Society Economy Social Study in Order To Forest Protection Up-River DAS Bila Walanae at Kabupaten Maros

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Abstract

The research aim to detect; society economy social condition, farmer income level in system afroforestry and economy social factor that forest protection at DAS Bila Walanae at District of cenrana Kabupaten Maros.This Research was execute on July until August 2009 in Kecamatan Cenrana Kabupaten Maros. Method of data collecting cover the direct observation in field and interview. Interview to respondent is to get the primary data secondary data obtained by visiting upon related institution.Result research indicated that farmer be at the productive job age, mount the education pertained to lower, amount of family responsibility gyrate 2-6 people, wide of farm cultivation pertained by amedium and apply two system agroforestry that were agrosiviculture system and agrosivopastural syste and also have the earnings is age, education, sum up the family responsibility and experience try the farmer agroforesry. Factor having hand in glove relation with the earning is wide of farm of cultivation and agroforestry system which is in applied.

Kerwords: System Agroforestry, Farmer Characteristic, Society Economy

INTRODUCTION

A. Background

Natural resources of forest, land and water to represent is very important resources its meaning for life of farmer society in rural. Forest is an union ecosystem in the form of farm contain the natural resource involve predominated by the grove in its environments federation, what is one other inseparable (UU No.41 Year 1999). In order to make-up of quality live society in rural is inclusive of economic social life, hence the mentioned do not get out of the exploiting of resources, as does farm exploiting, representing place to try the farmer for society in fulfilling its requirement.

Farm in rural tend to progressively narrow to te effort agriculture, in consequence of resident accretion. This matter cause the society open the forest farm, so that cause to decrease wide it forest. Circumtance of like this became of by the ordinary of regional headwaters of watershed. Pursuant to the mentioned need the good handling so that the circumstance do not take place continuously.

One of solution to lessen the pressure to forest and overcome the problem of requirement of agricultural farm is by applying system agroforestry represent the system of farm exploiting in an optimal fashion have ground to environmental continuity by laboring or combining crop of forestry and agriculture (plantation, livestock) so that can improve the farmer economics in rural.

Desa Cenrana is one of upstream of Jeneberang watershed residing in Kecamatan Cenrana Kabupaten Maros. Partly the regional society conduct the activity of is effort farmer exploit the farm of passing system agroforestry. In consequence to know the social condition of society economics, hence require to be conducted by research about economic social study at system agroforestry in Kecamatan Cenrana.

B. Objective and Usefulness

Objective which wish reached in this research were :

1. Knowing to condition social of economics of society of Desa Cenrana
2. Knowing to storey level of farmer earnings of system agroforestry in Desa Cenrana
3. Knowing to relation of between age, mount the education, sum up the famille, experience try the farmer, wide of farm, and agroforestry system of applied with the earnings storey

This research usefulness is upon which information of about social circumstance of society economics applying system agroforestry specially in Kecamatan Cenrana.

RESEARCH METHOD

A. Time and Place Research

This research in executed in Desa Cenrana, Kecamatan Cenrana, Kabupaten Maros Propinsi Sulawesi Selatan. Research time executed by during 2 mounth from july until august 2009.

B. Data Collecting Method

To reach the research objective is hence conducted by a data collecting which is in the form primary data and secondary data. Primary data obtained by passing direct observation in field and interview with the farmer by

using questionnaire. Farmer which have been hold interview with by farmer executing agroforestry system selected by as much 40 people with the technique of intake sample in favoritism (purposive sampling), what is assumed can deputize all farmer executing the effort farmer with the agroforestry system. Secondary data obtained by visiting upon institution   that related institution. Secondary data required for example regional physical circumstance and economic social of local society.

