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## Household food security of two types of Agro-ecosystem In Maros District, South Sulawesi

No 17/18

67% x 15 = 9

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### Keywords

Food Security, Household, Agro-ecosystem

### Abstract

Household as one food security element of a given society comprises a social system which interacts (adaptation) with its environment. As an outcome of this interaction is the fulfillment of household food need. However, this is not always the case. Many factors affect the fulfillment of household needs for food. One of them is the difference in the types of agro-ecosystem.

This research aims describe the rate of household food security and analyze determinant factors that influence of each type of Agro-ecosystem.

The study proves that household based on rice field agro-ecosystem has a better food security than the ones based on dry field agro- ecosystem. This proves that household interaction with a different environment will result in a different level of food security. The differences are mainly caused by differences in income, purchasing power, food availability, and food distribution in the region.

Among the two types of Agro-ecosystem, the most significant determinant variable which affect the attainment of household food security are food availability, purchasing power (adaptation function), work and consumption motivation (goal attainment function), the role of household members for income generating and the role in decision making (integration function), knowledge about food and nutrition, food norms and the level of application technology (latency function).

The study reveals that among the two agro-ecosystems, the adaptation function has the most dominant influence on household food security. Meanwhile other functions (goal attainment, integration, and latency) only serve as a supportive function on food security. This is in line with Parson (1951) who states that the economic system and food security as well in a given society is a compulsory prerequisite. This means that adaptation function is a manifest function and has a dominant influence on food security and other functions such as goal attainment, integrative, pattern maintenance are latent functions (Merton, 1956).

### Introduction

Human Resource Development (HRD ) is the main target in the country development, therefore human resource development related to food and nutrition is a crucial factor. Compliance with food and nutrition, as reflected in the status of food security will improve the quality of health and ability to work, so that a healthy society is expected to have a greater contribution in development activities. The problem of food security, not only at the level of regions or communities, but more fundamentally on the level of aggregate household food security as an element of community, regional or national. Household as the basis of food security is closely related physical environment (ecosystem types) and social environment (economic, cultural and institutional).

The link between the physical environment and social environment is positively related to household food security status. Research and study of household food security previously found among other things that the number of food-insecure households is quite high (approximately 40 % ), the incidence of food security and the incidence of food insecurity is influenced by the interaction of subsystems economic, social (including government policy in terms of food), and the physical environment (Bulkis, 2004; Bulkis et al., 2008-2014)

Conceptual framework is analyzed as an element of the aggregate household food security status of households also describe the food security status of the community or region. The linkage between household as a social system and its environment will provide an overview the performance of household food security. One of the type of interactions between household and the environment is to meet the

needs of food and nutrition to reach level of compliance with food safety. The objectives of the study are (1) to analyze the status of household food security in the agro-ecosystem types of wetland and dryland and (2) to analyze the determinant factors that affect household food security in the agro-ecosystem types of wetland and upland.

## 1. Review Literature

Food security is given the sense of a condition that is sufficient availability for everyone at every moment and every individual has access to obtain both physically and economically ( FAO , 2002 , FAO, 2005 ) . In this sense , food security linked to three main factors , namely : ( a ) the adequacy ( availability ) food , ( b ) the economic stability of food and ( c ) physical and economic access for individuals to obtain food . ( Tabor , Dillon and Palm , 1999). Later in the session of the World Food Summit in 1995 , this definition was expanded on the requirements of food consumption and nutritional status ( Suharjo . 1996) . food acceptance in accordance with local or cultural values ( Hardinsyah , et al , 1998 , and Soetrisno , 1998) . In the Food Act No. 18 In 2012 , emphasized that the food needs at the individual level , by exploiting the potential of natural resources , human , social , economic and local knowledge is useful .

There are three fundamental issues relating to the food that is available (availability) , access to food ( accessibility ) and distribution (distribution) . The third case were to determine whether a household has food security , meaning that it can meet the nutritional needs of every member of the family or not . The adequacy of the food supplies to the market effect on food prices . For families that do not work and no income or the income is not enough , the increase in food prices , especially of staple foods such as rice , can threaten their nutritional needs. Means the family food security is threatened . Instead , supplies sufficient , stable prices , but a lot of people without work and without income , meaning no purchasing power , also causing food supply were not effective . Many people are under the threat to food security . Because it is a people -oriented development ( human resource development ) will regulate the balance and harmony between the wisdom of the food system (production , distribution , marketing and consumption) and wisdom in the social sector such as poverty , education , health, nutrition and others .

