ADDIS ABABA UNIVERSITY
COLLEGE OF EDUCATION
DEPARTMENT OF GEOGRAPHY AND ENVIRONMENTAL EDUCATION

Addressing Community's Environmental Concerns in Higher Institutions:

A Focus on Wolaita Sodo University and its Surrounding Rural Community

By: Eyob Atebo Anjulo

June, 2011
Addis Ababa, Ethiopia

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A thesis submitted to the College of Education, Addis Ababa University, in partial fulfillment of the requirements for the award of a Masters degree in Geography and Environmental Education

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Approval

This undersigned certify that they have read and here by recommend to Addis Ababa University to accept the thesis submitted by Eyob Atebo and entitled as "Addressing Community's Environmental Concerns in Higher Institutions: *A Focus on Wolaita Sodo University and its Surrounding Rural Community"* in partial fulfillment of the requirements for the award of a Masters Degree in Geography and Environmental Education.

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Abstract

Many conventional research and educational system have given less attention to the needs and priorities of local communities. Hence, the potential to integrate indigenous and modern practices in dealing with the contemporary environmental challenges have been minimum. Therefore, this study has assessed the extent to which local community's environmental concerns are being addressed through the core missions of Wolaita Sodo University with respect to environmental education processes and practices. The study has employed personal interviews, questionnaire, focus group discussions, and observation in addition to using available documents. The target population of the study comprised 1842 households; and 128 academic staff and 503 third year regular undergraduate students of Faculty of Social Sciences and Humanities and Faculty of Natural and Computational Sciences at Wolaita Sodo University. Both household and student respondents were selected using stratified random sampling on the basis of kebele, gender, and faculty; whereas sample instructors were selected using systematic sampling method. The study revealed that there are environmental issues, such as land degradation, soil erosion, water pollution, deforestation, and waste disposal problems whose cumulative effects are disastrous from both human and ecological perspectives. However, the intervention of the institution in this regard through the three core function areas of teaching, research, and community service has been very limited. This has been evidenced by the subordinate position being given to local environmental issues in the curricula and instruction, theory-based nature of environmental education, failure of academic staff and students to take part in the community-based environmental protection activities among others. The study has also identified both challenges and opportunities for strengthening community-university collaboration from the perspective of these two parties as well as other concerned stakeholders. Based on the findings of the study, adaptation of the curricula and instruction to suit local environmental context, provision of action-oriented environmental education at different settings, empowerment of the academic staff and the community groups; and strengthening community-university collaboration through optimizing the existing possibilities while overcoming its associated barriers are some of the major potential measures suggested so as to re-orient the existing higher education system in the study area towards the one which is more sensitive to the local community's environmental concerns.

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Acronyms

ARDDWZ	Agriculture and Rural Development Department of Wolaita Zone
ARDOSZW	Agriculture and Rural Development Office of Sodo Zuria Woreda
AUCEA	Australian Universities Community Engagement Alliance
B-HERT	Business/Higher Education Round Table
CBOs	Community Based Organizations
CHE	Council on Higher Education
COPE	Community Oriented Practical Education
CSA	Central Statistics Agency
CUC	Community-University Collaboration
DAs	Development Agents
EE	Environmental Education
EEPs	Environmental Education Programmes
ESD	Education for Sustainable Development
FDRE	Federal Democratic Republic of Ethiopia
FGDs	Focus Group Discussions
FNCSs	Faculty of Natural and Computational Sciences
FSS	Forum for Social Studies
FSSHs	Faculty of Social Science and Humanities
GUPES	Global Universities Partnership on Environment and Sustainability
HE	Higher Education
HEIs	Higher Education Institutions
HEWs	Health Extension Workers
IEEP	International Environmental Education Programme
IK	Indigenous knowledge
LEIs	Local Environmental Issues
MESA	Mainstreaming Environment and Sustainability in African Universities
PSNP	Productive Safety Net Programme
SNNPREPB	Southern Nations Nationalities and Peoples Region Environmental Protection Bureau
SNNPRS	Southern Nations Nationalities and Peoples Regional State
TGE	Transitional Government of Ethiopia
UNCED	United Nations Conference on Environment and Development
UNCHE	United Nations Conference on Human Environment
UNDESD	United Nations Decade of Education for Sustainable Development
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational Scientific and Cultural Organization
WDA	Wolaita Development Association
WSATVTC	Wolaita Sodo Agricultural and Vocational Training College
WSU	Wolaita Sodo University

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CHAPTER ONE
1. INTRODUCTION

1.1 Background

Now days, our planet is experiencing different types of environmental problems at differing spatial and temporal scales. Accordingly, "…the global environment is under serious threat from multiple human-based sources resulting in such phenomena as global warming, ozone depletion, and a decline of biodiversity"(Brown *et al*., 1984-92; World Resource Institute, 1987-92, quoted in Ton & Robert, 1992:1). As stated by Brown (1991), on a world scale, 'every major indicator shows deterioration in natural systems'. As a result, "The capacity of the natural systems to process and neutralize the residual products of modern civilization has been exceeded. The consequence has been the contamination of air, water, and soil, and the reduction of the restorative capabilities of over-stressed species and ecosystems…" (Keith & Robert, 1997:3).

In many developing countries, environmental problems, such as deforestation, soil erosion, and the expansion of desert areas are aggravated. These problems have severely threatened the sustainable development of these countries and have caused great concern at all levels from the general public to national governments and international agencies (Xie, 1996:1).

Currently, in the context of growing global environmental degradation, Environmental Education (EE) has been acknowledged by the different international organizations, national policies, academic institutions and other concerned stakeholders for its vital role as an environmental management tool. For instance, the United Nations Conference on Environment and Development (UNCED), 1992 agreed upon the globally binding treaty called Agenda 21; and Article 36 of this action plan reads as: "*Promoting education, training and public awareness*", implying both individual and collective responsibility for environmental problems. Copernicus Campus Charter 1994 suggests, "Education at all levels, especially university education for the training of decision makers and teachers, should be oriented towards sustainable development and foster environmentally aware attitudes…" Similarly, in Africa also there is an African based UNEP initiative called Mainstreaming Environment and Sustainability in African Universities (MESA). Among others, MESA is aimed at strengthening capacity for mainstreaming environment and sustainability into learning, research and community engagement in university education and university life…"(UNEP, 2010).

Higher Education Institutions (HEIs) (i.e. institutions that conduct studies, training and research at post-secondary level) play a key role in building sustainable future, changing ways of thinking, linking the disciplines, providing the knowledge base, and transmitting new skills (Legesse & Engdasew, 2009:3). In this regard, HEIs face high expectations from the societies of which they are part; and hence the need to increasing collaborations between communities and HEIs in dealing with the socio-economic and environmental challenges of this era. This is because, "Community engaged education establishes the context for the exploration of pressing

and complex problems, of which Environmental Sustainability is an example" (Cathryne *et al*., 2010:4). Similarly,

> *University-community collaborations create mutually enriching processes as faculty and students become change agents, educators, and collaborators. Representatives of local communities bring a sincere, vested interest in local outcomes. Community sites, when well chosen, provide meaningful learning environments. Overlapping interdisciplinary education within the community generates creative learning sites in which students confront complex issues. They engage in the models of learning that require them to acquire the knowledge and skills for addressing the link between poverty, social justice, and environmental degradation* (Coates, 2003; Hoff &Polack, 1993; Rogger & Darkwe, 1996 cited in Cathryne *et al*., 2010:6).

As reported during the UNESCO 2009 World Conference on Higher Education, there is a large aggregate trend to unite civil society and HEIs and networks in common efforts to co-create knowledge, mobilize it to inform practice and policy, and enhance the social, economic and environmental conditions of people, communities, nations and the world. However, these efforts are fragmented and face many unnecessary barriers (UNESCO, 2009), such as conservatism, careerism, ignorance and threat of political consequence (Whelan, 2003:1). As a result, some potential benefits that can be accrued from the partnership between Higher Education (HE) sector and communities have been limited.

The HE sector has been urged to demonstrate community relevance by engaging with community problem solving and action for social justice and by acting as 'significant allies' of the community advocacy sector (Stone, 1997 cited in Whelan, 2003:1). Despite these urgings, most academics remain strangely silent on social and environmental issues (Whelan, 2003). Moreover, as stated in Australian Universities Community Engagement Alliance (AUCEA) position paper 2008-2010, HEIs often give priority to their traditional core activities of teaching and learning by overlooking their third mission, community engagement. As a result, their relevance to the socio-economic development of their respective countries has often been challenged.

Higher educations in Africa, with no exception to Ethiopian, have their own problems with respect to addressing their surrounding community's needs and priorities. "Many of the university become rigid academic structures, more interested in being updated along with the western fashionable trends and authors than in coping with their surrounding problems. Thinking and the reproduction of knowledge tend to be far apart from action to change social realities'' (Ogot *et al*., 1993 cited in Legesse & Engdasew, 2009:14). Accordingly, the over all impression is the limited relevance and responsiveness of HE system in the continent particularly to the local context.

In Ethiopia, until recently, the significant and meaningful role that HEIs play in the improvement of the life of the society, the reduction of poverty and the overall development of the country were not given due public attention. However, these situations have been changing significantly since 1991 (Yizengawu, 2005:3). Accordingly, the new education and training policy of Ethiopia requires HE at diploma, degree and graduate level to be practice-oriented enabling students to become problem solving professional leaders in their fields of study and in overall societal needs. Despite such a positive expectation of the government on HEIs, the latter failed to materialize the same because of numerous and complex challenges that are compounding HEIs in Ethiopia (Yizengawu, 2005:2).

By considering the fact that, "Issues of environmental sustainability are too complex to be addressed by one academic discipline" (Ling *et al*., 2009 cited in Cathryne *et al*., 2010:9), the incorporation of EE into the curriculum at different levels should be on a multi-disciplinary basis (UNESCO-UNEP, 1983). Accordingly, many countries including Ethiopia have incorporated EE into their respective national curriculum in general and pre-service teacher education at a higher level in particular following a multi-disciplinary approach. However, at present this non-compulsory curriculum subject is generally regarded as a peripheral discipline (Tylor, 1998:214); and failed in most countries in promoting an active sense of participation among the population (Barraza *et al*., 2003:348).

On the other hand, it is widely acknowledged that the objectives of EE extend beyond the mere acquisition of cognitive information, to those relating to the attitudes, skills, awareness and participation (UNESCO-UNEP, 1985). There are several factors affecting the realization of EE expectations. For instance, "…use of inappropriate teaching methods (in relation to the teaching of aspects of EE) was found to be one of the challenges for action-oriented EE" (Tylor, 1998:207). Moreover, as asserted by Robottom:

> *EE represents a challenge to existing patterns of schooling. Its inquiry orientation is a challenge to a habitual pattern of teaching; its interdisciplinary character is a threat to conventional disciplinary curricular structures; its emphasis on outdoor education presents problems for existing organizational patterns* (Robottom, 1985 quoted in Roberston *et al*., 1997:313).

In general, it is in the backdrop of the above discussion on the discrepancy between community's expectations and HEIs' response through their major missions of teaching, research and community engagement on one hand, and theory/practice gap in EE on the other that this study is going to explore the extent to which Local Environmental Issues (LEIs) are being addressed through the core missions of Wolaita Sodo University (WSU) with respect to EE processes and practices.

1.2. Problem Statement

Community-University partnerships in research, learning and knowledge mobilization are a growing trend in countries around the world, in both the South and North, as nations and regions seek solutions to interrelated challenges to their sustainability. However, it is currently fragmented and lacking recognition and systematic means to address its potential (UNESCO, 2009). Particularly, in global South, where Environmental Education Programmes (EEPs) are based on Northern-inspired 'accommodative' environmentalism (Fitzgerald,1990:298), Community-University Collaboration(CUC) has often been overlooked as academic institutions are restricted by a culture of academic professionalism that has developed and now works to maintain status quo(Orr,2004 cited in Cathryne *et al*., 2010:9). However, UNEP cautions that, "*Failure to address the poor status quo in African universities is dangerous as universities will continue to churn out functionally environmentally illiterate graduates who are the managers of tomorrow's development efforts*" (UNEP, 2010).

According to Fitzgerald (1990), it is the Northern-inspired 'accommodative' environmentalism, which aims to maintain the status quo that characterized the decision making processes behind Ethiopia's EEP, giving rise to three paradoxes. First, there is a contradiction between the centralization of programme planning and the need for EE to be location-specific. Second, there is conflict between the goal of providing relevant education and that of meeting demand for academic qualifications. And, third, professional specialization creates institutional gaps and an idealized version of reality which limits the potential of education to produce the values and behavior needed for sustainable development.

In developing countries, such as Ethiopia many HEIs experience a growing gap between their curricula and the demands from society (Kouwenhoven, 2004:125). In this regard Zeleza & Olukoshi (2004:2) argue, "…the structure of instruction and the content of curriculum in the average African university are ill-attuned to the local community.'' As a result, "…community groups are often disappointed by the lack of courage and responsiveness displayed by universities" (Whelean, 2003:2). In the study area, too, the local people put a high expectation and trust upon their nearby institution particularly with respect to tackling the local environmental degradation through collaborative actions. However, the latter faces certain difficulties in responding to the same through the curricula and instruction.

Recognizing the lack of appropriate objectives and relevance of education in the past regimes, the transitional government of Ethiopia developed the new education and training policy. The policy documented, among other things, that lack of relevance of Ethiopian education to the needs and interests of local community and the need for educational system that can help students get exposure to socially relevant curricula and apply their knowledge to real life situations and develop skills of decision making and problem solving so that they can make their

part in the sustainable development program of the nation. Nevertheless, "…a gap had grown between the curriculum intended by the policy makers and that taught in Ethiopian schools and colleges. Teachers and teacher educators have continued to employ purely didactic methods rather than introducing more appropriate strategies necessary for the implementation of the new education policy…" (Bakalo & Welford, 2002:2). Moreover, the critical evaluation of the recent reform efforts in the various components of the Ethiopian education system reveals incompatibility, particularly among the reforms in the area of the school curriculum, the teacher education program, the national exam, and the language of instruction (Belete & James, 2005:138).

Being one of the recently established government HEIs with multifaceted challenges, WSU shares virtually all the aforementioned issues even at a higher level. Accordingly, the university experiences a growing discrepancy between its surrounding community's real needs and curricula and teaching realities in EE, about which little has been studied and known. For instance, in the study area the rural community has been subjected to different environmental issues, such as land degradation, soil erosion, water pollution, and solid and liquid wastes generated by the near by urban settlement. Even though the university has already launched a few environmental protection projects in the study area, its responses in this respect have been very limited, insignificant and lacked continuity. Hence, there is an urgent need to indicate the institution some potential areas of intervention, particularly on the local community's environmental affairs through scientific research undertakings and findings.

On the other hand, though the institution is not the only agent in taking part in the same venture, given its institutional and social responsibilities at both local and national levels, it could have cooperated with the local community itself in particular and other concerned stakeholders at large in working towards the common goal of environmental sustainability. There are also certain challenges and opportunities for improving CUC with respect to environmental protection and management activities in the study area. However, yet, very few researches has been undertaken in a manner that integrates the rural community's environmental priorities with university's core missions. Most of the previous studies on EE, such as Dalelo (2001), and Bekalo & Bangay (2002) have mainly focused on the educators' and students' environmental awareness; and some of the challenges and prospects for effective EE practices in the country. Thus, this study is mainly necessitated to fill such a knowledge gap; and forwards some relevant intervention strategies as to how the nexus between the two parties would actually be improved for their mutual benefits in the future.

1.3 Objectives

1.3.1. Main Objective

This study is aimed at assessing the extent to which the local community's environmental concerns are being addressed through the core missions of Wolaita Sodo University (WSU) with respect to EE processes and practices.

1.3.2. Specific Objectives

- To identify the major environmental issues of the local community around WSU;
- To determine whether the local environmental issues are being effectively integrated into the teaching, research and community services of WSU or not; and
- To distinguish the major challenges and opportunities for the university-community collaboration towards action-oriented EE; and thereby tackling local environmental degradation in the study area.

1.3.3. Research Questions

- What are the major environmental issues of the local community around WSU?
- To what extent do the teaching, research and public outreach services of WSU integrate the local environmental issues?
- What are the major challenges and opportunities for the university-community collaboration in tackling local environmental degradation through action-oriented EE in the study area?

1.4 Significance of the Study

It is obvious that HEIs play a crucial role in the production of vital human resources, such as teachers, in serving as a center for knowledge and skill creation, adaptation and dissemination as well as in providing relevant and quality community services. It has widely been recognized that HEIs should work in collaboration with the community they belong to in pursuing their core missions of teaching, research and public outreach services for the mutual benefit. Especially, in our modern time, when the world faces mounting environmental challenges at differing spatial and temporal scales, the role of HEIs through the provision of action-oriented EE is of a paramount importance. However, majority of HEIs particularly in the developing countries, such as Ethiopia face various challenges that limit their potential to contribute their part for the local community's socio-economic and environmental needs.

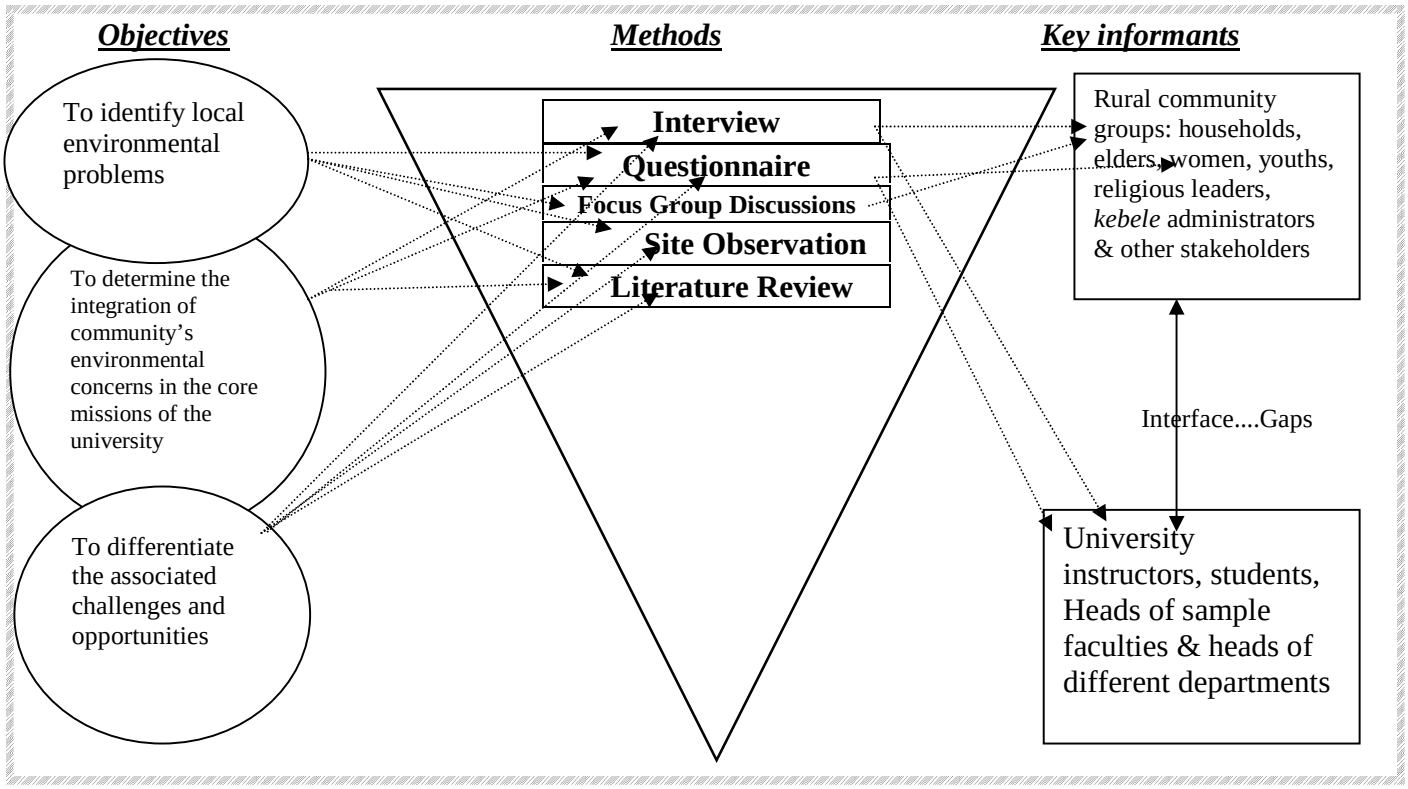
On the other hand, very few studies have been undertaken (see Section 1.2) on the roles and associated challenges of university-community partnerships in ameliorating local environmental issues through action-oriented EE processes and practices. As a result, there is a knowledge gap among the academic institutions, community groups and other concerned stakeholders on the relevance and power of creating synergy in working against various environmental issues. Accordingly, it is the researcher's belief that the findings of this study will benefit all the aforementioned and other concerned stakeholders through the provision of some relevant information, and creating better understanding on the subject under the study.

1.5 Methodology

1.5.1 Research Design

This study was descriptive in nature and used both quantitative and qualitative approaches. As Sambili supports, "… the combination of these methods in order to reveal several dimensions of a phenomenon, to deal with shortcomings of each approach and to double-check the findings by, examining them from several different vantage points"(Sambili, 2000 (in Miwinzi) as cited in Zeleza and Olukoshi, 2004:145). So as to meet the already stated research objectives and answer major research questions, a wide range of data were collected from both primary and secondary sources. Accordingly, first hand information was obtained through Focus Group Discussions (FGDs), observation, personal interviews, and survey questionnaire. Whereas, the second hand information was collected through analysis of the existing documents, such as books, journal articles, websites, performance report papers, annual bulletin, research papers and etc. In order to draw a representative sample, both random (stratified, simple random, and systematic) and non-random (purposive) sampling techniques were used. Finally, the data collected from the different sources were being analyzed by using mixed approaches. The following figure shows a concept map of the research design followed in the study.

Figure 1. A conceptual model of the research design being adopted in the study



1.5.2 Types of Data Sources

As it has already been indicated above (see section 1.5.1), the two major sources of data to this particular study are primary and secondary sources. From the former source, some relevant data were obtained by making use of questionnaire, observation supported with photograph, guidelines prepared for FGDs and interview; while from the later source, it has been collected through reviewing and analyzing the existing documents (both published and unpublished) on the theoretical and empirical aspects of the issue under the study.

1.5.3 Sampling Techniques

The target population for the study comprised households living in the two adjacent rural administrative units (*kebeles*); and academic staff and the third year regular undergraduate students of FSSHs and FNCSs at WSU. The rationale behind selecting the two sample *kebeles* namely; Ofa Gandaba and Ofa Sere was because of the fact that the university itself is situated in the former *kebele* while the later one-adjacent to the former–is amongst the most seriously degraded rural *kebeles* in the study area; and as a result, its inhabitants have been subjected to food insecurity and other socio-economic problems. The two faculties, which had been under the former Education Faculty at WSU, were selected mainly because they are currently educating student-teachers who would likely be environmental educators in their future career. The incorporation of third year regular undergraduate students of the sample faculties in the study is mainly because they had relatively longer stay at the university in particular and in the study area at large. So that they were supposed to be in a position to better represent the student population and, of course, more likely be aware of what their institution has been doing with respect to the environmental protection and management activities under its core missions in the study area.

