Administration of Rice Input Subsidy Programme on Quality Life of Farming Communities in North B District, Unguja

Rajab Ali Ramadhan [a*] and Shaaban Mwinchum Suleiman [b]

[a] Department of Public Administration, Zanzibar University, Tanzania.
[b] Institute of Public Administration (IPA) Zanzibar, Tanzania.

Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

This study investigated the administration of rice input subsidy on the quality life of farmers among farming communities in North B, District, Unguja. Four objectives guided this study which included examining the correlation between rice farming subsidies and the quality of life, examining the impact of seeds subsidies and farmers' quality life, determining the impact of fertilizers subsidies on farmers' quality of life as well as to examine the impact of pesticides subsidies on farmers' quality of life in North B District, Unguja. The study used a cross-sectional survey design where questionnaires were used to collect data from 87 rice farmers of North B, district Unguja through simple random sampling. The study reveals a moderate correlation between rice input subsidies and farmers' quality life ($r = 0.475$, $p < 0.01$). Moreover, a standard multiple regression indicates that the independent variables rice input subsidies (fertilizers, seeds and pesticides) accounted for 25% of the variability in predicting quality life among farming communities in North B district, Unguja ($R^2 = 0.247$). Primarily, pesticide subsidy, has a significant effect or impact on farmers' quality life ($\beta = 0.352$, $t = 2.183$, $p < 0.05$). However, the results also indicate that two independent variables that are fertiliser subsidy ($\beta = 0.050$, $t = 0.201$, $p > 0.05$) and seeds subsidy ($\beta = 0.119$, $t = 0.470$, $p > 0.05$) do not have any significant impact on farmers' quality life. With this result, the study recommends that the government support rice farmers by increasing the provision of more rice input subsidies such as fertilizers, pesticides, and seeds to rice farmers of Northern, B District of Unguja timely manner to improve their quality of life.

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Corresponding author: E-mail: rojarama17@gmail.com;

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1. INTRODUCTION

Quality of life is the general well-being of individuals and societies, outlining negative and positive features of life. It observes life satisfaction, including everything from physical health, family, education, employment, wealth, safety, security, freedom, religious beliefs, and the environment Barcaccia [1]. Concerning farming, quality of life could be easily determined by a level of services accessed by farmers in rice farming communities measuring with the income generated after rice production. In Zanzibar, a greener achievement of rice farmers production improved as reported by ZAP [2] that Rice Production in Zanzibar increased rapidly since the adoption of new subsidy policy; That focuses on one farm mechanization services, secondly agro-chemicals (artificial fertilizers and herbicides), thirdly is irrigation services and fourthly is farm credit. The RGoZ subsidizes about 75% of fertilizer and seeds; 50% for mechanical land preparation. This type of subsidy exposes a range of implications to micro and macroeconomic variables like an increased supply of crops for sale, reduced demand for purchases of agro-inputs, rising income, increased demand for the crop as a result of consumption, and increased proportion of total agriculture expenditure on agro-inputs subsidy [2].

With great subsidy provisions and well implementation of the policy, Zanzibar achieved a higher level of success in rice farming production recently, 29,564 tons in 2014 compared to 47,507.1 tons between 2018. Table 1. shows the details of production.

On the other hand, the mean and median; total per capita Household expenditure for 28 days by districts of Zanzibar. Urban district has the highest mean per capita expenditure, followed by Magharibi and Mkoani. Micheweni district has the lowest mean per capita household expenditure, followed by Wete district and then Kaskazini B. (ZHBSD, 2004) reported that the agricultural dominated districts have low capital income than non-agricultural districts like Urban and Chakechake Table 2 shows the details of expenditure.

Table 1. Rice Productions from 2014 to 2018 in Zanzibar

	2014	2015	2016	2017	2018
Crops	Quantity (Tons)	Quantity (Tons)	Quantity (Tons)	Quantity (Tons)	Quantity (Tons)
Paddy (Rain feed)	29,564	29,083	3,589	35,791.30	44,457.90
Paddy Irrigation			755	3,891.40	3,049.20
Total			4344	39682.7	47507.1

Source: Adopted from ZAP, 2019.

