TIME USE STUDY: EXPLORING THE LINKAGES BETWEEN WELL BEING AND CLIMATE CHANGE, A CASE STUDY OF FARMING COMMUNITIES IN NORTHERN PHILIPPINES

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ABSTRACT

The study looked at the work and well-being of women and their households in selected communities in the Cordillera Region, Northern Philippines. It employed gender analysis of paid and unpaid work using time use framework. Using time use diary and stylized time use questionnaire, coupled with focus group discussions and in-depth interviews, findings show that households are continuously exposed to health and well-being risks and heightening 'unpaid work' scenarios which extends to the bigger community through rendering of voluntary service. A detailed picture of how members of a household spend their time during the day is revealing of gender disparity. Another area where gender difference is apparent is in terms of leisure time. Leisure for women also means doing simultaneous work. The 'integrative' roles played by women – is that they are to assume roles that are 'voluntary' to enable the continuity of survival inside and outside the homes. Women consistently figure in taking on the responsibility of community care. Overall, certain climatic changes poses constraints and limitations to households. Crops planted by these farming communities are highly vulnerable to climate changes. It is also an area where women's resilience are negotiated but at the same time where women's vulnerabilities are heightened. The understanding of these complexities of a 'normalized' and ignored situation calls for a framework that do not take out the women's work in the farm in isolation from the work women perform at home and in the community. These findings unpack layers of unpaid work yet necessary activities to sustaining lives of households and communities.

INTRODUCTION

The Cordillera Region of the Northern Philippines is home to more than 1.4 million indigenous peoples. Like the rest of the country, it has not been spared from series of disasters, directly or indirectly caused by certain climate change scenarios. Its mountainous fragile ecosystem characterized by an undulating to rugged topography constantly exposed to extreme rainfall makes it uniquely vulnerable to climate change.

In 2001, Baguio City and La Trinidad, Benguet experienced extraordinary landslides triggered by record breaking hour rainfall of 1,085.5 mm (Greenpeace, 2007). In 2009, the fury of typhoon Pepeng hit Northern Luzon, bringing millions of damages to the region. In 2002-2003, the vegetable belt areas of Benguet and Mountain Province experienced leaf miner menace, considered a major crisis which is on top of the felt differential effect of agricultural liberalization.

The occurrence of new pests and diseases in the agricultural sector has been hypothesized as caused partly by climate change. For leaf miner, it came side by side with powdery mildew and which usually occur during hotter season. The actual safety nets for this crisis situation are women in the households, with them showing resilience in the face of economic

disenfranchisement (Sidchogan-Batani, 2004). And in the face of such crisis situation certain sectors take the burden. Gender studies show that women are further marginalized during economic downturns (Lim, 1998; Chatterjee, 2010; Floro and Beneria, 2010).

This study hopes to contribute to the ongoing conceptualization of research and development agenda that is gender sensitive. It is indeed an irony that women's work has been consistently underrepresented in many national statistics due to inadequacies in conceptualization, definition of terms and data gathering methods.

As climate change policy is actively being drawn, the study can be an input or can be a venue for dialogue. While exploratory in nature, it hopes to contribute to the on-going efforts of policy formulation with climate change as an important context.

Objectives of the Study

The study attempted to look at the work and well-being of women and their households in farming communities in the Philippines. The study:

1. Determined the nature of work and well-being of women and their households ;

2. Employed gender analysis of paid and unpaid work using the time use framework;

3. Assessed the resilience and vulnerabilities of women and their households vis-a-vis identified well-being indicators, and

4. Determined the implications of climate change to the well-being of women and their households in selected communities in the region;

The study was undertaken from December 2010 to October 2011. The field survey and focus group discussions took place during the months of January to March of 2011 and additional interviews to validate certain data sets in early 2012.

METHODOLOGY

Location of the study: The field surveys were conducted in the Province of Benguet, Cordillera Administrative region, Northern Luzon, Philippines. The study sites, namely Benguet State University (BSU) strawberry farm area in Betag in the municipality of La Trinidad, and Madaymen in the municipality of Kibungan.

Predominant product in Betag, La Trinidad is strawberry, and is dubbed as the 'strawberry capital of the country.' Commercial vegetables such as onion leeks, Chinese cabbage, lettuce, and broccoli are also produced. On the other hand, Madaymen is located in a rural setting in highland Benguet frequented by fogs and very cold temperature in later afternoons and early morning. Madaymen is known for commercial farming of vegetables such as potatoes, cabbages, carrots, radish and broccolis as well as cut flowers.

Data Collection Method

The study is descriptive and exploratory. It is exploratory as it looked at a cross sectional view of the work and well-being of the households, their vulnerabilities and resilience to specific climate change scenarios. It is also exploratory as it looked at in-depth at 'who does what' during the day, 'for whom and with whom' – the patterns and nuances of resilience and vulnerabilities of the households.

Using Time Use Diary (TUD) and Stylized Time-use Questionnaire (STQ), a total of 161 – 74 respondents for the TUD and 87 respondents for the STQ– participated in the time-use survey in Betag and Madaymen. Selected respondents were chosen for the three focus group discussions conducted as well as for the in-depth interviews.

Respondents of the study were purposively sampled. For the survey data, the Statistical Tool utilized was SPSS version 16. T-test was used to examine whether there is significant difference between sexes, across location and gender. Frequency and percentages were also used where items are classified accordingly and a count is made of the number of times it appears.

