skills, using some of the methods described in chapter 6. They may be found testing out the knowledge both during tutelage and on their own. The "zuudem" have to maintain their ego or keep developing to be ahead of their peers. They have the "gandaalu" tendencies, and are seen to be open to any learning that would buttress or intensify their knowledge base. The stakes for learning are higher for this category and they rate their innovativeness very highly. Between these two classifications, the motivations are that one is learning to keep a trade and the other is learning to acquire it.

The lower half of the horizontal plane has "ire-karbe" and "i-kebrebe". The "ire-karbe" have a 'do and see' attitude towards learning. Since they are not sure

of the rewards of that learning process they become passive and place a low value on innovativeness. They are joined in this attitude by the "i-kebrebe", but the difference is that the latter have their minds made up to quit until sometime in the future when circumstances change, while the "ire-karbe" are indecisive. There is the tendency for "ire-karbe" easily to become "i-kebrebe".

The general tendencies are therefore that "zanzanbe" have a greater chance to become "zuudem", as much as one should anticipate that "ire-karbe" will become "i-kebrebe".

Looking on the left side of the vertical plane, you will find the "zanzanbe" and the "Ire-karbe". Both are still indecisive and less committed with respect to the learning that they are going through. If the learning process runs out of inputs or a driving force, "zanzanbe" would easily become "Ire-karbe". Motivation for continuing in the learning processes for this group is still not conclusive. It is therefore not easy to sustain them. For development intervention, if this category form the majority of those reached, one would get participation as long as the external input or driving force is inplace, and they would easily disintegrate if this opportunity dries-up.

The right half of the vertical plane has "zuudem" and "i-keberbe". These are the categories that have had a full taste of the learning process and have decisively either opted to follow the course and develop it, or abandoned the process for what it has to offer.

Because of their experiences, "zuudem" have the tendency to hi-jack an innovation or monopolize it. They also accelerate the learning processes and are surely committed to the processes and would do all in their capacity to sustain them. On the opposite side, "i-kebrebe" are often a drag on the learning process. They have the tendency to discourage others or slow down the processes deliberately.

Within the social set-up there exist transitions along the diagonal planes also. After an unspecified period of time or when there are situational changes, some "ire-karbe" would eventually settle in as "zuudem". This often happens after "oogfu" when the person is in control of his own resources and has the opportunity to realise the direct benefits of the learning. It is also the time that he has become the head of his nuclear family and therefore has to show some stability in his actions. He might have also assumed the role of a teacher/master to some juveniles and they would expect clear choices from him. The community was quick to show me in the field of traditional herbal medicine where this had happened, and to give themselves as examples in particular fields of agriculture, where they have gone from being "ire-karbe" to "zuudem". A movement in the opposite direction, I am told, is not common. What they say happens is that you may have several "zuudem" and then within them some would be behaving like "ire-karbe".

On the other side of the diagonal plane, the explanations they gave for shifts were relatively easier. They say that if the "zanzanbe" stop learning, they become

"i-kebrebe" and when the "i-kebrebe" want to go back to learning that which they have abandoned, they become "zanzanbe" because they have to re-learn.

Though similar to the farm styles of van der Ploeg (1990), it is important to note that these are tendencies, and so they are less rigid or permanent constructs. I have elaborately discussed the movements of actors along the planes that occur within the various categorizations to take advantage of resources and situations. This has shown that apart from the "zuudem" who are partially fixed according to their particular skills, the rest are relatively mobile positions. Even with the "zuudem", it depends on which technology is in question. For some other technologies they may not be the "zuudem" and so they become mobile like all others. These orientations are therefore not styles, and so the individuals within them change between technologies, within technologies, and with time. The orientations are thus highly influenced by 'external factors' such as schooling, religion, modernization or resources.

It is also worth noting that the incentive or motivational factors mentioned above to sustain the various orientations are not only external or limited to material or mundane things. The experience is that spiritual motivation, especially that linked to the ancestral spirits and the pronouncements of the soothsayer, are even stronger in motivating people to assume certain orientations.

7.70 The growth trends of 'knowing'

The 'knowing curve' below is a graphical re-construction of "wulu", and "oogfu" of vertical learning, and all that was discussed under horizontal learning. It is a time-trend analysis that tries to capture the growth and development of learning and shows some transitions. These are social constructs and so the transitions are not very sharp, and the interfaces are not clear boundaries. However, the transitions do occur as labelled by the community and these transitions have the characteristic changes as described. The time of occurrence might differ for different reasons and for different family types. Only that between "wulu" and "oogfu" is a clear transitional period because of the ceremonies that accompany this period. As mentioned in chapter 6, there are symbolic actions to commemorate the 'graduation process'. They include being handed a hoe, and the acquisition of a limited quantity of production resources (especially land), that one can refer to as his own.

The first part of the curve, the "wulu" part, shows relatively quick and regulated learning. As described in chapter 6, the young undergo tutelage supervised by the elderly, and also some through peer learning. It has a relatively specific age period of between four and twenty years (when compared to the average life expectancy of man which is about sixty years). Here learning is relatively fast because of the newness of information and the desire of the child to explore in an adventurous way (hence the steep slope of the curve). The learning

is varied and broad-based. The pupils usually have very limited influences over the choices and pace of learning, and learning is generally top-down. The pupils also have very little control over the resources or inputs for the learning and the learning is rigorous.

During "oogfu", learning slows down quite considerably as indicated by the relatively flat gradient of the curve. This is between the ages of nineteen and twenty nine years when the adolescent has acquired his first set of tools and independent property and is beginning to settle down to some private life. At this time he is overwhelmed by the degree of autonomy and the new style of life (his newly found freedom) which makes him less available for the challenges of acquiring new knowledge or skills. The gentle slope is an indication that there is some learning going on but at a relatively low rate.

After settling down,life picks up again but now in the realm of adulthood. Learning is relatively more relaxed as compared to "wulu", the resources are largely self-owned which makes risk-taking more common. This is the pattern that continues for the rest of life as described in the earlier parts of this chapter.

The very old men in my sample drew my attention to their plight of having to learn to cope with old age. They told me that they had to re-learn skills that they had abandoned long ago and also master some new skills. They said that re-learning was particularly in the area of child caring and domestic functions. I observed this to be so because most of the very old men helped the women with the babies (their grand children), and some cleaning around the house to keep themselves occupied. When it comes to agriculture, their role changed from production to processing, particularly of harvests. This was a role they used to allocate to the women and the children. In terms of skills they had to improve, they were now required to combine their educative role with judiciary functions and advisory services. So for them the tempo of learning during adulthood picks up again when they have to cope with old age.

Within this graph, external religions and schooling feed into the "wulu" segment in particular. The community's non-formal education programmes and extension services feed into the "oogfu" and adulthood. The formal institutions involved in learning among the rural communities studied have never made the effort to study these social constructions of learning, or to understand the dynamics of indigenous learning. The experience would certainly have made a difference to the focus of development interventions.

From the findings of this research, there are indications that schooling and exposure to other environments influence the trends I describe here. Those from the community who have gone to school before coming to settle in farming, those who have travelled to the south of the country to work and have come back to the village, those who have contacts with expatriates, and those who have served in other official jobs before coming to settle into farming in the community, normally show faster growth trends of 'knowing'. The characteristics of "wulu" and "oogfu"

in particular, are thus compromised by the effects of interactions and modernization. An example of the effects of modernization on the transitions between the various stages is the fact that some youth in the "wulu" phase do not wait to complete the phase and move to "oogfu". They by-pass it to adulthood by acquiring their own productive resources very early.

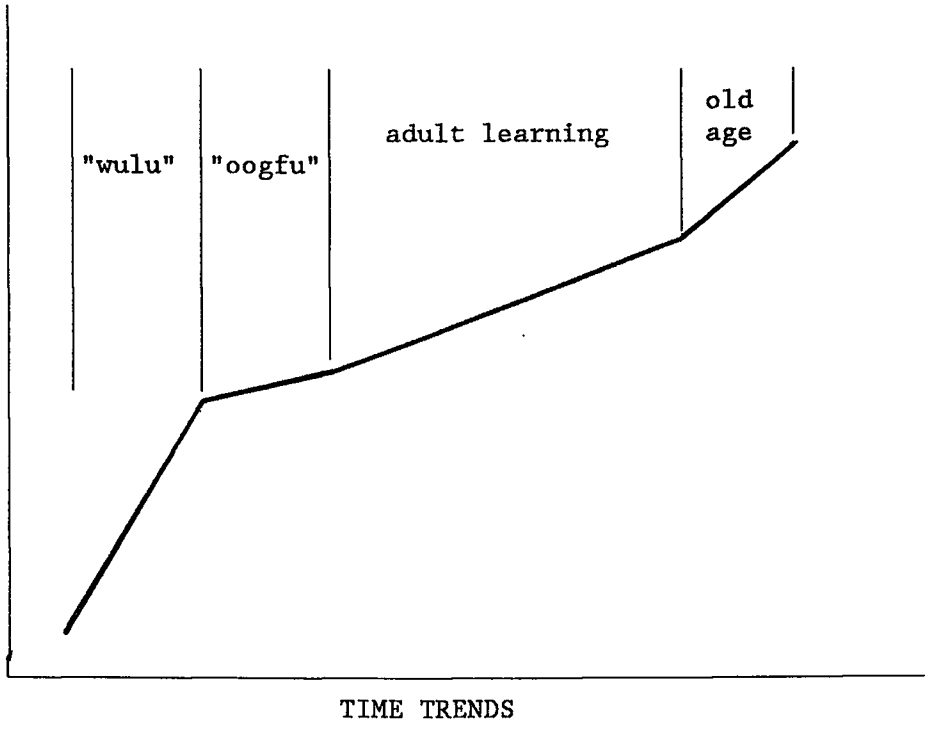

Fig. 7.3 The 'knowing curve'

7.80 Theoretical contributions and debates

Squires (1993) has made observations about shifts that are made in adulthood. He starts with the notion that in recent times a shift is made from age being a determinant of adulthood to age being an aspect of adulthood, in combination with other factors. He lists these factors as:

- Biological ageing which is very strong during childhood, decreases in middle age and becomes strong again in old age.
- Social generational factors (engagement in society), which follows a trend opposite to the first.

- Individual life events which are an accumulation of life-long experiences. This has a linear growth till death.

He concludes that the most important aspects of adulthood, as far as learning is concerned, are the social generational growth which is declining and the individual experiential growth which is growing.

I have endeavoured above to capture both the social generational and the individual experiential aspects of adult learning. But unlike Squires, I have consistently referred to age, not only as a determinant of adulthood, but also as a determinant of wisdom. The community I studied make a link between long life and the wealth of experiences that accompany it. For them learning is an accommodation of concepts, and an assimilation and accumulation of experiences over a life long period. The 'knowing curve' shows that even senility has its attendant acquisitions of new knowledge and skills.

Cross (1982:132-250) talks about two types of learning: self-directed learning and participation in organized instruction. She says that since self-directed learning, though less organized, is less threatening, it offers the best opportunities for a wide range of choices. These include self-created choices, and so she finds it difficult to confine adult learning to fixed styles.

I have shown with learning orientations of the communities I studied that for the actors to gain relative advantages through horizontal learning, they do not lock themselves up in particular styles as is the case with the Dutch farmers studied by van der Ploeg (1990). In van der Ploeg (1990:12), he discusses his concept of farm styles by stating that,

> '[...] *a particular style of farming is the product of a specific structuring of farm labour. A style of farming can rightly be defined as a social construction [...] located within the farm labour process'.*

The learning orientations are also social constructs, but the actors within these constructs can, and do, choose different orientations as they deem them relevant for achieving their goals. Since these goals keep shifting and resource opportunities are not static (where resources go beyond farm labour), learners are strategic in shifting along with them. The swapping of roles between being pupil in one context to being master in another, and the complex organisation of the 'partial commoditization of knowledge' that I have described, makes it unwise to limit oneself to only one style. The 'demand and supply' nature of the learning 'market', and the fact that payments are made in kind (as exchanges), makes it a better choice to open yourself up for the 'pulls' of the market rather than the 'push' of your commodity only. Also farmers operate in an environment where even to identify what is agriculture and what is not is very difficult. They are exposed to social constructions which keep altering their orientations. The social constructions are formed within their mixed agricultural systems within which they have to operate. This makes it strategically

unwise to maintain or belong to one permanent style of farming.

The different models of Lewin, Dewey, and Piaget about learning are summarised by Kolb (1993:141) as follows:

- The Lewinian model: Learning conducted starting with immediate concrete experiences. These experiences are assimilated into theory. From this new implications for action are deduced. These implications serve as guide in action to create new experiences. This model gives room for subjective, personal meaning used to test abstract concepts. These subjective outcomes are then processed alongside others; there is then feedback to complete the loop.
- Dewey's model: Similar to the Lewinian model. The difference is that Dewey uses the feed-back to describe how learning transforms the impulses, feelings, and desires of concrete experiences into higher order purposeful action. He emphasises learning as a dialectic process integrating experience, concepts, observations, and action. Dewey concludes that the impulse of experience gives ideas their moving force, and ideas give direction to impulse.
- Piaget's model: This model argues that the dimensions of experience, concept, reflection, and action, form the basic continua for the development of adult thought. Hence

> '[...] *adulthood moves from concrete phenomenal views of the world to an abstract constructionist view, from an active egocentric view to a reflective internalized mode of knowing*'.

He sees learning in terms of accommodation of concepts and assimilation of experiences. Learning for him is intelligent adaptation resulting from a balanced tension between the two processes. Piaget concludes that

> '[...] *when accommodation dominates assimilation we have imitation; and when assimilation dominates accommodation we have play*'.

From the models above, Kolb (1993:148) made the following deductions about learning that I find extremely informative and want to refer to extensively. He states that

> *'[...] learning is best conceived as a process, not in terms of outcomes. Ideas that are involved in a learning process are not fixed but formed and re-formed [...] Knowledge emerges through invention and re-invention, and so learning becomes a continuous process grounded in experience. This therefore makes all learning re-learning [...]'*

He goes on to say that new ideas are acquired by integration or substitution.

My findings above are supported by these views. I have shown with the examples that farmers learn through problem solving, curiosity, adaptation, prowess testing, peer and social pressures; they are all ways of indigenous learning and re-learning. In addition to this I have demonstrated that the desire to conform to one's

cosmovision gives an added factor to learning which makes learning a holistic process of adaptation to the world. For the farmers, learning is a major process of defining how they adapt, and the adaptive processes they undertake over time; some are immediate and some are long-term in nature. Kolb refers to immediate adaptations as *'performance'* and those of a long-term nature as *'development'*.

Further to this, Kolb sees knowledge as a result of a transaction between social knowledge and personal knowledge. The outcome of this product is contributed to by objective and subjective experiences in a process called learning. Therefore learning becomes a process whereby knowledge is created through the transformation of experience. He argues further (Kolb, 1993:151) that,

> *'[...] to learn is not the special province of a single specialized realm of human functioning such as cognition or perception. It involves the integrated functioning of the total organism - thinking, feeling, perceiving, and behaving'.*

Weil and McGill (1989), Hutton (1989), and Wildemeersch (1989) all contribute to a similar position with their views about experiential learning.

I share these positions with them in my findings, and I add to this the examples from 'surreptitious learning' that some learning is unconscious and even unintended. This the farmers recognized by terming it as, 'the mind playing hide-and-seek with them'.

In Brah and Hoy (1989), (also in Kolb, 1993), four stages of cognitive growth have been described from birth to sixteen years:

- Sensory-motor stage which is from 0 - 2 years. The child is concrete and active in his learning style. Learning is through feeling, touching, and handling.
- Representational stage, from 3 - 6 years. The child maintains concrete orientations but develops reflective orientation by the manipulation of observations and images. The child begins to be freed from immediate experiences.
- Stage of concrete operations, from 7 - 11 years. The development of abstract symbolic powers begin. The child is freed from experiences and develops an inductive power. The child moves from an accommodative position to an assimilative one. The child relies on concepts and theories to give meaning to experience.
- Stage of formal operations, from 12 - 17 years. The child moves from symbolic processes based on concrete operations to the symbolic processes of representational logic.

Though not processed with the same amount of professional detail as was done by the writers mentioned above, the 'knowing curve' opens up challenges for further exploration. It has created the need to extend the analyses on cognition growth beyond the seventeen years of Brah and others to show exactly what is happening when the old say that, 'we are engaged in active learning at our very advanced

age'.

7.90 Conclusion

Literature discusses adult learning which is very similar to what I have found in northern Ghana. Although similarities can be found from there, differences still exist. This chapter attempts to contribute towards the completion of the picture by looking at indigenous forms of learning.

It starts by drawing attention to the products of learning; how it is developed, patented and exchanged as a commodity. I argue that the value that the community gives to the products of learning must have a bearing on the processes of learning as well.

Departing from that, some forms of the learning processes were labelled as organised because of the similarity with conventional learning, and the others un-organised. The dichotomy is for analytical purposes because in their real happenings there is no such separation, but they co-exist and jointly contribute towards how adults learn.

The learning distances were captured next, giving indications as to where information is most stable and where it is easily traded-off. This was akin to the stability or otherwise of the information that is learnt. The four quadrants showing the stabilized forms of learning, and the analytical plane used to illustrate them were next to be discussed.

Following up on the position of this book that juvenile learning and adult learning are on a continuum with unstable boundaries, the growth trends of 'knowing' are mapped out. This graphical representation tries to bring to light the relative positions of "wulu", "bangfu"/"oogfu", adult learning, and learning in old age. The graph is intended as a figurative illustration of rates at which the various learning processes occur.

My findings include some aspects of learning that may be similar to 'pirating of knowledge - illegal learning'. Because of this and the importance that people attach to their knowledge, there are 'learning distances' created as safe barriers. In general, these findings show that horizontal learning is largely learning from experiences; it is pro-active and re-active, organised and un-organised. Fixed styles are uncommon and learning is holistic - it includes a vital spiritual component.

8 Indigenous Learning: The Role of 'The Outside World'

8.10 Introduction

Within northern Ghana, learning is largely about acquiring and/or generating information, and then processing it into realising agendas. Whether it is knowledge for understanding or knowledge for action (Scott and Shore, 1979), it has to deal with the information as a power base (Long, 1990). Analyzing knowledge in terms of the dichotomy used by Scott and Shore does not go far enough for the empirical observations of this study. There is an overlap between knowledge for understanding and knowledge for action in a dynamic process. In a complex, diverse, risk-prone and resource-limiting environment such as ours (Chambers, 1983), we cannot afford the luxuries of the polemics about knowledge: whether it is for understanding or for action.

With the resource constraints we are bedeviled in the Third World, the demand for rigorous information that simultaneously provides knowledge for rewards, action, understanding, and self-fulfilment is most essential. This type of knowledge is expressed in the form of information, skill development, and empowerment. Hence some additional components of knowledge required by rural communities in northern Ghana are knowledge for achievement and knowledge for self-fulfilment - that spiritually satisfying knowledge that provides them with self-fulfilment and empowers them.

The spiritual knowledge for self-fulfilment and empowerment is usually not captured by development intervention. That knowledge which enables them to identify with the ancestral spirits, communicate with the gods, or be accepted by the spirits when they die, is a vital component which influences the learning processes of the communities studied. It is also a vital aspect of the criteria they use to decide what is the 'inside world' (them), and what is the 'outside world' (others).

I intend with this chapter to discuss how some of the information that intervention/modernization - 'the outside world' - has introduced to farmers have performed, when confronted with on-going indigenous learning. I have done this by using the common tools that we use in NGOs to collect quantitative data. These are the tools of participatory rural appraisal (PRA) (IIED, 1994). (The data were collected using matrix diagrams and matrix scoring as described in chapter 5 on the

in-depth and main surveys). I have chosen not to perform tests to establish significance in the results obtained because the percentages calculated are intended to show trends and tendencies, not statistical proof of fact. The calculations are therefore basically arithmetic in nature, and the messages of intervention are treated within the general framework of farmers' information for agricultural productivity.

The qualitative analyses of chapters 6 and 7 show farmers' tendencies to incorporate information acquired from 'outside' by reprocessing it within their own environment. This chapter aims to analyze quantitative data that is intended to support the qualitative findings discussed in chapters 6 and 7 in particular, and the research in general. It starts with how external information and skills are acquired and ends with what proportion of this information is utilized. In doing this, the discussion is differentiated according to agricultural activity, religion, age, and, where there is the information, according to immigrant/native, and contact with intervention or schooling.

8.20 Some reflections

In Long (1989), Villarreal (1990), Long and van den Ploeg (1988) and Leewis (1993), the fact of the fluidity of information acquisition and processing has been established both for indigenous and formal knowledge. While identifying with these analyses, I would like to blend my stand with the view of the systems school of thought (Röling, 1992; Nitsch, 1991; Engel, 1991) that some characteristics of information processes are commonly shared by actors in their self-ascribed systems. Such information is jointly constructed, deconstructed and reconstructed by the actors in a joint learning processes. There are driving forces of their socially constructed systems (Engel, 1991), and one of the strongest of these forces is the cosmovisions of the people (Millar, 1992) which result in the joint ownership and utilization of some information by a community.

In this chapter I will differentiate the dynamic, continuous, interactive, and iterative process of learning that goes on in the communities into distinct phases for analytical purposes. In their natural settings, the differentiations are not easily discernible.

To analyze the results, I examined acquired versus generated information, and kinds of utilization of information, as some of the information management parameters suggested by Havelock (1986). I have opted for these parameters only because they were those I could easily identify. I have also categorized the information into the three generations based on the 'three generational analysis' of Den Ouden (1989). However, in most cases it was difficult to find the son-father-grandfather linkages so I modified it to refer to age groupings, including some of the three generations I found (18 of the 53 samples were real three generations). I also had to further categorise the data into the three religious groupings that the

Table 8.1 Mode of obtaining information and skills

VARIABLES	CATHOLICS (13)			ANIMIST (12)			MOSLEM (10)		
PRODUCTION ACTIVITY	(4) "wulu"	(6) "oogfu"	(3) adult	(2) "wulu"	(5) "oogfu"	(5) adult	(3) "wulu"	(3) "oogfu"	(4) adult
Pre-production	4	5	3	2	5	2	3	3	1
Organisation	4	6	2	2	4	2	3	2	2
Management/coordination	4	5	1	2	3	0	3	3	3
Sowing	3	6	3	2	4	1	2	3	3
Weeding	4	5	3	2	4	1	1	2	2
Re-shaping	3	6	2	2	4	2	2	3	3
Harvesting	4	6	3	2	4	3	3	3	3
Diseases/pest	4	6	3	2	4	3	3	3	2
Mechanisation	4	6	3	2	5	4	3	3	2
Fertilization	4	4	3	2	5	5	3	3	2
Management/coordination	3	2	1	2	4	0	3	2	4
By-products	3	3	1	2	4	0	3	3	4
Processing	4	5	2	2	4	3	3	3	4
Storage	4	6	3	2	5	0	3	3	4
Diseases/pest	4	6	3	2	5	2	3	3	2
Management/coordination	3	2	1	2	4	0	3	3	4

Total number of respondents = 35
Scores are the counts of number of farmers who say they acquired (as against self-generated) most of their information and skills per activity per category. Number of samples per category are indicated above in ( ).
Acquired <----------> Generated
maximum <----------> minimum

community thought were important in differentiating their identities - catholics, moslems, and animists. How the sample of 53 was arrived at and the questioning processes are discussed in chapter 5 (the variables and data collection guides are shown in tabulated charts in the appendix).