With that understanding , then talk about food security , basically we are talking about a variety of things that can cause food needs fulfilled . These things include the availability of food , employment , and income (Gittinger , Leslie and Hoisington , 2010) . The third case were to determine whether a household has food security , meaning that it can meet the nutritional needs of every member of the family or not . The adequacy of the food supplies to the market effect on food prices . For families that does not work and no income or the income is not enough , the increase in food prices , especially of staple foods such as rice , can threaten their nutritional needs. Means the family food security is threatened . Instead , supplies sufficient , stable prices, but a lot of people without work and without income , meaning no purchasing power , also causing food supply were not effective . Many people are under the threat to food security .

To understand food security at household level is assessed based on the theory of " Social System " with four subsystems (cultural, social, personality and behavior of organisms) and prerequisite functions ( latency , integration , goal attainment and adaptation ) where the four prerequisites are interrelated functions ( Parson , 1951)

Cultural subsystem latency function refers to the problem of how to ensure the sustainability of the actions in the system according to some rules or norms . In relation to food security as an important element in creating stability ( maintenance function ) in society is determined by the values and norms adopted by society as a result of socialization in relation to this the most basic necessity for human life , namely food . To that end , food security is determined by the role of the household , society at large and the government as well as the power holders of market mechanisms in carrying values or norms ( rules ) and other cultural elements ( knowledge of food and nutrition , level of knowledge and the use of technology ) in the maintenance of food availability continuously by all levels of society.

Social subsystem integration function consists of elements of status and roles, as the division of functions that are functional, so the appearance of the individual must be in accordance with its status and role . Another element is the social rank or social levels involves an evaluation of the individuals and the allocation statuses and roles . Then there is an element of power in the process is a function of supervision and elemental a decision-making process and the initiation of actions . Integration function can be met through a social community . In relation to food security , this function can be analyzed in terms of how the government's macro and the general public in carrying out its role according to their status . In the micro ( household ) , can be analyzed through family / household as a subsystem of society through the role of each member of the family according to their status , for example how a husband and wife's role in the process of production , food distribution , processing , and so do the household food security . In relation to the role of household members , Levy (1971) suggested that to seeing the wholeness or consolidation of a family / household can be assessed based on the theory of " Functional Structure " with functions , namely : the role differentiation , economic allocation , the allocation of power / authority , the allocation of solidarity and integration and

expression allocation . These functions works autonomously according to its own duty , but as a social system functions are linked and coordinated. In this study analyzed three functions , namely : ( a ) the role differentiation refers to the pattern of the role of division of labor , especially married in conjunction with food security as measured by the outpouring of work , ( b ) the allocation of the economy , namely the role of household members of the family economy seen from income which contributed to the household income , and ( c ) allocation of power , namely the role of household members of decision making .

Personality subsystem with Function Achievement orientations consigns offender classification . In general, a principal orientation consists of two basic elements , namely the motivational orientation and orientation values . Motivational orientation refers to the desire to increase satisfaction and actors as possible to reduce or avoid losses ; one aspect of this orientation effort to maintain a balance between the need for immediate gratification and long-term goals . While the value orientation refers to the normative standards that control alternative ways of achieving the objectives and determine priority needs and goals. Motivational orientation consisted of cognitive dimensions, cathectic , and evaluative . Cognitive dimension essentially refers to the knowledge and belief of the situation actors, especially those associated with other forms of needs and goals; so it reflects the basic human ability to distinguish various stimulus , and to make generalizations from one stimulus to another stimulus . Dimension of " cathectic " refers to the affective responses ( sentiment or emotion ) of the perpetrator of the situation or of the aspects of the situation. These dimensions also reflect the needs and goals. Basic evaluative dimension refers to the individual choice of the two options, between cognitive and cathectic. Value orientation consists of the dimensions of knowledge, appreciation and moral. Dimensions of knowledge in this case refer to a standard or measure that is used to accept or reject any interpretation of the knowledge of the situation .