Table 2. Per Capita Household Expenditure for 28 Days

DISTRICT	MEAN	MEDIAN
Mjini	28,749	22,955
Magharibi	23,105	19,346
Mkoani	20,412	17,803
Kati	19,901	16,616
Chakechake	19,234	16,308
Kusini	18,134	15,808
Kaskazini A	18,099	15,215
Kaskazini B	16,667	14,603
Wete	16,322	14,115
Micheweni	14,287	12,493

Source: Adopted from 2004/2005 Zanzibar Household Budget Survey Data

Despite the dominance, the rice farming sector has several opportunities in Zanzibar that, if utilized effectively, lead to increased production and productivity and thus act as a basis for improving the quality of life in farming communities. Among them are:

i.   The existence of farmer-led organizations and projects that promote youth, women, and other marginalized groups to engage in the development of the agricultural value chain.
ii.   New and other partners prepared to finance the agriculture sector outside of established funding channels are becoming available.
iii. On-going infrastructure development, including the expansion and modernization of roads, ports, and other physical and communication facilities for improved connectivity, as well as electricity and marketing.

1.1 Statement of the Problem

Tanzania focused on ensuring counter-revolution in Agriculture through various ways, including recasting the current rice farming vision of 2020 whereby 70% of its population depends directly or indirectly on agriculture-related activities for their livelihood and rice becomes the first dish in Mainland the aisles [3].

Despite having a productive vision in Tanzania and rice becoming the main food of Zanzibar, subsidies are not well distributed to the rice farming community [2], and the rice sector faces many challenges. Because of poor administration in the distribution of subsidies, the quality of life of rice farmers remains poor. Therefore, this study investigated the situation in depth to provide a strategic solution by measuring farmers' perceptions and existing relationships and examining its impact on quality of life to improve farmers' quality of life among farming communities in Zanzibar.

1.2 General Objective

The study's general objective is to investigate the administration of rice input subsidy program on the quality life of farming communities in North B District Unguja.

1.2.1 Specific objectives

i.   To examine the correlation between rice inputs subsidies programme and farmers' quality life in North, B Unguja.

ii.   To examine the impact of seeds subsidies and farmers' quality life in North B, Unguja.
iii. To examine the impact of subsidies fertilisers on farmers' quality life in North B, Unguja.
iv.   To examine the impact of pesticides subsidies on farmers' quality of life in North B District.

2. LITERATURE REVIEW

Many studies guided this research, including the followings:

Alexander & Catonou [4], conducted a study in Ghana on the impact of fertilizer subsidy on land and labour productivity of rice-producing households, using a cross-sectional design, questionnaire data obtained from 820 households of 82 communities to conclude that:

One, distribution of participants within the subsidy communities indicates that the variable, subsidy community, satisfies the exclusivity condition, such that households participating in the subsidy program belong to at least one subsidy communities. The fertilizer application rate is higher among households in subsidy communities than those in non-subsidy communities.

Doi et.al. [5], conducted a study in Malaysia titled as From Maximization to Optimization: A Paradigm Shift in Rice Production in Thailand to Improve Overall Quality of Life of Stakeholders, using mixed design of statistical which analysis under the help of SPSS version 10.0.1 and thematic design for a data collected from interview to find out that when government minimized inputs of (1) rice seeds; (2) irrigation water; (3) chemical fertilizers; (4) pesticides; and (5) labor/time consumption, there were directly increased of (a) the quality of the rice; (b) productivity per unit area; (c) profits and savings; (d) cooperation among villagers; and (e) total quality of life. At sites where groundwater is pumped to irrigate fields, the system also decreased electricity consumption and pump-related expenses by reducing the irrigation water required.

Akal [6], studied the influence of farm inputs subsidy on the performance of small-scale rice farming projects in Chiga sub-location, Kisumu County, in Kenya. Using descriptive survey

design to find out that: One, majority of citizens aware on a provision of fertilizer; they also increase land use and land management and seeds were issued at an affordable cost for farmers. As well as farm logistics like tractors, weighing machines, and packaging were available in some areas and unavailable in some areas; in addition, 50% of farmers benefited from extension services.

Mwatawala et al. [7], assessed the contribution of paddy production to household income and challenges faced by smallholder paddy farmers in Tanzania, using Descriptive statistics and regression to find out that: High prices of fertilizers ($P<0.05$), scarcity of area for cultivation (($P<0.001$) and low market price for paddy ($P<0.001$) were significant challenges that smallholder paddy farmers faced.