Currently, there are about 1842(1486 men-headed & 356 women-headed) households in the two sample *kebeles* (Finance and Economic Development Office of Sodo Zuria *Woreda*, 2001). On the other hand, there are 128 academic staff and 503 (420 male & 83 female) third year regular undergraduate students under the two sample faculties at WSU[1]. As suggested by Gay regarding the sample size, for descriptive study, 'such as this one' 10 to 20 % of the accessible population is enough (Gay 1983, cited in Kumar, 1999). Accordingly, in this study 10% from each of the above population groups i.e., 184 households and 51 students; and 13 academic staff were selected by using stratified and systematic sampling methods respectively. As indicated above, the target population of the study was not homogeneous, i.e., there is certain variability both within and between the target population groups, which would tend to affect the representativeness of the sample. So as to reduce such an eventual sampling bias, households were stratified on the basis of their residential *kebele* and gender of the head of the household; whereas students were stratified in terms of faculties to which they belonged and gender. And, a proportionate random sampling technique was carried out on all eligible respondents (see Annex

[1] http://www.wsu.edu.et/faculties.htm *(accessed on 6-12-2010)*

VI). To determine the proportion of each stratum in the study population *(p)*, the following formula suggested by Kumar (1999:159) was applied.

$$S_x = \frac{E_x}{P}$$, Where S_x= *the proportion of stratum x in the population (p)*
E x=*the number of elements in stratum x*
P=*total population size*

Accordingly, for instance, the proportion of women-headed households in the sample population of the household was being computed as:

$$\text{Women-headed households } (S_x) = \frac{351}{1842} = 0.19 \text{ (i.e., 19.33\%)}$$

The proportion of each sample *kebele*, faculty and gender category has been computed in the similar fashion (see Annex VI). On the other hand, out of a total of 128 academic staff under the two sample faculties, thirteen (10%) were selected by using systematic sampling technique; and the sampling interval was determined by applying the formula below:

$$I = N/n$$

Where I= sampling interval
N=total number of population, &
n= sample size

Sampling interval (I) of the academic staff:

$$I=128/13 = 9.85 \sim 10$$

Therefore, the sample units were identified at an interval of 10 from the list of the staff employed in the two faculties. However, before applying this formula the starting point for sample selection was determined by using simple random sampling; and it was the third unit in the first interval of the sample frame. Accordingly, the third listed persons from each of the intervals were selected and included in the final survey.

Finally, purposive sampling technique was used to identify some key informants from both the rural community and the institution itself. Accordingly, two faculty deans, three heads of different departments, three Development Agents (DAs) and two Health Extension Workers (HEWs), two *Kebele* administrators, two elders, two religious leaders, one representative of Women's Association, and two representatives of Youths' Associations were purposively selected and included in the study as sources of the information.

In general, the total sample size selected by using both random and non-random sampling methods from the different target population groups of the study is about 267. The following table summarizes the sample size selected from different stakeholders (population groups).

Table 1. Target population and samples of the study

Stakeholders		Population		Total	Sample size		Total	Sampling method
		F	M		F	M		
I. **Rural Community Groups**								
Households	Ofa Gandaba	205	873	1078	21	87	108	Stratified
	Ofa Sere	151	613	764	15	61	76	Stratified
• *Kebele* Administrators		-	2	2	-	2	2	Purposive
• Elders		-	2	-	-	2	2	Purposive
• Religious leaders		-	2	-	-	2	2	Purposive
• Women's association		-	-	-	1	-	1	Purposive
• Youth's association		-	2	6	-	2	2	Purposive
• DAs		1	3	4	1	2	3	Purposive
• HEWs		4	-	4	2	-	2	Purposive
II. **Wolaita Sodo University**								
FSSHs	• Instructors	-	55	55	-	6	6	Systematic
	• Students	45	187	232	5	19	24	Stratified
FNCS	• Instructors	-	73	73	-	7	7	Systematic
	• Students	38	233	271	4	23	27	Stratified
• Faculty Heads		-	1	2	-	2	2	Purposive
• Department Heads		-	10	10	-	3	3	Purposive
Grand total of sample size							267	

1.5.4 Data Collection and Analysis Methods

As mentioned under Section 1.5.1, the major types of data collection tools that were used in the study included FGDs, site and classroom observation, personal interviews and survey questionnaire. The raw data that were collected from both primary and secondary sources through the aforementioned data collection tools were subsequently be edited and tallied manually; and entered in to computer software program of MS-excel. The analysis process was also made by making use of frequency distribution tables, percentage, lickert scale, charts and other descriptive statistical methods.

1.6 Scope of the Study

The scope of the study was limited to households living in the two rural administrative units (*kebeles*) around the university: Ofa Gandaba and Ofa Sere; and the two faculties, namely Faculty of Social Sciences and Humanities (FSSHs) and Faculty of Natural and Computational

Sciences (FNCSs) at WSU, which have currently the total of 1898 students. Moreover, the local community groups and/or Community Based Organizations (CBOs), such as Women's Association, Youth's Association, *kebele* administrators, religious leaders, and elders among others from the two adjoining rural *kebeles*, namely Ofa Sere and Ofa Gandaba were included in the study. The conceptual scope of the study was delimited to those major LEIs that are mainly associated with the local physical environment, such as land degradation, soil erosion, deforestation, and urban based waste disposal problems with multifaceted adverse effects upon both the life conditions of the local people and the biota at large. The principal inspiration of the study is to assess the extent to which local environmental degradation issues are being addressed through EE processes and practices of the aforementioned faculties at WSU.

1.7 Limitation of the Study

Some of the limitations of the study are shortage of time, financial and material resource constraints, and shortage of some relevant previous studies at both national and institutional levels on the similar theme.

1.8 Operational Definition of Some Local Terms

***Ekub*:**-is a financial form of traditional cooperative or traditional self-help group in Ethiopia. It is a method of raising funds from members who voluntarily join for the purpose of pooling funds and distributing them for the members (Tesfagiorgis, 1993).

Enset (*E. ventricosum*):- is commonly known as "false banana" for its close resemblance to the domesticated banana plant. It is Ethiopia's most important root crop, a traditional staple crop in the densely populated south and southwestern parts of Ethiopia.[2]

***Iddir**:* - the funeral associations in Ethiopia are known as the *iddir* (*e'dir*) - associations that ensure a payout in cash and in kind at the time of a funeral for a deceased member of the family of a member of the group (Dercon *et al.*, 2004:11).

***Kebele**:*-A kebele (Amharic "neighbourhood") is the smallest administrative unit of Ethiopia similar to ward, a neighborhood or a localized and delimited group of people. It is part of a *woreda*, or district, itself usually part of a Zone, which in turn are grouped into one of the Regions based on ethno-linguistic communities (or *kililoch*) that comprise the FDRE. Each *kebele* consists of at least five hundred families, or the equivalent of 3,500 to 4,000 persons. There is at least one in every town with more than 2,000 populations.[3]

[2] http://en.wikipedia.org/wiki/Ensete (*accessed on 27-06-2011*)

[3] http://en.wikipedia.org/wiki/Kebele (*accessed on 27-06-2011*)

Woreda: - is an administrative division of Ethiopia (managed by a local government), equivalent to a district. *Woredas* are composed of a number of *Kebele*, or neighborhood associations, which are the smallest unit of local government in Ethiopia. *Woredas* are typically collected together into zones, which form a *kilil* (Regional administration); some *woredas* are not part of a zone, and are called Special *Woredas*, which function as autonomous entities[4].

***Zone*:**-A zone is an administrative division in Ethiopia that is bigger than the *woredas*, but smaller than administrative regions.

1.9 Organization of the study

The thesis is composed of four chapters. The first chapter deals with background of the study, problem statement, research objectives and questions, significance of the study, methodology, scope of the study, limitation of the study and definition of local terms. Chapter Two is all about review of related literature. Chapter Three presents the results and discussions that start with analysis of the socio-economic and demographic profile of the sample respondents; and also addresses the major LEIs in the study area, the level of integration of the same in the core missions of the university, and the major challenges and opportunities for strengthening CUC in the study area. The last chapter concludes the major findings of the study while recommending some potential measures that should be undertaken by the different stakeholders in the study area in the future.

[4] http://en.wikipedia.org/wiki/Kebele (*accessed on 27-06-2011*)

CHAPTER TWO

2. LITERATURE REVIEW

2.1 Theoretical Framework

Unlike earlier people, "… we now have power [of technology] to extract and consume resources, produce wastes, and modify our world in ways, that threaten both our continued existence and that of many organisms with which we share the planet" (Cunningham W. & Cunningham M., 2007:16). It is mainly because of our irrational resource extraction and consumption patterns that the current global warming, climate change and other associated global environmental issues are occurring at various spatial and temporal scales. If we maintain our current unsustainable production and consumption patterns, the result will be disastrous from both ecological and human point of view (Cunningham W. & Cunningham M., 2007: 571).

In analyzing the current environmental problems and finding solutions to them in both rich developed and poor developing countries, there is need to look back to the past and discover how the environment has been polluted in both worlds (Otiende, *et al*., 1997). As various scholars argue one of the fundamental causes for the mismanagement of the earth's natural resources and its resultant environmental degradation is associated with lack of environmental awareness, knowledge, and environmental behavior among the different sections of the society. Therefore, education is seen as a critical tool in the transformation towards sustainability, and Education for Sustainable Development (ESD) 'an important and timely education policy, response if we are to be able to face up to the social and environmental challenges that lies ahead' (Scot, 2005 cited in Firth & Winter, 2007:600). If education is a solution in working towards a sustainable future then initial teacher training provides a strategic opportunity for ensuring that all teachers are able to teach for sustainability when they begin their teaching careers (Firth & Winter, 2007:599).

The new concern for the natural environment has led to a concerted global call for EE, which "… is seen as the only way of developing an awareness of the environment and a sense of responsibility for its protection, and hence it is the most effective vehicle for persuading the human race to adopt a rational attitude towards the natural environment and to avoid the deterioration of human life as a result of unwise exploitation and misuse of nature" (Otiende, *et al.*, 1997:15).

According to UNESCO, EE should reach all citizens, bring about a closer link between educational processes and human life, and look outward to the community (UNESCO, 1978a, 1980 cited in Hsu & Roth, 1998:241). Similarly,

> *Given the extent of pollution, isolated individual efforts would be like a mere drop of water in an ocean; ineffective and frustrating. All of us must learn to care for the environment. Concern for nature must be emphasized. Prevention of environmental problems must feature prominently in any programme of EE. In particular, people must be persuaded that personal advantages will accrue from increased care of their surroundings. EE must demonstrate that humanity depends on the earth's natural resources; therefore, the impact of human influence on the environment and the ecosystem must be carefully assessed.* Otiende *et al*., 1997:15)

A strategic response advocated by Bellah *et al.,* 1991 is to situate EE within a discourse of 'democratic participation'. Such an approach might appeal to those concerned about a problem of increasing disconnection and lack of participation and sense of community in society (Bellah *et al*., 1991 cited by Stevenson, 2007:268). As articulated by Cunningham W. & Cunningham M. (2007:581), "Measures to conserve natural resources are more likely to succeed if local communities are given ownership of them, share the benefits, and are involved in decisions."

On the other hand, Messer & Kecskes (2008:198) argue, "Many problems associated with the degradation of water quality and watershed health in general emanate from the community as non-point sources of pollution. Thus, effectively addressing these problems requires directly engaging the community at its source closest to them-the individual residents and business within the neighborhoods.

In this regard, UNESCO, 2009 acknowledged the role of HEIs by stating as: "In alliance with the communities in which they are based, and through the use of community-based research strategies, HEIs need to align and focus their considerable capacities on promoting innovative and effective government policies and civic action."

Dyer (1997) in his discussion of the moves of tertiary education to green education, argues that: "If Environmentalism/Green Education is to succeed in both its educational and social purposes, it is absolutely essential that…(first) and foremost the … lecturers and researchers directly involved in environmental issues, those identified as educators *about* the environment and those identifying themselves *for* or *with* the environment… must be encouraged and supported in the kind of formal and informal staff development which will allow them to both understand one another and to cooperate with one another in trying to achieve green education (Dyer, 1997 cited in Tomas *et al.*, 1999:321).

2.1.1 Definition of Key terms/Concepts

Environment (from the French *environner*: to encircle or surround) can be defined as: i) the circumstances or conditions that surround an organism or group of organisms, or ii) the complex of social or cultural conditions that affect an individual or community. Since humans inhabit the natural world as well as the "built" or technological, social, and cultural world, all constitute important parts of our environment (Cunningham W. & Cunningham M., 2007: 16). It can also be defined in terms of its natural and human components. Accordingly, the natural environment encompasses all living and non-living things occurring naturally on earth or some region thereof. It is an environment that encompasses the interactions of all living species. The concept of the natural environment can be distinguished by components as:

- complete ecological units that function as natural systems without massive human intervention, including all vegetation, microorganisms, soil, rocks, atmosphere and natural phenomena that occur within their boundaries; and
- universal natural resources and physical phenomena that lack clear cut boundaries, such as air, water and climate, as well as energy, radiation, electric charge and magnetism, not originating from human activity.

The natural environment contrasts with the built environment, which encompasses the areas and components that are strongly influenced by humans. In general, in a broad sense, environment is defined as all "the surrounding of an object."[5] Environmental Education (EE), then, is *"… conceived as a process of recognizing the value and various conceptions of the*

[5] http://en.wikipedia.org/wiki/natural-environment (*accessed on 27-02-2011*)

environment with the prime aim of determining the skills and approaches necessary for understanding the relationship between man, his culture and the biophysical environment" (UNESCO, 1988 cited in Otiende, *et al.*, 1997:5).

The concept of ***environmental concerns*** is difficult to define because the term environment itself is complex as it is understood differently by different sections of the society. However, this thesis defines the phrase "environmental concerns" as *those environmental issues that are mainly associated with the local physical environment, such as land degradation, soil erosion, flooding, deforestation, and urban based waste disposal problems that have an adverse effect upon the life conditions of the local community and the natural environment.*

On the other hand, the term **community** has been traditionally difficult to define, as it has the capacity to take on many roles depending on context. At the simplest level, it signifies a collection of people who share similar interests and involves the strength of attachment (Messer, and Kecskes, 2008:194). Similarly, Cambridge International Dictionary of English (1996:272) defines the word as "…the people living in one particular area or people who are considered as a unity because of their common interests, background or nationality." A community can be defined geographically, such as a neighborhood or watershed, or it can be defined socially, as in communities established through interactions within religious or academic institutions or in a service club. Size is irrelevant. Communities can be as large as a hundred thousand or as small as three. The unifying factor is a shared interest in working for similar purposes in order to achieve common goals (Cochrun 1994 cited in Messer & Kecskes, 2008:194). Community involvement in public activities and planning initiatives is desirable if only because no one knows better than community members what the local, day-to-day problems are and who will be affected by them.

To the context of this study, the term community refers to the local community as organized under different CBOs, such as Women's Association, Youths' Association, faith-based organizations, as well as local administrative units (*Kebeles*).

Finally, Higher Education Institutions (HEIs) are academic institutions that conduct studies, training and research at post-secondary level. According to the Ethiopian Higher Education

Proclamation Number 650/2009, HE means education in the arts and sciences offered to undergraduates and graduate students who attend degree programmes through any of the delivery modes stated under Article 19 (2) of this proclamation. These delivery modes include: a) continuing education; and b) distance or virtual education.

2.2 University-Community Collaboration for Sustainable Environmental Management

As it is widely known universities have three core missions: teaching, research, and community engagement/service, which complement each other. According to Business/Higher Education Round Table (B-HERT), 2006, interest in community engagement and associated funding for universities has come into prominence in the context of growing attention being given to this third mission of universities and the idea of engagement between universities and society. As B-HERT 2006 position paper states,

> *Universities have a wider view of engagement which includes social, economic, environmental and cultural dimensions of capacity building. They make contributions to government and civil society as well as the private sector, assisting not only with economic performance but also helping to improve quality of life and the effectiveness of public service.*

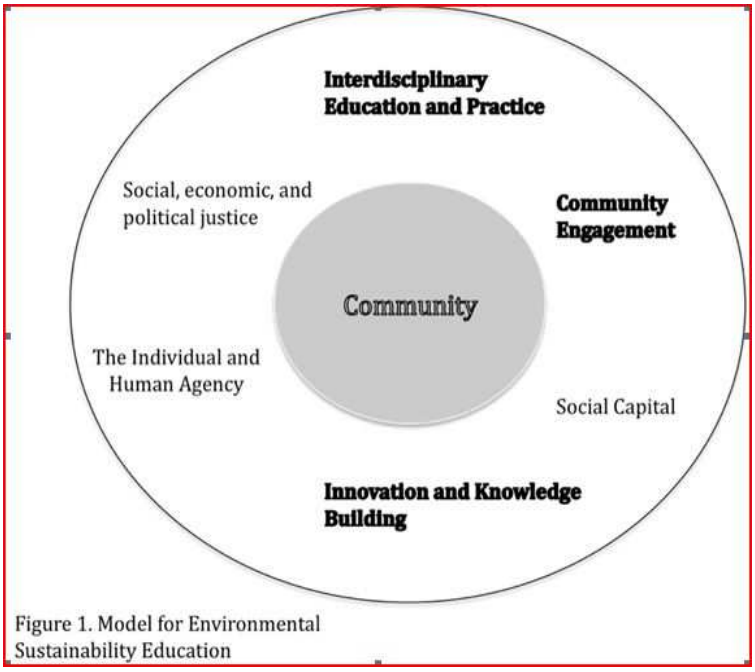
In their study paper entitled, "Community and Environmental Sustainability", Cathryne *et al.*, (2010:4) argue that "Academic institutions as community members, creators of knowledge, and educators of current and future citizens and practitioners have the potential to play a significant role in establishing sustainable environment." Moreover, they go on to saying that community plays a vital role by serving as the learning context for colleges and universities and as co-creators for complex change processes.

Community engagement as a characteristic of universities policy and practice should have a two-way orientation. This two-way relationship is one in which the university forms partnership with communities that yield mutually beneficial outcomes such as: addressing social and environmental issues in the community; and progress towards a region's sustainable development (B-HERT, 2006). Similarly, as maintained by Cunningham W. & Cunningham M.,

(2007:560), working with local communities can tap into traditional knowledge (TK) and gain acceptance for environmental management plans that finally emerge from policy planning. Hence, there is the need to introduce collaborative educational models that link environmental sustainability to community engagement and the enhancement of social and economic justice (Cathryne *et al.*, 2010:3). The model for environmental sustainability education (see Figure 2) is a systemic model integrating multiple dimensions deemed useful in the development of environmentally sustainable practice. The necessity for creating a model centered on community, interdisciplinary learning process, and the experiential learning process is reflected. Community building and community organizing processes are engaged to create change (Pyles, 2009 cited in Cathryne *et al*., 2010:4).

In general, CUC creates a win-win situation between these two parties; and thereby contributes significantly for the sustainable environmental management. However, as articulated by B-HERT (2006), "Whilst communities engagement is and must be, a core business of universities, until now it has not received sufficient recognition as such".

Figure 2: Model for Environmental Sustainability Education



Source: http://www.uwindsor.ca/criticalsocialwork/community-and-environmental-sustainability-collaboration-and-interdisciplinary-education (*accessed 23-3-2011*).

2.2.1 Environmental Education and Environmental Sustainability: A historical perspective

In 1969 Bill Stapp and colleagues wrote about problems of environmental planning, pesticides, community blight, air and water pollution, traffic congestion and other environmental concerns. They also proposed a new approach designed to reach citizens who were increasingly being asked to make decisions which could affect environmental quality. They called this new approach 'environmental education' (Stapp *et al*., 1969 cited in Jickling & Spork, 1998:310). It has been more than 40 years "… since the term EE emerged, the first issue of the Journal of EE was published, the North American Association for EE was formed and in Britain the Council for EE was established (Jickling & Spork, 1998:309). Similar developments with their own relevance to the advancement of EE have occurred more recently, and to varying degrees, in a host of other countries, such as Australia, New Zealand and South Africa. During the intervening years there has been discussion about the nature and purpose of EE and an acknowledgment that it is, and should be, a contested concept (Gough, 1997; Mrazek, 1993; Robottom, 1993; Jickling, 1991a, 1995 cited in Jickling & Spork, 1998:309).

In this regard, a number of international conferences that took place in the 1970s and later deserve particular mention. Accordingly, EE, as a global movement, was effectively established at the United Nations Conference on the Human Environment (UNCHE) held in Stockholm during 1972. One of its important outcomes is that the conference discussed ways through which education can create effective environmental policies and management (Otiende *et al.,* 1997:18-10).

A few months later, the recommendations of the Stockholm conference on establishing an international programme for EE-which was to be interdisciplinary in approach within the United Nations network was endorsed under the General Assembly Resolution 2997 (XXVII). It resulted in the creation of the UNEP, which was to work towards educating all peoples on the simple steps to take to manage and control their environment effectively. To this end, UNEP cooperated with UNESCO in attempting to develop and establish EE at an international level.

Since Stockholm conference, both UNEP and UNESCO carried out exploratory research on the world wide EE needs; and in 1975 they organized a workshop for an exchange of views in Belgrade, Yugoslavia. The Belgrade Workshop produced the Belgrade Charter which singled out

the goals, objectives, principles and target audiences for effective EEPs (Otiende *et al.,* 1997: 20-22).

The Belgrade Workshop was followed by the Tbilisi Conference of 1977, which was the first intergovernmental meeting ushering a new phase in EE. The Tbilisi Conference was charged with implementing the International Environmental Education Programme (IEEP), a product of the Belgrade Workshop of 1975. The major and lasting achievement of the Tbilisi Conference, however, was the precise description of the nature of EE, its aims, objectives, founding principles and characteristics, and strategies at all levels. It is these which have been instrumental in devising and developing almost all activities regarding EE worldwide.

The goals of EE according to the Tbilisi Conference are:

- *To foster clear awareness of and concern about economic, social, political and ecological interdependence in both urban and rural areas;*
- *To provide every person with opportunities to acquire the knowledge, values, attitude, commitment and skills needed to protect and improve the environment; and*
- *To create new pattern of behavior of individuals, groups and society as a whole towards the environment*.

The Tbilisi Conference has also identified five categories of objectives in consistency with its goals. These are objectives that can be classified in to levels as *awareness level, knowledge level, attitude level, skill level and participation or environmental action level.*

In June 1992, delegates from more than 175 nations gathered in Rio de Janeiro, Brazil, for the United Nations Conference on Environment and Development (UNCED), better known as, "the Earth Summit". Held twenty years after the first major world conference on the human environment in Stockholm, "the Earth Summit" was a manifestation of ongoing world-wide concern about what can be referred to as 'the environmental problematique'. Two decades after the first wave of environmentalism swept over much of the world, the environment was higher

than ever on the international political agenda. Indeed, "*Concern for the environment has proved to be neither fashion nor fad, but, rather a persistent phenomenon*" (Ton & Robert, 1993:1).

