AN ABSTRACT OF THE DISSERTATION OF

Chandra K. Bhadra for the degree of Doctor of Philosophy in Family Resource Management presented on December 9, 1997. Title: Intra-Household Gender Analysis of Work Roles and Distribution of Resources: Pilot Study in a Nepalese Village.

Redacted for Privacy

Abstract approved: --------- ----------

Geraldine Olson

Thirty households were randomly selected to examine intra-household gender differentials in work roles and distribution of resources, between adult men and women, and boys and girls. Work related activities were assessed by time used in agricultural work, household work, and income generating work. Distribution of resources was assessed by expenses on clothing, education, and medical care.

A significant difference was found in the amount of time spent in agricultural work by men and women, with women contributing more. Women were also found to contribute significantly more time in household work. In income generating activities, men were found to spend significantly more time than women. However, in the total time spent in work related activities, women spent significantly more time than men.

The difference in the amount of money spent on clothing for men and women was found to be significant, with men receiving the larger share. The difference in medical care expenses between men and women was not significant. However, directional difference showed that women received less.

Although, no meaningful analyses of children could be performed because of sample restrictions, the regression results showed women contributed significantly more than men, and girls contributed significantly more than boys in agricultural work. Similarly, women and girls contributed significantly more time than men and boys in the household work.

The regression results also showed that men and boys received significantly more money for clothing than women and girls, and boys received significantly more money for education than girls. Similarly, men and boys received significantly more money for medical care than women and girls.

Intra-Household Gender Analysis of Work Roles and Distribution of Resources: A Pilot Study in a Nepalese Village

by

Chandra Kala Bhadra

A DISSERTATION

submitted to

Oregon State University

in partial fulfillment of
the requirements for the
degree of

Doctor of Philosophy

Presented December 9, 1997
Commencement June 1998

Doctor of Philosophy dissertation of Chandra Kala Bhadra presented on December 9, 1997.

APPROVED:

Redacted for Privacy

Major Professor, representing Family Resource Management

Redacted for Privacy

Graduate Program Director, Family Resource Management Program

Redacted for Privacy

Dean of Graduate School

I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my dissertation to any reader upon request.

Redacted for Privacy

Chandra Kala Bhadra, Author

ACKNOWLEDGEMENT

This dissertation is the result of support and contributions of many great people who helped and encouraged me all through the years. I would like to express my profound gratefulness and heartfelt thanks to all.

...To the residents of Bosan Village for their friendship...

...To my parents Mr. and Mrs. B. P. Panday for their constant encouragement and their prayer... To my husband Binayak Bhadra and daughter Madhu for their love and support...

...To my Major Professor, Dr. Geraldine Olson, for working extra extra hours and not letting me leave without it ... To Graduate Committee members, Dr. Charles Langford, Dr. Arlene Holyoak, Dr. Dae-Hyun Baek, and Dr. Jack Edwards...

...To Mr. Man Bahadur Tamang from Bosan Village for helping to enumerate...

...To Dr. Alan Acock for helping me out of the statistical dilemma...

...To Margaret McNamara Memorial Scholarship Committee for supporting with tuition and a computer...

...To all other well-wishers who insisted that I should do it and I could do it...

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

Page

TABLE OF CONTENTS (Continued)

Page

LIST OF TABLES

LIST OF TABLES (Continued)

LIST OF APPENDICES

INTRA-HOUSEHOLD GENDER ANALYSIS OF WORK ROLES AND DISTRIBUTION OF RESOURCES: A PILOT STUDY IN A NEPALESE VILLAGE

1. INTRODUCTION

Nepal actively participated in planned economic development beginning in the mid-1950s. The First National Five-Year Plan of Nepal was formulated in 1956. Though women had been targeted as development beneficiaries in the first (1956-1961) and successive four other plans, the focus was on their reproductive role. Following a welfare approach, programs were developed to provide women with homemaking and mothering skills.

Women as agents of development were recognized for the first time in the Sixth Five Year Plan (1980-1985). The Sixth Plan included a separate Women in Development (WID) chapter in its five year development plans and programs (NPC, 1980). National and international advocacy played a major role in incorporating WID policy in the national development agenda. The Status of Women study (CEDA, 1981) played an instrumental role to document the extent of women's contribution in the economy and their poor socio-economic conditions. It convinced policy makers of the need to incorporate women's concerns in national policy.

Following the Sixth Five Year Plan, the Seventh (1985-1990) and the Eighth Five Year Plans (1992-1997) also incorporated separate WID chapters in

their documents (NPC, 1985; NPC, 1992). Accordingly the government developed programs focusing on women's productive role. Women-specific programs/projects were developed to provide employment opportunities with an assumption that access to income would lead to empowerment of women. However, because of a lack of understanding of intra-household gender dynamics, the programs/projects that were developed to benefit women did not actually result in benefits to them. In many cases, the impact of well meaning projects became detrimental to women. Though the conditions of women have improved in terms of life expectancy, literacy, and access to income compared to two decades ago, the rate of improvement is not as rapid. Most importantly, the socio-economic position of women has not changed. They still remain subordinate to men. This has prevented women from taking full advantage of WID programs and planned interventions. Recently, a consensus has emerged among women's advocates, academics/researchers, and policy makers that there is a need to understand the gender dynamics (such as family and work roles, decision making power, and access to and control over productive resources) that operate within the household/family and culminate in persisting inequality and subordination of women.

1.1 Statement of the Problem

Adults and children of different ages and sexes typically comprise families/households. In order to achieve well being of individual members within the family, families make use of goods and services. In industrially developed societies, many goods and services are bought in the market. Families also produce goods and services within households with combinations of market and home commodities, to satisfy families' needs/demands. Becker (1965) calls these "Z" commodities.

In subsistence agricultural households of Nepal, the majority of families' needs/demands are fulfilled by home production. In the absence of technology and physical infrastructure, the productive resources available are primarily natural and human resources.

In order to transform available natural resources to consumables, there is high pressure on human resources such as time and human energy. Time demands for activities within the household are met by shared responses on the part of family members (Harvey, 1984b). Households are faced with resource constraint situations, both from natural resources such as land, water, forest, and human resources of time, energy, knowledge, and skills. A poor natural resources endowment forces family members to toil hard and for long hours to make a subsistence living. This time constraint put on family members limits the individual member's choice of time use for alternative family and self-enhancing activities (Juster, Courant and Dow, 1985). In this situation the problem is, who in

the family has to forego his/her preference, choice, and self interest to work for the well being of other family members?

In order to solve the problem some queries must be answered. Among family members, who needs to engage in subsistence production? Who will engage in human capital formation? Who works the longer hours and forgoes his/her leisure? Who engages in activities demanding excessive human energy and who uses time for low human energy demanding activities? Who engages in income generating activities, leading to access and control over income? Does the family as a unit use available resources to pursue family satisfaction through equitable sharing among members? Or, are there some family members who have to forego a fair share because of their social and/or biological roles or physical attributes?

Pertinent questions that emerge from the above queries are: is the household/family a cooperative unit where family members pursue their activities to reach common goals? Or, is it a place of conflict, where there is an exploitation of the weak and vulnerable? Or, do family members play the game of power and submission to fulfill their individual interests, appearing at the same time to be cooperative members of the unit?

1.2 Statement of the Purpose

The purposes of this study are:

- to generate a micro-level data base on intra-household gender dynamics in their production-consumption relationships,

- to pilot test a research instrument created to accurately assess illiterate respondents' use of time by record method, and

- to examine intra-household gender relation theories of cooperation, conflict, and cooperative-conflict as they relate to work roles and distribution of household resources for consumption and investment in human capital.

1.3 Justification

To have effective WID programs, there is a need to understand intra-household gender dynamics which lead to gender egalitarian and gender discriminatory behaviors within the family/household. This study will utilize methods and research questions to assist in the development of effective WID programs.

Time use studies have been an accepted tool for measuring productive activities, especially in non-market economies like Nepal. They also provide a new dimension of assessing the roles of men and women and their contribution to the family and society (Clark, 1984). An understanding of the roles of men and

women and their time allocation patterns is critical for implementation of development projects (Brown & Haddad, 1994).

Though a self-report time use record is judged to be the best way to produce reliable time use data (Juster, 1985a; Robinson, 1985), it is still not applicable to many developing countries where the majority of respondents are illiterate (Grossman, 1984; Johnson, 1975).

This study pilot tests an instrument designed to allow non-literate respondents to report their own time use. It eliminates the reliability and validity problem associated with recall methods, and the validity and cost problem associated with observation methods.

2. REVIEW OF LITERATURE

2.1 Economic Development Theories and Emergence of WID

The concept of "economic development" was applied for the first time during the Marshall Plan. George C. Marshall, then U.S. Secretary of State, on June 5, 1947, advanced the idea for economic rehabilitation of war-torn Europe and Japan through mutual co-operation among the countries and financial aid from the United States. The process of decolonization was rapid, resulting in creation of new independent nation states in Latin America, Asia, and Africa. Following the Marshall Plan model, many European countries extended economic aid to their former colonies for their economic and social rehabilitation.

The decades of the 1950s and 1960s are generally characterized as periods of economic growth and modernization. The emphasis was on industrial development based on "take off" stage experiences of the economies of the West (Eicher and Staatz, 1984). However, in the late 1960s the economic performance of Third World economies began to create serious doubts about the fundamental assumption of "the trickle down process" in economic development (Leeson & Minogue, 1988; OECD, 1984; Srinivasan, 1984; Todaro, 1985). Declining food production, rapid population growth, rising income inequality, pervasive poverty, and deteriorating environments forced many development economists and social scientists to reassess and reformulate economic development philosophy.

Development scholars and thinkers came up with proposals to achieve sustained growth and development through redistribution or through greater emphasis on agricultural development. As a result, application of the "Green Revolution" as a technical package of high yielding seed varieties (HYVs) (especially of cereal grains like rice, wheat, maize), fertilizer, pesticides/insecticides, and irrigational infrastructure increased aggregate food output. However, due to lack of transportation facilities and ever growing demand of rapidly expanding cities, the rural poor were left without access to the fruit (food) of the Green Revolution (Young, 1993).

The failure of the modernization process in Third World countries was explained by modernization proponents to have been caused by internal problems arising out of their rigid culture and traditions. However, the dependency school of thought (originated in Latin America) implicated factors external to these countries, mainly colonialism and neo-colonialism (So, 1990). On the other hand, the emergence of newly industrialized economic giants of South East Asia, such as Hong Kong, Taiwan, South Korea and Singapore proved that dependency does not always end in underdevelopment, but can very well lead to rapid development, giving an indication that the world is moving towards a global-economic system.

The publication Redistribution With Growth (Chenery et al., 1974), propounded a new thinking, emphasizing the inclusion of distributional elements in development planning. The growing inequality and seemingly unbridgeable gaps between conspicuous consumption and mass poverty demanded

development with a human face, or people-centered development. This led to bottom-up strategies, as opposed to trickle-down. "Growth with Equity" became the prime force in revising the growth model. A Basic Needs Approach evolved gradually, and emphasized the need to focus attention on the people living below the poverty line. A Women in Development (WID) approach emerged in about the same period, the early 1970s. This approach was not opposed to the modernization process, but its main concern was that of women's marginalization from mainstream economic development (Boserup, 1970; Kabeer, 1994). The WID approach challenged the assumptions of the basic needs approach on the same principle that basic needs approach had challenged the assumptions of modernization/growth theories, i.e., over generalization about the equitable benefit of growth. The WID approach challenged the basic needs approach on the grounds that it over generalized and over simplified the distributional behavior of households. They challenged the assumption that the well being of all family members was assured by general improvement in economic resource levels irrespective of gender (Agarwal, 1994).

The WID concept emerged in the early 1970s, after Ester Boserup published her book, "Women's Role in Economic Development" in 1970. The term was coined by the Women's Committee of the Washington, D.C., Chapter of the Society for International Development (Moser, 1993). Boserup came up with unpalatable facts of where development economists, policy makers, and development practitioners had gone wrong in bypassing and marginalizing women from the development arena. Her laborious research, wide spread studies,

and insightful analyses did explain many of the failures of two-decades of developmental efforts in the Third World. Soon after Boserup's publication in 1973, the United States Foreign Assistance Bill was amended so that the importance of women in economic development was brought into focus. Known as the Percy Amendment, it was committed to integrating women of the Third World into their nation's developmental efforts (Blumberg & Hinderstein, 1983; Firebaugh, 1985; Granovsky, 1985). The Percy Amendment was soon followed by the United Nations Women's Year in 1975 and the declaration of the United Nations Decade for Women (1975-1985). Since 1975, four world conferences on women have been held; in Mexico City (1975), Copenhagen (1980), Nairobi (1985), and Beijing (1995), in addition to several other national, regional, and international conferences. These events mark the emphasis on involvement of women both as beneficiaries and participants in development. The "Nairobi Forward Looking Strategies" (UN, 1985) set targets to be met by the year 2000 A.D. for the advancement of women. Other world conferences (though not women-specific) put gender as the top most priority in their development agendas. At Rio (Earth Summit, 1992), women were recognized as the managers of natural resources and the dynamic force for sustainable development. At Vienna (Human Rights Conference, 1993), women's rights were recognized to be human rights. At Cairo (International Conference on Population and Development, 1994), women's health, empowerment, and reproductive rights were placed at the center of population policies. At Copenhagen (Social Summit, 1994), political, economic, and social empowerment of women were recognized to be key

elements to eliminate poverty and social disintegration. The Beijing Declaration (Fourth World Conference on Women, 1995) has identified twelve critical areas of concern to be addressed for the advancement of women. These are, women and poverty, women and education/training, women and health, violence against women, women in armed conflict, women and the economy, women and power/decision making, institutional machinery for the advancement of women, women's rights as human rights, women and media, women and environment, and the girl child.

Initially, the WID approach was that of integrating women into development and it emerged as a project and program focused approach. The focus on women was accommodated in the anti-poverty approach coinciding with the World Bank's `Redistribution with Growth' strategy and the ILO's `Basic Needs' Strategy. In this way, the WID policy approach became more acceptable to male dominated agencies, both donors and host countries, as these programs demanded minimal change in existing social structure in terms of gender hierarchy (Kabeer, 1994). However in the 1980s, Southern (Third World) scholars pointed out that it is not so much a question of women's issues in isolation, but in relation to men that need to be analyzed and dealt with (Kabeer, 1994; Moser, 1993). They demanded that male biased institutions, especially those unfavorable to women, be transformed. This subsequently lead to the Gender and Development (GAD) approach. GAD emphasizes that a mere transformation of the reproductive economy to facilitate women's participation in the productive economy (that is, efficiency approach) is not enough. There is also

a need to transform the productive economy to recognize people (men and women) centered development. This means linking economic development to human development of both men and women, incorporating equity, equality and empowerment approaches (Elson, 1995; UNDP, 1995; Young, 1993).

The advocacy for WID and GAD has evolved from welfare and efficiency to equality and empowerment of women. Noeleen Heyzer, the chief of United Nations Development Fund for Women (UNIFEM), confirms that the priorities of women in the 21st century are anchored in two key concerns; the economic empowerment of women and the political empowerment of women (Heyzer, 1995). This priority shift implies that what is needed is change not only in women's condition but also in their position, thus the demand for change in overall socio-economic, political, and legal structures is made clear.

2.2 Nepal's Development Scenario and WID in Policy Agenda

The following section aims to provide a historical perspective on Nepal's economic development effort, incorporation of WID in its policy agenda, the evolution of new WID paradigms, and the resultant need for new research initiatives on gender and development. This research is envisaged in the light of new research needs in terms of basic questions and methodology on gender and development.

Nepal's planned economy started in 1956 with the First Five-Year Plan (1956-1961). The past four decades of Nepal's economic planning reflect the Third World trends of economic development. The First Five-Year Plan started with a goal of modernizing Nepal, with heavy emphasis on infrastructure building for industrial development. In the 1970s, it was realized that the heavy emphasis and expenditure on infrastructure and industrial development had no significant impact on stagnating production (Bhadra, 1982). Thus the fifth and sixth Five-Year Plans redirected emphasis to agricultural development. However, the compounding problems of population growth, deteriorating environment due to deforestation, and lack of agricultural technology and inputs resulted in a decline in agricultural gross domestic product (GDP) which resulted in a food grain deficit, especially in the hills (Bhadra, 1982; Sheddon, 1987).

Even after two decades of planned development efforts, 36% of households were below poverty level in 1977, and, with inflationary effects, the percentage was expected to increase in 1980s (Jain, 1981; Pant & Jain 1980). This motivated the government to reassess and redirect its developmental approach. The Sixth Five-Year Plan (1980-1985) emphasized basic needs fulfillment as the objective for attacking poverty. However, it was the Seventh Five-Year Plan (1985-1990), which took a basic needs approach as its full fledged developmental strategy. His Majesty the King declared on Constitution Day 1986, that Nepal's development emphasis will be basic needs fulfillment of all Nepalese by the year 2000 A.D. The National Planning Commission quantified the basic minimum standards for food, clothing, housing, health, and education. In spite of targeting

to fulfill the basic needs of the people by the year 2000 A.D., in the beginning of the Eighth Five-Year Plan, the proportion of people below poverty line had increased from 36% in 1977 to 49% in 1992. Hence, the strategy of the Eighth Five-Year Plan (1992-97) was to improve economic efficiency through liberalization and deregulation of the economy hoping to meet the objectives of poverty alleviation, sustainable development and regional balance in this way.

Nepal actively participated in the U.N. Decade for Women (1975-1985) with various activities and policy formulations for integrating women in development, both as beneficiaries and participants. One of the most significant events was the Status of Women study (CEDA, 1981). An extensive gender disaggregated time use study revealed that women contributed one-half of the total household income (including value of goods and services at home) as compared to 44% by men and 6% by children (Acharya & Bennett, 1981). This documentation impelled the development planners and policy makers to recognize the productive role of women in economic development. The findings and recommendations of the Status of Women study, and national and international advocacy and concerns for women's issues were instrumental in creating a separate chapter on WID policy for the first time in the Sixth Five-Year Plan (1980-85). Subsequently, the Seventh (1985-90) and the Eighth (1992-97) five-year plans further expanded the WID policies.

The Sixth Five-Year Plan recognized that the socio-economic status of women is an important indicator of economic development and that women can contribute to national development if their efficiency is enhanced. Hence, the

Sixth Plan policy emphasized increasing efficiency of women (NPC, 1980). The Seventh Five-Year Plan emphasized active and equal participation of women in addition to increasing their efficiency and productivity. It endorsed the National Plan of Action for Women in Development in Nepal formulated by Women's Services Coordination Committee (WSCC, 1982), and assured women of decision/policy making power (NPC, 1985). The Eighth Five-Year Plan emphasized women's participation in the mainstream of development and stressed the need to formulate an institution for coordinating and monitoring WID activities. Initiated in the Seventh Plan, the Eighth Plan further promoted the role of non-government organizations (NGOs) in WID activities (NPC, 1992).

Committed to formulate a coordinating and monitoring body for WID activities, the National Planning Commission, established the National Council for Women and Child Development in the beginning of 1995. Nepal signed the Beijing Declaration in the beginning of September, 1995, committing to expedite the work in the identified critical areas of concern. As a first step to the Beijing follow up, at the end of September 1995, the Nepalese government established the Ministry of Women and Social Welfare as the highest level national machinery for the advancement of women. The goal of this Ministry is to mainstream women in national development through gender equality and empowerment of women. The Ministry is envisaged to play a catalytic role in meeting both practical needs and strategic needs of women (Ministry of Women and Social Welfare, 1996). Meeting practical needs of women requires the provision of technologies and services such as drinking water, fuel, labor/energy saving and efficiency

enhancing technologies, health services, etc., that improve the condition of women. The Ministry plays a facilitating role to improve women's condition by working in partnership with government line agencies and non-government agencies for provision of services and technologies. Meeting strategic needs refers to bringing about structural adjustments that change the position of women from subordinate to equal with men. For example, the Ministry drafted a women's bill to revise and reform existing discriminatory laws such as inheritance and property laws, abortion and reproductive laws, family and marriage laws, etc.

The Ministry is also active in institutionalizing the gender sensitizing process. Through its own activities and by facilitating other governmental and non-governmental organizations, the Ministry aims to gender sensitize the policy makers, program developers, project implementors, community leaders, and family members. Special attention is given to male members of the family, because, gender discrimination against women is found to begin in the home. In order to create adequate and appropriate information for gender sensitization, there is a need for intra-household research which will provide information on relative condition and position of women vis a vis men.

