

# Impact of Capacity Development in Livestock Production: The Case of Farmer Livestock School in the Philippines

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Roughly one billion people, including many of the world's poor, depend directly on animals for income, social status as well as food and clothing, and the welfare of their animals is essential for their livelihood. However, the sector has not contributed as much as it might have to poverty alleviation and food security. Sustainable livestock production should then entail the provision of innovative technologies, information, supporting services and enabling policies to ensure growth through Capacity Development (CD).

This study presents results on the impact of CD on livestock production, productivity and income after four years of project implementation. It provides evidences that can contribute and or back-up early literatures in the concept of CD. The case studied was the Farmer Livestock School (FLS) in The Philippines, learning through experience scheme focusing on integrated goat management, having a total of 130 graduates in Region I in CY 2006. Questionnaires, interview guides and secondary data were used in gathering information on the change of production & productivity and income of farmers. Result showed that production and productivity of goat significantly increased. Weight at 8-month old increased by 34% while total mortality rate decreased by 59%. Annual net income derived from sales increased by 278%. It was also found that there was a gradual change in the existing population of breeds of stocks in the farm from native, upgrade and crossbreed in four years time. Results suggest that after undergoing such season long farmer school, the capacity of farmers in goat production has significantly improved.

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Keywords: capacity development, farmer livestock school, production, productivity

## 1. Introduction

The livestock sector, like much of agriculture, plays a complex economic, social and environmental role. Roughly one billion people, including many of the world's poor, depend directly on animals for income, social status and security as well as for food and clothing. Due to this high dependence, the welfare of their animals becomes essential for their livelihood<sup>1</sup>. However, according to Food and Agriculture Organization (FAO) 2009, the sector has not contributed as much as it might have to poverty alleviation and food security. Nor has growth in the sector been adequately managed to deal with the increasing pressures on natural resources or to provide control and management of animal disease.

Recognizing these facts and recognizing that the livestock sub-sector comprises activities which contribute to poverty reduction and food security, there is a need to evaluate programs and projects and come up with a package of extension services and technologies that can systematically manage to achieve long-term results in farmers' livelihood activities. Sustainability in livestock production should then entail the provision of innovative technologies, information, supporting services, and enabling policies to ensure growth while

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<sup>1</sup>FAO, 2009. "Livestock in the balance." <http://www.fao.org/docrep/012/i0680e/i0680e.pdf> Accessed September 19, 2011.

increasing the efficiency of renewable resource use<sup>2</sup>.

This study generally aims to assess one particular CD tool, the Farmer Livestock School on Integrated Goat Management (FLS-IGM) which was first pilot tested in 2001 in the Philippines as the main case, and will present evidence on the impact of CD in goat production, productivity and income which can then serve as a baseline data for justifying CD investments in attaining development goals in the future. While CD in international discussions is still broad and encompasses a wide range of issues, this study does not cover the process and other issues of the concept of CD.

The author chose this case mainly because this modality is the first in the Philippines. This modality was an offshoot of the TAG 443 project of the International Livestock Research Institute - International Fund for Agricultural Development (ILRI-IFAD) which capitalized on the control of gastro-intestinal parasites of goats<sup>3</sup>. It focused on CD of farmers in raising goats through learning by doing for 6 months<sup>4</sup>. In CY 2008, this modality was downloaded to the Local Government Units (LGUs) after they were trained by the Department of Agriculture (DA) to implement the project<sup>5</sup>. There are already 40 out of 117 municipalities and 6 out of 9 cities in Region I who have embraced this modality as part of their livestock program of activities since it was officially implemented by the DA with the help of the Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD)<sup>6</sup>.

## 2. Methodology

The first fieldwork was conducted during March 2–25, 2010 in the Ilocos Region. A pre-site evaluation of the FLS-IGM sites was conducted and pertinent information and data from the LGUs and DA was gathered. Out of the 7 sites, 5 sites (Pugo, Tagudin, Bani, Mabini and Alaminos) were selected randomly with a total of 130 beneficiaries. In coordination with the LGUs, a second fieldwork was conducted during September 3–27, 2010 for the intensive data gathering through group interview with the farmers and one on one interview with LGUs who were directly involved in the project. A questionnaire to extract the farmer's profile and performance of goat production, productivity and income before and after CD tool and other questions which the author perceived as necessary to answer the research objective was distributed to the farmers. Out of the 130 beneficiaries in CY 2005, a total of 101 interviewees or 80% was able to attend the group interview. Questions were read slowly one by one during the group interview and farmers were instructed to write their answers in the space provided and/or select answers which were provided in the multiple choice. If a certain question was not understood by the farmer, a further explanation/example was given. All questionnaires were collected after the group interview. Qualitative and quantitative data that were gathered from surveys, interviews, and document reviews were coded, consolidated analyzed and interpreted using different methods of data analysis. Qualitative data were interpreted following the format of the questionnaires and interview guides. Quantitative data were analyzed using descriptive statistical tools like frequency, percentage, and mean.