It is important to note that the differences I encountered in the orientations of the different religious groupings were due more to the educational component than the doctrinal component of the different religions. By this I mean the differences were due more to what the communities thought that their religious orientations suggested as the best way to conduct learning, than to the fact that one was a christian, animist or moslem. As indicated in the discussion, the influence of such perceptions are strong during "wulu" and weaken after "oogfu".

A problem I encountered with the categorisations was that a significant majority of the group aged 30 years and over apparently were older than the ages they gave me because they had sons who said they belonged to the 29 years old group. This shows that age is not a very reliable factor with this sample. Another noticeable feature was that one could find a father (or grandfather) who was an animist while his son was a catholic or a moslem. The reverse was however not encountered.

Based on the earlier findings of chapter 6 and 7, I start from the position that adult learning (andragogy) and child learning (pedagogy) form one continuum. They are basically processes of acquiring, creating or generating knowledge; although it is sometimes difficult to draw a fine line between that which is acquired or created and that which is generated by themselves.

8.30 Obtaining information and skills

8.31 Obtaining information and skills among the catholics

The majority of the sample that fell into the category of catholics were immigrants either brought in by the Government or voluntary immigrants. These were the Frafra and Dagaaba groups.

"Wulu" (ages between ten and nineteen years): With reference to Table 8.1 above, the indications are that for the respondents of 19 years and below, over 95% of the cases obtain their information and skills for agricultural production as information they have acquired from others rather than generating it themselves. The ensuing discussions with them revealed that, for 70% of these instances, the respondents acquired their information from their parents; 25% was from their peers and 5% from formal education (schooling). The role of this age group in management/coordination decisions is the area where some generative information occurs in a rather limited way.

The reason for this could be the fact that this is the period that the person is

undergoing apprenticeship and therefore following the learning processes described in chapter 6 as "wulu". The "wulu" process for this group has very little room for generative knowledge and skills development when administered by the elders. Also the ownership of the factors of production by the elders, as described in chapter 6 and 7, militates against generative skills.

Some of these children were born into christian homes and it was found that some of them had acquired some form of formal education either in a school or within the church. One would imagine that such an education would be sufficiently liberating to provide a major departure from the traditional tutelage system described earlier. The research results did not indicate that that was so, but rather confirmed the dominating role of their traditional values over externally acquired values. They still identified with "oogfu" as a learning stage and look forward to the cultural practices that accompany "oogfu", as described in chapter 6.

"Oogfu" (ages between twenty and twenty nine years): This age group obtained their information and skills more by acquisition than generation (79% acquired and 21% generated). It is in the area of management/coordination decisions that there are signs of an increasing tendency to allow for generative skills and information (40% generated).

The noticeable feature of this group is the fact that their control over management decision is increasing. In chapters 6 and 7, this period coincides with "oogfu" which is the period during which limited resources are given to the young to start a productive life of their own while family controls still exist.

Here too, it was my expectation that their christian background would have given them much leverage within this age group to perform as individuals. In pursuance of the reasons for the departure from my expectations, I realised that 90% of my sample were non-natives of Damongo. These were settlers who came in as migrants. The land given to their parents by the natives was very limited (not exceeding twenty acres). It was therefore difficult for a father to give land outright to his son. In most cases, all land still belonged to the father and a small portion (not exceeding eight acres) leased to the son under very strict conditions; one being that no new practices were to be introduced into the farm without the father giving the go-ahead.

This they find to be the most limiting factor to their learning and development in agriculture. Those who had gone to school say that this arrangement was particularly frustrating to innovativeness or practising some of the agriculture they learnt in school. The group ruled out the possibility of using their farms to train the young who are coming after them because they say the elders have abrogated to themselves that role of teaching the young.

Adulthood (ages thirty years and above): For this category, there is a 75% emphasis on information and skills being acquired over that which is being

generated. The 25% generated information is again largely in the area of management/coordination decisions. Within the area of processing, 35% of this information is also generated.

Over 95% of the respondents here are heads of families and thus own or control the resources for production. Despite their control over resources this age group is still dependant on the information acquired because of the fact that the commonest and major crop they produce is maize. The technology of maize production in Damongo has undergone intervention for over forty years (see chapter 2). Those settlers who were brought in by Government were for the production of maize and those who voluntarily came into Damongo opted for maize production because of the incentive packages and the inputs support. The accompanying technical information for its production has been so delivered that it has since seen very few modifications. This explains people's faithful attachment to the information and skills on maize production which they acquired from the extension service, but even in this case the use of information is partial.

8.32 Obtaining information and skills among the animists

This is a mixed sample of immigrants and natives. The sample that fell into this category captured all three major ethnic groups in the research area. These are the Gonjas (natives), the Frafras (compulsory immigrants) and the Dagaabas (volunteer immigrants).

"Wulu" (ages between ten and nineteen years): Only two members of the sample for the survey turned out to be belong to this category. The two were consistent in their responses for the pre-production, production, and processing activities listed in the table above. They maintained that all their information in these subject areas was acquired from their parents. The size of the sample not withstanding, it is significant to note that the likely mode of obtaining information and skills is by acquisition. They resolutely fall in line with the findings of chapters 6 and 7, more here than elsewhere because of their more intense links to cosmovisions and their family ties which require strict tutelage.

"Oogfu" (ages between twenty and twenty nine years): 85% acquiring mode was exhibited by this generation which shows a 15% weakening in favour of generative information and skills. As stated earlier, this period coincides with "oogfu" which gives leeway for some independence. The creativity that emanates from this is not extensive because of continuous linkages with the core family.

The table above shows that the exhibited slight inclination towards generative skills are in information areas that are fundamental to production such as sowing, weeding, re-shaping, harvesting, and processing of the harvest. Aspects of these

production areas are perpetuated in their slightly adulterated form. But issues like mechanisation, fertilization, and storage, pests, and diseases for them, largely depend on external information (extension services). The situations relating to the use of these skills are dynamic and occur unexpectedly, making immediate demands on their acquired skills. The suddenness of the occurrences, they say, is why they rely highly on acquired information from external sources. They also say that the stakes with disease and pest situations are too high, and so they are less prepared to take risks since independent life is just beginning for them.

Once more management/coordination decisions are the most liberating activity for generative skills and information.

Adulthood (ages thirty years and above): This is the category that makes a big departure from the trends described earlier. 35% of the their information and skills in the areas discussed is acquired and so 65% is generated by themselves.

It is the most creative group for several reasons; among them the fact that they have absolute control of the production resources. All five of them were heads of families and therefore had the prerogative to use of the resources. They also had the onus to meet the traditional/ ancestral mandates that govern the use of these resources.

The culture of the people was deeply expressed within this age category because they were unequivocal on the challenge to guide and develop the young, and be less dependant on externally acquired information. They also were very diverse in the crop types they grew and preferred. Those in roots and tubers found little value in the external knowledge, a position they shared with those in millet production. A follow-up on this confirmed that Extension, so far, had no developed packages to support the production of roots and tubers, and millet.

Mechanisation and fertilization have the highest score (90%) of being acquired. A follow-up on this revealed that their responses were based on the use of tractors and chemical fertilizers for their crop production. This position is supported by the fact that Damongo has had a history of extremely high levels of mechanisation with the accompanying use of chemical fertilizer, compared to most parts of northern Ghana. The rudiments of structures that supported these technologies still litter the place. The people had found it impossible to sustain these technologies on their own and Government support had dried-up. The imprints that this had made on people's minds also still linger on.

Again, all five consistently said that they generated their own management/ coordination decisions. They said that being heads of families they were compelled to take the management/coordination decisions both for themselves and others.

8.33 Obtaining information and skills among the moslems

The Gonjas (the natives of Damongo), dominate this sample category. The survey sample could not capture the Frafras and the Dagaabas because this segregation was an expression of the realities on the ground; that Dagaabas and Frafras were rarely moslems.

"Wulu" (ages between ten and nineteen years): The pattern of strict apprenticeship is adhered to here again. It was possible talking with this group to identify some elements of Islamic modes of delivery in the information acquired. This took the form of verbatim learning and regurgitation of information. They were quick to express their feeling of resentment for corporal punishment in the form of caning that accompanied failure to remember what was taught. They were of the opinion that learning for them is intended to be complete and thorough as taught. This is reflected in the high degree of emphasis on acquired information (92% of the information is acquired from the elders and only 8% is generated by themselves).

The results notwithstanding, the interviews showed that the 'islamic style of learning' was moderated by the cultural inclination described in chapters 6 and 7, which emphasises practical and experiential knowledge acquisition. Like their counterparts who were catholics, they still identified with "oogfu" as a learning stage and look forward to the cultural practices that accompany "oogfu" as described in chapter 6.

"Oogfu" (ages between twenty and twenty nine years): The rather disciplined and instructive nature of islamic teaching shows up in this age group as well. About 94% acquiring mode is exhibited, showing a very small generative capacity of 6%. Although my analysis shows that this period coincides with "oogfu" which should give leeway for some amount of independence, this does not appear to be so with the moslem category. The family link and the notion of tutelage is still strong and overlaps into this age group. It must be said that "oogfu" still occurs around this period for the moslem youth but the tenets of "oogfu" have been moderated.

This is one example of the persistence of a cultural norm blending with that which has come from a different culture - religion. The fact that this has captured an element of deviation from the expected was very informative and prevented a relapse into stereotyping and therefore generalisations. The only consistency here is in the fact that it is in management/coordination decisions that generation of information and skills is still expressed.

Adulthood (ages thirty years and above): The earlier picture presented for this category for the catholics re-emerges here too. It is again this age category that makes a departure from the trends described for ages twenty nine years and below

for the moslems. Within this category, there is a 70% emphasis on information and skills being acquired over that generated. Significantly, unlike the catholics, 30% generated information is not in the area of management/coordination decisions which is largely acquired, but in technical production messages.

A follow-up discussion on why there was this departure revealed that this group made no distinction between management/coordination decisions and technical production in the various areas specified. They were all heads of families and owned or control the resources for production. They had a rather broad-based production system, being natives of the place. The technical knowledge they acquired was not restrictive and the management of resources was relatively liberal. The origins of overlaps between technical messages and management/coordination decisions could be rooted here.

The sample argued that both islam and their culture compel them to provide very strict guide, tutelage, and development for the young, and their operational definition of the young was anybody who still had a father alive.

8.40 General acquisition of information and skills

"Wulu" (ages between ten and nineteen years): From the analyses above the following characteristics emerged for this group:

A very high degree (over 90%) of their information and skills are acquired. This is particularly so for the youth who are animist who exhibited a 100% acquiring mode. This age group of the animists had not gone through any formal schooling, while their counterparts of the christian and moslem religions had. This might be an explanation for the 8% generative tendencies of the children of the animists who showed signs that they possess the plots that I referred to as 'learning laboratories' in chapter 6.

They all have an across-the-board high degree of acquisition modes for knowledge and skills for pre-production, production, and the use of by-products.

Emphasis on practical training, strict tutelage and committed loyalties to learning was shown by all of them which buttressed the "wulu" characteristics of chapters 6 and 7.

"Oogfu" (ages between twenty and twenty nine years): The over-dependence on acquired external information and skills begins to weaken here. The catholics showed 21% and the moslem 15% generation of information and skills. However, the moslem group still showed as high as 94% acquiring modes. Although for all of them this period coincides with "oogfu", the tenets of this cannot be generalised. For the moslem group it still meant fewer generative opportunities.

Generally, management/coordination decisions seems to be the area this group starts to get liberated and begins to generate some information and skills.

Table 8.2 Activity areas and level of utilization of acquired information

VARIABLES	CATHOLICS			ANIMISTS			MOSLEMS		
PRODUCTION FACTORS	"wulu"	"oogfu"	adult	"wulu"	"oogfu"	adult	"wulu"	"oogfu"	adult
PRODUCTION ACTIVITIES									
Land	7	6	4	9	8	1	9	10	6
Labour	10	8	3	10	7	1	8	9	5
Tools	10	9	9	10	6	3	9	9	7
Inputs	9	5	1	8	7	4	9	6	8
Credit	5	4	1	7	6	5	1	2	8
Harvest	8	6	7	9	8	2	10	5	7
Diseases/pest	7	5	8	9	7	2	8	6	8
Management/coordination	1	8	8	6	6	1	5	7	8
REPRODUCTION ACTIVITIES									
Fuel related	10	7	1	10	6	5	10	5	1
Food related	10	8	9	9	9	6	10	10	9
Constructions	4	6	9	8	7	1	3	8	7
Communal work	5	8	8	7	9	8	10	10	8
Processing	9	6	6	9	6	2	10	5	5
Storage	9	8	9	10	7	1	9	8	6
Management/coordination	3	6	9	7	6	1	3	6	8
PERCENTAGES CALCULATED	71%	66%	61%	85%	70%	29%	76%	70%	67%

Numbers resulted from farmers asked to score between one and ten; and the average of their scores calculated per activity per category.
Used completely <----------> Not used
10 (100%) <---------- > 1 (10%).

Adulthood (ages thirty years and above): In all cases members of this group either own or control the production resources. They portray the picture of a high degree of acquired information and skills in areas of external innovations, particularly mechanisation, and input supply. This is expected because of their protracted contact with interventions.

Management/coordination decisions, particularly for the catholics and the animists, shifts towards generation, but the moslems in this group make no distinction between management and production decisions and so gave signals different from those of the catholics and the animists.

For the mainstream production information, there is still a relatively high degree of external acquisition of information (intervention dependent) for the christians and the moslems because of their maize-based production system. For the animists who had their production base spreading through millet to roots and tubers, externally acquired information and skills is only 35% because of the limited opportunities that extension has to support them. As stated earlier, there are no extension packages for these production areas.

On the whole, the communities find it more secure to rely upon their own generated information than that acquired from development intervention. What proportion of this small percentage of externally acquired information is actually utilized?

8.50 Utilization of information

After looking at whether the various categories identified above were leaning more towards external sources of information for their agricultural activities or depended more on the community's own generative skills (indigenous knowledge), I now want to analyze what fraction of the acquired information is utilized.

8.51 Utilization of acquired information among the catholics

"Wulu" (ages between ten and nineteen years): With reference to Table. 8.2 above, one can read that for this category of respondents 71% of the information and skills they acquire for the action areas listed in the table is utilized. For the 29% not utilized, this is particularly in the area of management/coordination decisions, construction, credit, and communal work.

The studies showed that within this age group they have very little opportunity to utilize the information on credit and construction because these are not activities they regularly find themselves doing or doing on their own. Higher values of utilization (100%) were exhibited in labour and tools which could be linked to the high values in fuel-related and food-related activities that they are involved in. This

confirms the position that child labour is one of the main forms of support for the farm family. There is therefore a high demand for use of the information acquired in the areas where their labour is most 'utilized'.

Management/coordination decisions within the family are the prerogative of the elders and this explains why the utilization of externally acquired knowledge has low ratings for such decisions.

"Oogfu" (ages between twenty and twenty nine years): A net decrease in the use of externally acquired information is exhibited here. 66% is utilized and 34% not utilized. There is a fair distribution of usage (between score 5 and 8) for all the activity areas. No complete usage was encountered for this group in the survey.

Such a fair distribution of usages introduces the fact that around the "oogfu" period the person is making a transition from being under strict surveillance to going on his own. From earlier discussions, this uncertain period takes a toll on what information can be utilized and what cannot.

The noticeable feature of this group is the fact that control over management decision is increasing. As stated in chapters 6 and 7, this period coincides with "oogfu" which is the period that limited resources are given to the young to start a productive life while family controls still exist (the issue of partial individualization). For this group there was no complete usage of information acquired neither was there complete lack of use.

Adulthood (ages thirty years and above): Here again there is increase in what proportion of the information is not used. 39% of the information is not used by the elders in this community and 61% of it is. The liberated position of the elder allows greater room for selective choices. The catholic elders, as shown in the table above, had problems particularly with information on credit and inputs for their production activities.

A follow-up on this revealed that they were referring to formal credit and not informal credit which, they say, they do not utilize. Also for the use of inputs, the position taken was a relative one. They compared what they used to get about ten years ago under the various projects and programmes and what they now have to acquire on their own. They were therefore critical of Government policy, especially on the removal of subsidies, which they refer to as increasing prices on agricultural inputs without a commensurate increase in price for their farm produce.

They also gave a low score (10%) for lack of use of information for fuel-related productive activities. Fuel is now very abundant in their area, they said. Everyone knows where to go and get it once you have the money, so you do not even have to think about it. For natural resources such as vegetation and by-products, they say it is an area for the women to discuss not for men.

Just like the preceding age group, here too there is no situation of complete utilization of acquired information although the instances of complete non-utilization

have been cited earlier.

8.52 Utilization of acquired information among the animists

"Wulu" (ages between ten and nineteen years): There is a very high tendency to utilize information acquired among the respondents of ages ten to nineteen. 85% of such information is utilized and only 15% is not. This confirms the strict tutelage described in chapter 6 and the method of experiential learning that the tradition prefers. Information is tested out and internalized under supervision.

It is important to note that in all the mainstream activities of crop production such as labour, tools, harvest, diseases and pests, food-related processing, and storage information is almost completely utilized. As expected, all of the information on labour and on fuel-related activities are said to be utilized because of the role of the child in the farm family.

Information on inputs, credit, construction, and communal work which is closely linked with the role of their elders has restricted usage. This is especially true for the management/coordination decisions which scored the least. The situation confirms earlier findings that this age group has very little role in taking management/coordination decisions when they are still with the family.

Also those activities in the mainstream of food crop production score high points for completeness of usage. These are tools and inputs, and the sample interviewed understand inputs to mean those locally available. They are eager to show how this utilized information finds expression in their activities.

"Oogfu" (ages between twenty and twenty nine years): The "oogfu" group once more demonstrates its character in first a decline in information utilization and then a general use rate that revolves around a median. With a 70% use and therefore a 30% lack of use here, there are again no instances of complete use or complete lack of use of acquired information.

Generally, this group gives about the same emphasis to use or lack of it for all the activities captured by the study. The sample interviewed explained that they were still in the balancing act of choosing, and for them at this time everything has equal importance and must be treated as such.

Adulthood (ages thirty years and above): The elder animists present an interesting revelation. They express a remarkably low use rate of information acquired. They start from the premise that every piece of information not generated by themselves but acquired from outside has to be re-processed. That is part of the basis for explaining their 29% use and 71% lack of use of externally acquired information.

The areas that show some gains in use of information are tools, inputs, credit, and production activities. They explained that it is because they have to depend on

the 'outside' for most of the information in the area of credits and external farm inputs in order to take the advantages therein. Since these are acquired from outside, the information accompanying them had to be recycled so that longer life could be given to its use, and in so doing one reduces the dependency on the 'outside'.

For this group, communal work had the highest score of eight because they say it is a joint activity with others and therefore knowledge in this area is common property.

They have a strong tendency to be suspicious of information for agricultural production coming from outside. They show a strong tendency for the need to re-process such information. This results in a low use rate, and has contributed to the high degree of incomplete use. The most common tendency here is rather a relatively high degree of abandoning information acquired from the 'outside'.

8.53 Utilization of acquired information among the moslems

"Wulu" (ages between ten and nineteen years): The table above shows that 76% acquired information is utilized by this group and 24% unused. Complete usage occurs for diseases and pests, fuel-related, food-related, and processing. The study found that these were also the major activities of the moslem children, especially processing where both boys and girls share the heavy demands of this activity. As already stated, among this group the pattern of strict apprenticeship has to be adhered to.

The total lack of use of information on credit by this group is explained by the fact that they have no contact with such a facility. They had a vague idea about the formal credit houses (like the banks), but had no idea about any informal credit system (that which exists among the community members themselves).

Once more management/coordination decisions have had a very low score here, re-emphasising the dominance of parents over children's learning.

"Oogfu" (ages between twenty and twenty nine years): This age group has a use rate of 70%, lower than the group before it but showing an increase in degree of freedom to make choices. There is complete utilization of acquired information for land (these are mostly Gonjas, the indigenous tribe that own the land), food-related, and communal-work-related.

Apart from this there is a fair distribution of use rates over all the other activities. Information on credit enjoys the least use with reasons similar to that given by the preceding group; lack of information of the opportunities for credit and its use.

Though there is still some strong family linkage and tutelage, it appears from the analyses here that there is a weakening in the use of information acquired from

elsewhere.

Adulthood (ages thirty years and above): There is a further decrease in the rate of utilization of externally acquired information to a 67% use rate. This shows a relatively high dependence on the use of external information by this group despite being heads of families.

The elderly moslems confessed to a relatively high utilization of acquired information in their management/coordination decisions. They take the stand that every piece of information is vital for decision-making so they ranked it quite high. This finding is consistant with the earlier one within this same group on mode of accessing information (generated or acquired). There it was found that information regarding management/coordination decisions is largely acquired for reasons given therein.

Besides the extremes mentioned already, they had a fairly receptive attitude towards the acquisition and utilization of external information for both their productive and reproductive activities.

8.60 General utilization of information and skills

"Wulu" (ages between ten and nineteen years): For this group there is a differentiated but relatively high use rate. It is over 70% with that of the animists (as high as 85%). This use rate is expressed more in the mainstream production activities and less so for construction and credit.

It is clear that this group has a very limited role in management decision-making, so this is the area that has attracted relatively low scores in the use of externally acquired information, more so for the catholics. The animists exhibit the opposite of this observation.

"Oogfu" (ages between twenty and twenty nine years): The general rate of utilization here is even lower (a little above 70%) with a fair distribution of scores around the mean (between 5 and 8). There is no instance of complete utilization of information except for the moslem group. That for land is particularly striking because most of them belong to households which are the original owners of the land.

Choice-making in utilizing acquired information for management/coordination decisions begins to show here. This is the group that is about to become independent. Most of them already do have production resources that they own or have control over. The demands this situation puts on them calls for a moderation on the amount of acquired information that is utilized.

Adulthood (ages thirty years and above): The last point mentioned for the group

nineteen to twenty nine years is even more pronounced here. The rate of utilization is about 60% with the animists showing very significant drop in external information utilization to 29%, and a high degree of relying on the utilization of information that they have generated internally.

Generally, this category exhibit incomplete utilization of externally acquired information and the animists have the tendency to re-process information before use. The analyses show that general positions taken on the value of information by this group are one of the moslems seeing every piece of information as vital, the catholics linking it to a package, and the animists believing in re-processing before use.

8.70 Conclusion

The analysis of the results here shows the diverse ways externally available information is obtained and utilized by different groups, and intra-group differences. There are also shared concerns and interests exhibited, and some trends emerging within the community. The trends include the fact that most of the production resources are in the hands of those above thirty years of age. It is between the ages of nineteen and twenty nine that self-generation of information starts contesting with acquisition of information. There is an inverse relationship between resource ownership and control, and the use of externally acquired or self-generated information.

The variables used for this analysis are those shown in the tables above. The results show that for these variables, acquired information is largely used for the mainstream production activities. Management/coordination decisions depend largely on generative information, that confirms earlier findings that in complex, diverse, risk-prone agriculture, survival strategies are based on intelligent, timely, and imaginative management/coordination decisions which are largely self-generated; because this provides relative advantages and better opportunities for survival. The findings show that the capacities to do this start very early in life in the communities studied. As a result, there are a multiplicity of management strategies evolved for the handling of common resources. My conclusion is therefore that the most critical area for learning in agricultural production, even at an early age, is in the area of management/coordination functions.

