



CHICKEN RAISING ECONOMIC ANALYSIS, 2013



AGRISUD INTERNATIONAL

Agriculture Diversification and Malnutrition Alleviation in Siem Reap Peri-Urban Area

Cambodia, November, 2013

Project Overview



Chicken raiser in Po Pis, Krabei Real

Since 2011, Agrisud has been implementing its project named Agriculture Diversification and Malnutrition Alleviation, in the periphery of Siem Reap. The project is funded by Conseil Général des Hauts de Seine (CG92). It supports 320 rural households to develop and diversify their agricultural activities such as vegetable growing, chicken and pig.

Chicken Raising Activity

Raising chicken is a common additional activity for rural households. Traditionally, chicken are primarily raised for family consumption and occasionally for sale to cover households' expenditures. Usually, chicken are raised in the backyard without specific shelters. Input investments in raising activity remain low. Agrisud saw an interest in the development of chicken raising activity by giving to targeted farms a more economic orientation. Thus, 88 households (14 pilot farmers and 74 G1 and G2 beneficiaries) were supported to develop chicken farm.

The project's activities are implemented to reach out three main objectives :

- * Increasing local agricultural production and boosting farmers' incomes through the dissemination of agro-ecology practices and sustainable agricultural models,
- * Improving agricultural product marketing through post-harvest management techniques implementation and market linkage development.
- * Reinforcing agricultural value chains through farmers group creation and collective initiatives development.



Chicken coop in TaTok, Pouk

To start raising, farmers had to enroll in a 2 days technical training. After, the project supports the launching of chicken raising activity by providing equipment and animals. Then farmers receive regular technical advising to improve the technical and economic performance of their raising activity.

Special points of interest:

- WHAT IS TES ?
- ANALYSIS METHODOLOGY
- ANNUAL ECONOMICAL RAISING RESULTS
- MARKET TREND FROM 2011 TO 2013
- ENCOUNTERED PROBLEMS
- CONCLUSION
- RECOMMENDATIONS

Activity implementation budget per household:

- 40 \$: for chicken cage construction.
- 45 \$ (on average) for animal provision : 9 hens and 1 roaster.

In total, a household received an equivalent of 85\$ to support its raising activity. Besides, 8 months after provision of animal, farmers had to pay back 45\$ to the farmer association (FO).

What is TES (Technico-Economic follow-up System) ?

⇒ It is a monitoring system based on the regular collection and analysis of technical and economic results of a sample of beneficiaries, over a given period.

Since June 2011, the TES has worked with a sample of 12 chicken raisers. Data are collected and recorded in a Excel database, monthly by the Monitoring & Evaluation officer. Data are regularly analyzed to advise farmers on their farm economic management.

The important information registered monthly in the database are :

Technical Information :	Economical Information :	
<ul style="list-style-type: none"> • Number of deaths • Number of chickens left at the end of every month • Number of chickens self-consumed • Number of chickens sold • Weight of chickens sold 	Expenses : <ul style="list-style-type: none"> • Chicken purchasing (date, number, cost) • Feeding • Treatment and vaccination • Material and other expenses • Chicken coop depreciation 	Incomes : <ul style="list-style-type: none"> • Unit selling price • Total income

Criteria for sample selection

- ☑ Within the 8 villages of the two communes targeted by the project.
- ☑ Reflecting the diversity of farm size and the initial orientation of raising activity (traditional or commercial),

In total, the TES sample works with 12 households among the project beneficiaries.

Month..... Year.....

1. Technical Section			
Livestock Composition			
	Number	Number eaten	
Hen			
Rooster			
Chicken			
Chick (until 1 month)			
Diseases identification			
	Symptoms	Solutions	Number died
Hen			
Rooster			
Chicken			
Chick			
Total (considered in head)			
Vaccination program			
Age of Chicken	Vaccine use	Number of animal vaccinated	Sources of vaccines
Remarks			

Technical follow-up sheet

2. Economic Section

Expenses on chicken raising								
	Commercial Food				Food made at home			
	item	Quantity	Price	Total	item	Quantity	Price	Total
Chick								
Chicken								
Total				Total				
Materials	Quantity	Unit Price	Total cost	Animal purchase	Quantity	Unit Price	Total cost	
Total				Total				
Medicine	Quantity	Unit Price	Total cost	Others	Quantity	Unit Price	Total cost	
Total				Total				
Incomes on chicken raising				Remarks				
Type of animal	Quantity	Unit Price	Total					
Total								

Economic follow-up sheet

Analysis Methodology

Calculation of depreciation

✓ Depreciation measures the loss of value of an agricultural equipment over the years. Within project TES, the depreciation has been calculated for pen and coop.

