



Utilization of Environmental Resources by Rural Communities (Case Study In “Ritigala,” Anuradhapura District)

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ABSTRACT

The average household income of the rural people is comparatively low and thus they are compelled to depend heavily on environmental resources found in their living environment. This study attempts to generate empirical evidence to fill the prevailing gap in empirical information on sustainable extraction of environmental resources by the rural communities. Results revealed that, the majority of different kinds of environmental resources extracted are consumption good sin satisfying day-to-day needs of their households. Financial value of input goods used had been the highest. Value of natural resources extracted, non-farm income and agricultural income were 20, 44 and 36 percent of the annual income of the household respectively. Common lands, home gardens and village tank were the major sources of environmental resources. Communities that are located in the close proximities of urban centers and by the side of highways have extracted lesser amounts of natural resources as they are access to off- farm employments. Communities that are located in interior locations and are in the close proximity of the natural forests have extracted more resources from the environment as they have adopted intensive agriculture. However, elite groups do extract environmental resources in a selfish way. Scarcities of resources, legal barriers and unavailability of legal titles for lands are some of the problems faced by the people in extracting environmental resources. As sustainable extraction of environmental resources could alleviate rural poverty effective mechanism with community participation is of paramount importance. It is suggested to explore options to promote efficient utilization of environmental resources as a mean of reducing human pressure on the resource bases.

Keywords: *Environmental resources, Household Income, “Ritigala”, Rural community , Sustainable resource extraction.*

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1. Introduction

Consumption goods, input goods, output goods and durable and storage goods are different categories of environmental resources (Cavendish and Campbell, 2007). Consumption goods are the resources that are extracted to satisfy the consumption needs. Villagers do consume these resources at the households and do not sell them. Resources that are used in production of another good are called input goods; fire wood gathered for commercial purposes, clay mined for brick making, poles/sticks that are used in fencing, supporting climber cops and forage extracted from common lands. Output goods are the items collected for sale. Bee honey, some wild seeds, tamarind and medicinal herbs collected for sale are some examples for output goods. Material such as timber, sand, metal and furniture made of timber are considered as durable and storage goods.

Environmental resources play a significant role in supporting the livelihood activities of the rural poor despite of them over exploiting these resources. Poverty driven over exploitation of environmental resources has caused degradation in resource base and species extinction, jeopardizing the long term sustainability of these resources. Thus, the use of environmental resources by rural community has become a dilemma. As such, taking steps to promote sustainable utilization of environmental resources has become a national concern today. In order to design a mechanism to promote sustainable utilization of environmental resources, valid, reliable and appropriate empirical evidence are of paramount importance. Nevertheless, their availability limited in Sri Lanka. Therefore, this study attempted to describe different environment al resources extracted by the rural community in “*Ritigala*”, their contribution to household income, problemes associated with the extraction of these recourses and consequences of unsustainable extraction of these resources.

2. Material and Methods

2.1 Study Area

Anuradhapura district was purposely selected because it is one of the leading agricultural areas of which around 80 percent of the communities are found in rural area. “*Ritigala*” area was selected because there is a strict natural reserve (SNR) of 1,528 ha; people living in close proximity are farmers who collect environmental resources from forest patches. Three villages, based on farming systems adopted, were purposely selected for this study. A random sample of 40 households were selected from each villages and data were collected from the selected households through a field survey.

2.2 Data and Data Analysis

As data collected were qualitative in nature, both open ended and close ended questions were included into the questionnaire and open ended questions were analysed using qualitative techniques because those types of questions recorded the opinions of the respondents (Hancock et al, 2009). On the other hand, close ended questions were used where possible alternative replies were known, as suggested by Anon (2012). As the study depends heavily on primary data, steps were taken to maintain the validity and reliability of data collected. Simple analytical techniques were used in data analysis.

3. Results and Discussion

3.1 *Environmental Goods utilized by community in “Ritigala”*

Common lands, forests, tanks and tank beds were the sources found in these communities. Details of these goods utilized by the people of “*Ritigala*” are presented in table 3.1.

Majority of the environmental resources extracted are consumption goods. This indicates that villagers have gathered an array of environmental resources merely in satisfying day-to-day needs of their households. It is clear that, rural people are depending heavily on the natural environment for their survival. Therefore, sustainable extraction of environmental resources is mandatory.

