EVALUATION OF THE PHILIPPINE LIVESTOCK-POULTRY INFORMATION and EARLY WARNING SYSTEM PROJECT

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Abstract: The lead implementers of the Livestock Poultry Information – Early Warning System (LPI-EWS) project recognized the need to identify the strengths and weaknesses of the project, to further enhance the appropriate methodologies developed for a more responsive early warning system for broiler meat and pork to be properly guided in their planning and policy decision–making. The evaluation focused on the project's strengths or weaknesses in terms of how it was able to achieve its set objectives, that are: to enhance network and access of unified data holdings within and among Department of Agriculture (DA) livestock agencies and statistical agencies, as well as its effectiveness in strengthening linkages with the private agribusiness sector (PABS), and with regards to the goal of capacity building and target publications. The relevance of the project is recognized, both by the personnel from the collaborating agencies as well as the PABS. The concept and manner by which the project is being implemented is commendable in that its many components and objectives were all touched simultaneously by the different activities conducted. The project was able to enhance network and access of unified data holdings within and among DA livestock agencies and had strengthened linkages between the government and the PABS. Goals with regards to capacity building and target publications were also achieved. At the national level Situation and Outlook for Broiler and Situation and Outlook for Swine are quarterly published and at the subnational level the Situationer Report for Broiler and Situationer Report for Swine are now being produced in the Batch I Regions III, IVA and X.

Keywords: Livestock; early warning system; agriculture

1. Introduction

The Metadata for National Agricultural Statistics of the Philippines during its 1st edition described the country's livestock statistical system at the Bureau of Agricultural Statistics (BAS) as "one of the weakest spots in the agricultural data system" (BAS, 2007). This was during the 1980's when issues and problems on adequacy, reliability and timeliness of information on livestock and poultry affected the subsector. As mentioned also in the 2nd edition of the report (BAS, 2009), the capability of BAS to "efficiently and adequately" respond to the subsector's data requirements was due to several identified reasons, one of which was the lack of coordination in the data system of livestock and poultry agencies and institutions.

To address the above issues, some improvement measures were undertaken (BAS, 2007, 2009 and 2013). Projects involving the Bureau were launched such as (1) the 1991 US Agency for International Development (USAID) grant "Statistical Develop-

ment and Analysis in Support of the Agribusiness Sector (SDASAS)" which provided high priority to the improvement of statistics on chicken (layer and broiler) and swine, (2) the 1992 "Livestock and Poultry Enterprise Survey (LPES)" which updated and built List Frames of commercial livestock and poultry farms, (3) the 1992 BAS – National Meat Inspection Service (NMIS) networking on slaughter statistics project which was a collaboration between the two agencies on data collection, compilation and summarization of data up to validation and data sharing, and (4) the 1992 redesigning of the Integrated Animal Survey (IAS) into the Backyard Livestock and Poultry Survey (BLPS) onwards.

With all the above undertakings however, still, the highly erratic production and supply of broilers and hogs during those same years (1990s) led to unstable prices, and with the adoption of hybrid grandparent stock (GPS) and parent stock (PS) by broiler integrators, production efficiency and marketable broilers were also affected.

Indeed, the management of the livestock and poultry sector is a huge challenge to the Department of Agriculture. Although the BAS serves as the official source of statistics on agriculture, other agencies were also collecting and keeping pertinent records of information on the industry which can also be accessed by stakeholders. The PABS in some instances allegedly had accessed inconsistent data on the same type of information from at least two agencies/sources. Thus, the need to unify data holdings, the need to enhance data exchanges and access, in addition to the need to improve data collection, organization and management among these agencies should also be addressed.

The development of an early warning system for the sector in different turn of events had started to address the problems described above. As early as 1993, there were already efforts from BAS to study statistical methodology on forecasting production of broiler and swine. It was also mentioned in BSI-EWS I terminal report that in 1996, the Bureau has already developed a "Life – Cycle Model" (LCM) to forecast broiler production and through regression analysis, to forecast hogs slaughtered. The LCM made use of the GPS and PS as input variables. In developing these models, there was also information that BAS needed to obtain from other agencies as well as from the private agribusiness sector.