2.3 Theories of Intra-Household Gender Relationship

The theories of intra-household relationships indicate that status of women is related to their productivity, with significant impact of this relationship on the

economic and social welfare of the household/family members. These theories attempt to explain the interactions of cooperation, sharing, competition, and conflict among and between family members. Relying on the perspectives of social harmony and social conflict, these theories vary from one extreme to the other.

The Neo-Classical economic approach, which falls within the scope of New Home Economics, analyzes intra-household relationships assuming a single utility function for the family as a unit. Proponents argue that all members of the family (men, women, and children) act towards maximizing a single household utility function according to their comparative advantage (Becker, 1981; Granou, 1973; Nerlove, 1974; Schultz, 1988).

The assumption of cooperation in intra-household gender relationships is contested by feminists on the ground that the so-called social compliance is really the expression of women's subordination (Eisenstein, 1984, cited in Kabeer, 1994). The gender role approach taken by neo-marxist theorists and dependency theorists bases its analyses on the concept of structural scarcity and argues that women in the household are exploited by men through economic misappropriation and marginalization from economic benefits (Lindsay, 1980; Nazzani, 1986; Rogers, 1979; Savane, 1986; Sen, 1982). The gender role approach taken by other development sociologists and feminist economists focuses on socially determined gender division of labor resulting in subordination of women. The nature of women's non-wage (unpaid) labor is linked to their subordination (Ahooja-Patel, 1982; Akinbode & Akande, 1987; Buvinic, 1983;

Charlton, 1984; Cloud, 1985; Dauber, 1981; Flora, 1983; Jaquette, 1985; Loutfi, 1982; Papanek, 1985; Tinker, 1985; Waring, 1989). Sex role socialization is seen as the key factor in curtailing women's potential, shaping their attitudes, preferences, and expectations (Kabeer, 1994).

The New Home Economics proposes investment in human capital of women (education) and technology (to women) to be the solution to Third World problems. The proponents of the gender role approach see faults in the socio-political structure of production relationships and propose structural change for empowerment of women. The first approach assumes selflessness and altruism (Ellis, 1988) and the second approach focuses on power and domination (Baker & Nelson, 1985), in intra-household gender relations. The gender role theorists do admit that there exists an altruism in the family, but that altruism is more associated with maternal preferences rather than paternal preferences. They argue that sacrifice of personal needs in favor of the well being of the others in the family appears to be the prerogative of the less powerful members, usually, women and girls (Kabeer, 1994).

Allowing the entry of both cooperation and conflict relationships demonstrated by empirical evidences, Sen (1990) perceives the household/family as a site of cooperative conflict. The members cooperate in adding to "total availabilities", meaning the production of all goods and services for consumption. When it comes to dividing the total availabilities amongst members, however, conflicts may arise. The proponents of this cooperative conflict paradigm argue that unequal autonomy and bargaining power of different members result in

noninvestment in human capital, especially, for women. Noninvestment in human capital, added with underconsumption by women, leads to inefficiency. Gender equity and productive efficiency are likely to go together (Bardhan, 1996; Folbre, 1996; Haddad and Kanbur, 1991). Sen argues that access to employment and income equips women with more bargaining power (Sen, 1990). Agarwal (1994) further argues that effective independent rights in private land strengthens rural women's bargaining power in ways that employment alone may not. In fact, property rights provide women with more bargaining power to seek and get better remunerating employment. This is true because land rights not only strengthen women's fall-back position within the household, but also in the market, community and in the State as well (Agarwal, 1994; Folbre, 1996).

Those who consider household as a cooperative unit recommend investment in human capital of women and provision of technology for women. For those who view household as the site of conflict, no development intervention will work unless existing socio-economic, legal, and political structures are changed in favor of women. Those who see household as a site of cooperative conflict recommend employment opportunities to equip women with more bargaining power. They further add, when women have greater bargaining power family resources will be distributed fairly among men, women, boys and girls, with implications for their future efficiency and productivity. There are those who further propose property rights to women which increase their bargaining power, not only within the family but also in the market at large.

2.4 Patterns of Intra-Household Resource Distribution in South-Asia Demonstrated by Empirical Findings

In the bargaining situation within the household, the powerful and dominant groups are seen to have access to the best food and other consumable goods (Boserup, 1990). Women are less powerful than men. Women regularly eat last and less, and less frequently get new clothes (Moser, 1993). In this power hierarchy, girls occupy the bottom position (Boserup, 1990).

One study, done in India where male-bias culture prevails, found no sex-discrimination in food distribution within the family. Socio-economic status of families, however, was found to have significant influence on food intake for both men and women (Brahmam et al, 1988; McNeill et al, 1988). In contrast, studies by Chen, Huq, & D' Souza (1981) in Bangladesh, Das Gupta (1987) in India, and Levine (1987) in Nepal found gender influenced health status and nutrition allocation. Male children received a greater share of health and nutritional resources than did female children.

The bias towards male children is said to be the result of mothers lacking decision making power. In cases where mothers have employment and earnings, female children also receive a fair share of nutrition, medical attention, and education (Sen, 1990).

Girls are generally deprived of health, education, and leisure and this asymmetry against girls has implications for the next generation (Sen, 1990). In Nepal, gender discrimination within the household contributes to the smaller

number of women in population sex-ratios, higher infant and child mortality rates for females, high morbidity and mortality rate for pregnant and lactating women, and low school enrollment rate for girls (World Development Report, 1988).

2.5 Time Use Studies

Time use studies played a crucial role in documenting women's roles in Third World economic development. Time use measures became the only viable research instrument to document women's contribution to the family and the society. In developing countries, measuring and valuing household output is difficult due to a large portion of production and consumption happening without entering the market system. Additionally, women are primarily the ones who engage in unpaid subsistence agricultural and household production. It was the time use measurement of men and women which documented that a majority of household and agricultural work was performed by women and which accounted for the majority of real household income. Time use data brought about a dramatic change in the perception that women are dependents. Additionally, it established women as the actual farmers, contrary to the popular belief prevailing among development experts that farmers were most likely to be male.

2.5.1 Evolution of Time Use Studies

Home Economists initiated household time use studies in the United States. This section of the review of literature is mainly based on the topic analysis of list of references on household time study in the United States, Appendix C, Walker & Woods, 1976. The earliest recorded study was in 1915. In this initial stage, time use studies were found to be centered around specific household works. In the later half of the 1920s and in the 1930s, state or regional level time use studies were conducted, especially as measures of rural farm homemakers' household activities and workload. During the 1930s, Home Economist's time use studies diversified the purpose from measuring home production to measuring leisure, quality of life and human energy cost of activities. It was during this period that time use gained popularity among sociologists (Szalai, 1984).

As early as the 1930s, time use patterns and behaviors were applied to housing design and home planning. In the late 1930s home economics time use studies were focused on employed homemakers' time use patterns, which, in the 1940s extended to measuring work load and labor efficiency. Time was also beginning to be used as a measure of the cost of homemaking.

For the first time in the 1950s, division of household work by family members was studied. This initiated gender and age analyses in household time use. It was during this period that comparative analyses of time use patterns were conducted. Of special interest were comparisons between rural and urban

homemakers; full-time employed versus part-time employed versus unemployed homemakers; and homemakers from different socio-economic groups.

It was not until early 1960s that economists got into full-fledged time use studies. The economists added new dimensions to the measurement of household time use, including it in urban planning and using it as a measure of economic contribution to the nation. This initiated national level, panel studies. During the later half of 1960s, multinational comparative time use studies were also initiated (Szalai, 1984).

Home Economists remained faithful to their initial purpose of time use study as a measure of household production. But, they added new dimensions to their purpose by using the data to assign economic value to household work. With adequate data generated for a period of fifty years or more, home economists conducted longitudinal comparative time use analyses during the seventies, investigating the effects of technological and social change on household behavior. Economists ventured towards employing time use as a variable to explain family behaviors such as fertility, investment in human capital, marriage and divorce. Sociologists used time use as a tool to assess the impact of socialization on gender roles.

The multidisciplinary acceptance of time use to study households, and the work done to improve it as a research tool, has contributed to time use research emerging as one of the most accepted tools for analyzing and predicting household behavior.

In 1975, Alexander Szalai presented a paper at the United Nations First World Conference on Women at Mexico City, "The Situation of Women in the Light of the Contemporary Time-Budget Research". This paper was instrumental in the selection of time use instruments for Status of Women Studies to be conducted globally during the UN Decade for Women (1976-85).

Nepal also conducted Status of Women Studies in the late 1970s and used time use methods to measure household production (CEDA, 1981). It was time use analyses that documented women's contribution to agricultural and household work, confirming their contribution to the family/household and the national economy. These analyses were instrumental for incorporating WID policies in the national development agenda.

2.5.2 Time Use Study Methodology

This section presents discussions on data collecting instruments for time use study and analyses of time use data.

2.5.2.1 Data Collecting Instruments

In the U.S., early studies used a clock-face chart with five minutes intervals, separate for A.M. and P.M., hence representing 24 hours. In this clock-face, the respondents recorded their activities for the corresponding time (Wilson,

1929, p. 41). Later, the so called "time-dairy" was developed as the time chart, with stylized work categories on the margin/s. The respondents recorded their time corresponding to the category of the work (Walker & Woods, 1976, p. 12). The occurrence, frequency, duration, and sequence of activities for 24 hours was recorded on the time diary. With additional instruments, other dimensions of time use could be measured, such as simultaneous activities recorded as primary and secondary tasks, location of the work, and others present when the task was performed, etc.

Until today, time diaries are found to be the only viable method of obtaining valid and reliable data on activities (Robinson, 1985). Researchers have applied recall methods to measure time used for activities. But, due to difficulty in recalling activities of the past and estimating actual time use, the time diary record is found to be of higher quality than recall diaries (Juster, 1985b). The observation method is the most reliable, as activities are observed directly by the enumerator. However, there is a high risk of alteration of activities by respondents and a risk of high refusal rates. In addition, research costs become very high. The ethical question of intrusion into household and/or individual privacy is also of major concern. To reduce validity problems, random spot checking (observation) has been used in places where record and recall methods are impossible. Overall analysis shows that the observation method, whether full or random, is extremely costly (Juster, 1985a).

Though validity, reliability, and cost factors make the time diary the most viable method, it is impossible to apply in cases where respondents are illiterate.

In spite of its extensive use and refinement of methodology in developed countries, it is still problematic in developing countries due to illiteracy and cultural variations in conception, perception, and reckoning of time (Carlstein, 1982; Grossman, 1984; Johnson, 1975; Kinsey, 1986; Nickols, 1986; Parkes & Thrift, 1980). However, Folbre (1996) realized its worth in developing countries' research. She recommends further development and improvement of time use instruments and institutionalization of time-use surveys in developing countries.

There are examples of occasional innovations of time measuring instruments that may be applied with illiterate respondents without losing the reliability and validity of data. For example, in 1979, a pictorial format was devised to record time used by rice farmers in India (Mencher, Saradamoni, & Panicker, 1979). The pictures depicted various activities associated with rice farming. However, this format allowed time measurement not in terms of clock time (minutes and hours) but in terms of the location of the sun (rising sun, mid-day sun, and setting sun). This relied on reckoned time, rather than exact minutes/hours, calls comparable comprehension of time into question.

In Nepalese Status of Women studies, observation methods were used. It was the only viable method without losing reliability of data. The Status of Women Study, 1981, used random spot checking and the Study in 1993 used direct, full observation (Acharya & Bennet, 1983; Shtrii Shakti, 1995). Both studies were donor funded research. Hence, the cost factor was not a serious constraint.

2.5.2.2 Time Use Analyses

Harvey (1984a) suggests that there can be three levels of time budget analyses. In the first level of analysis, simple tabulations of activity duration, sequence, and frequency are done. In the second level of analysis, multiple activity dimensions, such as timing, location, and social contacts are analyzed. In the third level of analysis, activities are analyzed in relation to each other. In Harvey's view the respondent is the unit of analysis. However, he also suggests that time use analyses should treat the family as a unit (Harvey, 1984b).

Time use data analyses have been used for modeling behavior such as labor supply, earning differentials, marriage and the division of household responsibilities, child care and child development, and wage rates. It has been also used for modeling leisure and work cycles, activity sequences, and peaking and smoothing of time demand (Stafford, 1985).

Carr & Sandhu (1987) find that time use analysis is the most powerful analysis to assess the impact of technology. Home economists have used it to assess the impact of technology on family relations, and change over time in household production behavior (Walker & Woods, 1976).

Economists, sociologists, and psychologists have used time use analyses to test their respective theories. Economists do analyses for modeling household production, while sociologists and social-psychologists do analyses to test their role-model theories (Hill & Juster, 1985).

In WID research, analyses are concentrated on gender differentials. As it has been established that gender discrimination occurs within the household, the WID research focus is on analysis of intra-household differentials. These analyses require sufficient gender disaggregated data to enable a meaningful intra-household analysis. Though frequently interpreted as the intra-household gender differentials, data are usually analyzed in aggregated forms in terms of a total sample households. Individual data by household are not generally used in these analyses (Haddad, 1996).

Time use studies have been used to measure production of household goods and services for last eight decades. Time diary records, where respondents report their own time, are appraised to be the most viable instrument in terms of reliability, validity, and cost factor. In order to institutionalize time use study in developing countries, there is a need to develop an instrument through which non-literate respondents are able to report their own time. When respondents are able to report their own time, problems of validity, reliability, and cost factor will be mitigated. For WID/GAD research, gender disaggregated data must be generated. As the majority of women in developing countries are non-literate, there is an imperative to devise an instrument where self reporting of activities by non-literate women is possible.

3. METHODOLOGY

3.1 Selection of Sample

The Chief of Chalnakhel Village Panchayat (County) was contacted and requested to select a typical village in his county, which could also be close enough to visit daily for study. The Chief recommended Bosan village.

Bosan is situated about eight kilometers away from Kathmandu, the capital city of Nepal. When research was started in early 1991, there was no electricity or piped water in the village. Bosan had an acute water problem due to deforestation on the hills above it. Lack of water prevented households from cultivating other than during the rainy season, allowing only single cropping in a year.

There are 240 households in Bosan. From the 1991 voters' list thirty households were selected randomly using a non-replacement method. No family selected for study refused to participate.

3.2 Collection of Data

Four different sets of data were collected. The first set of data provided overall household information (see Appendix 1). The second set of data provided information on household expenditures on clothing, education, and medical care (see Appendix 2). The third set of data was collected from individual adults and children, and recorded their perceptions and attitudes (see Appendix 3). The fourth set of data was collected to assess time used by family members on daily activities (see Appendix 4).

A paper and pencil questionnaire was impossible to administer due to lack of education of respondents. Thus, one enumerator was hired from the village to administer all instruments.

3.3 Instruments for data collection

This section describes and discusses about the four data collecting instruments administered in the present study.

3.3.1 Household Information Questionnaire

This questionnaire was administered at the beginning of the study to collect data on socio-economic and demographic variables, and decision making patterns (see Appendix 1). Structured questionnaires were administered through interviews. One informed adult male or female responded for the household.

The following variables were derived from information collected through this format, and were used in regression analyses as independent variables.

a. Caste: There were four categories of caste, Tamang (1), Magar (2), Newar (3), and Chhetri (4). Caste categories were given dummy status for the regression analyses.

b. Income: Income derived from three sources. Farm income, income from cottage industries, and wage employment were added together to compute total household income.

c. Literacy: Literacy of men and women in the household was also given dummy status as an independent variable, with non-literate = 0, and literate = 1.

d. Landsize: Landsize is a continuous variable in ropanis (19.7 ropanis = 1 hectare).

e. Family size: All members belonging to the household constituted family size, not only the husband, wife, and children. Many families were extended rather than nuclear families.

f. Number of animals: Animals included cattle and goats.

g. Number of children: The children living in the household may be children of more than one set of parents who were living in the same household.

h. Decision Power: Respondents were asked about decision-making patterns for seven activities in their households. These decisions were on 1) purchase and sale of land and house, 2) purchase and sale of livestock, 3) farming activities, 4) purchase and procurement of food, 5) sharing of cooked food, 6) buying clothes for family members, and 7) education of children. The assigned ranking for who made the decisions ranged from men only (1), all in the family (2)[1], men and women jointly (3), and women only (4). The decision power scored for each household was computed by adding all seven decision-situations. Household rankings could range from men-dominated (7) to women-dominated (28) in decision power patterns.

3.3.2 Expenditure Information Questionnaire

Expenditure data were collected for expenses on clothing, education, and medical care for each family member. It was a structured questionnaire (see Appendix 2) and the respondent for this questionnaire was the same person who responded to the household information questionnaire. Family expenditure data

[1] This ranking was found in only one household in one

were collected for a whole calendar year. The calendar year was divided into four seasons. Data from each household were collected once in three months (that is, one season), totaling four encounters in a calendar year. It facilitated respondents to remember expenditure data accurately, as recalling expenses for the past three months is easier and more accurate than recalling for one year. Data on the frequency of sickness and the frequency of medical care were also collected quarterly, along with expenditure data.

The mean amounts of money spent on men, women, boys, and girls were used as variables to perform gender analysis of intra-household resource allocation for clothing, education, and medical care. Additionally, the amounts of money spent for each individual on clothing, education, and medical care were used as dependent variables to examine their relationships to independent variables such as caste, age, gender, household income, literacy, decision power, and family size.

3.3.3 Individual Information Questionnaires

Questionnaires were administered to individual men, women, boys, and girls from the sample households. Data were collected on literacy/education, employment, and income; attitudes and perceptions towards gender roles, family planning, children's education, and women's participation in social and public

---

decision case.

activities; and life satisfaction. Additionally, data were collected on assessment of work-burden. Respondent men and women assessed one's own work and that of one's counterpart in terms of the human energy demand (difficult, moderate, easy) (see Appendix 3).

Both closed and open-ended questions were used to collect data. Open-ended questions were used to collect qualitative data. These data were collected to obtain background information. Findings from these questionnaires are presented only in a descriptive way. Although not used in empirical testing, they are used to interpret and understand the behavioral data.

3.3.4 Time Use Record

A time record format was administered to collect daily use of time by family members. Data were collected from family members, 12 years of age and above. Data were collected four times during the calendar year in order to represent seasonal variations. Data were collected one day in three months. This was done in order to prevent disturbance to respondents. Kumar & Hotchkiss (1988) used this data collection method and found it to be consistent with their own in-depth and more intensive direct observation study used with a few households, and with that of the in-depth Status of Women Study (CEDA, 1981).

One of the objectives of this study was to pilot test a research instrument that could accurately assess non-literate respondents' use of time by using a self

report record method. In order to design and evaluate the performance of the new instrument, a time use record format was developed for this study. Pictorial activities were placed adjacent to the clock face, so respondents could record their time for the corresponding adjacent activity (see Appendix 4). This is an activity focused format, hence it is not time exhaustive, that is, the sum of reported daily time use activities does not total 1440 minutes/24 hours.

Both record and recall methods are used in the present study. The day after the respondents recorded their time, the enumerator visited the family and asked them to recall exact tasks they were doing. For example, if respondents recorded field work, the enumerator made them recall what exact field work they performed. If it were harvesting of mustard seed, the enumerator wrote "harvesting mustard seed" next to the pictorial activity and if it was ploughing, he noted accordingly. However, recalling of exact activities was possible only with those members of the family who were at home during the enumerator's visit. So, exact task reporting data is not available from all respondents. Recording of time was avoided during festivals and/or special social/religious occasions in order to capture only the regular daily activities.

Families were presented wall clocks. This was expected to serve two purposes. First, household members can reckon time more accurately when using a clock. Second, a clock is an expensive status item in poor households. The presentation of a clock was expected to serve as an incentive for respondents to participate in the study and record their time use correctly.

The format was developed on the basis of observed daily activities in the village. It was pretested and revised. On the day the clock was given to the household, the enumerator taught the time recording format to family members. They learned to mark the clock face chart corresponding to the activities they performed. Before starting the activity, a blue pen was used to indicate locations of small and large hands of the clock. After completion of the activity, a red pen was used to mark the locations of the hands. For the first time an activity was done, a single line was drawn. Similarly, for second and third time repetitions of the same activity, two and three lines were drawn respectively. The only activity found to have been repeated in a day was cooking. It was done twice by some respondents.

