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Impact of Plant Renewable Resources on Solving Unemployment in Central District of Unguja

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Abstract

This study focused on assessment of the impact of plant renewable resources in solving unemployment problem in Central District of Unguja. The study was based on the following specific objectives; to examine how timber harvesting business helps to solve unemployment in Central District of Unguja, to analyse how food plants are of importance in solving unemployment in the Central District of Unguja, to determine how scrub or grass plants help to solve unemployment in Central District of Unguja and to assess how energy helps to solve unemployment in Central District of Unguja.

The study was conducted using descriptive research design. Questionnaire was used in collecting the data from the respondents. The findings showed that 237 respondents equal to (61.1%) agreed that people are using plant renewable resources as a source of self-employment. 344 respondents equal to (88.7%) agreed that people are engaging in the timber harvesting and roof beams. 244 respondents equal to (62.9%) agreed that people do not understand which activity provides more benefits between plant resource harvesting and other works. 199 respondents equal to (51.3%) agreed that people are not aware if plant harvesting takes place during the day and night and simply 309 responded equal to (79.6%) agreed that the minimum price of roof beams or piece of timber is more than 5000 Tanzania Shillings.

The study recommended that regulations must be strictly observed in order to preserve the forestry environment and natural resources in general. There must be a regulation to follow in order to conserve the natural resources. Education must be provided to the people engaging in the plant harvesting business. The responsible authorities must ensure that forest collections are being monitored well and collected properly. There must be an authority which is directly specified in ensuring that the forest products have fixed prices.

Keywords: Plants, Renewable Resources and Unemployment.

Introduction

Renewable resources or energy often referred to as clean resources come from natural sources or processes that are constantly replenished (Shinn, 2018). Plants are renewable resources because this is the one among the types of renewable resources. Education, 2014, provides some typical examples of renewable resources whereby some of them are solar energy, soil, plants, ground water, wind, metals and other minerals.

Renewable resources can be renewed as they are used. An example is plants, which is in form of different trees. New trees can be planted to replace those that are cut down for different activities. Plants are a renewable resource because they grow quickly and can replace themselves at fast rates. Several factors influence the rate of photosynthesis and therefore dictate how quickly plants regenerate. Plants in warmer climates have higher photosynthetic rates than those in cooler temperatures. According to Poonia, et.al., 2020, plants regenerate quickly when there is little difference; 10 degrees between daytime and night time.

Plants play a vital role in the earth's ecosystems because of photosynthesis, which means they create oxygen while drawing carbon dioxide out of the atmosphere. Because of human-induced increases in carbon dioxide in the atmosphere (potentially leading to the phenomenon of global warming), this process is particularly important. Humans also harvest plants for timber and food. Without these plants' ability to regenerate and serve as a

renewable resources, humankind would not be sustainable (Osborne and Freckleton, 2009).

According to Adams (1997) and Godfrey (2003) as cited in Msigwa and Kipsha (2013), the main reasons for Africa's high rates of youth unemployment include a mismatch between educational systems and the skills needed in the labor market and the saturated public sector which is no longer able to employ large numbers of people and small private sector. Other reasons include labor demand barriers, such as observed discrimination by employers towards young people on grounds of lack of experience, information gaps between job seekers and potential employers and barriers to the creation and development of business opportunities, particularly gaining access to such opportunities.

Tanzania experienced strong economic growth rate of 7.2%, the annual unemployment rate was at the rising rate from 2% in 2005 to 2.9% in 2013, despite the unemployment rate decline to 2.3% in 2016, which was largely attributed to initiative actions taken by the government such as creation of National Employment Policy (Suleiman and Hemed, 2017).

Unemployment rate in Tanzania was 9.40 by the end of 2021 as per trading economics global macro model and analysts' expectations. In the long-term Tanzania, unemployment rate was projected to trend around 9.30% in 2022 and 9.10 in 2023 to our econometric models (Abbasabadi, H. M., & Soleimani, M., 2021).

