

FOOD SECURITY OF TENANT FARMER HOUSEHOLD IN DRAWDOWN AREA OF WONOGIRI MULTIFUNCTION DAM

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Abstract

This research aimed to study the food security status of tenant farmer household in drawdown area surrounding Wonogiri multifunction dam. This study was a survey research with explanatory research taken place in five subdistricts existing surrounding Wonogiri multifunction dam with the greatest number of tenant farmer and the broadest subsidizing land, including Nguntoronadi, Baturetno, Giriwoyo, Wuryantoro, and Eromoko. The data of research was collected from the result of interview with 75 tenant farmer households in five subdistricts analyzed using a descriptive analysis method. The result of research showed that (1) the food expense of farmer household was higher than non-food expense; (2) the mean energy consumption for every member of household was not even and still below Recommended Dietary Allowances (RDA) of 2000 kcal per day; (3) the mean of protein consumption per capita had surpassed the Recommended Dietary Allowances (RDA) of 50 grams per day; and (4) most farmer households were in poor food security condition.

Keywords: Food security, farmer households, drawdown area.

JEL Classifications: Q18, I 31

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I. INTRODUCTION

The construction of Wonogiri Multifunction Dam megaproject in 1976 exerted a great effect to the people surrounding dam construction. The great positive effect of this megaproject is that it serves as irrigation source for farming area in either Central Java or East Java, meaning that for the development, agriculture is the main sector in the national food provision. But this construction also leaves some problems to the people around that area, in which only 24% of 12,525 household were successfully moved in transmigration program, and the number of people who failed in transmigration and then resettled surrounding the dam has not been counted.

The people surviving surrounding Wonogiri Multifunction dam generally have narrow area or have no area at all. As the consequence, they tried to survive by utilizing the dam drawdown area to be the farming area. They cannot utilize the drawdown area instantaneously, but they should hire it from the dam organizer, PT Jasa Tirta 1. The attempt of utilizing drawdown area by means of hiring cannot directly guarantee the life, particularly the food availability for their household because the farmers frequently cannot harvest their product from the drawdown area during the excessive rainfall.

Considering such the condition, it is very important to conduct a study on the extent to which they can meet their need for food and the extent of their household tenacity food.

II. LITERATURE REVIEW

The Law Number 7 of 1996 about *Food* mandates the necessity for the government along with the society to realize the food security to all Indonesian people. Food security in household subsystem included the activity of organizing the consumption pattern consciously, parsimoniously, efficiently and responsibly. Household should be able to adjust with food source or surrounding environment that provide it most efficiently, can produce its need entirely or partially, can maintain diversity, obtain balanced nutrition, can suppress the food wasting, can have and organize food reserve (Suryana, 2003).

In addition, Suryana (2003) confirmed that from the food institutionalization system, the food security manifests as a result of synergic working of a system consisting of household, society environment, and government subsystems. Household subsystem encompasses the organization of consumption, procurement, and reserve patterns. Society environment subsystem encompasses the organization of production, distribution, and marketing; and government subsystem included policy, facilitation, and security.

This research focused its study on food security in the farmer household subsystem. Regarding this, Suryana (2003) explained that food security in household subsystem encompasses the activity of organizing consumption pattern consciously, parsimoniously, efficiently and responsibly, that is, the ability of adjusting with the most efficient food source produced or provided by surrounding environment, the ability of producing its need either entirely or partially, the ability of maintaining diversity, of obtaining balanced nutrition, of suppressing the food wasting, of having and organizing food reserve.

To measure whether or not a household has gotten balanced nutrition, the food security of household can be measured based on energy and protein consumption per capita per day, or the percentage household with energy deficit and protein. The Recommended Dietary Allowances (RDA) adequacy for energy consumption is 2200 Kcal per capita per day, while the protein consumption is more than 48 g per capita per day. Nevertheless, when energy consumption per capita per day is $\geq 70\%$ of RDA, it is said as having met the RDA. In addition, the household food security can also be measured by considering the proportion of food expense compared with non-food expense. The higher the proportion of food expense, the lower is the household food security level (Azwar, 2004).