The format included various work and leisure related activities. They were grouped to derive the following variables.

a. Agricultural work: Time spent on field work, livestock care, and fodder and litter collection were clustered as time spent on agricultural work.

b. Household work: Time spent on fuelwood collection, water fetching, food processing, cooking and serving, cleaning, and child care were grouped as time spent on household work.

c. Income generating work: Time spent on construction activities for wage, cottage industries, and employment were clustered as time spent on income generating work.

d. Total work time was computed by adding time spent in agricultural work, household work, income generating work, and marketing.

e. Leisure time was computed by adding time spent on personal care, recreation, social/religious activities, and sleep.

Agricultural work, household work, income generating work, and total work related activities were used as variables to perform intra-household gender analysis. Additionally, agricultural work, household work, and income generating work performed by individual family members were used as dependent variables to examine their relationships to independent variables such as caste, age, gender, land size, number of animals, family size, and number of children.

3.4 Statistical Analyses

In order to perform intra-household gender analyses, gender differences in each household were analyzed. To see the general picture of the village, total household data were used. The total household data were used to examine if any independent variables (household and individual characteristics) were able to explain the difference in the amount of time used on agricultural, household, and income generating activities by individuals in the sample. Similarly, total household data were used to examine if any household and/or individual factors were able to explain variance in the amount of money spent on clothing, education, and medical care for household members.

3.4.1 T-test Statistic

In order to assess gender differentials within households, Paired T-tests were run. The Paired T-test analyzes means of two dependent samples on a case by case basis. Hence, paired t-test was the appropriate statistic to perform intra-household gender analysis.

3.4.2 Regression and Correlation Statistics

Regression analyses were performed to examine the relationships of dependent variables: time use and expenditures, with independent variables: caste, gender, age, decision power, literacy, time use in activities other than the dependent variable, family size, number of livestock, income level, and size of land holding. To test for multi-colinearity among independent variables and to reduce the number of independent variables, correlation analyses were done (see Appendix 5).

3.5 Hypotheses

The following hypotheses were tested to examine intra-household gender differentials.

H1: There is a significant difference in the amount of time used for agricultural work by men and women within the household, with women contributing more time.

H2: There is a significant difference in the amount of time used for agricultural work by boys and girls within the household, with girls contributing more time.

To assess the difference between the mean amount of time in agricultural work used by men versus women, and boys versus girls within each household, paired t-tests were used. Hence, paired t-tests were run to test hypotheses 1 and 2.

H3: The amount of time spent by individuals on agricultural work is related to caste, gender, age, size of landholding, number of animals, hours spent in income generating activities, and family size.

A regression statistic was used to test hypothesis 3. The dependent variable was the amount of time spent by individual sample members in agricultural work. The explaining variables were the indicator variables caste and

gender; and continuous variables age of individual, size of landholding by the household, number of animals in the household, hours spent by individuals in income generating activities, and family size.

H4: There is a significant difference in the amount of time used for household work by men and women within the household, with women contributing more time.

H5: There is a significant difference in the amount of time used for household work by boys and girls within the household, with girls contributing more time.

To assess the difference between the mean amount of time in household work used by men versus women, and boys versus girls within each household, paired t-tests were used. Hence, paired t-tests were run to test hypotheses 4 and 5.

H6: The amount of time spent on household work by individuals is related to caste, gender, age, number of children, family size, and hours spent in income generating activities.

A regression statistic was used to test hypothesis 6. The dependent variable was the amount of time spent by individual sample members in household work. The explaining variables were the indicator variables caste and gender; and continuous variables age of individual, number of children in the

family, hours spent by individuals in income generating activities, and family size.

H7: There is a significant difference in the amount of time used for income generating activities by men and women within the household, with men contributing more time.

To assess the difference between the mean amount of time used in income generating activities by men versus women within each household, paired t-tests were used. Hence, paired t-test was run to test hypothesis 7.

H8: The amount of time spent by individuals in income generating activities is related to caste, gender, age, size of landholding, and literacy.

A regression statistic was used to test hypothesis 8. The dependent variable was the amount of time spent by individual sample members in income generating work. The explaining variables were the indicator variables caste, gender, and literacy of men and women; and continuous variables age of individual, and size of landholding by the household.

H9: There is no significant difference in the amount of total time used for work related activities by men and women within the household.

To assess the difference between mean amount of time spent on work related activities by men versus women within each household, paired t-test was used. Hence, paired t-test was used to test hypothesis 9.

H10: There is a significant difference in the amount of money spent for clothing between men and women within the household, with men getting the larger share.

H11: There is a significant difference in the amount of money spent for clothing between boys and girls within the household, with boys getting the larger share.

To assess the difference between the mean amount of spent on clothing for men versus women, and boys versus girls within each household, paired t-tests were used. Hence, paired t-tests were run to test hypotheses 10 and 11.

H12: The amount of money spent on clothing for individuals is related to gender, age, family size, household income, and decision power.

A regression statistic was used to test hypothesis 12. The dependent variable was the amount of money spent on clothing for individual sample members. The explaining variables were the indicator variable gender; and continuous variables age of individual, household income, family size, and decision power pattern of the household.

H13: There is a significant difference in the amount of money spent for education between boys and girls within the household, with boys getting the larger share.

To assess the difference between the mean amount of money spent on education for boys versus girls within each household, a paired t-test was used. Hence, a paired t-test was run to test hypothesis 13.

H14: The amount of money spent on education for individual child is related to gender, age, number of children, household income, decision power, and literacy of women.

A regression statistic was used to test hypothesis 14. The dependent variable was the amount of money spent on education for each individual child. The explaining variables were the indicator variables gender and literacy of women in the family; and continuous variables age of children, number of children in the household, household income, and decision power pattern of the household.

H15: There is a significant difference in the amount of money spent for medical care between men and women within the household, with men getting the larger share.

H16: There is a significant difference in the amount of money spent for medical care between boys and girls within the household, with boys getting the larger share.

To assess the difference between the mean amount of money spent on medical care for men versus women, and boys versus girls within each household, paired t-tests were used. Hence, paired t-tests were run to test hypotheses 15 and 16.

H17: The amount of money spent on medical care for individuals is related to gender, age, decision power, household income, and frequency of sickness.

A regression statistic was used to test hypothesis 17. The dependent variable was the amount of money spent on medical care for individual sample members. The explaining variables were the indicator variable gender; and continuous variables age of individuals, household income, decision power pattern of the household, and frequency of illness of individuals.

3.6 Assumptions

1. It is assumed that illiterate respondents are able to record their time use accurately in the newly developed time use format.

2. Respondent recording averts risks of over or under estimation of time use inherent in recall methods and of distortion of time use resulting in observation methods.

3.7 Limitation

This study is a single village study with a unique data set. Hence, the results cannot be generalized to other villages.

3.8 Definition of Terms

Household/Family. Members related by marriage or birth living under the same roof and having a common kitchen. A family does not necessarily consists of husband, wife, and children only. There may be more than two adults (more than one man and/or more than one woman).

Productive work. Defined as work in agriculture, employment, construction, cottage industries, and marketing.

Reproductive work. Defined as work in the household including fuelwood gathering and water fetching.

Non-productive work. Defined as sleep, personal care, recreation, and social activities.

4. FINDINGS AND DISCUSSIONS

4.1 Description of the Sample

This section describes the study area (that is, Bosan village). Findings of household questionnaire (Appendix 1) and questionnaires for individuals (Appendix 3) are also presented in this section.

4.1.1 The village of Bosan

Bosan is a village comprised of 240 households. It is situated in the mid-hills region of Nepal. Though it is only eight kilometers away from the Capital City of Kathmandu, it is a typical example of a village suffering from the woes of deforestation. Deforestation has caused the aquifer to dry up on hilltops, which has caused water sources in the village below to dry up. Water is inadequate for drinking, sanitation, livestock, and irrigation. Hence, cropping is done only once during the rainy season. In addition, villagers are mostly small and dry land holders, with very little low productivity. All these have contributed to a food deficit in the village. Almost all households have family members engaged in off-farm employment. During the time of survey, there was no piped drinking water system and no electricity in the village.

4.1.2 Ethnic and Demographic Characteristics

The sample consisted of 16 Tamang, seven Magar, five Newar, and two Chhetri caste households. A majority of these families (27 families) belonged to Tibeto-Burman ethnic group.

The average family size was 5.2. It is smaller than the national average of 5.6 (CBS, 1994). Family size ranged from two to ten. There were 13 households where there were only male children, while only three households had only female children.

Among adults, the sex ratio (males per 100 females) was 88 in the younger age group (16-40 years) and 162 in the older age group (41-80 years). The national ratio for 15-39 years is 93 and for 40 and above, it is 105 (Karki, 1995, Table 13, p. 521).

The greater number of younger adult female in the sample may have been due to younger women coming as brides to the village. In the older age group, the drastic drop in female population may be due a to higher incidence of maternal and general mortality, since, in the 21-30 age group (women's prime fertility period), the ratio is 137. From the individual response data, it was found that no woman received health assistance or hospital service during childbirth. All women gave birth at home, 45% with local midwife assistance and 55% without any assistance.

In the 51-60 age group, the sex ratio was 160. This indicates that women tend to die earlier than men at these ages. In 61-77 age group, there were four men

but no woman in the sample. Though the gender gap is higher than the national average, it is in line with the national trend of low life expectancy for women. Nationally, the life expectancy for women is 53.5 years and for men it is 55 years (CBS, 1991). Nepal is among two countries in the world where life expectancy for women is lower than that for men.

In the case of children, the proportion of girls was highest in the youngest age group. As age increased, the proportion of girls became lower. For the age group, 0-3 years, the ratio was 67. For 4-9 years of age, it was 213, and for 10-15 years of age, it was 275. In national data, the ratio for 0-4 years old is 103. For 5-9 years of age, it is 104. For 10-14 years of age, it is 108 (Karki, 1995, Table 13, p. 521). Sex ratio differentials among children will be discussed in detail in the later part of this section.

4.1.3 Literacy and Education

Ninety percent of adult males were literate, while only 26% of adult female were literate. Though the literacy rate for women is high compared to the national rate of 13% (UNDP, 1996), the gender (male/female) differential of 64 is very high compared to the national average of 26. The national literacy rate for adult males is 39% (UNDP, 1996).

Individual responses of men and women revealed that among literate men 83% had school education. Fifty percent of school educated men had primary

level (classes 1-5) education and 50% had secondary level (classes 6-10) education. Among literate women only 23% had school level education. Others had attended non-formal literacy classes.

Eighty one percent of boys and 75% of girls were literate. Among literate boys and girls, 91% of boys and 93% of girls had school education. Among school educated boys, 61% had primary level and 39% had secondary level education. Among school educated girls, 85% had primary level and only 14% had secondary level education.

4.1.4 Type of Housing, Water System, and Sanitation

Only seven houses were made of brick and remaining 23 houses were made of mud. Mud houses are weaker in structure and cheaper to build than brick houses. The majority of mud houses indicate a household's poor economic condition to finance housing.

There was no piped water system in the village. Twenty-eight houses used wells, waterspouts (springs), and the stream as sources of water for household and livestock purposes. Two households were found to use wells only.

All respondents reported that water was not adequate. Inadequacy of water was given to be the reason for not having toilet at homes. Only seven houses had toilets.

4.1.5 Landholding, Farm Production, Food Sufficiency and Family Food Sharing Patterns

The majority of households were small landholders. A vast majority owned dry land and were without irrigation systems.

Table 1: Comparison of Landholding, National vs. Bosan Sample

	National	Bosan
Without land	1.2%	10%
Under .2 ha	16%	27%
>.2 ha - <.5 ha	27%	50%
>.5 ha - <1 ha	26%	7%
>1 ha - <2 ha	19%	3%
>2 ha and above	10.8%	0%

Source for national data: CBS. 1993. National Sample Census of Agriculture 1991/92.

In Bosan 87% of households had landholdings smaller than half a hectare. While nationally, only 44.2% hold less than half a hectare of land.

Because of very small holdings, and holding dry land with low productivity, a vast majority of households had insufficient farm production for household consumption. Only one household out of thirty was found to have sufficient farm production to feed family members adequately.

Among respondents, 36% of men reported that they always had a food shortage in their families. Another 61% of men reported that they occasionally faced food shortages. Only one man reported that his household was food sufficient.

Among women, 45% reported that they always had a food shortage in their families. The rest (55%) reported that they faced occasional food shortage.

All respondents reported that during times of food shortage, the share of no one family member was cut. They would borrow but share equally. However, when asked if any gender or age (men, women, or children) got special preferences at meal times, 76% of men and 69% of women said men did get preferential treatment in terms of choice pieces and being served first. The reason given was that men were household heads and the main providers for the family, hence they deserved preference during meal time.

4.1.6 Household Income, Employment and Income of Men and Women

Bosan households had three main sources of income; income from farm products, income from cottage industries, and wage income from off-farm employment. Six households earned income by selling farm products. Three households had income from cottage industries. Twenty-eight households had income from off-farm employment.

The total annual income ranged from Rs 5,000[2] to Rs 30,500. The average income was Rs 11,090 and the median income was Rs 10,000.

---

[2] $1 US = Rs 58; Rs 5,000 = US$ 86; Rs 30,500 = US$ 526.

From individual responses, 76% of men and 62% of women were found to be employed. The average monthly income of men was Rs 1,396, ranging from Rs 600 to Rs 2,500. Although women reported of being employed full time like men, their average monthly was Rs 694, ranging from Rs 300 to Rs 1,200. The income deferential was very prominent, with women earning just about half of what men were earning.

4.1.7 Large and Small Livestock

In a village economy, livestock ownership is an indicator of household wealth, especially cattle. The level of family nutrition is also dependent on livestock and poultry as sources of dairy products and meat products. In Bosan, lack of water prevented villagers from raising cattle. Additionally, deforestation has reduced the availability of fodder and litter for animal feed and bedding. Hence, in Bosan livestock raising is minimal.

A third of households did not raise cattle. Five households had only one of these animals. Twelve households had two; two households had three; and one household had five bovines.

Households were found to raise small ruminants more than the larger ones. However, availability of grazing grounds has decreased due to cultivation of marginal lands. Goat raising is also problematic in the village. Twenty-five households raised goats, but only five households raised eight to ten goats.

Raising of poultry also requires water. Most households raised very few chickens.

4.1.8 Land Ownership and Household Decision-Making

Land entitlements were entirely in the man's name except for one widow. Nationally, 6.4% of landholding is titled to women (CBS, 1993). During the course of study, another woman became a widow. This means eligibility to land entitlement for her. Hence, in Bosan, two windows' ownership accounted for 6.6% of holdings. In Nepal, those women who have land entitlements are likely to be widows.

In Bosan, men were found to make decisions about land and the house except for the female headed household. This supports the idea that land entitlement provides power to make major decision.

In 80% of households, decisions about buying and selling of livestock were made by men only. Otherwise, men and women made joint decisions, except for the female headed household. However, decisions about farming activities were made jointly in 87% of households.

Though purchasing and procuring of food was found to have women's participation (solely [20%] or jointly with men [60%]) in 80% of households, the sharing of cooked food was found to be the sole decision of women in 53% of

households. In the remaining 47% of households, it was made jointly by men and women.

In 67% of households, clothing decisions were made entirely by men. While for children's education, 50% of household decisions were made entirely by men.

The decision making pattern clearly indicates that when major decisions were involved and when decisions involved money, those decision-domains were men's. While, when money was not directly involved, such as farm activities and food sharing, decisions were made entirely by women or jointly between men and women. However, an exception was found in the female headed household where land entitlement was in the woman's name. In spite of the presence of adult males in the household, the female head made all decisions.

Table 2: Decision Power Patterns of Bosan Households

	Frequency	Percent	Cumulative Percent
men dominated			
8.00	1	03.3	03.3
9.00	1	03.3	06.7
10.00	4	13.3	20.0
11.00	3	10.0	30.0
12.00	8	26.7	56.7
13.00	4	13.3	70.0
14.00	6	20.0	90.0
15.00	1	03.3	93.3
16.00	1	03.3	96.7
28.00	1	03.3	100.0
women dominated			
Total	30	100.0	

The above table is derived from decision making patterns of households on seven activities, described in section 3.3.1 at Chapter 3.

4.2 Analysis of Data

This section presents analyses of data collected through household questionnaire (Appendix 1), expenditure questionnaire (Appendix 2), and time use record (Appendix 4).

4.2.1 Perception of Gender Role

Seventy five percent of women responded that they would like men to be providers for the family. The remaining 25% said that in addition, men also need to provide care to family members, especially childcare.

Eighty one percent of men said that the women in their families should be doing household work and taking care of family members. Thirteen percent said that women should be helping men to provide for the family by engaging in agriculture and employment in addition to household work. Six percent reported that women should be also participating in community and social activities in addition to household work.

In general, both men and women in Bosan were found to have traditional perceptions about gender roles. However, though the majority of men perceived women's reproductive roles, they also perceived women's productive and community/social roles to a lesser extent.

4.2.2 Perception of Work Burden

Respondents were asked to make a self-assessment of their work burden in terms of human energy demand. They were given a choice of three categories for work burden assessment, namely, difficult, moderate, and easy. Additionally, they were asked to make an assessment of the work burden of their counterparts. Men

assessed women's work burden and women assessed men's work burden within their household.

4.2.2.1 Self Assessment by Men

Men reported that in agriculture they performed ploughing, livestock care, manuring, and general cropping. Fifty percent of men reported that ploughing was difficult and the other 50% reported that it was moderate. They reported livestock care, manuring, and general cropping to be moderate in terms of human energy demand.

Men were found to fetch water, perform childcare, and do home maintenance work in their household. All of them reported that water fetching was a difficult task. Fifty percent reported that home maintenance was difficult, and other 50% reported it to be moderate. All men found child care to be an easy task.

4.2.2.2 Self Assessment by Women

Women reported that in agriculture they did hoeing, weeding, soil management, manuring, harvesting, livestock care, and fodder and litter collection. They rated hoeing, soil management, weeding, manuring, harvesting,

and fodder and litter collection to be difficult. Livestock care was rated to be moderate.

At the household level, women reported for cooking, cleaning, water fetching, fuelwood gathering, and taking care of children. They reported cooking and cleaning to be easy, and childcare to be moderate. They rated water fetching and fuelwood gathering to be difficult.

4.2.2.3 Counterpart Assessment by Men

Men reported that in agriculture, women performed hoeing, weeding, manuring, fodder and litter collection, and general cropping. They rated women's work in hoeing to be difficult. Women's work in weeding, manuring, harvesting, fodder and litter collection, and general cropping were rated to be moderate.

Men reported that in their households, women cooked, cleaned, took care of children, and fetched water. They rated women's work in water fetching to be difficult. Cooking, cleaning, and child care were rated to be moderate.

4.2.2.4 Counterpart Assessment by Women

Women reported that men in agriculture did ploughing, field preparation, livestock care, and general cropping. They rated ploughing and field preparation to be difficult. Animal care and general cropping were rated to be moderate.

Women reported that in their households, men fetched water, took care of children, and did house maintenance. They rated water fetching to be difficult. Home maintenance and childcare were rated to be moderate.

Women's assessment of men's work and their work burden in both agricultural and household work matched with men's own assessment. However, men tended to overlook women's work in agriculture such as soil preparation and tended to underestimate their agricultural work burden such as in weeding, manuring, fodder and litter collection. They also tend to overlook women's work in fuelwood gathering, which women rated to be a difficult task.

It is important to note that both men and women reported water fetching to be a difficult task, both in self-assessment and assessing the counterpart burden.

4.2.3 Attitude Towards Family Planning

All women responded that couples should practice family planning. However, a third of men reported that family planning was not necessary. A significant number of men are not in favor of family planning, and they are the

ones to make the major household decisions, including family size.

In the past, family planning education and awareness programs were geared towards women only. This may have resulted in significant numbers of men having negative attitudes towards family planning practices by couples.

4.2.4 Attitude Towards Involvement of Women in Public Activities

Ninety four percent of men and 93% of women said that women should not be involved in public activities. Though both men and women agreed that for women it is not proper to participate in public activities, the reasons given were completely different between two groups. Men said that women were non-literate and ignorant of public matters, hence they should not participate. While women reported that they do not have free time, due to long working hours, to participate in public activities.

The above attitude is the reflection of a typical patriarchal society, where women are viewed to be incapable of functioning in the public arena. This attitude prevails within the family, in the community, and at the State level. It is reflected in a negligible involvement of women in politics and public offices in Nepal.