C. Data Analysis

Data gathered tabulation and qualitative analysis to get the result becoming base in conclusion intake. To know the storey level of farmer earnings executing the effort farmer with the agroforestry system used by a the following formula :

$$Pb = \sum_{i}^{n} (Pi - Ci)$$

Where :
Pb = Number of netto income
Pi = Bruto income to-i
Ci = Cost to-i

Cooley, Carles Hanton (1999), express that to know social economic factors that related with income on agroforestry system, so that data analysis was conducted by using chi square (X^2) test with formula :

$$\sum_{i=1}^{B} \quad \sum_{j=1}^{k} \quad = Eij = \frac{(nio \times noj)}{n}$$

Where :
Oij   = Sum up observation for case categorized in line to-i on coloum to-j
Eij   = Number cases that expectazed under Ho for categorized in line to-I and coloum to-j
noi   = Number of observation on line to-i
noj   = Number of observation on coloum to-j
n   = Total number of observation on coloum to-j
           If x^2 counting > x^2 table, so dependent variable has significant relation toward independent variable and its contrary.

RESULT AND DISCUSSION
A. Social Condition of Society Economics
1. Age
Age is duration in year start from year of responden birth come up with the research moment executed. This matter represent one of the aspect determining ability of somebody physical in working. Can be said that by excelsior old age a farmer hence on the wane its ability to work. On the contrary young farmer have a strong physical ability to execute a work.

        Pursuant to research result, young respondent is 28 year and eldest is 63 year. Classification old age the divisible responder become 3 group which is relied on a productive age and non productive, devided productive age again become the young productive age and olg productive age (Radjak R. 2000). Young productive age group is age 15-34 year. Old productive age group is 35-54 year. Group old age the non productive age is 55 year to for. To be visible clearer at Table 1.

2. Educational Level
Educational level is one of indicator of prosperity of society and development efficacy in an area. Others education level influence somebody in ability think to comprehend an problem and look for the solution also trouble-shooting, despitefully influence the patterned thinking of farmer toward innovation and change raised to them.

        Pursuant to research result, education level can be classified in 3 group that were: low education is those who school have never or school do not come up with those who finish have from elementary school storey level (SD), Middle Education that is those who finish at high school first level (SLTP) and high is those who senior high school finish (SMA). To be visible clearer at Table 2.

Table 1. Calssification of respondent of pursuant to Group Old age in Desa Cenrana Kecamatan Cenrana.

No	Age group (year)	Sum up respondent (person)	Percentage (%)
1	Young productive age 15-34	4	10
2	Old productive age 35-54	25	62.5
3	Old non-productive age >55	11	27.5
Sum up		40	100

Table 2. Classification of respondent base on education level in Desa Cenrana Kecataman Cenrana.

No	Classification of education level	Sum up respondent (person)	Percentage (%)
1	Low (≤ elemtary school)	38	95
2	Middle (SLTP)	2	5
3	High (SLTA)	0	0
	Sum up	40	100

3. Sum up the family responsibility

Number of the family responsibility is amount of family member of both for residing in one house with the respondent and also which stop out which becoming respondent responsibility. More and more amount of responsibility of farmer family in rural will influence the level of living cost. And earnings. Generally small family own the compared to by lower living cost storey level of big family.

Pursuant to research result, sum up the family responsibility can be grouped in 3 group which is relied on a concept organize the citizen that is small family 1-4 member people, family is 5-6 people and big family 7 people or more. For the sharpness of visible at Table 3.

Table 3. Classification of respondent base on amount of family responsibility.

No	Amount of family responsibility	Sum up respondent (person)	Percentage (%)
1	Small	18	45
2	Middle	20	50
3	Big	2	5
	Sum up	40	100

4. Land Characteristic

Wide of farm managed by responder range from 0.5 ha until 7 ha. Farm status tilled is still the inclusive of forest area that is New Pattern forest area in Desa Cenrana, its meaning that farm managed by respondent is public ownership forest.

Pursuant to research result, wide of farm managed by responder can be calssified in a few group that is narrow less than 1 ha, middle is 1-2 ha and wide 2 ha more. For the sharpness of seen at Table 4.

No	Wide Land (ha)	Sum up respondent (person)	Percentage (%)
1	Nerrow (<1 ha)	7	17.5
2	Middle (1-2)	25	62.5
3	Wide (>2)	8	20
	Sum up	40	100

5. Experience the farmer agroforestry

Experince of farmer somebody in managing the effort its farmer can become the size measure mount its enter passing to production system which finally will increase product result of effort its farmer. Can be said that a new farmer launch out its farmer will differ its yield up the ghost with the old farmer elaborate the effort farmer is although executed at farm having wide and same fertility. This matter is caused by because of habit and different technique of cultivating, caused by experience difference the farmer.