Based on the theories above, the conceptual approach to food security in this research was to see the ratio of food expense to total expense of farmer household and the extent to which the energy and protein consumption adequacy is met.

To measure the energy and protein consumption adequacy, a food consumption assessment was conducted. Suhardjo and Riyadi (1990) explained that the consumption assessment was carried out using survey method, either quantitatively or qualitatively. The survey on food consumption aimed to find out and individual's or a group of people's food consumption. The group of people here can be family, household, villagers or local people. The quantitative survey on food consumption was intended to find out the amount of food consumed by estimating the nutrition consumption. The qualitative survey on food consumption was usually conducted to find out the frequency of eating and to identify the eating habit and to way of obtaining food.

III. RESEARCH METHOD

The data of research was the primary one obtained from 75 household through interview method with questionnaire help. This research was conducted in 5 (five) subdistricts existing surrounding the Wonogiri Multifunction Dam with the largest number of drawdown area tenant farmers, including: Nguntoronadi, Baturetno, Giriwoyo, Wuryantoro and Eromoko Subdistricts, and for that reason, the drawdown area is wide (see Table 1).

Table 1. The number of tenant farmers & drawdown area width in the research site

No	Subdistrict	Number of Farmers	Drawdown area width (Ha)	No. of farmers. Selected Villages*)	No. of Respondents
1	Nguntoronadi	2533	378.3220	603	16
2	Baturetno	2338	254.0225	530	14
3	Giriwoyo	1162	87.5115	601	16
4	Wuryantoro	1108	174.0340	400	11
5	Eromoko	1366	95.7700	679	18
Total		8507	989.6600	2813	75

Source: Compiled based on the data from Perum Jasa Tirta 1, 2010.

*Selected villages: Kedungrejo (Wuryantoro), Kedungombo (Baturetno), Glesungrejo (Giriwoyo), Sumberejo (Wuryantoro), and Baleroto (Eromoko).

The data obtained was analyzed descriptively. To find out the food security status, the ratio of food consumption expense to total expense household was measured, so did the energy and protein consumption of farmer households. The measurement of energy and protein consumption was carried out with Food Material Code List (FMCL) help. The general formula is as follows:

$$Kgij = (Bj/100 \times Gij) \times (BDDj/100)$$

Notes:

Kgij = The addition of nutrition i of each food j consumed.

Bj = Weight of food material j consumed (in gram)

Gij = Nutrition i content of food j

BDDj = Percentage edible food material j.

The recommended dietary allowances was classified based on the varying dietary allowance values evaluated in some levels referring to Health Department's guidance (1990): (a)

Good: $\geq 100\%$ RDA; (b) Moderate: 80-99% RDA; (c) Poor: 70-80% RDA and (d) Deficit: $< 70\%$ RDA.

The measurement of food security degree was classified based on the varying value of food expense proportion and its energy adequacy value, just like in Table 3.

Table 2. The Measurement of Household Food security Degree

Energy consumption	Food Expense	
	Low ($< 60\%$ of total expense)	High ($\geq 60\%$ of total expense)
Moderate ($> 80\%$ of recommended dietary allowances)	1. Food-tenacious	2. Food-susceptible
Poor ($\leq 80\%$ of recommended dietary allowances)	3. Food deficiency	4. Food-vulnerable

Source: Rachman et al in Nisfah (2012)

IV. DATA ANALYSIS AND DISCUSSION

4.1 The Characteristics and Respondent

Farming household is the one in which at least one member of it undertakes the activity of producing farming product in the objective that entire or a part of its product will be sold/exchanged in order to get income/profit on its own risk. Such the activities include farming/planting, fish breeding in the pond, *karamba* or *tambak* (fishpond), fisherman, and cattle/poultry breeding (BPS, 2009). The following is the characteristics of respondents by age, sex, number of family members, and side job.

Age is one indicator of labor availability, in which the labor availability that has been adequate from age aspect is the sufficient capital in the implementation of various activities because in its categorization there are productive and non-productive ages. The following is the distribution of age for the drawdown area tenant farmer respondents in Wonogiri.