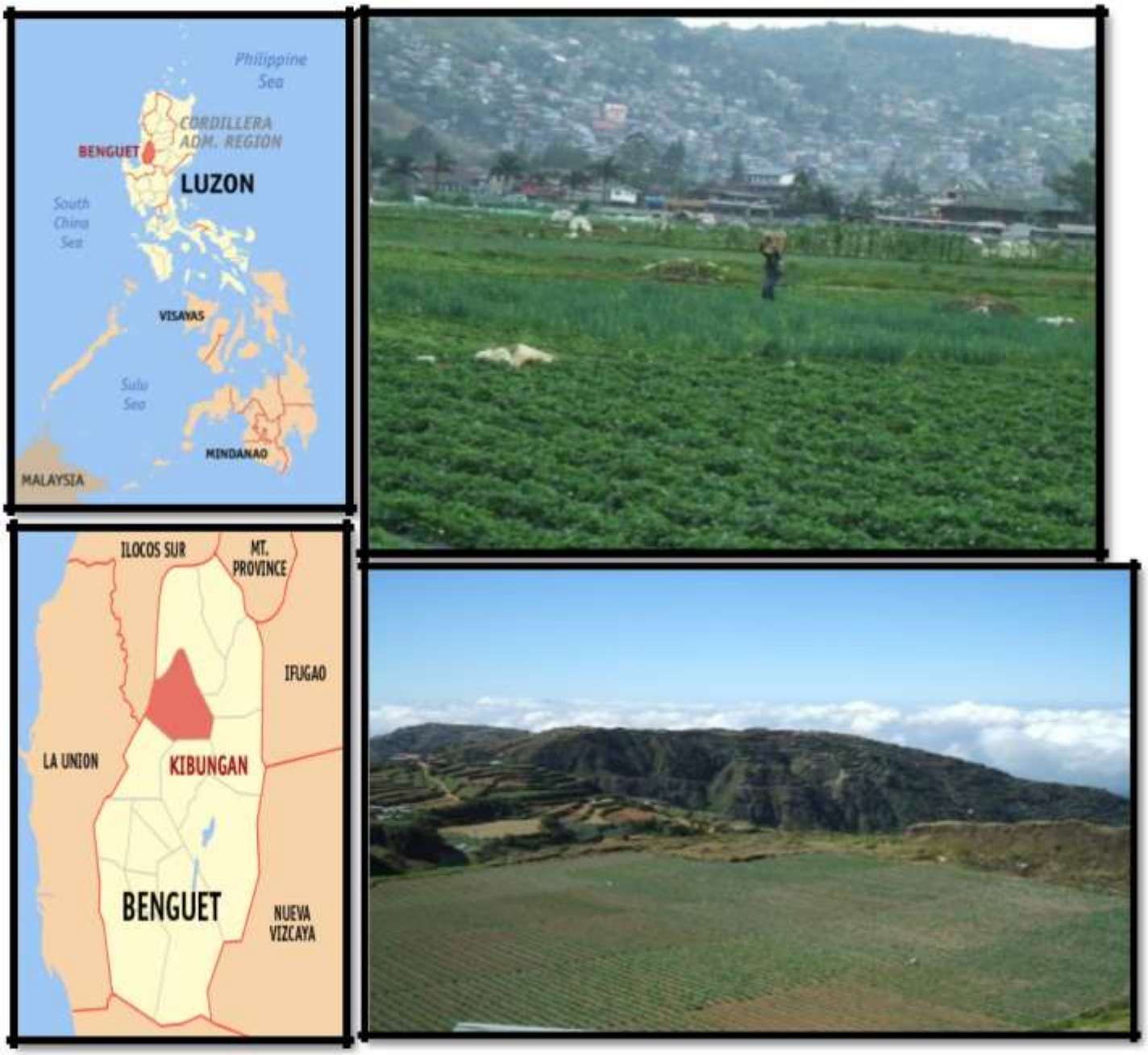

Figure 1.The study sites –BSU Strawberry Farms (right top) in Betag, La Trinidad and Madaymen (right bottom), Kibungan – Benguet, Cordil lera Administrative Region of Northern Luzon, Philippines

Survey Respondents: A slightly different picture of respondent's profile has been captured in the two instruments used. A more detailed presentation of profile can be gleaned from the TUD, specifically on occupation of respondents, revealing of farm arrangements that is more nuanced. Personal income instead of household income has also been asked in the TUD and more specific secondary sources of income has also been captured, as can be shown later in the discussions.

As far as time use is concerned, both STQ and TUD data would be complementary. In fact in the TUD, a more detailed day and night activities were recorded by the respondents themselves.

Ideally, STQ respondents should also be the TUD respondents but due to the nature of TUD instrument which is tedious and specific on details, only less than 50% of the diaries were retrieved.

The Changing Profile of Farmer-respondents.

Fifty-three (15 men and 38 women) in Betag and 34 (10 men and 24 women) in Madaymen responded to the STQ. There were more women respondents than men for both sites. For the TUD, 41 respondents were taken (18 men and 23 women) for Betag and 33 respondents (16 men and 17 women) for Madaymen.

Both Madaymen and Betag are destinations of seasonal migration of individuals-wanting-for-work. Betag is a barangay that seats in La Trinidad, the capital town of Benguet. It is just five kilometers away from the city of Baguio, the summer capital of the Philippines, which is one reason why respondents have more variable sources of income.

On the other hand, barangay Madaymen has been into commercial farming of highland vegetable for more than 50 years. The lucrative vegetable farming in Madaymen for decades (Russel, 1986) coupled by shortage in farmlabor, are perhaps the reason why Madaymen has been an attractive site for seasonal migration for lowland and neighboring mountain provinces for hired farm work.

Women are beginning to engage in cutflower production. Due to difficulty of getting income from farmers, household income came from per capita expenditure in the STQ. This method hoped to cushion the effect of modest income reporting. Also, income from farming households have certain assumed limitations: [1] income computation is per cropping; [2] income from sold products is fluctuating considering the behavior of market forces; and [3] income is not 'disposable income' as a farmer has to reserve part of it for the next cropping period.

From the STQ, monthly income reported ranges from 5,000 to 10,000 PhP (22% and 34%) with 10,000-15,000PhP coming next for Betag and P16, 000-20,000PhP for Madaymen (21.70%). Income ranging from 30,000 up are assumed to have changed on the occasional 'jackpot price' and/or because of secondary sources of income, such as formal employment or having household members employed as OCWs.

From the TUD data where personal income was asked of the respondents, one can sense a modest reporting, consistent with the reported household expenses. Betag respondents recorded a majority of them having a personal monthly income of less than PhP5, 000 at 29. %. Madaymen recorded higher at 15% with respondents having P10, 000-P15, 000 income. Monthly income of PhP15 to PhP20,000 comes next at 14.% for Betag with Madaymen recording 12% of the respondents reporting income above P25,000.

The farmer's failure to account for expenses in the farm inputs has already been noted in earlier roundtable discussions (HARRDEC, 2009, 2010). Yet, in the TUD, respondents allocated a considerable number of farm input costs in the pie chart.

Farm Dynamics

Farm arrangements slightly differ in the two sites. La Trinidad Valley respondents are concentrated in a University-owned farm area, so called – BSU swamp area which historically was a rice farm for students then under the American administration.

The swamp area has slowly transformed itself as site for experiments for strawberries and semi-temperate crops such as cabbage, potatoes, lettuce, and carrots, among others. Today, it is predominantly planted with strawberries, hence popularly dubbed, for tourist promotion as 'BSU strawberry farms.

The farm area is being tilled by farmer-partners. There are variations in the partnership. All of the farmer respondents pay an annual rent directly to the university.

Another case is the Sariling Sikap (self-help) program intended for BSU employees who sign a Memorandum of Agreement with the university and enter into partnership with farmers who are looking for farm to work. The farmers make a sub-leasing arrangement with the employee who directly enter into lease agreement with the University.

'Pa-suplay' credit scheme and farm labor relations: As commercial production involves several work and resource ownership categories, a look into the production relations, to use Boquiren's term (1989) is helpful in regards to the description of the dynamics

of Benguet commercial farms. Generally, classifications of farmers such as big, medium and small are based on land area being farmed, whether owned or rented as well as the access and control over capital and labor resources. As far as the study is concerned, respondents are classified into small and medium farm operators only. Small farm operators, refer to women and their households who own the land they till, but may not have the capital for production. Most of the farmers encountered in Madaymen belong to this category, with average landholdings of ½ of a hectare to 2 hectares. Leasing of lands for farming is also common.

'Por dia' workers are largely women dominated. This is true in Betag as elsewhere. An interesting note here is that there is wide demand for this kind of labor power where these women do not need to move around to sell their labor. Usually these women just sit in a specific site – oftentimes a visible neighborhood store/ canteen, at a particular time of the day. Through word-of-mouth, they are directed to go to a particular farm site for work. Others are fetched or picked-up by farmer-operators, looking for hands to help.

The labor intensive nature of commercial farming is seen in the study site. Production of vegetable farming, unlike rice farming, is very labor intensive. Data from the Bureau of Agricultural Statistics, for instance show that potato production eats up 180.4 working days/ hectare/ cropping.

Perception of Health and Well-being and Changes in Quality of Life

The STQ asked farmers' perception of the well-being and changes in quality of their lives over time. The WeD or Wellbeing in Developing Countries broadly outline the concept of wellbeing as 'doing well-feeling going and doing good and feeling well' (White, 2009) which connotes material well-being and expresses the 'subjective' even moral dimension of wellbeing. It also connotes 'ones place in the world – which is critically associated with how one is in relation to others.' It is a process, realized through the 'work' people put into making meanings out of their lives (White, 2009).