Laiprakobsup [8], the policy effect of government assistance on the rice production in Southeast Asia: Comparative case studies of Thailand, Vietnam, and the Philippines using descriptive design and regression to find out that the nominal rate of assistance to the rice sector, which helps rice farmers' production inputs, positively affected the average rice yield, and the variable was statistically significant at $p < .05$. Additionally, an increase of one unit in the nominal rate of assistance for rice production input was associated with an increase of 12,619.3 kilograms per hectare in rice yield and Government policy influences farmers' rice production. Such policy can qualitatively affect the farmers' production in that the government provides production technology and knowledge for farmers.

Haji et al. [3], Adoption of Rainfed Paddy Production Technologies among Smallholder Farmers: A Case of Central District- Zanzibar; using a cross-sectional research design was employed to find out that rainfed paddy production technologies that smallholder farmers adopted included row planting, fertilizer application ($P=.03$), weed control and the use of improved paddy seed varieties ($p= .04$). Researchers recommend that the government of Zanzibar should continue providing efficient extension services to smallholder farmers in order to ensure sustainability in the adoption of rain-fed paddy production technologies in Zanzibar.

Awotide et al. [9], studied the impact of access to subsidized certified on improved rice seed on income: evidence from rice farming households in Nigeria. The data were analyzed using descriptive statistics, Average Treatment Effect (ATE) estimation Techniques, and the Local Average Treatment Effect (LATE) method, and thus it was revealed that access to SCIRS had a poverty-reducing effect. In addition, the LARF was adopted to account for other factors that could affect the farmers' income. The analysis revealed that access to SCIRS increased the farmers' income significantly. The analysis showed further that access to SCIRS had a higher impact on the poor farmers' income, meaning that it is pro-poor. The poverty measurement results further confirm that access to SCIRS has a poverty-reducing effect and could be a way out of poverty if well implemented and monitored.

Coulibaly et al. [10], investigated the rice farmer's poverty and determinants: evidence from Dogofiri village of Office du Niger zone in Mali. The study uses descriptive statistics and a linear regression model to analyze determinants. In his study survey method was used to collect the data using a special strategy dividing the villages to come up with 110 respondents. The study was very focused with identified specific objectives to find out that in the village of Dogofiri, family farm incomes are highly dispersed relative to the mean (Mean: 6.0545; Std. dev: 3.59877). Through a grantee of seeds, fertilizers, and pesticides subsidy, the income of farmers in ON Zone is higher than non subsides areas, this means that subsidy given Zone has higher quality life than none zone.

Omotilewa et al. [11], investigated the Subsidies for agricultural technology adoption: Evidence from a randomized experiment with improved grain storage bags in Uganda, using survey design, data were collected by surveyed questionnaires for 1200 small-scale farmers using multilevel stratified sampling for three years. The researchers found that farmers in Uganda were given new technologies in agriculture to increase production since subsidy contributes to the quality of life. Thus, farmers' production level increased five times better than before, which means that through the adoption of woven bags technology, the quality of life of these farmers improved.
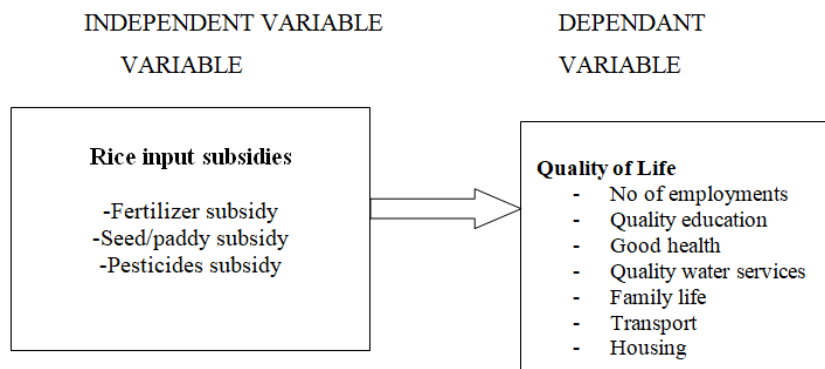
2.1 Conceptual Framework