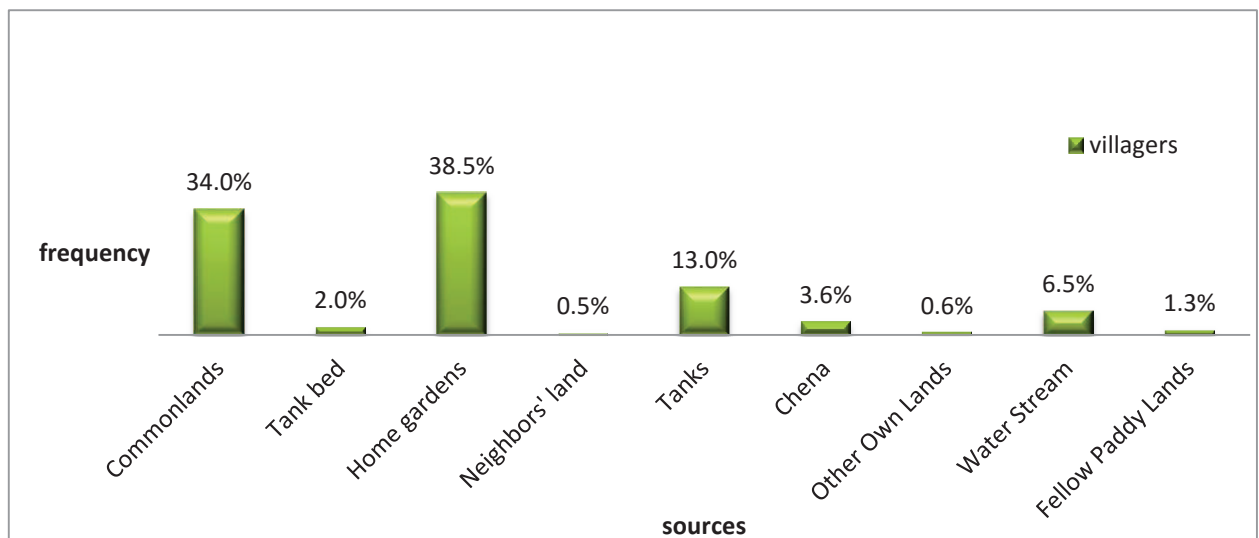
3.2 *Sources of Environmental resources*

Common lands, village tanks, tank beds, home gardens, other land except the home garden, neighbors’ land, water stream, “*Chena*”, fellow paddy lands were identified as the sources of environmental resources exploited. Home gardens and common lands were the most popular sources (Figure 3.1).

Table 3.1 Environmental Goods Utilized By People of “Ritigala”

Consumption goods	Input goods	Output goods	Durables and stock goods
Wild fruits Vegetables/leafy vegetables Firewood Poles used as handles of agricultural tools Lotus flowers Lime Lotus seeds Curry leaves Medicines Mushroom Bee Honey Kekatiya” Wild meat Fresh water fish	Firewood used in small industries Clay mined for brick production Poles used to support climber crops Fodder used for animals Cadjan used as a roofing material	Fire wood gathered for sale Bee honey extracted for sale Lotus seeds collected for sale Tamarind collected for sale Curry leaves collected for sale Lime harvested for sale Wild medicine collected for sale Coconut leaves collected for sale	Sand used as a construction material Poles/ wood used as construction material Furniture made of timber Stones used as a construction material

(Source: Field survey, 2014)



(Figure 1. Sources of environmental goods extracted by community of “Ritigala”)

(Source; Field Survey, 2014)

Aquatic plants and fish were collected from tanks and water streams. Sand mining was done in the water streams too. Tank beds were used in collecting leafy vegetables and clay mining. Fallow paddy lands were the popular source for forage extraction.

Baumann, (2002) and Vedeld et al., (2007) stated that, poverty is a common phenomenon in rural communities and therefore, rural people are compelled to depend heavily on environmental resources. Findings of this study are in par with this idea.