Formula :

$$DV = \frac{\text{Total Cost}}{\text{Total Economic Life}}$$

(DV= Depreciation Value)

Labor Force

Labor force is not taken into account as the workforce is mainly family.

Calculation of Income

✓ Two incomes are calculated in this analysis, namely Income1 and Income2.

✓ **Income1** = chicken sales + self-consumption

✓ **Income2** = Income 1 + valuation of the final stock

Calculation of expenditures :

The value of the local feed, easy to found and less pricey, such as banana trunks, vegetable leaves, rice, etc, is also taken into account in the feeding expenses.

- **Valuation to the local feed** (the given price refers to the market selling price and local trading value):

Banana trunk	1,000 Riels/trunk
Vegetable's leaves	500 Riels/kg
Rice	1,800 Riels/kg

In this analysis, both general expenditures and the depreciated value of chicken pen and coop are included.

Depreciation on chicken pen and coop : Farmers spend 90\$ on average to build a chicken coop (based on figures from the project target area). After 36 months, pen and coop need to be replaced or completely repaired. Thus, the depreciation value is 2.25 \$ per month per chicken pen.

Calculation of income:

To calculate the exact farmers' income, we have to take into account the number of chickens self-consumed as well as the animal stock (number of alive chickens left in the farm at the analysis date).

- **Valuation of self-consumption** = number of chicken self-consumed x average selling price during the analyzed period.
- **Valuation of animal stock** = difference between final stock value (T+1) and initial stock value (T).

Data are monthly computerized in an Excel File

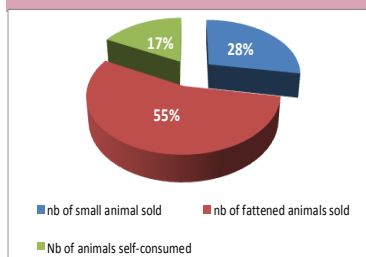
General Information				Livestock composition					Monthly Expenditures Riels					
Farmer Name	Village	Animal Raised	Month of follow-up	Number of adult Female	Number of male adult	Number of small animal	Number of animals for fatteni	Number of deaths during the month	Animal Purchase	Food	Veterinary expenditures	Material	Other	Total Expenditures
Kham Khann	TaTok	Chicken	août-12	5	1	16	22	5	0	43700	0	0	0	43700
Sok Kimhach	Prayuth	Chicken	août-12	5	0	20	0	3	0	9500	0	0	0	9500
Nil Kunthea	Prayuth	Chicken	août/12	8	1	25	10	5	0	13500	0	0	0	13500
Nou Na	TaTok	Chicken	août-12	10	2	23	8	3	0	23000	4500	0	0	27500
Seng Ny	Kompongtauyung	Chicken	août-12	10	2	30	0	0	0	59000	0	0	0	59000
Soeung Saroeung	Kraseing	Chicken	août-12	10	1	20	10	5	0	59500	0	0	0	59500
Ross Damra	Poukchas	Chicken	août-12	11	1	36	5	48	0	42500	3000	0	0	45500
Sonn Savy	Poukchas	Chicken	août-12	15	2	35	40	0	0	34000	10000	0	0	44000
Dam Bundol	BreuPo	Chicken	août-12	20	1	26	15	7	0	53000	10000	0	0	63000
Income from small animals			Income from Adult Female sales			Income from fattened animals sales			Total	consump	Remarks			
nb of small animal sold	Unit Price /head Riels	Total income of small animals sold	nb of adult female sold	Total weigh of female sold (kg)	Unit Price Riels/kg	Total income of adult female sold	nb of fattened animals sold	Total weigh of fattened animals sold	Selling price riels/kg	Total income of fattened animals spld	Total of monthly sales	Nb of animals self-consumed	Observations/remarks	
0		0	0	0		0	0	0		0	0	0		
10	3000	30000	0	0		0	5	6.8	12500	85000	115000	0	chicken died because of newcastle	
0		0	0	0		0	0	0		0	0	2		
0		0	0	0		0	3	3.2	13000	41600	41600	1		
0		0	0	0		0	18	22	13000	286000	286000	0	chickens died by disease	
0		0	0	0		0	0	0		0	0	0		
0		0	0	0		0	0	0		0	0	0		
0		0	0	0		0	0	0		0	0	9		
0		0	0	0		0	1	1.2	13000	15600	15600	2		
0		0	0	0		0	0	0		0	0	0		

Annual Economic Results

Observation Period :

☑ This analysis has been conducted July 2012 to July 2013 to obtain one year results.