One of the 18 principles of sustainability according to the Rio Declaration on Environment and Development reads as: "Environmental issues are best handled with the participation of all concerned citizens. Nations shall facilitate and encourage public awareness and participation by making environmental information widely available." [6] This principle indicates among other things the critical and pivotal roles of EE in bringing about environmental awareness and understanding, and thereby ensuring environmental sustainability.

In African continent, also there are a number of environmental and sustainability initiatives. One of the key actions is development of a strategic approach to mainstreaming EE across all relevant governmental institutions, including the design of programs suitable for the primary, secondary and territory education sectors and fostering cooperation with the non-formal EE sector (UNEP, 2008). The NEPAD Environmental Action Plan is also known to emphasize the importance of mainstreaming EE and training for sustainable development. To this effect, a NEPAD Council Commission of Education has been formed so as to strengthen African universities and give opportunities for African scientists and scholars to develop their research skills as part of the effort to reduce poverty, stimulate and ensure sustainable economic, social and political development in Africa.

In more recent times, UNEP successfully engaged with African universities in integrating environment and sustainability concerns in to teaching, research, and community engagement as well as in university management since the year 2004 through its flagship programme: Mainstreaming Environment and Sustainability in African Universities (MESA). In order to strengthen this interaction with universities, and influence policy at the national, regional, and global levels, UNEP and its partners have conceptualized a global consultative meeting (17-19 November 20101) at the UNEP headquarters in Nairobi, Kenya to deliberate on and plan for the Global Universities Partnership on Environment and Sustainability (GUPES).

[6] http://www.esdtoolkit.org/discussion/default.htm (*accessed 07-05-2010*).

The GUPES consultative meeting provides a critical occasion to renew HE's commitment to promoting sustainability within the broader context of the United Nations Decade of Education for Sustainable Development (UNDESD, 2005-2014). The goal of the UNDESD for which UNESCO is the lead agency, is to integrate the principles, values, and practices of sustainable development into all aspects of education and learning. This educational effort will encourage changes in behaviour that will create a more sustainable future in terms of environmental integrity, economic viability, and a just society for present and future generations. Achieving the goal of the UNDESD through the GUPES initiative requires close collaboration and participation of a wide range of stakeholders in EE, ESD and sustainable development realms.[7]

2.3 Community-University Collaboration: Promises and barriers

2.3.1 Promises for Community-University Collaboration

As it has been established by several studies, CUC plays a paramount role in tackling the socio-economic and environmental problems facing the local, national and global communities. While universities interact with their communities in a range of ways, university-community engagement specifically implies collaborative relationships leading to productive partnerships that yield mutually beneficial outcomes (Langworthy, 2006:2-3).

Similarly, Messer & Kecskes (2008:196) argues,

> *Community members' participation creates a holistic community integration of programs. The end product is an amalgamation of ideas, responsibilities, resources, shared visions, and an agreement to work collectively for a common goal. These groups can achieve more together than if they worked alone and in so doing build social capital that directly enhances social sustainability. … This unity then becomes infused into other sectors of community involvement and improvement. The process of relationship building promotes stewardship of watersheds and understanding of larger issues of human impact on the environment, such as water quality, erosion, and native species reintroduction.*

[7] http://hqweb.unep.org/training/downloads/GUPES%20background%20paper.pelf (*accessed on 27-06-2011*)

As AUCEA underlined, CUC "…results in knowledge transfer and exchange, the commercialization of intellectual property, the establishment of spin off companies and joint venture activity between universities and community partners…." Moreover, communities gain a wide range of benefits through their productive interactions with universities. These include enhanced human and social capital development, accelerated economic growth, improved professional and intellectual infrastructure in communities, progress towards sustainability and research outcomes that can benefit the social, economic, environmental and cultural dimensions of society (AUCEA, 2010:3).

Community engagement is one of the corner stones of EE. It is through community engagement that students learn to appreciate that experiences that impact not only the environment, but also the individuals and communities as they interact with the environment. However, some scholars, such as Ling *et al*., caution, "*Rather than entering the community as experts, university participants need to enter as learners as well as educators in the spirit of sharing expertise*"(Ling *et al*.,2009 quoted in Cathryne *et al.*, 2010:4).

There are certain possibilities for community engagement with in the context of EE. In this regard, Stevenson (2007:275-276) identifies the following forces of changes that have the potential for creating spaces for supporting both greater teacher agency and alternative views of knowledge and learning and approaches to teaching that are consistent with the needs of EE educators. Accordingly;

- advances in information and communication technologies that are increasingly becoming available in classrooms in developed countries that allows teachers to engage students in collecting diverse information in short periods of time and enable more inquiry learning within the time and space constraints of school classrooms;
- increased awareness of theories of constructivist learning, multiple intelligences and postmodernism that are bringing more acceptance of the notion that knowledge is socially constructed from individuals active participation in the production and verification of meaning;

- new approaches to teacher professional development that recognize the importance of teacher agency and professional communities and incorporate more constructivist and collaborative learning opportunities;
- emerging initiatives that place more emphasis on consideration of cultural and normative, as well as environmental factors, even in traditionally technical fields such as science and technology; and
- increased possibilities for collaboration with external community groups and NGOs, particularly arising from the seeming proliferation of organizations concerned with different social justice and environmental issues.

Indeed, even though the structures and norms of schooling continue to work against inquiry based action-oriented EE practices, several emerging trends are identified that can offer promising spaces or opportunities for CUC at local, national, regional and global levels.

2.3.2 Barriers for Community-University Collaboration

On the other hand, there are several challenges that hinder the optimization of the various benefits that can be accrued from the CUC on the mutually reinforcing and interlinked socio-economic and environmental affairs. Accordingly, Whelan (2003:1) argues, "…the pressures to publish, teach and keep pace with administrivia inevitably mitigate against many academics' active engagement in civil society. More significant obstacles include conservatism, careerism, ignorance and the threat of political consequence". A variety of factors isolate civil society groups and social scientists from each other. In this regard, Whelan (2003:1) goes on to say,

> *Academics encounter research-funding arrangements that increasingly reflect industry priorities. University reward structures offer little if any recognition for civil engagement. Activists seeking short-term support from universities often experience frustration and disappointment. The cultures of the tertiary and community and sectors entail different values, timeframe and hierarchies.*

Despite the existence of the above mentioned and other challenges associated with CUC in working towards environmental sustainability much research has focused on the potential benefits of the partnership and also considered community as a distinct entity with definite and

unique characteristics, as well as varying structures and leadership. However, in ideal circumstances, the community can function alongside university as both a research subject and a collaborator.

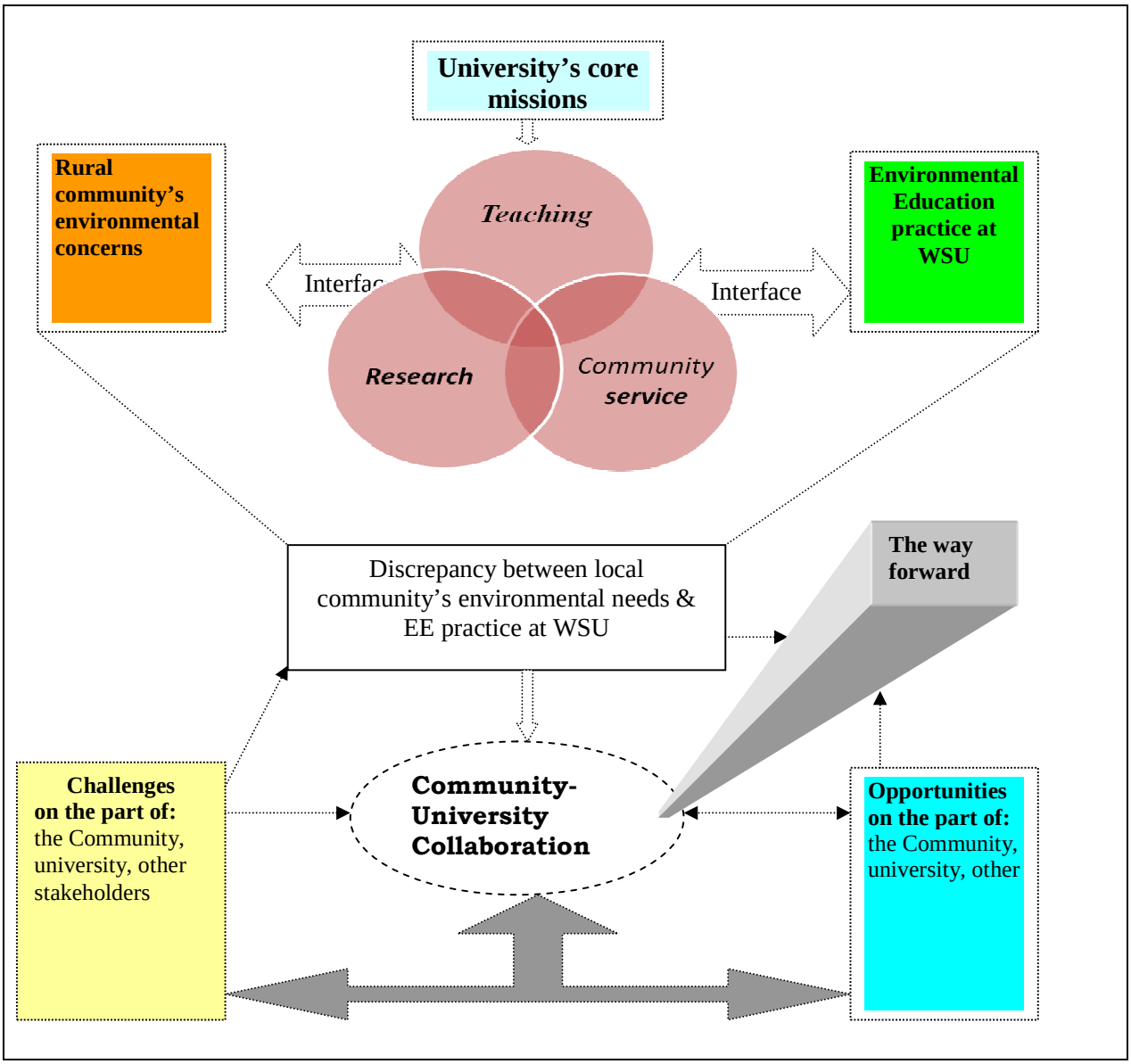
Based on the review of different literatures on the issues under the investigation, a conceptual framework that summarizes some of the most important linkages among the key issues in the study has been formulated. Accordingly, as it can be seen from Figure 3, the university's three core missions that bridge the local community with the institution- indicated by the double faced arrows- are displayed by the three equal sized overlapping circles. These circles are also showing the mutually interdependent and reinforcing nature of the relationship among the three core function areas of the university.

It was on the basis of these two way linkages that an actual gap between the community's environmental needs and EE practice at WSU has been assessed from several vantage points in the study. In response to the gap being identified, the study has forwarded CUC as a working intervention strategy while also exploring its associated bottlenecks and possibilities. On the other hand, the existence of such a discrepancy between the two parties can partially be attributed to the various challenges for strengthening CUC with respect to environmental protection and management from the perspective of the local community, the institution and other concerned agents. Moreover, it suggests another potential area of intervention for all the parties involved in the future.

The triple faced arrow that connects the various challenges and opportunities of CUC strategy shows the idea that some of the opportunities identified on the part of the university, the rural community and other agents with their own stakes on the issue could be part of the solutions to overcome the associated barriers; and thereby become the possibilities for narrowing the discrepancy between the local community's environmental expectations and an actual performance of the university with respect to EE through its core businesses. Thus, the existing possibilities from the part of both the partnering parties as well as other agents would possibly be the inputs for furthering the partnerships among these parties in working against the prevailing environmental issues in the study area. However, it is also important to note that apart from limiting the effectiveness of the suggested CUC approach in responding to the local

community's environmental concerns, the different barriers identified on the part of the different agents in the study area could likely be the impediments for optimizing the existing possibilities for furthering such a presumably productive partnership in the study area. In general, the overall impression of the above discussion is the non-linear or a complex nature of the linkages between the local community and the institution as well as the multiple challenges and windows of opportunities for their collaboration in the pursuit of their common goal of environmental sustainability in the study area.

Figure 3. A conceptual framework of the study



Source: Own made

2.4 Experiences of Other Universities: An Overview

There are HEIs with best experiences in terms of their relevance and responsiveness to their respective surrounding community's socio-economic and environmental needs and priorities at global, regional, and to some extent at national levels. From each of them WSU in particular and other HEIs in the country at large could draw certain lessons in pursuing their missions with respect to addressing their local community's environmental challenges. Accordingly, in the forerunning discussions some of the experiences of HE community engagement in countries, such as South Africa, Mexico and Ghana, and Jimma University in Ethiopia will be highlighted in this order.

Many of the issues of responsiveness in South African HE system have been shared in other countries, and it is valuable to look briefly some of these experiences. For instance, as reviewed by Ngara (1995:19), in South Africa as a result of the growing interaction between the country's HEIs and the government departments, private sector companies and the rural farming community, new courses have been introduced as a way of meeting some of the needs identified in this kind of interaction. In some cases the relevant sectors of the community could make an input on curriculum development. For instance, institutes of chartered accounts in South Africa could be consulted when courses for accounting degrees are being designed and they could suggest how such courses could be made more relevant to the economy. By interacting with the community in this way universities are likely to gain a high status in the society, and issues relating to academic freedom and autonomy are likely to be better understood.

As presented at the 2006 conference on community engagement co-hosted by the Council on Higher Education (CHE) and Community Higher Education Service Partnerships (CHESP), in Mexico it has been recognized that HEIs face new challenges associated with providing learning opportunities far more generally. Despite the challenges, the University of Veracruz in Mexico has developed an institutional strategy based on the notion that community engagement is a core academic function. Since 1997, the university has implemented a social outreach programme through the University Social Service Brigades that "comprise undergraduate students who have completed their academic studies and who must by law meet social service requirements; groups

of five to seven students receive scholarships from the university and reside in the community for a year. These resident students come from all academic fields of the university and, to date, more than 25 academic fields have been represented in the project. The University Brigades experience has provided valuable guidelines for the strategy–adopted as an instrument of social policy by the Secretary of Education of Veracruz–to link the tasks of education and community work in the state of Veracruz" (Arredondo & Fernández de la Garza in CHE, 2007).

In Ghana, the University for Development Studies was established in 1992 with a statutory responsibility "to blend the academic world with that of the community in order to provide constructive interaction between the two for the total development of the largely rural northern Ghana in particular and the country as a whole" (Kaburise in CHE, 2007). This broader context includes a range of initiatives that may be valuable in deepening and refining the approach to third sector engagement in countries such as Ethiopia.

In Ethiopia, for instance, Jimma University which is located 335 kilometers south west of Addis Ababa at Jimma Town has been renowned as a national pioneer in community-based education. It is the country's first innovative Community Oriented Practical Education (COPE) educational institution of higher learning. COPE institutions are recognized by the Ministry of Education as excelling in civic engagement as a key academic activity. At Jimma University, particularly in the fields of health science students involvement with communities during their training is 'real work' that relates to their educational experience and also forms part of the requirements for obtaining a degree or diploma. The university is making every endeavor to address societal needs and promote holistic and sustainable development in the country.

Although the Ethiopian government has not formally embraced civic engagement within the HE policy framework, the efforts by the university have led to the Ministry of Education recognizing the program. This in turn has smoothed the progress of other institutions of higher learning to adapt part of the university's community-based education policy in their own localities.[8]

[8] www.tufts.edu/talloiresnetwork/downloads/JimmaUniversity.doc (*accessed on 27-06-2011*)

In general, the experiences of other HEIs both in and abroad described above suggest some important lessons for the institution in focus in terms of further strengthening its linkages with its surrounding rural community groups on the various socio-economic and environmental affairs in the future.

CHAPTER THREE

3. RESULTS AND DISCUSSIONS

In its attempt to investigate the level of integration of local community's environmental concerns in the core missions of WSU, this chapter, in particular, includes a wide range of issues under its various main and sub-sections. Accordingly, the chapter is divided into seven main sections. The first section deals with the basic information of the sample respondents. The second section outlines the major LEIs in the study area. The third and fourth sections concern with the level of emphasis LEIs have been given in the curricula of different departments and in the core missions of the university respectively. The fifth section tries to find out the relative status of LEIs as compared to greater spatial scale environmental issues in both the curricula and instruction of the sample faculties. The sixth section deals with the main features of CUC with respect to local environmental management; and the last section is about the challenges and opportunities associated with CUC in the study area. Accordingly, each of the above mentioned main sections along with their respective sub-sections are being presented in their logical order as follows.

3.1 Description of the Study Area

Wolaita is a Zone in the Ethiopian Southern Nations, Nationalities and Peoples Region (SNNPR). It is named for the Wolaita people, whose homeland lies in this Zone. Wolayita is bordered on the south by Gamo Gofa, on the west by the Omo River which separates it from Dawro, on the northwest by Kembata Tembaro, on the north by Hadiya, on the northeast by the Oromia Region, on the east by the Bilate River which separates it from Sidama, and on the south east by the Lake Abaya which separates it from Oromia Region (see location map of the study area). The highest point in this Zone is Mount Damota (2738 meters). The administrative center of Wolaita is Sodo town.

Originally Wolaita was part of the Semien (North) Omo Zone, and the 1994 national census counted its inhabitants as part of that Zone. However friction between the various ethnic groups in Semien Omo, which was often blamed on the Wolaita for "ethnic chauvinism" and despite the efforts of the ruling party to emphasize the need to co-ordinate, consolidate, and unify the smaller ethnic units to achieve the "efficient use of scarce government resources", eventually led

to the division of the Zone in 2000, resulting with the creation of not only the Wolaita, but also the Gamo Gofa and Dawro Zones and two special *woredas* (Vaughan, 2003).

Based on the 2007 Census conducted by the Central Statistical Agency of Ethiopia (CSA), this Zone has a total population of 1,501,112, of whom 739,533 are men and 761,579 women; with an area of 4,208.64 square kilometers, Wolaita has a population density of 356.67. While 172,514 or 11.49% are urban inhabitants, a further 1,196 or 0.08% are pastoralists. A total of 310,454 households were counted in this Zone, which results in an average of 4.84 persons to a household, and 297,981 housing units (CSA, 2007).

Wolaita Sodo University (WSU) is located in the mid highlands of southern Ethiopia. Specifically, it is found in Wolaita Zone, Sodo (6°49'N latitude and 37°45'E longitude) in the hub of Southern Regional State(see Figure 4). The university is situated in the southern outskirt of Sodo town at the altitude of 1800 meters above the sea level. The area is enjoying a tropical climate, on average, 1,212 mm of annual rain fall and 20°c of mean monthly temperature.

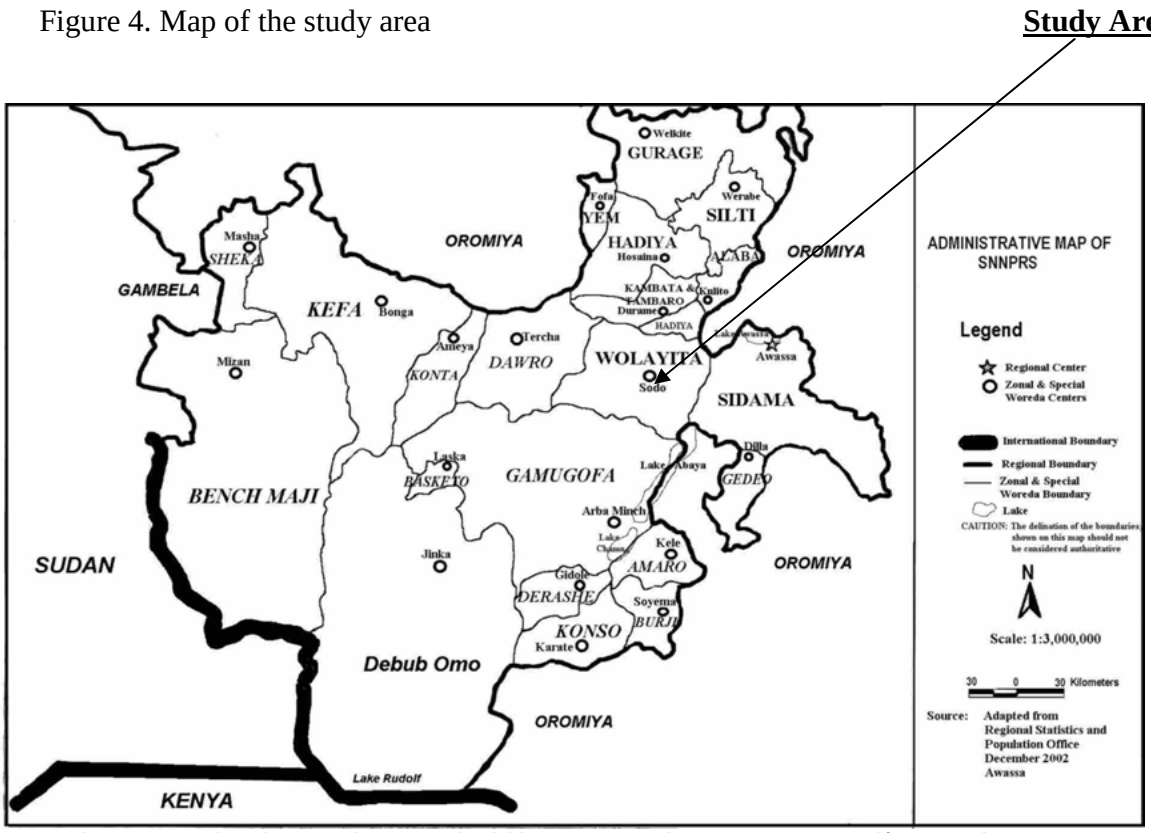
Sodo lies approximately 330 km south of Addis Ababa, along the main highway that leads to Arbaminch via Hossana. According to the latest official data, the population of Sodo is estimated to be about 100,000. Sodo is also one of the economically significant cities of the Regional State. The city is serving as a junction point of five major roads networking it with different parts of the country thus making it centre of business.

Historically, it was based on the underpinning public request as well as the government's plan; it was decided to establish the university at its current location in 2007. After a while the firstly completed phase of the construction provided the bases for operation of Wolaita Sodo University College, as it was first named, that received its first batch, 801(609 male and192 female) students in four faculties and sixteen departments on March 27, 2007.

Since its establishment, the university has gone through a series of developments. It has witnessed tremendous expansion in terms of fields of study, infrastructure, facilities and campus population. In the academic years ranging from 2008 to 2010 two more faculties and three schools, namely the FSSHs, FNCSs, School of Engineering and Technology, School of Law, and

the School of Veterinary Medicine were added. Currently, the university is operating with five faculties and three schools comprised of 24 departments [9].