Table 3. The distribution of age for the drawdown area tenant farmer respondents

Distribution of age (Yr)	Sex of respondents			
	Female		Male	
	Number (persons)	Percentage (%)	Number (persons)	Percentage (%)
30 - 39	3	4.00	3	4.00
40 - 49	5	6.67	13	17.33
50 - 59	8	10.66	17	22.67
60 - 80	6	8.00	20	26.67
Total	22	29.33	53	70.67

Source: Primary Data Analysis, 2012.

The data in Table 3 explains that the age of majority respondent in the research location belongs to productive age, so that it can be said that majority respondents still have high working productivity. It indicates that the farmers still work on farming job maximally, so that it will yield income that can meet their household need. The age factor also affects an individual in meeting his/her nutrition need; the more age will require different nutrition compared with the nutrition requirement during growing age.

The number of and the sex of family members also affect the family's food consumption, because the dietary allowances of each family member will be different according to age and sex. Below is the table of respondent family member number distribution.

Table 4. The Distribution of respondent family member number

No. of household members (persons)	Sex of Respondents					
	Female		Male		Total	
	Total (persons)	Percentage (%)	Total (persons)	Percentage (%)	Total (persons)	Percentage (%)
1	2	2.67	1	1.33	3	4.00
2	5	6.67	8	10.67	13	17.33
3	7	9.32	13	17.34	20	26.67
4	6	8.00	17	22.67	23	30.67
5	2	2.67	9	12.00	11	14.67
6	0	0	4	5.33	4	5.33
10	0	0	1	1.33	1	1.33
Total	22	29.33	53	70.67	75	100.00

Source: Primary Data Analysis, 2012.

The number of household members intended in this research was the ones in addition to nucleus family that are father, mother, and children plus the member of extensive family who also live in one house. The number of family members living in one house is also one indicator to measure the consumption need in one household. The higher the number of family members, the higher is the responsibility of family head to meet his family needs. From the table above, it can be seen that there are the family with large number of family member, reaching 10 family members. Although, on the one hand, the number of family member will be the dependents in food adequacy, but on the other hand, it can be said as the larger opportunity of obtaining income source. It is because to get income, a large number of households undertake economic activity jointly by their members of household.

The household behavior in making food consumption is among other determined by income. Thus, the villagers, most population of which working as the farmers, are usually not dependent for their life on one type of job. If household relies for their life only on farmer job, their household life need will not be met (Reardon, 1997). For that reason, the farmers make job diversification as an alternative to obtaining other income source in order to meet their life need and to improve their life well-being. Von Braun and Pandya-Lorch (1991) stated that household income diversification is a norm among the villagers and the specialization in one activity only is an exception.

At household level, diversification can be done through business diversification and asset utilization, in addition to aiming to look for capital added value, aiming to reduce the household income instability. Income diversification can be implemented in agricultural, non-agricultural activities or combination of them (Hardono and Saliem, 2004). From the result of study, it can be

found that not all respondent household members can work in non-agricultural sector. Only 14 (18.7%) persons become construction labors or other labors, 5 (6,7%) persons become entrepreneurs, one person has business in silk-screening area, one person become a merchant, 4 (5.3%) persons become employees, one person is TNI (Indonesian National Soldier) retired, and 8 (10.7%) persons work in the town. The latter usually send remittance to their household in the village. So, there are 41 (54.7%) that do not undertake non-agricultural activity. The type and the number of job will of course contribute to the difference of income level, thereby leading to the difference of household consumption pattern, as well.

4.2 Household Food Security of Respondents

One of important indicators for household food security is the proportion of household expense, for either food or non-food consumption. In this study, the cross classification of two food security indicators was used: food expense segment and food consumption adequacy, particularly energy consumption (Kcal). The household food security levels of the drawdown area tenant farmers surrounding Wonogiri Multifunction Dam are as follows.