2. Literature Review

2.1 Marxian Theory of Unemployment

Karl Marx, *Theorien über den Mehrwert*, (1956) argued that it is in the very nature of the capitalist mode of production to overwork some workers while keeping the rest as a reserve army of unemployed paupers. Marxists share the Keynesian viewpoint of the relationship between economic demand and employment, but with the caveat that the market system's propensity to slash wages and reduce labor participation on an enterprise level causes a requisite decrease in aggregate demand in the economy as a whole, causing crises of unemployment and periods of low economic activity before the capital accumulation (investment) phase of economic growth can continue. According to Karl Marx, unemployment is inherent within the unstable capitalist system and periodic crises of mass unemployment are to be expected.

2.2 Theoretical Logistic Growth Function of a Renewable Resource

Gordon (1980) proposed the Gordon-Schaefer Bio Economic Model by introducing the concept of economic efficiency and cost management. Furthermore, logistic growth function of renewable resources was proposed based on Gordon's work. Clark and Munro too wrote extensively on the Model because researchers were all static until the 1990s when Clark established a dynamic bio economic model based on the Gordon-Schaefer biological model. Let a renewable resource X at time period t be described by the following discrete-time, first order difference equation:

$X_{t+1} - X_t = F(X_t) - Y_t$ (1) where $F(X_t)$ represents a net growth function (i.e. birth less mortality) and Y_t is the period to harvest. Each period is addition to the current stock is estimated as the difference between growth and

harvest. If harvest consistently exceeds growth, then the renewable resources must be in decline. Similarly, if growth consistently exceeds harvest, then the renewable resources are expanding. The existence and stability of steady-states; where harvest exactly equals growth in each time period ($Y=F(X)$ for all t), can also be found in this framework and is often the focus of analysis. For many renewable resources, the growth function is typically specified as dependent on an intrinsic growth rate (r), a carrying capacity (K) and periods of increasing and decreasing marginal additions to stock. In resources such as forests, a period of negative growth can also be specified to account for the effects of aging and decay (Brown, 2010).

Mhache, (2018) conducted the study on the roles of gender on forest management in Unguja, Zanzibar, case study Chaani and Pete villages. He employed both interview guide and questionnaires for both qualitative and quantitative data collection methods respectively from 200 people. Using SPSS as a software computer package for data analysis, the result of this study was that people participated effectively in forest management through tree planting, establishing the tree nurseries and woodlots, participating in campaigns on tree planting and forest committees among others. The findings indicated that illegal forest products, harvesting, wildfire, uncontrolled grazing and charcoal making were challenges facing forest management in Pete and Chaani villages.

Bulavskaya and Reynès (2017) conducted a study on the examination of the impact of renewable energy on job creation in Netherlands using a neo-Keynesian CGEM Three ME Model. They concluded that the transition to renewable energy may create close to 50000 jobs by 2030 thus contributing 1% to GDP. Khodeir (2016) established an inverse correlation between renewable electricity generation and unemployment rate in Egypt over the period 1989 and 2013 using the ARDL approach. The study aimed at detecting the effects in the short and long run during the study period. However, it has been found that the hypothesis was achieved in the long run only.

Mwembezi (2014), conducted a study in Tanzania on the assessment of environmental interventions by Local Government Authorities on the Quality of Environment Conservation in three selected Councils of Dodoma Region, Tanzania. A case study design was adopted in which a population of 629 respondents was involved. In this study, the population was used as sample, hence, Census technique, not sampling. Distribution of respondents for data collection was in four groups and divided into two categories which included intervention designers 215 and intervention implementers 414. Descriptive statistics were used to analyse the data. Major findings included; poor use of natural resources, lack of adequate knowledge and knowledge dissemination, financial constraints and conflict of interest among stakeholders.

Marula et.al., (2013) conducted a study on the utilization and management of plant resources in rural areas of the Limpopo Province, South Africa. They employed a semi-structured questionnaire supplemented with field observation methods of data collection. Data was collected from 60 respondents residing in rural villages of the Limpopo Province where the villagers depended on plant resources for their livelihood. The results were, total of 47 wild plant species (95% indigenous and 5% exotics) from

27 families, mostly from the Fabaceae (17%), Anacardiaceae (9%) and Combretaceae (9%) were documented. These species were used primarily for firewood (40%), food (36%) and medicine (29%). Significantly used species included *Sclerocaryabirrea* (85%), *Combretum kraussii* (35%) and *Harpephyllumcaffrum* (35%). Local traditional rules and regulations including taboos, social beliefs and fines are in place to aid in the management of communal resources. However, a significant number (67%) of participants mentioned that they were not pleased with these rules and regulations.