Dimension of appreciation refers to the standard or measures in expressing feelings or affective involvement ( emotional ) . Moral dimension refers to measures used to assess the abstract form of action to be chosen in relation to the understanding of the whole system . Thus the elements of personality ( motivational orientation and value orientation with various dimensions ) are critical to household food security , this can be seen for example the dimensions of knowledge and beliefs about motivation and motivation of food consumption and so will affect household food security. In line with work motivation , according Gassong 's ( 2008), the orientation of the value of work in the work ( farming ) consists of instrumental value ( as a tool to obtain employment and income security ); social ( employment is seen as a tool that can maintain relationships between other members of the community ) ; expressive ( the work is considered as a means to express themselves ) ; and intrinsic ( job as the essentials for him ) . Research results Austin et al (2010) , found that the orientation values ( motivation ) work is influenced by socio-economic factors ( education , control of land resources and capital , income , and so on ) .

In food consumption , value or motivation behind human in choosing foods that can work and healthy , while the ' attitude ' in person affected by the ' values of trust ' and ' needs, ' . All these elements in turn lead to the person's behavior on food . Furthermore Kronl and Lau , 1985 ( in Susanto , 1996 ) suggests a variety of factors affecting the ways people choose their food . Both scientists that divide these factors of three major categories , namely : ( a ) Endogenous factors , including heredity , gender , age , activity ; ( b ) Exogenous factors , including : socio - cultural , community characteristics and economic system ; and ( c ) Perception / Insight , include : knowledge , trust , fun , price , prestige , known , flavor / taste , tolerant . While the ' attitude ' in person affected by the ' values of trust ' and ' needs' . All these elements in turn lead to the person's behavior on food

The behavior of organisms with adaptation function refers to the ability to guarantee the system what it needs from the environment and distribute these resources into the entire system in which these needs can be met through the " economic system " . This subsystem has elements of action , which is concerned with the achievement of objectives and activities in conjunction with unknown activity and or not in accordance with the norm. This subsystem is an adaptation of the personality subsystem . In relation to household food security subsystem behavior adaptation of organisms to function affects household food security , because the economic system effects on household food security . Economic system associated with the production system , the level of income , level of food prices , taste and so on

## 2. Research Method

The research design used a cross sectional study . The research was conducted 6 months, from June to November 2013, in Maros District, South Sulawesi Province, Indonesia. Maros district was chosen by considering that the district consists of wetland agro-ecosystem area (Bantimurung Sub-district) and upland agro-ecosystem area (Camba Sub-district). 85 households were selected in Bantimurung consists of 45 households farmers irrigated land and 40 households farmers rainfed. Meanwhile, 84 households were selected in Camba consists of 43 dryland households farmersin lowlands and 41 households in highland . The data and information collected by interview method. Data analysis used quantitative method. Household food security level was calculated by Food Diversification Approach Score(FDS) ( Hardinskyah, 1996) as follows :

Nu	Food Types	Consumption indicator	Score
1	Main food	500 grams	Score 0 if AC ≤ ½ CU Score 1 if AC ½ - 1 CU Score 2 if AC ≥ 1 CU
2	Side Dishes	200 grams	
3	Vegetables	150 grams	
4	Fruits	200 grams	
5	Milk	200 ml	

Note: AC= Actual Consumption

CU= Consumption Unit

Category Level Food Security:

- Household regarded to be food secure households if the FDS ≥ 5
- Household regarded to be food secure households if the FDS < 5

The analysis used to determine the effect of variable determinant on household food security is Logistic Regression as follows:

$$P(X) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4)}}$$

where : P = food security  
 $\beta_0$  = constant  
 $\beta_i$  = parameters estimate  
X1 = Adaptation function  
X2 = Purpose achieving  
X3 = Integration  
X4 = Latency

### 3. Discussion

#### 3.1. Differences in Household Food Security Status

Households in lowland agro-ecosystem type ( irrigated and rain-fed more than half have a status of "food secure", while most households in dryland agro-ecosystem types have a status of "food unsecure ", as shown in Table 1 below.