1. The Proportion of Food Consumption Expense compared with the Total Household Expense of Respondents.

The proportion of food consumption expense is the percentage food expense compared with the total household expense. The proportion of respondent household expense can be seen in the Table 5.

Table 5. The Proportion of Respondent Household Expense in One Month

Type of Expense	Total (IDR)	Percentage
Food	820,369.33	58.35
Non-Food	585,631.20	41.65
Food and Non-food	1,406,000.53	100.00
Education	213,168.67	36.40
Health	88,563.33	15.12
Social	175,891.33	30.03
Residence and farming Maintenance	82,289.20	14.05
Other	25,674.67	4.38

Source: Primary Data Analysis, 2012.

The total household expense is entire household expense for either food or non-food consumption. Non-food consumption here includes the expense on family member education (such as tuition, pocket money, and other school utility purchasing), that on health (access to clean water, toiletry utilities and other health care), that on social utilities (contributing to relatives, neighbors, or acquaintances who are having event, visiting the sick people), that on residence and farming maintenance (e.g. for repairing the hoe) and other expenses such as tax payment.

Table 5 shows that the proportion of respondent household food expense (58.35%) is higher than that of non-food (41.65%). The highest expense in non-food category is on school utilities followed by the subsequent substantial expense on social fund utility.

The size of food expense higher than that of non-food expense shows that the respondent's household expense orientation is still on the fulfillment of food need. It indicates that the existing household well-being level is still low because of less substantial surplus income for meeting both secondary and tertiary needs.

2. Food Type as Energy and Protein Source

Energy and protein is one of a household's food security indicators. The household food security is highly dependent on the variety of feed consumed daily. Suhardjo et al (2009) stated that food is the materials consumed daily to meet the need for maintaining, growing, working and replacing the damaged body tissue. Meanwhile energy is the energy of doing activity, including working. Food is the fuel serving as energy source the body requires to do working. Protein is the nutrition in the greatest amount within the body. When the food energy is sufficient, it can be said that all feed also contain sufficient protein. The table 5 below shows the variety of food as energy and protein source consumed by the household of drawdown area tenant farmer in Wonogiri Multifunction area.

The table 6 below shows the variety of feed consumed by the respondent farmer household per capita in once consumption. In once consumption, every member of household, on the average, consumes 1 plate of white rice or equivalent to 200 g white rice containing calorie of 298 Kcal and protein of 5.8 g. The food accompanying rice usually consumed includes *sayur lodeh*, *tumis tempe*, *pecel* and *bothok manding*. The vegetable containing most calorie and protein is *pecel* because it contains a variety of vegetables and peanut sauce rich of plant protein.

The side dishes frequently consumed are processed tofu, salted fish and *tempe* either fried or steeped (*bacem*). Salted fish and *tempe* is a local food containing sufficiently high protein. As food interlude, they usually consume the local food resulting from their harvest such as boiled or fried cassava and boiled peanut. These two types of local food provide sufficient energy and protein intake. Considering Indonesian Food Composition Table (IFCT), each 100 g boiled cassava contains 150 Kcal energy and 1.2 g protein. Each 100 g fried cassava (cassava stick) contains 460 Kcal energy and 0.8 g protein. Each 100 g boiled peanut contains 220 Kcal energy and 10.6 g protein (Mahmud, et al., 2008).

Table 6. Types of Food Frequently Consumed by the Members of Farmer Household

Food category	Food type	(g)	Nutrition Level	
			Calorie (Kcal)	Protein (g)
Main food	White rice	200	298	5.6
Vegetables	<i>Sayur lodeh</i>	100	55.9	1.9
	<i>Pecel</i>	100	131	5.1
	<i>Tumis tempe</i>	100	50	4.8
	<i>Gudangan</i>	100	50.5	2.7
	<i>Bothok manding</i>	100	57.3	2.9
Side dishes	Fried Tofu	30	61.8	2.2
	Fried Tempe	30	106.2	5.1
	Tempe bacem	30	71.1	3.2
	Tahu bacem	30	52.9	2.4
	Fried egg	60	114.6	7.2
	Salted fish	30	48.6	6.9
Beverage	Sweet tea	30	12.9	0
	Water		0	0
Snack/ cake	Fried cassava	25	115	0.2
	Boiled cassava	50	75	0.6
	Boiled peanut	50	110	5.3

Source: Primary Data Analysis, 2012.