Result of research indicate that there is experience difference the farmer of among respondent. To be clearer respondent experience can be the following classified : experience farmer a few is farmer conducting the effort its farmer under 10 year, medium is farmer conducting the effort farmer 10-20 year and a lot of is experienced farmer more than 20 year. For the sharpness of visible at Table 5.

Table 5. Classification of respondent base on the agroforestry farmer experience.

No	Experience the farmer (Year)	Sum up respondent (person)	Percentage (%)
1	Less than 10	3	7.5
2	10-20	20	50
3	More than 20	17	42.5
	Sum up	40	100

6. Corporate Work Production and Maintenance

Pursuant to research result, all farmer in manahing its effort farm is no merger into by one basin or formsl group organization, although in this countryside have there is formed formal farmer group. This farmer group will no longer execute the activity so that can be said that by this farmer group is inactive farmer group.

Although all farmers are not merged into by a formal group basin, but they still conduct the job of is equal production and its garden maintenance through agreement of between some people. One who follow in agreement is one who have the garden to be done by together with way of in rotation. Each member which follow in this

agreement, is both of the same put hand to the garden own its friend and later then in next day will do the its friend work is other. In principle they conduct the job of equal in the form of regular social gathering work, and its member is erratic or do not limited to certain quantity. This matter is adapted by circumstance or work volume and sum up one who will follow in job of equal this.

7. Applied System Agroforestry

Component of crop of compiler agroforestry in place research consisted by the pine, sengon, aho wood, cempaka and wish taking possession of middle high stratum. Stratum taken possession wood of spinach of lowest java, jack fruit, rambutan, banana, petei dan langsat. Stratum taken possession of by crop of coffe, cacao, cassava, and elephant grass. Base on matter, so that agroforestry system applied by societyis system of agrosilviculture and this system agrosilvopastural. This matter is visible at Enclosure 3 and 4. Classification of respondent of pursuant to agroforestry system applied visible at Table 6.

Table 6. Classification of respondent base on agroforestry system

No	System agroforestry	Sum up respondent (person)	Percentage (%)
1	Agrosilvikultur	27	67.50
2	Agrosilvopasture	13	32.50
Sum up		40	100

8. Earnings Level

The earnings are earnings accepted by respondent of through effort good farmer agroforestry through effort good farmer agroforestry through sales revenue and also result consumed by their self. Result of research indicate that storey level of respondent earnings highly varied. Respondent earnings which lower is Rp. 600.000,- per year of while highest is equal to Rp. 12.010.000,- per year, with the earnings of mean Rp. 1.872.250,- per year. Respondent earnings can be classified in three group which are relied on by requirement consumption nine staple (sembako) in one year which its value pursuant to at local market price. Standard of requirement of minimum physical utilized by as yardstick of according to Said Rusli (1994) in yudilastiano and Novita Dewi (2000), is price amount from :

a. rice as much 100 kg

b. kerosene as much 60 litre

c. briny fish as much 15 kg

d. soap as much 20pcs

e. sand sugar as much 6 kg

f. textile of pants substance as much 4m

g. cooking oil of as much 6 kg

h. batik / clothes substance as much 2m

i. cooking salt as much 9 kg

       Classification from level of requirement of minimum physical of per the year will be as follows:

    a. Low, if earnings of per year of smaller than 125% from total value of consumption in one year

    b. Middle, if earnings of per year of between 125% until 280% from total value sembako consumption in one year

    c. High, if earnings of per year more than 280% from total value of sembako consumption in one year.

       Pursuant to at price storey level which valid in research area (July until August **2007)** got by cost standard of requirement of minimum physical of equal to Rp. 786.300,-. As according to classify to assess the requirement of minimum physical, hence earnings can be classified as follows

    a. Low, is earnings of smaller than Rp. 982.875

    b. Middle, is earnings Rp. 982.875,- until Rp. **2.201.640 C.** is earnings of bigger than Rp. **2.201,640,-.**

       For clearer of classification of respondent of pursuant to earnings seen at Table 7.