Table 1 : Comparison of Food Security Status among Agro-ecosystem Types

Status	Households ( % )			
	Wetland		Dryland	
	Irrigation	Rainfeed	Lowland	Highland
Food Security	27 (60.00)	21 (52.50)	19 (44.19)	9 (21.95)
Food Insecurity	18( 40.00)	19 (47.50)	24 (55.81)	32 (78.05)
Total	45(100)	40(100)	43 (100)	41(100)

One-way ANOVA (Table 2) shows that Food Security status between agro-ecosystems (wetland and dryland) is statistically different.

Nu	Food Types	Consumption indicator	Score
1	Main food	500 grams	Score 0 if $AC \leq \frac{1}{2} CU$ Score 1 if $AC \frac{1}{2} - 1 CU$ Score 2 if $AC \geq 1 CU$
2	Side Dishes	200 grams	
3	Vegetables	150 grams	
4	Fruits	200 grams	
5	Milk	200 ml	

Note: AC= Actual Consumption

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Tabel 2: Mean Difference of Food Security Status among Agroecosystems 2013

(I) Type Agroecosystem	(J) Type Agroecosystem	Mean Difference (I-J)	Significant
Wetland	Dryland	0.24*	0.006

The difference between the type of food security status of the agro-ecosystem, due to the differences in " ability " to access the food , for example differences in income , the purchasing power of food, food availability , food science and nutrition , and so on . These findings are consistent with the findings of research Bulkis (2004 ) and Bulkis, et al (2009 ) that the food security status of households in lowland agro-ecosystem type is higher ( > 50 % ) " food secure " than the type agro-ekosystem dry land ( lowland and highland ) with food security status " food insecure " ( > 50 % ) .

### 3.2. Determinants of Food Security

In the two types of agro-ecosystem , the availability of staple foods ( KTP ) , is the main factor affecting the food security of households (See Table 3 ) . In the lowland agro-ecosystem types Exp (  $\beta$  ) is lower than in dry land agro-ecosystem types . This is related to agro-ecosystem types, where the type of society in lowland agro-ecosystem works as rice farmers, so the availability of food ( rice ) is relatively more available because their habits of storing paddy ( rice ) according to consumer need until next harvest step. Whilst on dry land agro-ecosystem types of Exp (  $\beta$  ) is greater, meaning more decisive influence on the occurrence of food security . This suggests that there are significant differences between household food security , especially in the dry upland agro-ecosystem.

Table 3: Determinants of Food Security Status among Agroecosystems 2013

Function	Variable	Wetland		Dryland	
		P	Exp ( $\beta$ )	P	Exp ( $\beta$ )
Adaptation	KTP	0.0084	41.4574	0.0051	392.3763
	PeRT	-	-	0.0133	1.0295
	DBP	0.0267	1.2613	-	-
	Constant	0.0001	-	0.0014	-
Purpose Achieving	MKr	0.0015	1.9611	0.0000	2.3413
	MKP	0.0002	3.8506	0.0012	5.1513
	Constant	0.0000	-	0.0000	-
Integration	PPN	0.0003	8.0168	0.0001	11.7703
	PK	0.0022	4.0534	0.0300	4.9943
	Constant	0.0000	-	0.0000	-
Latency	NoP	0.0203	3.5841	0.0048	8.6405
	PPG	0.0000	13.1298	0.0013	6.0272
	TPT	0.0391	2.8032	-	-
	Constant	0.0003	-	0.0000	-

Income ( HHI ) and the food purchasing power ( FPP ) is the other variables in the adaptation function that significantly affect household food security . In the lowland agro-ecosystem types , " food purchasing power " is more influential , while on dry land agro-ecosystem type is household income . The difference is due to the type of paddy agroecosystem average household income is relatively larger and consumed food from own production . Whilst on dry land agro-ecosystem types ( upland ), the average household income is relatively low and largely consumed food by purchasing , so that the level of household income affects household food security

Work motivation ( WrM ) affects the food security of households in the two types of agro-ecosystem, especially for dryland agroecosystem. This happens because of low work motivation for household tenure largely agricultural land resources narrow and limited employment opportunities for the agricultural sector , and for households whose tenure relatively broad motivated enough work ' high '

Food consumption motivation ( FCM ) has a significant effect on household food security both in the wetland and dryland agro-ecosystems types, it means that in households with high FCM opportunities for household food security is greater than households with low FCM .