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<sup>2</sup> "Livestock development." <http://siteresources.worldbank.org/INTARD/214578-1112681119394/20434025/LivestockDevelopmentFactsheet.pdf> Accessed August 11, 2011.

<sup>3</sup> PCARRD, 2004. FLS-IGM guide handout.

<sup>4</sup> Alo, M. 2006. Lecture paper during the intensive training course for FLS-IGM implementers.

<sup>5</sup> DA-RFU I, Livestock Report, 2008.

<sup>6</sup> DA-RFU I, Livestock Report, 2009.

### 3. Results and discussion

#### 3.1 Individual characteristics of respondents

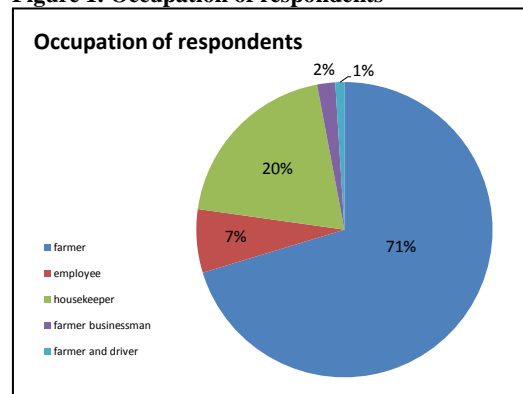
Table 1 shows the personal characteristics of farmer respondents before CD tool. Results show that respondents are in their middle age and are still within the age bracket of carrying out daily routine activities in goat raising. In this case, goat production is carried out mainly by males as compared to females. The average number of years of education was 11 years. These years of education in Philippines are within high school level, which explains why the common occupation of the respondents was farming (Figure 1). Most often, the fall down at high school level leads them to farming because it is difficult for them to find jobs in any government and private companies. Results also show that female respondents answered housekeeping as their occupation, implying that females in the rural area are engaged in both non-monetary and monetary task.

The average number of years raising goats before attending CD tool was 5 years. This means that the majority of the respondents were still in their early stage of goat production as compared to those who have been raising for 10 to 20 years. Respondents are backyard raisers having 4 heads of goat on average which support the statement of the DA that the average number of goats per household in Region I is 3-5 heads. According to Alo 2005, the man-hour spent for one head of goat is almost the same in four to five heads of goat. This means that at least 4 heads is needed to maximize the man-hour in goat raising. Similarly, four heads of goat can have a viable return of investment, which indicates that goat production had been a good income augments for the rural folks. Most of the time, the contribution of goat production in household income is not being noticed due to the fact that goat is only seen as ordinary animal which can be butchered in times of festival and on special occasions in the Philippines.

**Table 1. Characteristics of respondents**

Specification	Mean
Age	49
Gender (%)	
Male	67%
Female	33%
Education (no. of years)	11
Average no. of years raising goats	5
Initial no. of goats (hd)	4
Membership in farmer organization (%)	
Yes	41%
No	59%

**Figure 1. Occupation of respondents**



#### 3.2 Impact of Capacity Development on farmers' goat production, productivity and income

The results of the study showed that the population of goats in the farm has significantly increased by 125% after four years of CD implementation (Table 2). It also showed that the population of existing breeds in the farm in 2010 changed significantly. Native goats<sup>7</sup>

<sup>7</sup> The local breed, which is small, stocky and low set but is adapted to local conditions. It is believed to be have originated from the Indo-Malay Katjang breed ("Breeds: Boer." 2009. <http://kambing.sch.ph/doku.php/breeds/boer> Accessed October 10, 2011).

## Capacity Development for Improved Livestock Production

significantly decreased by 55%, while upgrade goats<sup>8</sup> increased significantly by 1,070%. Likewise, additional crossbreeds and purebreds were added in the farm after five years of project implementation. The downside of this is that the native breed of goats is drastically going to its extinction for the need of increasing productivity and to address food security and low income. Result also shows that acceleration of livestock technologies can also be a threat to the existence of native goats in rural household livestock activities.

It is still necessary that, though we aim for increased production and productivity, native animals should still be preserved, for they have traits that can be beneficial to the succeeding breeds of goats. Native goats, although small in comparison to the exotic breeds, have their place in contributing to the genetic pool because of their hardiness and ability to survive and produce under low input conditions. Appropriate measures should be implemented to ensure that as a genetic resource, they are conserved<sup>9</sup>.