Table 7. Classification Respondent of Pursuant To Storey Level of Earnings of Farmer Agroforestry

No	Income	Sum up of respondent (person)	Persentase
1	Low	10	25
2	Middle	24	60
3	High	6	15
Sum up		40	100

B. Analysis the Factors Relation perceived

       To see and also perceive the relation of among age with the storey level of farmer earnings of pattern agroforestry in Desa Cenrana, so made by a earnings group base on second of the factor. To be visible clearer at Table 8.

Table 8. Indicating that most respondent pertained at earnings storey low level. Respondent having earnings is as much 60% visible respondent.

No	Old	Earnings						Sum Up	
		Low		Middle		High		n	%
		n	%	n	%	n	%		
1	Young Productive	1	25	2	50	1	25	4	100
2	Old Productive	7	28	14	56	4	16	25	100
3	Non Productive	2	18.18	8	72.7	1	9.10	11	100
Sum Up		10		24		6		40	

Result of analysis by using test of Chi Square (X^2), in real level = **0,05** and confident Level = 4 obtained by result X^2 calculate = **1,22** while X^2 of is Table of at confident Level = 4 and at real level 5 = **0,05)** that is equal to 9,48. Result analyse this indicate that among age and mount the earnings do not correlate the reality. Seenly result of this analysis where second of factor of there no real relation caused by because: management agroforestry do not require the overweening energy and can be executed by all age group. Others there is tendency that young productive age look for the work of outside countryside and lack of enthusiasm of effort farmer of system agroforestry.

Relation Mount the Education with the Earnings Storey Level
To know the relation mount the education with the storey level of society earnings of effort farmer with the agroforestry system in Desa Cenrana Kecamatan Cenrana at Table 9.
Table 9. Relation/Link Mount the Education with the earnings Storey Level.

No	Old	Earnings						Sum Up	
		Low		Middle		High		n	%
		n	%	n	%	n	%		
1	Young Productive	9	23.7	24	63.15	5	13.15	38	100
2	Old Productive	1	50	0	0	1	50	2	100
3	Non Productive	0	0	0	0	0	0	0	100
Sum Up		10		24		6		40	

Pursuant to analysis by using test of Chi Square (X^2), at real level 5 = **0,05** and confident level (db 4) obtained by result X^2 calculate = **4,10** while value X^2 of is Table of at real level 5 = **0,05** with the confident level 4 that is equal to 9,48. Thereby assess the **X2** calculate smaller than at value **X^2** of is Table 9.

Seenly result of above mentioned analysis, inferential hence that education storey level do not have the real relation with the earnings storey level. There no real relation among education storey level with the earnings storey level caused by because in management.

Effort farmer agroforestry in countryside not yet applied the technology requiring energy having that adequate education storcy level. Beside respondent farmer only have the low education **storey level so that** ability to analyse an problem and look for the solution for the resolving of its still very less. Somebody will be more quickly answer to a n problem of through passing ability think supported by adequate education.
3. Relation sum up the family responsibility with the earnings storey level
To see and also perceive the relation of among amount of family responsibility and mount the earnings of effort farmer with the agroforestry system in Desa Cenrana Kecamatan Cenrana, so hence made by Table **10** pursuant to second of the factor
Table **10.** Relation Sum up the family responsibility with the Earnings Storey Level.

No	Number Family Responsibility	Earnings						Sum Up	
		Low		Middle		High		n	%
		n	%	n	%	n	%		
1	1-4 person	8	44.48	7	38.9	3	16.7	18	100
2	5-6 person	2	10	15	75	3	15	20	100
3	>7 person	0	0	2	100	0	0	2	100
Sum Up		10		24		6		40	

Result of analysis by using test of Chi Square **(X^2),** at real level 5 = **0,05** and confident Level = 4, obtained by result **X^2** calculate = 8,58 and assess the **X^2** of is Table at real level 5 = **0,05** with the confident level 4 is 9,48. Thereby assess the X^2 calculate smaller than at value X^2 of is Table of, so that sum up the family responsibility do not have the real relation with the earnings storey level.