The role of household members of livelihood (RHhML) and their role in decision-making (RDM) , affected food security of households in the two types of agro-ecosystems . This means that if the role of household members of the subsistence "equals " and decision-making of husband and wife related to food are jointly decided , opportunities for household food security is greater than the role of household members in households earning capacity and decision making " unequal " .

Food and nutrition knowledge ( PPG ) , food norms ( NOP ) significantly affect the food security of households in the two types of agro-ecosystem , meaning that the household food and nutrition knowledge housewives and food norms adopted high , the chances of food security is greater than households with a level of knowledge and nutrition and food norms adopted low .

The level of technology ( TPT ) on agro-ecosystem types lowland influenced the chances of household food security , meaning that households farming using " high / modern "technology , the chances of household food security is greater than households with the use of technology " low/ traditional " . This is related to the level of household income , the higher the technology, the greater the income will be on both the type of agro-ecosystems . On dry land agro-ecosystem types ( especially in upland ) , there is a tendency that technology does not affect the possibility of household food security due to the average use of farming technology (mainly fertilizers) is relatively low .

### 3.3. Determinant Deferentiation of Household Food Security among Agroecosystem

#### 3.3.1. Adaptation Function

In the adaptation function , the variables that lead to food security status differences between lowland and dryland agro-ecosystem types is the difference in income , food availability and food expenditure ( food purchasing power ) is significant, as shown in Table 4. The difference is more apparent when viewed between sub- types of agro-ecosystem , for example, significant differences in income between lowland agro-ecosystem types ( irrigated , rainfed ) , dry land ( lowlands , highlands ) .

Table 4 : Diffrentiation in Food Accesibility by Adaptation Function

Function	Variable	(I) Agro-ecosystem Type	(J) Agro-ecosystem Type	Mean Difference (IJ)	Sig.
Adaptation	Income (cap/month)	Wetland	Dryland	48417.15*	0.000
	Food Availability	Wetland	Dryland	529.25*	0.000
	Food Consumption Expenditure	Wetland	Dryland	10735.63*	0.009

The difference in income between agro-ecosystem types due to differences between resources ownership and business opportunities. For example, farmers in the wetland agroecosystem have land resources more widely and job opportunities outside agriculture ( service sector ) is more than on dry land agro-ecosystem types ( mainly upland ) .

In terms of food availability, it was found that food availability between lowland agro-ecosystem types of dry land is significantly different . This is because in the typo wetland egro-ecosystem, availability of food ( rice ) are generally derived from the production itself and it is stored in accordance with their needs until the next harvest season . Meanwhile , on dry land agro-ecosystem type ( mainly upland ) has relatively low rice production that is often not sufficient to meet the needs of the rice until the following season , so as to meet the needs of rice is usually by way of purchase based on their purchasing power .

Food purchasing power measured from food expenditure turns out among different types of agro-ecosystem . Food expenditure of dryland agro-ecosystem types to differ significantly and positively with food expenditure of lowland agro-ecosystem types . This means that food expenditure of dry land agro-ecosystem types is greater than households on dry land agro-ecosystem types . This is because food is consumed largely acquired by purchasing system .

#### 3.3.2. Purpose Achieving Function

On the function of achieving goals, work and food consumption motivations among agro-ecosystem types differ significantly ( Table 5 ) . The difference in work motivation significant and positive relationship between the type of lowland agro-ecosystem with dry land agro-ecosystem types ( mainly upland ) there is a tendency due to employment opportunities and control of land resources more on lowland agro-ecosystem types , so the motivation to work

not only limited to the instrumental motivation ( motivation earn revenue ) , while the agro-ecosystem types ( upland plateau ) the control of resources and limited employment opportunities in general motivation is instrumental works which works solely with the purpose of getting income to meet their food needs . This is in accordance with the opinion Gassong ( 1971 ) which says that the meaning of a person's work ( Instrumental , social , ekspressif and intrinsic ) is influenced by socio-economic background , among others, control of resources and education .