In the introductory part of this chapter, I explained what the people meant by the 'outside world'. Based on their operational definition, they were asked to give a general perspective of their sources and utilization modes of information and skills. The findings as discussed above indicate that the use rate of what the farmers considered as 'externally acquired information' declines with age and with control over resources. The partial use of information, or re-processing of externally acquired information is the inclination of this community. Complete use of

innovations is rare. This runs contrary to the principles of innovation delivery where they are communicated as 'packages' (see Adongo, 1980; Annor-Frempong, 1988; van den Ban and Hawkins, 1988). The performance of such extension innovations at farmers level depends more on what opportunities they give for rural people to realize their own agendas than on what the packages themselves contain: hence farmers' tendencies to extract from these packages and re-process them. Partial or modified adoption of innovations, and the processing of such technologies in the farmers' world, will be more logical and closer to 'the way of doing' of the rural communities.

I conclude by admitting that the findings here are quite generalized. The responses would differ from technology to technology as was indicated in some instances (maize production). However, as an indication of use tendencies, and learning orientations based on the variables I identify in the tables, the generalizations are useful as points of entry in order to make innovations more sustainable.

Most specifically, the generalizations show what the communities are doing with the influences of extension intervention. They show that our hasty generalization of target groups for our extension packages needs review.

9 Social Constructions of Power: Learning as Subject and Object

9.10 Introduction

The issues of power have permeated the entire findings described in this study. The struggles, compromises, trade-offs, spin-offs, subordinations, and subjugations have been identified where it was possible to do so, in a less detailed manner. Where it has resulted in stimulating and motivating self-actualization, self-satisfaction, and self-identification have also been discussed. The intention in this chapter is to re-visit the various discourses, draw out some of the expressions of power, and draw out experiences of learning (knowing); both as a subject and an object of the social constructions of power. I intend this exercise to be a sort of rounding-off of the research that precedes recommended action. I have chosen to do it this way because I have concluded after each chapter and it would be superfluous to do it again. I have also found it necessary to complete my findings by discussing the issues of power because my recommended actions in chapter 10 are intended to mitigate power differentials. Before this can be satisfactorily done, it is my view that readers have to be acquainted with how power is socially constructed in the research area.

My starting point for this discussion is by looking at the social actors, where actors can be people, institutions, organisations, and even objects. I acknowledge the fact that social actors, power, and intervention have been discussed in many works the present discussion is intended to give empirical backing to some of the positions that I agree with, those that I have encountered during my research or those that I imply in my recommended action. If the scope is not wide enough, it was intended to be so.

9.20 Brief on theoretical perspectives of power

The foundation for discussing the theoretical perspectives of power that this research

encountered is 'the actor oriented approach (Long, 1984;1989;1990). This approach gives an in-depth understanding of the power relations and how they form and transform learning as described in chapters 6,7, and 8. As I have discussed in chapter 4 (theoretical framework), Long establishes how some of this power is abrogated or usurped by actors in privileged positions and how attempts have been made by other actors to limit these positions; that is re-distribute power. The conflicts over power then result in struggles, subordinations, and subjugation of actors in intervention (Villarreal, 1994). Those of the systems school of thought share these views of conflict and of struggles in rural development. Röling (1994:1995) and Engel (1995), have tried to deal with conflicts and struggles within all the institutions involved in extension, within the framework that rural communities are constructing and re-constructing their world as a result of conflicts resulting from struggles for power (see also chapter 4).

My experience and also the findings of this research show that the community studied is plagued with differential power positions. Production resources are scarce and these scarce resources are dwindling. Intervention is viewed as one pool for accessing resources so there is a race to take advantage of situations. But is it all struggles, conflicts, battles? If it were so would the situation not have been so chaotic and turbulent that the apparent peace and tranquillity would not exist? People would have been on each others necks daily expropriating, stealing, killing, confiscating, and production resources would have been exploited in such a way that they would border on '*killing the donkey and walking*'. I think farmers' environment is more civil than that. In my opinion, it is rather characterised by effective and efficient power management constituencies and regimes, based on the people's own rules and criteria (not externally imposed rules). It is more challenging to manage the absence of conflicts than to manage expressed conflicts. I take exception to the view that rural environments are characterised by conflicts and struggles against each other, and against the outside world. Admittedly, some excesses do spillover in the form of conflicts and struggles once in a while; which then means that the management capacities containing the conflict have been surpassed. But even then it is not all the conflict or struggle that comes out in the open. We in northern Ghana believe that 'a small balance still remains in the pot'. Our overriding principle is the management of power so that we '*do not wash our dirty linen in public*'. This is the power environment within which I was brought up - '*there is more to it than meets the eye*'.

Lukes (1974) has an opinion identical to mine. He starts with Dahl's description of power as:

> '*A has power over B to the extent that he successfully gets B to do something that B would not otherwise do*'.

It is based on the generalized capacity to secure performance which ties it to authority.

He calls it the pluralist approach of Dahl, Poslby, and Wolfinger (Lukes, 1974:12). The pluralists attempt to study specific outcomes in order to determine who actually prevails in decision-making, so they have to deal with concepts like influence and control. In order to find out who has 'more' power they observe conflicts. Pluralists speak about issue-areas and make such issues controversial, and conflicts-disagreements based on subjective interests. They emphasis initiating, deciding, and vetoing. Power for them really is one of confining the decision-making to relatively 'safe' issues. This Lukes calls the one-dimensional notion of power.

ONE DIMENSIONAL VIEW: A focus on:
a. Behaviour
b. Decision-making
c. (Key) issues
d. Observable (overt) conflicts
e. (Subjective) interests, seen as policy preferences revealed by political participation.

In Lukes (1974:16) he shifts the focus on to Bachrach and Baratz's who introduce the 'mobilisation of bias'

> '[...] *a set of values, beliefs, rituals, and institutional procedures that operate to the benefit of a certain group (who have the power and would fight to guide their interests), at the expense of others*'.

They also introduce group sanctions and thus coercion. Here a key issue is one that involves a genuine challenge to the resources of power or authority of those who currently dominate the process by which issues are determined by groups. Thus as in the former, they also rely on observable conflict - overt or covert. They look at both decisions and what Lukes calls nondecisions. Once again power is confined to two dimensions; decision-making and nondecision-making. Although progress has been made to include nondecisions with decision making in power discourses, Bachrach and Baratz still see nondecision-making, like its predecessor, showing up in observable conflicts.

TWO DIMENSIONAL VIEW: A focus on:
a. Decision-making and nondecision-making
b. Issues and potential issues
c. Observable (overt and covert) conflicts
d. (Subjective) interests, seen as policy preferences or grievances.

Further in his discussion, Lukes (1974:21) criticises the two previous positions because

they take the view that decisions are consciously made: but what about when they are not consciously chosen, or are unintended results of an individual's choice? He says that the two above look at conflicts, but the most important/ effective issue of power is to prevent such conflicts from arising in the first place. No grievance does not necessarily mean there are no interests harmed. It is important to ensure no grievance by shaping perceptions, cognitions, and preferences for acceptance. He criticises the behavioral focus of the two above as concentrating too much on individualist power, loosing sight of the fact that power can be expressed without actual, observable conflicts because they have been successfully averted. In such a situation there might be a latent conflict which results from a contradiction between the interests of those exercising power and the real interest of those excluded. This is the central position of the three-dimensional view of power that Lukes posits.

THREE DIMENSIONAL VIEW: A focus on:

a. Decision-making and control over political agenda (not necessarily through decisions)
b. Issues and potential issues
c. Observable (overt and covert) and latent conflicts
d. Subjective and real interests

Power is evaluative and value-dependent. We all affect each other in countless ways and this does not always translate itself into conflicts. In complex, diverse, risk-prone area such as ours, it is more of compromises as an investment towards future reciprocities. The more you compromise the more you extend your power base by having others indebted to you. There is the added build-up towards the ability not only to act but to act in concert with others, which is not a property of an individual but of a group. Individual power is then cumulated into group power, and group power influences interests, which do not necessarily reflect in conflicts, struggles or battlefields.

The one dimensional view shows individual interests in diversity in decision-making power by focusing on individual actions. They might be individuals in their decision-making but unified in their nondecision-making. The two-dimensional approach improves this but confines itself to studying situations where there is mobilization of bias expressed in conflicts.

While not denying the practical relevance of the first two, I am at home with the three dimensional view of Lukes and I would endeavour to make an inventory of social constructions of power that my research encountered; show areas of conflicts or struggles (as described by the one, and two-dimensional views), but most importantly, areas of management of power; through compromises, accountability, checks and

balances, anticipated benefits, reciprocities or even as investments for posterity, and for life hereafter.

9.30 Some indigenous structures of power

The family: As stated in chapter 2.6, farm families are made up of between 2 and 20 members (extended households). Goods and services are both produced and consumed within the households, as well as exchanged with others. The amount that is produced, consumed or exchanged is determine by the family head and each compound has a family head who usually holds the family land in trust for the members and is the ultimate decision maker. The final decision as to who does what and when of the 2 to 20 members is the prerogative of the family head who is usually the oldest male member of the clan. He has access to and control over all the resources including the labour of all the family members under him (even including commandeering the labour of the extended family as well). The study showed that the family or household head has overriding decision-making power after the private negotiations are over in a sort of veto. This power is exercised typically in matters relating to the family, either in farming operations, marriage, in the use of family assets, or custom, and he does this in limited consultation with key members, or elders of the family. The family members provide most of the labour. Farming operations, such as weeding and harvesting, may be carried out by communal labour.

Marriage is another factor that has resulted in subjugating the woman although there might also be identifiable privileges that accompany marriage. It is an important institution that brings together families of different clans. The study found out that usually the girl moves from her locality to the boy's village or home with negative consequences on her power position. For a start she loses her rights to ownership of properties back at her father's home. She is, on the second count, denied absolute ownership and given limited control over similar resources in her husband's home too. She would have access to the use of the resources in so far as they do not conflict with or they stand to benefit the man. The woman might jointly generate, develop or expand the resource base with her husband, but when a man dies his brother inherits his deceased brother's wealth: wives, children, and material things, including that which was jointly generated by the couple. Also when the wife dies the husband is the heir in the monogamous family, unless he decides otherwise. In the nuclear family, the children inherit. It is only when several women come after her in a polygamous home that the first wife then has some power over the subsequent wives. Also when a woman gets very old in a family and/or has lived an exemplary life (say, from fifty years and above) that she is given a special position in the family. This allows her considerable

authority over a large number of women and she has a say among the men as well. In such a situation, the other women use her to establish a foot-hold in the affairs that are largely dominated by the men, and she exacts from them loyalties and services. This limits the so-called male-dominated power.

In the study area, the usual practice is that the man pays a customary brideprice to the woman's parents which again is received by the family head. It is also common that a young girl of ten years or even below is betrothed to an older man without her consent, with some rewards accruing to the family. When a woman enters the family through marriage, she becomes a wife to the family not to the individual only (see chapter 2.7). She contributes her labour during the very busy times which occur during the rainy season. In the dry season work changes. It largely depends on the availability of water whether there can be agricultural work. However, men generally do much less work at that time of the year. For women the workload hardly decreases in the dry season while the rewards for this are largely expropriated by the man.

This biased and overloaded role division described as to how the family is structured should have led to series of explosions of conflicts all over rural communities in northern Ghana. But this does not happen because the male heads, especially the family heads, pay for the privileged power position they occupy by guaranteeing security to the household. This security takes the form of food, defense and offense, the economic sustainability of the family, and pacifying the spirits of the dead. He has the duty to search for and find the cause of any calamities that befall the family. Hence his duties are not only agricultural but also in the field of health of the family. Because of all these securities he has to provide and ensure, although his power base might seem overwhelming, he is little envied by the rest of the family. It is an issue of *'uneasy lies the head that wears the crown'*. His veto position is earned not commanded and so there are very few challenges to this position. There are some disagreements or redresses that are often managed externally. Complete insubordination might attract a higher order discourse, punishments from the ancestral spirits, expressed in misfortunes brought to bear on the self or on the family. A despotic elder is punished similarly.

Coming back to the theme of indigenous learning, the family head is the epitome of knowledge that has been built up by the clan over time. In chapters 6 and 7 I have shown how knowledge is created, re-created, consolidated, and perpetuated. The family head ensures that this process goes on and often prepares his successor in advance. It is the responsibility of the family head that learning and teaching goes on, although other members of the family are not exempted from sharing in that responsibility. Since most of their learning is learning from experiences, the richness of the material to the young is dictated by the input of the family head. It is not surprising that some of us with western training still send our children to live with their grandparents to acquire knowledge and skills. It is this power base which is not contested in our rural

communities and largely accounts for the reasons why we revere old age.

Chieftaincy: Among the Gonjas of Damongo, chieftaincy is an extremely powerful institution. Wars are fought even now, and extreme expenditures are incurred by individuals and families to get a member of the family to become a chief. Most often he becomes a chief over people and places he does not even come from, and gets rotated to other skins far removed from his place of origin but within the same paramountcy. This means that loyalties and rewards have to be pledged and given to chiefs by prospectors on a competitive basis. Smaller chiefs have to keep showering gifts on higher chiefs to maintain their positions or get promoted to higher skins.

Assisted by the council of elders, the chief is traditionally the legislator, judiciary, and executive. The legal control of unappropriated land is vested in the chiefdom. For the cephalous societies like the Gonjas, the chief is a custodian of the ancestral legacy, especially land and so he also has a spiritual role. During the colonial period, the chief's power was very wide in the village, since he could use coercion to oblige people to obey his orders. But after independence, this power has diminished. Nowadays the chief has to act according to the law, no coercion is allowed and his power of adjudication has seriously decreased. The chief's rule is normally a hereditary function, but these days it is common practice among the Gonjas to buy a skin or get to that position as a return for favours to a higher chief. In the latter situation the services from the smaller chief become subordinated to the bigger chief especially in gifts and providing soldiers in time of war. The chief used to collect the taxes, handle disputes, report the village problems to the paramountcy or the government administration and solutions back to the villagers.

The study found out that because of the access and control of resources (particularly land), the loyalties of his people that he can exploit, and the payments of judicial fines, the institution has become more of a commercial venture and it is beginning to lose its traditional meaning and role. This can aptly be described as '*partial commoditization of chieftaincy*'. Such new trends have resulted in conflicts, rivalries, and even wars among rural communities in northern Ghana. Chiefs are beginning to lose their conflict-management capacities in their communities because they have become part of those conflicts. These days one can easily find divided loyalties in the same community as expressed in more than one self-imposed chief ruling one village.

Despite this, the chief is seen as a family head of the chiefdom. Similar to the responsibilities described for the family head, the chief is expected to guarantee security to the larger family, the village. His security takes the form of peace, defense and offense, public relations, and pacifying the spirits of the dead in the way he rules his people. This spiritual responsibility moderates his abuse of power. If he becomes recalcitrant in his abuse of power, he is cautioned by the council of elders and given

time to change. If he persists in this attitude, he is made to suffer some calamities that include poisoning. Whether these positions are rational or otherwise, they are vital instruments of control of power, suppressing conflicts or managing conflicts.

The earth priest: The Frafras and the Dagaabas (the migrant communities) belong to the acephalous societies. Chieftaincy for them was a later occurrence so, here, the institution of "Tendabas" (the earth priests who are also the owners of the land) is mutually exclusive from the institution of chieftaincy. For the acephalous society therefore this function is the prerogative of the first settlers of the village. The earth priest still maintains his judicial functions when there are disputes over land. Since such disputes do not occur too often, his special power position is felt when regular sacrifices have to be performed before the onset of farming, during farming, and at the time of harvesting. It is necessary to do this in order to appease the gods to grant good harvests. It is almost impossible to start or continue agricultural activities unless these sacrifices are performed. Just as the chief has a legal control over the land, the ritual control over land is vested in the earth priest. He performs certain vital sacrifices related to the land and agricultural productivity. There is thus separation of powers that result in checks and balances between the institution of chieftaincy and that of the "Tendabas".

The study found that as a result of this fundamental but crucial difference between the acephalous (Frafra and Dagaaba - meaning traditionally 'headless'), and cephalous (Gonja - traditionally with 'heads') characteristics, the migrant groups consistently found the position of the chief among the Gonja as one of usurping powers and abusing their rights to land. The immigrants have the view that once land has been acquired over generations it should belong to them, or at worst they should be dealing with "Tendanas" not the chief. The traditional people also are of the view that the migrants were claiming some unfounded authority and were refusing to pay homage and loyalties. They saw that as a disrespect for the sacred institution of chieftaincy and an attempt to rob them of their land - the most important power-base of the chief. There is therefore a consistently subtle struggle for power which can easily be exploited and often is, by power-brokers. These power imbalances between immigrants and indigenes always tilted in favour of the indigenous people.

This is one overt area of conflict that is easily discernible. It is easily seen in how far immigrants would invest in long-term projects to restore or improve fertility. They are very reluctant to undertake tree planting programmes and land management techniques such as erosion controls. In this case, the conflicts are expressed in nondecisions and loyalty to the group predominates.

The soothsayer: The two categories (acephalous and cephalous) however find common

grounds in the soothsayer and the prestigious role he occupies in the community. In general various functions and smaller institutions exist under this general name. One such function which is linked to agricultural productivity is the soothsayers who are rain-makers or those who can 'purify' farm inputs. As a sacred institution, their role in relating to the ancestors and the gods is highly valued in agriculture. Their functions are basically spiritual and are linked to rewards and punishments. They provide a vital link between life that has preceded, life here, and life hereafter, because they are believed to be endowed with special powers to communicate with the ancestral spirits and the gods. These powers enable them to heal, reward or punish production and reproduction, cast out evil spirits or protect the people. In times of disaster, misfortune or war, they are very important.

As a result of the confidence the people have placed in this institution, the findings showed that people have exploited the facility as fakes and charlatans parading as god-gifted soothsayers, and are making money out of it. It is sometimes abused by being used for subjugating others under the pretext that something has been professed by the gods through the soothsayer. This is particularly prevalent in its use against women. In the community studied, women are told they do not soothsay but if they have to then they have to do it through a male member of their families. Meanwhile, a man's private soothsaying can and does end up with women paying for prescriptions of the soothsayer.

I have mentioned both for the family heads and for the chiefs the way the ancestral spirit guides the use of power in order that it should not explode into conflicts. Once again the power to determine when it is a punishment for abuse of power is lodged in a different institution - the soothsayer. This could be akin with the three democratic institutions of legislative, judiciary, and executive. It is small wonder therefore that the people cling to their cosmovisions because therein they find the sort of justice that caters for their interests; either now or in the life hereafter.

I have shown with these discussions about the social structure that there are several potential areas of conflict due to power imbalances. The magnitude of the potential areas of struggles for power are so numerous that conflicts should have been everyday events. Similar to Lukes (1974), I have shown, in a limited way, that conflicts have not been abundant because of the mechanisms or the structures to manage conflict that exist in the community. Beyond Lukes however, I have shown that higher order discourses, the issue of spirituality (their cosmovisions), are part of the mechanism for managing power, and hence managing conflicts. This means that to acquire a more in-depth understanding of the social constructions of power relating to even indigenous learning, a step into this spiritual realm is essential.

9.40 The researcher and the research

This discourse about power positions would be incomplete if I did not briefly discuss the researcher and the various encounters of power in the data collection processes.

In chapter 5, I alluded to some unanticipated influences that had an impact on my data gathering processes and among the issue alluded to were the socio-cultural undertones that have overtly or covertly contributed to the findings. My ethnic background catapulted me into a special power position that enabled me to access some information that otherwise would not have been available. Also the 'joking partner' factor which is a social construction between two ethnic groups, enabled me to use practical jokes to access the key power base of rural communities - their knowledge. I term this their key power base because the so called 'resource-poor farmers' are resource-rich when it comes to their knowledge. To pry into this stronghold of theirs unimpeded is to share very sensitive power.

In the eyes of the rural people I was a literate person who had had advanced training in agriculture. Although I was one of them, I had travelled to the 'whiteman's' country and back. I was supposed to know everything about agriculture and have all the resources to back it. This image is demonstrated by either getting some of my questions thrown back to me for my responses or, in the extreme form, there is swapping of roles between interviewer and interviewee. Instead of being hostile to me because of the pertinent questions I was asking, they chose a reconciliatory strategy to take advantage of the opportunities that they think I have. After all, I drove into their village in a car and I had a few gadgets to collect information with. Some of them asked me to take pictures of them and give them copies which I did.

It has been said already that the choice of the primary study area was one of the programme sites I was coordinating within a NGO Project. I have been executing intervention activities there for the past seven years. The catholics felt compelled to collaborate with me in the research because they saw it as part of the doctrine and one of the several good things they had to do in order to go to heaven. During my working period I had also assisted farmers with certain resources for production. These farmers were indebted to me because of such favours. There were others who did not benefit from these opportunities and thought that this was the time.

For these reasons among others, I was welcomed into the depths of an area which they would normally not share. It is true that sharing knowledge and experiences is common of farmers but there are limits to what information to share. There is often the tendency to generalize the sharing tendencies of rural people, but I think this tendency has to be qualified. I have shown in chapter 7 that there exist a learning distance between two families in the same community. So to allow me into that world with very little resistance (even to discuss with soothsayers and be taken through the art of

soothsaying), shows a great depth of power compromise.

9.50 The resulting 'learning constructs' of power

In chapters 6, 7, and 8, a detailed presentation has been made of how learning is conducted between and within several identified categories. Mention was made of the differentiated positions that actors occupied and how they strategized within those position to access information and how this information is used to realise various agendas within scarce resources. Identified here now are the power constructs that have resulted from studies into forms of indigenous learning specifically.

Seating and communication: Seating orders in rural communities might seem trivial but they are a characteristic of a certain power structure. I would illustrate this with how it happened on several occasions with this research, and I know it is the usual order that the Frafra communities take if you bring the whole community or a mixed audience together; either for issues of importance to them as a community, for deliberations on external matters or for joint learning.

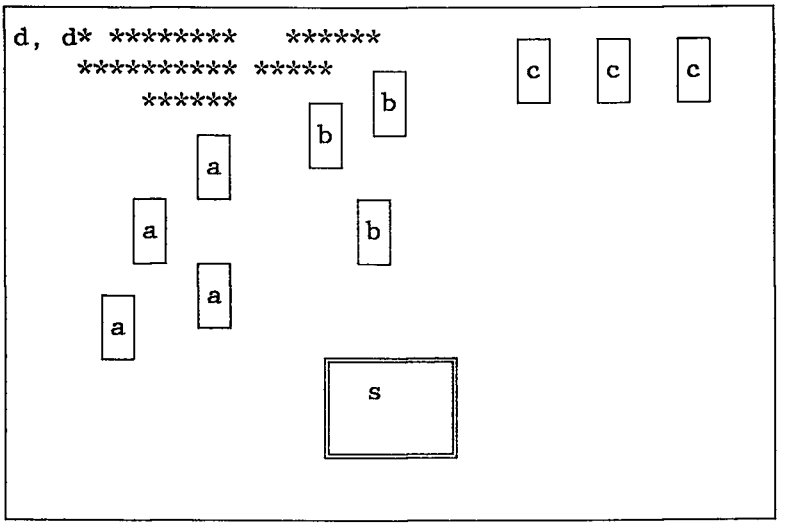

Fig. 9.1 Common traditional seating arrangement

I was often offered the central position marked 's' on the diagram so that everybody could see me because eye-contact is very important in communication for these people. I also believe that I am kept in permanent view so that I do not spring any surprises. Based on the background given already about the researcher, I had earned a special power position in the eyes of the community and so I was given the most comfortable of the seats (probably the only chair with soft seating). The community then takes up the following positions: The youth sit in positions 'a' nearest to me, those a little bit older take positions 'b', a little distant, and the elder's, 'c', further away but in the form of a 'horse-shoe'. The women and children occupy positions 'd' and 'd*', at the rear. Occasionally some children join their male parents or grand parents leaving the women, and these are often the baby boys who have those opportunities.