In terms of overall quality of life, higher percentage of the respondents perceived quality of their life as negative – *i.e.*, life is worse off compared to five years ago – in Betag than Madaymen. In Betag, half of the respondents say so and there is no significant difference between the views held by men and women.

Only about quarter of the Madaymen respondents felt the quality of their lives deteriorated over time. Thirty-five percent of the Madaymen respondents and 18 percent of the Betag respondents said their life has better quality now; the rest answered 'same as before.' When asked the question 'what is the first item to go when budget is not enough' they say 'food.'

Interestingly, group discussions reveal that budget for health expenditures is only incidental. If ever there are savings, then this is for education and for agricultural inputs.

Looking at the specific indicators, respondents in Betag felt the deterioration in quality of life in terms of material well-being(*e.g.*, income, food security, livelihood and material investments) and in terms of time well-being (*i.e.*, balanced time between work and leisure – both personal and family time) and security (*e.g.*, personal safety, security of resources, and security from disasters). Being small scale farmer operators and seasonal migrants might be the reasons for feeling that life has become more difficult. They pointed out the soaring of prices of the household materials as well as farm inputs.

Commercial vegetable farming has always been a 'game of chance' with volatile prices of farm product. It is often heard that commercial farmers can go bankrupt (*makulap)* in the same way that they can get rich overnight with jackpot market price.

From the accounts of farmer respondents they no longer experience jackpot price compared to the past. They say that in three cropping cycles at least one cropping with good market price gets to make-up for the losses. Farmers point to market control of traders as well as climate changes. This is on top of the increasing price of farm inputs – which does not compensate labour input and other costs. Two farmer respondents even said that climate change is not their problem but the low price of their products compared to the skyrocketing

prices of farm inputs and other commodities. A wide number of literature have been reiterating the need for subsidies to farmers. (Sidchogan-Batani,.2002, 2004; Gimenez & Bagyan, 2008) but is not being realized so far.

The respondents in Betag perceived their health – both physical and mental – and freedom of choice and action have remained as is, over time. A common theme from the respondents stories points to their desire for their voices to be heard, especially in the price command of their products in the market. Freedom of choices and action in the language of the indigenous peoples refers to self-determination or participation in decision making and other governance aspect (Cordillera People's Alliance 2004, 2009).

Unfortunately, farmers' voices seem not to be given space. Part of the explanation is traced back to the liberalization policy in agriculture specifically the Agreement on Agriculture (AoA) that swept the vegetable farms in Benguet. The actual safety nets in the context of liberalization have been the households themselves (Sidchogan-Batani *et al.,* 2004).

For Madaymen, the percentage of those who perceived the deterioration in terms of time and health well-being is slightly higher than those in Betag. Thirty-eight percent of the respondents in Madaymen felt they have less family, personal and leisure time. Closer conversations show occupational stress such as burn out and other state of emotions articulated by teacher-farmer respondents. The rebellious attitude of children to their parents and complains on delinquent children are raised. This adds stress to women in the households.

Health concerns. Common health problems raised among men are back pains from farming while women's problems are wrist and hand pain mainly occupational work such as weeding, re-planting, and de-foliaging, and domestic chores such as washing and cleaning. Much of these body pains are however considered as 'normal farmer complains' which limits regular accessing of health care institutions. This is even so in urban setting Betag; farmers have more options of health care facilities but don't utilize them. Again, this kind of attitude can partly be explained via the cultural, that is, the curative attitude as against preventive.

Due to work demand and the risks of commercial farm investments, respondent seldom pay attention to their health conditions. Women in FGDs in both sites stated that even where health care facilities are available before women thinks of check-up, she is already thinking of time wasted. Probing further reveals that a difficulty in terms of time is prevalent, especially in relation to the felt 'stress' as expressed by women respondents. Stress has become an idiom when seen in the context of commercial farming. When one invests in farming for the market, farm income is not disposable as one has to set aside for the capital needs in the next cropping. Thus, commercial farming with capital invested drives farmers keep on working in the farm. This puts respondents as oversubscribing to time. When asked if budget is set aside for health purposes, respondents say that *"umuna pay diay mausar ti garden bago dayta para salun-at"* budget for the farm comes first before health savings.

The commonly cited illnesses among farmers are respiratory tract infections (Figure 2). Respondents perceived these recurring more frequently. This is consistent with the Provincial Health Office (PHO) data which identifies upper respiratory tract infections and water-borne diseases drastically increasing between 2005 and 2010. Laboratory tests likewise point to polluted water resources – thus drinking water is increasingly become unsafe – as articulated by the PHO officer in Betag interviewed.

The identified cause of these respiratory problems is climate related in connection to anthropogenic causes of climate variability such as pesticide and fertilizer application. Adding to respiratory problems are digestive and muskuskeletal problems. Laurean (2009) has shown that La Trinidad water samples for both domestic and irrigation uses are positive of *Eschericia coli* and *fecal coliform* which was quite high during the dry season months. The study associated this with frequent famer complains of symptoms such as muscle pain, weakness, blurred vision and headaches.

Spirituality and relationship to others. As already shown, notions of well-being are not limited to the above dimensions. As shown from qualitative data, 'relationship with others' and 'emotional lightness' matter as well. The good relationship with others seems to be a resounding concern; as several respondents

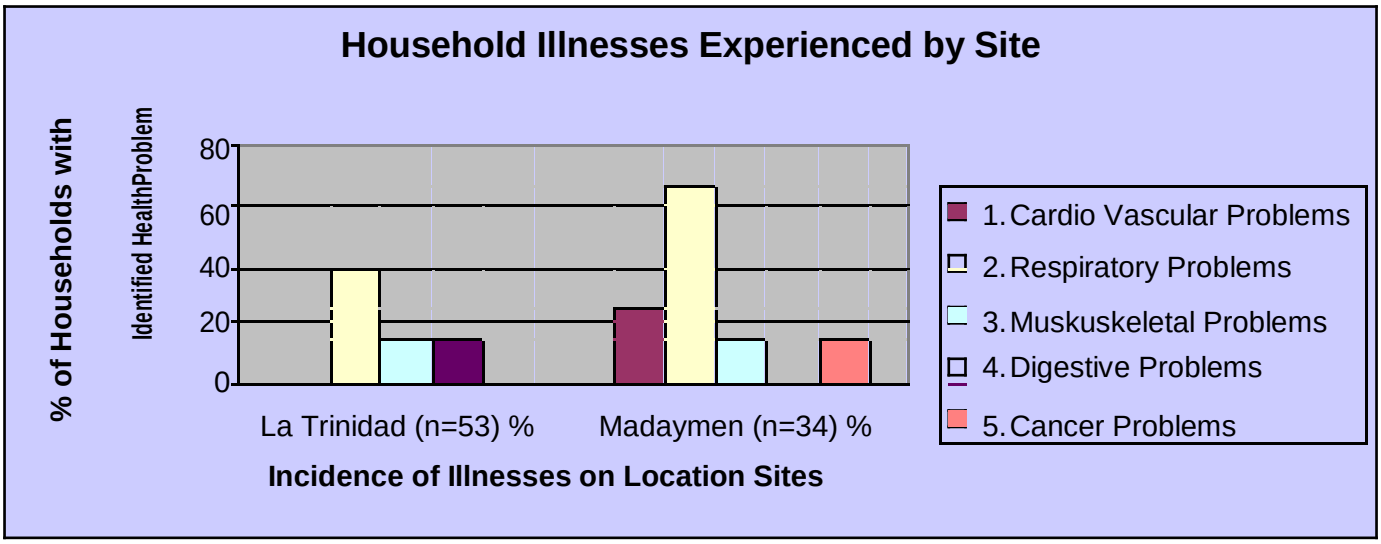

Figure 2. Commonly cited illnesses among farmers

would say "even if you have the material resources, if you don't maintain good relations to your family and neighbors, then life is useless." Several women respondents lament workload as one hindrance to regular visits to relatives or to clan gatherings or even to 'conversations' with neighbors and friends.