4.2.5 Attitude Towards Involvement of Women in Social Service Activities

Sixty one percent of men and 69% of women reported that it was proper for women to engage in social activities. They said that women's involvement in social activities was good for the society.

Among 39% men and 31% of women who reported that it was not proper for women to engage in social activities, men reported it was because women were non-literate and ignorant. Women reported that they did not have free time to engage in social service activities.

Although a third of both men and women have negative feelings towards women's involvement in social service activities, two-thirds acceptance is indicative of a changing attitude. Women's role in social services (voluntary community development activities such as road building and school building) is more accepted now than ever before. Acceptance of women's role in social activities is in line with men's perception of gender role. Six percent of men had highlighted women's social role to be very important. Women are found to participate more than men in voluntary community activities and community development activities. Shtrii Shakti (1995) reported that in social activities, women spent .96 hours per day in urban areas and .33 hours per day in rural areas. While men spent .57 hours in urban areas and .30 hours in rural areas.

4.2.6 Attitude Towards Children's Education

All men and women reported that both boys and girls should be given education. This attitude is supported by household data, that 81% of boys and 75% of girls were literate and 91% of literate boys and 93% of literate girls had some level of school education. The national comparison for children ages 6-14 years for primary level education is 45% for boys and 29 % for girls. For secondary level education, it is 13% for boys and 7% for girls (Manandhar, 1995). In Bosan, 61% of boys with school education had primary level education and 39% had secondary education. For girls the corresponding proportion was 81% with primary and 14% with secondary level education.

Though in Bosan children were found to participate in primary and secondary level education to a greater extent than the national average, the gender differential was very high. The individual survey of boys and girls showed that 10 out of 11 boys were continuing their education, while only six out of 12 girls were found to continue their schooling. The drop out rate was 50% for girls and 9% for boys. Girls reported that they had to drop out of school to help in household and agricultural work. Their reporting was further supported by the time use data. Girls were found to work in agricultural and household work an average 3.9 hours per day, while boys spent 2.7 hours. The majority of boys' time (1.5 hours) was spent in livestock care, especially grazing animals after school. Girls spent their time in fieldwork, fodder collection, livestock care, food preparation, water

fetching, and childcare. Thus, the work effort between boys and girls also differed greatly.

Even though the attitudes of parents towards girl's education is changing positively, the household demand for their work holds them back from school. Additionally, due to poverty, choices has to be made between boys and girls for investment in children's education. Parents continue to make this choice in favor of boys' education.

4.2.7 Life Satisfaction

Men and women were asked to rate their life satisfaction and give the reason/reasons for their ratings. Seventy six percent of men rated themselves to be unsatisfied or very unsatisfied. Compared to men, the corresponding proportion of women was only 41%. Fifteen percent of men and 14% of women reported they were satisfied with their life. A majority of women (45%) reported to have experienced neither satisfaction nor dissatisfaction.

Unsatisfied men indicated poverty as the reason for their dissatisfaction with life. They reported that they have not been able to satisfactorily perform their roles as providers and support the family. Unsatisfied women also indicated poverty to be the reason for their dissatisfaction with life. They reported that they have not been able to provide adequate care to family members due to poverty.

Reasons provided by respondents reflect men and women's self-perception of their gender roles. Men perceive themselves as providers and women perceive themselves as nurturers. In addition, the majority of women (45%) not asserting their feelings about life satisfaction is also a symbol of living up to their gender expectation. Women are not expected to express their feelings.

4.3 Analyses of Time Use

In order to perform intra-household gender analyses of daily time use, six hypotheses were tested for agricultural work, household work, income generating work, and total work. A paired t-test statistic was used. Three hypotheses were tested to examine variables which may explain individuals' time used for agricultural work, household work, and income generating work. Regression models were used to test these hypotheses.

4.3.1 Time Used for Agriculture

H1: There is a significant difference in the amount of time used for agricultural work by men and women within the household, with women contributing more time.

Table 3: Intra-Household Gender Difference in Agricultural Work by Adults

	Mean(minutes)	Standard Deviation	n
Men	132	127	27
Women	332	131	27
Paired Difference	-196	144	

t = -7.179
df = 26
p = .000

The above table shows that women worked 5.5 hours and men worked 2.2 hours a day in agricultural activities. The difference between men's contribution and women's contribution in agricultural work was significant, with women contributing more time. Hence, H1 was accepted.

H2: There is a significant difference in the amount of time used for agricultural work by boys and girls within the household, with girls contributing more time.

Table 4: Intra-Household Gender Difference in Agricultural Work by Children

	Mean(minutes)	Standard Deviation	n
Boys	41	50	9
Girls	57	69	9
Paired Difference	-16	72	

t = -.651
df = 8
p = .533

The above table shows that the mean amount of time used for agricultural activities by boys and girls was not significantly different. Hence, H2 is rejected. However, there were only nine households where comparisons could be made because gender analysis with paired t-test can not take into account households where both genders do not exist. Low degrees of freedom resulted in underestimation of actual contributions made by both boys and girls.

Analysis of time used by girls in all households (27 households) showed that girls' contribution in agricultural work was 2.1 hours and boys' was 1.7 hours per day unlike the 56 minutes for girls and 41 minutes for boys indicated in the above table.

Out of the total time used for agriculture, women and girls provided 66%. Female contribution to agricultural work found in this study was comparable to past findings. In 1981 and 1993 studies, female contribution was 67% of the farming economy (Shtrii Shakti, 1995).

4.3.1.1 Time Used For Field Work

Women used 3.3 hours per day in fieldwork and men used 1.4 hours per day. So, women were found to do 70% of the fieldwork. Women reported hoeing, field preparation, weeding, manuring, harvesting, and general cropping. Men reported ploughing and general cropping. Most of these tasks were reported to be difficult in terms of human energy demand.

Girls were found to spend 27 minutes per day and boys were found to spend eight minutes per day in fieldwork. Though children were found to spend relatively less time in fieldwork than adults, girls were found to spend 77% of the time spent by children.

4.3.1.2 Time Used for Livestock Care, and, Fodder and Litter Collection

The majority of male contribution to agriculture was in livestock care. They spent 2.5 hours (one hour by men and 1.5 hours by boys) per day in livestock care as against 1.6 hours by females. In previous Nepal studies men were also found to spend more time than women in livestock care. In 1981, men spent 1.4 hours a day and women spent .9 hours a day (Acharya and Bennett, 1981, Table 4 (a), p. 59). In a 1993 study, men spent 2 hours per day and women spent 1.4 hours per day (Shtrii Shakti, 1995, Tables 2.24 & 2.25, pp. 105-106). Brown and Haddad (1994) did analysis of seven countries' time use patterns and found livestock activities to be mainly men's activities.

In Bosan, men and boys were found to take animals for grazing and women spent time on animal feeding and other care. Additionally, women and girls together provided 96% of the total time spent for fodder and litter collection. They were found to spend 1.5 hours (1.1 hours by women and 26 minutes by girls) per day, while men and boys were found to use only five minutes (one minute by men and four minutes by boys) per day. In a study conducted in the adjacent village, men and boys spent time on grazing animals, but women were the ones to collect fodder and litter in 89% of households (Bhadra, 1996).

So, though livestock care was found to be a men and boys' activity, fodder and litter collection was very much a women's activity. This finding has a great implication in dairy development programs. Time used for livestock grazing is not the only indicator of animal husbandry responsibility. Additionally, cooking animal feed, feeding, and other care is usually done by females. The Ghusel village dairy development project is a good example of how the lack of proper gender analysis leads to negative impacts on women and girls. The dairy development project in Ghusel village lead women to spend more time and effort in fodder and litter collection and animal care. As adult women in the family had to spend more time in livestock activities, girls were held back from school to help in household and agricultural works (Bhatt et al., 1994). Thus the overall gender impact of this project was negative, although household money income may have increased.

4.3.1.3 Variables Related to Time Used in Agriculture

H3: The amount of time spent by individuals on agricultural work is related to caste, gender, age, size of landholding, number of animals, time spent in income generating activities, and family size.

Table 5: Amount of Time Spent by Individuals in Agricultural Work

(n = 60 males and 50 females)

Variable	b	Standard Error	T-value	(Significance Level)
Caste	30.89	11.98	2.58	(.011)
Gender	98.64	25.21	3.90	(.000)
Age	3.89	.84	4.61	(.000)
Landsize	-.31	3.03	-.10	(.919)
Animal #	1.57E-02	4.61	.01	(.997)
Incomework time	-.39	.07	-5.88	(.000)
Familysize	8.04	9.32	.86	(.390)
(Constant)	-84.15	65.75	-1.28	(.204)
R-Square = .51		Overall F	15.23	(.000)

The above model explained 51% of the variance in family members' time used for agricultural work. The overall model was significant with F = 15.23 and p = .000. The independent variables that explained variability in family members' time used for agricultural work were caste, gender, age, and time sapent on income generating activities.

Caste must be considered when total amount of agricultural work performed is assessed. However, gender is also an important variable regardless of caste. From the t-test analyses it was shown that women spent more time in agricultural work than men. The significance of age indicated that adults worked more in agriculture than children. Additionally, the time used in income generating activities was significant in explaining the time used for agricultural work. The more time a family member spent in income generating activities, the less time she/he would use in agricultural activities.

Surprisingly, size of landholding and number of animals did not show significant relationships to the amount of time spent in agricultural work by family members. This may have resulted due to the majority of households being small landholders and raising small number of animals with little variations among households.

4.3.2 Time Used for Household Activities

H4: There is a significant difference in the amount of time used for household work by men and women within the household, with women contributing more time.

Table 6: Intra-Household Gender Difference in Household Work by Adults

	Mean(minutes)	Standard Deviation	n
Men	100	56	27
Women	230	68	27
Paired Difference	-130	84	

t = -8.058
df = 26
p = .000

The above table shows that women spent 3.8 hours per day in household activities and men were found to spend 1.6 hours daily. Although men contributed about a third of total household work, the difference between men and women's contribution was highly significant. Hence, H4 is accepted.

H5: There is a significant difference in the amount of time used for household work by boys and girls within the household, with girls contributing more time.

Table 7: Intra-Household Gender Difference in Household Work by Children

	Mean(minutes)	Standard Deviation	n
Boys	42	49	9
Girls	53	58	9
Paired Difference	-11	67	

t = -.495
df = 8
p = .634

The above table shows no significant difference in the amount of time used by boys and girls in household work. Hence, H5 is rejected. Analyses of nine households shows that contributions made by boys and girls were 42 minutes and 53 minutes per day respectively. However, the all household (27 households) analysis showed that girls spent 1.8 hours and boys spent 1.0 hour in household activities. Hence, low degrees of freedom resulted not only in underestimation of both boys' and girls' contribution, but it also failed to show a significant difference in their time use. Overall, girls were found to contribute 64% of the children's share in household work.

Women and girls together were found to spend 68% of the total time spent in household work, while men and boys spent 32% of the time. In past studies, males' share in household work was found to be relatively smaller. In the 1981 study, female were found to provide 82% of the total household work (including

water fetching, fuel gathering, and food processing). In the 1993 study, they were found to put 77% (Shrtii Shakti, 1995, Table 4.32, p. 122). Compared to past studies, males in Bosan village were found to contribute more time in water fetching and food processing activities. In water fetching, males' contribution accounted for 45%, and in food processing it accounted for 50% of the total time spent in these tasks respectively. In the 1981 study, males' contribution in these activities were 17% and 19% respectively and in 1993 study, they were 28% and 26% respectively (Shrtii Shakti, 1995, Table 4.32, p. 122).

4.3.2.1 Time Used for Fuelwood Gathering

Time used for fuelwood gathering accounted for only 11% of the total time used for household work. It was found to be .7 hours a day. Although it is comparable to the past studies, one hour in the 1981 study and .4 hours in the 1993 study (Shrtii Shakti, 1995, Table 4.32, p. 122), it is assumed that in the present study fuelwood gathering is underestimated.

Unlike other household activities, fuelwood gathering is a seasonal activity rather than a daily activity. Fuelwood is collected and stored in the dry season and in agricultural slack seasons (Carr and Sandhu, 1987). Kumar and Hotchkiss (1988) found fuelwood gathering to be the least time intensive during the rainy season and the most time intensive in the dry season. Collection of one-day time use data in three months' time tends to under estimate the time spent in

fuelwood gathering, which is mostly performed in one specific season rather than on a day to day basis.

In line with past findings, fuelwood gathering was women's responsibility (Shtrii Shakti, 1995; Kumar and Hotchkiss, 1988). In Bosan, women were found to spend 90% of the total time reported for fuelwood gathering. Only two household tasks were rated by women to be difficult; fuelwood gathering was one and the other was water fetching.

4.3.2.2 Time Used for Water Fetching

Though water fetching was found to be a female activity (55%) in Bosan, their share of the total was much lower than previous findings (83% in 1981 and 72% in 1993). Water fetching was found to be more time intensive in Bosan. Total time was 1.8 hours as against 1.3 hours in the 1981 study and .6 hours in the 1993 study (Shrtii Shakti, 1995, Table 4.32, p. 122). Water fetching was also rated unanimously by men and women to be a difficult task in terms of human energy demand. Difficulty of terrain and time demand for fetching, makes water a scarce but essential commodity in Bosan households. This unique situation seems to necessitate that men and boys help in water fetching. They contributed 45% of total water fetching time, 35 minutes by men and 15 minutes by boys per day.

4.3.2.3 Time Used for Food Processing

In past studies, women were found to be responsible for food processing activities. In 1981, female were found to be contributing 81% (67% by women and 14% by girls) of the total time input in food processing. Similarly, in 1993, their share was 75% (62% by women and 13% by girls)(Shtrii Shakti, 1995, Table 4.32, p. 122). In Bosan, the male and female shares were 50-50 (33% each by women and men and 17% each by girls and boys). In food processing, men and boys generally contributed their time in milling, and women and girls in traditional processing. So, this access to technology in food processing not only saved women's time but the task was also shared by men.

4.3.2.4 Time Used for Food Preparation and Serving

The most time demanding among household tasks were cooking, related activities in food preparation, and serving. It accounted for 32% of the total time used for household activities. It is indisputably women's responsibility. Females were found to spend 78% (50% by women and 28% by girls) of total time in food preparation. Males also were found to spend time on this activity. However, when females performed this activity they were primary workers. When men reported to perform this activity, they reported helping the primary workers.

Food preparation was the only activity which was found to be performed twice a day by some family members. It was also found that where there was more than one woman in the family, women took turns in food preparation. For example, if one woman cooked in the morning, another woman prepared the evening meal. The total time used for food preparation in Bosan was 2.6 hours a day. It was comparable to the 1981 finding of 2.8 hours and the 1993 finding of 2.9 hours (Shrtii Shakti, 1995, Table 4.32, p. 122).

4.3.2.5 Time Used for Cleaning

Cleaning was also found to be female responsibility. Females were found to contribute 82% (62% by women and 20% by girls) of the total time spent for cleaning. The average time spent in cleaning was 50 minutes a day. Cleaning was rated to be easy work.

4.3.2.6 Time Used for Child Care

Girls were found to contribute the largest amount of time in child care. They were found to provide 50% of the total time used for child care. Women were found to contribute 21% of time, and men and boys contributed 17% and 13% respectively. It indicates that although child care responsibility falls on

females, males also a spend considerable amount of time, especially with very young children.

4.3.2.7 Variables Related to Time used in Household Work

H6: The amount of time spent on household work by individuals is related to caste, gender, age, number of children, family size, and time spent in income generating activities.

Table 8: Amount of Time Spent by Individuals in Household Work

(n = 60 males and 50 females)

Variable	b	Standard Error	T-value (Significance Level)	
Caste	-3.83	7.64	-.50	(.617)
Gender	134.73	15.66	8.60	(.000)
Age	.24	.52	.45	(.648)
# of Children	7.59	7.11	1.07	(.288)
Familysize	-10.39	4.90	-2.12	(.036)
Incomework	9.16E-02	.04	2.19	(.031)
(Constant)	-28.98	42.36	-.68	(.495)
R-Square = .45		Overall F	13.84	(.000)

The above regression model explained 45% of variance in the time spent by individual family member in household work. Although the overall model was

highly significant with an F value of 13.84 (significance level of p = .000), only three independent variables, gender, family size, and time spent in income generating activities were significant.

Gender was a highly significant explanatory variable for the amount of time spent by family members in household work. The t-test results have shown that women spent more time than men in household work.

Family size was also found to have significant relationship to the amount of time used by family members in household work. The larger the family size, the lesser the amount of time used by individual members. This is indicative of household task sharing among the members.

Time spent by individuals in income generating activities was also found to have a significant positive relationship to the time spent in household work, contrary to its negative relationship to agricultural work. The more time individual spent in income generating activities greater time she/he would spend in household work. This indicates that family members engage in household chores even if they are engaged in income generating activities. Income generating activities and agricultural activities are mostly performed during day times, while household work is performed during the mornings and the evenings. Family members who are engaged on income generating activities cannot engage in agricultural activities due to time schedule constraint, but they have time for household activities before and after their income generating works.

Age and number of children were not found to be significant. The non-significance of age, but high significance of gender indicates that females use

more time in household work irrespective of age. This is seen by girls engaging in household work from very young ages.

4.3.3 Time Used for Income Generating Activities

H7: There is a significant difference in the amount of time used for income generating activities by men and women within the household, with men contributing more time.

Table 9: Intra-Household Gender Difference in Income Generating Work by Adults

	Mean(minutes)	Standard Deviation	n
Men	250	150	27
Women	92	117	27
Paired Difference	158	191	

t = 4.306
df = 26
p = .000

The above table shows that men used 4.2 hours a day in income generating activities and women used only 1.5 hours. The difference is significant, with men contributing more time. Hence, H7 is accepted.

In Bosan, family members were found to engage in income generating activities through employment, cottage industries, and as laborers in construction activities. Men were found to spend 74% of the total time used for these activities. Families also earned income by selling farm products. However, time used in marketing activities will be discussed separately.

4.3.3.1 Time Used in Employment

Men were found to spend 71% of total time used for employment. This indicates that women also engaged in employment to a considerable degree, as twenty nine percent of total time spent on employment was used by women. In Bosan, poverty caused by small landholdings, and low productivity compel family members to seek alternatives for income generation. At the same time, proximity to urban areas provided opportunities for employment to family members, including women. However, in individual response data, the gender differential in average income from employment was found to be very high (Rs 1,396 for men and Rs 694 for women).

4.3.3.2 Time Used in Cottage Industries

Men were found to spend 83% of the total time used for cottage industries. The main cottage industries in Bosan were carpentry and weaving. Men were

engaged in carpentry and women in weaving. A few men reported making and selling bamboo baskets.

4.3.3.3 Time Used for Construction

Men and women reported being engaging as wage laborers in construction. Seventy percent of the time used in construction activities was provided by men. Women's share of construction activity was 25% and boys' share was 5%. The proportions were comparable to 1993 study (Shrtii Shakti, 1995, Table 4.32, p. 122). However, in Bosan, the time spent for construction activities was greater than it was in 1993 study (2 hours against 26 minutes). It indicates that in Bosan compared to many other villages, opportunities are available for wage employment in construction activities. Proximity to an urban area provides opportunities in wage employment in building and road construction. Most commonly, women are found to engage in breaking rocks into small pebbles by the side of the river, and hauling those to construction sites. Breaking rocks is a very painful, physical activity. Women also engage in other construction site activities.

4.3.3.4 Variables Related to Time used in Income Generating Activities

H8: The amount of time spent by individuals in income generating activities is related to caste, gender, age, size of landholding, and literacy.

Table 10: Amount of Time Spent by Individuals in Income Generating Work
(n = 60 males and 50 females)

Variable	b	Standard Error	T-value (Significance Level)
Caste	-25.49	16.61	-1.54 (.128)
Gender	-152.09	34.21	-4.45 (.000)
Age	3.89	1.19	2.91 (.002)
Landsize	4.19	4.07	1.03 (.306)
Female Literacy	-6.14	36.59	-.17 (.867)
Male Literacy	37.88	59.49	.64 (.526)
(Constant)	270.38	93.02	2.91 (.004)
R-Square = .25		Overall F	5.57 (.000)

The above regression model explained 25% of variance in the amount of time spent by family members in income generating activities. Although the overall model was significant (F value of 5.57 and p = .000), age and gender were only two variables which had significant relationships.

The significance of age and gender indicate that adults tend to engage in income generating activities rather than children and men tend to engage more than women.