3.3 Financial values of resources used

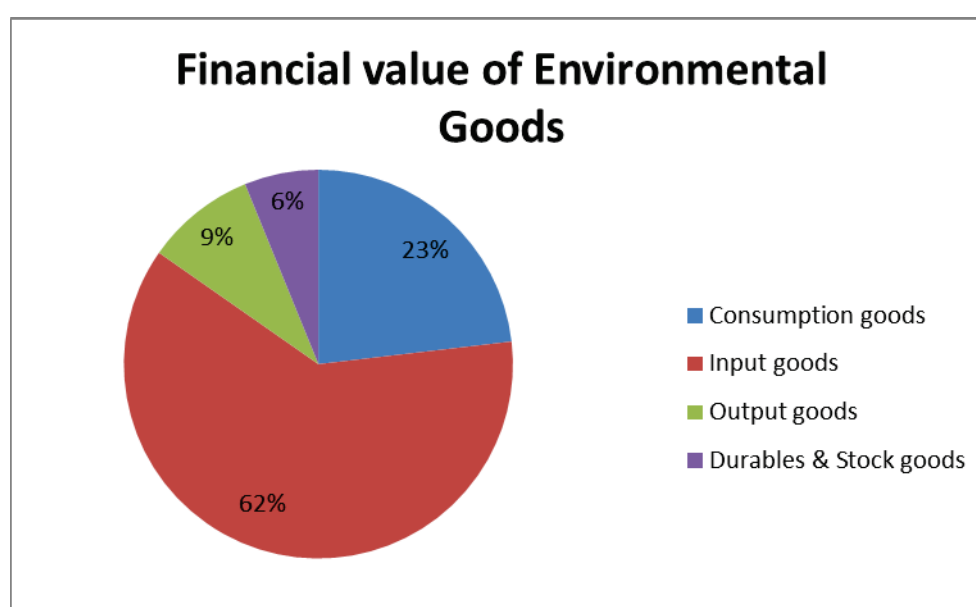
People of “Ritigala” have extracted resources of all four categories. Financial value of consumption, input,

output and durable & stock goods extracted within a year were Rs.10.9, 29.3, 4.3 and 2.9 million respectively. Total value of environmental goods extracted was Rs. 47.1 million per annum (Rs. 391,667 per month) (Table2, Figure2). This information reveals the vital role played by the natural environment in supporting the livelihood of the rural people. Therefore, taking necessary steps to educate rural inhabitants about the benefits of sustainable use of environmental resources is important

Table 2. Financial value of environmental resources

Types of environmental goods	Total value (million Rs/annum)
Consumption good	10.9 (23%)
Input goods	29.00 (62%)
Output goods	4.3 (9%)
Durables & Stock goods	2.9 (6%)
Total	47.1

(Source; Field survey, 2014)



(Figure2. Financial value of environmental goods)

(Source: Field survey, 2014)

3.4 Contribution of environmental resources to average annual household income

Household income was calculated considering income earned from agriculture, environmental goods and non- farm income. Different components of agriculture sector include seasonal crops, commercial level animal husbandry, perennial crops and timber extracted from own lands. Income earned through self-employment, off-farm income and social benefits such as “Samurdhi” were considered as non-farm income. Value of environmental resources extracted was considered as income environmental resources. Financial values of environmental resources were calculated based on the market value prevailed in the area.

The average annual household income of a household was Rs. 0.341 million (Rs. 28,420.00 per month). Value of natural resources extracted, non-farm income and agricultural income accounts for 20, 44 and 36 percent of the annual income of the household. Income from environmental resources had accounted for 20 percent of the average annual household income of the study area (Figure 3). According to Angelsen et al, (2014) environmental resources accounted to 22 percent of the household income in Asia and findings of this study are close to findings of Angelsen, Inoni, (2009) and Silva (1998). This information further emphasizes the importance of environmental resources in maintaining rural livelihood.

Results of this study confirms the opinion that rural livelihood is tightly woven with the natural environment. Thus, sustainable extraction of environmental resources and their effective and efficient use are of paramount important. Therefore, possibilities should be explored to utilize natural resources as a mean of alleviating rural poverty. Conducting awareness programs in rural areas, introducing participatory resource management programs, developing technology to promote effective and efficient utilization of environmental resources and their sustainable extraction are areas that immediate attention of relevant authorities should be received. Mere legal sanctions are ineffective as well as inadequate in protecting the natural environment.