Figure 4. Map of the study area



Source: http://www.ocha-eth.org/Archive/DownloadableReports/resettlementSNNPR0603.pdf (*accessed 28-4-2011*)

3.2 Basic Information of the Sample Respondents

3.2.1 Socio-economic and Demographic Characteristics of Sample Households

The socio-economic and demographic variables/attributes that were identified in this study included sex, marital status, age, educational status, family size, type of occupation, size of the land holding, net monthly income, and livelihood assets of the sample households. The rationale behind the identification of these variables/attributes was the likely effects (which can be either positive or negative) of most of these factors in determining an individual's, a household's and an entire community's environmental awareness and their subsequent participation in the various environmental protection and management activities. For instance, other things being constant, as the level of education increases, so does an individual's level of environmental awareness. In

[9] http://www.wsu.edu.et/aboutwsu.htm (*accessed 21-04-2011*)

the following discussion, the relevance of and the association between each of the identified variables/attributes to the study's objectives are being elaborated in detail.

Table 2: Socio-economic and demographic profiles of the sample households.

S.N	Variables/attributes	Alternatives	Responses		Remark
			Frequency	%	
1.	Sex	Female	36	19.57	
		Male	148	80.43	
		Sub-total	184	100	
2.	Marital status	Married	103	55.98	
		Not married	54	29.35	
		Divorced	27	14.67	
		Others	-	-	
		Sub-total	184	100	
3.	Age	15-49	116	63.04	
		50-59	51	27.72	
		≥60	17	9.24	
		Sub-total	184	100	
4.	Educational Status	Illiterate	17	9.24	
		Read & write only	19	10.33	
		Grade 1-4	29	15.76	
		Grade 5-8	53	28.80	
		Grade 9-10	27	14.67	
		Grade 11-12	28	15.22	
		Others	11	5.98	e.g.Diploma, BA/BSc,…
		Sub-total	184	100	
5.	Family size	1-5	77	41.86	
		6-10	79	42.93	
		≥11	28	15.21	
		Sub-total	184	100	
6.	Occupation	Farming	113	61.41	
		Petty trade	28	15.22	
		Handcraft	14	7.61	
		Civil servant	15	8.15	
		Retired	7	3.80	
		Others	7	3.80	
		Sub-total	184	100	
7.	Land holding size	Landless	36	19.57	
		≤0.5ha	54	29.35	
		0.06-0.75ha	24	13.04	
		0.76-1.0ha	18	9.78	
		1.1-2.0ha	32	17.39	
		≥2.1	20	10.87	
		Sub-total	184	100	
8.	Net monthly income	≤100 Birr	57	30.98	
		101-350 Birr	36	19.57	
		351-650 Birr	29	15.75	
		651-1000 Birr	38	20.65	
		≥1001 Birr	24	13.04	
		Sub-total	184	100	
Grand total			184	100	

Source: Field survey, March-April, 2011

Based on the data in Table 2, 148(80.43%) of the sample respondents are males while 36(19.57%) are females. This data, among others, enabled both men-headed and women-headed

households in the study area to have equal representation in the study based on their total population size. As indicated in the same table, out of 184 sample respondents, 103(55.98%) were married, whereas 54(29.35%) and 27(14.67%) were unmarried and divorced respectively. This might imply that the diversified communities in rural areas in terms of their marital status were represented to share their views on their locality and interface to the institution.

On the other hand, about 116(63.04%) respondents were between the age group of 15-49, 51(27.72%) were between 50-59, and 17(9.24%) were aged above 60. Despite their relatively lower figure among the study population, old aged respondents in particular enabled the researcher to determine an actual change in the state of the local environment across the different times in the past. Regarding the educational status of the respondents, about 53(28.80%) respondents had attained the first cycle primary education level (i.e., grade 5^{th}-8^{th}). Even though the nineteen (10.33%) and seventeen (9.24%) respondents who could only read and write, and were illiterate respectively in the study area seem to be smaller as compared to those households with better educational status, these figures are also significant. Because as various studies suggest, educational status determines an individual's or a group's environmental awareness, knowledge, attitude, and skill. Moreover, it also indicates the potential environment for exchange of information between the university and community as written materials.

As the data in Table 2 show, about 79(42.93%) respondents had six to ten family members. While 77(41.86%) and 28(15.21%) had one to five and greater than or equal to eleven family members respectively. Based on this data, a substantial majority of households in the study area do have large family size with its own implications on the local environment and livelihoods.

Occupationally, about 61.41% of the sample households were dependent on the sedentary agriculture. Among other things, this figure shows how closely the livelihood conditions of the households in the study area are reliant upon the land and other natural resources with its resultant environmental effects.

On the other hand, out of 184 sample households, 132 (71.74%) have less than one hectare of land. Based on this data, it is possible to say that households' small land holding along with the

large family size and agriculture-based household economy in the study area bring about its own adverse impact on the wellbeing of the local environment.

Finally, a substantial majority of rural households in the study area are under low income category. Accordingly, for instance, 57(30.98%) of the sample population are earning the net monthly income of less than 100 Birr. Data on the households' income partially enabled the researcher to determine whether the effects of local environmental problems in the study area being felt by the different income groups of households equally or not. In addition to households' income profile, data on the households' livelihood assets particularly, livestock (as presented in Table 3) enabled the researcher to explore the relative vulnerability and capability of households to coup with the prevailing local environmental problems in the study area depending on their property (asset) ownership.

Generally, the big family size compounded with very small land holding and very low monthly income indicates the food insecurity and challenges of sustainable resource management.

Similarly, the livestock ownership-which is multifunctional to the household economy like food, market, plough, manure source, and economic diversity, is highly variable among the households. It is not only the livestock diversity in the study area, but also low average holding that imply the local community's vulnerability to food insecurity and less productivity. There is no doubt that the oxen ownership is relatively in a better position compared to many sedentary farmers of highlands, where more than 70% of the households have one or more oxen. However, 17.39% of the households with out any ox are also a significant number which implies less labour productivity, and forced households, particularly women-headed ones to the arrangement of share cropping.

Table 3. Major types and amount of households' livestock in the study area

Type of assets	Responses	Quantity (in number)							Total	
		0	1	2	3	4	5	≥6	Freq.	%
1.Ox	Frequency	36	68	70	13	-	-	1	184	
	%	17.39	36.96	38.04	7.07			0.54		100
2.Cow	Frequency	24	84	58	15	2	-	1	184	
	%	13.04	45.65	31.52	8.15	1.09		0.54		100
3.Heifer	Frequency	47	86	30	16	4	1	-	184	
	%	25.54	46.74	16.30	8.70	2.17	0.54	-		100
4.Calf	Frequency	55	61	56	7	4	1	-	184	
	%	29.89	33.15	30.43	3.80	2.17	0.54	-		100
5.Donkey	Frequency	82	82	8	4	3	4	1	184	
	%	44.57	44.57	4.35	2.17	1.63	2.17	0.54		100
6.Mule	Frequency	178	3	1	-	1	1	-	184	
	%	96.73	1.63	0.54		0.54	0.54			100
7.Horse	Frequency	177	5	2	-	-	-	-	184	
	%	96.2	2.72	1.09	-	-	-	-		100
8.Beehive	Frequency	147	9	-	6	13	4	5	184	
	%	79.89	4.89	-	3.26	7.07	2.17	2.72		100
9.Poultry	Frequency	46	8	20	31	27	28	24	184	
	%	25.00	4.35	10.87	16.85	14.67	15.22	13.04		100
10.Goat	Frequency	90	26	21	23	12	11	1	184	
	%	48.91	14.13	11.41	12.50	6.52	5.98	0.54		100
11.Sheep	Frequency	80	39	36	16	11	1	1	184	
	%	43.48	21.20	19.57	8.70	5.98	0.54	0.54		100
Grand total									184	100

Source: Field survey, March-April, 2011

In general, it is obvious that the quantity and quality of households' domesticated animals are some of the determinants of households' vulnerability to and capability of coping with the prevailing LEIs in the study area. However, as indicated in Table 3, a significant number of households in the study area did not own enough number of domestic animals. According to some households, they keep only a small number of domestic animals per household because of different environmental factors, such as the frequent occurrence of drought and its implication on the supply of pasture land, water and fodder and livestock health. Hopefully, with a joint experimentation of the rural community and the university many of the rural problems might be minimized if not eliminated. Moreover, solving local problems is a foundation to further sustainable development from the university.

3.2.2 Profile of the sample instructors and students

As indicated under part I of Table 4, all of the sample respondents are males. This was because of the absence of female staff members in the faculties upon which this study was being carried out. In terms of academic rank, 12(92.31%) had “lecturer” positions, while only one (7.69%) had “Graduate Assistant II” position. Undoubtedly, the academic profile of the teaching staff could have certain association with their actual performances with respect to mainstreaming local environmental problems in the teaching-learning, research and community service activities of the university.

Regarding the work experience of academic staff, only one (7.69%) respondent had about five years of stay at his current department; while five (38.46%) stayed in their respective departments for less than or equal to one academic year. The low work experience of the academics has also its own implications for the proper conduct of the university’s core businesses.

In addition, the total years of work experience of academic staff (both at WSU and any other educational institutions) are also indicated in the same table. Accordingly, seven (53.85%) respondents replied that they had less than or equal to five years of total work experience. Based on this data, a substantial majority of academic staffs currently working at WSU have no sufficient work experience with its own impacts on the effectiveness of the institution’s missions at both local and national levels.

Finally, as indicated under part II of the same table, out of 51 sample students, 42(82.35%) and nine (17.65%) are males and females respectively. In terms of the year level, all of them were from third year graduating class students. This in turn enabled the researcher to access to key informants of the issue under the investigation.

Table 4. Some vital information of the academic staff and students

S.N	Items	Alternatives	Responses		Remark
			Frequency	%	
PART I : Basic information of the academic staff					
1.	Sex	Female	-	-	because there was no female staff
		Male	13	100	
		Sub total	13	100	
2.	Academic rank	Associate Prof.	-	-	
		Assistant Prof.	-	-	
		Lecturer	12	92.31	
		Assistant Lecturer	1	7.69	
		Graduate Assistant II	-	-	
		Graduate Assistant I	-	-	
		Technical Assistant	-	-	
		Others	-	-	
		Sub total	13	100	
3.	Year of stay	≤1year	5	38. 46	Here 5 years are taken as a greater year of stay for academic staff based on the institution's age itself.
		1 year & 1month to 2years	3	23.08	
		2 year & 1month to 3 years	-	-	
		3 year & 1month to 4 years	4	30.77	
		4 year & 1month to 5 years	-	-	
		≥5 years	1	7.69	
		Sub total	13	100	
4.	Total work experience	≤5 years	7	53.85	
		6-10 years	4	30.77	
		11-15 years	-	-	
		16-20 years	1	7.69	
		21-25 years	1	7.69	
		≥26 years	-	-	
		Sub total	13	100	
Grand total			13	100	
PART II: Basic information of the sample students					
1.	Sex	Female	9	17.65	
		Male	42	82.35	
		Sub total	51	100	
2.	Year level	First	-	-	Because all of the sample students were from third year students
		Second	-	-	
		Third	51	100	
		Fourth	-	-	
		Sub total	51	100	
Grand total			51	100	

Source: Field survey, March-April, 2011

3.3 The Major Local Environmental Problems in the Study Area

As stated in perhaps one of the most recent reports on the socio-economic and environmental situations of Wolaita people, "Land shortage (0.3 hectare per household), environmental degradation due to natural and man-made factors, loss of land fertility due to prolonged cultivation, are major problems among others that resulted in low agricultural productivity and

yielding which has led to food deficiency."[10] Similarly, survey results obtained from sample respondents through different data collection tools confirm more or less the same findings. In the following sub-sections, the major local environmental problems along with their causes and effects as identified by the rural households and other rural community groups, academic staffs of the university and the researcher himself through field observation are presented in detail.

3.3.1 Community's Perception of Local Environmental Degradation

As indicated in Table 5, out of 184 household respondents, 34(18.48%), 32(17.39%), and 20(10.87%) identified water pollution, soil erosion, and drought as the first, the second and the third serious LEIs in the study area respectively. Moreover, data obtained through FGDs, personal interviews with DAs and HEWs as well as fields observation show other types of environmental problems in the study area in addition to those identified by the sample households. Accordingly, some other types of LEIs that reinforce the above mentioned major types of ecological problems in the study area; and thereby affect the entire community include loss of soil fertility, deforestation, effects of some introduced plant species (esp. *eucalyptus* tree), solid and liquid waste disposal problems (esp. those wastes generated by urban dwellers and WSU itself and disposed on the open landfills without being properly treated), flooding and land degradation among others.

[10] http://www.joshuaproject.net/people-profile-php?peo3-15835&rog3=eg (*accessed on 27-01-2011*)

Table 5. Local environmental problems and their causes

Items	Alternatives	Responses	
		Frequency	%
1. Identify the three most serious environmental problems in your locality in terms of their effects upon your life and livelihood conditions.	Water pollution	34	18.48
	Soil erosion	32	17.39
	Deforestation	7	3.80
	Flooding	16	8.70
	Loss of soil fertility	19	10.33
	Drought	20	10.87
	Desertification	5	2.72
	Overgrazing	10	5.43
	Over cultivation	7	3.80
	Air pollution	19	10.33
	Land slide	7	3.80
	Hazardous waste disposal	8	4.35
	Others	-	-
	Sub total	184	100
2. Which one of the following factors is the major cause for the environmental degradation in your locality?	Deforestation	16	8.70
	Population growth	51	27.72
	Urban expansion	32	17.39
	Poor natural resource management practice	12	6.52
	Household waste disposal	15	8.15
	Overgrazing /over cultivation	7	3.80
	Poverty	48	26.09
	Others	3	1.63
	Sub total	184	100
Grand total		184	100

Source: Field survey, March-April, 2011

See the following photos of environmentally degraded sites in the study area.

Figure 5. Photos of some environmentally degraded sites in the study area.

Source: Photographed by the researcher, April 21, 2011

Furthermore, qualitative data obtained through instructors' survey questionnaire on the same issue confirms more or less the same result (see Table 6).

Based on the broader underpinning themes, the local environmental problems identified by academic staff of WSU have been synthesized and ranked on the basis of response rate (see Table 6). Sorting out the identified specific environmental issues in this manner does not only help determine the most frequently chosen local environmental problems by sample instructors, but also compare them with those ones that have been identified by rural households (see Table 5) and other community groups in the study area.

As indicated in Table 6, out of 13 sample instructors who responded this particular question, about six identified soil erosion and its resultant land degradation as the most serious LEIs in the study area. Whereas, another five and four respondents identified poor solid and liquid waste management practices, and water pollution and scarcity respectively as another major environmental problems in the study area. Accordingly, in terms of rank order, land degradation caused by soil erosion among other factors; poor waste management systems and its resultant environmental sanitation issues; and water scarcity and pollution are the first, the second, and the third most serious environmental concerns in the study area respectively.

In general, however, the most important point to note here is not a mere rank order of local environmental problems based on the number of responses given by the sample respondents, but the consistency in terms of the nature and type of the identified environmental issues that should be of priority. In other words, distinguishing the existence of certain similarity/difference among the nature and type of LEIs being identified by the different groups of respondents in the study area should have to be underlined rather than merely ranking the same. So that the nature, type, scale, cause and effects among other attributes of the LEIs in the study area can be easily understood.

Table 6. Major categories & rank of local environmental problems identified by instructors

S.N	Types of environmental problems	Response rate	Rank	Remark
1.	Water pollution and scarcity	4	3rd	The total No of response is greater than the sample size b/c some staff listed more than one
2.	Air pollution	1	5th	
3.	Soil erosion and land degradation	6	1st	
4.	Poor solid and liquid waste management	5	2nd	
5.	Sound pollution	1	5th	
6.	Deforestation and overgrazing	3	4th	
7.	Effects of introduced species	1	5th	
8.	Weather change	1	5th	
9.	Lack of green areas	1	5th	
Total		23	-	

Source: Field survey, March-April, 2011

3.3.2 Root Causes of Environmental Problems in the Study Area

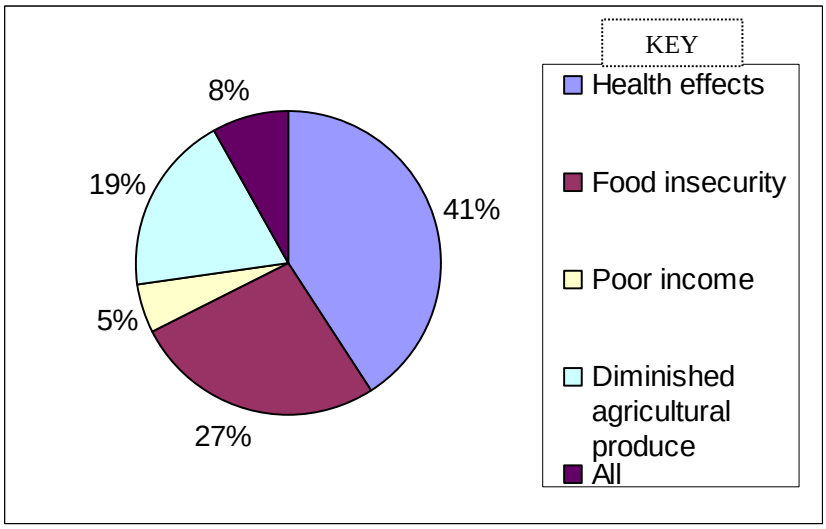
The occurrence of LEIs of various types in the study area can be attributed to several socio-economic, demographic and other associated factors. As it is indicated in Table 5, the three major factors that contribute to the occurrence of local environmental problems in the study area as opted by 51(27.72%), 48(26.09%) and 32(17.39%) of the sample household respondents respectively are the rapid population growth, poverty, and urban expansion into the surrounding rural landscape. In addition to these factors, there are also other causes that contribute to local level environmental degradation in the study area. These factors include deforestation, households' poor waste disposal problem, poor natural resource management practice, over cultivation and overgrazing among others. Similarly, based on the findings obtained through instructors' survey questionnaire, FGDs and personal interviews with some key informants, there are also some other factors in addition to those mentioned above. These include:

- Shortage of agricultural land;
- Shortage of food;
- Lack of experts to teach the community about environmental issues and their resultant effects of various types;
- Lack of coordination among the different concerned stakeholders;
- High population density and topography of the area;
- Little concern given by the local level decision makers for environmental problems in terms of planning and budgeting; and
- Shortage of financial and material capital.

3.3.3 Impacts as perceived by different stakeholders

As it has widely been established in the various environmental literatures, virtually all the aforementioned environmental issues are disastrous from both human and ecological point of view. This is irrespective of their type, scale, and location of occurrence among others. The result obtained from survey of the rural households and other community groups in the study area suggest more or less similar ideas as presented in the following figure.

Figure 6. Effects of local environmental problems in the study area



Source: Field survey, March-April, 2011

As it can be seen from Figure 6, about 41% of the sample household respondents replied that the prevailing LEIs of various types cause health problems, while as replied by 27.00%, 19.00%, and 5.00% sample household respondents food insecurity, loss of agricultural produce and poor income respectively are problems that can all be attributed to the prevailing local environmental issues in the study area. Moreover, not only a single effect in isolation, but also all the mentioned and other socio-economic problems in combination are the resultants effects of local environmental degradation in the study area.

As it can be seen from Table 7, 152(82.61%) sample households said that they had heard about the adverse effects of local environmental problems of different types on their life and livelihood conditions from the various sources of information (see Table 8), while 32(17.39%) did not. Similarly, about 128(69.57%) of the sample households are able to determine the adverse effects

of local environmental problems particularly on their health condition and agricultural produce among others, while the remaining 56(30.43%) were not. Moreover, as indicated in the similar table, 161(87.5%) of the sample respondents believed in the idea that says 'every single individual in the community should take part in the environmental protection and management activities' while about 23(12.5%) did not. The presence of environmental awareness among the rural households in the study area can be taken as one of the promising opportunities for strengthening CUC with respect to environmental protection activities. However, on the other hand, the existence of a significant number of households which have no or less environmental awareness indicates the need to further provide EE by the institution in collaboration with other concerned agents in the study area.

Table 7. Environmental awareness of households in the study area

Item	Responses	Alternatives		Total
		Yes	No	
1. Have you ever heard of the fact that environmental issues of different types do have an adverse effect on your life and livelihood conditions?	Frequency	152	32	184
	%	82.61	17.39	100
2. Do the prevailing environmental issues have an adverse effect upon your health, agricultural productivity and other livelihood assets?	Frequency	128	56	184
	%	69.57	30.43	100
3. Do you believe in the fact that every individual in the community has the responsibility to protect and manage the environment?	Frequency	161	23	184
	%	87.50	12.50	100
Grand total	Frequency	-	-	184
	%			100

Source: Field survey, March-April, 2011

Though a substantial proportion of households in the study area have got information about the multi-faceted effects of environmental problems, and as a result, developed a positive attitude towards participatory environmental protection activities, only a small proportion of them actually engaged themselves in the environmental protection activities. For instance, during the field visits, the researcher has witnessed some environmental protection activities among the rural community which had been carried out only by those households which benefit from Productive Safety-Net Programme (PSNP).

Figure 7. Soil and water conservation works carried out by PSNP in the study area

Source: Photographed by the researcher, April 21, 2011.

Nevertheless, leaving the duty of such a labor intensive environmental protection activities to only a small section of the society is a wrong community development approach and insignificant in terms of its outcome. There are several justifications for this argument. First, households which benefit from the PSNP constitute only a small proportion of the total population in the study area. Second, by their very nature, environmental protection activities deserve the involvement of all the members of the community irrespective of their differences on several backgrounds. And, third, environmental concerns are very broad in their scope; their causes are not limited to a section of the society. Hence, the need to adopt collaborative and participatory approaches in dealing with the local community's environmental concerns.

Table 8. Sources of environmental information and agents for environmental protection

Items	Alternatives	Responses		Remark
		Frequency	%	
1. From where have you got environmental information?	Schools	45	29.61	Only 152 hhs w/c replied "yes" for Q.Nº2 considered here
	Colleges/universities	18	11.84	
	DAs& HEWs	52	34.21	
	Churches/mosques	5	3.29	
	Mass media	22	14.47	
	Others	10	6.58	
	Sub total	152	100	
2. Which one of the following agents has been playing more active role in the protection and management of the environment in your area?	ARDDWZ	32	17.39	e.g. *Idir& Mahber*
	ARDOSZW	58	31.52	
	Churches/mosques	8	4.35	
	WSU	15	8.15	
	WSATVTC	17	9.24	
	WDA	31	16.85	
	SNNPREPB	20	10.87	
	Others	3	1.63	
	Sub total	184	100	
Grand total		168	92.30	

Source: Field survey, March-April, 2011

As indicated in Table 8, about 52(34.21%), 45(29.61%), and 22 (14.47%) of the sample household respondents have got information about the adverse effects of local environmental problems upon their life quality and livelihood assets from DAs and HEWs, schools and mass media respectively. Accordingly these three groups of agents served as the major sources of environmental information in the study area. Based on this figure also, one can determine the relative importance of EE in both non-formal (thorough DAs and HEWs), formal (through school systems), and the informal (through both print and electronic media) settings in terms of accessing some relevant ecological information and facts for the rural community not only in the study area but also in any other comparable areas.