4.3.4 Time Used for Marketing

Time in marketing was found to be used for two purposes. First, family members went to the market to sell farm products. Second, they went to the market to buy household goods. The share of marketing for men, women, boys, and girls were 45%, 39%, 6%, and 9% respectively. Interestingly, women and girls generally reported of going to the market for selling farm products, and men and boys reported buying household goods. Members who went to the market to sell farm products were found to start as early as 4:30 in the morning. In Bosan, generally, women were sellers of farm products and men were buyers of household goods.

4.3.5 Time Used in Total Daily Work

H9: There is no significant difference in the amount of total time used for work related activities by men and women within the household.

Table 11: Intra-Household Gender Difference in Total Daily Work by Adults

	Mean(minutes)	Standard Deviation	n
Men	519	146	27
Women	707	54	27
Paired Difference	-188	140	

t = -6.971
df = 26
p = .000

The above table revealed that the difference in total time used for work related activities (agricultural work, household work, income generating work, and marketing activities) by men and women was significantly different. Hence, H6 is rejected.

In Bosan households, women were found to spend significantly longer hours in total daily work than men. Women worked for 11.8 hours and men worked for 8.6 hours. In the 1981 Status of Women study, women were found to work for 10.8 hours and in the 1993 study they were found to work for 10.9 hours. In those studies, men were found to work for 7.5 hours and 7.8 hours respectively (Shtrii Shakti, 1995). Consistent with the findings of past studies, a difference of about three hours a day was found between working hours of women and men.

In reproductive work (household including water fetching and fuelwood gathering), women used more time than men. Women worked for 3.8 hours and

men worked for 1.6 hours a day. In productive work (agriculture and income generating activities) women also worked for more hours than men. Women worked for 8.0 hours and men worked for 7.0 hours a day.

The time use pattern shows that women use more time than men in both productive and reproductive works. Additionally, they spent 53% more time in productive work than in their reproductive work. This clearly indicates that women's productive role in the family is very important. It refutes the prevailing notion of policy/decision makers that women are mothers and housewives only.

4.3.6 Time Used for Leisure Activities

Though no hypothesis was tested for the difference in the amount of time used for leisure activities (personal care, social/religious activities, recreation, and sleep), a difference of 1.6 hours was found in the amount of time used by men and women in leisure activities. Men spent 10.5 hours and women spent 8.9 hours.

4.3.6.1 Time Used for Personal Care

The largest amount of time used for personal care was by boys. They used 37 minutes per day in personal care. Women used the least amount of time, they

used four minutes per day. Men used 16 minutes and girls used 20 minutes per day in personal care.

4.3.6.2 Time Used for Social/Religious Activities

Men used 40 minutes per day in social/religious activities, while women used only six minutes a day. Similarly, boys used 24 minutes and girls used 17 minutes. Men and boys spent time in the evenings socializing with peers, while women and girls reported going to the temple in the mornings.

4.3.6.3 Time Used for Recreation

In Bosan, recreation activities were considered to be listening to the radio and watching television. As the village did not have electricity, the family members went to the adjacent village for television viewing.

Men spent an hour per day in recreation, while women spent 34 minutes. Boys spent 40 minutes and girls spent 36 minutes. Men, boys and girls generally visited an adjacent village for television viewing, while women listened to the battery operated radio at home.

4.3.6.4 Time Used for Sleep

Women, men, girls, and boys slept for 8.1, 8.5, 8.8, and 9.2 hours respectively. Though women did not forego their sleep time, they spent very little time on personal care and social/religious activities.

4.4 Household Expenses made for Family Members

Three household expense categories were examined to measure intra-household gender differentials in distribution of household resources. They were expenses on clothing, expenses for children's education, and expenses on medical care. Analysis of expenses on food would have been the most crucial measure, but Bosan is a village where food materials are produced and consumed within the household. As they do not go through market mechanism, money value is difficult to assign. Though analyses of food share and nutritional share are possible, it is very expensive in terms of time and cost. Hence, it was beyond the scope of this study. However, through individual responses, the perception of gender and preference for food share was collected.

In order to perform intra-household gender analyses of expenses, five hypotheses were tested relating to money spent on clothing, education, and medical care. Paired t-test statistic was used. Three hypotheses were tested to examine variables explaining the relationship to the amount of money spent on

clothing, education, and medical care. Regression models were used to test these hypotheses.

4.4.1 The Amount of Money Spent on Clothing

H10: There is a significant difference in the amount of money spent for clothing between men and women within the household, with men getting the larger share.

Table 12: Intra-Household Gender Difference in the Amount of Money Spent on Clothing for Adults

	Mean(Rupees)	Standard Deviation	n
Men	1254	537	29
Women	698	305	29
Paired Difference	556	374	

t = 8.008
df = 28
p = .000

The above table shows that the amount of money spent on men and women's clothing differed significantly, with men receiving close to a double that of women. Hence, H10 is accepted.

H11: There is a significant difference in the amount of money spent for clothing between boys and girls within the household, with boys getting the larger share.

Table 13: Intra-Household Gender Difference in the Amount of Money Spent on Clothing for Children

	Mean(Rupees)	Standard Deviation	n
Boys	711	293	8
Girls	648	338	8
Paired Difference	63	239	

t = .740
df = 7
p = .483

The above table shows that although girls received less than boys, the amount of money spent on clothing for children did not differ significantly. Hence, H11 is rejected. However, as discussed before, the above analysis allows too few degrees of freedom to show the real situation. The all household (29 households) analysis revealed that the amount of money spent on clothing for boys was Rs 893, while for girls it was Rs 620.

4.4.1.1 Variables Related to the Amount of Money Spent on Clothing

H12: The amount of money spent on clothing for individuals is related to gender, age, family size, household income, and decision power.

Table 14: Amount of Money Spent on Clothing for Individuals
(n = 83 males and 62 females)

Variable	b	Standard Error	T-value (Significance Level)
Gender	-395.94	78.68	-5.03 (.000)
Age	.55	2.53	.22 (.828)
Familysize	-52.35	21.70	-2.27 (.017)
Income	1.27E-02	.01	2.06 (.041)
Decision Power	-26.78	11.79	-2.27 (.025)
(Constant)	1993.55	249.19	8.00 (.000)
R-Square = .22		Overall F	7.19 (.000)

The above regression model explained 22% of variance in the amount of money spent for family members on clothing, (overall F value was 7.19 with p = .000). Except for the variable age, all other variables were significant.

The significance of gender and non-significance of age explains that the money spent on clothing differed between males and females in the household irrespective of age. The above t-test revealed that men received significantly more than women. Hence, the implication is that both women and girls received a lesser

share of money for clothing. A 1994 study in a village in Nepal, reported that the increased income from a new project did not translate into benefits for women in terms of their share for clothing. They reported that before the project they used to get two saris a year. After the project, their share of work burden increased considerably but their share on clothing remained the same (two saris a year) (Bhatt et al, 1994).

As the household income increased, the amount enjoyed by individuals also increased. On the other hand, as the family size increased the amount enjoyed by individuals decreased.

The significance of decision power is that the more the decision pattern is male-dominated, the larger the expenditure on clothing. As it is known that men receive a larger share, it implies men as decision-makers also allocate larger share for themselves. Surprisingly, however, in the only female-headed household the amount of money she spent on herself was zero.

4.4.2 The Amount of Money Spent on Children's Education

H13: There is a significant difference in the amount of money spent for education between boys and girls within the household, with boys getting the larger share.

Table 15: Intra-Household Gender Difference in the Amount of Money Spent on Education for Children

	Mean(Rupees)	Standard Deviation	n
Boys	613	466	8
Girls	492	422	8
Paired Difference	121	386	

t = .887
df = 7
p = .404

The above table indicates that although girls received smaller share of money spent on education, the difference was not significant. Hence, H13 is rejected.

The smaller amount spent on girls is indicative of a larger number of girls than boys going to lower level classes. This is because school expenses vary according to level of classes (primary versus secondary) rather than gender of students. The household data revealed that a larger number of boys than girls were in secondary school. Individual response data revealed that girls drop out of schools, more often than boys, to help in household and agricultural work. The all-household (29 household) analysis revealed that, in many households, the amount of money spent on girls for education was zero. In these households girls did not go to school.

4.4.2.1 Variables Related to the Amount of Money Spent on Children's Education

H14: The amount of money spent on education for individual child is related to gender, age, number of children, household income, decision power, and literacy of women.

Table 16: Amount of Money Spent on Education for Individual child
(n = 83 males and 62 females)

Variable	b	Standard Error	T-value (Significance Level)
Gender	-253.90	121.44	-2.09 (.038)
Age	-23.79	3.96	-6.01 (.000)
# of Children	-84.77	52.03	-1.63 (.106)
Income	6.37E-02	.01	.64 (.522)
Decision Power	17.95	18.94	.95 (.345)
Literacy of Women	83.05	140.89	.59 (.557)
(Constant)	1695.23	385.56	4.39 (.000)
R-Square = .24		Overall F	7.13 (.000)

The above regression model explained 24% of variance in the amount of money spent for education of a child. The overall model was significant with the F value of 7.13 and p = .000. The significant independent variables were gender and age.

Children received a larger share of education expenses in the family than adults and boys received more than girls. The share for girls was less because

most of the girls were not in school. Those who were in school, were more likely than boys to be in the lower level classes.

4.4.3 The Amount of Money Spent on Medical Care

H15: There is a significant difference in the amount of money spent for medical care between men and women within the household, with men getting the larger share.

Table 17: Intra-Household Gender Difference in the Amount of Money Spent on Medical Care for Adults

	Mean(Rupees)	Standard Deviation	n
Men	674	853	29
Women	438	462	29
Paired Difference	237	930	

t = 1.370
df = 28
p = .182

The above table shows that, although the amount of money spent on medical care was lesser for women than men, the difference was not significant. Hence, H15 is rejected.

H16: There is a significant difference in the amount of money spent for medical care between boys and girls within the household, with boys getting the larger share.

Table 18: Intra-Household Gender Difference in the Amount of Money Spent on Medical Care for Children

	Mean(Rupees)	Standard Deviation	n
Boys	188	109	8
Girls	125	173	8
Paired Difference	63	218	

t = .817
df = 7
p = .441

The above table shows that though the amount of money spent on medical care for girls was less than that for boys, the difference was not significant. Hence, H16 is rejected.

4.4.3.1 Variables Related to the Amount of Money Spent on Medical Care for Individuals

H17: The amount of money spent on medical care for individuals is related to gender, age, decision power, household income, and frequency of illness.

Table 19: Amount of Money Spent on Medical Care for Individuals
(n = 83 males and 62 females)

Variable	b	Standard Error	T-value (Significance Level)
Gender	-155.23	82.85	-1.87 (.063)
Age	9.02	2.77	3.25 (.001)
Income	7.33E-03	.01	1.22 (.224)
Decision Power	2.15	12.40	.18 (.863)
Frequency of Illness	189.39	16.96	11.16 (.000)
(Constant)	58.94	238.50	.25 (.000)
R-Square = .57		Overall F	37.26 (.000)

The above regression model explained 57% of the variance in the amount of money spent on medical care of family members. The overall F value was 37.26 with p = .000. The independent variables age and frequency of illness were significant. These patterns indicate that older people tend to be sick more than the younger ones, hence receiving larger amounts of money for medical care.

The near significance of gender and a very high significance of frequency of illness indicate that females probably received a lesser share, not because of their gender but because of women's lower frequency of illness. Reports from the frequency of illness data revealed that, on average, men were reported to be ill 1.7 times and women 1.5 times a year. Similarly, boys were reported to be ill 1.2 times and girls .5 times a year. It was very surprising to find males' frequency of illness to be greater than that of females, especially because morbidity and mortality of females in Nepal is greater due to lack of good nutrition and lack of medical facilities (UNDP, 1995). This result may be indicative of the family's bias in recognizing the illness of males and females. In other words, the illness of males may be more likely to be acknowledged and treated, with women's illnesses being less frequently acknowledged. Frequency of illness data reveal greater difference between boys and girls (1.2 times for boys and .5 times for girls). Thakur (1996) found that parents bring sons to health care centers much more frequently then they bring daughters seeking medical care for them.

4.5 The Missing Girls of Bosan

In the national data, the sex ratio for children aged 0-14 years is 105 (Karki, 1995, Table 13, p. 521) but in this sample the ratio for ages 0-15 was 185. The number of boys in the sample was 42 but there were only 20 girls. The proportion of girls was higher in the youngest age group. However, at higher ages,

the proportion of girls was lower. For the age group, 0-3 years, the ratio was 67. For 4-9 years of age, it was 213, and for 10-15 years of age, it was 275. As this was a random sample, the appearance of too few girls in the sample seems to be more than the result of sampling error, even given the small sample size.

Nepalese society in general, is a son-preferring society. There is evidence that when families have sons as their first born, they tend to avoid third, fourth, or successive births. On the other hand, families tend to continue to have children when the first born are daughters. So, a few of the "missing girls" from Bosan may have been never born.

Furthermore, the child (1-5 years) mortality rate is higher for girls than for boys (Acharya, 1995). So, among those girls who were born, more may have been victims of child mortality. Although the national child mortality rate for girls is higher than for boys, the reported frequency of illness for Bosan girls was much lower than that for boys. This indicates that the girl child's illnesses may have been less recognized than that of the boy child's.

Additionally, when female children reach ages 10 or 12, parents may send them to urban areas to work as domestic servants to rich families. By giving the service of girl children to rich and powerful families, fathers and/or brothers receive favors from those families in terms of employment in government, public, or private organizations. In the past decade, a large number of girls have found employment in urban areas, especially, in carpet and other manufacturing industries. Girls often work and earn money to support their brothers' schooling. As Bosan is very close to the capital city, Kathmandu, many girls may have been

working in the city. However, family members during the survey did not include any girls living away from home. Reporting daughters working as servants and/or working in factories may bring shame to the families.

4.6 The Test of Time Use Instrument

Although reliability and validity of time use instrument can be established only through repetitive application, the present test has demonstrated its creditability and relevance of a cost-effective time use instrument for non-literate respondents. The time recorded by non-literate respondents was relatively consistent with the past two national studies done in Nepal during 1981 (Acharya and Bennett, 1981) and 1993 (Shtrii Shakti, 1995). However, the present instrument recorded about an hour more of both women's and men's work time than the past studies found through observation methods.

Additionally, the instrument has also demonstrated its accuracy. Carr & Sandhu (1987) report that the recall method resulted in an underestimation of actual work done. However, in research conducted in the same village using recall method, the respondents were found to overestimate their time used for water fetching. They reported that, on average, they used 102 minutes to fetch a pitcher of water (Bhadra, 1992). However, when they actually recorded their time during this study, it was 65 minutes. Psychologically, people tend to overestimate time when the task is arduous and tedious, and they tend to underestimate time when

the task is easy and pleasant. Hence, the present instrument is seen as an improvement over other methods (observation and recall).

The shortcoming of the present instrument is that it omitted some important tasks such as collecting and gathering of food, care of the sick and old, sewing and mending, community development/voluntary work, and management of natural resources. Women perform most of these tasks. Hence, although the present findings showed an hour more in women's daily work than the past findings, it still is likely to be underestimated for typical, day-to-day work efforts.

5. SUMMARY AND RECOMMENDATION

5.1 Summary

A summary of findings in the amount of time used for daily activities and the amount of money spent on clothing, education, and medical care is presented in the following table denoting more and/or less[3].

Table 20: Summary of Intra-Household Differences in Time and Resource Allocations Between Women and Men, and Boys and Girls Based on Paired T-Tests

	Women	Men	Girls	Boys[4]
Work:				
Agricultural	+	-	+	-
Household	+	-	+	-
Income generating	-	+		
Total work	+	-	+	-
Leisure	-	+	-	+
Expenses:				
Clothing	-	+	-	+
Education			-	+
Medical Care[5]	-	+	-	+

a. In an intra-household analysis, the women worked significantly longer hours in agricultural work than men. The difference between girls and

[3] "+" indicates more and "-" indicates less.
[4] The differences between boys and girls could not be meaningfully tested because of small sample size. Directional differences are reported.
[5] Medical care was the only category where differences between men and women were not significant.

boys' time for agricultural work was not significant because of sample restrictions, but there was a tendency for girls to work a longer time than boys, especially when all boys and girls in the sample were compared.

b. Women worked significantly more in household work than men. The difference between girls and boys' time for household work was not significant, but there was a tendency for girls to work a longer time than boys.

c. Men spent significantly more time in income generating activities than women. However, twenty nine percent of total time spent in income generating activities was spent by women. This implies that women's income contributions are important for these families.

d. Women spent significantly more time (about 12 hours per day) in work related activities, while men spent about nine hours per day. In terms of work share women contributed 57% of all work time, and men contributed 43%.

e. Men spend more time in leisure activities than women.

f. Men received significantly more money for clothing than did women. Although the difference between the amount of money spent on clothing for boys and girls was not significant, there is a tendency for boys to receive more than girls.

g. Similarly, although there was no significant difference in the amount of money spent on medical care for men and women, and boys and girls,

there was a tendency for women and girls to receive less than men and boys.

Regression results showed that gender was the most important predicting variable in the amount of time spent in work related activities and in the amount of money spent on clothing, education, and medical care. Women worked for longer hours in agricultural and household work than men. Girls worked for longer hours in agricultural work than boys, and worked for longer hours in household work than both men and boys.

Although gender was an important predicting variable in the amount of money spent on clothing, age was not. This indicates that irrespective of age, females received less money for clothing. Gender and age were important predicting variables in the amount of money spent on education. Children received more than adults and boys received more than girls. Age and frequency of illness were significant at $p < .05$, which indicates that older people fell ill more frequently than younger ones and received more money for medical care. However, gender was significant at $< .1$, which indicates that females fell ill less frequently than males. Hence, women and girls received less money for medical care.

5.2 Implications of Findings

In Bosan, agricultural and household work are mostly performed by women and girls. The mode of technology is traditional, hence, time and human energy intensive. Most men engage in income generating activities through wage employment, cottage industries and as wage laborers in construction. As men's income is not sufficient to support the family, a considerable number of women also engage in income generating activities. However, among those employed, the average monthly income of women is just about half of men's income. This implies that women lack education and training to get higher paying jobs.

In Bosan households, women work about twelve hours per day, while men work for about nine hours. However men, as household heads and holders of land entitlement, are the major decision-makers, especially when decisions involved money. They are also the primary buyers of household goods. A third of Bosan men feel that there is no need for family planning despite considerable governmental effort on family planning promotion during the last three decades. As planning family size needs the participation of both men and women, men in Bosan seem to need more sensitization to this issue.

Although women spent more time than men in productive work (agriculture plus income generating activities), they perceive men to be "providers" and perceive themselves to be "nurturers". Men also feel a strong pressure to fulfill their provider role. Poverty has caused men to be unsatisfied with life, most likely because they feel they have failed as providers to the family.

Men think that since women are not literate they are ignorant and are unable to perform in public and social spheres. About three-fourths of women in Bosan households are non-literate. However, women feel it is because of their long working hours that they are unable to participate in social and public activities.

In Bosan households, men receive a larger share of household resources for clothing, education, and medical care than women. Boys tend to continue their education and girls drop out of school to help in agricultural and household work. During times of food scarcity, the families borrow but report they would not cut any family member's share. However, a majority of men and women feel that men, as household heads, should get special preferences during meal times in terms of choice pieces and being served first.

Bosan families are son-preferring families. There are many families where girls are absent. Though they express the view that girls should be educated, they retain girls, rather than boys, at home for agricultural and household work.

5.3 Revisiting Theories of Intra-Household Gender Relation

Outwardly, Bosan households look like a cooperative unit, where men, women, boys, and girls participate in agricultural, household, and income generating activities for families' sustenance. But, when it comes to the question of resource distribution, there is a clear gender conflict.

In a cooperative or a conflict situation, the actors make conscious efforts (involving choice) to cooperate or to compete. However, in Bosan, men and women do not seem to be in command of the situation to make a conscious effort either to cooperate or to compete. They seem to have a fatalistic attitude similar to that described by Bista (1991). They have an unavoidable sense of gender role identity, which they believe to have been prescribed for them by the society. Although women work for longer hours in productive activities for the sustenance of the family, men perceive themselves as "providers" and women perceive themselves as "being provided for". So, both men and women legitimize their work roles and the inequitable household resource distribution as natural.