3. Energy and Protein Consumptions

Energy and protein consumption can originate from household food consumption. Data on food consumption derive from recall method for one day. Data on household food consumption are divided into four groups: family head (KK), wife, children (for those less than 13 years old) and other adult members of family (Table 7).

Table 7. The mean energy and protein consumption of each member of respondent household

No	Nutrition Content	Consumption	RDA	Nutrition adequacy Level (%)
1	Energy (Kcal/person/day)			
	a. Family Head	1,494.5	2,230.56	67.00
	b. Wife	1,389.3	1,785.90	77.79
	c. Child	1,515.4	2,206.79	68.67
	d. Other members of household	1,389.1	2,230.56	62.28
2	Protein (g/person/day)			
	a. Family Head	67.9	60.00	113.17
	b. Wife	56.9	50.44	112.81
	c. Child	62.6	54.55	114.76
	d. Other members of household	59.2	60.00	98.67

Source: Primary Data Analysis, 2012

Table 7 shows the mean energy and protein consumption of each household member and its nutrition adequacy level. For the family head (KK), the mean daily energy consumption is 1,494.5 kcal. The amount of energy consumed is only 67% of recommended energy consumption for family head (adult man) of 2,230.56 or generally of 2200 kcal for adult man. The protein consumption is 67.9 g. This figure is larger than the recommended protein of 60 g per capita per day.

On the average, the wife consumes 1,389.3 kcal of energy; this figure is only 77.89% of recommended energy of 1,785.90 kcal or generally adult woman consumes at least 2000 kcal. The protein consumption of 56.9 is fair higher than the recommended one.

The energy consumption level for child only reaches 68.76% of recommended amount. The mean energy consumption is only 1,515.4 kcal. Meanwhile, the protein consumption has been fair of 62.6 g, higher than the recommended amount.

Other phenomenon is indicated by the energy and protein consumption of other household members. Here, either energy or protein consumption level was lower than the recommended amount. The energy consumption is only 1,389.1 kcal or 62.28% of recommended amount and the protein one is only 59.2 g. The provisional assumption is the *ewuh pekewuh* (awkwardness) culture in Javanese culture, a feeling possessed by those who stay with other, affects others' consumption pattern in the family.

Generally, on the average, the members of family can meet their protein need, even exceeding the recommended amount. It cannot be apart from their eating pattern in which this eating pattern is not separated from their planting pattern and the local cultural social factor. Majority drawdown area tenant farmers are the dry land farmers consuming much plant protein deriving from beans and frequently consuming protein source vegetables such as *tumis labu siam*, *pecel*, *tumis tempe*, *oblok-oblok* and *botok*, all of which are the local food and protein source all at

once. Viewed from social cultural aspect, Wonogiri regency close to East Java has eating habit similar to that of East Javanese, loving to consume *pecel* (salad made of blanched vegetables served with peanut sauce). In addition, Wonogiri people also have their typical food, *tumis tempe*.

Suhardjo, et.al (2009) explained that an individual's eating pattern is among other affected by agricultural condition, particularly planting pattern and social cultural condition affecting the food availability.

To find out whether or not the household's energy and protein consumption levels are good, in this research, an analysis on the nutrition adequacy level (TKG) was conducted classified based on the variety of nutrition adequacy value evaluated based on the reference issued by the Republic of Indonesia's Health Department. Such the reference contains the Recommended Dietary Allowances (RDA) corresponding to *Widyakarya Nasional Pangan dan Gizi* (WKNPG = National Food and Nutrition Study) of 2004 of 2000 kcal/capita/day. The classification used is as follows:

- a. Good : TKG \geq 100% RDA
- b. Moderate : TKG 80-90% RDA
- c. Poor : TKG 70-80% RDA
- d. Deficit : TKG < 70% RDA

Table 8 indicates the mean energy and protein consumption of family head representing the adult man group. The number of male family head (KK) in this research was 69 men. It means that it is not surely that in 75 respondent households there is male family head. The energy consumption of most family heads is in deficit condition (25 respondents), meaning that the energy consumption level is less than 70% of RDA (the mean value of 1,276.7 kcal).