This power structure has been found to be regular and has an impact on how mixed group learning is organised in the Frafra rural communities. Its importance is reflected more in the process of communication that I call '*relay communication*' and it goes this way.

Any time I introduce myself or present my mission to the whole group, at the end of it the oldest in group 'a' sort of receives it and then passes it on to a junior member in group 'b', by name, with a simple pass phrase - "you have heard". Then the most senior in group 'b' passes it on to a younger elder in group 'c' by name with the same phrase - "you have heard". Then this younger member in group 'c' turns round and asks the others in his group whether they have heard, and then they tell him to "hold it". It is only after this that the reaction starts from the most senior elder. Now, when the elder starts responding, one member within his group, often a younger elder, keeps repeating only the key words in each of his completed sentences. At the end of his reaction the young elder who has been 'summarizing' then asks the whole group whether they have heard and the response invariably is 'yes'. This communication order has to be maintained when the issue is of importance to the people, if it is not then the rules are relaxed.

Once more the interpretive subordinating power position of the woman and the young is exemplified in the traditional relay learning processes. They appear not to be linked to this chain and are there in observer status and rarely would their opinion be sought or would they interject with a view of their own.

This is the process followed in the open and at plenary sessions. When families go back home, the issues of the day are re-discussed between every man and his wife and grown-up children. This is their point of active input and this is where most decisions are actually taken. The woman's role as the most effective record keeper in the family is drawn upon here. She cautions the family by relating the past with the present, and keeps track of developments. All this knowledge she acquires by speaking very little, and by so doing, listens and observes more. She relies on the principle that it is more

informative to listen and observe than to talk.

The aspect of 'relay communication' and the power of it is found in the use of linguists/translators by chiefs for their official interactions with the outside. One of my sample persons was a very old literate chief. Sometime ago he had been a Technical Officer with the Ministry of Agriculture. When I was interviewing him in English (which he could understand), he still made use of an interpreter. It was clear that he understood my questions better than the interpreter did, so whenever the interpreter got it wrong, the chief told him what the correct thing was in the local dialect, and then proceeded to answer back through the interpreter in his local dialect. After the formal interview, when I asked him why this cumbersome procedure, he said it was customarily so because of two reasons: The first being that there is a witness to what has been said because of the uncertainties of future, and also for some additional person to explain to the rest of the community what my mission was. He was accountable to the people and so he has to erase all possibilities of doubt and that is why chiefs do not receive outsiders alone. The second and most important reason for him was that if it happens that he tells a lie or commits himself beyond that allowed by his status in his responses to me, it would not be he who had said it but the interpreter's misinterpretation of what he said (a scapegoat). The interpreter then takes the blame for the folly and the chief has the opportunity to correct himself.

Their culture sees the chief's power position as infallible because of the responsibilities to his people. It is so special that he does not lie, and so if there is that occurrence, someone in a subordinating power position, and with less responsibility to the people, has to answer for the information so delivered. This is one view. The other is that it allows for openness and accountability by witnessing and joint processing of information. Once more, even within the institution of chieftaincy, power is checked and balanced.

Distances: In chapter 6, I discussed the 'knowing' environment. I re-constructed it to reflect the family compound, the village, and communal activities as the immediate environment, and other villages, the Government and other institutions, and external religions as distant. Within this structure information and skills are shared but not at equal arms' length. For the communities, their power base is the family compound where they have their gods and the ancestral spirits. The information from here they would guard jealously and would not trade it off easily. This power status starts to weaken as you move from family to village and to what is called 'the outside' because it starts getting more and more shared.

The other dimension of this arrangement is that the desire for material resourcefulness, and the need to capture as much of it as possible, has the opposite direction of flow. It is a finding of the research that the distant environment of

Governments, other organisations, and the external religions have certain resources. In order to access some of it for the family, 'the outside' has to be accommodated and tolerated. This fact has been established by Long and other sociologists.

In chapter 8, I tried to show that the catholics and moslems still carried with them elements of their traditional beliefs in their new religious domains. This begins to make sense when they perceive external religions first as material resource opportunities rather than their spiritual projections and so, for them, the spiritual aspects of external religions are secondary. They demonstrate this position by regularly falling back on their traditional religions for favours. It is common to see moslems and catholics in that area involved in sacrifices or looking for 'additional powers' to resolve their issues. This is the same for schooling. Those who have gone to school and acquired knowledge on agricultural production often relapse to the traditional forms of production when they find themselves back in that environment. It is therefore safer not to lord it over the community when you are acquiring power through schooling, they say.

From the 'distant environment', we have the village where 'common property' creates an arena for some latent struggles. In this arena, a distinction is made between 'ours' and 'theirs'. The struggles for this are minimal if the collective benefits are clear, but even then there are cases of strategies to take advantage of more than a fair share. An example of this is with the shea trees and the dawadawa trees (see chapter 2). These are economic trees for the people and they bring in a lot of cash income. It is agreed that the unoccupied lands of the village or even sacred lands like shrines and groves belong to everybody, but the fruits of the shea tree and the dawadawa tree have always belonged to some landlord or the "Tendana". This shows that the common property is not that common after all.

Box 9.1

> There is this saying among the people, "The monkey says that, that which is outside is far from being yours. Even that which is in your cheek is not yours because with a slap, you lose it, but that which is in your stomach you can count on".

For them, the family is the stomach, the village is the cheek, and the Government and others are the outside. It is not often that they get access to support from the Government in their production activities. The few instances that such limited opportunities are made available to them, the grossly insufficient resources have to be shared by everybody. This generates a situation of struggles and conflicts because such limited resources are usually appropriated by the privileged within the community to reinforce their power bases. When such resources are within the village, there are greater access opportunities available. Access and control of resources improves further

when the resource is family-owned.

The same picture is demonstrated in the discussions of chapter 7 on learning distance. The extent to which learning interactions occur or to what extent family 'trade secrets' can be or are actually shared between two families is also an issue of power. As demonstrated there, literally, sharing of secrets/skills never occurs between the 'nerve centres' of the two families. They do share knowledge and experiences but the sharing does not extend into their indigenous secrets/skills which are a vital power base, and each member of the community respects that. The distant families, on the other hand, are closer to more sharing and there are indications of various degrees of possibilities of exchanges. The most active 'marketing' goes on in the region far removed from the nucleus.

Age and peer: Subordination and subjugation as a result of power differentials have been discussed at length in Villarreal (1994) but with reference to gender. That for age differences is taken for granted because it exists as a matter of course, but it is pronounced when it comes to peer group learning. It is demonstrated daily with age differences but less seen within peer groupings. In chapter 6, I have discussed how this is exhibited in learning. I would recapitulate a few parts of that chapter for the purpose of drawing out the power dimensions therein.

Sometimes the community puts restrictions on child learning which is often described by them as protection of the young from the hostile environment, but what it really is is protecting the environment from the young. This is one handicap to indigenous learning because it does not allow for full, extensive self-exploration of the young by themselves. From the position of power, it could be said to be restrictive because there is very little room for choices or for alternatives. It is often a straightforward process of instructing and observing the performance of the instructed, demonstrating and giving the task to try out or doing together with the apprentice. Learning for the young is sometimes done in its severest form and might leave some 'landmarks' which are intended to remind the learner of what is learnt (learning signals). There is very little room for immediate feedback until later in life. The learner has very limited opportunity to show resentment and is therefore subordinated to the teacher/master and subjugated to the learning.

Within the peer groups of the youth, "gandaalu" (see chapter 6) about sums up the learning power struggles there. It is the sort of learning that is generated by social or peer pressure. It is the aspiration of every young man among his peers to attain this power position - become a "gandaa". The immediate rewards are high esteem among your colleagues and the songs and poems that would be made in your name. You also assume the position of an authority and can instruct or order and exact loyalties from peers. If they do not show faithful stewardship, the "gandaa" is in the position to

punish the culprit for it. It is mentioned in chapter 6 that the herdsmen show this hierarchical power structure more vividly. There the "gandaa" among his peers has an authoritative position which is overwhelming. He is the one who rides the cow when all the others are walking behind the animals, he takes his share of the food first, and he sits around while others do the gathering of the animals that stray away. There is a complete hierarchy and so he becomes a sort of family head in the bush who observes the total behaviour of all working with him and punishes those who perform badly. In payment for this, he guarantees them their safety. There are rare cases where this prestigious position is occupied by girls who are herding.

9.60 **Learning as 'bargaining chips'**

In chapter 7, I looked at learning as a competitive venture among rural communities in northern Ghana. They often keep information to themselves, develop and try to be ahead of their peers in translating this knowledge into productive advantages. It is largely family owned rather than communally owned. That which is acquired in common in the open is further processed and transformed within families to perfect them for their comparative advantage - a sort of value-adding exercise. The phenomenon that 'knowledge is power' is adhered to and exhibited especially among the elderly. After making such additional efforts to perfect knowledge, it is patented as family secrets and such special skills are jealously guarded, and portions of it exchanged for payments (reciprocation) of some sort, thus partially commoditizing learning. In this type of adult learning, knowledge is exchanged for knowledge either paid for immediately in cash or kind or payments are deferred as debts. There are also existing knowledge exchange networks (learning networks) that are built on confidence, dependence and trust. There is a mental value put on exchanged knowledge which is even used in determining what should be exchanged and the magnitude of anticipated reciprocity. These types of knowledge network (Long, 1989) often have their roots in previous generations and invariably get passed on to younger generations. In their more advanced forms there are brokers "ning sobe" who matchmake two adult parties interested in trading off information or skills. At each particular instance of the matchmaking, there is a "sore" (the one who has) and the "beterra" (the one who has not). The power roles are swapped the next time around. A sort of exchange process is evolved to propel the system, with its internal power differentiations, roles, regulations, and loyalties".

It is this vital bargaining position that learning occupies that has given rise to other forms of learning such as 'surreptitious learning'; especially that aspect that some people pry into information without the one with the information and skill being aware

that this is being done - 'information pirating'. It even happens with the illegal, complete or partial extraction of research information from research plots, by farmers who live next door to research stations or when, as an extension agent, we find some of our demonstrations far away from the points of demonstration. This is to gain extra knowledge that would provide them with a shift to a different power level in order to improve upon their bargaining positions and opportunities.

In discussing the planes of learning in chapter 7, I mentioned how categorisation is done, how shifts between categorisation and along the planes occurred to gain relative advantages of learning, and the accompanying power positions. In terms of the power bases, "zanzanbe" are those who are relatively new in the learning process and therefore crave for the anticipated or perceived power that learning has to offer. The "ire-karbe" are a group that is constantly shifting in and out of the technology, searching for relative advantages, extracting them and taking them out to 'market' and coming back in to shop for more. "ike-brebe" are those who have had very early contact with the technology, acquired the knowledge and skills and have abandoned it. These are often people in very special power positions like brokers, landlords or even chiefs. They are often the first to avail themselves for the encounter just to pick up the early advantages and move on. The "zuudem" are those who have benefited and have a long term vision of a stream of benefits. To monopolize the power base, they project or develop themselves into positions of authority and opinion. This allows them to suppress other initiatives that are threatening to their power.

The vertical, horizontal, and diagonal planes capture the fact that these positions are not static but dynamic and movements are made to take strategic advantage of power redistributions. The shifts often occur when a power vacuum is created somewhere, when power accumulates somewhere or when power is threatened.

9.70 Conclusion

I started the chapter with the indication that I was intending to revisit the issues of power that I encountered throughout the research. The conceptual issue of power was then discussed starting from the actor-oriented approach. How the systems approach is trying to deal with the issue of power differentiations is also mentioned. I have then discussed some theoretical perspectives about power and given examples of various debates that are encountered in the discourse about power. I then discussed the one-, two-, and three-dimensional views of Lukes (1974) and indicated my preferred choice.

With my perspective of power, I went back into the research by starting from the indigenous social and institutional constructions of power as reflected in the family, chieftaincy, earth priests, and soothsayers. How the researcher and research got

enrolled in these social constructions although these were certainly not part of the initial indigenous structure was discussed. In order to do this, I analyzed the bases of enrolment with respect to the power privileges that the researcher enjoyed - hence the researcher became an actor in the arena of the social constructions of power.

Since the focus of this research is on the subject of learning, the various themes in this respect were re-discussed bringing out the power dimension. This terminated with how learning is marketed and commoditized.

I have tried to maintain a balanced view about the various constructions of power. Outcomes in the early part of the write-up that were presented with a positive slant, when viewed from a power perspective have been shown to be negative. I have endeavoured to show that the development arena is plagued both by observable conflicts and latent conflicts. In each instance, I have tried to find supportive evidence that there is a tremendous amount of subtle work going on in various constituencies trying to manage conflicts so that they do not become observable. I conclude by stating that within the rural communities studied, both the management of disagreements so that they are not seen externally, and the observation of disagreements, are the results of social constructions of power.

PART III

10 A Framework for Empathetic Learning and Action (ELA): Moving participation a step forward

10.1 Introductory background

I have been trying to come to terms with why development intervention is not making the intended impact. My views are that dialogue, as exhibited in processes so far developed, is weak in bringing about the actual participation of rural communities, and in the management of the power differentials of actors. I take the position that insufficient attention to indigenous learning has been a major handicap to participation, and therefore to sustainable dialogue. Hence my opinion is that development intervention should shift towards evolving sustainable dialogue with rural communities. How this can be done is the subject of this chapter.

My work in development intervention in northern Ghana dates as far back as 1979, when I worked for the Government in a World Bank Project till 1987. I suffered a number of professional frustrations, such as very limited farmers' involvement in programme designs, extreme power imbalances in favour of officials when it comes to participatory actions, and strong doubts about the sustainability of the technologies I was pushing (see also Adongo,1980; Annor-Frempong,1988; Millar,1992). With very little within my power to effect change, I left for the NGO sector in 1987. I encountered some relief here because of the different work philosophy and culture, but again I found gaps between NGO actions and what rural people do. I still had questions about technologies that we developed, participation, and sustainability, albeit less severe (see also Amanor, 1990; Millar et al., 1989). My strongest criticism of what we do within the NGO sector has been the scant attention we give to people's vital self-identities, their spirituality (cosmovisions - PRATEC in Haverkort et al., 1991). I also find limitations in our neglect to take cognisance of indigenous learning in our work, and in how we operationalize participation to mean farmers' participating in our programmes, not vice versa. Fortunately on this occasion it is within my power to do something about improving the situation. What follows is my contribution.

My findings in this research about indigenous learning have made it possible for me to pull together the outcomes into an action framework as one response to the criticisms I make about development intervention. As stated earlier, I intend that this action design would be for the NGO sector, but I do not deny that it could serve development intervention in general (the proposed action framework is yet to

be tested in the field and refined). The implications of a paradigm shift for all possible stakeholders are described, but I do anticipate that the actual field testing would expose a lot more detail, and also more differentiated stakeholders. The major stakeholders here are the farmers, Donors, Government, institutions such as research, training and extension.

Piecing the experiences together to develop this framework required that I travel to my past, and combine it with the present, in order to chart the future. Hence it has gathered together my experiences as a development worker both in Government, and Non Governmental Organisations, the experiences documented by others about indigenous knowledge, as described in chapter 4, that have succeeded in drawing attention to rural people, and the concerns for diverse human agencies and social constructions of change as expressed by recent sociological findings (Long, 1990; Leeuwis, 1993; Villarreal, 1994). With all the past identified so far on-board, the framework challenges itself to actions, from a systems perspective, under a concept referred to as *'empathetic learning and action'*, which is explained. The cumulated results of my MSc, and now my PhD work since 1990, guide me in looking back at the farmers' world to identify what goes on there with or without intervention. This last effort is the major determinant in the actual formulation of the framework.

The vital link between ELA and these research findings: You should have noticed by now that my PhD research has a wide geographical coverage. As described in chapter 5 on methodology, the 'research sites' extended to Nandom in the Upper West Region, Bolgatanga in the Upper East Region, and the results were tested in nearly all the districts in the Northern Region. The findings have been processed through discussion meetings, and workshops with colleagues in the Government's Ministry of Food and Agriculture, and in the Non Governmental sectors. This, in my view, gives me some amount of justification for saying that the findings are fairly representative of northern Ghana (the three regions). My experience of other parts of the country allows me to say that it would not be a complete departure for most rural communities in Ghana as a whole; and, maybe, my brothers in other parts of Africa might find points of identification with it. My exhaustive search for literature did not reveal comparative work of this nature and scale in the region, so it is my hope that the wide use of this broad frame might stimulate its further development.

I do realise that scaling it up by giving it such a broad base means that it becomes less specific. The skeleton would remain largely the same over a wide area but the details fleshing it out would differ (my readings about learning in Western literature have shown that this skeleton can stand some testing even here). I therefore see these findings on indigenous learning as a broad frame of reference, that could be used as a guide at the beginning of analyses about ways of learning in rural communities. Harvesting the differences and the diversities, and using that

in the fleshing-out then becomes a social construction between you and the community you are interacting with. It is my view that every intervener should understand how his/her community is learning on its own, before we can satisfactorily claim to be working with the people.

Arguing from the same basis for the ELA programme in particular, I intend to use these findings as a guide, and try to find out whether there are essential differences in a more interactive way with my 'new communities'. The consciousness created by the research is a very big advantage for me, but it is still necessary to open myself up for more insights because the ELA programme, although it would be situated in northern Ghana, would not be in the exact locations of this research. These findings would therefore form the basis for all my future work in development intervention, and I hope it might be the same for others too.

10.2 **Theoretical discussions**

Empathetic: My search for literature on 'empathetic learning' showed that this area was very grey. Howell (1982), says that there is extremely scanty literature on the role of empathy in communication. He illustrates the conceptual difference by referring to a speech presented by Kenneth B. Clark in 1979 in which Clark defined empathy as

> *'[...] the capacity of an individual to feel the needs, aspirations, frustrations, joys, sorrows, anxieties, the hurt; indeed the hunger of others as if they were his own'* (Howell, 1982;4).

From this Howell elaborates the concept to include

> '[...] *thinking and feeling what you perceive another is thinking and feeling'.*

From this background, Howell goes on to define the empathic communicator

> '[...] *as a person who excels in identifying with, and experiencing the feelings, thoughts, and attitudes of others - mastering this art of talking with people'.*

He agrees with Clark that the preoccupation with power has contributed to the neglect of empathy because power is

> '[...] *a universal, ruthless, self-centred motivation. The counterforce that keeps power from dominating our relationships with others is empathy'.*

Although I coined this concept before discovering this article, I identify with the views of Howell and Clark. However the conceptual difference between Howell and Clark's 'empathic' and my 'empathetic' is that I go beyond identifying with or experiencing (witnessing), to actually living the situation. It is necessary to make this distinction because if you come from a community you are working in, it is

easy to claim much authority derived from experiencing or witnessing but very little when it comes to living in the 'life -world of the people themselves'. For those of us who come from rural communities but live 'outside' them, the societies we come from keep changing without us, and so there is the need to re-live that world which we have not been part of, in order to be able to recognize the transformations. Merely empathizing is not enough.

I have therefore opted for the concept of *'empathetic learning and action'* to illustrate that type of learning where one 'tries on another's shoes - more like role reversals or swapping roles in order feel by experience another's situation, and in so doing learns and contributes towards its improvement. It is not only experiential learning (Hutton, 1989; Kolb, 1993; Squires, 1993), but learning from experiences as well; by being in another's position. I have encountered brief swaps of roles between husbands and wives to make a point about the problems the other spouse is encountering, and in so doing the point is usually made. Recalling my childhood; I remember the lessons I have learnt from my parents insisting that I act as parent in order to have the feeling of parenthood. I also remember my frequent childhood role plays with other children in the family. In such plays (which are common with the African child), roles are shared, with some playing the role of parents, and the others playing other roles in the family. I still remember the difficulties which those playing the role of the father and mother went through to care for the family, and to ensure that life was conducted in a civil manner. A mental reconstruction of this experience led me to evolve the concept of being *'empathetic'*.

'Empathetic' is therefore a conceptual blend of empathic communication, experiential learning, and 'living' another's life there and then; albeit temporarily.

Communicative innovation: Recent discourses in extension science suggest a shift towards an emphasis on communication instead of technology transfer. These shifts are relevant in giving *'empathetic learning'* the impetus that it needs. I discuss below some of the shifts, keeping in mind that I have made reference to some of these shifts already in chapter 4 (see 'recent development in systems thinking').

Röling and Fliert (1994) made a critical review of the performance of extension science so far, which called for a change for those of us in one form of extension or another. Their review included the fact that in most developing countries, extension has become identified with a *'delivery mechanism'* for technology. With this as a starting point, the extension drive was then to improve the *'science-practice continuum' into a kind of super highway with booster stations; departments, Subject Matter Specialists'*. However, Röling and Fliert do admit that the transfer of technology model (TOT) has been somewhat modified a bit with farming system research. The change was necessary because scientists realized that imposing purely technical solutions was seldom enough to solve problems. Most of the problems of rural communities require complex negotiation and/or agreement. In page 4, they state that,

> *'[...] we are no more only battling with nature but have to deal with a second generation of problems as well. We have to combine people-nature problems with people-people problems that need strategic communications and interactive management'.*

Also the distinction between extension and technology development is increasingly becoming blurred because the adaptation of solutions is more likely to come from actor networks, based more on negotiation, accommodation, and supporting one another in a reciprocal manner.

I am of the view that these responses that are now being made have been generated by the views of social scientists like Long (1984;1988) who look at people involved in development intervention from the social actor perspective. Their position is that people are social actors whose actions are partly intentional; who construct their realities and can exert agency; that is who make a difference to their world. This draws attention to diversity, arenas of struggle, negotiation, and accommodation. The social actor perspective also draws attention to how actors create different, and multiple realities or life-worlds, and how these are recreated in social interaction.

Röling (1994) adds that the social actor perspective emphasizes that people are 'intentional sense makers', who sometimes hold diverse and conflicting objectives, socially construct their realities, and negotiate for advantage, accommodate interests and sometimes reach consensus. This means that actors are constantly creating and recreating their world through dialogues of understanding. Part of the emerging issues of this dialogue is their definition of 'their systems'. Hence it means that,

> '[...] *a system is a construct with arbitrarily defined boundaries of discourse about complex phenomena to emphasis wholeness; inter-relationships and emergent properties'* (Röling, 1994:2).

It is this flexibility of the system that demands *in situ* development of actions. I have found in my job situation, as has been found by Jiggins and Röling (1994) and Hamilton (1995), that in reality, farmers rely more on knowledge developed by fellow farmers, they re-invent ideas brought from outside, and actively integrate them into complex farming decisions (Millar, 1992). Because of this interdependency, farmers develop their own knowledge networks for evolving strategies to manage natural resources in order to survive.