INDEPENDENT VARIABLE
VARIABLE

DEPENDANT
VARIABLE

Rice input subsidies

-Fertilizer subsidy
-Seed/paddy subsidy
-Pesticides subsidy

Quality of Life
- No of employments
- Quality education
- Good health
- Quality water services
- Family life
- Transport
- Housing

Fig. 1. Conceptual Framework
Source: Author Construction:

When rice farming subsidies are well distributed, numbers of employment may increase: -

i. When rice farming subsidies are well distributed, it contributes to high-quality education, from primary to tertiary, among members of rice farming communities.
ii. When rice farming subsidies are well distributed, people may access good health services.
iii. When rice farming subsidies are well distributed, people may access quality water service.
iv. When rice farming subsidies are well distributed, people may enjoy their family life like there could be a decrease in the number of divorces.
v. When rice farming subsidies are well distributed, people may access their cars.
vi. When rice farming subsidies are well distributed, people may build a modern house.

3. RESEARCH METHODOLOGY

This study wias conducted at North B District; since more farmers were available, their life seems not to be as good quality as other rice farming communities in Unguja, Zanzibar. The research used a quantitative approach, which aims at testing objective theories by examining the relationship among variables. These variables, in turn, can be measured, typically on instruments, so that numbered data can be analysed using statistical procedures. The study employed a cross-sectional survey design in which the researcher collects data at one point in a period. Thus this study was designed to collect data only once on the impact of rice input subsidy programme on quality life of farmers in north B district. The study population was 3783 rice farmers from rice farming communities of North B District. The sample size for this study will be 97. The data were collected through questionnaires were analysed using correlation and multiple regressions.

4. FINDINGS AND DISCUSSION

4.1 Profile of the Respondents

4.1.1 Gender distribution of the respondents

When respondents were asked a question about their gender, they provided responses depicted in Table 3.

Table 3. Descriptions of respondents by gender

Gender	Frequency	Percentage (%)
Male	46	52.9%
Female	41	47.1%
Total	87	100.0

Source: Field data, 2020

Table 3 shows that 46 (52.9%) of respondents were male while 41 (47.1%) of respondents were female, which means that gender balance in this research was well-considered and that the study is entirely free from gender bias. Therefore, the results discovered would be reliable. However, a slight difference of 5.8% between males and females was found, implying men engaged more in rice farming than women.

4.1.2 Age of the household

When respondents were asked to state their age, they did so, and Table 4. presents the details of the findings:

Table 4 shows that 5 (5.7%) of respondents were less than 21 years, 13 (14.9%) of respondents aged between 21-30 years, 27 (31.0%) of respondents aged from 31-40 years, 10 (11.5%) of respondents aged from 41-50 years, 15 (17.2%) were in the age bracket of 51-60 years while 17 (19.5%) of respondents aged between 61 and above years, which means that, rice farming practiced by people with different level of age groups, however, 31-40 years practice more since their age bracket is more active than any

other categories used in the study. This distribution also means that the administration of rice farming considers rice farmers from any age category for the subsidy to increase rice production.

4.1.3 Marital status of respondents

When respondents were asked to state their marital status, they did so, and Table 5 presents the details of the findings:

Table 5 shows that 9 (10.3%) of the respondents were single, 69 (79.3%) of respondents were married, and 9 (10.3%) of respondents were divorced, which means that couples were highly mobilized to engage in rice farming activities through subsidy program in order to enhance their daily lives and minimize the cost of production.

4.1.4 Education level of respondents

When respondents were asked to state their education level, they did so, and Table 6 presents the details of the findings:

Table 4. Age of Household

Age	Frequency	Percentage
Less than 21 years	5	5.7%
21-30 years	13	14.9%
31-40 years	27	31.0%
41-50 years	10	11.5%
51-60 years	15	17.2%
61 and above	17	19.5%
Total	87	100.0%

Source: Field data, 2020

Table 5. Marital status of Respondents

Status	Frequency	Percentage
Single	9	10.3%
Married	69	79.3%
Divorced/widow	9	10.3%
Total	87	100.0

Source: Field Data, 2020

Table 6. Education level of respondents

Education level	Frequency	Percentage
less than form four	60	69.0%
Form four or form six	20	23.0%
Certificate	5	5.7%
Diploma/FTC	2	2.3%
Total	87	100.0

Source: Field Data, 2020

Table 6 shows that 60 (69.0%) of the respondents were less than form four, 20 (23.0%) of respondents were form four or form six, 5 (5.7%) of respondents were certificate holders. In comparison, 2 (2.3%) of respondents were Diploma/FTC level, which means that rice farming activity is practiced by people from any educational qualification whereby the majority of them possessed a lower level of less than form four. There are many reasons associated with these findings; one is that most people with lower-level education are jobless and use rice farming activity as the best alternative to manage their lives. The second reason is the declaration of the government of agriculture to be a backbone of our economy, enforcement of National industrialization policy as well as the availability of all kinds of subsidies to motivate both educated and non-educated to invest in rice farming in North B District in order to improve their income levels.