Production results :



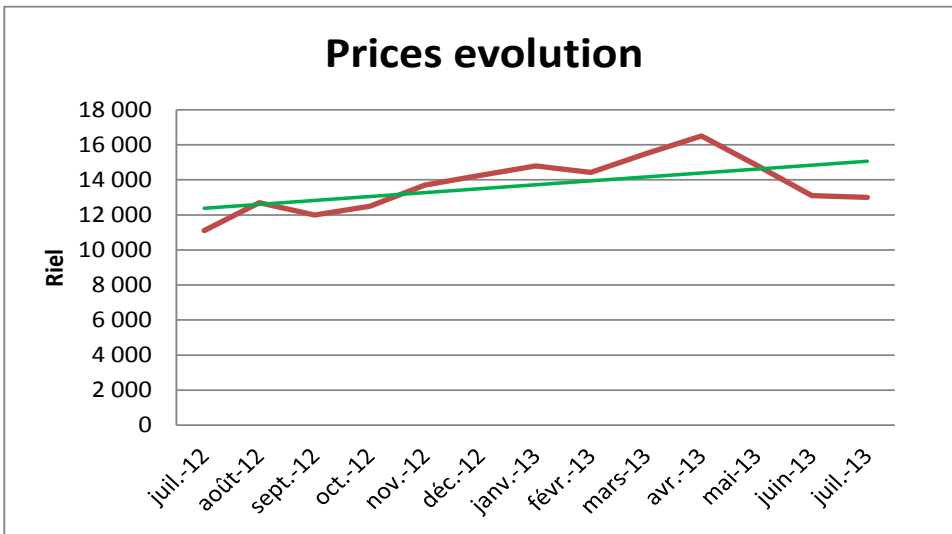
On average during a year 83 % of animal produced are sold and 17% self-consumed



The monthly and yearly figures presented below are the average economic results for 1 farm. The calculations come from the analysis of the data recorded from July 2012 to July 2013 within a sample of 12 chicken raisers.

1. Average Livestock Composition	Monthly	Yearly
Hen	7 heads	-
Roaster	2 heads	-
Chicken	11 heads	-
Chicks	13 heads	-
Mortality rate	4 heads	-
2. Economic Result		
2.1 Average Expenditures		
Animal purchasing	0.5 dollars	6 dollars
Feeding	9.6 dollars	115 dollars
Treatment and vaccination	0.7 dollars	8 dollars
Materials	0.3 dollars	4 dollars
Pen depreciation	2.2 dollars	27 dollars
Total Expenditures	13.3 dollars	160 dollars
2.2 Average Income		
a. Income from chicken sales		
Average number of chickens sold	6 heads	72 heads
Average selling price	3.4 dollars/kg	3.4 dollars/kg
Average weights of a chicken sold	1.14 kg/head	1.14 kg/head
Total income 1	15.1 dollars	181 dollars
b. Valuation of self-consumption		
Average number of chicken consumed	1.3 heads	16 heads
Valuation in cash	5.4 dollars	65 dollars
Total Income 2	20.5 dollars	246 dollars
c. Animal Stock Valuation		
Valuation of animal stock	2.5 dollars	30 dollars
Total Income 3	23.0 dollars	276 dollars
2.3 Margin		
Profit 1 (Income 1 - Expenditures)	1.8 dollars	21 dollars
Profit 2 (Income 2 - Expenditures)	7.2 dollars	86 dollars
Profit 3 (Income 3 - Expenditures)	9.7 dollars	116 dollars

Market Trend in 2012 - 2013



This graph represents the evolution of the selling prices of alive chickens sold between July 2012 and July 2013 in the project's area. Prices are quite stable during this period : 13 700 riels (3.4\$) per kg on average. Trading is done at the villages by middlemen. We can notice a price increase from October 2012 to April 2013. Then prices are going down. In rainy season the weather conditions and the moisture climate entail a high mortality. For Khmer new year (April), chicken meat is largely consumed and process are very high : over 16 000 (4\$) riels per kg. It is a really profitable for raisers.