Jiggins and Röling conclude by taking the position that the necessary paradigm shifts being suggested seem easier when learning is experiential and occurs together with other farmers, and so they advocate participation and group processes. To achieve this they suggest that extension changes from emphasising the adoption of external innovations to generating active learning, and that intervention strategies change from technology transfer to facilitation of communication. Extension training should shift from transfer of techniques (demonstrations) to adult learning. That

institutional frameworks change from a bureaucratized science-practice continuum to decentralized farmer-driven networks. To pull all this together, they propose the establishment of special *'platforms for decision making'* which would allow interdependent but conflicting interests to come to terms with each other, and derive a consensus for action. One of the forms that these platforms can take is that of a platform involving meetings of farmers who perceive the same problem, realize their interdependence for solving it, and come together to agree to act. Another is a stakeholders platform, for example, to manage an ecosystem. In this case the stakeholders must learn from scratch about the ecosystem, agree on its boundaries, share concepts with which to discuss it, develop new indicators of success, and develop new methods of 'making things visible'. Facilitating such *'platform processes'* becomes the new task for professional extension. Hence,

> '[...] *facilitating stakeholders to get their act together and form a platform of resource use negotiation becomes the goal of synergy*' (Jiggins and Röling, 1994:5).

Although I have a few reservations about formalized platforms, and the prior knowledge of what issues are shared by whom, the whole idea of dialogue development and the facilitating role of the intervener are the shared principles underlining the development of ELA.

Sustainability: Another concept I have to deal with is sustainability. What do I mean by sustainable dialogical processes? Harrington et al. (1994:2) summarised all the efforts in the literature so far in dealing with this concept by dividing it into three categories:

- Agroecology. This is interpreted as system resilience, or the ability of a system to recover from stress or perturbation, largely due to system diversity featuring multiple pathways for the cycling of energy and nutrients (Conway, 1989).
- Stewardship. Interpreted as human stewardship of earth's resources, with responsibility to non-human species as well as future generations, to use and conserve these resources wisely (Batie, 1989).
- Sustainable growth. The need to minimize damage to the natural resource base while meeting growing demands for agricultural products (CIMMIT, 1989).

Haaften et al. (1995) looked at sustainability in terms of stress on the carrying capacity of resources (which is rather limiting). They go further to analyze carrying capacity in terms of human variables, environmental variables, psychological stress, and psychological marginalisation.

I have found all these views relevant but not specific enough to justify the sort of sustainability I envisage in my empathetic learning processes. Basically they view sustainability to be an emergent property of an ecosystem in 'equilibrium' at a point at which 'carrying capacity' is not exceeded. I am of the opinion that it is more an

emergent property of learning. Despite this stand, I think it is necessary to take these other views on board in order to be able to operationalize sustainability for the new learning perspective that I am proposing.

Fortunately, some of the positions I take about the definitions given to sustainability so far have been vindicated by the following observations made by Röling and Jiggins (1994:3)

> '[...] *a physically high potential area, in terms of biological factors of soil and water, can be deficient of labour due to migration or over population resulting in a bread basket becoming a bread deficit. For bio-physics, people are not part of the problem but an end-of-pipe problem* [...]'.

For them,

> *'[...] sustainable agriculture is not an 'innovation' that farmers 'adopt'. Changing to more sustainable practices is more like a paradigm shift, involving a learning path leading to new perspectives on task avoidance, new professionalism, a greater reliance on one's own expertise and observation, the use of new indicators and new instruments to make visible, and a great dependence on collective decision making in cooperation with other stakeholders in the same eco-system. Instead of relying on external expertise and inputs, farmers are empowered to rely on their own judgement, observation, and decision making'.*

The conclusion is that sustainability now demands a paradigm shift towards emphasising the utilizing or management of resources, within a socio-cultural context (of which cosmovisions are a part), which can be achieved on the basis of iterative learning.

I wish to re-state that since cosmovisions are an essential part of a dynamic community, they have an inherent potential to change and co-evolve with the community. Cosmovisions can thus be re-constructed and re-interpreted as has happened with the accommodation of 'external religions' by the community. It is my informed guess that the faster the pace of learning in the farmers' environment, the faster would be the changes in their cosmovisions.

Having gone through the emerging perspectives about extension, the new role of the intervener, and my view about sustianability, I now move to demonstrate how *'empathetic learning and action (ELA)'* tries to deal with all the concerns above.

10.3 The ELA environment

The human activity diagram in the appendix best illustrates the complex environment within which ELA is to be conducted, so that if ELA itself turns out to be complex, then it is simply being true-to-type; responding to its environment.

For the communities studied, land has been a constant feature in their lives. It has both spiritual and material expressions and is thus a central essence of living. In chapter 2, land as a resource and a factor of production was discussed; the reasons for which two different ethnic groups (one of them moved by Government and the other voluntarily), left their homes to settle in the research area - Damongo. In chapter 6 the traditional images formed about land are highlighted. Therein the institutions developed to manage land and to provide a linkage between 'material land and spiritual land' were found to be vital, and this has culminated in giving agriculture a central place in the use of land, although they acknowledge other landuses also to be important. All the learning and sharing discussed in the subsequent chapters kept drawing on agriculture, and so on land. As a vital but limiting resource, the high demand for land now, and the anticipated sustained demands for it in the future have become primary in the struggles, negotiations, and consensuses discussed in chapter 9 with reference to social constructions of power. It was necessary to discuss the politics of land to complete the picture.

Within all these discussions, the question of survival on limited farmland, be it for agriculture or for the other competitive uses, was identified by the community as the main objective governing their activities. They therefore resent any actions that would militate against the realisation of this objective, and as a community, their actions are not intended to result in making this resource un-available or un - productive. It is never by any means their objective to destroy the land, on the contrary whatever they do has the motive of optimizing their productivity and sustaining their land for the ancestral spirits, and posterity. Hence the conservation of environment is their goal as well.

It is the question of survival that connects their productive objective with higher order discourses with spirituality, and an ultimate link with the Allfather (the cosmovision concept). The ensuing diagrammatic illustration is one designed to reflect 'means and ends', and the underpinnings of these 'means and ends'. In the farmers' life-world, the relationships between the elements in the diagram are not linear. There are several overlaps, cross-linkages and many more than shown. However, when I tested the diagram with the communities and with my colleagues of the Government and the NGO, it succeeded in capturing the essential elements, and the rural community's expressed perspectives.

From the bottom of the diagram (see ensuing page, Fig.10.1): the production environment consists of fauna (including wild life), flora (includes vegetation), soil, water, tools, spirits (including the spirits of the dead), the living, and the yet unborn. Sustaining that production environment is the collective responsibility of people as represented by the social structures, social institutions that also represent spirituality, and intervention organizations (Government and NGO). This responsibility is expressed in the efforts they make to improve their traditional farm management practices, secure the fertility of land and their seeds, develop, consolidate, and pass on their native practice of farming to posterity, be able to

perform the necessary sacrifices for the dead, the spirits, and the gods. Intervention is viewed as a source for essential farm inputs that are not available within their locality. The functioning of these individuals and institutions would then lead to increase in productivity, linking them up with innovations, and life hereafter.

In a simplistic way, the lower half of the diagram as described is the arena of lower order discourses (material world). The top part of the diagram is the arena for higher order discourses, that is, in the realm of the spiritual world. Continuous development and improvement of their survival strategies on limited agricultural land, they believe, will lead to sustaining their relationships with the dead, which paves the way to them being accepted when they die. The use of improved strategies also makes land available for their children and the yet unborn, improves the general nutrition of the community through better harvests, and leads to general wellbeing of the community. For the people, these bright results are the desires of the Allfather, communicated to them through the gods and the spirits. It follows that this realm would be pleased, and their pleasure is reflected in better harvests, and improved health of the people in subsequent years. The orchestration of strategies is for them essential in using a resource which they jointly own with the dead, and the yet unborn. The guarantee of rewards and the administering of punishments is enshrined in what strategies are evolved, and how they got their act together in realizing these strategies. The pleasing of the Allfather, through the bodies that intercede on their behalf or intermediaries, is their vision.

It will be seen from the diagram below that the production objectives of farmers seek increases. The challenge is not to deal simply with the idea of increased production, but with optimal production that reflects efficiency and effectiveness in use of resources within the environmental concerns that we all share. As leaders in our communities, our job would be to create 'platforms' for all stakeholders (Röling and Fliert, 1994), that would enable negotiations and accommodations to occur. There is the need to modify some of the farmers' negative production objectives and practices in a negotiation that would result in stakeholders defining and acting in such a way as to respond to the sustainability of their production environment. My chosen description of sustainability is similar to the 'soft systems' perspective of Sriskandarajah et al. (1989), where sustainability is a negotiated outcome of stakeholders - an emergent property of a soft system. This is what ELA intends to contribute to.

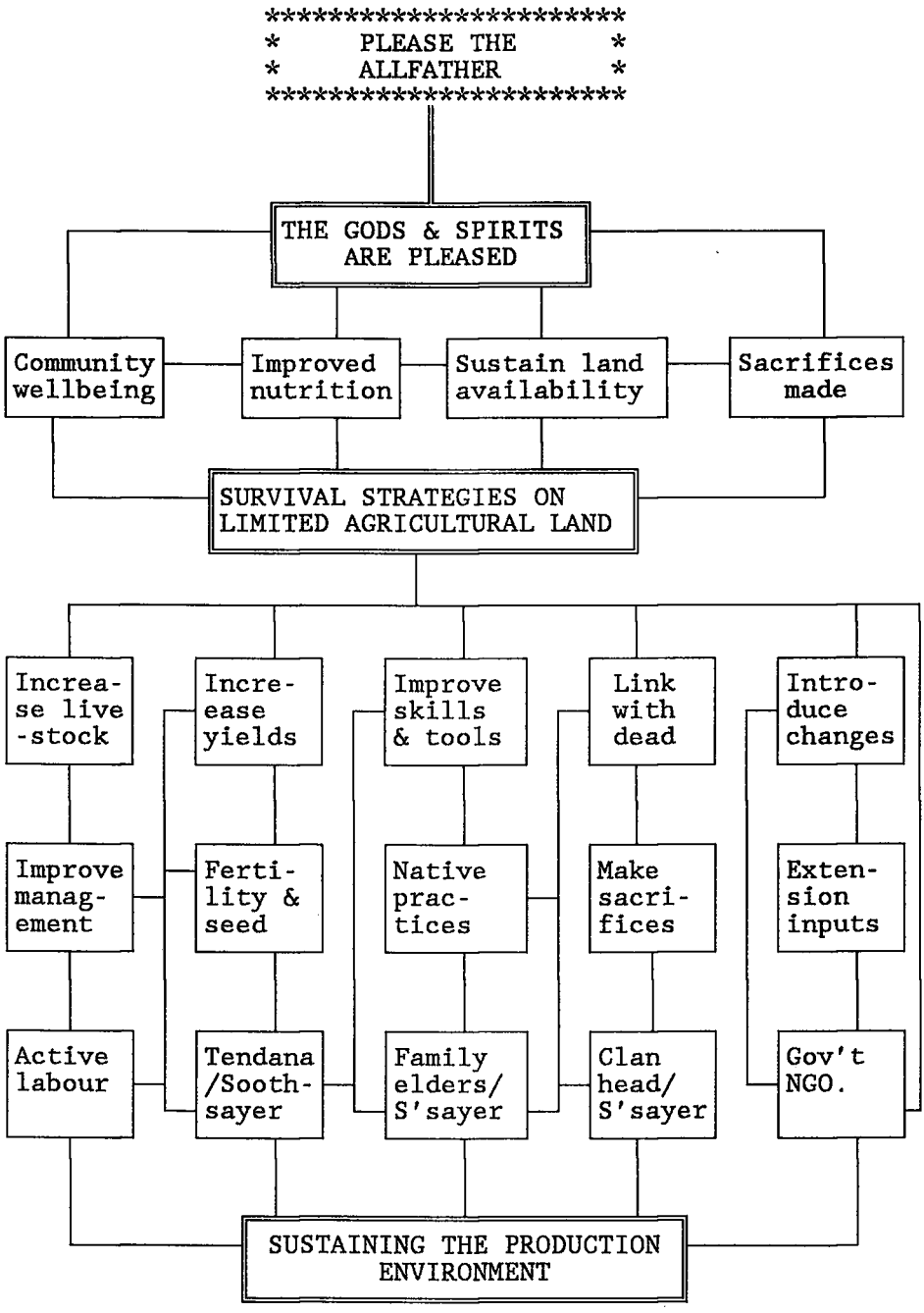

Fig. 10.1 The inter-relationships between agriculture, cosmovisions and farmers' production objectives

10.4 Issues to contend with

There is no gainsaying that the structures, institutions, and relationships described above will persist for a long time to come. The link between their spirituality and materiality is a complex one that cannot be severed within any foreseeable time frame, because it enriches and gives meaning to their way and quality of life. The resilience of that relationship has been tested by christianity, islam, and so-called modernization, and it has persisted up till now. To dismember it and use, or develop ways of extracting their cosmovisions, and managing as interventionists love to do, would be useless effort. Agents of change have to come to grips with this and develop ways of helping farmers to manage their adaptive rationalities (Nitsch, 1992) *in situ* - I make the choice for collaborative learning, which then would enable farmers process the technologies within their cosmovisions in their own way. I will give two examples below to illustrate why I am belabouring the point of *in situ* development of dialogues as against extraction of cosmovisions or whatever other components of indigenous knowledge.

Box 10.1

During one of my visits to the Frafra area (Bolgatanga), I went to a village where there was a big Government irrigation Project - the Vea Dam. Besides the rice and vegetables that were growing on the fields, land both on the farming side and the opposite side of the dam was very bare. You see only a handful of trees. I knew that those of the farming side were cleared to enhance mechanized agriculture but what about those on the other side?

I asked the chief I was interviewing (who was about seventy years old) what had happened to the trees. He told me that long ago he and his people had shown their concern about the *'disappearing trees'* since the dam was constructed by consulting their ancestors through the soothsayer. The ancestors told them that they were protecting those trees, because for them the trees were living creatures just like men, and so needed protection. When the Project came along, it did not give the elders the opportunity to consult their gods, and went ahead to clear the trees on the other side. So all the trees got annoyed and walked away from the area never to come back again.

Although there was a Government tree nursery nearby, there was very little planting going on around the area because the people were not keen and the gods were still annoyed.

Then I asked what if they were given the opportunity to make sacrifices to pacify the gods, and then asking for their permission to plant trees in the area with the gods' consent. The chief told me that was the way to go about things.

For me, this is a guarantee that they would put in their best to fulfil the wishes of the gods, once the gods have agreed that it be done.

Box 10.2

On another occasion I was in Nandom, the home of the Dagaabas. I took the opportunity to test a situation I had encountered earlier during my MSc studies.

I asked a farmer I was interviewing to suppose that, I brought him a millet variety that yielded three times his variety and asked him to plant it straight away in his farm. Thereafter any time he goes to work in that plot where he has planted my variety, some misfortune befalls him, like the sting of scorpions. What would he do?

He told me that he would go to the soothsayer to consult, and if the soothsayer says his ancestors are unhappy with the introduction of that variety, he would abandon it immediately. He would not even go back in there to destroy the crops but just avoid the farm completely.

In no way would he compromise his ancestors for any increases in productivity, no matter the magnitude of increase.

For a majority of the rural people, this is the spectrum of their world within which they try to realize their living. They see a broader scope of sustainability, especially the spiritual component, but their problem is how to achieve it. They are open to other strategies provided they fall inline or do not conflict with their most revered principles, and if given the opportunity they will ensure that this happens. Why opt for 'extracting it' as against developing processes that would take cognisance of it, through working with it? We should respect this worldview, and take advantage of it to allow them the opportunity to evoke and execute their processes during our interventions. It is this reciprocity that has been absent in most development interventions so far.

10.5 Enhancing reciprocity

Synergy between indigenous and other knowledge bases: The results of my research have shown that there can, and should be a synergic relationship between indigenous knowledge and other forms of knowledge. To achieve this requires a '*twin-track approach*' of interactive/interdependence, and independent existence of both. To make a parallel dichotomy between them is not healthy, and not even possible because farmers will always take advantage of pieces of information from whichever source they think useful or available. They have a capacity to tolerate, test, adjust, and incorporate new ideas (even portions of new religions), but this is guided by their way of doing, their self-identity, their life-world.

It is from this position that the ELA framework takes care of scientific technologies to resolve farmers' problems using the right-hand track that I have identified; while allowing farmers to resolve the same problems on the left track, and then evolving a synergic interaction of the two by building bridges of dialogue. The right-hand twin therefore becomes the location for '*participatory technology*

adaptation (PTA)'. It is here that proven technologies are channelled, and re-processed by giving farmers the opportunity to adapt them. The *'learning shades'* provide the opportunity for the adapted technologies to filter in part or as a whole into the traditional farming system. Feedback on the performance of these technologies in a competitive environment comes back again through the *'learning shades'*. I shall discuss the role of the *'learning shades'* and the *'twin-track'* in detail later, but here it suffices to establish the need for synergy.

Institutional relationship building: The emphasis by science on products or outputs at the cost of processes is limiting. Because of this bias, local communities have often been looked upon by interventionists as *'receptacles of technologies'* rather than as learning systems with an agency drive. We development workers, in our performance, break up or interrupt continuous, dynamic, socio-cultural processes, and look at them or intervene as if they were irrational, conservative, and static. We often lose sight of the fact that living strategies of rural communities started long ago, and will continue long after us. We are just plugging in and out of a continuous, life-long processes.

On the basis of these findings, I am beginning to re-evaluate my position, and encouraging my colleagues to do likewise. We have to become reconciled to the fact that the traditional institutions are themselves opportunities for enhancing further the learning and action that is going on over there; and in so doing, also learn from them. I have shown that farmers use their institutions to enhance the combination of roles, and functions of research (experimentation), training the young and themselves, and serving as self-supporting extension agents for one another.

This is not to say that the traditional institutions are a faculty of excellence, and that indigenous knowledge is without blemish. They are human institutions and therefore not perfect. Sometimes right things are done for the wrong reasons or wrong things for the right reasons, but they are often out for the optimal combinations available in their world. The people are themselves aware of these limitations, and are quick to invite assistance. The best opportunity for synergy is to develop a culture of institutional tolerance for them, as they have developed one for us. Such tolerance would offer a better learning opportunity - more so if we admit that we also have to learn from them.

Re-organisation of some key actors: Before I move into the in-depth descriptions of the ELA framework, I wish to look at what some of the reorganizations would imply for some constituency of stakeholders in order to enhance synergy. This time the attention is mainly on Government policies and Donor support. I would briefly state below some shifts that are implied by the type of synergy I envisage:

- Policy and donor support would have to make a purposeful shift for decentralization, to respond to in situ as against 'ex situ' developments. This means

shifts in funding and logistical support. Not only the responsibility for actions should be decentralized, but also the means to act. It means that more rigorous policies than hitherto formulated, favourable for community based actions, would be required. The chiefdoms suggest themselves as better units to respond to such decentralized actions because they form pockets of uniformities in the diverse constituencies of human actions.

- This research and others I have done point to the fact that indigenous institutions, experimentation, and more so indigenous learning are the back-bone to sustainable landuse or sustainable natural resource use. In order to integrate these experiences into development actions in a synergic manner, we need long-term community-based, broad action researchers. Such research should factor in spirituality, and the socio-cultural beliefs of the people. Alternative research protocols would have to be developed that would draw upon indigenous communication techniques, tools, and means of conducting learning, and the diversities of the people's life-worlds. This means long-term funding with little to show initially as results. Such empowerment processes demand patience so Governments and Funding Agencies would have to relax their demands for immediate quantitative results, or be content with qualitative results in the interim.
- This approach sees sustainability more in terms of sustaining a development dialogue as an output than quantitative outputs such as yields (the impact indicators of sustainable dialogue are yet to be developed). I take the position that if this dialogue is developed, it would contribute to the concerns for gender, for the deterioration in natural resources, and in the general environmental degradation; the consequences of which would be sustained outputs in the long run. Governments and Donors should therefore be prepared to reorganize to allocate resources for sustainable dialogical developments.

10.6 'Democratizing' extension: the ELA framework

Introduction: My premise is that when we interveners go into rural communities to assist in improving living conditions, we often think that the local communities are either so ignorant that they exacerbate the problem or they are simply not doing enough about solving their problems. The reality is that often what we encounter is their best-option scenario, resulting from protracted efforts to resolve the problem, an endeavour they would continue with or without us. For them it is a question of survival and continuous existence within that environment. For us, it is one of plugging in and plugging out. So with their limited tools, techniques, information, know-how, and know-what, they keep at the problem year after year, trying out a wide range of possible experiences, learning from them, and planning new actions - learning from experiences.

What this means is that while we are beginning to enter into their lives, they are engaged in trying to improve them: so that when we eventually get to acting, there are in fact two parallel action programmes about the same issues running concurrently; one (ours) with a temporary life span, and the other (theirs) perpetual. The results about learning discussed in chapters 6,7, and 8, prove that a tremendous amount of learning and action, based on coping and survival strategies, goes on in rural communities. We often come in as intruders to this on-going world of discovery, and re-discovery, then we enrol them in our activities, dictating the rules of participation, without allowing them to enrol us in their style of participation.

The ELA framework tries to come to grips with these parallel realities. It takes inspiration and a cue from results in this study of learning about indigenous learning. Negotiation, consensus building, and establishing of dialogue is my objective with the ELA framework. Most of the attention is focused on building communication bridges through what I call *'learning shades'*.

The notion of *'learning shades'* is more to demonstrate the act of learning with farmers under the shade of trees or some shed where it is most convenient for the farmers. I intend with this image to depict their environment, the informal learning with farmers in the driving seat, and the necessity for re-locating learning. These *'learning shades'*, in addition to their role for learning and sharing, would also be used to develop the Project's contact farmers into change agents by getting them to share the experiences that they have acquired, acting in close relationship with the Project style of participation. During this period too, the community's self-selected farmers would also share their experiences, and challenge the experiences of the Project's contact farmers; a sort of *'confrontational discourse'*(see chapter 5 on methodology) takes place. The rest of the community would therefore vet and judge the performance of these farmer change agents. As described in detail under the various scenarios, the *'learning shades'* would be the venues where empathetic learning would be consolidated.

Scenarios: I have chosen to label the various phases of ELA scenarios because each one consists of one or several steps using one or several methods. A combination of steps and methods are particular for a particular situation (worst situation or otherwise perceived by the people). The scenarios are iterative and continuous. The relationship is not linear but spiral and so actors can plug in and out at any stage, while the process goes on. Learning in one scenario builds on to 'higher learning' in another. There are over-laps: eg Scenario 2 and 3 (building relations and analyzing the two realities) continues in all the others because there are always new things to learn from or about each other. It is envisaged that there would be constant interactions within each separation, and between them as shown by the broken horizontal lines, and for the fact that it is all happening within the same community.

From my experience, three years is the minimum period to go through one complete cycle, and these three years could be split into:
- Year one: Scenario 1,2,3,4.
- Year two: Scenario 4,5,6.
- Year three: Scenario 6,7,8,1.

By this design there are a set of farmers (either as groups or as individuals, responding to Project objectives) that we would be working with who are or have been our collaborators. We would have enrolled these farmers in our participatory programme and through negotiations, they would have been enrolled by us. These are the farmers who are potential change agents for the ultimate farmer-to-farmer extension. Parallel to this group would be farmers from the same community, based on their own modes of categorization or organization, who have chosen to work on the same theme, and they would then have me (the intervener) as their primary collaborator - they enroling me in their program. It is important to recognize and submit to this position and not usurp their power. I would do this by sticking as much as possible to 'the questioning approach' to discussing with farmers. I would try to stick as much as possible to asking why, when, and what if, and challenging them on how they would have done things on their own.