It is also noted in Madaymen that the occurrence of youth suicide is in the context of severed or disturbed 'relationships.' Respondents also say that one is healthy as long as one can get up and work. Two women respondents lament their anxieties of 'wanting to do and yet unable to do due to 'very limited time.' Time poverty is looked at as one cause of their failure to visit relatives or even 'conversations with neighbors' and participation to other socialization activities that has implications to building and sustaining relationships. Respondents do not dichotomize well-being as ascribed or achieved but rather their notions fall in a continuum of luck, work, relationship with the community, and spirituality or even relationship with the 'unseen.'

Time Use Study

This chapter summarizes the findings from two time-use survey instruments – the STQ and TUD. Qualitative data is presented to shed light to certain issues and to put more details to work participation. In this study we follow the UN definition of unpaid work, which is any productive endeavor that is seen at the household level which includes "subsistence production of goods for their own households and non-economic activities such as domestic work, family and elder care…volunteer work for which individuals receive no remuneration" (UN, 2000:109).

Leisure in the study was framed after the definition of discretionary time (Hsin, 2007), that is, leisure do not include personal care, sleeping or eating. Another category used is 'informal work' which is a very broad category. For purposes of the study, we again follow the definition commonly used in surveys but also expand its definition to include household enterprises.

Allocation of time – work and leisure

Work, generally is defined as activities where time and energy is expended. In understanding the contribution of men and women to the economy, understanding unpaid work is essential as the system of national accounts fails to recognize it and where women's contribution to the economy is hidden.

Unpaid work usually includes reproductive or domestic, care work and voluntary work at the household and community level. In the country's 2010 Census of Population and Housing, the occupational standard classification used for housekeepers among others, is 'non gainful' occupation.

This perspective views the household as being a consumer of goods and services which goes against Elson's argument of households as producers of goods

and services (1999; 2010). Yet, these are activities necessary for the households to function or for the community to sustain itself. In a study by Elson (1999, results reveal that the value of unpaid work can be equivalent to at least half of a country's GDP. As reiterated by UNDP (2009), because unpaid care work is unevenly distributed between men and women, it is important to understand its magnitude, dynamics and impacts.

Weekly paid and unpaid work by sex is summarized in Table 1. Unpaid work refers to domestic work and other productive work that is confined within the household. Leisure time refers to personal activities and following the ICATUS (International Classification of Activities for Time Use Studies) , usually has care activities (supposedly personal and therefore non-productive) - hobbies and other past time activities including use of media such as radio, television.

Personal care and maintenance in the study has been treated as incidental. One can infer that recorded unpaid work time for women is far greater than men at an average of 24.69 per week as against 13.28 for men. Correspondingly, paid hours of work for men are 56.44 while for women is about 43 hours per week.

T-test was conducted to examine whether difference between men and women in terms of paid and unpaid work hours iws statistically significant or not. T-test results validate the inequality in both paid and unpaid work hours (see Annex Tables 01 & 02).

Similarly, in the TUD data (Table 2), counting the total number of paid and unpaid work hours show a disparity between males and females where there are more paid hours per week for men as against women. For unpaid hours, women recorded almost twice unpaid hours of work than their male counterpart.

There is indeed difference in time allocation between genders. In Figure 2, we can see that as leisure peaks for women, unpaid work seems to catch up with it- from 7:00 to 9:00 in the evening. In short, 'leisure for women' would mean doing other productive things such as child care, helping child with homework, to name a few. For males, leisure seems to be leisure only.

Table 1. Paid and unpaid work hours per week by sex in Betag and Madaymen: STQ respondents

	BETAG		MADAYMEN	
RESOURCES	MEN	WOMEN	MEN	WOMEN
STQ respondents (n)	15	38	10	24
Paid Hours per Week	59.95	50.73	59.09	43.73
Unpaid Hours per Week	17	36.52	15.65	37.37

Table 2 Paid and unpaid leisure hours per week by sex in Betag and Madaymen: TUD respondents

	BETAG		MADAYMEN	
RESOURCES	MEN	WOMEN	MEN	WOMEN
TUD Respondents (n)	18	23	16	17
Paid Hours per Week	58.86	48.92	47.87	30.64
Unpaid Hours per Week	11.75	20.22	8.85	25.80
Leisure Hours per Week	8.79	3.48	4.35	3.88

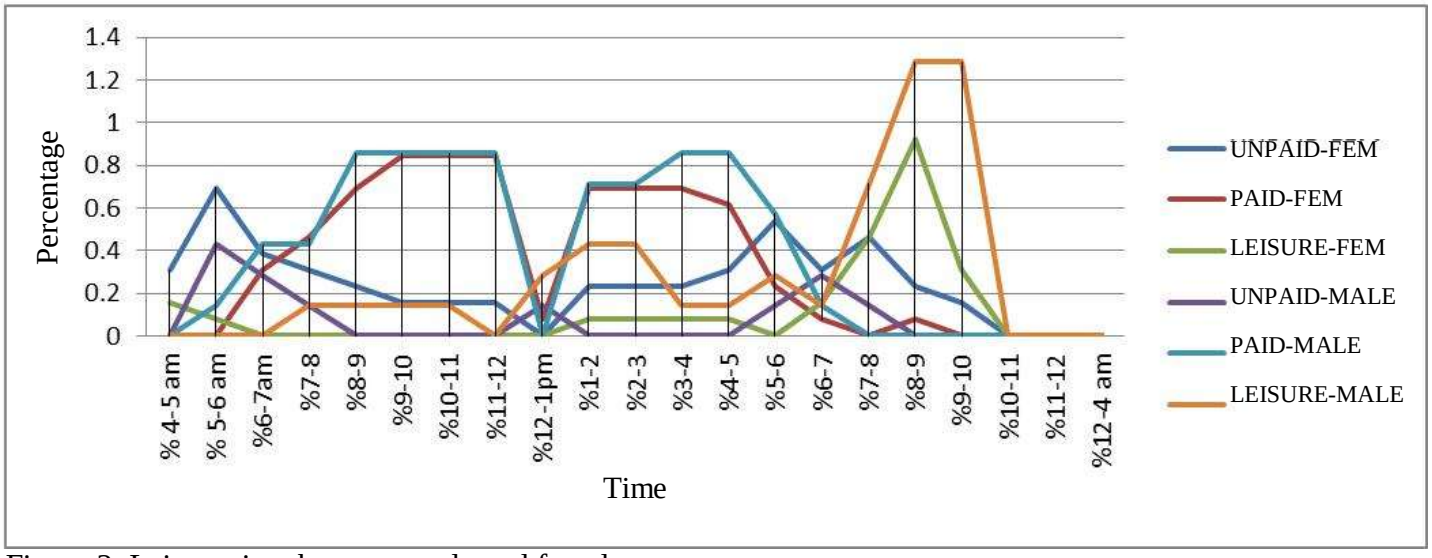

Figure 2. Leisure time between male and female

The same is true for Madaymen. For males, leisure is enjoyed between 8:00 to 11:00 in the evening even while unpaid works slightly appear between 4 to 8 in the evening. Again, females enjoy leisure between 6:00 to 9:00 in the evening but with unpaid work catching up with leisure even extending up to 10:00 in the evening. This means that leisure and unpaid work are overlapping activities. Informal interviews also reveal that there is actually no leisure as it is done simultaneously with other work. TUD data show that there is 'no leisure alone' for Madaymen respondents. Also, the grouping of 'leisure' for the TUD data includes 'religious activities and 'sitting with family' which male respondents do not show. On the other hand, religious activities and sitting with family seem to increase hours of leisure for females too.