As compared to schools and media, the role played by colleges/university in promoting the rural community's environmental awareness in the study area is very insignificant (see Table 8). This is perhaps partially be attributed to the less educational attainment of the rural households in the study area, but yet the later do have their own stakes in doing so as part of their organizational duty. Moreover, as the households' responses in the same table show, the role of HEIs in the protection of the community's environment is much lesser than the role of other public institutions, particularly the agriculture sector department and offices. In this regard, for instance,

about 58(31.52%) of the sample respondents said that it has been Agriculture and Rural Development Office of Sodo Zuria *Woreda* (ARDOSZW) that pioneered in the protection and management activities of the local environment in the study area. As opted by 32(17.39%), 31(16.85%), 20(10.87%), 17(9.24%), 15(8.15%) and eight (4.35%) of the sample households respectively zonal Agriculture Department (ARDDWZ), Wolaita Development Association (WDA), Regional State Environmental Protection Bureau (SNNPREPB), Agricultural and Vocational Training College (WSATVTC), WSU and some faith-based organizations have been contributing their own share for the same goal in the study area.

Based on the above discussion, the role of HEIs in the study area in terms of providing the community members with the relevant environmental information, and actually taking part in the environmental protection activities is minimum as compared to other agents. One of the reasons for this situation as articulated by one of heads of faculties being interviewed was the "… *relatively younger age of the institution*…" in the study area. However, as indicated by the interviewee, the institution had already launched some promising environmental protection activities both at the campus level and in the surrounding rural area.

3.3.4 Adaptation mechanisms

In the different parts of the world, many indigenous communities have rich indigenous knowledge in utilization and managing the natural resources to make themselves live in an environmentally sustainable manner. Indigenous knowledge (IK) is a form of knowledge accumulated over many years and originated from local, practiced at local to be utilized by the community so as to pursue a stable livelihood in their environment. As compared to many modern techniques, traditional ones are more effective, inexpensive, and locally available and culturally appropriate, and in many cases they become and/or based upon preserving and building on the patterns and processes of nature.

There are many justifications for the inclusion of IK in any developmental endeavor. For instance, as evidenced in many parts of the world, "…development efforts that ignore local circumstances, local technologies, and local systems of knowledge have wasted enormous

amount of time and resources" (Berkes, 1999:178). Moreover, top-down planning fails to promote effective natural resources management at local level.

In Ethiopia, as in elsewhere in the world some local communities have well-developed traditional ecological knowledge systems for environmental management and coping strategies since the time immemorial. However, this knowledge system of the country has increasingly becoming vulnerable to challenges brought about by an inevitable globalization processes. According to Berkes (1999:163), pressures related to rapid modernization and cultural homogenization, such as growth of international markets, educational systems, environmental degradation, population growth, and increased global connectivity through various communication means and networks are now eroding the IK system of the countries. Thus, it is of an urgent need to safeguard the IK systems of our country through various intervention strategies.

Local people in the study area, too, have developed and adopted several traditional methods and mechanisms so as to coup with the changing environmental conditions in their jurisdiction (see Section 3.3) in terms of managing land and water resources, sustaining their agricultural livelihood; enhancing their productivity and integrating their indigenous technologies with the modern ones to mention just a few.

As articulated by focus group discussants and interviewees, "the local community in the study area has been making use of several soil and water conservation methods, such as check dam construction, agro forestry, mulching, fallowing (esp. in the past times when each household had larger plot of land), water harvesting, and keeping a limited cattle population per acre of land". In order to sustain their agricultural livelihood and increase its productivity, the local community has been also practicing several traditional techniques like intercropping, multiple cropping, harvesting drought resistant crops (e.g *enset*), preparing an organic fertilizer (compost) from the household generated wastes of biodegradable type and also from crop residues; and applying the same on the farm land. Moreover, some of the mentioned traditional methods of natural resource conservation and agricultural practices have been integrated with some other modern technologies in the study area and have proved their better outcomes. This in turn partially

enabled the subsistence farmers with large family size in the study area to continue to supply their households' food and other needs in a sustainable way.

Table 9. Traditional methods of environmental protection in the study area.

Items	Responses	Alternatives		Total
		Yes	No	
1. Do you have any traditional natural resource conservation method(s) in your community?	Frequency	123	61	184
	%	66.85	33.15	100
2. Had your community had some environmental protection activities before the establishment of WSU?	Frequency	106	78	184
	%	57.61	42.39	100
Grand total	Frequency	-	-	184
	%	-	-	100

Source: Field survey, March-April, 2011

As it can be seen from Table 9, about 123(66.85%) and 106(57.61%) of the sample household respondents replied that they have had some traditional methods of natural resource conservation and some environmental protection activities that have been accomplished before the establishment of WSU in the study area respectively. Among others, these figures imply that the local community in the study area had been applying some locally developed techniques of natural resource conservation to tackle local environmental problems since the time immemorial. Most of such methods and techniques are also highly indispensable and applicable in dealing with the contemporary environmental concerns in the study area and should be promoted by the different concerned stakeholders including WSU.

3.4 Local Environmental Issues in the Curricular Context: An Overview

More than a decade ago, Ethiopia has started to make a reform of impressive dimension in its education system at all levels. The reform was basically found to be necessary because of the various problems associated with the country's education system as stated in the Education Policy of 1994, such as "… problems of relevance, quality, accessibility, equity, mode of delivery, inadequate facilities, insufficiently trained teachers, and shortage of books and other teaching materials" (MoE, 1994 cited in Belete & James, 2004:130). Particularly at the higher level, the reform was needed because the country's higher education system,

> … *was regimented in its management, conservative in its intellectual orientation, limited in its autonomy, short of experienced doctors among academic staff, concerned about declining educational quality, weak in its research output and poorly connected with the intellectual currents of the international higher education community*" (Saint, 2004:84-85).

In order to address these challenges, various measures have so far been undertaken by the current government in collaboration with other concerned stakeholders. For instance, Higher Education Relevance and Quality Agency (HERPA) was established as an autonomous legal body as per the Ethiopian government's Higher Education Proclamation Number 351/2003. Moreover, the government has also established a National Pedagogical Resource Center to concentrate specifically on the improvement of teaching skills, methods and materials. However, according to Saint (2004:107), leadership and initiative in these two new agencies have so far been slow to manifest themselves.

As part of the ongoing reform at a programme level, a major review and upgrading of university curricula has been accomplished based on the framework provided by the education sector policy and other specific legislations. In this regard, it is of particular importance to mention some of the various provisions provided under Higher Education Proclamation Number 650/2009.

Among others, this proclamation number states certain provisions with regard to the autonomy of individual institution, the role of MoE, and the nature of approach being adopted during curriculum design and development process. Accordingly, as stated under Article 21(1) of the proclamation, "*Every institution shall guide curricular development by its academic units through appropriate learning outcomes*". Moreover, as stated under Article 21(5), "… *every institution shall enjoy the liberty of developing curriculum for all of its academic programmes including concerning programmes for which nationally applicable curriculum may be developed through joint efforts of institutions*". However, as "… results of the empirical studies show the degree of institutional autonomy actually exercised by the HEIs is perceived to be quite limited, especially in terms of curriculum and programme development, …" (Forum for Social Studies (FSS), 2007).

Regarding the role of MoE with respect to curricular issues, Article 21(7) of the proclamation states, "the ministry may, without prejudice to the legitimate authority of the individual institutions, coordinate curricula development common to public institutions and issue directives as may be necessary to bring the provisions of this article into operation."

On the other hand, concerning the nature of approach being adopted, Article 21(4) states, "Curricula common to any number of public institutions may be develop jointly through the participation of the public institutions responsible for their implementation; and such curricula shall serve as the minimum requirements applicable to any of the institutions." Among other things, the above articles in the Proclamation Number 650/2009 suggest the centralized *top-down* approach being adopted in the curriculum development procedures. Accordingly, the ministry as a central control agency is in charge of formulating a uniform curriculum to be implemented by HEIs in the country which are actually operating in a diversified socio-economic and environmental context across the nation. However, as Kouwenhoven (2004:135) argues, "Since the context plays an important role in taking decisions in the curriculum development process, blended approaches are often used".

In general, despite the presence of issues related to curriculum design and development approach, there are still now certain autonomy for an individual institution as described earlier, with respect to adapting its curricula to suit the society's socio-economic and environmental context. In the following discussion, an attempt has been made to respond for the question ' *To what extent then HEIs in the country in general and WSU in particular actually exercise their institutional autonomy as stipulated in the various legislations of the country in their pursuit of teaching, research and community service?*'

3.5 Local Environmental Issues in the Core Missions of WSU

It has widely been known that HEIs have the three interlinked and mutually reinforcing missions of teaching, research, and community service. They do have also their own organizational goal.

> *As there will be nuanced differences according to local contexts, priorities and approaches, there should be an overall agreement on the concept that each country*

> *has to define its own priorities and actions. The goals, emphasis and process of education must, therefore, be locally defined to meet the local, environmental, social and economic conditions in culturally appropriate ways* (Corragio, 2001; Rebello, 2003; & Sucar, 2005 cited in Legesse & Engdasew, 2009:2).

Towards the achievement of their goal, universities undertake various actions under each of their core missions. Their activities, however, are not being done on an independent base rather they often collaborate with the different groups of the community. In a broad sense, issues being addressed through the core missions of HEIs could be social, economic, cultural, political, environmental, and technological among others.

In general, the three core missions of HEIs are not mutually exclusive (see Figure 3), and the success of one depends upon the success of the other. Indeed, the strong commitment of any HEIs in pursuing these missions would subsequently determine the status, efficiency, effectiveness and competitiveness of that institution at national, regional and global levels. In the forerunning discussion, the actual performance of WSU under its three core missions with respect to addressing the local community's environmental needs and priorities will be elaborated in detail.

I. Teaching-learning Activities

In order to determine the level of integration of the already identified local community's environmental concerns in the teaching-learning process of WSU, a wide range of indicators pertaining to instructional approaches, methods, materials and other associated issues have been specified and included in the different data collection instruments. The following discussion is based on the result of the sample students' and instructors' survey questionnaire, key informant interviews and classroom observation.

Table10. Students' level of agreement on the features of teaching learning processes at WSU

Items	Responses	Level of agreement					Total
		SD	D	UD	A	SA	
1. Community-based teaching, learning and research are highly practiced in your department.	Frequency	5	3	5	21	17	51
	%	9.80	5.90	9.80	41.18	35.29	100
2. Environment/Nature Clubs in your university are working very effectively at both campus and community level on the environmental issues	Frequency	11	8	9	13	10	51
	%	21.58	15.67	17.65	25.49	19.61	100
3. Mainstreaming LEIs into the formal teaching, learning and research tasks has mutual benefits for both the community and university.	Frequency	2	2	10	18	16	51
	%	3.92	3.92	19.61	35.29	31.37	100
4. Community-based teaching and/or learning approach provides higher interest and motivation than classroom based one.	Frequency	5	6	6	18	16	51
	%	9.80	12.76	12.76	35.29	31.37	100
5. CUC has a paramount role in tackling environmental issues at various spatial and temporal scales.	Frequency	2	8	15	17	9	51
	%	3.92	15.67	29.41	33.33	17.65	100
6. Both academic staff and students are highly interested in and willing full to participate in any environmental protection endeavors at the campus and in the surrounding rural areas.	Frequency	4	7	8	18	14	51
	%	7.84	13.73	15.67	35.29	27.46	100
7. Environmental issues are often been thought by making use of lecture method and other teacher-centered methods in your classroom.	Frequency	3	8	6	21	13	51
	%	5.90	15.67	11.76	41.18	25.49	100
8. Environmental protection activities of the staff members and students among the surrounding rural community are being undertaken on a regular basis.	Frequency	14	19	8	3	7	51
	%	27.46	37.26	15.67	5.90	13.73	100
9. It is better to apply learner-centered approaches than teacher-centered methods to teach/learn environmental issues.	Frequency	2	9	7	14	18	51
	%	3.92	17.65	13.73	27.46	35.29	100
10. EE in your department is more theory-oriented rather than being action- oriented.	Frequency	6	4	10	13	18	51
	%	11.76	7.84	19.61	25.49	35.29	100
Grand total	Frequency	-	-	-	-	-	51
	%	-	-	-	-	-	100

SD=strongly disagree, D=disagree, UD=undecided, A=agree, & SA=strongly agree
Source: Field survey, March-April, 2011

As data in the Table 10 above show, student respondents have indicated the level of their agreement or disagreement on various issues that suggest the level of integration of local level environmental problems in their university's formal as well as informal teaching-learning processes. Accordingly, about 38(76.47%) students replied that community-based teaching, learning and research were highly been practiced in their respective departments.

The performance of Environment/Nature clubs can be one of the indicators as to whether a given HEI integrates LEIs into its co-curricular activities or not. In this regard, all sample students indicated their level of agreement or disagreement on the effectiveness of the works of such clubs in their university. Accordingly, about 13(25.49%) sample students agreed and 10(9.61%) strongly agreed on the effectiveness of the performance of environment clubs at their university respectively. Whereas, about eleven (21.58%), nine (17.65%) and eight (15.65%) of them have

strongly disagreed, undecided, and disagreed on the same issue respectively. Based on this data, even though the number of respondents who agreed and disagreed on the same issue is more or less similar, given the presence of some undecided respondents it is not fair to say that the performance of such clubs that serve as the modes for the provision of EE in a non-formal setting at both campus level and among the surrounding community groups is very effective.

On the other hand, 72.55% of the sample students agreed upon the fact that mainstreaming LEIs in to the formal teaching, learning and research activities generates a mutual benefit for both university and the surrounding rural community. Similarly, more than half (50.98%) of the responses show an agreement on the potential role of CUC in tackling environmental problems at varying spatial and temporal scales. Nevertheless, the various associated challenges may tend to impede the full realization of this potential in the study area. Moreover, as agreed by 33(64.71%) sample students, community-based instructional approaches not only reinforce the collaboration between university and the community, but also stimulate them to be more interested and motivated towards a given learning experience (especially of environmental type) as compared to classroom based one. However, as the researcher witnessed during his classroom observation, the former approach was not being applied to teach the lessons on the aspects of the environment rather the later one was used predominantly.

Regarding the relative attention being paid to LEIs in the classroom instruction, nearly half (47.06%) students disagreed on the statement which says ‘LEIs are more emphasized in the instructional activities than their regional, national, and global counter parts’. Similarly, the classroom observation has confirmed more or less identical findings as the researcher has witnessed only a few occasions when local contexts (examples) being mentioned by the instructors in the course of their classroom instruction.

Having a positive attitude towards certain task is a prerequisite condition for the successful accomplishment of that task. As indicated in Table 10, a substantial proportion (32(62.75%)) of student respondents agreed on the item pertaining to the interest and willingness of instructors and students at their university in taking part in the various environmental protection activities at both the campus and community levels. Even though the presence of a deep rooted interest and willingness among the university community to participate in the same venture is a positive

aspect, it is not an enough condition by its own. Because, the actual participation of the academic staffs and the students can be compromised by several challenges related to the university itself (see Section 3.8.1.2). In this regard, there are certain indicators to determine whether the academic staff and students of the university are really highly enthusiastic towards environmental protection activities in the study area or not. Some of these indicators include the pursuit of the same actions on a regular basis and the undertaking of some scientific research works on LEIs.

Accordingly, about 17(33.33%) and 14(27.45%) of the student respondents disagreed and strongly disagreed respectively on the statement that says, 'both academic staff and students often carryout research works on the LEIs as part of their programme and professional development' (see Table 10). Similarly, about 19(37.26%) sample respondents disagreed and strongly disagreed respectively on the idea that says, 'the pursuit of environmental protection activities being initiated and carried out by the university community is on a regular base.' Based on this data, not only the actual participation of students and academic staff in the environmental affairs is minimal, but also the mechanisms by which academic programmes in the university being run are not capable of solving the local community's environmental concerns.

Another important point to consider while determining the integration of local community's environmental concerns in the formal teaching-learning processes of the university is the methodological approach being adopted by the instructors to impart aspects of EE. Accordingly, about 18(35.29%) and 13(25.40%) of the sample respondents agreed and strongly agreed respectively upon the fundamental premise that says, 'learner-centered approaches are better than teacher-centered ones to teach and learn environmental issues.' However, as replied by a substantial majority (34(66.67%)) of the respondents, environmental issues are often been thought by making use of teacher-centered approaches, such as lecture method in their classrooms. Indeed, according to 31(60.78%) respondents, EE in their respective department is more of theory-oriented rather than being action-oriented. This in turn has its own repercussions on the student-teachers' current academic achievement as well as on their future career as environmental educators.

Table 11. Instructors' responses about instructional approach related questions.

Items	Alternatives	Responses		Remark
		Frequency	%	
1. Which one of the following instructional methods do you often apply to teach environmental issues?	Demonstration	-	-	
	Group discussion	2	15.38	
	Lecture method	6	46.15	
	Laboratory	1	7.69	
	Field trip	3	23.08	
	Dramatization	-	-	
	Problem solving	1	7.69	
	others	-	-	
	Sub total	13	100	
2. How often do you use instructional methods, such as field trips/visits to the local areas, field based assignments and term papers in your course delivery activities?	Not at all	1	7.69	
	Sometimes	11	84.62	
	Always	-	-	
	Usually	1	7.69	
	Sub total	13	100	
3. Community-based teaching, learning and research are highly practiced in your department.	Strongly agree	2	16.67	b/c one instructor didn't reply this item
	Agree	5	41.67	
	Disagree	3	25	
	Strongly disagree	2	16.67	
	Sub total	50	100	
4. The level of integration of LEIs that you've mentioned above in the course out lines of your department is:	Low	4	30.77	–
	Medium	8	61.54	
	High	1	7.69	
	Sub total	13	100	
Grand total		138	97.44	b/c one item missed

Source: Field survey, March-April, 2011

As it can be seen in Table 11, six(46.15%) of the sample instructors replied that they often use lecture methods to teach aspects of the environment; while three (23.08%), two (15.38%), one (7.69%) and again one (7.69%) respondents applied field trip, group discussion, lecturing, and problem solving methods respectively. Similarly, about 11(84.62%) of the sample instructors make use of learner-centered methods, such as field trips, field-based assignments and term papers in their course delivery system sometimes. Likewise the students' responses discussed earlier (see Table 10), the instructors' response suggest more or less similar idea, the theory–based nature of EE system at WSU among others.

On the other hand, about five (41.67%) respondents agreed and two (16.67%) strongly agreed on the high level practice of community-based teaching, learning and research activities in their respective departments. Even though this figure has pretty much similarity with the students'

agreement on the similar item (see Table 10), it absolutely contradicts with what both groups have said earlier regarding the methodological approaches being often in use and the theory-oriented nature of EE in their university. Because, if the teaching, learning and research activities in the university were community based, the methodological approaches used to impart lessons on environmental issues and the nature of EE would have been learner-centered and action-oriented respectively. Thus, in the face of such a contradiction, it is impossible to conclude the nature of teaching, learning and research activities at the university as community-based.

In addition, apart from evaluating the instructional process in terms of the methodological approaches being adopted to impart lessons on the aspects of the environment, the academic staffs were asked about the relative extent to which LEIs have been integrated into the course outlines of their respective departments. Accordingly, about eight (61.54%) respondents said that LEIs have been integrated in to the same at a medium level; while the remaining four (30.77%) and one (7.69%) replied that their course outlines contain aspects of the local environment at lower and higher levels respectively.

In general based on the above discussion on a wide-range of issues pertaining to the response of instructional activities at WSU for the prevailing LEIs, the following generalizations can be drawn. Community-based instruction has not yet been well developed; the actual performance of environment/nature clubs remained as low; local environmental problems have not been given equal emphasis in both the classroom instruction as well as course outlines of different departments; even though both the academic staff and students have some felt interests and willingness to take part in the environmental protection endeavors, their actual participation has been compromised by several personal and organizational obstacles. Finally, a substantial majority of instructors opted teacher-centered methods to teach aspects of the environment. As a result, the nature of EE in the university is more of theory-oriented rather than being action-based, with its own implications upon the student-teachers current achievement as well as future career as environmental educators.

II. Research

Being centers of a new scientific knowledge, technology and innovations, HEIs play a vital role in the development process of any country. One of the forms of the universities' contribution to the socio-economic development and environmental sustainability is through undertaking some applicable scientific researches and studies. Hence, research works that can be carried out either by academic staff, students and technical experts or in collaboration of these and any other concerned stakeholders serve as one of the intervention strategies of HEIs in the community's socio-economic and environmental challenges.

In the upcoming discussion, the extent to which local community's environmental issues have been integrated into the research works of WSU is elaborated in detail. In the course of the discussion, some specific questions that found to be relevant in guiding the discussion of this particular sub-section are identified and answered depending on wide- range of data obtained from both primary and secondary sources. These questions include:

- Are there any research outputs that mainly address the community's environmental concerns at WSU?
- To what extent do the researches of the university address the LEIs?
- What are the major indicators to measure the integration/disintegration of local environmental concerns in the research works of WSU?
- Is there any practical improvement/achievement on the condition of the local physical environment because of the planned intervention of the university through its research works in the study area?

Table 12. Instructors' and student's responses on their community based research works.

Items	Respondent	Alternatives	Responses	
			Frequency	%
1. Have you ever carried out a study (ies) on the LEIs?	Instructor	Yes	5	38.46
		No	8	61.54
		Sub total	13	100
2. Community-based researches are highly practiced in your department.	Instructor	Strongly disagree	3	23.08
	Student		5	9.80
	Instructor	Disagree	5	38.46
	Student		3	5.88
	Instructor	Undecided	-	-
	Student		5	9.80
	Instructor	Agree	5	9.80
	Student		21	41.18
	Instructor	Strongly agree	2	15.38
	Student		17	33.33
	Instructor	Sub total	13	100
	Student		51	100
3. Both academic staff and students often carry out research works on the LEIs as part of their programme and professional development	Student	Strongly disagree	14	27.45
		Disagree	17	33.33
		Undecided	8	15.69
		Agree	7	13.73
		Strongly agree	5	9.8
		Sub total	51	100
Grand total	Instructor	-	13	100
	Student	-	51	100

Source: Field survey, March-April, 2011

Some of the major indicators as to whether the LEIs have been mainstreamed into the academic research works of the university include: the major thematic areas upon which the studies have been based; methodological approaches and research design being adopted or followed in the studies; applicability of the findings and the feasibility of the forwarded recommendations in the context of the study area, sampling approaches being adopted in the studies; and currently observable improvement on the status of the local environment consequent upon the university's research intervention as compared to the local environmental condition in the past (i.e., before the university's establishment and its research intervention thereof). However, because of financial, time and other resource associated constraints an in-depth investigation based on each of the above mentioned parameters has not been considered. The researcher rather tried to explore the issue based on the analysis of the existing documents and response obtained from sample academic staff and students for questions pertaining to the community-based research

performance of the university among others; while highlighting this gap as another potential area that deserves some assessment in the future.