Based on the above analysis of Bosan households, both cooperative and conflict theories are rejected. The cooperative-conflict theory is accepted with modification that family members cooperate or compete within the household not out of their individual tastes and preferences, but subject to traditional values.

5.4 Recommendations

This section presents recommendations on policy issues, refinement of time use instrument, sampling recommendation, and recommendations on future research.

5.4.1 Policy Recommendations

The Bosan economy is both farm and off-farm dependent. With a scarcity of water, the farm-based economy has become non-sustaining, causing Bosan households to also rely on off-farm incomes. Proximity to the city provides Bosan residents with opportunities for wage and/or cottage industry employment. Hence, development of employment skills and cottage industry development through education/training and credit programs would make a major contribution to the economic well being of Bosan families.

The general tendency of high child mortality and high school drop-out rate of girls, and the possibility of girls being sent to urban areas for employment, calls for monitoring by the State agency. The Village Development Committee (VDC) could monitor families in terms of their resource distribution behavior for health and education, with special focus on girls' needs, in order to decrease child mortality rate of girls and to retain girls in school. The VDC could also monitor migratory behaviors of family members, especially of girls, in order to encourage retention of girls at home among family members. Educational opportunities could be increased for girls through provision of incentives (monetary and/or in-kind) to parents. When parents have to choose between sons and daughters in paying school fees and buying school uniforms, they tend to hold daughters back and send sons to school. Providing parental education is also important in safeguarding girls' health and education.

As a result of time intensive agriculture and household work, women and girls spend long hours in these activities. In order to provide them with time for education and training, their work needs to be made less time intensive, perhaps through provision of technology. After this survey was completed, the village became equipped with a piped water system. This will reduce the time used for water fetching. Similar, efforts could be made in the area of agricultural technology. Additionally, if women and girls are to be relieved from their work burden, men will need to do more task sharing, since currently, they work three hours less than women.

Furthermore, as men are the main decision-makers, parental education and gender sensitization should be targeted towards men.

5.4.2. Refinement of Time Use Instrument

The present time use instrument is crude. It needs to be refined with professional help, so that pictorial presentation of activities is clear to respondents without effort on their part.

Additionally, the present instrument omits a number of activities performed by family members. Hence, in future research, a pre-study of the village situation should be done so as to include all activities performed by family members.

5.4.3 Sampling recommendation

In the present study, a random sampling of about 10% of households was done. Households with both boys and girls present comprised only one-third of the sample, which made it difficult to perform statistically meaningful gender analysis related to youth. Hence, in future research, a sampling of at least 30% is recommended so that intra-household gender analysis of children can be done in a more meaningful way. Alternatively, to reduce the costs of data collection, a stratified random sampling of households consisting of both boys and girls could be done.

5.4.4 Area of Future Research in Bosan Households

As the number of girls in the sample was very small, the immediate need is to find out if the sample represented the real situation. If it did not, it is necessary to find out reasons why girls were underrepresented in sample households. If it did, it is also necessary to find out reasons for the absence of girls from families.

As food intake is very important for family members' health and nutritional status, study of the food distribution pattern of Bosan households is also very important. This could contribute the information to test the intra-household gender analysis on food distribution.

Females were reported to be falling sick less often than males in Bosan. Considering the national trend of low life-expectancy for women than men, and high child (1-5 years of age) mortality rate for girls than boys, future research in Bosan should also focus on gender difference in morbidity and mortality.

BIBLIOGRAPHY

Acharya, M. (1995). Status of female: Selected socio-cultural and economic aspects. In Population monograph of Nepal (pp. 441-481). Kathmandu: Central Bureau of Statistics (CBS).

Acharya, M. & Bennett L. (1981). The rural women of Nepal: an aggregate analysis and summary of 8 village studies: the status of women. Kathmandu: Centre for Economic Development and Administration.

Acharya, M. & Bennett L. (1983). Women and the subsistence sector: economic participation and household decision making in Nepal. The World Bank: staff working paper no. 526.

Agarwal, B. (1994). A field of one's own: gender and land rights in South Asia. New Delhi: Cambridge University Press and Foundation Books.

Ahooja-Patel, K. (1982). Women, technology, and the development process. Development Digest, VXX(1), 79-86.

Akinbode, A. & Akande, B. E. (1987). The situation of rural women in Nigeria. The Rural Sociologist, 7(3), 210-215.

Baker, G. & Nelson, L. J. (1985). Resource allocation in the Third World: conceptual approaches, strategies, and challenges. In Nickols, S. Y. (Ed.), Thinking globally acting locally. Proceedings of a workshop sponsored by the Family Economics/Home Management section of the American Home Economics Association (pp. 17-24). Philadelphia: Temple University.

Bardhan, P. (1996). Research on poverty and development: Twenty years after redistribution with growth. In Bruno, M. & Pleskovic, B. (Eds.), Annual world bank conference on development economics 1995 (pp. 59-80). Washington, D.C.: The World Bank.

Becker, G. S. (1965). A theory of the allocation of time. Economic Journal, 75(299), 493-517.

Becker, G. S. (1981). A treatise on the family. Massachusetts: Harvard University Press.

Bhadra, B. (1982). Natural resources development in national and regional context. The Journal of Development and Administration Studies, 4(1/2), 103-127.

Bhadra, C. (1992). Women as managers: experience in Nepal. In Rickford J. (Ed.), Proceedings of the 18th WEDC Conference on Water, Environment and Management (pp. 14-17). Kathmandu: Water, Engineering and Development Centre/Nepal Engineers' Association.

Bhadra, C. (1996, November). Impact of land and forestry policies on the lives of women : Nepal. Research paper presented at the first conference of collaborative regional research network in South Asia (CORRENSA), Kandy, Sri Lanka.

Bhatt, N., Thomas-Slayter, B., Shrestha, B. & Koirala, I. (1994). Managing resources in a Nepalese village: Changing dynamics of gender, caste and ethnicity. Kathmandu: Institute of Integrated Development Service (IIDS).

Bista, D. B. (1991). Fatalism and development: Nepal's struggle for modernization. Calcutta: Orient Longman Ltd.

Blumberg, R. L. & Hinderstein, C. (1983). At the end of the line: women and United States foreign aid in Asia. In Staudt, K. A. & Jaquette, J. S. (Eds.), Women in developing countries: a policy focus (pp. 43-66). New York: The Howarth Press, Inc.

Boserup, E. (1970). Women's role in economic development. New York: George Allen & Unwin Ltd.

Boserup, E. (1990). Economic change and the roles of women. In Tinker, I. (Ed). Persistent inequalities: women and world development (pp. 14-24). New York: Oxford University Press.

Brahmam, G. N. V., Sastry, J. G., & Rao, N. P. (1988). Intra family distribution of dietary energy - an Indian experience. Ecology of Food and Nutrition, 22(2), 125-130.

Brown, L. R. & Haddad, L. (1994). Time allocation patterns and time burdens: A gendered analysis of seven countries. Washington, D.C.: International Food Policy Research Institute.

Buvinic, M. (1983). Women's issues in Third World poverty: a policy analysis. In Buvinic, M., Lycette, M. A. & McGreevy, W. P. (Eds.), Women and poverty in the Third World (pp. 14-34). Baltimore: The John Hopkins University Press.

Carlstein, T. (1982). Time resources, society and ecology: Vol. 1. Boston: George Allen & Unwin.

Carr, M. & Sandhu, R. (1987). Women, technology, and rural productivity. New York: UNIFEM.

Central Bureau of Statistics (CBS). (1991). Population Census 1991. Kathmandu: Author.

Central Bureau of Statistics (CBS). (1993). National sample census of agriculture 1991/92. Kathmandu: Author.

Central Bureau of Statistics (CBS). (1994). Statistical Pocket Book: Nepal. Kathmandu: Author.

Centre for Economic Development and Administration (CEDA). (1981). The rural women of Nepal: An aggregated analysis; summary of eight village studies Vol. II, Part 9. Kathmandu: USAID/Nepal.

Charlton, S. E. (1984). Women in Third World development. Boulder: Westview Press.

Chen, L. C., Huq, E., & D'Souza, S. (1981). Sex bias in the family allocation of food and health care in rural Bangladesh. Population and Development Review, 7(1), 55-70.

Chenery, H. B., Ahluwalia, M. S., Bell, C. L. G., Duloy, J.H., & Jolly, R. (1974). Redistribution with growth. London: Oxford University Press.

Clark, S. M. (1984). Time use and the status of women. In Harvey, A. S., Szalai, A., Elliot, D. H., Stone, P. J., & Clark, S. M. (Eds.), Time budget research: An ISSC workshop in comparative analysis (pp. 172-183). New York: Campus Verlag.

Cloud, K. (1985). Women's productivity in agricultural households: how can we think about it? What do we know? In Monson, J. & Kalb, M. (Eds.), Women as food producers in developing countries (pp. 11-18). Los Angeles: UCLA.

Das Gupta, M. (1987). Selective discrimination against female children in rural Punjab, India. Population and Development Review, 13(1), 77-100.

Dauber, R. (1981). Applying policy analysis to women and technology: a framework for consideration. In Dauber, R. & Cain, M. L. (Eds.), women and technological change in developing countries (pp. 237-251). Colorado: the American Association for the Advancement of Science.

Eicher, C. K. & Staatz, J. M. (1984). Agricultural development in the Third World. Baltimore: The John Hopkins University Press.

Ellis, F. (1988). Peasant economics: farm households and agrarian development. New York: Cambridge University Press.

Elson, D. (1995). Rethinking strategies for development: from male-biased to human-centred development. In Elson, D. (Ed.), Male Bias in the Development Process (pp. 253-279). Manchester: Manchester University Press.

Firebaugh, F. M. (1985). Women in development and Home Economics. Journal of Home Economics, 77(4), 41-45.

Flora, C. B. (1983). Incorporating women into international development programs: the political phenomenology of a private foundation. In Staudt, K. A. & Jaquette, J. S. (Eds.), Women in developing countries; a policy focus (pp. 89-106). New York: The Howarth Press, Inc.

Folbre, N. (1996). Engendering economics: new perspective on women, work, and demographic change. In Bruno, M. & Pleskovic, B. (Eds.), Annual world bank conference on development economics 1995 (pp. 127-153). Washington, D.C.: The World Bank.

Granovsky, N. (1985). Family Resource Management: a model for international development. In Nickols, S. Y. (Ed.), Thinking globally acting locally. Proceedings of a workshop sponsored by the Family Economics/Home Management section of the American Home Economics Association (pp. 25-35). Philadelphia: Temple University.

Granou, R. (1973). The intrafamily allocation of time: the value of housewives time. The American Economic Review, 63(4), 634-651.

Grossman, L. S. (1984). Collecting time use data in Third World rural communities. The Professional Geographer, 36(4), 444-454.

Haddad, L. (1996). Comments on N. Folbre's article, Engendering economics: new perspective on women, work, and demographic change. In Bruno, M. & Pleskovic, B. (Eds.), Annual world bank conference on development economics 1995 (pp. 157-161). Washington, D.C.: The World Bank.

Haddad, L. & Kanbur, R. (1991). Intrahousehold inequality and the theory of targetting. The World Bank working paper - WPS 789.

Harvey, A. S. (1984a). Analysis and description of time budget data. In Harvey, A. S., Szalai, A., Elliot, D. H., Stone, P. J., & Clark, S. M. (Eds.), Time budget research: An ISSC workshop in comparative analysis (pp. 62-83). New York: Campus Verlag.

Harvey, A. S. (1984b). The family as a unit of analysis. In Harvey, A. S., Szalai, A., Elliot, D. H., Stone, P. J., & Clark, S. M. (Eds.), Time budget research: An ISSC workshop in comparative analysis (pp. 184-193). New York: Campus Verlag.

Heyzer, N. (1995). A women's development agenda for the 21st century. In Heyzer, N., Kapoor, S, & Sandler, J. (Eds.), A commitment to the world's women: Perspectives on development for Beijing and beyond (pp. 1-19). New York: UNIFEM.

Hill, M.S. & Juster, F. T. (1985). Constraints and complementarities in time use. In Juster, F. T. & Stafford, F. P. (Eds.), Time, goods, and well-being (pp. 439-470). Ann Arbor: The University of Michigan, Institute of Social Research.

Jain, S. C. (1981). Poverty to prosperity in Nepal. Berlin: Development Publishers.

Jaquette, J. (1985). Women, population, and food; an overview of the issues. In Monson, J. & Kalb, M. (Eds.), Women as food producers in developing countries (pp. 1-9). Los Angeles: UCLA.

Johnson, A. (1975). Time allocation in a Machiguenga community. Ethnology, 14(3), 301-310.

Juster, F. T. (1985a). Conceptual and methodological issues involved in the measurement of time use. In Juster, F. T. & Stafford, F. P. (Eds.), Time, goods, and well-being (pp. 19-31). Ann Arbor: The University of Michigan, Institute of Social Research.

Juster, F. T. (1985b). Validity and quality of time use estimates obtained from recall diaries. In Juster, F. T. & Stafford, F. P. (Eds.), Time, goods, and well-being (pp. 63-91). Ann Arbor: The University of Michigan, Institute of Social Research.

Juster, F. T., Courant, P. N., & Dow, G. K. (1985). A conceptual framework for the analysis of time allocation data. In Juster, F. T. & Stafford, F. P. (Eds.), Time, goods, and well-being (pp. 113-131). Ann Arbor: The University of Michigan, Institute of Social Research.

Kabeer, N. (1994). Reversed realities: Gender hierarchies in development thought. New York: Verso.

Karki, Y. B. (1995). Organization, design and quality aspects of the 1991 census of Nepal. In Population monograph of Nepal (pp. 503-534). Kathmandu: Central Bureau of Statistics (CBS).

Kinsey, J. (1986). The value of time in household production models. In Deacon, R. E. & Huffman, W. E. (Eds.), Human resources research, 1887-1987. Proceedings. Iowa State University: College of Home Economics.

Kumar, S. K. & Hotchkiss, D. (1988). Consequences of deforestation for women's time allocation, agricultural production, and nutrition in hill areas of Nepal. Washington, D.C.: International Food Policy and Research Institute.

Leeson, P. F. & Minogue, M. M. (1988). Perspectives on development; cross-disciplinary themes in development studies. Manchester: Manchester University Press.

Levine, N. E. (1987). Differential child care in three Tibetan communities: beyond son preference. Population and Development Review, 13(2), 281-304.

Lindsay, B. (Ed.). (1980). Comparative perspective of Third World women: the impact of race, sex, and class (Chapter 14). New York: Praeger Publishers.

Loutfi, M. F. (1982). Rural women: unequal partners in development. Geneva: International Labour Office.

Manandhar, T. B. (1995). Educational development, population and literacy. In Population monograph of Nepal (pp. 355-402). Kathmandu: Central Bureau of Statistics (CBS).

McNeill, G., Payne, P. R., Rivers, J. P. W., Enos, A. M. T., John De Britto, J. & Mukarji, D. S. (1988). Socio-economic and seasonal patterns of adult energy nutrition in a South Indian village. Ecology of Food and Nutrition, 22(2), 85-95.

Mencher, J. P., Saradamoni, K. & Panicker, J. (1979). Women in rice cultivation: some research tools. Studies in Family Planning, 10(11/12), 408-412.

Ministry of Women & Social Welfare. (1996). Concept paper. Kathmandu: Author.

Moser, C. (1993). Gender planning and development: Theory, practice and training. London: Routledge.

National Planning Commission (NPC), His Majesty's Government of Nepal. (1980). Sixth Five Year Plan (1980-85). Kathmandu: Author.

National Planning Commission (NPC), His Majesty's Government of Nepal. (1985). Seventh Five Year Plan (1985-90). Kathmandu: Author.

National Planning Commission (NPC), His Majesty's Government of Nepal. (1992). Eighth Five Year Plan (1992-97). Kathmandu: Author.

Nazzani, M. (1986). Women in Latin America. In Duley, M. I. & Edwards, M. I. (Eds.), The cross-cultural study of women (pp. 376-405). New York: The Feminist Press.

Nerlove, M. (1974). Economic growth and population: perspectives of the "New Home Economics". New York: Agricultural Development Council, Inc.

Nickols, S. Y. (1986). Human resources and household time allocation. In Deacon R. E. & Huffman, W. E. (Eds.), Human resources research, 1887-1987. Proceedings (pp. 173-184). Iowa State University: College of Home Economics.

Organization for Economic Cooperation and Development (OECD). (1984). Implications of a more purposeful basic human needs-oriented approach to development. In Ghosh, P. K. (Ed.), Third World development: a basic needs approach (pp. 41-53). Connecticut: Greenwood Press.

Pant, Y. P. & Jain, S. C. (1980). Rural problems and rural development in Nepal. Berlin: Development Publishers.

Papanek, H. (1985). Low income countries. In Farley, J. (Ed.), Women workers in fifteen countries. New York: Cornell University.

Parkes, D. & Thrift, N. (1980). Time, spaces, and places. New York: John Wiley & Sons.

Robinson, J. P. (1985). The validity and reliability of diaries versus alternative time use measures. In Juster, F. T. & Stafford, F. P. (Eds.), Time, goods, and well-being (pp. 33-62). Ann Arbor: The University of Michigan, Institute of Social Research.

Rogers, B. (1979). The domestication of women: discrimination in developing societies. New York: Kogan Page Ltd.

Savane, M. A. (1981). Women and rural development in Africa. In Women in rural development critical issues (pp. 26-32). Geneva: International Labour Office.

Schultz, P. (1988). Investment in women - priorities and prospects. Reported in Association for Women in Development Colloquium report on gender issues in development cooperation held at Overseas Development Council, April 11-12.

Sheddon, D. (1987). Nepal: a state of poverty. New Delhi: Vikas Publishing House Pvt. Ltd.

Sen, A. K. (1990). Gender and cooperative conflict. In Tinker, I. (Ed). Persistent inequalities: women and world development (pp. 123-149). New York: Oxford University Press.

Sen, G. (1982). Women workers and Green Revolution. In Beneria, L. (Ed.), Women and development: the sexual division of labor in rural societies (pp. 29-64). New York: International Labour Organization.

Shtrii Shakti. (1995). Women, development, and democracy: a study of the socio-economic changes in the status of women in Nepal (1981-1993). Kathmandu: Author.

So, A. Y. (1990). Social change and development: Modernization, dependency and world-system theories. New Delhi: Sage Publications, Inc.

Srinivasan, T. N. (1984). Development, poverty, and basic human needs: some issues. In Ghosh, P. K. (Ed.), Third World development: a basic needs approach (pp. 7-28). Connecticut: Greenwood Press.

Stafford, F. P. (1985). Issues in modelling behavior with time use data. In Juster, F. T. & Stafford, F. P. (Eds.), Time, goods, and well-being (pp. 383-396). Ann Arbor: The University of Michigan, Institute of Social Research.

Szalai, A. (1984). The concept of time budget research. In Harvey, A. S., Szalai, A., Elliot, D. H., Stone, P. J., & Clark, S. M. (Eds.), Time budget research: An ISSC workshop in comparative analysis (pp. 17-35). New York: Campus Verlag.

Thakur, L. (1996). Factors causing delay in hospitalization of children in Nepal: A sociological analysis. Unpublished doctoral dissertation, Tribhuvan University, Kathmandu, Nepal.

Thomas, D. (1991). Gender differences in household resource allocation. Washington, D. C. : The World Bank.

Tinker, I. (1985). Women in African development: remarks on accepting the distinguished service to rural life award. The Rural Sociologist, 5(5), 358-362.

Todaro, M. P. (1985). Economic development in the Third World: an introduction to problems and policies in a global perspective (3rd ed.). New York: Longman Group Ltd.

United Nations. (1985). Nairobi Forward Looking Strategies. New York: Author.

UNDP. (1995). Human development report. New York: Author.

UNDP. (1996). Human development report. New York: Author.

Walker. K. E. & Woods, M. E. (1976). Time use: A measure of household production of family goods and services. Washington, D.C.: American Home Economics Association.

Waring, M. (1989). If women counted: a new feminist economics. London: Macmillan.

Wilson, M. (1929). Use of time by Oregon farm homemakers. Corvallis: Oregon State Agricultural College.

Women's Service Coordination Committee (WSCC). (1982), National plan of action for women in development in Nepal. Kathmandu: Social Service National Coordination Council (SSNCC).

World Development Report, 1988. The World Bank: Oxford University Press.

Young, K. (1993). Planning development with women: making a world of difference. London: The Macmillan Press Ltd.