Paid work

Work in paid and unpaid can substitute each other (Medeiros & Costa, 2005) and in the study, it was shown that women have constraints in doing paid work as unpaid work seem to get into the way. In the paid work category of Betag (see Table 3), females are outran by males in terms of paid work participation. Males are already into paid work (farming) as early as 4:00 in the morning. Women are still home, doing unpaid (domestic) work. Between 7:00 AM to 4:00 PM women are already fully participating in paid work either formal, farming or informal work and only when domestic work is done in the mornings and before domestic work in the afternoon till evening starts. Unpaid or domestic work is also quite long, from 4 to 10:00 in the evenings.

When disaggregated, paid work category can be broken down to farming, informal and formal work. Gender analysis of informal work, which includes contract- output based farm work or por dia that is daily paid farm work and other activities such as strawberry cooking and packing and vending, show that females show greater participation here from 6:00 AM to 6:00 PM whereas male participation is only in the mornings from 9:00 AM to 11:00 AM. A significant decrease is observable in the afternoon only one male respondent to have engaged in informal work from 3:00 to 4:00 in the afternoon as against the females who were able to maintain their participation from the morning to early evening. The presence of women in informal work is more than 10 hours per day. What could explain for this is that strawberry packing as well as strawberry cooking is done during the evenings and early mornings, respectively. During summer when tourists flock the strawberry farms, selling and strawberry picking can run up to early evenings. Participation of women in informal workers in Betag reaches its peak between 10am and noon in the morning and 1-2pm in the afternoon. This is probably because of Betag being largely dictated by a tourist demand driven agricultural business. Participant observation in the location would reveal women sitting side by side cleaning and packing strawberries for street

Table 3. Total paid hours by activity in Betag

ACTIVITY **ACTIVITY**	PAID HOURS TOTAL PAID HOUR Female **Female** n=38	Male* **Male** n=15	Total **Total**
Harvest	94.4	226.9	321.3
Planting	4.5	637.2	41.7
Spray	31.5	78	109.5
Weeding	186.5	229.9	416.4
Potting	0	5.5	5.5
Manuring	29	26.5	55.5
Watering	58	128.6	186.6
Cultivate	14.5	74.5	89
Sell Produce	99.5	15	114.5
Pack Produce	277	8	285
Cut Bamboos	2	41	43
Prepare Cartoons for Produce	0	7.2	7.2
Formal	143	108	251
Delivery	16	7.2	23.2
Drainage Maint	6	14.5	20.5
Food Process	32.5	10	42.5
Carpentry/Construction	17	3	20
Handicraft	1	0	1
Purchase Livelihood Needs	58	7	65
Other Informal	0	48.5	48.5
Total	**1070.4**	**1076.5**	**2146.9**

*male respondents have reported atleast one farm worker

The same is observed in Madaymen (Table 4) - males start paid work at 5:00 in the mornings and females start between 6:00 to 7:00 AM. Both genders are very active in farming. When paid work is disag-gregated to farming and informal work , females record participation in informal work for almost the whole day, while that of males show only participation in the mornings.

What could explain for this is that males are into '*kontrata'* farm work which is output-based and hence, they can actually shorten the number of hours spent on a particular work. For example, holing of plots or hill-ing-up can be done for one half day.

In terms of informal work, males start working between 5:00 to 6:00 in the mornings until noon time; on the other hand, women start an hour later around 6:00 to 7:00 in the mornings, but will continuously work till 6:00 in the afternoon. As to farming, more males engage in farming at 71% while only 38% women respondents do farm work.

Like their Madaymen counterpart, Betag women are also into formal work and are also into farming and are very much involve in informal work. As shown on Table 3 above, females are twice present in the informal sector. Women are also reportedly working until 9:00 in the evening. What explains for this is that it is the women who are into food processing – such as strawberry jam and preserve cooking.

Table 4. Total hours for paid work in Madaymen

WORK	TOTAL PAID HOURS Female n=24	Male n=10	Total
Harvest	5	11.5	16.5
Planting	117	101	218
Spray	0	105.5	105.5
Weeding	146.5	115.5	262
Manuring	13	44.5	57.5
Watering	25.5	44	69.5
Cultivate	101.5	159.5	261
Pack Produce	1	21	22
Formal	96	0	96
Delivery	0	9	9
Drainage Maint	0	25.5	25.5
Carpentry/Construction	0	54	54
Purchase Livelihood Needs	0	12.5	12.5
Other Informal	2	26	28
Total paid	**507.5**	**728.5**	**1236**

Formal work in the above table is observable. This is because office workers, teachers or security guards are also farmers after office hours. For both males and females, informal work seems to be outpassed by farming – both males and females are actively involved on it. Informal work still finds women dominant.

In the TUD data, hours spent on paid work record males as having more hours at 728.5 hours as against 507.5 hours for women– which includes farming, informal work and formal work. For Betag, the total hours for paid work for females is 1070.5 hours while males recorded 1076.5 hours (see tables 3 and 4 respectively).

Unpaid work

Evidently, women participate in all identified unpaid domestic work (except for the care for the elderly which has not come out in the data) in all six items, feeding children, cooking, laundry, feed animals, cleaning and fetching.

Males have selected participation in unpaid work, as can be shown in the ensuing discussions. TUD data show that in Betag, five or 22% say they spend six to 10 hours a week and another four or 17% say they spend 11-15 hours of unpaid work in a week. Still another 4 or 17% say they spend about 30 hours/week of unpaid work.

Madaymen STQ data show that women spend 21 to 30 hours (29% and 24% respectively) a week on unpaid work but 18% also say that they spend 46 to 50 hours a week of unpaid work. About 31% males say they spend six (6) to 15 hours a week of unpaid work. Two or 13% say that they spend 26-30 hours/ week unpaid work. Out of 74 TUD respondents,
53 say that they do domestic chores alone. The breakdown of this number show that in Betag six of 38 say they do domestic chores in the morning with husband, daughter or relative; in Madaymen five of 33 say they do it with a daughter or a relative. Domestic chores is not treated as work; yet a woman's work starts at early in the morning and usually ends at 9 o'clock in the evening, an average of 15 hours of work except lunch break. It is also interesting to hear that most women complain of domestic work, which to them is non-stop. When ask what they prefer – farm work or domestic, an overwhelming answer from a FGD says they would rather do farm work.

Table 5 shows that for unpaid work hours in Madaymen, the items on care for children, fetching water and feeding of pets are interestingly absent. Females however figure in all activities: feeding children where women spend 29 hours a week; cooking where 178.5 hours are spent by women as against 42.5 by males. For laundry, women spend 80 hours a week against 14.5 hours spent by males. This is to be taken against the backdrop of both men and women engaging in paid work.

In the case of Betag (Table 6), the numbers of hours spent on unpaid work reveal a similar trend: higher frequency is seen between 11 to 15 and 26-30 hours of unpaid work respectively, with one respondent reporting 36-40 hours of unpaid work. This is against the reported participation of males in unpaid work where frequency is greatest at 1-5 hours and 16-20 hours. Unpaid work extends in the farm. It is widely acknowledged that small farmer owners use family labour in farm work. Majority of the respondents in both areas are small farm owners. In the study, it was seen that much of the work demanded by commercial farming comes from family labour.