4.1.5 Rice output

When respondents were asked to state their rice output, they did so, and Table 7 presents the details of the findings:-

Table 7 shows that 66 (75.9%) of respondents produce less than 500 kgs, 9 (10.3%) of respondents produce 500-1999 kgs of rice, 4 (4.6%) of respondents produce about 1000-1499 kgs of rice, 5 (5.7%) of respondents produce 1500-1999 kgs of rice while 3 (3.4%) of respondents produce about 2000 kgs and above of rice. The researcher found that most respondents produce less than 500 kgs, which means farmers' rice production capacities are still low. Low farmers' rice production capacities could have been caused by several factors, including time for distribution, quality of seeds, and climatic change.

4.1.6 Number of dependents

When respondents were asked to state the number of their dependents, they did so, and Table 8 presents the details of the finding:-

Table 8 shows that 11 (12.6%) of respondents have between 1 and 2 dependent(s), 16 (18.4%) of respondents have 3 to 4 dependents, 20 (23.0%) of respondents have 5 to 6 dependents, 15 (17.2%) of respondents have 7 to 8 dependents, 20 (23.0%) of respondents have 9 and above members in their family while 5 (5.7%) of respondents have not any member in their family. The data shows that most families have 5 and above number of dependents. This high number of dependants implies that most rice farmers have to produce enough food for housing consumption to make their bodies healthy, influencing them to increase their farming capacity to satisfy their needs.

Table 7. Rice output

Rice Output	Frequency	Percentage
Less than 500 kgs	66	75.9%
500- 999 kgs	9	10.3%
1000-1499kgs	4	4.6%
1500-1999kgs	5	5.7%
2000 kg & Above	3	3.4%
Total	87	100.0

Source: Field Data, 2020

Table 8 Number of dependents

Dependents	Frequency	Percentage
1-2	11	12.6%
3-4	16	18.4%
5-6	20	23.0%
7-8	15	17.2%
9+	20	23.0%
None	5	5.7%
Total	87	100.0

Source: Field Data, 2020

4.2 Study Objectives

The finding for examining the correlation between rice inputs subsidies programme and farmers' quality life in North, B Unguja are presented in Table 9:

Table 9 shows that rice subsidy correlates moderately with the quality of life by 0.475 (47.5%). In contrast, the two-tailed hypothesis shows that rice subsidy is significantly correlated to the quality of rice of farmers for the 0.01 level, which means rice subsidy significantly influences farmers' quality of life because it is less than 0.05 values, which means that when the provision of rice subsidy increased, it causes to increase in farmers' quality of life as well.

This finding is consistent with Laiprakobsup [8], who found that when the nominal rate of assistance to the rice sector which can stand as the rice subsidy, it helps rice farmers' production inputs positively and affects the average rice yield and the variable which was statistically significant at a probability less than 05.

There are many reasons for respondents to believe that rice subsidies influence the farmers' quality of life at a moderate level since there are an imperfect distribution of subsidies in both quality and quantity (dose of subsidies), mismanagement of rice yield production, and provision of rice subsidy in out of date. However, providing these subsidies to the right farmers at the right time could ensure more quality of farmers' life in North, B District in Unguja.

4.2.1 Objective two

To examine the impact of seeds subsidies on farmers' quality life in North B district, Unguja.

4.2.2 Objective three

To examine the impact of subsidies fertilisers on farmers' quality life in North B district, Unguja.

4.2.3 Objective four

To examine the impact of pesticides subsidies on farmers' quality of life in North B district, Unguja.