Among all the resources that we both have to share (farmers are also resource-rich) ELA expects that we would share our external resources with the farmers as they share their internal resources with us. This means that some of their own designed actions should receive financial support from our budget, among other resources. That is, we fund directly their activities based on a 'dialogue of understanding'. The two parallel 'action researches' would therefore be receiving equal treatment. It would also eliminate some biases and, most importantly, re-distribute power which otherwise would have been the sole prerogative of the Project farmers. The results of such an empowering process would be moving participation a step forward. Such a move augurs well for capacity building, and a true test for sustainability.

Some assumed positions: The ELA framework is based on the following positions: There is power differential among the actors in a development arena. Every actor is a stakeholder and intends to realize a certain agenda (overt or covert); there should therefore be no pretence of neutrality. Enrolment and being enrolled is an essential part of the process. Trust, respect, and confidence building are prerequisites. All the actors are resource-rich in one way or the other, and have this to trade off or negotiate. There exist different realities. Each reality has its strengths and weakness, and there is the need for each other, for interdependence. Rural people's life actions are continuous and iterative. Intervention is not the beginning, and does not stop or end the process, it just plugs in and out of this continuous process. Rural people's environment is heterogeneous. Nevertheless there are

binding forces and mechanisms that harmonize diversities. It is possible and desirable for the intervener to go in with an open agenda, not a specifically funded programme, but with the potential to fund the activities that come out during the interaction. The activities to be funded, and the amount of funds required, are thus determined by the ELA process.

Operationalizing the framework: This is not a detailed menu for the performance of the ELA framework since it has not yet been tested, but a preliminary indication of possible tools and techniques that could lead to action options. Further long-term work would be needed to improve and consolidate this framework.

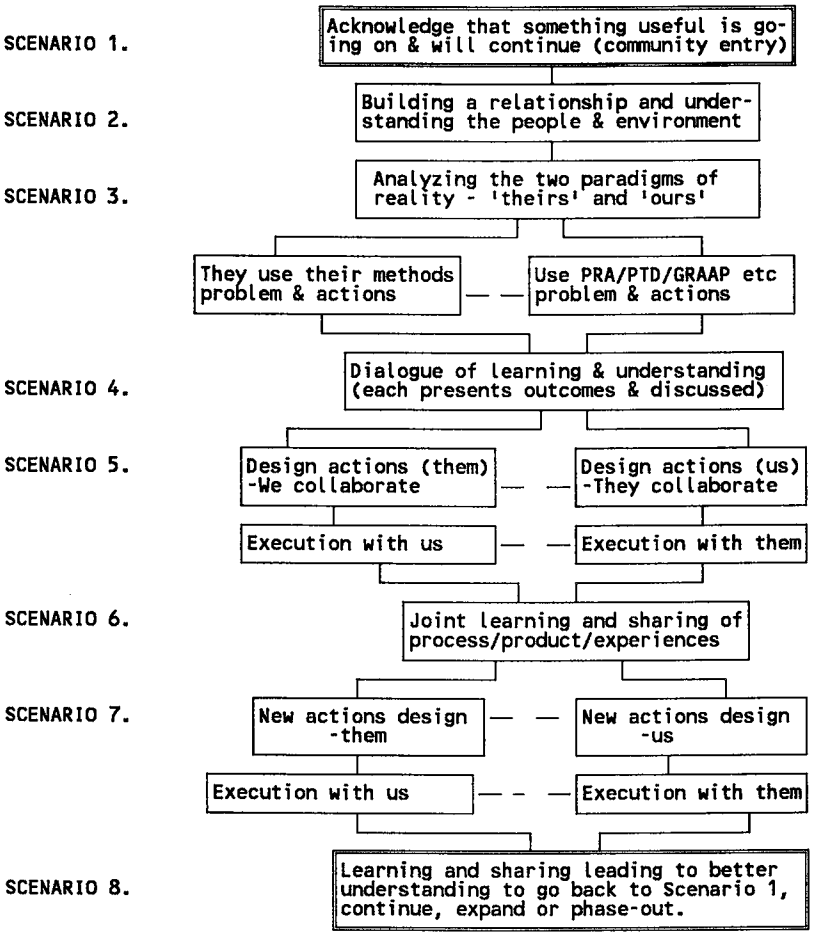

Fig. 10.2 The ELA framework

SCENARIO 1: There are various ways of 'entering the community', and these differ from community to community. Self-orientation to acknowledging/accepting that something very important/useful to the people themselves, and to us, is going on in every community, and would continue, is a prerequisite. That we plug in there knowing very little and might plug out not knowing everything; is part of the mental orientation. We should give an initial unqualified credibility to what is happening in the rural communities, acknowledging that we have come open and prepared to learn. This pre-conditioning of the mind is important for the attitudinal aspects of the interactions, and would predispose us for the rest of the processes. Most analyses of unsustainability of interventions are looked at from the point of view of sustainable technologies, and little attention is given to the attitude of the intervener - '*the salesman*'. Since my people believe in imagery (see chapter 6), the image that an intervener makes in their minds sticks for a long time (longer than the technology), and so it is this image that contributes to making or breaking our efforts. This exposition is the vital entry point, and it permeates the entire ELA processes.

Having processed our 'inner-self', and demonstrated that we are prepared to be enrolled by the people, we could ourselves then start by studying the secondary data of the people. Secondary data easily falls prey to stereotyping and generalization, but it is certainly useful for insights, be it for the stereotypes, and the generalities. (It is here that I find my research on indigenous learning a useful guide). Then there are individuals, organizations or institutions relating to our communities of interest. Talking to them normally builds on that which we have gathered from the secondary information. We should never assume we are the first in that area, and in so doing run into complacencies, but make energetic efforts to find the experiences of our predecessors.

If it is our first visit, it is normal to find a suitable guide (acceptable to the people) to lead us into the community. Discuss with him how the first contact would be made and with whom, and cross-check both the guide and his approach with others you have already met about the area. Rural communities are usually suspicious about who is leading you into their community, and who is your first contact.

There is a saying that, '*The toad does not come out during the day for nothing*'. The community knows that we do not come out there for nothing, and so, very early, we have to introduce ourselves in a detailed and truthful enough way to enable them accept or reject us. We occupy a certain power position which they know, and so it would be unwise to assume that they are so naive as to accept that we are coming in just to listen, see, and learn without sharing with them. No matter what disguised forms we take, the custom of the people is that a visitor remains so; he/she must have a mission, and this they would ask to know immediately you have taken 'water' and are welcomed. This procedure is part of their way of life to such an extent that even when a family member visits, he/she is asked his/her mission

immediately after the initial greetings. In this scenario we need to give credence to their deductive ability, and share information with them on a level of equality.

SCENARIO 2: Whether for a short stay or for a long one, there is the need to build up a rapport that would be positive and durable, either for ourselves or for those who would come after us. Every community has its code of conduct (mine links with spirituality) though not necessarily written. This research has shown that communities have their structure, culture, institutions, organizations to achieve, internal and external dynamics. They get us factored into this world, and adapt their ways to accommodate us. We are therefore challenged to be immensely flexible, and creative in understanding them and their environment.

In this research, I have found myself evolving various techniques to understand them more; (although I have been working in that area for several years, not to mention my roots being there. My generative tools are spelt out in chapter 5, and they could be a guide. I have also found the ethnographic methods of Yin (1984), Bernard (1988), Hakim (1989), den Ouden (1989), and de Vries (1991), a useful recommendation for scenario 2. My focus on the spirituality of the people (their cosmovisions) has paid off in enabling me to access deeper insights into the people and their environment. The general rule is that whatever methods one uses, research into building relationships, understanding the people and their environment, requires one to be flexible, adaptive, and creative - often **triangulation** is a handy technique in such circumstances.

The general ELA approach for the intervener should be one of *'relaxed professionalism'*, and we should be unassuming. If the process has to be hastened because of resource limitations, scenarios 1 and 2 can be cut short but subsequent scenarios should have aspects of scenarios 1 and 2 built into them. Because of the need for trust and building confidence at this stage, it is important to be frank and open, in a very general way about why we are around, and how we intend to grow together.

SCENARIO 3: Emerging from scenario 2, we would have identified that there are multiple realities within the community. One cluster, though heterogeneous, and diverse, I call 'theirs'. 'Theirs' is used to mean that it is determined by the people themselves, in as many ways and forms as they so determine. 'Theirs' then constitutes one track - the left parallel. The other twin I call *'ours'*. This is that which we have used our participatory tools to identify, and define - the right parallel.

The categorisation of the two worlds done, we now need to do purposeful analysis of some of the issues of development concerns that have been identified in scenarios 1 and 2, and do them in-depth. In the farmers' track they do their analysis, and come out with potential areas of concern for possible action. In our

track we use the tools that we commonly use as NGOs (PRA/PTD/GRAAP), to do the in-depth analysis, and also evolve issues of concern for action.

In the ELA framework, new technology, research, and innovations that we specifically introduce reach the community through 'our' track. It is here that technologies from research would be adapted by farmers through *'participatory technology adaptation (PTA)'* processes (Millar et al., 1989). Our task would be to create new opportunities, and new information for communities to learn and use; a thing they are always eager to do in their own way (after all learning, from my point of view, is a voluntary exercise). While doing this, we should also give them the opportunity to teach us, or open ourselves up to learn.

In our track we have our contact farmers selected with our participatory tools who also come from the same community (eventually they would be developed into change agents within the community). The people, in activating their track, would utilize their own protocols, philosophies, tools, and conduct themselves in self-identified groups (natural groups). It is here that their cosmovisions (spirituality) would influence and shape their actions. In any case their cosmovisions have been part of the indigenous information and technology generation processes that has built the repertoire of experiences which they fall back upon.(This is the why of my in situ development of technologies). It is important for ELA that we schedule our part of the actions such that we can be present, and be enrolled into these preliminary analyses of the people themselves. Participant observations, and when demanded, questions rather than leading presentations would enable us be effective participants in their world. A guide to participating in their programme would be to heed the advice of Röling and Fliert (1994:6):

> '[...] *do not lecture, avoid being pushed into the position of an expert, do not answer questions directly but try to make farmers think for themselves. Keep asking what did you find?, what do you think? what did you do?, what is this? how? what if? when? which? what?.*

In conducting our part of the parallel, a group of farmers would emerge from our participatory processes as our contact farmers. Since we cannot effectively reach the whole community, these farmers would serve as the ambassadors of the rest of the community in detailed dealings with us. The desire is to ultimately develop them as mouthpieces for intervention.

We have to make it clear at the beginning of this scenario that this sort of partnership is intended, and that the opportunity for joint sharing is foreseen. We may do this on some convenient occasion, not necessarily exhaustively in one go.

SCENARIO 4: The operationalization of the concept of *'learning shades'* starts here. This is the first opportunity for cross-fertilization in a dialogue of understanding and sharing. The start of the dialogue is to give the community's own self-segregated groups the opportunity to inform us all about how they have

conducted themselves, on what issues, what are their areas of likely concern and why, and what are the likely areas of action and why. They should do it in their own way using their own methods and tools (we should not stop detailed discussions if they come up here). Then we give the chance to our collaborating farmers also to do their presentations along the same lines. In terms of a common theme, it is my informed guess that if we follow the rules of openness and equal participation, sustainable landuse or sustainable natural resource use would come out in both cases as the common theme. It is the operational definitions, and the possible actions in response to these themes, that would differ. As in the case of Hamilton (1995), the strategies to manage this process are to be worked out in field experiments with farmers.

The role of the intervener at this stage is to facilitate communication by focusing on drawing out essential conclusions of each presentation, summarising, clarifying, and asking phased assertion questions (Bernard, 1988). This is a painstaking exercise so we should not be worried if it is taking a long time or a couple of days to complete.

In the early part of this chapter, I stated that Donors should be prepared to fund processes. For me, even if the process stalls after this, it is a worthwhile achievement to bring people together to discuss their lives and compare their methods with our participatory techniques. We would have also learnt from scenarios 1, 2, and 3. However, I am convinced that the process would not stall, but rather much debating and discourses would result. New ideas and lines of thought would emerge that would need further digestion both by us and by them.

Closing this '*learning shade*' with traditional drumming and dancing, and with a meal and a drink, is healthy for relationship building. I recommend it as a closing event for all '*learning shades*'. I have found that, in cash terms, these social occasions cost next to nothing (the communities are more than willing to prepare it themselves using their resources, and you subsidize). We should also encourage farmers to invite us to their spontaneously organized 'learning shades'.

SCENARIO 5: With the ingredients of scenario 4, we should then go back into our various parallel tracks and revisit our possible action areas. Confronted with the new information, and I would add a broad guide of what is expected of each group, I would expect more realistic actions, and more in-depth analyses. For both parallels, their tasks for the next '*learning shade*' should be clear, and repeated from time to time during the parallel interactions.

As a result of the interactions among community members (between our collaborating farmers and their village), and also guided by their learning modes described in chapters 7 and 8 of this research, there is no need to bring them together again. We the interveners would be in the two programmes, and so it is better for the two parallels to go from discussions to actions if resources are a constraint. However, it is an improvement that they could come together to share

the details of the precise chosen actions if resources permit. If the scenarios processed so far were done during the off-season, then it would be to come together once more before the season for execution starts - be flexible.

The role of the intervener in the execution of our parallel is clear but the role of the intervener in the people's is not. We should give them the opportunity to ascribe an acceptable role for us, based on a dialogue of understanding. One useful role we could assume is to assist them with documenting the processes and products of their actions as supplementary to their way of registering. I have documented in my MSc thesis (Millar, 1992), that because of our over-reliance on the written word our faculties of remembering are less reliable. Rural communities on the other hand have largely to rely on their memories, and so remembering has been highly developed. In that research I have also shown that farmers conduct their experimentations by combining sequential and non-sequential processes. I refer to this as '*combining orderly systematization with constructive chaos*'. This should be the time for us to be taken through their processes, giving us the opportunity to learn, and test out our frustrations.

As intervention Projects, we usually have resources (funds) to support the technologies we test with farmers. ELA requires that such funds should also be available to support the actions that the farmers' parallel has identified. To do this, they first should have identified their actions based on what resources they have, and would have used. Then with the Project resources, we provide subsidies to facilitate those actions (for example labour for a specific activity, an excursion for additional information or the repair/acquisition of a tool).

A modification to this scene would be to have intermediate discussion sessions (it is difficult to specify how many), bringing together various parties as and when we and they think it is convenient or worthwhile.

SCENARIO 6: This scenario is characterized by another '*learning shade*' as in scenario 4. The difference here is the richness of the dialogue which is now based on concrete experiences of both products, and processes of action or inaction. During the sharing here, it is common to find some members relapse into previous scenarios, and others move ahead to the subsequent ones. That is natural and logical for their non-linear iterative life-styles. It also gives us an ideal opportunity for a feedback mechanism to identify weaknesses and strengths of how we have conducted the learning so far.

During this stage our performance is guided by the rules of scenario 4. We take a moderating position but because of our experience in the two exercises, we ask more specific questions with particular reference to specific situations or experiences in either parallel. We should also guide all parties to discuss and generate not only qualitative information but also quantitative information. Structuring the discussions here would be self-defeating, but getting at specific outcomes, through questioning, is necessary.

I have remarked in chapters 7 and 8 that redundancy, surreptitious learning, and accepted pirating form part of their ways of learning. It is possible that during this interaction we would have identified additional forms they use to express themselves or learn. It would be useful for us to use these methods, especially in this stage, to allow joint management of the information.

By now we and the communities would have developed some degree of trusting each other, and would have jointly or severally matured enough to move to a higher order of learning. The community being quite dynamic, we would experience newcomers and drop-outs at any stage, particularly at the end of one exercise. This should be foreseen in our dealings with them, and we should not restrict mobility as we often do with the Project style of participation.

SCENARIO 7: This is a consolidation, and a more advanced form of scenario 5. New actions are re-designed or old actions are replicated based on the evaluative dialogue of scenario 6. Roles and loyalties are re-defined. I would expect that a more empowered group goes to work this time with a mind and an eye for details; more conversant members of each parallel go back through design and action.

To enrich the learning processes, I would share my coordinating role with any collaborating farmer(s), or at best relinquish that role altogether to an emerged choice (s). If the choice is not emerging, I would endeavour to develop one in consultation with our collaborating farmers. My experience is that it is a natural part of rural communities to have such leaders. We call them 'opinion leaders' but they are more *'communication facilitators'* than opinion leaders. If they are conveying an opinion, it is valid and generally accepted only when other members of the community have had an opportunity to process that opinion. A conditional or qualified acceptance is given on the first occasion that the community becomes aware of this person's opinion. If this infringes upon the rules of the community, or private resources, it would not be accepted. Hence acceptance of opinions in rural communities is a matter of negotiation and consensus building.

The ELA framework finds it logical and necessary to develop within the group some *'communication facilitators'* who would enhance the negotiations and the arrival at consensus. This scenario provides an ideal opportunity for starting the process of developing these communication facilitators.

SCENARIO 8: The ELA framework assumes a continuous monitoring and evaluation for all the scenarios, since the communities combine actions with simultaneous assessments. Each *'learning shade'* however provides a critical period for in-depth assessment of performances. They also provide a forum for pulling together and consolidating the diffused monitorings.

Scenario 8 provides that *'learning shade'* dedicated to rigorous and protracted assessment by all actors. Both the activities and the relationships are discussed in great detail. It gives us the opportunity to use our tools to assess performance to

satisfy our formalized agendas, and the same for the stakeholders. We would use PRA tools such as matrix diagrams, matrix scoring, and impact diagrams for our evaluations, and impact assessments (IIED, 1994). The use of these tools has that additional objective of exposing farmers to them, the information they can generate, and most importantly, the discussions about the additional information so generated. We take this opportunity to evaluate with the rest of the community the performance of our potential communication facilitators, who are to facilitate the farmer-to-farmer communications (these are the farmers who were directly collaborating in 'our' programme).

I am of the view that subsequent action follow-ups would emerge from the assessments. Some of these actions would be spontaneously from the people themselves, some we have to stimulate through questioning, and a third sort would be the direct result of the assessments. The future direction of action is a joint one, resulting from a dialogue between us and them. The possibilities are that we go back to scenario 1, or plug in at scenario 5 or 7. If we go back, the momentum and character of learning would certainly change. We may also expand to gender (focus on women if not already captured) or the youth, expand in subject (to health or water), or phase-out of the community.

Box 10.3

My people have a saying that their actions and general way of life is like that of the millipede.

The story is that after the Allfather had created all the animals, He decided to offer each animal one choice before they were dispatched into the world. All the animals were summoned, and each made its choice. The choices ranged from strength for the lion, speed for the rabbit, a permanent house for the tortoise, wisdom for the spider and so on.

When it got to the millipede, he told the Allfather that he wanted to be made such that if he is cut up into bits, he will still be able to move on. The Allfather asked him why such a strange request. He said he had a remote feeling that the world he is going into, the living beings there, on seeing his length, would be tempted to cut him up.

The Allfather saw wisdom in the millipede's request and granted him several legs. That is why when a millipede is cut up, each part continues in its motion.

It is my observation that the legs are several (not one or a few), movements continue even when cut, and they can move in any direction (not one or necessarily the same). ELA is an attempt at being the legs of the millipede. We will try to generate several development actions in various directions as decided by the people, so that when we cut off, learning and action will still continue.

10.7 Paradigm shifts implied with ELA

The challenge of ELA is a paradigm shift of all stakeholders in development intervention; least so for rural communities and more so for extensionists. That of Government policy and Donor support is more in the direction of supporting

sustainable dialogues rather than a limitation to sustainable technological outputs. The anticipated 'relaxed funding', that is unpredictable because of changes based on the activities that the processes themselves evolve, is a departure from the hitherto fixed funding of specified programmes.

For us the extensionists, the shift from an emphasis on pushing technologies in which we enrol farmers to facilitating communication in which we are enrolled by farmers, is a big one. We are used to structured discussions in dealing with communities, now we have to combine this with a questioning approach to keep the dialogue going. Coordinating the twin-track, and moderating the *'learning shades'*, is a novelty to most of us. There is another heavy coordinating function when activities finally get under way. The democratic nature of the evolution of activities entails a proliferation of activities based on the interests of groups. They might get so many that the extensionist would have his/her hands full. Decentralizing some of the coordinating function to the farmers themselves would be helpful. Sharing our roles of authority with others and consciously developing others to take over that position is often very threatening and a difficult decision to make.

Despite its being plagued with potential 'non-starters', I know from experience that ELA has a high potential of survival. In 1988, a Dutch consultant colleague, working on a project with me to get a model of technology development processes for NGOs in northern Ghana demonstrated this to some extent. After the first day of the week-long workshop he realized that he had successfully motivated the group to evoke their potentials. When this happened, he relegated his original expert role to the group, and became a participant playing the role of the 'devil's advocate'. The group, facilitated by this Dutch colleague, evolved a product which we call our own, and is still in use by NGOs to this day.

The framework counts heavily on local staff, or expatriate staff collaborating closely with local staff, to achieve performance. Expatriate staff going at it alone would have problems because of their expected role in the left side parallel of the twin-track, the socio-cultural demands (spoken langauge being one of them), and effective participation. The rate-determining step of the entire processes is also that left hand parallel and its tenets. This has the tendency to be slow and that would slow things a bit. The slow pace might be worrisome to actors who demand immediate impact. It should be seen as a joint capacity building processes; ours and theirs, and considering the current work ethics, styles, and skills of extension agents, it definitely would be a slow learning and action process.

10.8 Conclusion

Guided by the actor oriented approach, and diversities as an analytical framework, and managing the information from recent systems perspective, this research is unique sofar in its attempt to capture rural people's learning processes and use this

to influence intervention processes. The rich experiences of vertical learning (inter-generational), and horizontal learning (intra-generational), demonstrate the power of indigenous learning that should be enhanced. The enhancement should be carried out by giving rural communities the opportunities to conduct their own learning with minimum support from us, and for them to teach interventionists their indigenous tools and techniques. Concomitantly, interventionists should give rural people the opportunity to learn our ways of doing; jointly developing together a dialogue that would enhance and empower both of us in a sustainable way. The in situ development of such a dialogue is strongly advocated in the ELA framework in order to preempt the hi-jacking of processes by interventionists. It is also intended to prevent the pirating of the people's knowledge as has been common with our 'extractionist' tendencies.

The ELA strategy of allowing the communities to self-segregate into their natural groups, and to define their own actions and resources, after which we provide the support, is one way to avoid the hi-jacking of resources by privileged persons/ groups in the communities - '*the proof of the quality of the porridge is in the eating*'. It is my informed guess that such 'natural groups' have their own internal dynamics and countervailing powers, provided they are allowed to operate using their own principles (see chapter 9). My position is that the prevention of the exploitation of some members of a rural community by a privileged few is better managed by the communities themselves than by intervention or by an outsider. Interventionists should guard against making it impossible for this management to occur or reinforcing the exploitation.

I have chosen intervention within the NGO sector as the arena to contribute towards change because that is my current field of work. It is also possible that I would get the opportunity to test the framework completely, and develop it further; although in my previous work I have tried out bits and pieces of this framework already. It is my hope that colleagues would test the framework along with me, and that others in other fields to which this information is relevant would use ELA as a cue to develop actions of their own.

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Summary

This book is about indigenous learning, or rural people's learning, in northern Ghana, and the need to capture this rich body of knowledge in development intervention. The book is divided into three parts.