Kiwi (2013), on River Resources towards Sustainable Development of Tanzania, a Contribution of Hydropower to the Energy Security in Tanzania: Case Study, Rufiji River Basin. Different development implications regarding hydropower production in the country were addressed through in-depth literature review from different academic sources and a survey which was conducted through questionnaires and field trips. The findings of this study were; Tanzania can produce enough hydropower to meet the energy demand if hydropower was improved as one of the sources of energy. This implies that the potential of the Rufiji River basin is not fully exploited due to the lack of an integrated approach on achieving the best solutions for Tanzanian energy, inappropriate technology and poor allocation of funds.

3. Methodology

The study was conducted by using a descriptive research design as well as a quantitative study approach. This study was conducted in the Central District of Unguja, Zanzibar. The study was carried out in the villages that have plant renewable resources in Central District of Unguja Island with a total number of 12964 of people. The study used a sample of respondents from each place, a total of 388 respondents participated in the study. A simple random sampling was used to sample the respondents of the study. Data collected was analyzed by using a quantitative approach method which is descriptive statistics and multiple regression with the aid of computer software; Statistical Package for the Social Sciences (SPSS) version 20.

4. Results and Discussion

4.1 Demographic Features

In this study, characteristics of respondents were accorded much significance given the problem of investigation at stake. Therefore, characteristics namely, Gender, Age, Position, Marital Status, Education Level, Working Experience, Residential Areas and Duration in the residence of the 388 respondents were examined as clearly observed in Table 1: -

Table: 1

Variable	Category	Percentage
Gender	Male	72.9%
	Female	27.1%
Age	Less than 21 Years	7.1%
	21-30 Years	25.3%
	31-40 Years	32.4%
	41-50 Years	24.7%
	51-60 Years	9.2%
	61 And above	0.4%
Position	Village Member	95.4%
	Head of Village	2.8%
	None	1.8%
Marital Status	Single	10.3%
	Married	82.7%
	Divorced/Widow	7.0%
Education Level	Form II and below	55.9%
	Form IV or Form VI	23.7%
	Certificate	6.4%
	Diploma	4.9%
	Bachelor degree	3.4%
	Postgraduate degree	0.5%
Working Experience	Informal education	5.2%
	Below 1 Year	18.3%
	1-5 Years	28.9%
	6-10 Years	39.2%
	11-15 Years	9.8%
	16-20 Years	3.6%
Residential Areas	21 Years and More	0.3%
	Rural Area	52.0%
	Urban Area	17.6%
Duration in the residence	Both	30.4%
	Below 5 Years	2.3%
	5-10 Years	26.8%
	Above 10 Years	70.9%

Source: Researcher, (2022)

From Table 1, in gender issue, more male respondents equal to (72.9%) participated compared to the female respondents. This means those males participated more in

harvesting plant resources compared to their female counterparts.

Table 1 also shows that respondents by the age of 21-50

were (82.4%) participated much in this study. The respondents selected and participated in this study were the village members which meant that they really had a better understanding of the renewable resources.

Table 1 still shows that most of the respondents were married and this equaled to (82.7%). This was due to the fact that most Zanzibaris are youths. Still Table 1 shows that many rural people in the research area of Zanzibar are of various levels of education depending on various life styles. This situation depicts that the youthful villagers participated more in the plant harvesting as they are (55.9%).

Further still, Table 1 shows that respondents who had the working experience of 1-5 years, were (39.2%) meaning that youths participated more in the plant harvesting. Still Table 1 is indicative of the fact that many respondents (52.0%) reside in the rural areas. They are expected to be conversant with the forestry industry with all its natural resources. As many as (70.9%) have lived their entire life in rural areas and they are expected to be well conversant with plant harvesting which is the major theme of this study.