Table 8. The mean energy and protein consumption of Family Head (KK) based on Nutrition Consumption Level

Nutrition consumption level category	Energy			Protein		
	Mean Energy (Kcal/org/day)	N	%	Mean Protein (g/or g/day)	N	%
Family Head:						
Deficit (<70% RDA)	1,276.7	25	36.23	0	0	0
Poor (70 – 80% RDA)	1,490.3	23	33.33	37.8	3	4.35
Moderate (80 – 99% RDA)	1,695.6	19	27.54	49.4	10	14.49
Good (\geq 100% RDA)	2,351.5	2	2.90	72.8	56	81.16
Total		69			69	

Source: Primary Data Analysis, 2012

This energy consumption is much lower than RDA of 2000 kcal. Most respondents consume less consumption intake, in which they only rely on main food during meal time only (food intake only during breakfast, lunch and dinner time) without intake interlude in the form of snack. For protein consumption, most respondents 81.16% are in good category, with the mean consumption of 72.8 gr.

Table 9 indicates that most wives in the respondent household are in energy consumption deficit condition (37 respondents). It means that the energy consumption level is lower than 70% of RDA (with the mean of 1,233.9 kcal). This amount of energy consumption is far below the RDA of 2000 kcal.

Table 9. The Mean Energy and Protein Consumptions of the Wife based on Nutrition Consumption Level

Nutrition consumption level category	Energy			Protein		
	Mean Energy (Kcal/org/day)	N	%	Mean Protein (g/or g/day)	N	%
Wife:						
Deficit (<70% RDA)	1,233.8	37	50.68	34.5	6	8.22
Poor (70 – 80% RDA)	1,463.9	29	39.73	38.6	4	5.48
Moderate (80 – 99% RDA)	1,747.4	5	6.85	46.8	20	27.40
Good (≥100% RDA)	2,289.3	2	2.74	66.6	43	58.90
Total		73			73	

Source: Primary Data Analysis, 2012

Similar to the case of family head consumption pattern, most wives are deficit in consumption intake, because they only rely on main food during meal time only (food intake only during breakfast, lunch and dinner time) without intake interlude in the form of snack. For protein consumption, most respondents (58.90%) have reached good category, with the mean consumption of 66.6 gram. This protein consumption has exceeded the RDA of 60 gram.

The number of children in the respondent households is 51 children. It means that not all households have child who still stay with them. The children in this research are those less than 13 years old (Table 10).

Table 10. The Mean Energy and Protein Consumptions of the Children based on Nutrition Consumption Level

Nutrition consumption level category	Energy			Protein		
	Mean Energy (Kcal/org/day)	N	%	Mean Protein (g/or g/day)	N	%
Children:						
Deficit (<70% RDA)	1,274.3	18	35.29	0	0	0
Poor (70 – 80% RDA)	1,489.9	19	37.25	37.9	3	5.88
Moderate (80 – 99% RDA)	1,735.6	10	19.61	48.2	10	19.61
Good (≥100% RDA)	2,171.5	4	7.84	68.4	38	74.51
Total		51			51	

Source: Primary Data Analysis, 2012

The RDA established by the Health Department is 2000 kcal. Table 10 shows that most children in respondent household is on the condition of energy consumption deficit (19 respondents), meaning that their energy consumption level ranges from 70% to 80% of RDA. The mean energy consumption is only 1,489.9 kcal). Just like the cases of family head and wife in the household, the children are also deficit in consumption intake, in which food intake is obtained only during breakfast, lunch and dinner times. The intake interlude in the form of snack is still inadequate, despite this energy desirability for the children in growth and developmental stages.

The other members of household's energy consumption is still less than the national standard. Each of the six children still developed energy consumption deficit (Table 11). None of them has energy consumption in good category.