There are no this real relation caused by because respondent have the other dissimilar work or effort other dissimilar outside effort farmer agroforestry, so that living cost of family of not merely depend on result of effort agroforestry farmer. other; dissimilar work or effort among other things is the effort rice field farmer, merchant, worker and others. Mostly the effort agroforestry farmer represent the effort peripheral 4. Experience Relation try

the Firmer with the Earnings Storey Level.

To see and perceive the relation of among experience try the farmer with the earnings storey; level, visible at Table **11.**

Table **11.** Experience Relation Try the Farmer with the Earnings Storey Level.

No	Experience the cultivate farm (year)	Earnings						Sum Up	
		Low		Middle		High		n	%
		n	%	n	%	n	%		
1	<20	0	0	3	100	0	0	3	100
2	10-20	7	35	10	50	3	15	20	100
3	>20	3	17.6	11	64.7	3	17.7	17	100
Sum Up		10		24		6		40	

Result of analysis by using test of chi square (X^2), at real level $5 = 0,05$ with the confident level = 4, obtained by result X^2 calculate = 3,62, while X^2 of is Table of at real level $5 = 0,05$ with the confident level = 4 is 9,48, 50 that assess the X^2 calculate smaller than value X^2 of is Table of. Thereby do not there are real relation among experience the farmer with the earnings storey level of at system agroforestry.

This matter is caused by because generally way of farm management start from sweeping come up with the crop follow the habit conducted by previous people (habit by generations). Others not yet a lot of information got by farmer of about way of farm management with the different pattern agroforestry with the pattern applied by generations 5. Wide Relation of Farm Managed with the Earnings Storey Level.

Wide of farm represent one of important factors of production in influencing business activity of, farmer of inclusive of the effort farmer with the system agroforestry. This factor might possibly cause to lower the farmer earnings of because as narrow tight as processed farm. Wide relation of farm managed with the visible earnings storey level at Table **12.**

Table 12. Wide Relation of Farm Managed with The Earnings Storey Level in Desa Cenrana.

No	Wide Land Managed	Earnings						Sum Up	
		Low		Middle		High		n	%
		n	%	n	%	n	%		
1	Narrow	6	85.7	1	14.3	0	0	7	100
2	Middle	3	12	20	80	2	8	25	100
3	Large	1	12.5	3	37.5	4	50	8	100
Sum Up		10		24		6		40	

Result of analysis by using formula of Chi Square (X2), at real level $5 = 0,05$ and confident level = 4, obtained by result X^2 calculate = 145,46 and X^2 of is Table at real level $5 = 0,05$ with the confident level = 4 equal to 9,48. Thereby X^2 calculate bigger than at X^2 of is Table of, so that can be said that wide of farm managed have the real relation with the earnings storey level. Result of analysis by using formula of Chi Square (X2), at real level $5 = 0,05$ and confident level = 4, obtained by result X^2 calculate = 145,46 and X^2 of is Table at real level $5 = 0,05$ with the confident level = 4 equal to 9,48. Thereby X^2 calculate bigger than at X^2 of is Table of, so that can be said that wide of farm managed have the real relation with the earnings storey level.

This matter is caused by because most responder have wide of farm is (1 - 2 ha). Real relation among wide of farm with the earnings storey level of because of wide of farm managed at agroforestry system, highly varied from each every respondent, so that cause the earnings difference, seenlyis wide category of farm and difference of means earnings of at every category, that is for the category of narrow tight have the earnings of mean Rp. 878.850 per year, categorize the medium have the earnings of mean Rp. 1.797.280 per year and for the category of wide have the earnings of mean Rp. 4.029.250 per inferential year hence that wide progressively farm managed by a obtained earnings excelsior.

6. Relation of Agroforestry System Applied with the Earnings Storey Level

To see and perceive the relation of among system agroforestry applied with the visible storey income level, **so** see Table **13.**

Result of analysis by using formula of chi square real X^2, at Level $5 = 0,05$ with the confident level = 2 obtained by X^2 of equal to 8,2 meanwhile X^2 5 % and confident level = 2 equal to 5,99. Thereby X^2 calculate bigger than at of is Table of, so that system agroforestry applied have the real relation with the earnings storey level .