APPENDICES

APPENDIX 1

Household Questionnaire

APPENDIX 1

Household Questionnaire

House Number: Caste:

1. House ownership: (a) owned (b) rented

2. Type of house: (a) brick (b) mud

3. Drinking water: (a) Piped (b) well (c) stream (d) spring

4. Who fetches water? (a) women (b) men (c) boys (d) girls

5. Do you have adequate water? (a) yes (b) no

6. Do you have toilet? (a) yes (b) no

7. Total landholding (in ropani)[6]:

8. Type of land: (a) Irrigated land (in ropani)
(b) Dry land (in ropani)

9. Product from farm:
(a) Is it adequate for the family? yes/no
(b) If you sell farm products, yearly cash income? .....

10. Yearly income from wage/ salary .....

11. Yearly income from cottage industries .....

12. Number of livestock:
(a) number of cattle.....
(b) number of goat.....
(c) number of pigs.....
(d) number of chicken.....

13. Number of family members: Literate/Non-literate

age:	(a) adult male	(b) adult female	(c) boys	(c) girls
	1.....(l/n)	1.....(l/n)	1.....(l/n)	1.....(l/n)
	2..... (l/n)	2.....(l/n)	2.....(l/n)	2.....(l/n)
	3..... (l/n)	3..... (l/n)	3.....(l/n)	3.....(l/n)
	4..... (l/n)	4.....(l/n)	4.....(l/n)	4.....(l/n)
	5..... (l/n)	5..... (l/n)	5.....(l/n)	5.....(l/n)

[6] 19.67 ropanis = 1 hectare

14. Children in school:

	age:	class	sex:
1.	.....	.....	m/f
2.	.....	.....	m/f
3.	.....	.....	m/f
4.	.....	.....	m/f
5.	.....	.....	m/f

15. Who decides for purchase and sale of land and house?
(a) men (b) women (c) men and women jointly (d) all in the family

16. Who decides for purchase and sale of livestock?
(a) men (b) women (c) men and women jointly (d) all in the family

17. Who decides for purchase/procurement of food?
(a) men (b) women (c) men and women jointly (d) all in the family

18. Who decides for sharing of cooked food?
(a) men (b) women (c) men and women jointly (d) all in the family

19. who decides for purchase of family clothing?
(a) men (b) women (c) men and women jointly (d) all in the family

20. Who decides for children's education?
(a) men (b) women (c) men and women jointly (d) all in the family

21. Who decides for farming activities?
(a) men (b) women (c) men and women jointly (d) all in the family

APPENDIX 2

Expenditure Questionnaire

APPENDIX 2

Expenditure Questionnaire: (to be collected once in every three months)

House Number: Date:

1. Migration of family member:

(a)	seasonal:		Age	education	sex
		1.	.....	.....	m/f
		2.	.....	.....	m/f
		3.	.....	.....	m/f
(b)	temporary:		Age	education	sex
		1.	.....	.....	m/f
		2.	.....	.....	m/f
		3.	.....	.....	m/f
(c)	permanent:		Age	education	sex
		1.	.....	.....	m/f
		2.	.....	.....	m/f
		3.	.....	.....	m/f

Expenses during last three months:

2. Clothing expenses:

1. name/age/sex	1. Rs.....
2. name/age/sex	2. Rs.....
3. name/age/sex	3. Rs.....
4. name/age/sex	4. Rs.....
5. name/age/sex	5. Rs.....
6. name/age/sex	6. Rs.....
7. name/age/sex	7. Rs.....
8. name/age/sex	8. Rs.....
9. name/age/sex	9. Rs.....
10. name/age/sex	10. Rs.....

3. Expenses for education:

1. name/age/sex	1. Rs.....
2. name/age/sex	2. Rs.....
3. name/age/sex	3. Rs.....
4. name/age/sex	4. Rs.....

5. name/age/sex	5. Rs.....
6. name/age/sex	6. Rs.....
7. name/age/sex	7. Rs.....
8. name/age/sex	8. Rs.....
9. name/age/sex	9. Rs.....
10. name/age/sex	10. Rs.....

4. Expenses for medical care:
Frequency of sickness and frequency of medical care:

		Sick	Care
1. name/age/sex	1.Rs.....	.....	.....
2. name/age/sex	2.Rs.....	.....	.....
3. name/age/sex	3.Rs.....	.....	.....
4. name/age/sex	4.Rs.....	.....	.....
5. name/age/sex	5.Rs.....	.....	.....
6. name/age/sex	6.Rs.....	.....	.....
7. name/age/sex	7.Rs.....	.....	.....
8. name/age/sex	8.Rs.....	.....	.....
9. name/age/sex	9.Rs.....	.....	.....
10. name/age/sex	10.Rs.....	.....	.....

APPENDIX 3

Questionnaires for Individuals

APPENDIX 3

Questionnaire for Adult Male

House number: Name: Age:

1. Do you know how to read and write? Yes/No

2. If yes, have you attended school or literacy class? Yes/No

3. If yes, what class have you completed? .....

4. Are you employed? Yes/No

5. If yes, do you work full-time/part-time?

6. What is your monthly income? Rs.....

7. What tasks do you perform in your farm? How do you rate these activities in terms of human energy demand: difficult (d), moderate (m), easy (e)? What tools do you use? Did you make these tools or did you buy these?

tasks:	d/m/e	tools:	made/bought
1.			
2.			
3.			

8. What tasks do you perform in your household? How do you rate these activities in terms of human energy demand: difficult (d), moderate (m), easy (e)? What tools do you use? Did you make these tools or did you buy these?

tasks:	d/m/e	tools:	made/bought
1.			
2.			
3.			

9. What tasks do women in your family perform in your farm? How do you rate these activities in terms of human energy demand: difficult (d), moderate (m), easy (e)? What tools do they use? Did you make these tools or did you buy these?

tasks:	d/m/e	tools:	made/bought
1.			
2.			
3.			

10. What tasks do women in your family perform in your household? How do you rate these activities in terms of human energy demand: difficult (d), moderate (m), easy (e)? What tools do they use? Did you make these tools or did you buy these?

tasks: d/m/c tools: made/bought
1.
2.
3.

11. In your opinion what should be the roles of women in your family?
1.
2.
3.

12. In your opinion is it desirable for women in your family to participate in public activities? yes/no

If yes, why?
1.
2.
3.

If no, why?
1.
2.
3.

13. In your opinion is it desirable for women in your family to participate in social service activities? yes/no

If yes, why?
1.
2.
3.

If no, why?
1.
2.
3.

14. Are children in your family going to school? yes/no

15. If yes, do both boys and girls go to school? yes/no

If no, why?

Reasons for girls not going to school: 1.
2.
Reasons for boys not going to school: 1.
2.

16. In your opinion is it desirable to educate children? yes/no

If yes, is it desirable to educate both boys and girls? yes/no
If no, why?
Reasons for not educating girls: 1.
2.
Reasons for not educating boys: 1.
2.

17. In case of sickness of children, do you provide medical care? yes/no

If yes, what kind of care do you provide?
1.
2.
3.

18. Do you provide care to both boys and girls? yes/no

If no, why?
Reasons for not providing care to girls: 1.
2.
Reasons for not providing care to boys: 1.
2.

19. In your family do married women in fertility period practice family planning? yes/no
If no, why? 1.
2.
20. In your opinion is it desirable for women in your family to practice family planning? yes/no
If no, why? 1.
2.

21. During meal time:
(a) all eat together
(b) children eat first, adults eat later
(c) men eat first, women eat later
(d) men and children eat first, women eat later
(e) no such pattern

22. Do you have food-shortage in your household?
(a) often (b) occasionally (c) never

23. In case of food-shortage:
(a) all members get to eat less
(b) children get their usual share but adults cut their share
(c) adults get their usual share but children cut their share
(d) men get their usual share but women cut their share
(e) women get their usual share but men cut their share
(f) borrow to provide usual share of all

24. Do any member/members of your family get special preference in meal time in terms of choice-piece and/or serving? yes/no
If yes, who gets?
(a) men why?
(b) women why?
(c) boys why?
(d) girls why?

25. How satisfied are you with your life?
(a) very satisfied
(b) satisfied
(c) unsatisfied
(d) very unsatisfied
(e) neither satisfied nor unsatisfied

Questionnaire for Adult Female

House number: Name: Age:

1. Do you know how to read and write? Yes/No

2. If yes, have you attended school or literacy class? Yes/No

3. If yes, what class have you completed? .....

4. Are you employed? Yes/No

5. If yes, do you work full-time/part-time?

6. What is your monthly income? Rs.....

7. What tasks do you perform in your farm? How do you rate these activities in terms of human energy demand: difficult (d), moderate (m), easy (e)? What tools do you use? Did you make these tools or did you buy these?

tasks:	d/m/e	tools:	made/bought
1.			
2.			
3.			

8. What tasks do you perform in your household? How do you rate these activities in terms of human energy demand: difficult (d), moderate (m), easy (e)? What tools do you use? Did you make these tools or did you buy these?

tasks:	d/m/e	tools:	made/bought
1.			
2.			
3.			

9. What tasks do men in your family perform in your farm? How do you rate these activities in terms of human energy demand: difficult (d), moderate (m), easy (e)? What tools do they use? Did you make these tools or did you buy these?

tasks:	d/m/e	tools:	made/bought
1.			
2.			
3.			

10. What tasks do men in your family perform in your household? How do you rate these activities in terms of human energy demand: difficult (d), moderate (m), easy (e)? What tools do they use? Did you make these tools or did you buy these?

tasks:	d/m/e	tools:	made/bought
1.			
2.			
3.			

11. In your opinion what should be the roles of men in your family?
1.
2.
3.

12. In your opinion is it desirable for women to participate in public activities? yes/no

If yes, why?
1.
2.
3.

If no, why?
1.
2.
3.

13. In your opinion is it desirable for women to participate in social service activities? yes/no

If yes, why?
1.
2.
3.

If no, why?
1.
2.
3.

14. Are children in your family going to school? yes/no

15. If yes, do both boys and girls go to school? yes/no

If no, why?

Reasons for girls not going to school: 1.
2.
Reasons for boys not going to school: 1.
2.

16. In your opinion is it desirable to educate children? yes/no

If yes, is it desirable to educate both boys and girls? yes/no
If no, why?
Reasons for not educating girls: 1.
2.
Reasons for not educating boys: 1.
2.

17. In case of sickness of children, do you provide medical care? yes/no

If yes, what kind of care do you provide?
1.
2.
3.

18. Do you provide care to both boys and girls? yes/no

If no, why?

Reasons for not providing care to girls: 1.
2.

Reasons for not providing care to boys: 1.
2.

19. In your family do married women in fertility period practice family planning? yes/no
If no, why? 1.
2.

20. In your opinion is it desirable for women in your family to practice family planning? yes/no
If no, why? 1.
2.

21. Where did you or women in your family give childbirth?
(a) at home: 1. with local professional help 2. without help
(b) at local health center:
(c) at city hospital:

22. During meal time:
(a) all eat together
(b) children eat first, adults eat later
(c) men eat first, women eat later
(d) men and children eat first, women eat later
(e) no such pattern

23. Do you have food-shortage in your household?
(a) often (b) occasionally (c) never

24. In case of food-shortage:
(a) all members get to eat less
(b) children get their usual share but adults cut their share
(c) adults get their usual share but children cut their share
(d) men get their usual share but women cut their share
(e) women get their usual share but men cut their share
(f) borrow to provide usual share of all

25. Do any member/members of your family get special preference in meal time in terms of choice-piece and/or serving? yes/no
If yes, who gets?
(a) men why?
(b) women why?
(c) boys why?
(d) girls why?

26. How satisfied are you with your life?
(a) very satisfied
(b) satisfied
(c) unsatisfied
(d) very unsatisfied
(e) neither satisfied nor unsatisfied

Questionnaire for Boys and Girls

House number: Name: Age:

1. Do you know how to read and write? yes/no

2. If yes, have you attended school? yes/no

3. If yes, what class have you completed? .....

4. Are you continuing your education? yes/no

5. If no, give reasons: 1.
2.
3.

6. Do you like to continue your education? yes/no

7. Are you employed outside of home? yes/no

8. If yes, what is your monthly income? Rs.....

9. What tasks do you perform in your farm? How do you rate these activities in terms of human energy demand: difficult (d), moderate (m), easy (e)? What tools do you use? Did you make these tools or did you buy these?

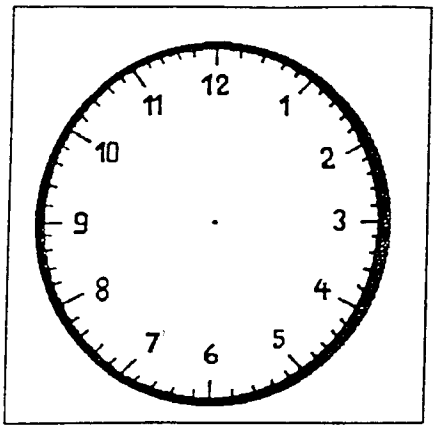
tasks:	d/m/e	tools:	made/bought
1.			
2.			
3.			

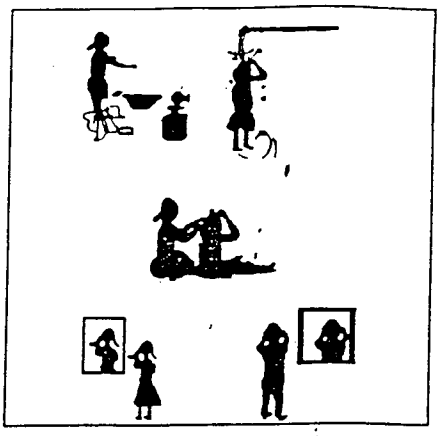
10. What tasks do you perform in your household? How do you rate these activities in terms of human energy demand: difficult (d), moderate (m), easy (e)? What tools do you use? Did you make these tools or did you buy these?

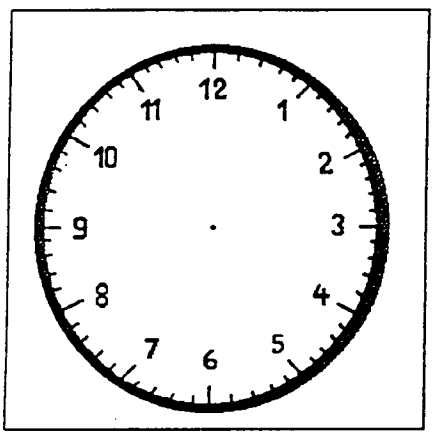
tasks:	d/m/e	tools:	made/bought
1.			
2.			
3.			