As it has already been discussed earlier (see Section 3.3), there are several environmental issues in the study area that deserve the intervention of the nearby university particularly through its research works. However, as replied by about eight (61.54%) sample instructors, there were no studies that have been carried out on the LEIs in the study area as of the time when the data were collected. Almost all of the sample academic staff attributes their failure to undertake researches on the LEIs to the lack of experience (see Table 4), lack of facilities esp. for departments such as chemistry, lack of budget, and course overload and time constraints; and because of the case that other issues were considered as priority.

Regarding the practice of community-based researches in their respective department, both sample instructors and students have labeled their agreement/disagreement level in the five staged continuum that ranged from strongly disagree to strongly agree (see Table 14). Accordingly, about five (38.46%) instructors disagreed on the statement which says 'Community-based researches are highly practiced in your department'. Whereas, the remaining three (23.08%), again three (23.08%) and two (15.38%) sample instructors strongly disagreed, agreed and strongly agreed on the same statement respectively.

In contrast to instructor respondents, a substantial majority of student respondents have strongly shown their agreement on the same statement. Perhaps, this variation in the response rate could partially be attributed to the difference in research experience between the two respondent groups. Based on this data, the overall impression is that community-based researches are not highly practiced in the different department so long as there are no researches documented in the university that can prove the student respondents' agreement on the issue.

Moreover, another important indicator to determine the presence of some scientific research undertakings on the LEIs in a way that participates the local community itself in the research processes is the nature of instruction on the aspects of the environment. For instance, as indicated in the Table 11, out of 13 sample instructors only one (7.69%) uses problem solving method to

do so. Among others, this figure implies the subordinate position being given to research works on LEIs in particular and other socio-economic problems at large by the academic staffs of WSU.

On the other hand, about 17(33.33%) and 14(27.45%) of the sample students disagreed and strongly disagreed respectively on the statement which says, 'both academic staff and students often carry out research works on the LEIs as part of their learning experience and professional development.' Moreover, as witnessed by the researcher himself during his field observation, there were no significant improvements on the condition of the local environment that can practically suggest the achievement of the university's research intervention in the study area.

In general, the over all performance of WSU with respect to integrating the surrounding rural community's environmental issues into the university's second mission, Research can be summarized by the following quotation from the university's 2009/2010 Annual Bulletin, which reads as:

> *The university,…, has been actively involved in research activities, primarily in the fields of Agriculture. … as one of the pioneers, the Faculty of Agriculture has been making maximum efforts to develop and release several research results. However, the research and outreach activities of the university in the fields other than agriculture are not strong as most of the faculties are at infancy stage and lack the necessary manpower and experience.*

Finally, based on the above discussion, LEIs have not been well integrated in to the research works of the different faculties with the exception of the Faculty of Agriculture at WSU. As a result, not only LEIs remained without being addressed through the research works of both academic staff and the students, but also the entire quality of educational system has been affected either directly or indirectly.

III. Community Service

In addition to community engaged teaching, learning and research as described above, HEIs provide important services to the public as a collateral benefit of a university's presence in a community. According to AUCEA, public service and outreach activities are defined as general programs that universities make available to the public usually without partnership, knowledge exchange, or expectation of mutual benefit. Examples of public service and outreach include public lecture services, media interviews and articles, cultural events and performances, exhibits or museums open to the public, or websites that provide public information on various topics (AUCEA, 2010:3), such as environmental issues.

In the context of this study, 'public service and out reach activities' with respect to environmental protection and management activities of the university in focus are mainly conceived from environmental awareness, environmental attitude and environmental action point of view. Hence, environmental awareness creation campaign being mobilized by the university's academic staff and the students among the surrounding rural community; the performance of environment or other comparable clubs in terms of promoting public awareness with respect to environmental degradation; public forums (conferences) being organized by the university to foster public environmental awareness; the perception of both academic staff and the students to take part in the various environmental protection activities; and an actual involvement level of the mentioned university members in working collaboratively with the local people towards the society's environmental goals are some of the fundamental issues considered in the assessment of community service activities of WSU.

Table 13. Instructors' and households' response to community service

Items	Respondents	Alternatives	Responses		Total
			Yes	No	
1. Are you interested in and willing full to participate in any environmental protection endeavors?	Instructor	Frequency	11	2	13
		%	84.62	15.40	100
2. Have you ever mobilized any environmental awareness raising campaign among the rural community?	Instructor	Frequency	1	12	13
		%	7.69	92.30	100
3. Are the environmental protection activities being carried out on a regular basis?	Instructor	Frequency	5	8	13
		%	38.46	61.54	100
4. Are there any well organized clubs at your department /faculty level that are actively working on the LEIs?	Instructor	Frequency	3	10	13
		%	23.08	76.90	100
5. Have you ever participated in the environmental protection activities organized by WSU or any other organization?	Households	Frequency	113	71	184
		%	61.41	38.60	100
6. Are you willing full to work in collaboration with the university, CBOs or NGOs on environmental affairs?	Households	Frequency	148	36	184
		%	80.43	19.60	100
Grand total	Instructors				13(100%)
	Households				184(100%)

Source: Field survey, March-April, 2011

As it can be seen from Table 13, an overwhelming majority (84.62%) of the sample instructors replied that they were interested in and willing full to take part in any environmental protection endeavors in the study area. This positive attitude of the academic staff has been reflected by the students' high level of agreement on the same issue as indicated in Table 10 earlier. However, their actual participation in the local environmental protection endeavors is not as such great. This has been evidenced by failure of academic staff and students in mobilizing environmental awareness campaign and not pursuing environmental protection activities on a regular basis among others.

Accordingly, for instance, about 12(92.31%) sample instructors had never organized any environmental awareness raising campaign among the local community while environmental protection activities in the study area had never been undertaken on a regular basis as evidenced by both students' (see Table 10) and instructors' responses. Moreover, as replied by about 10 (76.92%) of the sample instructors, there are no well organized clubs that actively work on the environmental concerns. The absence of a well functioning clubs of similar type at the university has its own effect in the university's provision of public service with respect to EE in a non-formal setting.

On the other hand, there is no doubt on the side of the local community to well come any environmental protection initiative being launched by the near by university or any other concerned stakeholders. This has been evidenced by the households' high level of interest to participate in the similar business as well as their willingness to work in collaboration with the WSU, CBOs and NGOs. For instance, as indicated in the same table above, about 61.41% of the sample households have been participating in the environmental protection activities; while 80.43% were willing to take part in the similar venture in collaboration with the university as well as any other concerned stakeholders. As reflected by some focus group discussants also, the rural community is always open to collaborate with different environmental agents; and contribute to environmental protection projects as much as they can. But, yet, the environmental protection initiatives on the side of WSU and other concerned agents have not been adequate to satisfy the community's expectation in this regard. Despite the existence of several constraints, as described above, particularly on the side of the institution in terms of providing public services in a manner that addresses the local people's environmental needs and priorities, there are certain promising environmental protection projects being launched by a few pioneering individuals both at the campus level and in the surrounding rural areas.

As stressed in the university's 2009/2010 annual performance report, "…, the university actively involves in divergent mainstreaming community practices and has also gained considerable achievements, particularly on environmental protection. Within the last two years, nearly one million seedlings were raised in the university compound and planted in various surrounding lands by the university students and the local community. Thus, through the course of such an actor movement initiated by an instructor Yohannes Gizaw, various lands which had been very harsh and unstable have become green. [11]

Figure 8. Photos of Ganame site environmental protection activities of WSU

[11] http://www.wsu.edu.et/aboutwsu.htm (*accessed on 12-03-2011*)

Source: Photographed by the researcher, April 23, 2011

In order to cross check the reliability of this report, various key informants have been interviewed and observation of different activities of the university in the study area has been done concurrently. Accordingly, one of the DAs in a sample rural *kebele* said, "…the university has been availing some tree seedlings for the rural farmer households free of any charge for the last two summer seasons." The rural households, on their part, confirmed that they have been provided with tree seedlings by the university for free and planted the same on their respective plot of land.

On the other hand, one of deans of sample faculties said, "…the university has been preparing millions of tree seedlings in the compound per annum." Tree seedlings prepared in the nursery site of WSU are of both indigenous and introduced species type, and often been distributed among the rural community or planted in three environmentally degraded sites including *Ganame* and Mount *Damota*. Moreover, the interviewees indicated that the university has the plan in the future to change the type of tree seedlings that it grows and supplies to the surrounding local community into those types with more economic and food values, such as fruit trees; and thereby to address the community's food insecurity issues.

However, the continuity of such an exemplary environmental initiative has been challenged by several factors. For instance, all faculties, departments, academic staff and students among others are not actually engaging themselves in the various environmental protection endeavors in the study area. This has been evidenced by a relatively better engagement of a few faculties such as Faculty of Agriculture and a few academic staff as a pioneering faculty and a pioneering environmental activist in the university respectively.

In general, the presence of such an inter-faculty/departmental and inter-personal difference in the level of participation in the community's environmental affairs can be one of the major challenges for the future achievement of the university in terms of its academic, research and outreach activities. Thus, as acknowledged by the WSU itself in its 2009/2010 performance report paper, there is an urgent need for the university to make efforts to link its academic programs to its research and outreach activities in order to make its training programs relevant to the needs of the stakeholders and the country at large. This requires the need to make proper linkages with various stakeholders that include the rural community, urban dwellers, the private sectors, governmental organizations and NGOs at national and international levels.

3.6 The status of LEIs Curricula and Instruction

It is obvious that environmental problems occur at various spatial and temporal scales. Hence, they can be categorized at various geographical scales: local, regional, national and global scales. To the context of this study, these terminologies have been given some operational meanings. Accordingly, local environmental issues (LEIs) are those environmental issues whose causes and effects are presumably limited to a relatively small geographical area, such as a *Kebele or Woreda*. National environmental issues are those issues of the environment whose prevalence is mainly confined to the jurisdiction of a given country. For instance, as different studies show land degradation is one of the most serious environmental concerns in our country. Hence, it can be taken as a national level environmental concern. Regional environmental issues are those issues of the environment which have a regional significance. For instance, drought has been a common phenomenon in African continent, particularly in Horn of Africa region. Therefore, it can be taken as a regional level environmental problem. Finally, global environmental issues are those ones with the potential of affecting the entire planet of the earth either directly or

indirectly. For instance, this days, climate change, global warming, and ozone layer depletion are the major environmental issues at a global scene. Nevertheless, it is important to note that there is no as such simple distinction among environmental issues in real sense as the type of environmental problem categorized under any one of these spatial scales can be a cause for or an effect of another types of environmental problems in any other higher/lower spatial continuum. In general, thus, a complex relationship and interconnectedness that exists among the environmental problems occurring at various spatial and temporal scales makes their categorization in the above fashion to be a contestable business.

In the discussion to follow, the relative emphasis given to LEIs in the curriculum and instruction of the different departments as compared to the regional, national, and international level environmental issues as described above is presented based on the sample students' and instructors' responses.

Table 14: Students' and instructors' response to curriculum and instruction related questions

Items	Respondents	Alternatives	Responses	
			Frequency	%
1. LEIs are more emphasized than the regional, national, and global environmental issues in your classroom instruction.	Student	Strongly disagree	16	31.37
		Disagree	19	37.25
		Undecided	6	17.65
		Agree	8	15.69
		Strongly agree	2	3.92
		Sub total	13	100
2. The emphasis given to the LEIs as compared to the regional, national, and global environmental issues in the curriculum of the course(s) that you teach at the university	Instructor	Lower	6	46.15
		Medium	5	38.46
		Higher	2	15.39
		Sub total	13	100
3. How do you treat aspects of environmental issues in your instructional activities as compared to your own core course contents?	Instructor	Negatively	-	-
		Neutrally/fairly	3	23.08
		Positively	10	76.92
		Sub total	13	100
Grand total	Student		51	100
	Instructor		13	100

Source: Field survey, March-April, 2011

As indicated in the above table, about 19(37.25%) student respondents disagreed and 16(31.37%) strongly disagreed on the idea that LEIs are more emphasized than their regional, national and global counter parts in their respective classroom instruction. Whereas, the remaining eight (15.69%), six (17.65%) and two (3.92%) respondents agreed, undecided, and

strongly agreed on the same idea respectively. These figures, among others, imply that instructional processes and practices at WSU have not been adapted to the local environmental context. Similarly, it has also been reflected earlier by the instructors' lecture based methodological applications to impart lessons on the aspects of the environment; and both the instructors' and the students' low level of agreement on the conduct of community-based teaching, learning and research activities in their university (see under Section 3.5).

Regarding the relative level of emphasis being given to the local level environmental issues (see Section 3.3) as compared to the greater spatial scale issues of similar types in the curricula of different subjects/courses, about six (46.15%) sample instructors replied that the former ones have been given with lower focus; while the remaining five (38.46%) and two (5.39%) replied it as medium and higher respectively. Given the top-down approach being adopted during the preparation of HE curricula at the national level (see Section 3.4), this is of course unsurprising finding rather it is the direct reflection of the case at the entire national level.

Even though it is very complex and indeed, impossible to take in to account some location specific socio-economic and environmental issues during curriculum design, it is up to an individual educator to do so during their actual instructional activities to the best of their knowledge and professional development. If the curricula of HEIs are not being adapted to suit local contexts through an active, determined and committed involvement of the academic community, they would never ever meet the real needs of their surrounding community in particular and their nation at large. Thus, the university as a self-motivating and self-perpetuating institution in the study area should revisit its entire system as to whether it complies with the local community's needs and priorities or not. In this regard, each member of the university community has his/her personal as well as organizational responsibilities to be met towards the transformation of the institution itself; and there by entire society at large.

On the other hand, regarding the way they treat aspects of the environment during the instructional activities as compared to the way they do their own course contents, the overwhelming majority (76.92%) of the sample instructors replied that they treat the same issues positively; while the remaining 23.08% do it neutrally. However, there was no practical justification to confirm whether their response reflects the situation on an actual setting or not.

For instance, during the classroom observation, the researcher has repeatedly witnessed the instructional processes when being carried out without taking into account the LEIs. Moreover, this finding is pretty much similar with what the instructors responded earlier on their interest and willingness to participate in any environmental protection endeavors in the study area with out actually taking part in it (see Table 13). In general, based on the above data, LEIs are less emphasized than their regional, national, and global counters not only in the curricula of different subjects at WSU, but also in the classroom instructional activities with its own implication for the effectiveness of the university's missions at both local and national levels. Hence, there is an urgent need to re-orient the existing HE system in the study area towards the one that addresses the multifaceted needs of the local community, particularly with respect to the environment.

3.7 University-Community Collaboration in the Study Area

At this critical time in human and sustainable development for the world, it is imperative that we harness that potential of community HE partnerships to inform progress. There has been an emerging trend in community HE engagement that "… appears to be producing results that benefit the institutions themselves as well as communities" (UNESCO, 2009) through enhancing the socio-economic and environmental conditions of people, communities, nations and the world. Nevertheless, as acknowledged by UNESCO itself, the level of such partnership can vary across the regions and nations of the world. Based on this fact, it is more likely, that the collaboration between universities and their surrounding community even with in a country could vary significantly. In the following discussion, CUC as one of the strategic approaches in responding to the prevailing environmental challenges in the study area will be elaborated.

Table 15. Some indicators of university-community collaboration in the study area

Items	Respondents	Alternatives	Responses		Total
			Yes	No	
1. Is there any environmental protection activity in your village or any other areas with in Wolaita Zone that has been carried out by WSU since its establishment?	Household	Frequency	67	117	184
		%	36.41	63.59	100
2. Is there any exemplary environmental protection activity that has been carried out by the community-university collaboration in and around the university?	Instructor	Frequency	8	5	13
		%	61.54	38.46	100
3. Are you willing full to work in collaboration with the university, CBOs or NGOs on environmental affairs?	Household	Frequency	146	36	184
		%	80.43	19.57	100
Grand total	Household				184(100%)
	Instructor				13(100%)

Source: Field survey, March-April, 2011

In this particular sub-section, it has been presumed that, the presence/absence of certain exemplary environmental protection activities in the study area among others serves as an indication for the existence of some sort of interaction or partnership between the local community and the university. Accordingly, about 117(63.54%) agreed on the presence of the same thing in their locality. As it has already been described under section 3.5(III), there are some environmental protection initiatives that have been launched by a few pioneering faculties and academic staff at WSU that can be taken as a model or best practice for faculties and academic staff not only at the university in focus, but also in any other HEIs in Ethiopia. The same issue has been supported by responses given by households regarding the source of environmental information; and WSU as one of the actors in the study area in terms of engaging in environmental protection activities (see Table 8). Probably, the low response rate here regarding the presence of some exemplary activities of similar type could partially be attributed to the geographically confined nature of the environmental protection projects of the university in the study area. As a result, households which lived far away from the selected plantation sites did not know about the existence of the projects.

As indicated in Table 15 above, about eight (61.54%) sample instructors recognized the presence of the university's environmental program of high significance in the study area; while five (38.46%) did not. Based on both the households' and the academic staff's response for more or less similar question, it is possible to say that the community-university partnership with respect to local environmental protection activities is not as such strong.

On the other hand, an overwhelming majority of households (80.43%) in the study area are willing to work in collaboration with the university, CBOs and NGOs in working towards the community's environmental goals. These shows, among others, as there are very strong support and determination on the side of the community for the same goals. However, as some focus group discussants and interviewees indicated, the initiative being launched by WSU in the study area is not adequate and lacks continuity among other associated challenges described in Section 3.8 below. Therefore, given the prevalence of environmental issues of various types in the study

area (see Section 3.2), which can not be tackled in an isolated intervention of one party, it is recommended that the CUC should further be consolidated in the study area in the future.

3.8 Major Challenges and Opportunities for CUC in the study area

As it has already been described earlier, there are different environmental problems in the study area with multi-faceted socio-economic and ecological effects. Here, it is not the mere number/type of the problems that matters most, rather their scale and pace as well as their complicated cause-effect relationships both at the local, regional, national, and global levels. Thus, in this regard, the intervention measures that should be developed and adopted by the different stakeholders in response to such a complicated environmental challenges ought to be bottom-up as opposed to top-down, precautionary (preventive) as opposed to reactive (cure-approach), participatory as opposed to planned, multidisciplinary as opposed to single disciplinary, and multi-dimensional(holistic) as opposed to compartmentalized unidirectional approach.

One of the most effective approaches of mitigating environmental problems at various spatial and temporal scales is CUC. As it has been described earlier, this approach creates a win-win situation amongst the two or more coalition parties. Some studies also suggest that "… community engagement with HEIs on every continent has reached a critical mass and momentum. There is significant evidence of beneficial outcomes from these forms of engagement (Global Alliance in Community Engaged Research, 2008 cited in UNESCO, 2009). However, as maintained by the UNESCO itself, "…it [CUC] is currently fragmented and lacking recognition and systematic means to address its potential."

Moreover, this strategy and the efforts to put it in place are not only fragmented, but also are now facing many unnecessary barriers. Yet, it is important to note that there are windows of opportunities to overcome these challenges; and thereby ensure its full potential in responding to the contemporary environmental issues. In general, both challenges and opportunities associated with CUC can broadly be either location specific or general ones. In the study area, too, there are various challenges and opportunities of both types so as to optimize the full potential of the same strategy in tackling LEIs. What follows is a detailed account of the various challenges and

opportunities associated with both the local community and the university in working collaboratively towards the common goal of environmental sustainability in the study area.

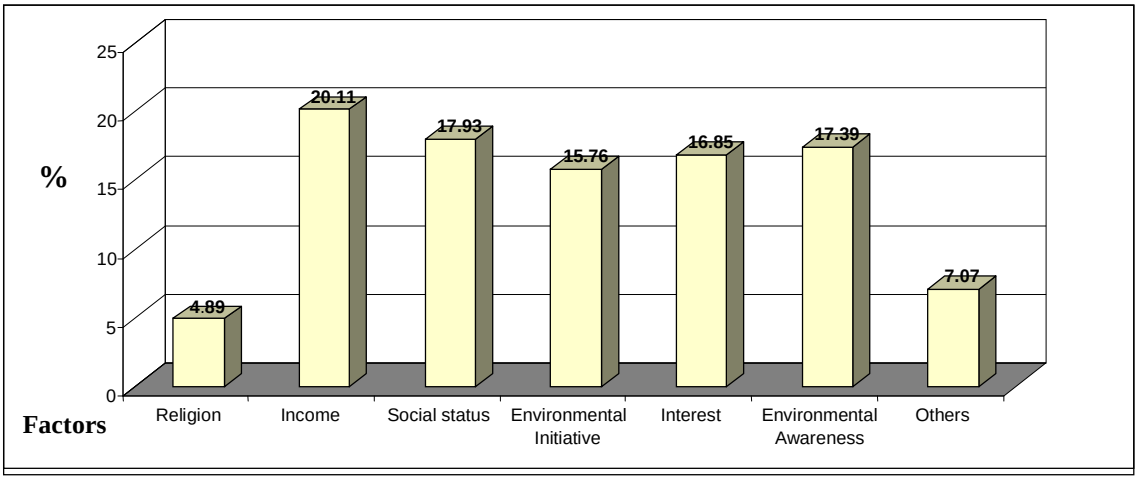
3.8.1 Challenges for Community University Collaboration

For the sake of convenience, the various types of barriers associated with CUC in the study area are categorized in to three broad groups based on their underpinning sources. These are challenges related to (generated from) local community, the university and other external sources, each of these categories is discussed in detail as follow.

3.8.1.1 Local Community Perspective

There are several reasons as to why some of the community groups in the study area often fail to take part in the environmental protection endeavors. The following figure shows the relative magnitude of different determinants of households' actual involvement in the same task.

Figure 9. Factors affecting households' participation in environmental protection activities



Source: Field survey, March-April, 2011

As it has already been described, though a substantial majority of households in the study area were interested in and willing to take part in the environmental protection activity (see Table 13),

their actual participation level is very limited. There are several reasons behind their low level of participation in this regard. As it can be seen from the above figure, there are different variables/attributes that determine their active participation in environmental tasks; and thereby become challenges for optimizing CUC in the study area.

Accordingly, for instance, about 37(20.11%) sample households replied that difference in income is the major cause that affects their active participation in the study area. As described earlier also, poverty was found to be one of the major causes for the occurrence of environmental problems in the study area (see Table 5). Here again income poverty is identified as one of the factors that not only affects households' participation, but also one of the major challenges for CUC. Another practical justification as to how income differences becomes a barrier is that in the study area, as described earlier, it is the poorer section of the society, particularly those households which benefit from PSNP that actually participate in the various environmental protection activities. Even the poorer people would not participate in environmental activities if there was no food aid as a wedge rather they would have opted to get employed in the daily labour market in the near by town. However, in reality, all inhabitants affect the environment and have a significant impact on the actual use of the natural resources. Hence, environmental protection activity is not something that should be put aside for the poorer section of the society rather it must be the one that is common for all sections of the society irrespective of their differences on several backgrounds.