Part I: The first part deals largely with secondary information that is drawn together to provide an entry to the research. I start with a general background picture of Ghana, and agriculture in Ghana. I draw out the problems that sustainable increase in agricultural productivity has to deal with; in the country as a whole and in the region particularly. The historical evolution of how development intervention has tried to respond to these demands in Damongo (the study area) are summarized.

The problem area that was tackled by this research; **'indigenous learning and its role in development intervention'**, is discussed showing both the theoretical and practical evolutions of the subject. Evidence is given to for fact that within the Government sector intervention still operates with the Transfer of Technology model. The Non-Governmental (NGO) sector has progressed to the state of introducing participatory processes in response to concerns for improving intervention strategies (a stage Government intervention is yet to reach).

While acknowledging the efforts of the NGOs to draw on indigenous knowledge in their participatory processes, I criticise them for their insufficient attention to spirituality and indigenous learning. I argue that recent evidence show that the people's own notions of spirituality (their cosmovision) are gradually being introduced into development intervention strategies, but not people's learning processes.

In order to reconstruct what the rural communities say their ways of learning are, and to see how to integrate such findings into sustainable intervention strategies, I have made a choice for a combination of the actor-oriented approach and the soft systems perspective. Within this context I look at diversity (heterogeneity) as part of the theoretical discours that has guided the collection and management of my data.

The methodology used for data collection and management involved a combination of ethnographic tools like discourse, conversational, and case study analyses; participatory rural appraisal tools like impact matrix, matrix scoring, and

mapping. I describe the various modifications that I had to make to these tools and the evolution of techniques to make my data management more effective.

Part II: This is dedicated to data that have largely been generated by the field surveys themselves. The section starts with the role of imagery in the peoples lives.

My research findings are then discussed to show that on one side of the indigenous learning continuum there is a type of learning which I refer to as 'vertical learning'. It is vertical in the sense that it describes inter-generational learning; particularly the young learning form the old (juvenile learning). These forms include organised, unorganised, and even unconscious or unintended learning. The socially constructed environment within which learning occurs is described. The peoples' categorization of vertical learning into "wulu" (a period of intensive tutelage and apprenticeship), and "bangfu and oogfu" (periods of graduation and passing out), were identified. Among the young, the concept of "gandaalu" shows that peer group learning also goes on.

Indigenous horizontal learning (adult learning, peer learning or intra-generational learning) is the other end of the learning continuum I identified. As a continuation of vertical learning, it takes advantage of issues like imagery, knowing environment, and "gandaalu" discussed earlier.

Some of the specific aspects discussed in this section include 'the partial commoditization of learning', organised and less organised learning, socially constructed learning distances, and learning orientations. The people designate four learning quadrants, "zanzanbe, Ire-karbe, Ike-brebe, zuudem". These are analyzed using the 'three planes of learning'. The use of this technique draws out the transitions and the dynamic inter-changes between the learning orientations. The growth trends of 'knowing' are then discussed.

Accepting the fact that rural communities are open and dynamic in their orientations towards knowledge, I proceed to analyze what communities referred to as 'the outside world'. This reveals how some of the information that interventions have introduced to farmers has functioned when confronted with the ongoing indigenous learning.

Further in this section, diversity is discussed by looking at acquired versus generated information, the ways information is utilized; at the categorization into 'three generations', and categorization into the three religious groupings that the communities said were important in differentiating their identities - catholics, moslems, and animists.

Part II ends with a revisitation of the various discourses in the entire study, drawing out the various experiences of indigenous learning. These experiences are then discussed both as subjects and objects of the social constructions of power. I take the position that all development interventions have to deal with power relations. The discussions about power in this section pave the way for the presentation of the proposed action framework.

Part III: I conclude the book by dealing with a recommended action resulting from the findings of the research; **'a framework for Empathetic Learning and Action (ELA).** As a recommendation, it draws on both primary and secondary information captured in earlier chapters.

In evolving this framework, I take the position that communicating innovations, as done by intervention processes so far developed, is weak in achieving the participation of rural communities. I question the empowerment of rural communities so far, and the way intervention strategies manage differential power positions of actors in the development arena. My opinion is that development intervention should shift towards arriving at sustainable communication with rural communities which emphasise negotiations, consensus building, and collective actions as opportunities for continuous '**learning - action cycles**'. I proceed to propose a framework on how to move participation a step forward.

My learning and action framework which is yet to be tested in the field, is developed with NGO activities in mind, but it is possible to use it to serve development intervention in general.

Samenvatting

Dit boek heeft als onderwerp de inheemse leerprocessen; de wijze waarop de mensen op het platteland in Noord-Ghana leren. Het geeft aan dat het belangrijk is om de bestaande rijkdom aan inheemse kennis serieus te nemen in ontwikkelingsaktiviteiten. Het boek bestaat uit drie delen.

Deel 1: Het eerste deel betreft secundaire informatie over het onderzoeksgebied. Ik vermeld eerst achtergrondgegevens over Ghana en de Ghanese landbouw. Vervolgens worden de problemen aangegeven die te maken hebben met het duurzaam vergroten van de produktiviteit van de landbouw in het land en de noordelijke regio in het bijzonder. Verder wordt een samenvatting gegeven van de historische ontwikkeling in Damongo, het onderzoeksgebied.

Dan volgt een discussie van de theoretische en praktische aspecten van **"inheemse leerprocessen en haar rol in ontwikkelingsaktiviteiten"**. In de overheidssector worden de ontwikkelingsinterventies nog steeds uitgevoerd volgens het model van "overdracht van technologie". Daarentegen bedient de sector van de niet-gouvernementele organisaties (NGO') zich steeds meer van participatieve processen.

Hoewel ik de initiatieven van de NGO's om in hun participatieve processen rekening te houden met inheemse kennis waardeer, criticeer ik hen omdat men nog te weinig rekening houdt met de spirituele aspecten en de inheemse leerprocessen. Recente gegevens tonen overigens wel aan dat de cosmovisie van de lokale bevolking en hun spiritualiteit geleidelijk aan worden opgenomen in de ontwikkelingsaktiviteiten, maar de inheemse leerprocessen nog niet.

Om te reconstrueren hoe de rurale gemeenschappen hun eigen leerprocessen zien en om de verhouding met duurzame ontwikkelingsaktiviteiten aan te geven heb ik gekozen voor een combinatie van een actor-benadering en het perspectief van de "zachte" systemen.

In deze opzet besteed ik aandacht aan diversiteit en heterogeniteit als deel van de theoretische discussie. De onderzoekmethodiek behelst een combinatie van etnografische methoden zoals analyse van gesprekken, discussies en case studies; participatieve diagnoses zoals impact matrix, matrix scoring en het maken van schetsen en kaarten. Ik beschrijf de verschillende modificaties die ik moest maken

in het gebruik van deze methoden teneinde mijn gegevens effectief te kunnen verwerken.

Deel 2: Het tweede deel is gewijd aan de veldgegevens. Het begint met de rol van voorstellingen in het leven van de mensen. De gegevens tonen aan dat aan de ene kant van het inheemse leercontinuum wordt geleerd op een manier die ik "verticaal leren" noem: jongeren leren van de ouderen.

Dit geschiedt zowel georganiseerd als niet-georganiseerd, zelfs onbewust en niet bedoeld. Er wordt een beschrijving gegeven van de sociaal geconstrueerde leeromgeving. "Wulu" is een periode van intensieve leerlingschap en "bangfu en oogfu" zijn perioden van overgang en afronding.

Aan het andere eind van het continuüm bevindt zich het horizontaal leren. Personen van gelijke leeftijd of gelijke maatschappelijke positie leren van elkaar. Het concept "gandaalu" wordt gebruikt voor die situaties waar jongeren van elkaar leren.

Specifieke aspecten betreffen "gedeeltelijke commoditisatie van het leerproces", georganiseerde en minder georganiseerde vormen van leren, sociaal geconstrueerde leerafstanden en leerorientaties. De mensen ontwerpen vier leerquadranten, "zanzanbe", "Ire-karbe", "Ike-brebe" en "zuudem". De analyse hiervan geeft de overgangen tussen een en ander aan. De groei trends van "weten" worden bediscussieerd.

Uitgaande van het feit dat rurale gemeenschappen open en dynamisch zijn in hun oriëntatie op kennis, analyseer ik wat de gemeenschappen beschrijven als de "buitenwereld". Hiermee wordt duidelijk gemaakt wat in het inheemse leerproces gebeurt met informatie die ontwikkelingsorganisaties bij de boeren aanbieden.

Verder wordt de diversiteit in leerprocessen bediscussieerd door onderscheid te maken tussen: verworven en gegenereerde informatie; tussen de wijzen waarop informatie gebruikt wordt; tussen de kennis in drie generaties en tussen de drie religieuze groeperingen: katholieken, moslims en animisten.

Het tweede deel eindigt met theoretische reflecties en discussies. De ervaringen worden vervolgens bediscussieerd als onderwerp en voorwerp van de sociale constructies van macht. Ik ben van mening dat alle ontwikkelingsaktiviteiten rekening moeten houden met machtsrelaties. Deze discussie plaveit de weg voor het maken van een voorstel voor een raamwerk voor actie.

Deel 3: Ik besluit het boek met de presentatie van **"een raamwerk voor empathisch leren en actie, (ELA)"**

Bij de presentatie van het raamwerk stel ik me op het standpunt dat de communicatie van vernieuwingen bij ontwikkelingsprocessen zwak is en weinig participatie van de bevolking toestaat. Ik stel vragen over de wijze waarop met macht wordt omgegaan in ontwikkelingsaktiviteiten.

Ik ben van mening dat ontwikkelingsprogramma's een duurzame communicatie kan realiseren met de plattelandsbevolking door nadruk te leggen op onderhandelingen, het bouwen van consensus, en collectieve acties en door de mogelijkheden te benutten voor continue leer-en-actie cycli.
Vervolgens stel ik een raamwerk voor teneinde participatie een stap dichterbij te brengen.

Mijn raamwerk voor leren en actie, dat nog in het veld getest moet worden is in eerste instantie ontworpen voor NGO activiteiten, maar het is mogelijk te gebruiken voor ontwikkelingsinterventies in het algemeen.

Curriculum Vitae

David Millar is from Gengenkpe near Nandom, a small village in the Upper West Region of Ghana. He was born in 1956. He is married to Lydia Mamata Millar and they have a daughter, Katharine Kaunza-nu-dem Millar.

David graduated with a BSc degree (second class upper division - honours) in animal science in 1979, from the University of Ghana, Legon. In 1992 he obtained a MSc degree (with distinction), in Management of Agricultural Knowledge Systems from Wageningen Agricultural University, The Netherlands. His PhD degree is with the Sociology Department of the same University.

When David graduated in 1979, he took up an appointment as an extension trainer in a World Bank Project, within the Ministry of Agriculture, in the then Upper Region of Ghana, and later became the regional coordinator for the Global 2000 Project for the Ministry.

He worked with the Government from 1979 to 1987. Within that period, he followed two post-graduate courses. The first was a short course in rural extension in 1981 - ICRE, The Netherlands. The second was a medium term course in agronomy and farm systems research in 1984 - ICRA, The Netherlands.

From 1987 till date he has been working as the Agricultural Coordinator for the Catholic Archdiocese of Tamale; a Non Governmental Project, funded by CEBEMO of The Netherlands.

David's work as a practitioner, his professional drive, and his hobby as a writer, have resulted in a relatively large number of researches and publications to his credit. Six of these publications are listed in the reference list of this book. He has also been involved in several consultancies, both locally and internationally, and belongs to a number of professional networks and associations.

His current intentions include setting up a centre for indigenous knowledge in northern Ghana, starting a professional journal for indigenous knowledge, and eventually going private.

Appendix

Appendix 1.a. **FARM FAMILY PROFILE ANALYSIS**
(Who has access to (A) and/or Control (C) over the following)

RESOURCE	MEN	WOMEN
Land	A/C	A
Labour	A/C	A/C
Information	A/C	A
Tools	A/C	A
Inputs	A/C	A
Credit	A/C	A
Harvest	A/C	A
Cash from sales	A/C	A
Food crops	A/C	A
Off/non-farm income	A/C	A/C
Decision making	A/C	A

Appendix 1.b. NEED ASSESSMENT - MEN

RESOURCE	LIMITATION	SOLUTION
Land	Short supply	Re-juvenation
Labour	Stresses	Get hired labour
Capital	Limited	Credit support
Management	Individual	Organised groups
Information	Limited access	Extension support
External inputs	Poor supplies of:	External support
-	- Storage systems	-"
-	- Hoe blades	-"
-	- Cutlasses	-"
-	- Jute sacks	-"
-	- Storage chemical	-"
-	- Veterinary drugs	-"
-	- Fertilizers	-"
Internal inputs	Low production:	Increase output of
-	- Crops & animals	-"
-	- Farm by-products	Efficient use of
-	- Vegetation	-"
-	- Labour	-"
-	- Soil moisture	- Conservation
Exhaustive inputs	Decreasing:	Increase
-	- Fertile land	- Fertility
-	- Fuel-wood	- Plant trees
-	- Water/wild life	- Conservation
-	- Crop yields	- New seeds
-Re-cycling input	Poor use of:	Proper use of
-	- Farm by-products	- Organic farming
-	- Animals waste	-"
-	- Knowledge	- Information
-	- Energies	- Conserve

Appendix 1.c. NEED ASSESSMENT - WOMEN

RESOURCE	LIMITATION	SOLUTION
Land	Men have land	Need own
Labour	Men control us	Need help
Capital	Too small	Alternatives
Management	Home economics	Diversify
Information	Experiences	Need information
External inputs	Poor services of:	External support
-	- Fuel/ingredients	-"
-	- Utensils	-"
-	- Seeds	-"
-	- Small livestock	-"
Internal inputs	Low supplies of:	Increase output
-	- Vegetable	- Of seeds/water
-	- Labour	- Efficient tools
-	- Cash incomes	- Crafts
Exhaustive inputs	Decreasing	Increase
-	- Labour	- Hired labour
-	- Fuel-wood	- Plant trees
-	- Water	- Dams/borehole

Appendix 1.d. OTHER ACTIVITIES - MEN

ACTIVITY	LIMITATIONS	STRATEGIES
ANIMAL Husbandry	Free range	Semi restrict
Feeding	Not proper	Supplementary
Housing	Poor state	Add bedding
Requirements	Not met	Advice
Management decisions	Individual	Village
ANIMAL Health	Poor during rains	Need advice
Common diseases	Diarrhoea/worms	Medicines
Ways of treatment	Animal self	Vet services
Requirement	Vet services	Vaccinations
Management decisions	Poor	Help us
CREDIT	Limited to few	Need more
Existing	Credit unions	Other sources
How organised	Formal system	Improve system
Opportunities	For the rich	Open up
Possibilities	Limited	Other forms
Management decisions	Limited	Involve others
MARKETING	Restricted	Open up
Existing	Village	Other markets
How organised	Privately	Organize group
Opportunities	Limited	Link up
Possibilities	Limited	Increase them
Management decisions	Private	Community

Appendix 1.e. OTHER ACTIVITIES - WOMEN

ACTIVITY	LIMITATIONS	STRATEGIES
ANIMAL Husbandry	Few have	Need own
Feeding	Poor practices	Educate us
Housing	None	Help
Requirements	Several	Support
Management decisions	Men decide	Women and men
ANIMAL Health	Poor health	Need help
Common diseases	"	"
Ways of treatment	"	"
Requirement	"	"
Management decisions	Very little	Do more
CREDIT	Unclear sources	Open up
Existing	Mostly private	Other sources
How organised	"	Formal sources
Opportunities	"	"
Possibilities	Cooperatives	Help us
Management decisions	Private	In groups
MARKETING	Private	Open up
Existing	Villages	Add towns
How organised	Traditional	Link out
Opportunities	Middle traders	Organise group
Possibilities	Limited	Increase them
Management decisions	Individual	Collective

Appendix 1.f. MANAGING REPRODUCTIVE ACTIVITIES - MEN

REPRODUCTION ACTIVITY	PROBLEM	STRATEGIES
Fuel related	Women activity	Help them
Food related	Insufficient	Increase yields
Constructions	Seasonal	Family support
Communal work	Limited labour	Shared labour
Non-Farm activities	Very little	Migration
Off-Farm activities	Not much	Livestock raring
Management decisions	Farm family	Family head

Appendix 1.g. MANAGING REPRODUCTIVE ACTIVITIES - WOMEN

REPRODUCTION ACTIVITY	PROBLEM	STRATEGIES
Fuel related	Very limited	Plant trees
Food related	Vegetables	Gardening
Construction	Limited material	Family action Group
Communal work	Labour stress	work
Non-Farm activities	Very few	Commerce
Off-Farm activities	Too much	Sales-network
Management decisions	Men suspicious	With the men

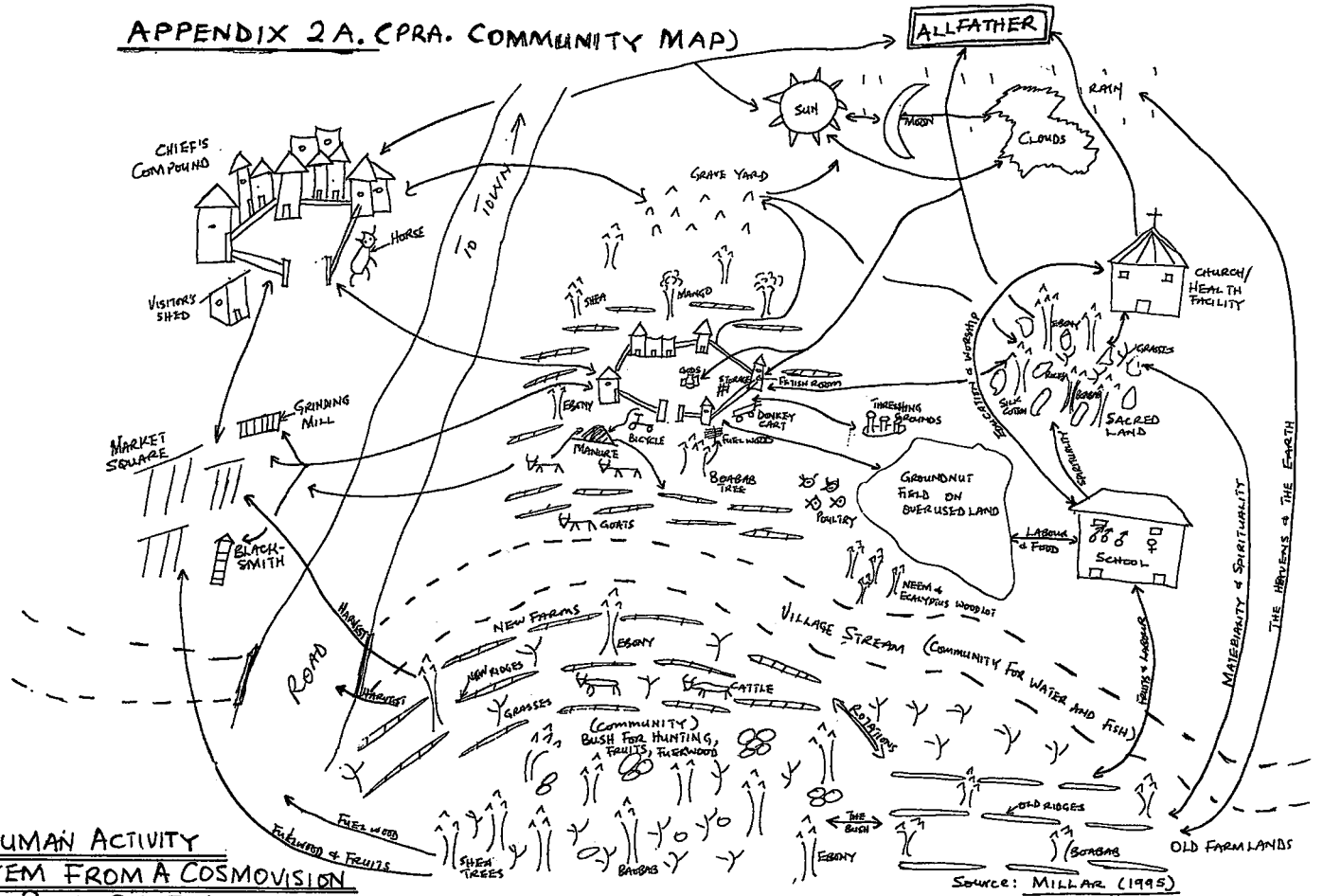
Appendix 1.h. FARM FAMILIES FOR THE IN-DEPTH SURVEY

NAME	AGE	SEX	RELIGION	FAMILY SIZE
1. Charles Nagieh	23	Male	Catholic	3
2. Philemon Vuol	76	"	"	8
3. Albert Abatanie	28	"	"	2
4. Silvanus Bayor	18	"	"	2
5. Samuel Adongo	25	"	"	3
6. Frimino Chales	36	"	"	4
7. Gerald Daayin	18	"	"	3
8. Chales Akalbire	19	"	"	2
9. Nichlas Asigba	26	"	"	4
10. Fiedlis Dery	45	"	"	6
11. Benedict Kpano	17	"	"	3
12. Francis Zumayea	63	"	"	8
13. William Apaka	29	"	"	4
14. Sabaina Kuridong	25	Female	"	4
15. Benedicta Zumakpea	19	"	"	3
16. Sohpia Naawa	16	"	"	2
17. Ama James	28	"	"	0
18. Lucy Albano	48	"	"	7
19. Mary Ababire	27	"	"	5
20. Vida Asuwena	35	"	"	7
21. Awumbilla Akente	62	Male	Animist	15
22. Mark Soale	27	"	"	5
23. Tunye Nusola	46	"	"	11
24. Dabuo Albano	50	"	"	10
25. Peter Dakura	25	"	"	3
26. Abani Awuni	78	"	"	3
27. Atimbire Awuba	18	"	"	3
28. Agana Awugra	19	"	"	3
29. Atogzor Atuba	29	"	"	4
30. Anafu Awuni	85	"	"	26
31. Ayamga Abolga	26	"	"	3
32. Naa Zukpali	27	"	"	4
33. Dewuna Minbaboura	45	Female	"	9
34. Pirima Zupalla	78	"	"	12
35. Kuwanima Bayor	16	"	"	3
36. Atampugri Akolga	24	"	"	4
37. Sangtabu Dakura	27	"	"	4
38. Alhassan Attah	26	Male	Moslem	2
39. Rockson Saaka	43	"	"	8
40. Mahama Adam	16	"	"	2
41. Tahiru Salifu	19	"	"	3
42. Takora Jedua	53	"	"	11
43. Issifu Archulo	29	"	"	4
44. Braimah Jinah	79	"	"	8
45. Alhassan Kwesi	45	"	"	6
46. Sakarah Dukulbi	28	"	"	3
47. Abu Yahaya	15	"	"	2
48. Taibatu Kofi	27	"	"	4
49. Amama Tahiru	46	Female	"	5
50. Memuna Iddrisu	19	"	"	3
51. Azara Dramani	29	"	"	6
52. Fatima Changa	18	"	"	9
53. Aishetu Mbo	63	"	"	8

Appendix 1.i. INTERVIEWED SAMPLE FOR EXPLORATORY/MAIN SURVEY

DISTRICT	LOCATION	MEN	WOMEN	TOTAL
Bole	Tuna	20	31	51
Damongo	Solipe/Frafraline/ Dakpalakuraa	60	40	100
Bimbilla	Kpandai	48	17	65
Saboba/Chereponi	Saboba	25	15	40
Zabzugu/Tatale	Tatale	27	18	45
Yendi	Bagbani	31	16	47
Tolon/Kumbungu	Kumbungu	46	24	70
Savulugu/Nanton	Savulugu	33	29	57
TOTAL		290	190	480

APPENDIX 2A. CPRA. COMMUNITY MAP)



Source: MILLAR (1995)

A HUMAN ACTIVITY SYSTEM FROM A COSMOVISION PERSPECTIVE

APPENDIX 2B. (PRA. TIME TREND DIAGRAM)

ILLUSTRATION OF FARMLANDS OVER TIME AT DAKPALAKURA – DAMONGO.