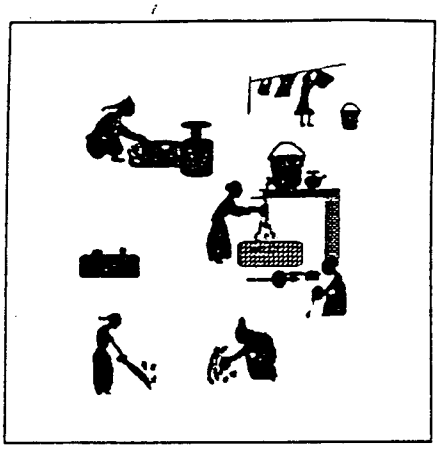
APPENDIX 4

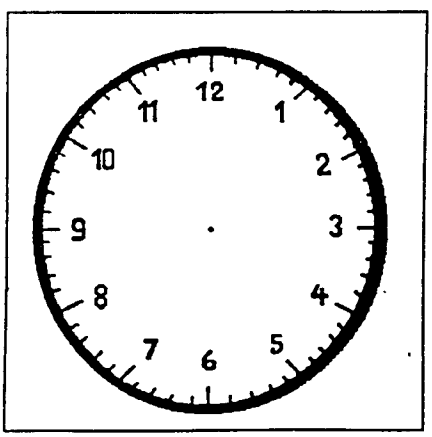
Time Use Record

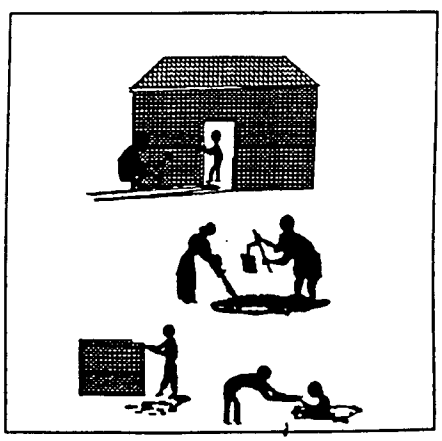

12
1
2
3
4
5
6
7
8
9
10
11

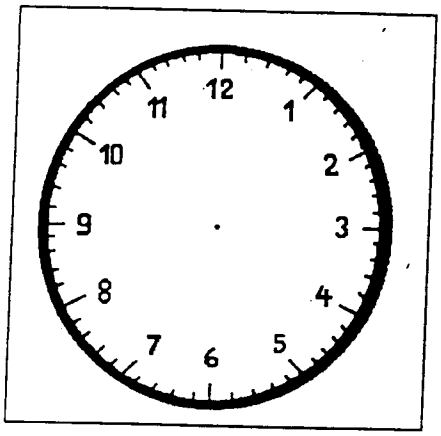


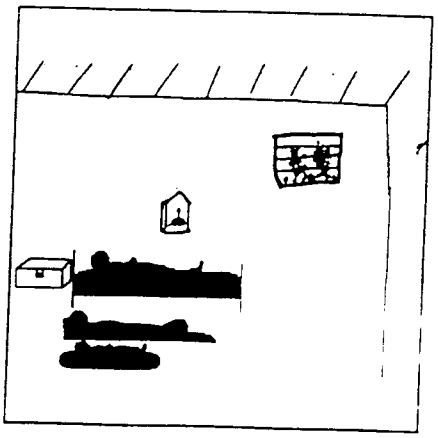

12
1
2
3
4
5
6
7
8
9
10
11

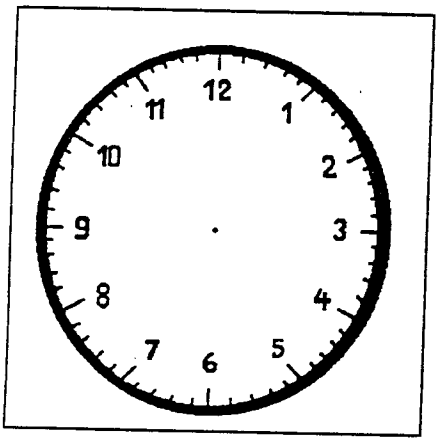


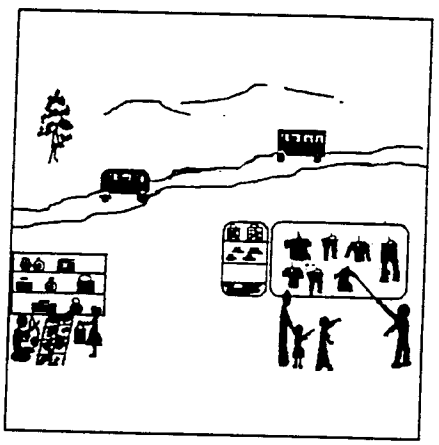

12
1
2
3
4
5
6
7
8
9
10
11

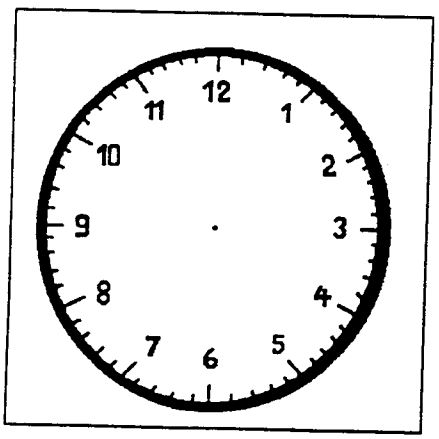


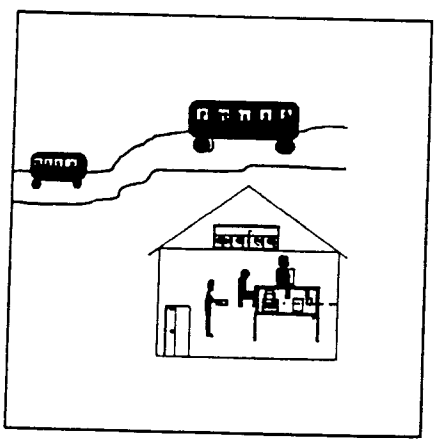

12
1
2
3
4
5
6
7
8
9
10
11

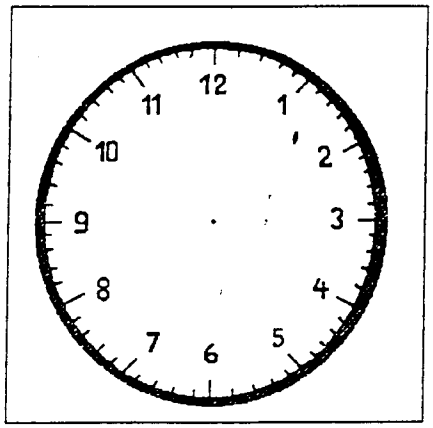


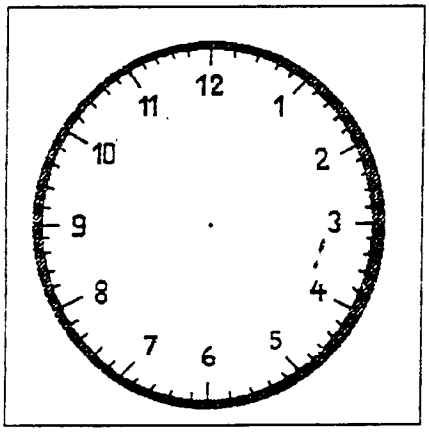

12
1
2
3
4
5
6
7
8
9
10
11

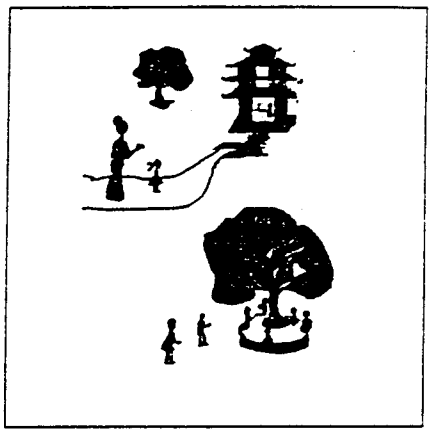


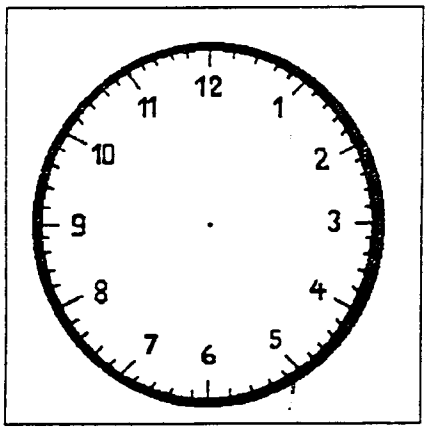

12
1
2
3
4
5
6
7
8
9
10
11

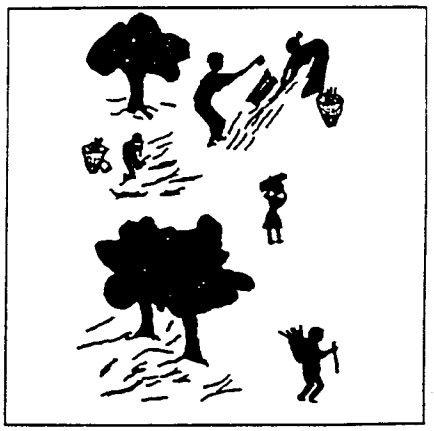


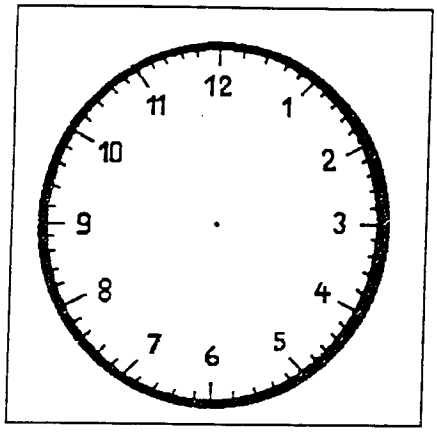

12
1
2
3
4
5
6
7
8
9
10
11

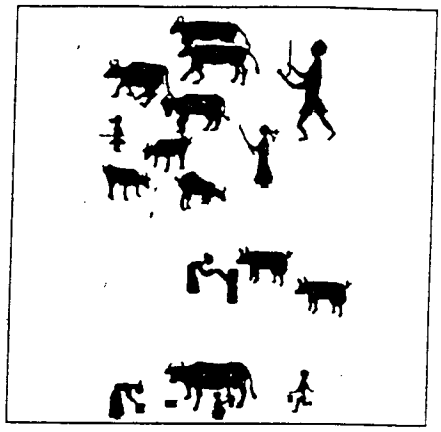

12
1
2
3
4
5
6
7
8
9
10
11

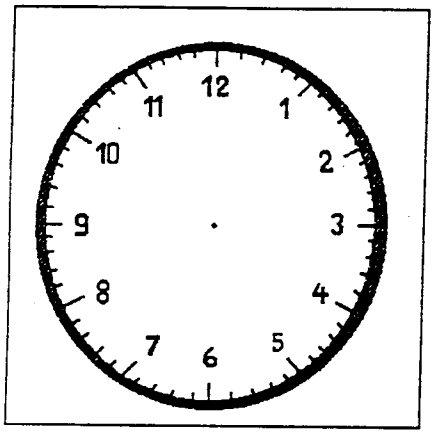


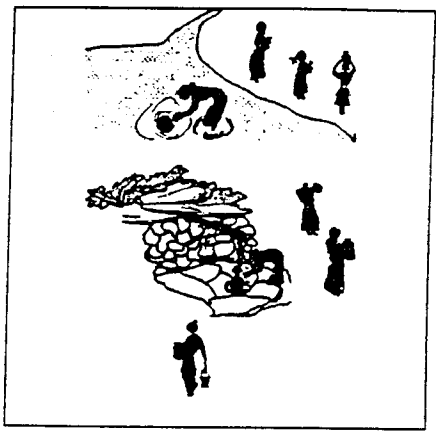

12
1
2
3
4
5
6
7
8
9
10
11

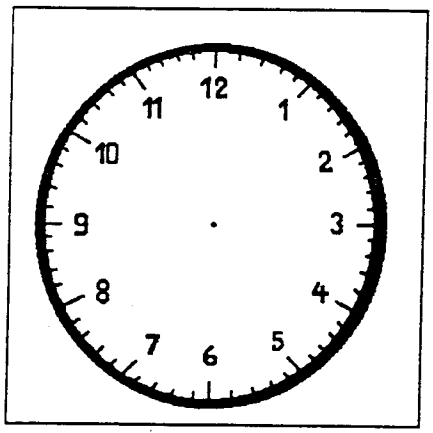


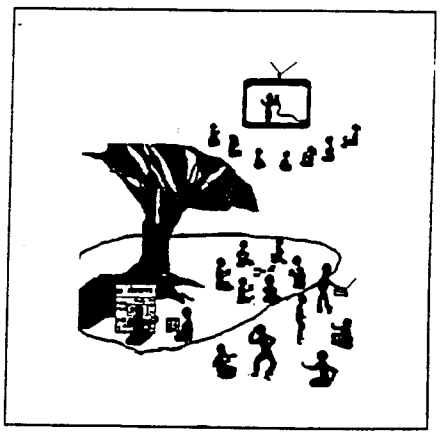

12
1
2
3
4
5
6
7
8
9
10
11

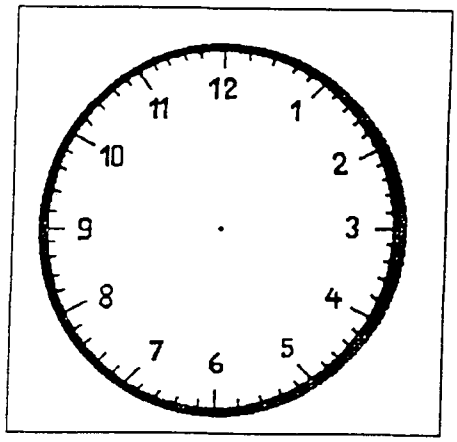


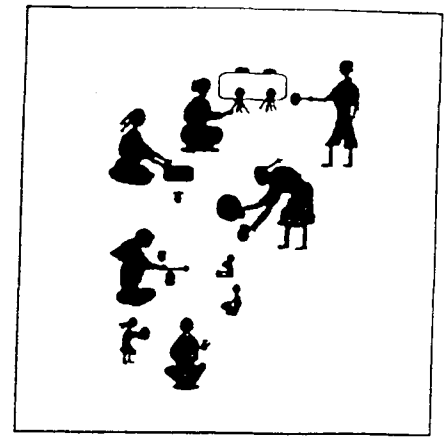

12
1
2
3
4
5
6
7
8
9
10
11

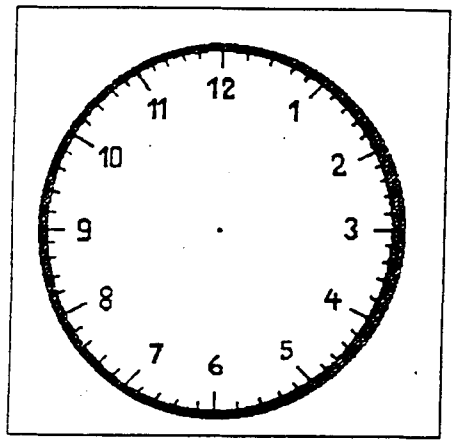


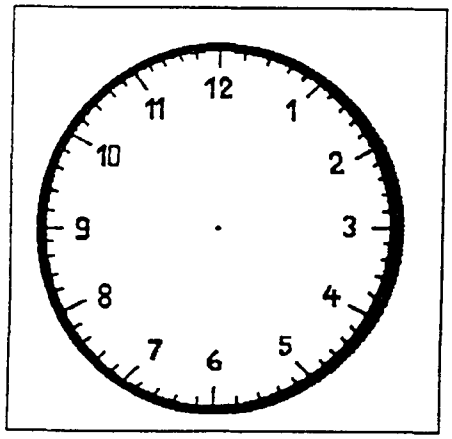

12
1
2
3
4
5
6
7
8
9
10
11

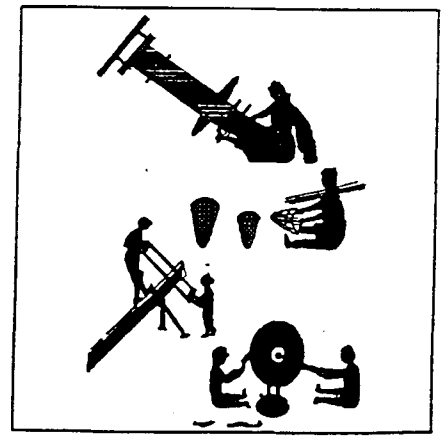


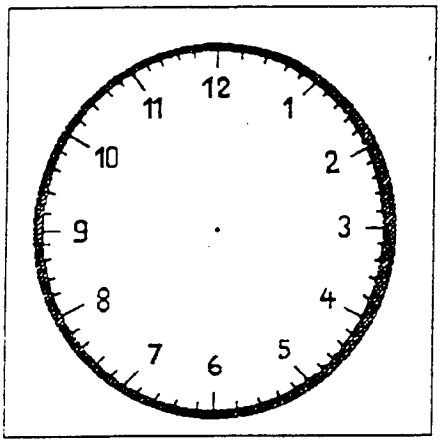

12
1
2
3
4
5
6
7
8
9
10
11

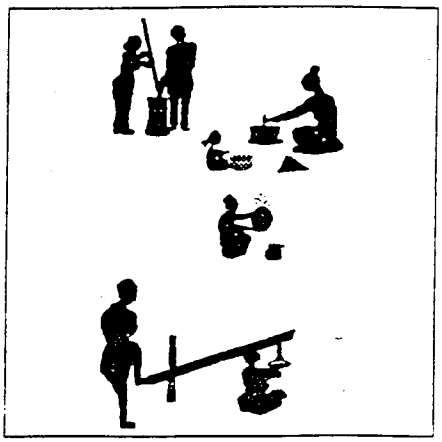


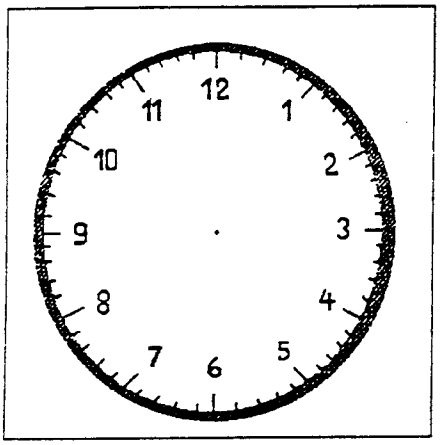

12
1
2
3
4
5
6
7
8
9
10
11

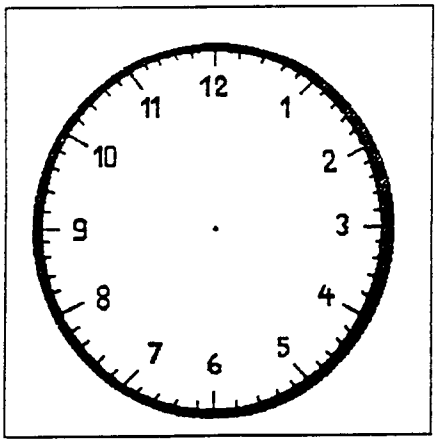

12
1
2
3
4
5
6
7
8
9
10
11




12
1
2
3
4
5
6
7
8
9
10
11




12
1
2
3
4
5
6
7
8
9
10
11


12
1
2
3
4
5
6
7
8
9
10
11

APPENDIX 5

Correlations

Correlation for Time Use

		ANIMAL	DECPOWER	LITERATM	LITERATF	INCOWORK	AGE	CASTE	GENDER	INCOME	FAMSIZE	CHILDREN	LANDSIZE
Pearson Correlation	AGE	.012	-.016	-.108	.025	.263**	1.000	.045	.012	-.024	-.002	-.005	.007
	CASTE	.306**	-.130	-.164	-.003	-.115	.045	1.000	-.030	.049	.000	-.371**	.039
	GENDER	-.006	-.055	.061	.107	-.378**	.012	-.030	1.000	.013	.032	.020	-.046
	INCOME	-.001	-.131	.055	-.101	.144	-.024	.049	.013	1.000	.400**	-.058	.743**
	FAMSIZE	.459**	-.126	.278**	.210*	.042	-.002	.000	.032	.400**	1.000	.304**	.354**
	CHILDREN	.209*	-.026	.039	-.068	-.067	-.005	-.371**	.020	-.058	.304**	1.000	-.121
	LANDSIZE	.009	.194*	-.003	-.045	.103	.007	.039	-.046	.743**	.354**	-.121	1.000
	ANIMAL	1.000	-.143	.212*	.191*	-.099	.012	.306**	-.006	-.001	.459**	.209*	.009
	DECPOWER	-.143	1.000	.056	-.091	.074	-.016	-.130	-.055	-.131	-.126	-.026	.194*
	LITERATM	.212*	.056	1.000	.252**	.022	-.108	-.164	.061	.055	.278**	.039	-.003
	LITERATF	.191*	-.091	.252**	1.000	-.038	.025	-.003	.107	-.101	.210*	-.068	-.045
	INCOWORK	-.099	.074	.022	-.038	1.000	.263**	-.115	-.378**	.144	.042	-.067	.103
Sig. (2-tailed)	AGE	.904	.871	.260	.798	.005	.	.643	.899	.805	.981	.961	.942
	CASTE	.001	.176	.087	.973	.231	.643	.	.752	.609	.997	.000	.684
	GENDER	.951	.570	.528	.266	.000	.899	.752	.	.889	.738	.835	.633
	INCOME	.990	.172	.570	.292	.133	.805	.609	.889	.	.000	.546	.000
	FAMSIZE	.000	.191	.003	.028	.660	.981	.997	.738	.000	.	.001	.000
	CHILDREN	.029	.790	.683	.478	.488	.961	.000	.835	.546	.001	.	.208
	LANDSIZE	.924	.042	.976	.638	.283	.942	.684	.633	.000	.000	.208	.
	ANIMAL	.	.135	.026	.046	.303	.904	.001	.951	.990	.000	.029	.924
	DECPOWER	.135	.	.564	.345	.445	.871	.176	.570	.172	.191	.790	.042
	LITERATM	.026	.564	.	.008	.821	.260	.087	.528	.570	.003	.683	.976
	LITERATF	.046	.345	.008	.	.692	.798	.973	.266	.292	.028	.478	.638
	INCOWORK	.303	.445	.821	.692	.	.005	.231	.000	.133	.660	.488	.283
N	AGE	110	110	110	110	110	110	110	110	110	110	110	110
	CASTE	110	110	110	110	110	110	110	110	110	110	110	110
	GENDER	110	110	110	110	110	110	110	110	110	110	110	110
	INCOME	110	110	110	110	110	110	110	110	110	110	110	110
	FAMSIZE	110	110	110	110	110	110	110	110	110	110	110	110
	CHILDREN	110	110	110	110	110	110	110	110	110	110	110	110
	LANDSIZE	110	110	110	110	110	110	110	110	110	110	110	110
	ANIMAL	110	110	110	110	110	110	110	110	110	110	110	110
	DECPOWER	110	110	110	110	110	110	110	110	110	110	110	110
	LITERATM	110	110	110	110	110	110	110	110	110	110	110	110
	LITERATF	110	110	110	110	110	110	110	110	110	110	110	110
	INCOWORK	110	110	110	110	110	110	110	110	110	110	110	110

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlation for Expenditure

		AGE	CASTE	GENDER	INCOME	FAMSIZE	CHILDREN	DECPOWER	LITERATM	LITERATF	SICK1
Pearson Correlation	AGE	1.000	.012	.020	.172*	-.040	-.258**	-.079	-.006	-.012	.314**
	CASTE	.012	1.000	-.096	.024	-.037	-.146	.046	-.227**	.184*	.035
	GENDER	.020	-.096	1.000	-.005	-.036	.036	-.069	.057	-.099	.042
	INCOME	.172*	.024	-.005	1.000	.374**	-.300**	-.276**	.146	.249**	.146
	FAMSIZE	-.040	-.037	-.036	.374**	1.000	.393**	.023	.264**	.358**	.078
	CHILDREN	-.258**	-.146	.036	-.300**	.393**	1.000	.193*	.020	.257**	-.068
	DECPOWER	-.079	.046	-.069	-.276**	.023	.193*	1.000	.058	.339**	-.073
	LITERATM	-.006	-.227**	.057	.146	.264**	.020	.058	1.000	.260**	.020
	LITERATF	-.012	.184*	-.099	.249**	.358**	.257**	.339**	.260**	1.000	.004
	SICK1	.314**	.035	.042	.146	.078	-.068	-.073	.020	.004	1.000
Sig. (2-tailed)	AGE	.	.889	.808	.039	.634	.002	.343	.944	.889	.000
	CASTE	.889	.	.249	.772	.657	.080	.585	.006	.026	.672
	GENDER	.808	.249	.	.956	.670	.666	.408	.494	.237	.612
	INCOME	.039	.772	.956	.	.000	.000	.001	.080	.003	.081
	FAMSIZE	.634	.657	.670	.000	.	.000	.786	.001	.000	.350
	CHILDREN	.002	.080	.666	.000	.000	.	.020	.809	.002	.416
	DECPOWER	.343	.585	.408	.001	.786	.020	.	.486	.000	.380
	LITERATM	.944	.006	.494	.080	.001	.809	.486	.	.002	.811
	LITERATF	.889	.026	.237	.003	.000	.002	.000	.002	.	.959
	SICK1	.000	.672	.612	.081	.350	.416	.380	.811	.959	.
N	AGE	145	145	145	145	145	145	145	145	145	145
	CASTE	145	145	145	145	145	145	145	145	145	145
	GENDER	145	145	145	145	145	145	145	145	145	145
	INCOME	145	145	145	145	145	145	145	145	145	145
	FAMSIZE	145	145	145	145	145	145	145	145	145	145
	CHILDREN	145	145	145	145	145	145	145	145	145	145
	DECPOWER	145	145	145	145	145	145	145	145	145	145
	LITERATM	145	145	145	145	145	145	145	145	145	145
	LITERATF	145	145	145	145	145	145	145	145	145	145
	SICK1	145	145	145	145	145	145	145	145	145	145

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).