Another factor that has been identified by 33(17.93%) sample households in affecting their level of involvement is difference in the social status. Such a difference is something which has a sociological backing that could be based on several other variables, such as income and wealth, gender and clan based upon which different social strata and its resultant social exclusion could be made. But, here it has been found as one of the attributes that impeded CUC in the study area.

As replied by about 32(17.39%) sample households, lack of awareness about the relevance of participating in the environmental protection activities prevents them from making an active involvement in the environmental protection activities. Similarly, there was lack of information among the community members with regard to the benefits of environmental protection.

Accordingly, the former said that most people in their village associate the benefit of taking part in the community-based environmental protection activities with the food aid they get from the PSNP. Among others, this figure indicates that EE in the study area is highly needed so as to improve such a misconception and strengthen the partnership between the rural community and the university.

It has already been reflected that there was lack of interest and willingness among some of the university's academic staff and students to take part in environmental protection endeavors in the study area (see Table 10 and 13). Similarly, about 31(16.85%) sample households replied that they lacked the same quality in the same venture. Indeed, lack of interest in environmental affairs among the different sections of the society in the study area becomes another big challenge for CUC with respect to environmental protection and management activities.

Currently, majority of the people in Wolaita Zone in general and in the study area in particular are Evangelical Protestant Christians, some are Orthodox Christians and the rest are Muslims and other Christian denominations. This faith based diversity of the population has also contributed to the households' less level of participation in the environmental affairs; and thereby becomes one of the barriers for CUC as suggested by some respondents in the above figure.

In addition to the above described challenges, lack of sense of ownership among some members of the community has been observed. For instance, this has been practically proved when the university's environmental protection project sites were being protected by guards rather than by the surrounding rural community itself. In the absence of the guards, there is no guarantee for the university's environmental protection outputs, such as trees to be conserved as the later can likely be exposed to the "*Tragedy of the Commons.*'' This in turn discourages the institution and any other concerned stakeholders from pursuing any more similar activities in the study area in the foreseeable future.

In general, community-university partnership with respect to the environmental protection and management in the study area has been jeopardized by several issues related to the local community's income-, social status-, and faith-based differences as well as lack of environmental

awareness, interest and sense of ownership to mention just a few. The remedy for some of these problems partially rests on the local community itself whilst others suggest another potential areas of intervention for the university and other concerned actors if such partnerships are about to be consolidated in dealing with the common issue of environmental degradation in the study area.

3.8.1.2 University perspective

> *As the new century begins to unfold, African universities and indeed universities every where, are undergoing unprecedented changes and confront multiple challenges, both old and new. Rapid technological, economic, political, and socio-cultural transformation emanating from the wider world and academe itself, are eroding the old systems, structures and stabilities of higher education. Powerful internal and external forces that are as much pedagogical and paradigmatic as they are pecuniary, demographic and socio-political are reconfiguring all aspects of university life constituted around the triple mission of teaching, research, and service* (Zeleza & Olukoshi, 2004:1)

Being one of the African universities, WSU in particular and other HEIs in the country at large are not exceptional in this regard. Because all of them are undergoing more or less similar changes with unprecedented pace and subjected to the associated challenges. Thus, it is within the framework of this broad context that challenges for CUC in the study area has to be assessed and understood. In the forerunning discussion, some of the major obstacles for community-university partnership as suggested by the university's academic staff and deans of the faculties in focus are presented. Accordingly, some of the major university related challenges include:

- Shortage and unfair distribution of budget;
- Less interaction (approach) with the local community;
- Absence of commitment among some academic staff and the management, as well as the students;
- Lack of awareness about the level of impact that environmental degradation has caused;
- Work environment that doesn't encourage the staff to pursue community-based environmental protection activities;
- Lack of experienced staff; and time constraints;
- The newness and instability of the organization, as it is under construction and fulfilling its internal facilities to collaborate with the community; and

- Poor administrative process and structure which has been incapable of guiding, coordinating and mobilizing both the academic staff and the students towards community-engaged teaching, learning and research.

In general, some of the key challenges for universities are framed around questions of reform and responses to the forces of globalization:

> *How to balance autonomy and viability, expansion and excellence, equity and efficiency, access and quality, authority and accountability, representation and responsibility, diversification and differentiation, internationalization and indigenization, global presence/visibility and local anchorage, academic freedom and professional ethics, privatization and the public purpose, teaching and research, community service/social responsibility and consultancy, diversity and uniformity, the preservation of local knowledge system and the adoption of global knowledge systems, knowledge production and knowledge dissemination, the knowledge economy and the knowledge society?* (Zeleza & Olukoshi, 2004:3).

Indeed, if HE is to meet expectations of the society then it will have to address a number of its associated challenges as described above.

3.8.2 Opportunities for Community-University Collaboration

In the preceding discussion, the various challenges for community university partnership with respect to environmental protection and management activities in the study area have been addressed. On the other hand, there are certain opportunities on the side of both parties as well as those possibilities that can be accrued from external forces of change at global scene. The following discussion highlights the same.

3.8.2.1 Local Community perspectives

There are as many possibilities for CUC in the study area as there are challenges. However, optimizing and effectively exploiting the exiting opportunities for the betterment of the society and the environment require certain preconditions. For instance, in a broad sense, a clear understanding of the socio-cultural, economic and policy context in which the institution operates and the society pursues its life is required. In a more specific terms, some issues that should be noted in this regard include clear identification and definition of the local peoples' needs, priorities and expectations; the presence of civic minded and responsive officials at the various tiers of government as well as in the university itself; fair and equitable distribution of

resources for the same purpose; and getting the consent of the different social classes and groups of the local community on the issue that deserve partnership with the university and any other concerned stakeholders among others. Particularly, on the part of the rural community in the study area, the following favorable conditions were there as identified by the households and other sections of the society.

- The presence of high interest and willingness among the local community to take part in and/or to contribute to community-based environmental protection initiatives (see Section 3.5 above);
- The presence of public sectors (such as ARDDWZ & ARDOSZW), CBOs and NGOs (see Table 8) all of which have been working on the similar venture and can share certain experience for the university as to how to approach and work together with the rural community;
- Government's enabling policy framework starting from federal to local levels.
- Indigenous knowledge resource of the local people;
- The presence of nursery sites, which serve as point experimentation sites for academic staff, and students as well as farmers;
- The presence of some traditional institutions, such as *Idir*, *Ekub* and *Mahber* among the local community that can serve as mechanisms to make the rural households to cooperate each other as well as with the near by university on the environmental affairs;
- The presence of DAs and HEWs, who have already been working on the similar venture, and as a result have accumulated some expertise knowledge and skills on how to teach the rural community about environmental issues; and
- Local Radio Station that has been broadcasting its programmes on the various socio-economic and environmental issues by making use of Wolaita language.

In general, the presence of all the above described and other possibilities among the local community can contribute a lot to the effectiveness of CUC in responding to the prevailing environmental challenges in the study area. However, its full realization depends upon certain preconditions to be fulfilled by both parties as well as other concerned stakeholders involved. For instance, among others, having a clear understanding of the overall context of the local

community in particular and the nation at large within which the institution operates is indispensable in this regard.

3.8.2.2 University perspective

> *Solving critical environmental problems through the work of communities generates new kinds of knowledge and delivery systems through circular and intertwining processes. Success is dependent upon re-envisioning problems and possibilities, approaches of communications, use of technology, and the development of processes and systems that can facilitate positive outcome* (Cathryne *et al.*, 2010:2-3).

Now a day, "…in the face of a rapidly globalizing and technologically intensive world, traditional disciplinary boundaries are crumbling and new interdisciplinary forms of knowledge production, dissemination, and consumption. Similarly, new local level and transnational alliances in the HE sector are emerging, designed to take advantage of openings offered by processes of globalization and to force an educational system (Zeleza & Olukoshi, 2004). These new networks and strategic alliances that are developing with in and between universities at the national, regional, and global levels are now bringing about unprecedented opportunities for the HE sector in pursuing their triple missions of teaching, research and communities service in an effective and efficient manner. However, it is also important to note that there are as many challenges for universities as there are opportunities in the context of the current rapid pace of globalization process.

Some of the most important opportunities in HE system that brought about by the globalization trend include increased use of technology in teaching, research, and administration; the restructuring of programes, changes in hiring practices; the changing student population and their needs, changes in the way institutions are funded; and a demand on institutions to use scarce resource more efficiently (Zeleza & Olukoshi, 2004). In this regard, relevance and responsiveness of system of education has become a key issue. As maintained by UNESCO, community and civil society engagement in HEIs as a policy focus could unleash multiple returns in sustainable development, but only if HE policy by nation states provides the flexibility and incentives for that engagement to take place (UNESCO, 2009).

Recently, new models of universities in Africa have been set up with an emphasis on their missions as being more responsive to the needs of their local communities. Examples are the University of Namibia-Northern Campus and the Universities of Development Studies in Ghana (Zeleza & Olukoshi, 2004) (see Section 2.4 for detail information). In the context of WSU, some of the major possibilities to make its system more responsive to the environmental needs of its surrounding rural community include:

i. Increased government interest in HE sector at the national level;
ii. The presence of some initial indicators of empowerment (by the university administration) of those involved in the environmental protection activities;
iii. Increasing interest and motivation among academic staff and students to undertake certain pro-environmental activities;
iv. The launching of several programmes on a regular, summer and continuous education bases, on one hand and the ongoing expansion project on the other, both of which would allow the institution to diversify its academic, research and out reach activities upon their accomplishment in the foreseeable future;
v. The presence of some campus based environment clubs despite their poor performance and ineffectiveness as of the time when this data were collected;
vi. The presence of some successful afforestation projects being initiated by some pioneering faculties and individuals in the study area (see section 3.5(III)); and
vii. The institution's linkages with some national and international organizations.

In general, there are several opportunities for the universities engagement in the community's environmental concerns and vice-versa, which have been made possible because of the globalization of HE sector and certain reform measures at both the institutional and the national levels in response to this process of change. However, all these possibilities have not yet been optimized because of several barriers in the study area as described earlier (see section 3.8.1). Therefore, community engagement strategies at WSU should be of two natures: optimizing the various possibilities being generated by both the external and internal forces of change on one hand; while overcoming the various associated challenges on the other. So that the community's socio-economic and environmental needs can effectively be met.

CHAPTER FIVE

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

Based on the analyses and the discussions that have been made by the study, the following major conclusions are made possible.

- At the local community level, different environmental problems, such as loss of soil fertility, water pollution and scarcity, land degradation due to soil erosion, deforestation and overgrazing, drought, poor waste management system that deserve an active intervention of the near by university have been identified.
- Lack of environmental awareness, knowledge and attitude among the local community has been found to be one of the major contributing factors for the degradation of the environment in the study area. However, the role of the university in providing the local community with relevant environmental education has been limited.
- Local environmental issues have not been properly integrated into all the three function areas of teaching, research and community engagement as compared to their regional, national, and global counters. This has mainly been evidenced by the less emphasis being given to the former in the curricula and instruction, failure of academic staff and students to take part in the community-based environmental protection activities and the pursuit of the same on an irregular basis among others.
- The nature of environmental education at the university is more of theory-oriented rather than being action-based with its own implications on the student-teachers' current achievements as well as future career as environmental educators.
- There has been an inter-faculty, inter-departmental and inter-personal difference in the level of participation in the community's environmental affairs with its own implications for the university's missions at both local and national levels.
- In the face of such a growing gap between the local community's environmental needs and the institution's response, community-university collaboration has been suggested as a working intervention strategy. However, the strategy faces certain challenges associated with the local community (e.g., income-based, social status-based, and faith-based differences among the community), and the university (e.g., financial constraint and lack of experienced and committed staff). Contrarily, there are windows of opportunities for furthering such a partnership from the

rural community's (e.g., the presence of indigenous knowledge), the university's, and other stakeholders' perspectives.

4.2 Recommendations

Based on the major findings of the study, the followings are recommended.

- The root causes of local environmental issues in the study area should be studied and certain mitigation measures like raising the public environmental awareness should be undertaken by all concerned stakeholders.
- Attitudinal and behavioural changes among the rural community should be created through the provision of action-oriented environmental education at both formal, informal and the non-formal settings.
- Local environmental issues should be well integrated into the curricula and instruction of the university. Towards this goal, each academic staff should try to do his/her best for he/she bears certain responsibility in this regard.
- The university should expand its demonstration and experimentation sites, and strengthen its linkage with other research institutions both in and abroad.
- A task force (committee) that comprises both the rural community groups and the university representatives should be established so as to make the community engagement mission of the university more effective.
- The existing inter-faculty, inter-departmental and inter-personal differences in the level of participation in the community's environmental affairs should at least be narrowed through empowering the lagging faculties, departments and staff members while encouraging the leading ones through different incentives.
- Community-university collaboration with respect to environmental protection and management should further be consolidated. To this end, its associated challenges should clearly be detected and remedial measures should be undertaken against the same.
- Indigenous knowledge resource of the rural community should properly be harnessed, documented, and integrated with the scientific methods of resource conservation. In this regard, the university has irreplaceable roles.
- Finally, in line with this study, further research works with greater sample size and scope should be carried out for better understand the multi-dimensional issues like a community engaged teaching-learning, and research being shallowly addressed in this study.

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Annex I

SURVEY QUESTIONNAIRE FOR RURAL HOUSEHOLDS

Introduction

The researcher, Eyob Atebo is one of the postgraduate students of Geography and Environmental Education Department at Addis Ababa University. He is currently conducting a study as a partial fulfillment for the requirement of his Masters degree. His study is entitled as, "Addressing Community's Environmental Concerns in Higher Institutions*: A focus on the rural community around Wolaita Sodo University*". The main purpose of this survey questionnaire is to collect relevant data on the study's topic. The response that you are going to give for all the questions will anonymously be included in the analysis of the study; and the findings of the study will be used only for academic purposes. Hence, feel free while responding to the questions as your genuine response will subsequently determine the overall quality and reliability of the study. Finally, this questionnaire paper has two major parts. The first part includes questions on the socio-economic and demographic characteristics of the sample households while the second part includes the main questions of the study.

Instructions:

-Respondents are not required to write their name on any part of the paper

-Put a tick (√) in the provided answer boxes or choose and encircle the letter with an appropriate answer

-State a clear, precise and direct answer for the open-ended questions on the spaces provided under the questions

PART ONE: Basic Information of the Sample Households

1. Sex of the household's head: Female ☐ Male ☐
2. Marital status: Married ☐ Not married ☐ Divorced ☐ Widowed ☐
3. Age : 15-49 ☐ 50-59 ☐ ≥60 ☐
4. Educational status: Illiterate ☐ Read and write ☐ Grade 1-4 ☐ Grade 5-8 ☐
   Grade 9-10 ☐ Grades 11-12 ☐ Others (specify) ----------
5. Family size: Female……. Male……. Total…….
6. Type of job: Farming ☐ Petty trade ☐ Handcraft ☐ Retired ☐ Others (specify)
7. Land holding size (in hectare): Landless ☐ ≤l 0.5 ha ☐ 06 – 0.75ha ☐
   0.76-1.0ha ☐ 1.1-2.0ha ☐ ≥2 ha ☐
8. Average monthly income of the households: ≤100Birr ☐ 101-350Birr ☐
   351-650 Birr ☐ 651-100 Birr ☐ ≥1001 Birr ☐
9. Household's asset:

No	Type of assets	Number of assets						Remark
		1	2	3	4	5	≥6	
1	Ox							
2	Cow							
3	Heifer							
4	Calf							
5	Donkey							
6	Mule							
7	Horse							
8	Beehive							
9	poultry							
10	Goat							
11	Sheep							
12	others							

PART TWO: **Main Questions of the Study**

1. Identify the three most serious environmental problems in your locality in terms of their potential and actual effects upon your life and livelihood conditions from the following list.
   a. Water pollution
   b. Soil erosion
   c. Flooding
   d. Loss of soil fertility
   e. Drought
   f. Desertification
   g. Over grazing
   h. Over-cultivation
   i. Air pollution
   j. Land slide
   k. Hazardous chemical waste disposal
   l. Urban based wastes
   m. others (specify)……...
2. Have you ever heard of the fact that the above mentioned environmental issues do have an adverse effect on your life and livelihood conditions?
   Yes ☐ No ☐
3. If "Yes", from where have you got the information?
   a. From schools
   b. From colleges/universities
   c. From Development Agents (or health extension workers)
   d. From churches/mosques
   e. From mass media
   f. Others (specify)……...
4. What measure(s) have you so far been taking to cope up with the prevailing environmental degradation and its resultant effects? ……..
   ……..
5. Is there any environmental protection activity in your village or any other areas with in Wolaita Zone that has been carried out by Wolaita Sodo University since its establishment?
   Yes ☐ No ☐
6. If "Yes", please mention some of them……
   ……..
7. Which one of the following agents has been playing more active role in the protection and management of the environment in your area?
   a. Agriculture and Rural Development Department of Wolaita Zone
   b. Agriculture and Rural Development Office of Sodo Zuria Woreda
   c. Faith- based organizations like churches & mosques
   d. Wolaita Sodo University
   e. Wolaita Sodo Agricultural Technology and Vocational Training College
   f. Wolaita Development Association(WDA)
   g. SNNPR Environmental Protection Bureau
   h. Others (specify)……
8. Which one of the following factors is the major cause for the environmental degradation in your area? (NB: You can choose more than one alternative)
   a. Deforestation
   b. Population growth
   c. Urban expansion
   d. Poverty
   .
   d. Poor natural resource management practice
   e. Industry & household-based waste disposal
   f. Over cultivation & overgrazing
   g. Households' biomass energy use
   i. Others (specify)……..

9. Do the prevailing environmental issues have an adverse effect upon your health, agricultural ☐ productivity and other livelihood assets? Yes ☐ No ☐
10. If "Yes", explain the effects……
……
11. Do you have any traditional natural resource conservation method(s) in your community?
Yes ☐ No ☐
12. If "Yes", what are they and how do you apply them?.....
.....
13. Have you ever participated in the environmental protection activities organized by Wolaita Sodo University or any other organization? Yes ☐ No ☐
14. If "No", why? …….
…….....
15. Are you interested in and willing full to take part in the community-based environmental protection activities? Yes ☐ No ☐
16. If "No", why and what free conditions need to be fulfilled?
……
17. Do you believe in the fact that every individual in the community has the responsibility to protect and manage the environment? Yes ☐ No ☐
18. If "No", why? .....
19. What factor(s) affect your active participation in the community-based environmental protection activities?
a. Difference in religion
b. Difference in income
c. Difference in social status
d. Absence of community-based environmental initiative
e. Lack of interest and willingness
f. Lack of information about its relevance
g. All of the above
h. Other factors (specify)…….
20. Had your community had some environmental protection activities before the establishment of Wolaita Sodo University? Yes ☐ No ☐
21. Are you willing full to work in collaboration with the university, CBOs or NGOs on environmental affairs? Yes ☐ No ☐
22. If "No", why? ……...
…….....
23. What favorable conditions are there on the part of the community so as to scale up the community-university collaboration in environmental affairs? ……..
……
24. What relevant measures should be taken by the university, the community members, the government and other concerned stakeholders so as to enhance community-university collaboration in working towards environmental sustainability goals in the future? ……
……
……

THANK YOU VERY MUCH!!!

Annex I

So Asawu Shiiqiyaa Pilggetta (xinaatiyaa) Oysha

Doomettaa

Ha pilgettaa oosuwa oottiyaa Manttaa Iyoob Axeebo Anjulloy, Addisaabaa Yuniversittiyan Joogiraafiyanne Heeraa Timirtte Kifiliyaa tamaare gidishin ha''i wodiyan ba tamaariyo na''antto digiriyaa timirttiyaa polanawu koshshiyaa pilggettaa (xinaatiyaa) oosuwaa "Addressing Community's Environmental Concerns in Higher Institutions: A focus on the rural community around Wolaita Sodo University" yaagiya huuphe yohuwan ottiiddi de'ees. Ha pilggetta oyshaassi de'iyaa gophphe halchchoy pilggettaa oosuwawu maaddiya naqaashaa shishshannaassa. Hagaappe kaallidi de'iyaa oyshatussi inttee immiyo zaaroy intte sunttay qonccenna meran pilggettaa giddon geliyagaa gidishin pilggettaa wurssettan beettanawu de'iyaa demotti ('findings') qalame timiritte go''aa xalaalaassi pee'anawu de'iyaageeta gidiyo gishshawu zaaruwaa immiyo wodiyan siranawu koshshenna. Ha pilggetta oysha woraqatay muleera naa''u shemppuwan shaahettees. Koyro shemppoy so asawu de'iyaa aquwaa-peeshshaa duusaa hanotata (eeshshata) xeelliya oyshata oyqqidaagaa gidishin naa''antto shemppoy qassi pilggettaassi kuushsha gidiya oyshata oyqqiis.

<u>Kaaletuwaa</u>:-

I. Ha woraqataa bollan ne suntta xaafiyoogaa koshshenna.

II. Dooroy imettido oyshatussi zaaruwaa immiyo saaxinetun beeriyaa woykko likke (√) malaataa wottiyoogan woykko zaaruwaa oyqqida dooruwaa pitaliyaa enccuriyoogan zaarite.