4.2 Study Findings

After carefully data analysis, the following is the summary of the results obtained in this study;

(61.1%) agreed that people are using plant renewable resource as a source of self-employment. (88.7%) of the respondents are engaging in timber harvesting and roof

beams. (62.9%) agreed that people do not understand which activity provides more benefits between plant resource harvesting and other works. (51.3%) agreed that people are not aware if plant harvesting takes place during the day and night and (79.6%) responded that the minimum price of roof beams or piece of timber is more than 5,000/= Tanzania Shillings. (52.3%) agreed that roof beams selling and timber harvesting provide employment opportunities. (71.4%) responded that timber harvesting provides opportunity for the people engaging in the activities are they are gaining financially. Their standard of living is very pleasant and many of them are self-employed. (54.6%) of respondents who are dealing in forest harvesting are living very good life; they their personal accommodation facilities and are able to sustain their families. (43.4%) agreed that prices of various forest harvesting products including foodstuff, fruits, medicines are not constant in the markets. (72.4%) agreed that people are earning their income by selling the fruits obtained from the forests. (42%) agreed that charcoal burning and selling is one among the booming economic activities. (70.4%) agreed that the cost of one packet is worth more than 15,000 Tanzania Shillings in Zanzibar.

4.3 Regression Coefficients

This is about an executive summary of the findings of the study and the results in question are depicted in Table 2.

Table 2: Regression Coefficients.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	1.834	.403		4.553	.000	1.042	2.626
timber	.123	.066	.095	1.860	.004	-.007	.253
fruits	.234	.068	.177	3.450	.001	.101	.368
shrub	.141	.046	.150	3.039	.003	.050	.233
energy	.039	.036	.052	1.062	.289	-.033	.110

Source: Field data, 2022

In the first place, Table 2 depicts that the general model scored at 0.000 significance value while the results of other variables read as 0.004 alpha of timber, fruits scored at 0.001 alpha, shrubs scored at 0.003 alpha. On the other hand, energy scored at 0.289 alpha from the model. The results from Table 2 are under the following analyses: -

A critical analysis of the results of the data collected from the field in regard to the first objective depict that; 0.004 scored less than 0.005 which means Null hypothesis is rejected and alternative hypothesis is accepted. Thus, there is a significant relationship between timber harvesting business and solving of unemployment in the Central District.

Results of the second objective showed that; p-value scored at 0.001 and alpha is less 0.005 alpha. This means that Null hypothesis is rejected and alternative hypothesis is accepted. Thus, there a significant impact between the businesses of food on solving the unemployment in the Central District of Unguja.

Similarly, the third objective shows that shrub or grass plants scored at 0.003 alphas. 0.003 is less than 0.05 p-values. This means that Null hypothesis is rejected and alternative hypothesis is accepted. That there is a significant impact of the shrub/grass plants in helping to

solve unemployment problem in Central District - Unguja.

In regard to the last objective, the probability value scored was at 0.289 alphas. 0.289 alphas is greater than 0.05 alphas to mean Null hypothesis is accepted and it is true that there is no association between energy and solving unemployment.

This finding is contrary to the findings from descriptive statistics whereby majority of respondents believed that continuing harvesting plant for energy like firewood or charcoal, for animals' food, human food, medicines, timber and fruits could help them in solving unemployment.

5. Conclusion

Basing on the study specific objectives and the findings, it was concluded that; people living in the forest areas are using plant resource as a source of employment. Many of them are getting enough money selling timber products. Also, many are leading good life as a result of selling timber and other forest products such as roof beams from which they are getting a lot of revenue to sustain their families. However, on a sad note, many people do not understand which activity provides more benefits between plant resource harvesting and other works. Worse still,

whereas the villagers are pretty aware that harvesting plants during the night is illegal, quite a number of them engage themselves in this dubious activity. So, government is losing a lot of the would-be revenue going to its coffers for national development.

6. Recommendations

Basing on both the objectives and the results of this study, the following recommendations were reached at: -

In the first place, regulations and policies geared towards environmental protection and forest reserve should be promulgated in order to preserve the forest environment and natural resources in general. If possible, forests should be gazetted by the Revolutionary Government of Zanzibar and those harvesting the trees and other natural resources should be stopped henceforth.

Secondly, education aimed at mass awareness of the usefulness of forests in the region must be provided so that the masses preserve the forests instead of harvesting them. If the masses have no any other alternative and therefore, they must cut trees, then, by law, ten trees must be planted to replace each tree harvested.

Instead of turning forests into source of revenue, the villagers should be encouraged to use some other alternatives such as practicing afforestation as well as carrying out agro forestry businesses because they are sure sources of income resulting from job creation opportunities that are more sustainable compared to tree harvesting. Hence, ensuring a friendly environment for both mankind and wild animals within the research areas of this study.

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