**Table 2. Impact of CD on farmers' goat production, productivity and income**

	<b>Before Capacity Development</b>	<b>After Capacity Development</b>	<b>Impact of Capacity Development</b>
Goat population in the farm, heads	4	9	Increased
Native goat breed in the farm, %	87	19	Decreased
Upgrade goat breed in the farm, %	13	71	Increased
Crossbred and Exotic goat breed in the farm, %	0	10	Increased
Goat weight at 8 months, kg	14.22	19.13	Increased
Annual mortality, heads	3	2	Deceased
Annual mortality rate, %	43	18	Deceased
Goats sold per year, heads	2	4	Increased
Net income, Philippine Peso	1,095.00	4,144.00	Increased

As to the mean weight of stocks at 8 months old, results showed that there was an increase in mean weight after CD tool by 34.53%. This result justifies the change of existing breed in the farm from native to upgrade after the CD. This can be explained by the change of breeding practices of farmers from merely inbreeding to upgrading and crossbreeding after CD. The breeder buck from the LGU and DA had been used to upgrade the stocks of the farmers. Studies show that the native goat can reach a maximum weight of only 15 kg to 18 kg while upgrades have an average mature (8 months old) weight of 18–30 kg. An imported pure breed like Boer<sup>10</sup> on the other hand weighs a maximum of 120 kg to 150 kg<sup>11</sup>. As of this moment,

<sup>8</sup> It is the result of crossing between native female goat and crossed or purebred buck. However, purebred are not recommended because they are too big for the native goat (E. Cruz in his 2005 lecture, “Breeds and breeding” for the Training of Trainers, CLSU, Philippines).

<sup>9</sup> D. Miller and D. Vermont in the conclusion of their study, “Characterization of the ‘Native’ goat.” <http://moa.gov.jm/Research/data/Goat%20Research/Characterization%20of%20the%20Native%20Goat%20Revised%202007.pdf> Accessed October 9, 2012.

<sup>10</sup> The origin of Boer goats is vague and probably rooted in indigenous goats kept by Hottentot and migrating Bantu tribes, with a possible infusion of Indian and European bloodlines. The Boer is a meat type goat with good conformation, high growth rate and fertility, short white hair and red markings on the head and neck. They are suited for use in cross breeding programs to improve meat characteristics in feral or weed control goats

the sufficiency level of chevon in Region I is still low (65%) as compared to other meat commodities<sup>12</sup>. With this increase of weight of existing stocks, it is expected that this will not only contribute to the economic impact but can also contribute to the closing of the gap between supply and demand of chevon<sup>13</sup> in the region and country as a whole.

Mortality due to disease is one of the major causes of loss in goat industry. Goats suffer from various diseases, which are caused by bacteria, viruses, parasites and other non-infectious agents. The farmers may take some steps, as recommended, to prevent further deterioration in the condition of the animal, until it is brought under the supervision of a goat health specialist. It has been observed that the seriousness can be prevented or minimized if timely preventive health care is adopted in goat farming<sup>14</sup>. According to the Australian Centre for International Agricultural Research (ACIAR) report, a mortality rate of 60–80% of a farmer's herd is usually caused by diarrhea, parasites or pneumonia. It was recorded that annual losses had been estimated at USD 3.55 million due to roundworm alone<sup>15</sup>.

Results show that mean mortality due to diseases decreased by 33% and mortality rate decreased by 59%. The decrease is partly explained by the change of feeding management and provision of housing facilities for goats after the CD tool. Like any species of animals, goats too need shelter to protect them from cold, wind, rain or bad weather. Goats are afraid of rain and they are very susceptible to respiratory diseases, especially the young ones<sup>16</sup>. Thus, in any farm condition, it is very economical to provide housing for goats.

From the data gathered, the majority of the respondents (68.3%) had temporary housing which is made up of nipa and bamboo, 6.9% had semi-permanent housing which is made up of wood and galvanized roofing, and 22.8% had no housing before the CD tool. After the CD tool, all of the respondents have provided housing for their goats. Still, the majority (50.1%) have temporary housing, though this represents a decrease of 18.2%. On the other hand, 42.6% of the respondents have semi-permanent housing which represents an increase of 517.4%. Respondents with permanent housing were 6.9%.