Table 3. Average annual household income

Average annual house hold Income	
Source	(Million Rs.)
Environmental goods	0.068(19.94%)
Non-farm income	0.150(44.09%)
Agriculture income	0.123(35.97%)
Average annual H.H income	0.341

(Source; Field survey, 2014)

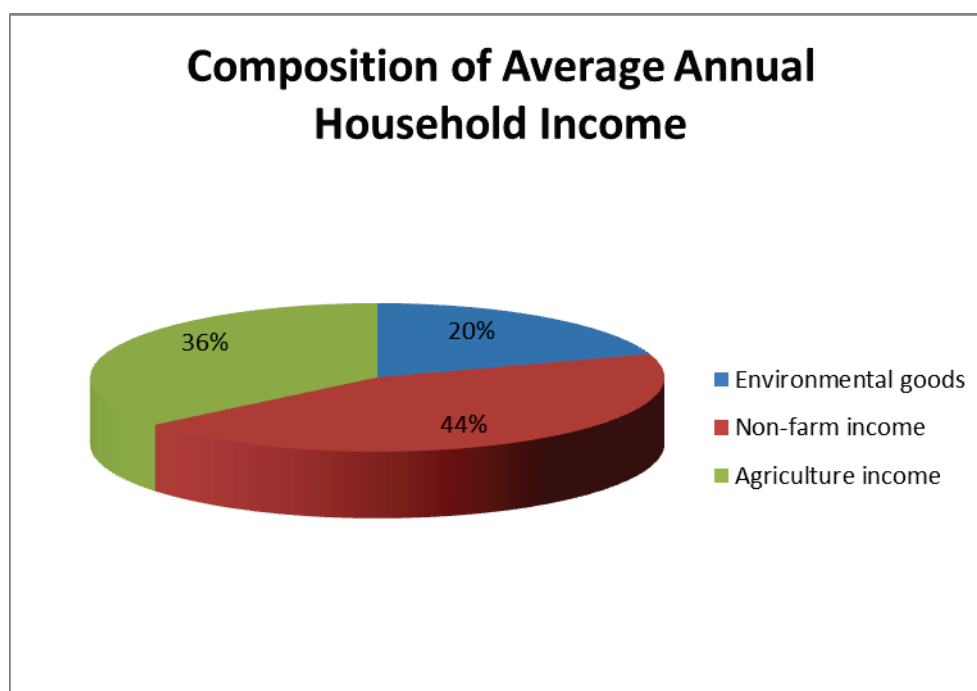


Figure3. Composition of average annual household income

(Source: Field survey, 2014)

3.5 Problems faced in extracting environmental resources

The study revealed that villagers residing in closer to town centers and highways have access to off-farm employments and thus their dependency on the natural environment is relatively low .On the other hand, people who are living in interior locations close to natural forests and other sources of natural resources are engaged in intensive agriculture have extracted more environmental resources. However, whether these villagers utilize environmental resources efficiently and effectively is a question to be answered.

Nevertheless, the demand for environmental resources is increasing continuously as a result of population increase and changes that are taken place in the life style of people. That has created a high demand for environmental resources in urban centers motivating the rural people to extract these resources. Continues

extraction of resources have reduced their availability and increased the opportunity cost associated with their extraction. Because “Ritigala” forest is a protected area people’s access to the forest is restricted. However, elite groups are extracting restricted environmental resources continuously despite of the legal restrictions. Block hush (2002) stated that, demarcating boundaries that could be managed under the participatory management and designing programs must obtain community participation in forest reserves instead isolating forest from the community. The Community is beneficial in promoting sustainable exploration of environmental resources. Forest authorities should pay attention to that idea in designing forest conservation policies.

Villagers have faced difficulties in extracting some environmental resources like timber when they have no titles for their lands where these resources are located. This is a common problem in rural areas and it could be corrected by giving titles to such lands. Powerless people are facing difficulties in extracting environmental resources as a result of the large scale exploitation done by the elite groups. This is another area that, needs relevant attention should be received.

4. Conclusions

Community peripheral to “Ritigala” utilizes a large amount of environmental resources for survival. Major sources of environmental resources were home gardens, common lands (forest patches, grazing lands) and village tanks.

Financial value of environmental resources extracted by a household was Rs. 5,583.22 per month per household and it has accounted for about 20 percent of their average annual household income.

Legal problems, scarcity of resources and ownership of lands are the major problems faced by the villagers in extracting and utilizing environmental resources.

It is important to identify the effective mechanisms to promote sustainable extraction of these resources instead mere confining to legislations in order to promote sustainable extraction of environmental resources and their efficient and effective utilization.

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