There are instances when unpaid work is not fully captured due to the fact that other relatives, usually aunties or grandparents who live nearby, take care of children while their mothers work. Relatives or grandparents performing domestic and care roles are evident in the study. In Betag, while majority households record a nuclear set-up, a considerable number of households have brothers, sisters, parents or parents in laws who live in different dwelling units but in the same compound. This clustering in one place of relatives, somehow serves as social support system. Two respondents say that their parents or aunties in the neighborhood look after their children in the neighborhood. There is, therefore, somewhat a diffusion of the heavier toll of unpaid work to certain sectors of the community. Ironically, the official definition of the National Census of Statistics considers such relatives who render care work as 'non gainful occupation' (CPH-NSO, 2010). Yet, the literature points to the significant labor market effects of relatives caring for children (Marcotte, 2007).

Gender dynamics of leisure time

Almost always, leisure for women is simultaneously performed with other work. So that even with more women farmers of La Trinidad reporting 11-15 hours a week leisure hours, leisure comes with simultaneous activities.

Table 5. Total hours for unpaid work -per activity/week in Madaymen

	TOTAL UNPAID HOURS		
ACTIVITY	Female	Male	Total
Feeding Children	8.5	0	8.5
Feeding Animals	14	13	27
Cooking	178.5	42.5	221
Cleaning/Dishes	87	16.5	103.5
Laundry	80	14.5	94.5
Marketing	13	1	14
Care for Children	29	0	29
Care for Elderly/Sick	5	0	5
Fetch Water	54	11.5	65.5
Prepare for Paid Work	54	11.5	65.5
Total unpaid hours	**481**	**112**	**593**

Table 6. Total hours for unpaid work - per activity/week in Betag

ACTIVITY	TOTAL UNPAID HOURS Female	Male	Total
Feeding Children	15	1	16
Feeding Animals	10	2	12
Cooking	80.5	33	113.5
Cleaning/Dishes	138	104	242
Laundry	85	79.4	164.4
Marketing	47.5	17.1	64.6
Care for Children	68	5	73
Care for Elderly/Sick	31	22.5	53.5
Fetch Water	0	14	14
Prepare for Paid Work	0	1	1
Total unpaid hours	**475**	**279**	**754**

From Figure 3, one can see that in aggregate, a male respondent across occupation says he enjoys 21-25 hours leisure in a week time. This translates to about 3-4 hours daily leisure time. Highest leisure time for women is between 11 to 15 hours across occupation or an average of 2 hours a day. Overall, men seem to enjoy more leisure hours than women. More than two-thirds of women respondents, and of which all women informal workers, said they have leisure of 1-5 hours per week – or less than one hour a day. On the other hand, 44 per cent of men respondents said they have 1-5 hours of leisure a week, and another 44 per cent for 6-10 hours a week. Leisure hours that farmers enjoy are much less in Madaymen than Betag. All but a few enjoy 1 to 5 hours of leisure a week. Total leisure time for both genders show a not-so-big disparity. Upon closer examination however, leisure time in Betag and 'with whom it is spent with' show certain variability. 'Sitting with family' as part of leisure record women as spending it almost twice than men. Leisure alone also shows Betag males as enjoying it more than seven times than their female counterpart.

Leisure time for Madaymen, like Betag, is revealing of gender disparity. While the total leisure hour's record more hours for women as against men, disaggregation of data reveals (Table 7.) that the category 'leisure alone' is enjoyed by males while the females do not record any 'leisure alone.' Leisure time spent alone differs in the morning where some of them would just be sitting and drinking coffee or listening to the radio. During evenings, respondents say that they would be just sitting alone or with their families, watching movies/television, playing computer games or reading.

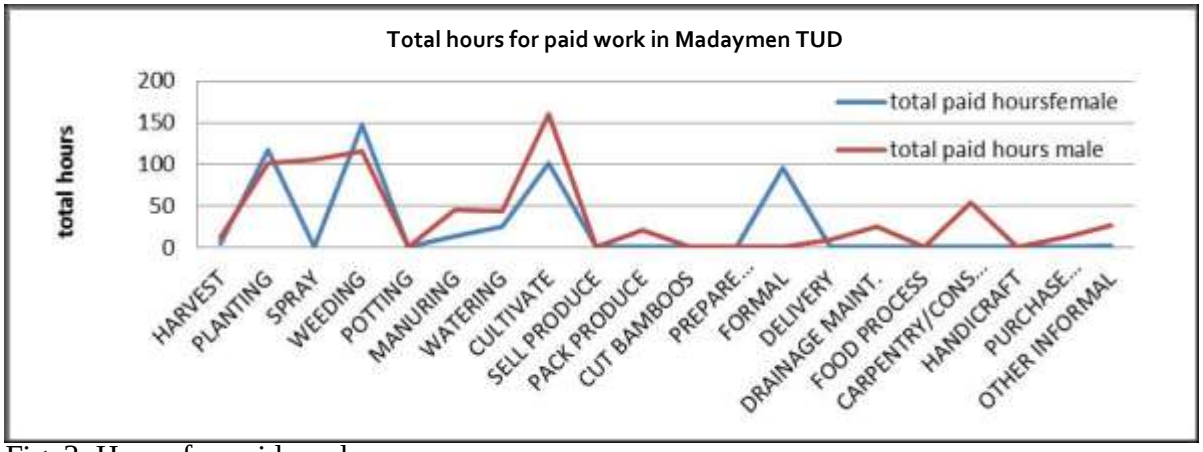

Fig. 3. Hours for paid work

Table 7. Total leisure hours in Madaymen and with whom it is spent with

TOTAL LEISURE HOURS IN MADAYMEN TUD					
Leisure	**Family**	**Friends/Relatives**	**Alone**	**Religious Act**	**Total Hours**
Total leisure hours female	42	5.5	0	53	100.5
Total leisure hours male	17.5	4	9	8.5	39
Total leisure	59.5	9.5	9	61.5	139.5

Leisure here can also be tricky. In addition to the fact that women spend shorter leisure time than men, one has to take into consideration of simultaneous performance of two or more task. For example, women are assisting children do their assignments while watching TV, according to women narratives.

Work Intensity and Simultaneous Work

This part of the paper presents work intensity adopting Floro's definition of work intensity as including length of work day (paid and unpaid) as well as overlapping activities that are considered unpleasant (Pitchetpongsa & Floro, 2010). This is measured in the study in terms of how the respondents 'feel' through a self-rating work intensity using a likert scale of light intensity to very intense.

With extreme weather, farmers at the time of the interview complain of more work therefore more pressure, which permeates into increased work intensity at home. In Betag, cleaning of canals, replacing rotten strawberry plants, as well as laslas (weeding and thinning of strawberry plants) becomes more frequent as a result of too much rain, and this is often women's job. Tunneling and regular opening of plastic tunnels also entail additional time. This is so since tunnels are makeshift and low cost substitute for green houses. This also means simultaneous work, whenever circumstances permit. In Madaymen, it has been observed that cabbage heads either grow immaturely or never grow at all. This has serious implications to income and work on farm. The pressure to look for alternative water source or investing on water pump is certainly draining too.

Qualitative data further show that women are time poor and lead a more stressed life due to more work in the farm which translates to more intense work in the domestic sphere. Betag respondents for example say they want to talk to their children and elderly parents but have always put it off due to catching up with farm work. By the time they reach home, they are too tired. Yet, they are still pressured to finish domestic work before taking the needed rest. Women laments that if domestic work is postponed, it will fall on them just the same. Additional farm tasks take toll on women's well-being specifically with simultaneous tasks becoming more intense. Children are looked after in the farm while doing farm work or retailing products to walk in tourists. Multiple tasks and simultaneous work are also happening in the domestic sphere.