Table 5 : Differentiation in Food Accesibility by Goals Achieving among Agroeco-system Types, 2013

Function	Variable	(I) Agro-ecosystem Type	(J) Agro-ecosystem Type	Mean Difference (IJ)	Sig.
Goal Attainment	Work Motivation	Wetland	Dryland	2.21*	0.000
	Food Consumption Motivation	Wetland	Dryland	0.81	0.001

Motivation food consumption in general are : filling , according to the taste and needs ( food and nutrition ) . In the second type of agroecosystem showed differences consumption motivation. In the lowland agro-ecosystem types , motivation consumption by more than 50 % includes filling , according to taste and needs and nutritious , while on dry land agro-ecosystem types only 29% of the consumption motivation, taste, needs and nutritious . The condition is influenced by the level of knowledge of food and nutrition housewife (  $p < 0:01$  ,  $r = 0752$  ) . It shows that the knowledge of food and nutrition " high " there is a tendency consumption goals more varied than the food and nutrition of knowledge level "low " once.

### 3.3.3. Integration Function

In terms of integration function , the role of household members ( differentiation of roles , livelihood ) , it can be said there is no difference between agro-ecosystem type , as shown in Table 6 .

Table 6 : Differentiation of Food Accesibility by Integration Function among Agro-ecosystem Types, 2013

Function	Variable	(I) Agro-ecosystem Type	(J) Agro-ecosystem Type	Mean Difference (IJ)	Sig.
Integration	Role Differentiation	Wetland	Dryland	6.87E-02	1.000
	Role in Livelihood	Wetland	Dryland	4.95E-02	1.000
	Role in Decision Making	Wetland	Dryland	0.19*	0.037

Thus, it means that the differentiation of roles ( work flow ) and a role in the subsistence household members equally between agro-ecosystem type . While the role of household members of decision making there are significant differences between type and positively with upland rice agro-ecosystem . In this type of rice agro-ecosystem , making good decisions on matters relating to the production , income and food consumption more decided jointly "equivalent " between husband and wife , while on dry land agro-ecosystem type part is done with " unequal " . Decisions relating to the use of income and housework more often done by the housewife.

The role of household members of types of agro-ecosystems is relatively same, due to the similarities of culture, especially in terms of kinship system that adopts a " bilineal " , where men and women ( husband and wife ) have the same position.

### 3.3.4. Latency Function

In latency functions, norms related to food there were having no differences between agro-ecosystem types , meaning that norms between the agro-ecosystems type is same.

Table 7 : Differentiation of Food Accesibility by Latency Function among Agro-ecosystem Types, 2013

Function	Variable	(I) Agro-ecosystem Type	(J) Agro-ecosystem Type	Mean Difference (IJ)	Sig.
Latency	Food Norms	Wetland	Dryland	8.09E-02	1.000
	Knowledge, Food and Nutrition	Wetland	Dryland	1.34*	0.009
	Technology Utilization	Wetland	Dryland	0.21	0.067

Food and nutrition knowledge of housewife among agro-ecosystem types differ significantly. Food and nutrition knowledge housewife in lowland agro-ecosystem types differ significantly with knowledge of food on dry land agro-ecosystem types . It is more due to the differences in access to information, especially on dry land agro-ecosystem types, where access to food and nutrition extension is very limited.

#### 4. Conclusion and Suggestion

##### 4.1. Conclusion

1. Households in lowland agro-ecosystem types more than half belong to the category of " food security " , while on dry land agro-ecosystem types and coastal-island more than half are in the category of " not food secure " . Household food insecurity is more common to dry upland agro-ecosystem types .
2. The difference between household food security is mainly due to the differences in the ability to access food economically and socio- cultural . It can be seen from the results of statistical analysis showed that food security is very significantly influenced by the availability of food , income and household food purchasing power (adaptation function ) , work and food consumption motivations (achievement of objectives function) , the role of household members of the households livelihoods and the role of household members ( husband - wife ) in decision making related to the availability and consumption of food ( function integration ) , food and nutrition knowledge housewife , the level of knowledge and application of farming technology ) and the norms of food ( latency function ) .
3. The difference between the type of food security agro-ecosystem , not only because of differences in the ability to access economic ( income differences ) , but also physical factors. On dry land agro-ecosystem types highlands and islands , one of the factors that cause food insecurity is an isolated residential areas resulting in limited public access to the market as one of the provider of food. Besides , due to the condition of the remote areas , the community, especially housewives rarely follow the food and nutrition extension as a source of food and nutrition knowledge .
4. In the two types of agro-ecosystem , Adaptation function is a function of the dominant influence on food security , while the function Achieving goals ( Goal Attainment ) , function integration ( Integration ) and the function of latency ( L ) is a function that contributes to household food security . This reinforces the theory Parson (1951 ) which states that when assessing " economic system " in a society, the dominant adaptation functions , while other functions serves as a support . Thus , adaptation means that the function is a function of the manifest and the dominant influence on food security , while the function of the achievement of objectives , functions and function integration latency is a function of the latent functional affects household food security ( Merton , 1955) .