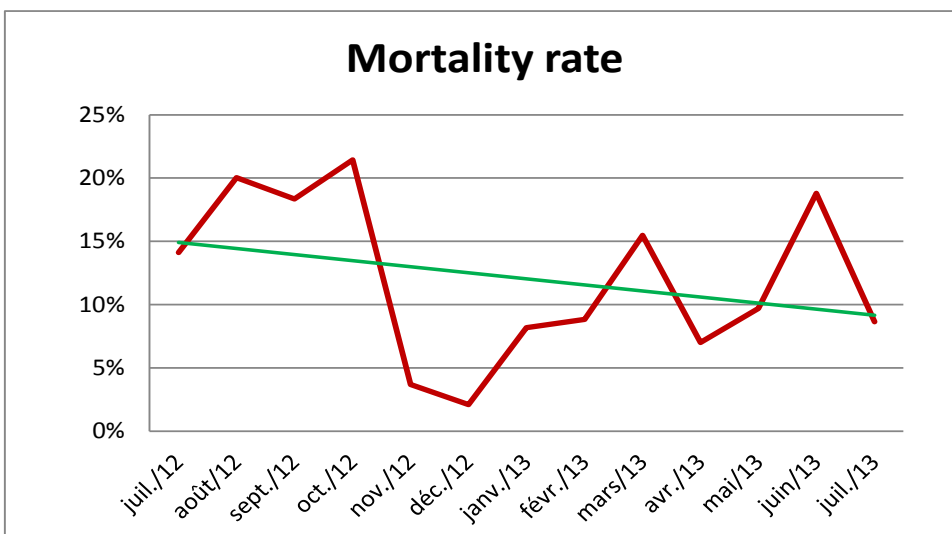
Encountered Problems

Agrisud's beneficiaries as well as other family-scaled chicken raisers, meet high mortality rate. The high risk period starts at the end of the rainy season (August to October), when the weather is very humid. The fact that farmers let most of the time chicken outside the pen, straying around the farm makes easier the diseases infection (see the graph below for more detail about mortality trend in 2012 and 2013). The death of small chicks is also a common problem. Usually farmers are reluctant to spend money to buy specific food for young chicks. Moreover, they do not always care well mall chicks : rare chicks separation from hens in a small cage with a warming light.

Besides, farmers do not always respect the vaccination program to prevent diseases that occurred most of the time.

It is not an easy task to change farmers habits and raising traditions. Thus, the project has worked to improve raising techniques and diseases prevention by : training implementation and technical advising, material support for building pen and coop, organizing vaccination campaign in collaboration with the VAHW (village animal health worker), who were trained by the project. Moreover several refreshing trainings have been organized for food preparation, natural remedies making and vaccination.

Mortality Rate in 2012-2013



The curve illustrated the average mortality rate in a chicken farm from July 2012 to July 2013. On average, 5,3 deaths of chicken occurred in a month, mostly small chicks, due to diseases infection and little attention paid to small chicks care.

From July to October of 2012, there was a high mortality rate (8 heads per month) because of a cholera epidemic. In January, the cool season and lower temperatures also affect chickens.

Recommendations



Chicken raiser in Prayuth, Pouk

Conclusion

To improve income from raising chicken activity, farmers should pay more attention on :

1. Preparing the division cage for small chicks with access to lamp and provided nutritious feed and enough water (refer to table 1, 2, and 3).
2. Keep chicken inside the pen to avoid disease infection.
3. Start planting hedge and other plant inside and around the coop to provide a favorable environment for chicken as well as local food sources to limit food expenses..
4. Follow the vaccination program (refer to table 4).

1. Recommendations on feeding and watering allocation

Number of chicken in the farm	Categories	Food	Water
50	chick	1 to 1.3 kg/day	5L/day
100	chick	2 to 2.5 Kg/day	10L/day
25	chicken	2.5 kg/day	6L/day
50	chicken	5 kg/day	12L/day
100	chicken	10 kg/day	25L/day

2. Food preparation for chicken

	Ingredients
Energy	Broken rice, rice bran, cassava roots, corn
Protein	Fish, Insects, Earthworm, Soya bean
Vitamin	Azolla, Water hyacinth, Cassava leaf, Gliricidia
Mineral	Shell of snail, crab

3. Recommended feed mixing ingredients

	Ingredients	Quantity (kg)	Traditional measurement
Energy	Broken rice	2	4 small rice cans
	Rice brand	3	15 small rice cans
Protein	Fish	1.5	
Vitamin	Morning glory	3.5	
Mineral	Salt	0.05	1/3 rice spoon
TOTAL =		10	

4. Main Diseases

Diseases	Symptoms	Period	Vaccine	Advices
Cholera	Swollen head, bruise on the body, respiratory symptom, diarrhea with green waste	March/April May/June	1mL/1 chicken (every 6 months)	Injection on chest At the age of 1 month and half
	Sudden death (1 or 2 days) Affect many chicken (90% of livestock)			
Newcastle	Respiratory problems, food inside crop not well digest (crop big), diarrhea, twisting head and neck, nervousness, head swelling	March to June	- 1 to 2 drops - 0.3mL/1 chicken	Chick = Drop into eyes and beak Chicken = Injection on the chest
Fowl Pox	Skin lesions, head swollen, fever	April to September	5mL/100chicks	Prick both wings