Frequency of doing certain unpaid activities such as cleaning, laundry, marketing, care for children and cooking is evidently shouldered by women. This redundancy of domestic work, or as the women say 'non-stop nature of domestic work' somehow is assessed as 'boring and unending cycle' so that if women have the choice, they say "they would rather work in the garden as accomplishment is visible…' referring to the fulfillment one gets when a work is accomplished.

Also, care work both as a concept and social practice does not correspond exactly to the performance of a specific set of activities. Care is a state of devotion and involves emotion the fact that it comes with responsibilities, the affective more than the mindset. It involves attention, availability or watchfulness which is difficult to measure (Folbre, Yoon, Finnoff and Fuligni, 2005 cited in Carrasco & Serrano, 2011) and as found in the study, is a non-stop work. Despite the difficulty of capturing time spent for care, the study can deduce from the fact that households in these two farming communities do not consider looking after children as work as care for the young is always done with other tasks. Children that are not yet in school are brought to the farm sites and are left to play by themselves, especially in Madaymen farms are usually where the site of the residence is. Two women respondents say, "as long as 'children can crawl and play on their own, they are already brought in the farm."

Interestingly, hiring farm helpers is a welcome option. Respondents reason that work-on-farm cannot be postponed as the risks are too high considering the capital and other resource investments. A professional-farmer for instance says that there are times that he has to take a leave from his formal work – security guard – if his farm needs more hands to help land preparation or harvesting.

Apparently, more well off farmers can hire helpers for the farm not because of its cost but because it is more costly not to meet farm work due to labor limitations. Informal discussions with Madaymen farmers reveal that considerable number of medium-scale farmers maintain farm helpers. In the survey however, only one declared to have a farm helper. While Betag reported four farm helpers, probing reveal that these 'helpers' are family labour that includes relatives living with them. Occasional hiring of pordia workers as another option.

When asked if a house helper is needed, half of the respondents say it is wanted but the household budget cannot afford it. However, significant numbers of respondents answered the household work should/ can be done by the family members. Seven men (of total 25 men responded) see household chores and care work are given to his wife. Two women also said that women in the household can take care of it.

This is reflective of a patriarchal ideology. Others expect children and relatives to help.

Climate Variability and Possible Implications on Gender and Well-Being

Climate variability that figures for the respondents would include prolonged droughts, erratic typhoon episodes, warmer midday and colder afternoons, and irregular rainfall patterns. And the majority felt them in the most recent three years. Occurrence of hailstone (dallalo) and frost (andap) at a time when it is not expected and in places where these do not usually happen are likewise observed in the high elevation site.

Betag residents also mentioned 2011 as worst due to a strikingly low production due to erratic and early rains thereby affecting their income and livelihood security. This was coupled with the national inflation of prices of almost all commodities. Respondents in Betag remember drastic reduction in income for the year well since women farmers no longer had products to directly sell to walk-in local tourists in their farms; that is, income source variability – which was usually enjoyed in the urban farming communities like La Trinidad – was really limited in the year.

For Madaymen respondents, 2009 was also the worst year. A lot of erosions and landslides occurred thereby cut them off from other communities because of excessive road cuts. As a result, some of the households stock of food nearly became scarce. On the other hand, as a result of these climatic disasters, indigenous socio-cultural practices such as 'aluyon' or 'obbo' (mutual self-help systems) and binulod (borrowing in cash or in kind without interest) made the communities and the household resilient in adapting to the impacts of climate change.

Gender roles are seen in these cultural practices. When 'obbo' or mutual aid systems or reciprocal labor exchange is needed, men are in charge with handling the manually intensive tasks such as carrying heavy loads and digging. On the other hand, women are tasked to solicit for food and help and support those who have joined the relief and rehabilitation.

The two study sites signified high percentage responses on changes in climate indicators on rainfall and temperature (Table 4). However, farmers have minimal recollection of changes in some other climate indicators such as typhoons, wind, hailstone and drought.

Climate indicators such as frost and presence of fogs and migratory birds are dependent on elevation. Based on an analysis of available climatic records, the prevailing climate in Benguet in general can still be considered normal although some manifestations of climate change are already being felt. The significant findings discussed in Calora et al. (2010) are as follows:

An increase (about 0.4ºC) in the average daily temperature over the period 1999 to 2009 as compared to that recorded from 1979 to 2003;

The range in daily temperatures (difference between maximum and minimum temperatures) is becoming greater in the colder months (about 8.1ºC) that sometimes result to crop failure; and

Annual variations in daily temperatures for specific months are also increasing particularly during recent years.

More than two thirds of Betag respondents and about half of Madaymen respondents perceive the effects of climate change as negative.

The qualitative data presented on perceived climate implications on health and well-being, livelihood and agriculture, and work intensity are presented in Figure 4.

In both sites, semi-temperate crops being planted are very vulnerable to climate change. Specifically for Betag, strawberry plants, due to its nature that require agro climatic conditions that is relatively dry, every time it rains, it spells bankruptcy to farming households which permeates into the well-being of the household. This is on top of the lack of basic infrastructure such as irrigation and in the case of Madaymen, farm to market road. The table below summarizes the urban-rural dynamics presented by Betag and Madaymen, respectively.