This real relation happened because livestock have the price sell the superordinate compared with the other dissimilar commodity representing element from agroforestry. Frequency of sale of ox livestock every year range from 1 - 4 tail. Specially price sell the ox livestock going into effect in research area gyrate 2 million until 3 million rupiah of each tail

Table **13.** Relation of System Agroforestry with the Earnings Storey Level.

No	System of Agroforestry Applied	Earnings						Sum Up	
		Low		Middle		High		n	%
		n	%	n	%	n	%		
1	Agrosilvikultur	10	37.04	15	55.5	2	7.41	27	100
2	Agrosilvopastural	0	0	9	69.2	4	30.77	13	100
Sum Up		10		24		6		40	

Pursuant to mean earnings from second of agroforestry system, hence system agrosilvopastural have the compared to higher mean earnings of agrosivikultur system. Mean earnings from system agrosivopastural is equal to Rp 2.675.923,- while from system agrosilvikultur of equal to Rp 1.494.296,- inferential so that that more beneficial agroforestry is agrosilvopastural system.

CONCLUSION AND SUGGESTION

A. Conclusion

1. Farmer majority managing the effort farmer of system agroforestry be at the productive job age, mount the farmer education pertained to lower the, amount of responsibility of farmer family pertained by a medium, wide of farm cultivation to the effort farmer of system agro orestry pertained by a medium, cooperation of performed   within conservancy frame and produce executed in the form of arisan work the, system agroforestty applied by system of agrosilvikultur and system agrosilvopastural
2. Farmer earnings of generally pertained by a medium
3. Social factor of economics which do not have the relation with the earnings storey level is age, sum up the family responsibility, mount the education and experience the farmer. Factor having real relation with the earnings storey level is wide of farm cultivation and applied system agroforestry.

B. Suggestion

1. In order to make-up of society earnings in Desa Cenrana Kecamatan Cenrana Kabupaten Maros of through effort farmer of system agroforestry, is hence suggested by a system better the effort farmer agroforestry applied by is system agrosilvopastural
2. Needing there is farmer group becoming basin in executing cooperation and construct to increase product result of effort farmer agroforestry.

REFERENCE

Danaprjatna N dan Setiawan R, 2004. Introduction of Statistic. Graha Ilmu Bekasi.

BP2TPDAS IBT. 2003. Hydrology Characteristics to Determinate Criteria and Indicators Jeneberang Watershed Hydrology. Research Report. Unpublished, Makassar.

Cooley, Caries Hanton. 1999. Research Methods Participation and empowerment efforts. Obor Indonesia, Jakarta.

Dahian, L. M. 2002. Community Participation in Community Forest Development in Jeneponto of South Sulawesi province. Thesis of Graduate Program Hasanuddin University (unpublished).

Fandeli, C. 1987. *Agroforestry.* Foundation for Development of the Faculty of Forestry, University of Gadjah Mada. Yogyakarta.

Forestry Ministry. 1997. *HandBook Of Indonesian Forestry.* The Ministry of Forestry Republic of Indonesia.

Kartasubrata. J. 2003. *Social Forestry don Agroforestry di Asia.* Laboratory of Economic and Social Politics, Faculty of Forestry. Bogor.

Lahjie. A. M. 2001. *Tehnik Agroforestry.* Grafika UPNV. Jakarta.

Law of the Republic of Indonesia No. 41 Year 1999 on Forestry. 1999. Jakarta: Kopkar FOREST.

Radjak R. A. 2000. Analysis Community Economic and Social Ownership around Mangrove in Tongke-Tongke Samataring, Sinjai district. Unpublished. [thesis], Makassar. Faculty of Agriculture and Forestry Hasanuddin University, Makassar.

Rukmana R. 1995. Hilly Land Management techniques and Critical. Canisius, Yogyakarta.

Yudilastjanto.C dan Indah Novita Dewi 2000. Socio-economic assessment of watershed in Southeast Sulawesi, Watershed Management Technology Bulletin, No.4 / 2000. 22.