These three objectives can be well addressed or analysed using various multivariate analysis techniques, such as structural equation modeling and multiple regression [12,13]. This research has employed multiple regression techniques to answer these objectives in light of this opinion. According to Pallant [13], multiple regression is a cluster of techniques employed to explore the relationship between one dependent variable and more than one independent variable. Under this case, the standard multiple regression was used in which all independent variables were entered into the equation concurrently or simultaneously through the use of SPSS version 23.

Table 9. Pearson Correlation

		Quality_life	Rice_subsidy
Quality_life	Pearson Correlation	1	.475[**]
	Sig. (2-tailed)		.000
	N	87	87
Rice_subsidy	Pearson Correlation	.475[**]	1
	Sig. (2-tailed)	.000	
	N	87	87

**. Correlation is significant at the 0.01 level (2-tailed)
Source: Field Data, 2020

Table 10. Results of Standard Multiple Regression for the Testing of Rice Input Subsidies (fertilisers, seeds and pesticides) on Farmers' Quality Life. Table 10 show the detail Model Summary[b]

R	R Square	Adjusted R Square	R Square Change	F Change	Sig. F Change
.497[a]	.247	.219	.247	9.053	0.000

Source: Author computation (2020)
a.   Predictors: (Constant), Fertilisers Subsidy, Seeds Subsidy, Pesticide Subsidy
b.   Dependent Variable: Farmers' Quality Life

Table 11. Coefficients Table for Rice Input Subsidies (fertilisers, seeds and pesticides) on Farmers' Quality Life. Table 11 show the detail of the findings

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
(Constant)	.924	.188		4.906	.000
Fertilizer	.033	.165	.050	.201	.841
Seeds	.076	.161	.119	.470	.639
Pesticide	.267	.122	.352	2.183	.032

Source: Author computation (2020)

The results of standard multiple regression as displayed in Table 10 indicates that the independent variables rice input subsidies (fertilisers, seeds, and pesticides) accounted for 25% of the variability in predicting quality life among farming communities in North B district, Unguja (R^2 = 0.247). Therefore, these findings substantiate that only 25% of farmers' quality of life variability could be explained by fertilizer, seeds, and pesticide subsidies. The remaining 75% of variability depends on other unexplained factors.

Apart from Table 10, Table 11 displays the coefficients' columns for the standard multiple regression conducted.

With reference to Table 11, at the 0.05 level of confidence, the study has revealed that one independent variable that is pesticide subsidy, has a significant effect or impact on dependent variable which is farmers' quality life (β = 0.352, t = 2.183, p < 0.05). However, the results also indicate that two independent variables that are fertiliser subsidy (β = 0.050, t = 0.201, p > 0.05) and seeds subsidy (β = 0.119, t = 0.470, p > 0.05) did not show any significant impact on farmers quality life.

These findings indicate that government pesticide subsidy on farming communities in North B district, Unguja, influences farmers' quality of life. It can be seen that money allocated by farmers for purchasing pesticides could be used to improve other social life aspects such as education, health and clothing since the government committed to providing pesticide subsidies to farmers.

The findings of seeds and fertilizer subsidies appear to be non-significant, implying that the government needs to do more in providing better seeds and enough fertilisers to farmers to produce more, hence achieving a better life. Currently, many farmers rely on locally produced seeds and local fertilisers (manure) in their farming activities.

5. CONCLUSION

The study findings are consistent as well not consistent with other previous studies. For example, a study conducted by Alexander & Catonou [4] in Ghana on the impact of fertilizer subsidy on rice-producing households' land and labor productivity revealed that fertilizer and seeds improved the life of households through improved rice production by about 510kg more rice per hectare. Households who owned land had 426kg more rice per hectare, both rise of production and ownership of land indicating extent improvement of quality life of rice farmers. Therefore all forms of subsidy program granted by administration could influence the availability of quality life.

6. RECOMMENDATIONS

The researcher thinks it is essential to provide recommendations to improve the administration of rice farming subsidies to make the rice farming sector of Northern, B District more productive. These are:

i. The government should continue providing more rice farming subsidies, since it could impact the increase in the quality of life.

ii. Government should support rice farmers by increasing the provision of more fertilizers subsidy, which consider the right farming time.

iii. Government should continue providing quality seeds that consider the time of farming.

iv. Government should select quality pesticides to be used for farmers to facilitate more in rice production in the communities of rice farmers of Northern, B District of Unguja timely.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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