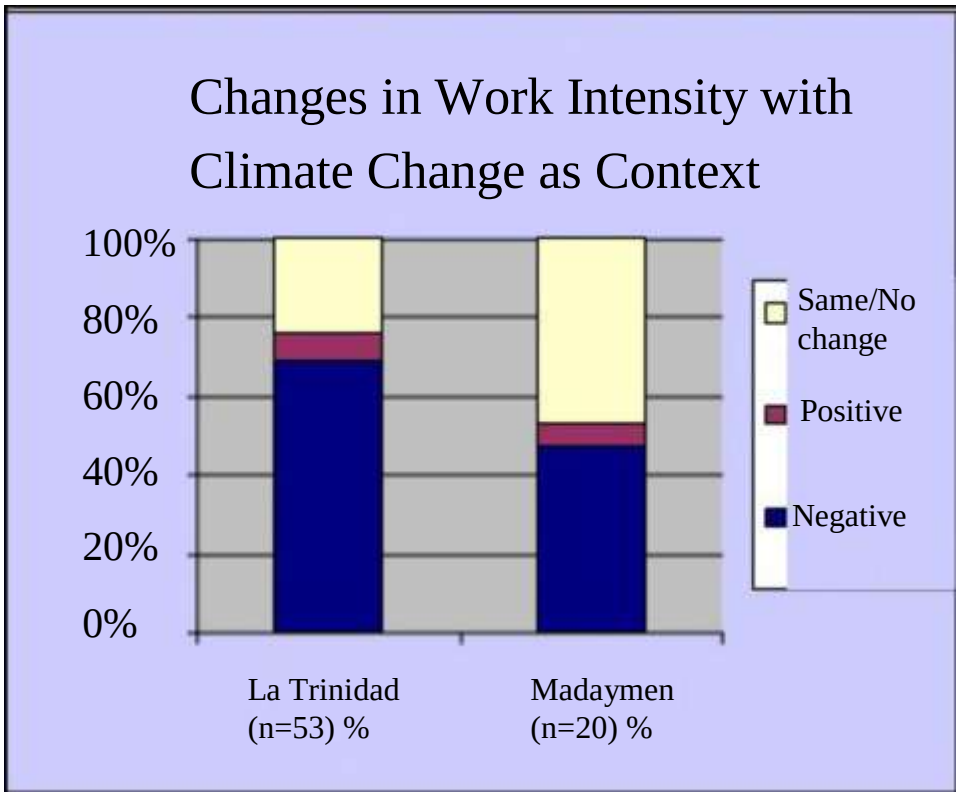

Figure 4. Changes in work intensity with climate change

Table 8. Urban-rural dynamics and selected adaptation mechanisms employed

Ecosystem	Crops	Adaptation options	Needs
Urban farming, Betag	Strawberry onion leeks chinese cabbage Lettuce broccoli	Adjust planting schedules; Adjust strawberry varieties; Continues planting, re planting; s*unsun*[plant replacement in a given plot] *laslas* or de-foliaging /thinning since leaves compete with fruiting of berries Preparation of planting materials be re-located to ensure clean planting materials; more frequent spraying	Lack of planting materials Supplemental water needed water filter station set up by BSU be made operational and ensure equal distribution of water. The setting up of filter station was co-funded by the farmers (through the farmer counterpart) and yet has not seen its realization up to this time Market pricing of farmers product is controlled by traders
Rural farming, Madaymen	Cabbage Potato Broccoli cutflowers	To keep on planting even outside the traditional agricultural calendar in order to catch up with losses; To renew pa-suplay or access credit for capital (*manpasuplay kasin*) Nonstop chemical application since new pests and diseases attacking crops Negotations for better term such as suplay-aywan (farm arrangement where the one being supplied will 'care and manage the farm' for a cropping period for a negotiated amount for the sharing	Planting materials which used to be at the farmer's hands [formal & informal seed keeping] is no longer working hence need subsidies Support for organic agriculture Need to have voice in market pricing of farmers products Alternative skills; education information on new crops and new pests and diseases that comes with warmer climate

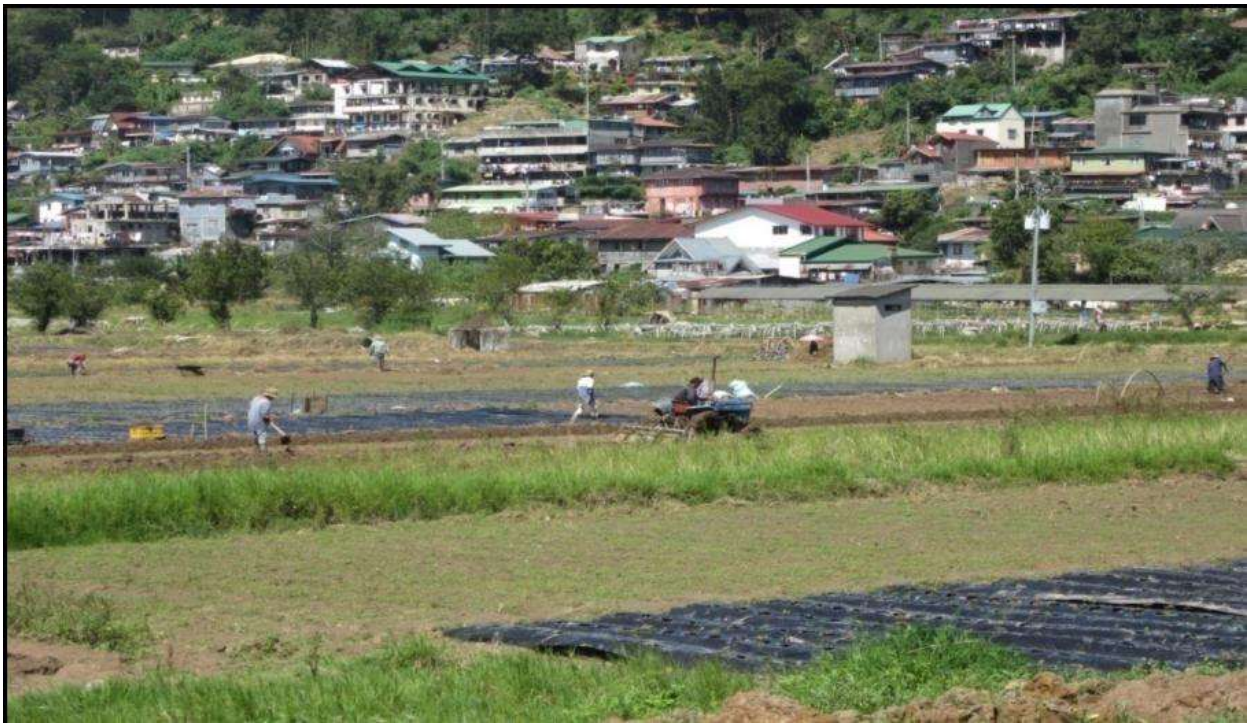

Fig. 5. BSU Strawberry Farm

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Overall, the findings provide descriptive evidences of households that do not consciously set aside savings on health and yet are apparently one area of vulnerability. If well-being is not just a state that people do or do not experience but is a process realized through the 'work' people put into making meanings out of their lives, then unpaid work in its various forms and expression certainly translates to emotional stress and insecurity. In terms of paid work, there is clear gender divide with males performing work that has monetary value and women spending more than twice unpaid work – as seen in domestic including care work, simultaneous and community activities. As women in the households are committed to both paid and unpaid work, they enjoy substantially less leisure [more than three times less] compared to males in the household.

Gender relations are part of the household dynamics with men and women assuming different roles and responsibilities in the farm, refracted in the domestic sphere. In particular, the caring nature of women's unpaid work constitutes a vital contribution to societal development [UN-ESCAP, 2003:7]. In this study, the stylized questionnaire was able to come up with a detailed picture of how men and women in the household spend their time during the day and this was through and was validated in the time use diary. It is said that using time use as a measurement, it allows one to study inequalities between men and women in the performance of unpaid work that is not express in monetary terms (AP-GEM Training, 2010; Carrasco & Serrano, 2011). This is because gender disparity becomes transparent in terms of work measured by time. This reality has not spared the women of La Trinidad and Madaymen. Certain methodological implications were also realized in the study: the context with which these dynamics of paid and unpaid work operate were captured through qualitative data gathering methods like the specifities of responses to certain climate change scenarios. Also, the concept of leisure has to be looked at from a culturally mediated perspective as well as the geographic and class dimension.

The state's institutional intervention to these scenarios is long overdue. Beyond automatic weather stations is the need for 'social protection' as well as recognition of the undervalued sector in the society.

Policy Recommendations

In the light of the findings of the study, the following are recommended:

1. Unpaid work can be reduced by providing support to mothers, even within the households such as men and women sharing the work. Government structures such as the Barangay Health Clinics and the Day Care Centers are in place but are not maximized.

2. The need to address occupational diseases at the barangay level is also wanting. As respondents postpone health remedies from health service facilities, making these health care facilities accessible and readily available can improve health seeking behaviors;

3. Provision of safety nets to farmers from produc-tion to marketing is very much needed. Farm to market roads and pricing mechanisms that increases negotiating power of farmers is long overdue. By providing safety nets, this will reduce income loss and redounds to benefitting women in the household as there is no longer a need for women to seek additional informal work to augment income

4. Research and technology development addressing new breed of seeds and plants that withstand floods or drought as well as address emerging pests and diseases is another important support for farmers.

5. In terms of methodology, time use is indeed a powerful tool in substantiating Household Satellite Accounts. This should be replicated in other parts of the country with specific focus on health and wellbeing. The unpacking of layers of unpaid domestic and care work has contributed tremendously to the conceptual definition of gender inequality in the study sites.

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