III. Xaafidi zaariyo oyshatussi qanttanne qoncce gidida zaaruwa imettida mela sohotun xaafite.

Koyro Shempuwa: **<u>Zaruwaa Immiya Asatu Oonateta Naqaashaa</u>**

1. Keettaawaa mattuma: Macca ☐ Attuma ☐
2. Machchiyo/geliyo hanotaa: Machchidaagaa ☐ Machchibennagaa ☐ Machchidi birshshidaagaa ☐
3. Laytta (Bariyaa): 15-49 ☐ 50-59 ☐ ≥60 ☐
4. Timirttiyaa xekkaa: a.Tamaaribenaagaa b. Nabbabiyoogaanne xaafiyooga kanchchiya eriyaggaa c. Kifile 1-4 tamaridaggaa d. Kifile 5-8 tamaaridaggaa e. Kifile 9-10 tamaridaggaa f. Kifile 11-12 tamaaridaggaa g. Hara timirtte xekkata gakkiko qonccissaa……
5. So asaa qooda: Macca…… Attuma……..xaaxi-waaxin……

6. Oosuwa qommuwaa: Goshshaa ☐ Zal’’iyaa ☐ kushe hiillaa ☐ Kawo oosuwaa ☐ Shemppuwan(xuratan) de’iyaagaa ☐ Dummatiya oosota gidikko qonccissa……
7. Goshsha biittaa yesuwa (hektaariyaan): Biittay baynnaagaa ☐ ≤0.5ha ☐ 0.06-0.75ha ☐ 0.76-1.0ha ☐ 1.1-2.0 ha ☐ ≥2ha ☐
8. So asaassi aginan geliyaa mishshaa qoodaa: ≤100 Biraa ☐ 101-350 Biraa ☐ 351-650 Biraa ☐ 651-1000 Biraa ☐ ≥1001 Biraa ☐

9. So asassi de’iyaa mehiyaa qomootanne qoodaa:

Payduwaa	Mehiyaa(buquraa) qommuwaa	Mehiyaa(buquraa) qoodaa						Xeeluwaa
1.	Booraa/Mirgguwaa							
2.	Maattaa miizzaa							
3.	Ussaa							
4.	Miizzee Maraa							
5.	Hariyaa							
6.	Baluquwaa							
7.	Paraa							
8.	Mattaa kootta							
9.	kuttuwaa							
10.	Deeshshaa							
11.	Dorssaa							
12.	Harabata							

Naa’’antto Shemppuwaa: **Xinaatiyawu Ayfe Gidiyaa Oyshata**

1. Hagaappe kaallidi de’iyaa heeraa metotuppe ne heeran de’iyaa asaa de’uwanne aquwaa-peeshsha bollan dariya qohuwaa gattiyaageetuppe heezzata doora.

a. Haattay moorettiyoogaa (bulqqotiyoogaa) woykko laamettiyoogaa
b. Biittay di’uwan meecettiyoogaa
c. Wora qeexiyooga (xaraga taman xuuggiyoogaa)
d. Di’uwaa daafaa
e. Biittaa araddatettay xayi-xayi biyoogaa
f. Longgiyaa (koshaa)
g. Heeray bazzotti-bazzotti biyoogaa
h. Mehiyaa heemmiyo gadiyan (dembban) maatay xayiyoogaa
i. Goshshaa gadiyaa shemppissennan sohuwan-sohuwan goyyiyoogaa
j. Carkkuwaa hanotay laamettiyiyoogaa
k. Biittay herddiyoogaa (herchchiyoogaa)
l. Asaanne mehiyaa bollan metuwaa gattiyaa marzzeta heeran coo-oliyoogaa
m. Hara qommo metoti de’ikko qonccissaa……..

2. Hagaappe bollan xaafettida heeraa metoti nenanne ne so asaa de'uwaa aquwaa-peeshsha bollan qohuwaa(daafaa) gattiyoogaadan siya eray?

   Ee siya erays ☐ Chii siya erikke ☐

3. Naa"antto oyshaassi ne immido zaaroy "Ee siya erays" giyaagaa gidikko, awuppe /ooppe siyadii?

a. Tamaare keettaappe
b. Goshshaabaa loohissiyaa Kolloojjiyappe(Yunivers ttiyaappe)
c. Goshshaa/payyatettaa oosanchchatuppe
d. Woosa keettappe (Mazggiidaappe)
e. Raadooniyaa, televiziiniyaappe,woykko gaazeexaappe
f. Harasaappe gidikko qonccissa…….

3. Heeraa metoti kaalettiyo dumma dumma metota birshshanawu aymala tanggota ekkaydda gam''adii?

   .....

   .....

4. Wolaytta Sooddo Yuniversittee eqqoosappe simmin intte heeran oottido heeraa naaguwaa oosoti de'iyonaa?

   Ee de'oosona ☐ Chii baawa ☐

5. De'iyaaba gidikko, ha oosotu qommuwaa qonccissaa

   …….

   …….

6. Hagaappe kaallidi de'iyaa ooso keettatuppe, ne heeraa naaguwaa oosuwaa oottiyoogan keehippe erettiyaagee awugee?

a. Wolaytta Zooniyaa Goshshaanne Gaxare dichchaa Kaaletaa
b. Soddo Yuushuwaa Woradaa Goshshaanne Gaxare Dichchaa Xifate Keettaa
c. Woosa keettaa (Mazggiidaa)
d. Wolayttaa Soddo Yuniversittiyaa
e. Sooddo GoshshaaTeknooloojjiyaa Loohissiyaa Kolloojjiyaa
f. Wolayttaa Dichchaa Amuwaa(WDA)
g. Tohossaa dalggaa manttiyaa Heeraa Naaguwaa Biiruwaa
h. Harati de'ikko qonccissa……...

7. Hagaappe kaallidi de'iyaa heeraa metuwaa kaalettiyaa gaasotuppe, ne moottan keehippe erettiyaagee awugee?

a. Wora qeexiyooga (xaraga taman xuuggiyoogaa)
b. Asaa qoodaa dichchaa
c. Katamaa dichchay laa'iyoogaa (aakki-aakki biyoogaa)
d. Heeran de'iyaa dola imotata maara naagennaagaa/ayssennaagaa
e. Sooppe meretiyaa dumma dumma pituwaa/ buuraa.

f. Mehiyaa heemmiyo dembbaappe dariyaa miizza heemmiyoogaanne goshsha biittaa shemppissennan goyyiyoogaa

g. Hiyyeesatettaa

h. Hara gaasoti de'ikko qonccissa……

8. Ha qommo oyshatun qonccida dumma dumma heeraa metoti ne bollaaninne ne so asaa bollan ay qommo metuwaa gattiyoonaa?

Payyatettaa metuwaa ☐ Goshshaa murutay guuxxiyoogaa ☐

Quman bana danddayennaagaa ☐ Hara metota gidikko qonccissaa……

Geliya(demmiyo) miishshay guuxxiyoogaa ☐

10. Ne moottan beettiyaa dumma dumma heeraa metoti ne payyatettaa bollan, ne goshshaa murutaa bollaninne hara ne aquwawu-peeshshawu go''ettiyobatu bollan qohuwaa gattiyoonaa?

Ee gattoosona ☐ Chii gattokkona ☐

11. "Ee gattoosona" giikko, ha qohoti(daafati) waani gakkiyaakkonne qonccissa

……

……

12. Intte heeran de'iyaa dola imotata(meretata) leemisuawawu goshsha biittaanne woraa malatiyabata sure saaphuwan oyqqanaw(naaganawu) intte wogan go''ettiyo ogeti de'iyonaa?

Ee de'oosona ☐ Chii baawa ☐

13. "Ee de'oosona" giikko, ha ogeti awugeetakkonne qonccissa…….

……

14. Hagaappe kase wodiyan Wolayttaa Sooddo Yuniversittiyaa baggaara woykko hara kawobaa woykko kawoobaa giddenna ooso keettatu baggaara doomettida heeraa naaguwaa allaalletun ne kushiyaa yedda eray?

Ee erays ☐ Chii erikke ☐

15. "Chii erikke" giikko, gaasoy aybee?

.....

16. Ne moottaa giddon, heeraa naagiyo oosotun ne kushiyaa yeddanawu (gelissanawu) dosay?

Ee dosays ☐ Chii dosikke ☐

17. "Chii dosikke"giikko, ayssi (ay mala kochchooro hanotati kumanawu koshshiyoonaa)?

.....

.....

18. Ne moottaa giddon de'iyaa ubbaa asay(macca attuma woykko na'a cima geennan) heeraa naaguwaa xeelliyaagan banttappe naagettiyaa oosuwaa oottana koshshees giyaa qofan maayettay?

Ee maayettays ☐ Chii maayettikke ☐

19. Chii maayettikke giikko, gaasoy aybee?

…….....

20. Ayba gaasoti nena heeraa naagiyo oosotun ne kushiyaa gelissenna mala teqqiyoonaa?

a. Ammanuwaa(haymaanootiyaa) dummatettaa
b. Duretaa (demmiyo/geliyaa miishshaa) dummatettaa
c. Heeraa duussaa xekkaa dummatettaa
d. Moottaappe gidida heeraa naaguwaa allaallee xeelliyo asi(yaray) baynnaagaa
e. Koshshaa xayuwaa (heeraa naaguwaa oosuwaa dosennaagaa)
f. Heeraa naaguwaa oosuwaa go"aa erennaagaa
g. Hara gaasoti de'ikko qonccissa……
……

21. Wolayttaa Sooddo Yuniversittee eqqanaappe kase ne moottan heeraa naagiyo allaalleti oosettiiddi gam"idona(de'iyonaa)?

Ee de'oosona ☐ Chii baawa ☐

22. Wolayttaa Sooddo Yuniversittiyara woykko hara ne moottaappe gidida yametuura woykko kawonne kawo gidenna ooso keettatuura issippe kushettiyogan heeraa naagiyo oosota oottanawu dosay?

Ee dosays ☐ Chii dosikke ☐

23. "Chii dosikke" giikko gaasoy aybee? .....
……

24. Ne moottaa baggaara asay ubbay heeraa naaguwaa allalliyaa xeelliyaagan Yunivers ttiyara kushettanawunne ha issippetettaa sinttawu dichchanawu ay mala injje hanotati de"iyonaa?

……
……
……
……
……

25. Kawotettaa, moottaa asaa, Yuniversittiyaa baggaaranne hara ha allaallee xeelliyo yaratu baggaara heeraa asaanne Yuniversittiyaa giddon de'iyaa issippetettaa ha naa"u baggawukka kotta gidiyaa heeraa naaguwaa allaalliyaa medhdhiyoogan heeran beettiyaa dumma dumma dola imotata (meretata) naagiyoogaaninne maara ayssiyoogan kaallidi yiyaa yeletata laatissanawu ay mala tanggoy ekettanawu bessii?

……..
……
……..……..……..……
……
……
……

Ha naqaashaa immanawu eeno giido gishshawu keehippe galatays !

Annex III

SURVEY QUESTIONNAIRE FOR INSTRUCTORS

Introduction

The researcher, Eyob Atebo is one of the postgraduate students of Geography and Environmental Education Department at Addis Ababa University. He is currently conducting a study on "*Addressing Community's Environmental Concerns in Higher Institutions: A focus on the rural community around Wolaita Sodo University*" as a partial fulfillment for the requirement of his masters degree. The main purpose of this survey questionnaire is to collect relevant data on the study's topic. Therefore, your genuine responses to all the questions here under have a paramount significance for the successful accomplishment of the study. This questionnaire paper has two major parts. The first part includes questions on some vital information of the sample staff while the second part includes the main questions of the study.

Instructions: - I) You are not required to write your name on any part of the paper

II) Put a tick (√) in the provided answer boxes or encircle the letter of your choice from the given alternatives

III) State a short and precise answer for the open-ended questions on the provided blank spaces

PART ONE: Basic Information of the Sample Staff

1. Sex: Female ☐ Male ☐
2. Faculty/School……..... Department…….……..……
3. Academic rank: Associate Prof. ☐ Graduate Assistant II ☐
   Assistant Prof. ☐ Graduate Assistant I ☐
   Lecturer ☐ Technical Assistant ☐
   Assistant Lecturer ☐ Others …….
4. Your stay in your current department……. years…….months
5. Your total work experience as an academician:……years……...months

PART TWO: Main Questions of the Study

1. Mention some of the major environmental issues affecting the entire community around Wolaita Sodo University.
   ……
   ……
2. What do you think are the major causes for the prevalence of these environmental issues in the area? ……..
   ……
   ……
3. The level of integration of local environmental issues that you've mentioned above in the course out lines of your department is ……
   Lo ☐ Medium ☐ High ☐
4. The emphasis given to the local environmental issues as compared to the regional, national, and global environmental issues in the curriculum of the course(s) that you teach at the university is
   Lower ☐ Medium ☐ Higher ☐
5. How do you treat aspects of environmental issues in your instructional activities as compared to your own core course contents?
   Negatively ☐ Neutrally/fairly ☐ Positively ☐
6. Have you ever carried out a study (ies) on the local environmental issues? Yes ☐ No ☐
7. If "No", why?.....
8. Is there any exemplary environmental protection activity that has been carried out by the community-university collaboration in and around the university? Yes ☐ No ☐
9. If "Yes", elaborate on its practical achievements……

…….
…….
……

10. Are you interested in and willing full to participate in any environmental protection endeavors (both with in the campus and the surrounding rural areas)? Yes ☐ No ☐
11. If "No", why and what free conditions need to be fulfilled?
    ……
    ……
12. If "Yes", how do you encourage your students to get involved in similar tasks?
    ……
    ……
13. What special responsibilities do you foster with regard to the environmental protection and management as an educator of the would be environmental educators at your university?
    ……
    ……
14. Have you ever mobilized any environmental awareness raising campaign among the surrounding rural community? Yes ☐ No ☐
15. Are the environmental protection activities (both with in the campus and in the surrounding rural areas) being carried out on a regular basis? Yes ☐ No ☐
16. If "No", why? ……...
    ..…….....
17. Which one of the following instructional methods do you often apply to teach environmental issues?
    a. Demonstration e. Field trip
    b. Group discussion f. Dramatization
    c. Lecture method g. Problem solving
    d. Laboratory h. others (specify)……
18. If your answer to Q. Nº 17 is "*lecture method*", how do you explain the implications of the current theory-based environmental education practice on the future career of your students?
    ……
    ……
    ……
19. How often do you use instructional methods, such as field trips/visits to the local areas, field based assignments and term papers in your course delivery activities?
    a. Not at all b. Sometimes c. Always d. Usually
20. If your answer to Q. Nº 19 is "*Not at all*", what are the reasons?
    …….
    …….
    ……..
21. Community-based teaching, learning and research are highly practiced in your department.
    Strongly agree ☐ Agree ☐ Disagree ☐ Strongly disagree ☐
22. Are there any well organized clubs at your department /faculty level that are actively working on the local environmental issues? Yes ☐ No ☐
23. If "Yes", what responsibility do you have in such clubs and how have you been exercising it?
    ……
    ……
24. What major possibilities are there on the part of your institution so as to scale up community-university collaboration in working towards the common goal of environmental sustainability?
    ……

……
……

25. What are the major challenges to pursue community engaged teaching, learning and research with respect to environmental issues on the part of your institution?
……
……
……

26. What do you suggest as to how to optimize the existing opportunities while overcoming the associated challenges in working collaboratively towards environmental sustainability goals in the future?
……
……
……
……

THANK YOU VERY MUCH!!!

Annex IV

SURVEY QUESTIONNAIRE TO BE FILLED BY STUDENTS

Instructions: I. You are not required to write your name on any part of the paper

II. Put a tick (√) in the provided answer boxes.

PART ONE: Basic Information of the Sample Students

1. Sex: Female ☐ Male ☐
2. Year level: First ☐ Second ☐ Third Fourth
3. Programme: Regular ☐ Summer ☐ Continuous Education Program ☐

PART TWO: Main Questions of the study

Indicate your level of agreement/disagreement on the items in the table below by putting an "X" under the corresponding numbers (1=strongly disagree 2= disagree 3=undecided 4= agree & 5= strongly agree)

S.N	Items	score					Remark
		1	2	3	4	5	
1.	Community-based teaching, learning and research are highly practiced in your department.						
2.	Environment/Nature Clubs in your university are working very effectively at both campus and community level on the environmental issues.						
3.	Mainstreaming local environmental issues into the formal teaching, learning and research tasks has mutual benefits for both the community and university.						
4.	Community-based teaching and/or learning approach provides higher interest and motivation than classroom based one.						
5.	Local environmental issues are more emphasized than the regional, national, and global environmental issues in your classroom instruction.						
6.	Community-university collaboration has a paramount role in tackling environmental issues at various spatial and temporal scales.						
7.	Both academic staff and students are highly interested in and willing full to participate in any environmental protection endeavors both with in the campus and in the surrounding rural areas.						
8.	Environmental issues are often been thought by making use of lecture method and other teacher-centered methods in your classroom						
9.	Both academic staff and students often carry out research works on the local environmental issues as part of their programme and professional development.						
10.	Environmental protection activities of the staff members and students among the surrounding rural community are being undertaken on a regular basis.						
11.	It is better to apply learner-centered approaches than teacher-centered methods to teach/learn environmental issues.						
12.	Environmental Education in your department is more theory-oriented rather than being action- oriented.						

THANK YOU VERY MUCH!!!

Annex V

INTERVIEW GUIDELINE

1. What are the major environmental issues affecting the entire community around Wolaita Sodo University?
2. What are the major causes for and consequences of these environmental issues in the area?
3. What measure(s) have you so far been taking to cope up with the prevailing environmental degradation and its resultant effects?
4. How do you explain your relationship with the university in working collaboratively towards environmental sustainability goals?
5. How do the prevailing environmental issues adversely affect your health, agricultural productivity and other livelihood assets at both personal and familial level?
6. What are the major factors affecting active community participation in the environmental protection activities in your local areas?
7. What are the major challenges and opportunities for community-university collaboration in working towards environmental sustainability goal?
8. What relevant measures should be taken by the university, the community members, the government and other concerned stakeholders so as to enhance community-university collaboration in working towards environmental sustainability goals in the future?

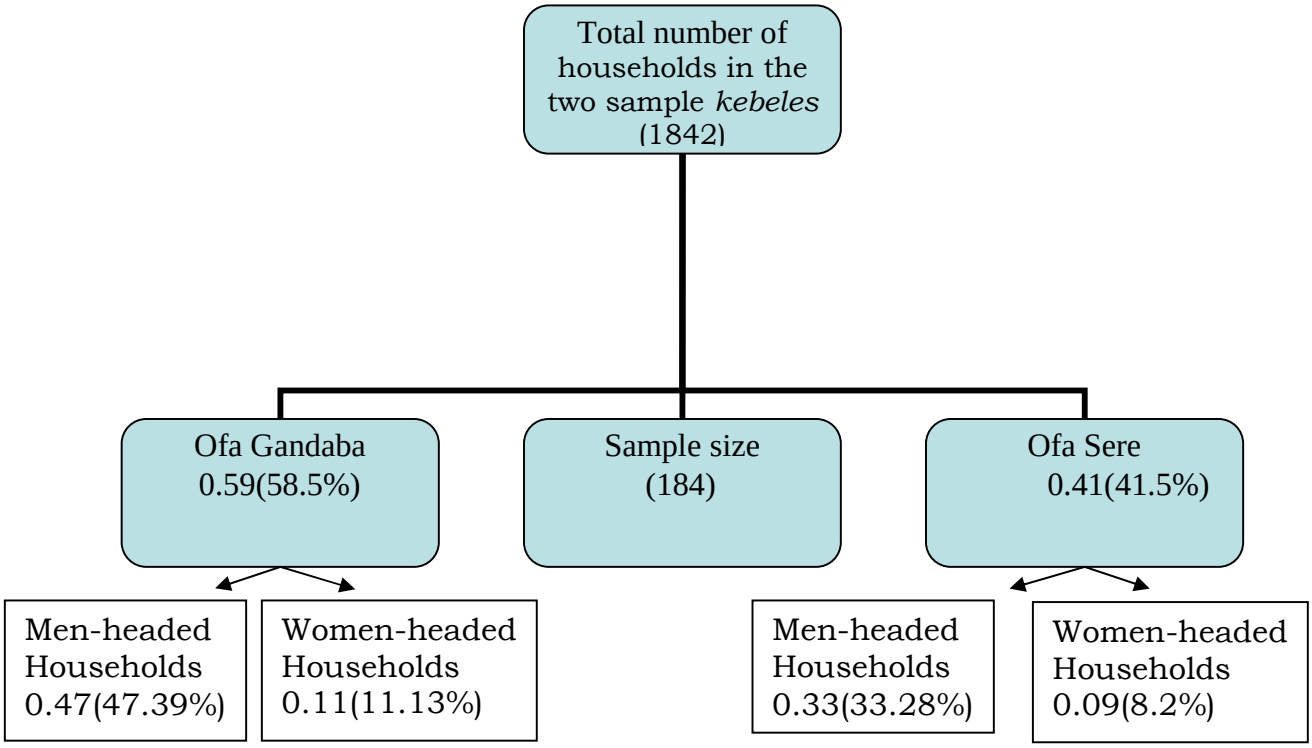
A GUIDELINE FOR FOCUS GROUP DISCUSSION

1. How do you conserve the natural resource in your area traditionally?
2. Discuss the significance of community-university collaboration for the community members in terms of knowledge, skills and experience sharing on the environmental protection and management activities.
3. Discuss the ways to tackle your local environmental issues; and there by their potential effects upon your health, agricultural produce and other livelihood assets.
4. Discuss the importance of traditional methods of natural resource management in your locality as part of the solutions to the prevailing environmental degradation.
5. What relevant measures should be taken by the university, the community members, the government and other concerned stakeholders so as to preserve the traditional knowledge resource of the local community in the context of the current growing environmental issues?

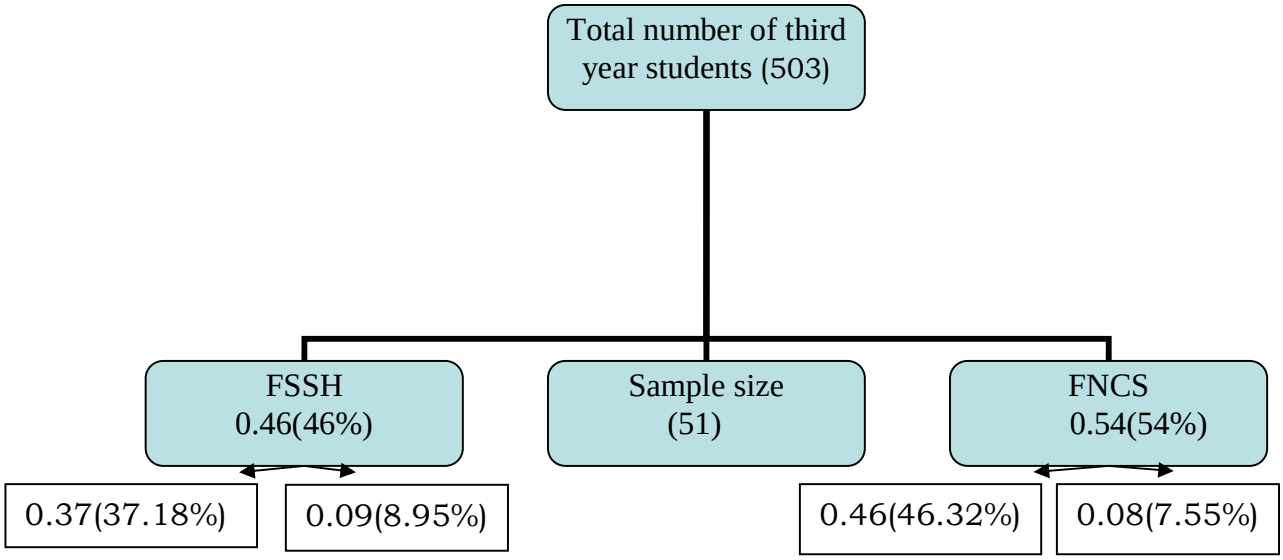
Annex VI

Stratified sampling structure of household and student respondents

I. Household respondents' proportionate stratified sampling structure



I. Student respondents' proportionate stratified sampling structure



Annex VII
Declaration

I declare that this thesis is my original work and has not been presented for a degree in any university. All the resources of material used for the thesis are duly acknowledged.

Name: _____

Signature: _____

Date: _____

Place: _____

This thesis has been submitted for examination with my approval as a university advisor.

Name: _____

Signature: _____

Date: _____

Place: _____