##### 4.2. Suggestion

1. In order to achieve household food security, it requires strong and concrete efforts by the government, the public and other stakeholders in terms of : a) increased production and household incomes through increased and equitable distribution of the level of knowledge and application of production technology as well as job creation; b ) Increased knowledge of food and nutrition by encouraging more nutrition and food extension to the community .
2. In order to achieve household food security , especially in people who live in remote areas , should the government or other stakeholders to pay attention to aspects of food distribution .

## References:

- Dewan Ketahanan Pangan, 2010, Kebijakan Umum Ketahanan Pangan 2010-2014) Oleh Dewan Ketahanan Pangan 2010
- Elisabeth, Austin J., Desry J.Ian, Gibson J. Gavin, McGregor J.Murray, dan Dent Barry J. 2010. *Attitudes and value of Scottish Farmers "Yeomen" and "Entrepreneur" as Factors, Not Distinct Types*. Rural Sociology. Washington University.
- F.A.O. 2005. *Food Security : A domestic approach*. Development Education Exchange Papers.
- F A O. 2002. *Food Security: Some Macroeconomic Dimensions*. Journal The State of Food And Agriculture. Rome.
- Gassong, Ruth. 2008. *Goal and values of Farmers*. Cambridge University.
- Gittinger, P. J., Leslie, J. Hoisington, C. 2010. *Food Policy: Integrating Supply, Distribution, and Consumption*. The Johns Hopkins University Press. Baltimore and London.
- Hardinsyah, Dodik Briawan, Siti Madanijah, Cesilia Meti Dwiriani, Sumali M.Atmojo dan Yayat Heryanto. 1998. *Kelembagaan Untuk Pemantapan Ketahanan Pangan*. Laporan. Pusat Studi Kebijakan Pangan dan Gizi. LP-IPB.
- , Drajat Martianto, Hartoyo, Dodik Briawan, CM.Dwiriani, dan Budi Setiawan. 1999. *Membangun Sistem Ketahanan Pangan Yang Tangguh*. Majalah Pergizi pangan Indonesia (Prosiding).
- Subagio, Amin. 2005 *Kelembagaan Untuk Pemantapan Ketahanan Pangan dan Ekonomi Masyarakat*, Institut Pertanian Bogor..
- Hosmer, D.W. dan Stanley Lameshow. 1989. *Applied Logistic Regression*. A Wiley-Interscience Publication New York.
- Levy, M.J. 1971. *The Family Revolution In Modern China*, Octagon Book. New York. (Grand Teory)
- Lobao, Linda M dan Thomas, Pamela. 1992. *Attitudes Toward Food Security and Genetic Engineering*. Journal Rural Sociology. Volume 57. No. 4. Montana State University.
- Merton, R.K. 1956. *Social Theory and Structure*. The Press Co. Inc. New York. (Grand Teory)
- Parsons, T. 1951. *The Social System*. Free Press. New York. (Grand Teory).
- Sitti Bulkis, Rahmadanih, Imam Mujahidin Fahmi, A.Amrullah, *Ketahanan Pangan Pada Masyarakat Miskin di Kabupaten Jennepono*, 2011-2013. Laporan Penelitian, LP2M UNHAS, Makassar (In Indonesia).
- Sitti Bulkis, 2012. *Ketahanan Pangan Rumah tangga Perdesaan*, Buku, Arus Timur. (In Indonesia).
- Undang-Undang Republik Indonesia Tentang Pangan No. 18 Tahun 2012 (In Indonesia)