Table 11. The Mean Energy and Protein Consumptions of other members of household based on Nutrition Consumption Level

Nutrition consumption level category	Energy			Protein		
	Mean Energy (Kcal/org/day)	N	%	Mean Protein (g/or g/day)	N	%
Others:						
Deficit (<70% RDA)	1,269.3	6	46.15	0	0	0
Poor (70 – 80% RDA)	1,472.1	6	46.15	38.2	1	7.69
Moderate (80 – 99% RDA)	1,610.2	1	7.69	44.1	1	7.69
Good (\geq 100% RDA)	0	0	0.00	62.5	11	84.62
Total		13			13	

Source: Primary Data Analysis, 2012

In contrast, the protein consumption of 11 persons reaches good category, and none of them develops consumption deficit. All of them show that some attempts are still required to improve the protein consumption of drawdown area tenant farmers and all members of their household.

4. Food security of Respondent Household

The food security concept in this research is defined as the ability of accessing food sufficiently to maintain active and healthy life. The measurement of food security degree is classified based on the different value of food expense proportion and energy adequacy value, as follows:

- Tenacious: Food expense proportion \leq 60%, energy consumption $>$ 80% of RDA
- Susceptible: Food expense proportion $>$ 60%, energy consumption $>$ 80% of RDA
- Poor: Food expense proportion \leq 60%, energy consumption \leq 80% of RDA
- Vulnerable: Food expense proportion $>$ 60%, energy consumption \leq 80% of RDA.

Out of 75 drawdown area tenant farmer households, only four (4) belong to tenacious, and six to susceptible categories (Table 12).

Table 12. The Distribution of drawdown area tenant farmer households by the Food Security Status

Food security status	No. of household	Percentage (%)
Tenacious (Food expense proportion \leq 60%, energy consumption $>$ 80% of RDA)	4	5.3
Susceptible (Food expense proportion $>$ 60%, energy consumption $>$ 80% of RDA)	6	8.0
Poor (Food expense proportion \leq 60%, energy consumption \leq 80% of RDA)	36	48.0
Vulnerable (Food expense proportion $>$ 60%, energy consumption \leq 80% of RDA)	29	38.7
Total	75	100.0

Source: Primary Data Analysis, 2012

Most (36) drawndown area tenant farmer households are in food deficit condition. Here, the food expense proportion is less than 60% of total expense and the energy consumption is less than 80% of RDA. In the next level, there are 29 households in vulnerable food condition. In this category, the food expense is more than 60% of total household expense, representing that the highest expense is on food need. The proportion of food expense higher than non-food expense indicates that the family has not been prosperous.

Overall, there is 86.7% household existing on food deficit and susceptible food conditions, indicating that most household expenses are still oriented on the fulfillment of food need, although the energy need for doing activity is still less than 80% of RDA.

V. CONCLUSION

The food security status of drawndown area tenant farmer, viewed from the proportion of food expense and the amount of energy and protein consumption is as follows.

- a. The food expense proportion of respondent household is (58.35%) higher than the non-food one (41.65%).
- b. The mean energy consumption for each member of household is not distributed evenly and still below the Recommended Dietary Allowances (RDA) of 2000 kcal per day. The energy consumption of family head is only 1,494.5 kcal per day, that of children 1,515.4 kcal, that of wife and that of other members of household is less than 1400 kcal per day.
- c. The mean protein consumption per capita have exceeded the Recommended Dietary Allowances (RDA) of 50 gram per day, in which the protein consumption of family head is 67.9 gram, that of wife is 56.9 gram, that of children is 62.6 g and that of others in the family is 59.2 gram.
- d. It can found that 5,3% household belongs to tenacious, 8% to susceptible, 48% to less tenacious and 38.7% to vulnerable category.

Thus, it can be concluded that (1) the food expense is larger than the non-food one; (2) the energy consumption of household is still below the national standard; (3) the protein consumption had surpassed the national standard and (4) the prosperity level of tenant farmer is still low.

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