Source: Millar (1995).

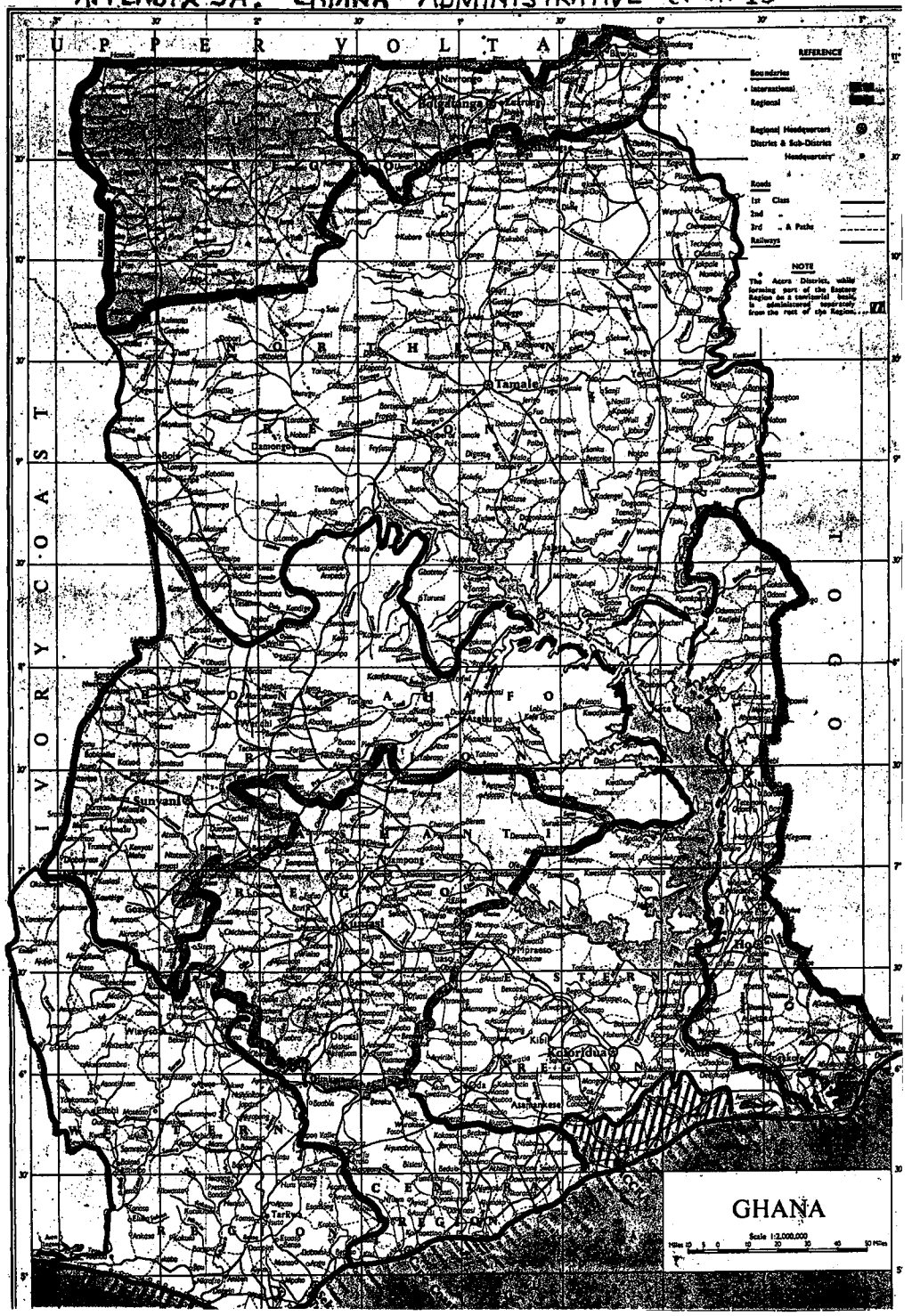
APPENDIX 2C. (PRA. TRANSECT)

HABITAT	Kraal / Dung heap	Compound farms	Grazing / Fallow lands	Valley bottom Rice farms	Bush farms
	←	FARM LAND		FARM	LAND →
SOIL:	Dark brown sandy loam with ignite rocks on the surface	Dark brown sandy loam	Dark brown silty loam	Dark (Black) clay loam	Dark silty-sand loam.
CROPS:	—	Maize.	—	Rice	Sorghum, Millet, Groundnuts, Cowpea Okra, Pepper, Kerlaf Yam, Maize.
DISTANCE:	340 steps	150 steps	1745 steps	283 steps	1460 steps
TREES / VEGETATION	Shade Trees	Shrubs: Physotis Sida, Lannea.	Wide variety of trees species found in Savanna woodland, Shea, Anogyseius, Tall grasses: Pennisetum, Andropogon, Imperata, species.	Short riverain thicket	Parkia, Vitellaria, Daniella, Anogyesi Lannea,
PROBLEMS:	Mosquitoes. Biting flies	Weeds: Digitaria Latum Tramatus	Bush fires, Tsetse flies, Biting flies	Soil fertility, Rats, Tsetse flies. Weeds, Labour, shortfalls	Soil fertility, Weed Squirrels, Labour
OPPORTUNITIES:		Intensified crop production Use cow dung to make compost.	Could be used as farm land (Crops) and manure could be applied as it nearer the kraals.	Increased rice production Possible vegetable production [Early or late.]	Increase crop production, Use as Fallow / Grazing lands.

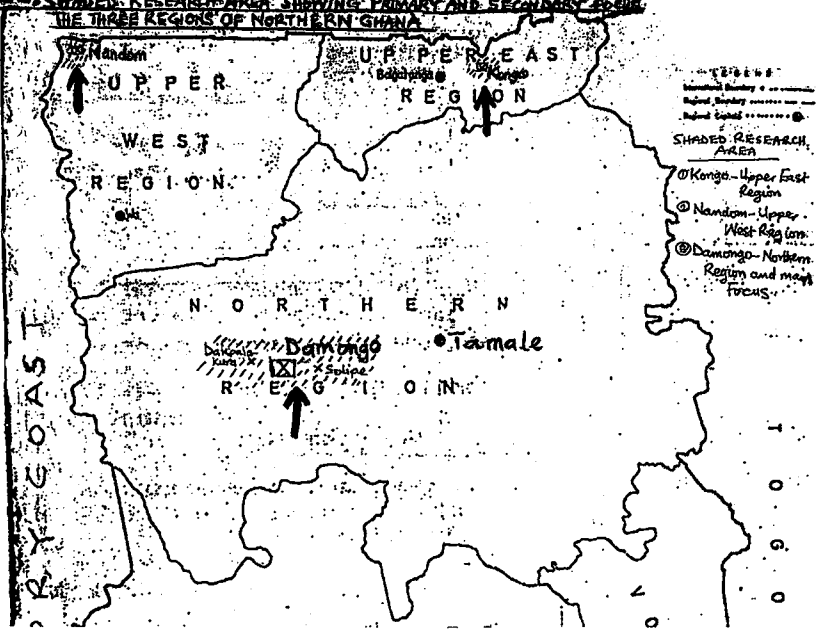
LAND USE ILLUSTRATION – SOLIPE; DAMONGO.

SOURCE: MILLAR and STEVENSON (1995)

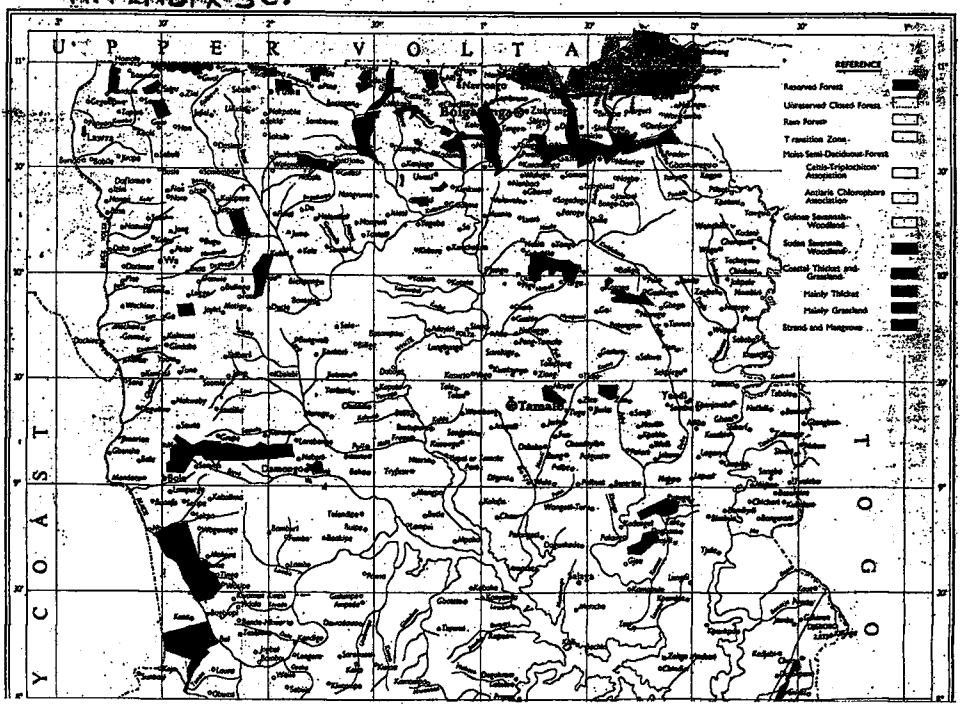
APPENDIX 3A. GHANA - ADMINISTRATIVE (MAP 1)



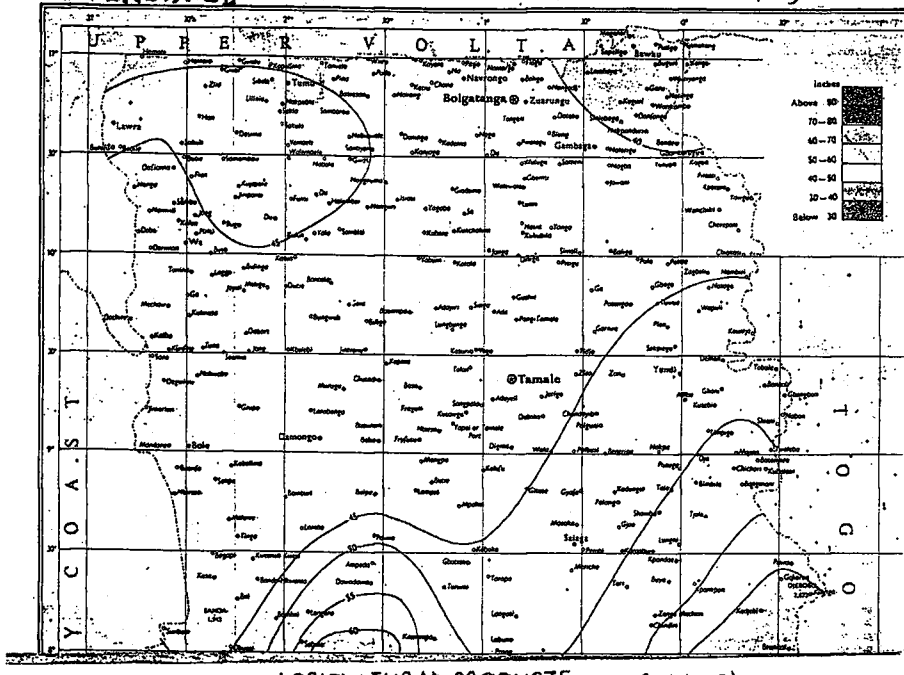
APPENDIX 3B. SHADED RESEARCH AREA SHOWING PRIMARY AND SECONDARY FOCUS IN THE THREE REGIONS OF NORTHERN GHANA



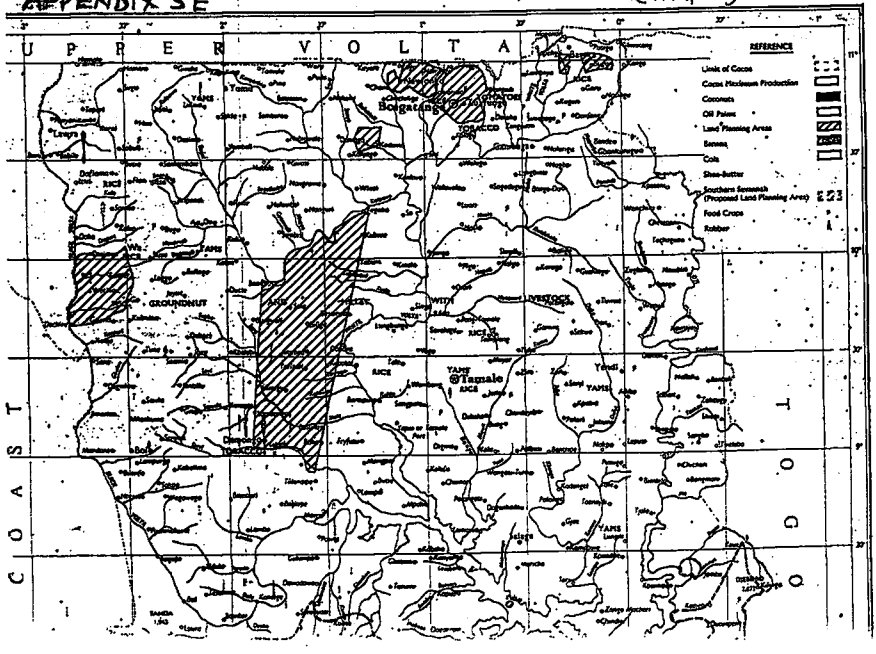
APPENDIX 3C. VEGETATION ZONES



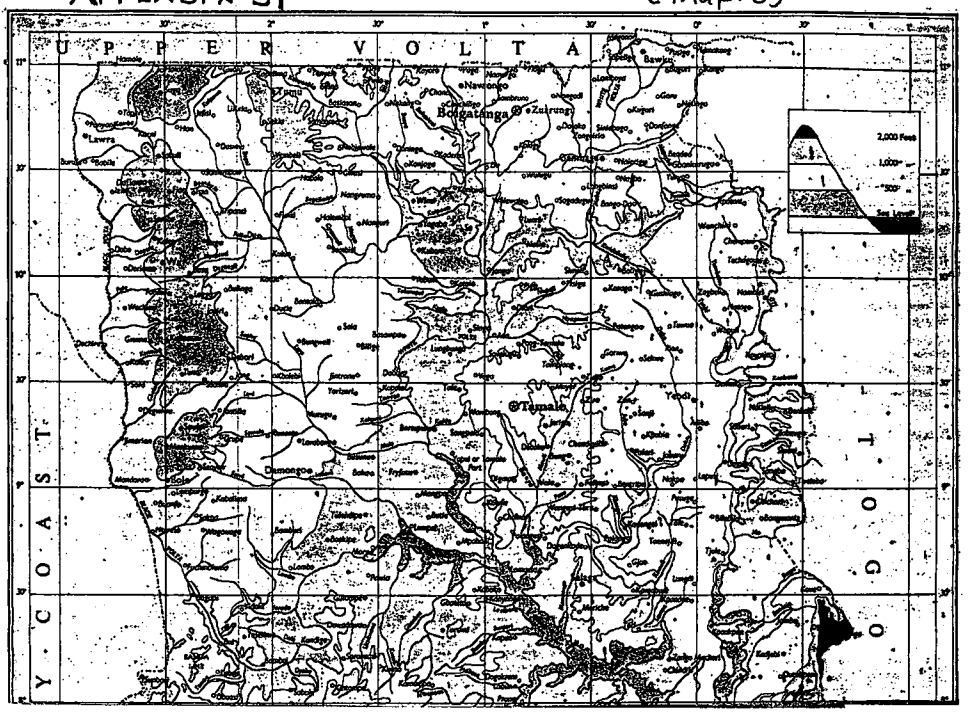
APPENDIX 3D AVERAGE ANNUAL RAINFALL (Map 4)



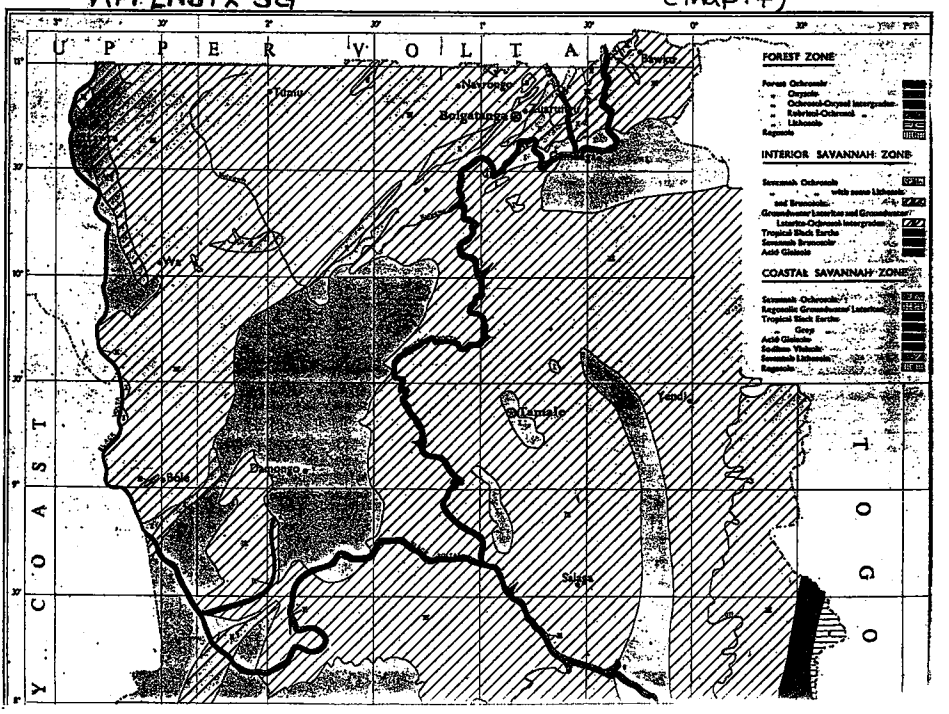
APPENDIX 3E AGRICULTURAL PRODUCTS (Map 5)



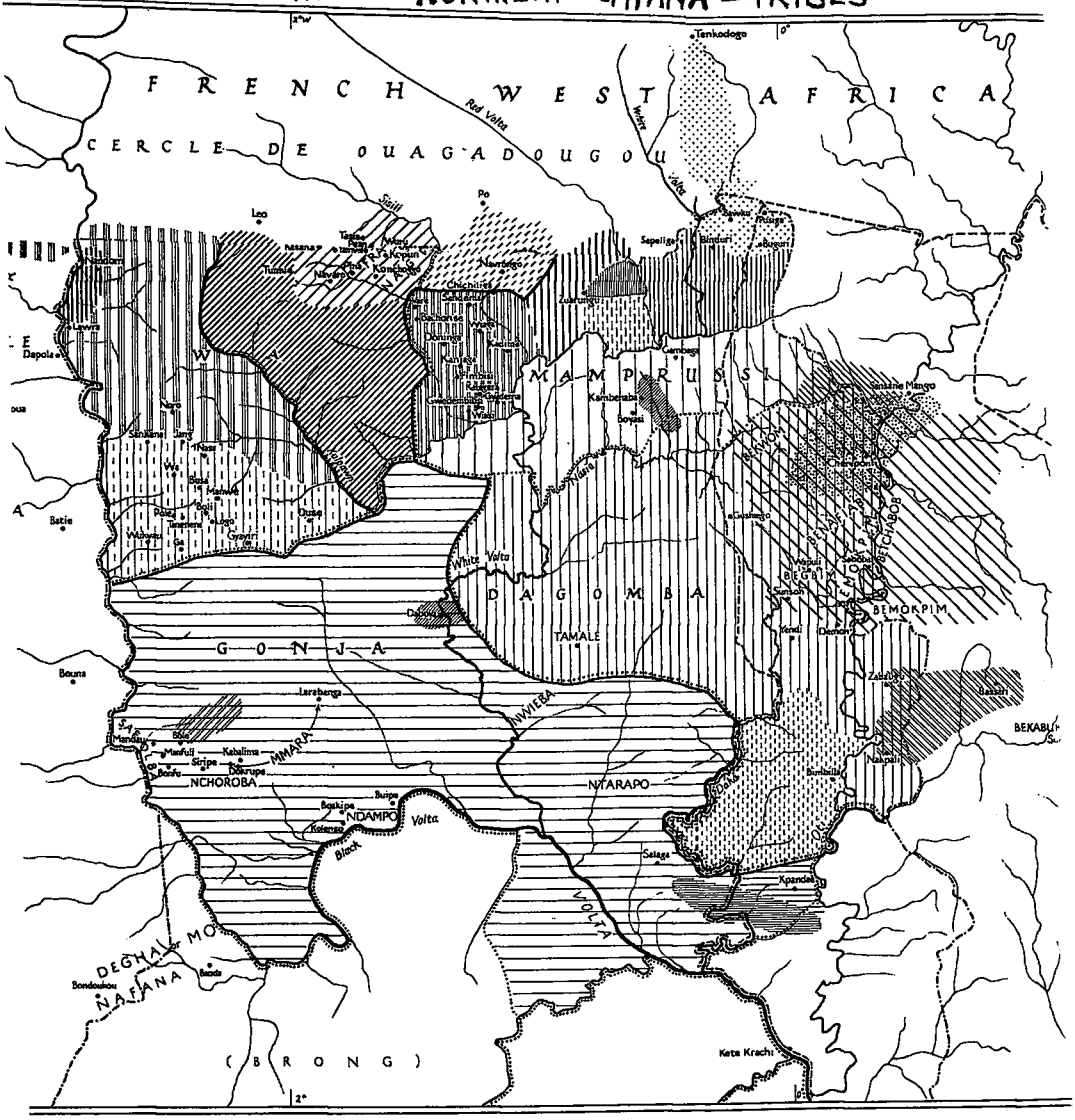
APPENDIX 3F PHYSICAL (Map. 6)



APPENDIX 3G GREAT SOIL GROUPS (Map. 7)



APPENDIX 3H. NORTHERN GHANA — TRIBES (Map 8)



TRIBES OF THE NORTHERN TERRITORIES OF THE GOLD COAST

Mole-Dagbane – speaking

- Kusasi
- Tallensi
- Gurensi
- Namnam
- Builsa
- Dagaba
- Wala
- Birifor
- Mamprusi
- Dagomba
- Nanumba

Grusi-speaking

- Isala
- Tampolense
- Vagala
- Kasena
- Aculo
- Degha

Gurma-speaking

- Konkomba
- B'moba
- Bedjelib

Guang-speaking

- Gonja
- Nchumbulung
- Nnawura

Akan-speaking

- Tchakosi

Senufo-speaking

- Nafana

Mande-speaking

- Bussansi

OTHERS:

- Bekaburum
- Safolba
- Nchoroba
- Ndampo
- Mmara
- Ntarapo
- Nwieba