On the other hand, mean heads sold per year significantly increased as a result of increase of stocks in the farm and decrease in mortality after CD. An increase of 100% in number of heads sold per year is a considerable contribution of goat production to the farmer's over-all source of income. There was a significant increase of yearly net income by 278.45% from the sales of goat. The increase of net income also can be explained by the increase of weight at 8 months old. This implies that smallhold goat production can be profitable, and likewise that it can contribute to the economic growth per household and of the community as a whole.

#### **4. Conclusion**

Results showed that production and productivity of goat significantly increased. Weight at 8 months old increased by 34.53% while total mortality rate decreased by 59%. It was also found out that there was a gradual change in the existing population of breeds of stocks in the farm from native, upgrade and crossbreed in four years time. Results suggest that undergoing such season long farmer school contributed to the development of farmers' capacity in goat production. In addition, annual net income derived from sales of goat increased by 278.45%, which implies that CD also contributed to the improvement of welfare of farmers. On the

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(<http://kambing.sch.ph/doku.php/breeds/boer>).

<sup>11</sup> D. Junco in his report, "There is money in goat raising." PhilStar.com, August 1, 2010.

<sup>12</sup> DA-RFU I. 2009. Livestock Section, Annual Report.

<sup>13</sup> Goat meat

<sup>14</sup> F. Panhwar in her study, "The common diseases of goats, their symptoms, treatment, and methods used in Sindh-Pakistan." <http://www.goatworld.com/articles/health/commondiseases.shtml>. Accessed November 3, 2011.

<sup>15</sup> ACIAR in the "Impact Assessment Fact Sheet" on goats in the Philippines and other South-East Asian countries, Impact Assessment Series 57, August 2009.

<sup>16</sup> P. Barcelo in her 2007 lecture paper, "Goat Health Management, Trainer's Training".

other hand, results show that the acceleration of livestock technologies can also be a threat to the existence of native goat in rural household livestock activities. It is also important that development planners and think-tanks should also take into consideration the importance and conservation of existing genetic resources when promoting programs and projects geared towards development.

### References

- ACIAR. "Securing a goat industry for the Philippines." Series 57 Impact Assessment Fact Sheet, August 4, 2009. [http://aciar.gov.au/files/node/11229/IAFS04\\_Goats.pdf](http://aciar.gov.au/files/node/11229/IAFS04_Goats.pdf) Accessed September 13, 2011.
- Alo, M. 2005. Lecture paper during the intensive training course for FLS-IGM implementers, CLSU, Philippines.
- Barcelo, P. 2007. "Goat Health Management." Lecture paper during the Trainer's Training on Goat Production, Sta. Barbara, Pangasinan, Philippines, p. 4.
- "Breeds: Boer." 2009. <http://kambing.sch.ph/doku.php/breeds/boer> Accessed October 10, 2011.
- "Breeds: Philippine native." [http://kambing.sch.ph/doku.php/breeds/philippine\\_natives](http://kambing.sch.ph/doku.php/breeds/philippine_natives) Accessed August 17, 2011.
- Cruz, E. 2005. "Breeds and breeding." Handout for lecture during the Training of Trainers, CLSU, Philippines.
- DA-RFU I. 2008. Livestock Report.
- DA-RFU I. 2009. Livestock Report.
- DA-RFU I. 2009. Livestock Section, Annual Report.
- FAO. 2009. "Livestock in the balance." <http://www.fao.org/docrep/012/i0680e/i0680e.pdf> Accessed September 19, 2011).
- Junco, D. 2010. "There is money in goat raising." PhilStar.com. <http://www.philstar.com/Article.aspx?articleId=598521&publicationSubCategoryId=77> Accessed October 20, 2011.
- "Livestock development." PCARRD. 2004. FLS-IGM guide handout, p. 5. <http://siteresources.worldbank.org/INTARD/214578-1112681119394/20434025/LivestockDevelopmentFactsheet.pdf> Accessed August 11, 2011.
- Miller, D. and Vermont, D. "Characterization of the 'Native' goat." <http://moa.gov.jm/Research/data/Goat%20Research/Characterization%20of%20the%20Native%20Goat%20Revised%202007.pdf>. Accessed October 9, 2012.
- Panhwar, F. 2005. "The common diseases of goats, their symptoms, treatment and methods used in Sindh–Pakistan." [http://www.goatworld.com/articles/health/common\\_diseases.shtml](http://www.goatworld.com/articles/health/common_diseases.shtml) Accessed November 3, 2011.
- QSR International. 2011. "What is qualitative research?" <http://www.qsrinternational.com/what-is-qualitative-research.aspx>.
- Woodley, A. 2004. Commonwealth of learning. Module A3: Getting and analysing quantitative data. <http://www.col.org/resources/publications/Pages/detail.aspx?PID=347> Accessed November 4, 2011.