In 2001, the then Statistical Research and Training Center (SRTC, now PSRTI) provided project funds to BAS to undertake the project entitled "Early Warning System for Agricultural Commodities" which covered selected crops like palay, corn, coconut, and also broiler, swine and chicken eggs (BAS, 2004; Yanson and Ramos, 2010). Yanson in 2005, a DA fellow from BAS conducted the study "Managing Supply and Demand Balances of the Broiler Industry through an Early Warning System."

The need of an Early Warning System for the industry was recognized. However, to develop this system, several agencies should be involved requiring the collaboration among these agencies, including the support of the local government specifically the Provincial/Municipal Veterinarians and the Private Agribusiness Sector as well. Further, developing an early warning system needs the conduct of research and training of personnel from these agencies on forecasting model development.

Thus in 2006, the Department of Agriculture through its National Livestock Program (NLP) provided funding support to BAS and the Early Warning System Project came into being. The project started as the Broiler and Swine Information and Early Warning System (BSI-EWS) during its first three years, and was converted to the Livestock and

Poultry Information and Early Warning System (LPI-EWS) project. Currently, the project is being replicated towards the subnational level as the Regional Livestock and Poultry Information and Early Warning System (RLPI-EWS) project, where Batch I set of regions comprises Regions III, IVA and X.

The Philippine Republic Act No. 10625 in 2013 reorganized the National Statistics Office (NSO), Bureau of Agricultural Statistics (BAS), together with the National Statistics Coordination Board (NSCB) and the Bureau of Labor and Employment Statistics (BLES) into one agency that is the Philippine Statistics Authority (PSA), to strengthen the country's statistical system. From here onwards, BAS will be referred to as PSA(BAS) in the paper.

The BSI / LPI-EWS Project

The project is geared on enhancing national and sub-national livestock and poultry databases towards the generation of food security early warning indicators. Its core components are: a) data generation, b) data organization, c) data analysis and forecasting, and d) dissemination of products.

The project conducted the following intervention activities to achieve its goals:

Coordination and Collaboration. Involved in the project are the Department of Agriculture RFUs, PSA (BAS), NMIS, DA-Agricultural Marketing Assistance Services (AMAS), Bureau of Animal Industry (BAI), Livestock Development Council (LDC), PSRTI (SRTC), LGUs, PABs as well as the academe (Professors from the University of the Philippines) and research institutions.

Establishment of Broiler and Swine Information and data base system. Existing data bases of the different agencies were organized, updated and enhanced in terms of format. New databases were established especially those coming from other statistical agencies and PABS.

Research. A sub-project was conducted with the aim of improving the Backyard Livestock and Poultry Survey methodology. Sampling experiments were performed using Census 2002 and APS/LPS data as frame. Results were used as bases for design recommendations for national implementation.

Trainings and Workshops. To develop forecasting tools, series of trainings and workshops were conducted. The PSRTI contracted professors from the UP School of Statistics to serve as resource persons and trainers.

Development of Forecasting Models. During the project implementation from 2006 onwards, forecasting models for broiler and swine were continuously enhanced as new variables were included and forecasting methods were compared.

Extension of the project to the subnational level. The project's concepts and strategies were gradually replicated/rolled out in the regions in batches of several regions each. Batch 1 (2010): Regions III, IVA, and X, Batch 2 (2011): Regions VI, VII and XI; Batch 3 (2012): Regions I and XII; Batch 4 (2013): Regions II, V and VIII; and during the conduct of this project evaluation, the remaining Regions were briefed of the project concepts in 2014: Regions CAR, MIMAROPA, IX, Caraga and ARMM.

Zroduct Dissemination. A product of the project are the publications of the Situation and Outlook (S&O) Report for Broiler and Swine at the national level, and the Situation Reports of Broiler and Swine at the regional level. EWS Webpage was also set up.

The evaluation focused on the project's strengths or weaknesses in terms of how it was able to achieve its set objectives, that are: to enhance network and access of unified data holdings within and among DA livestock agencies and statistical agencies, as well as its effectiveness in strengthening linkages with the private agribusiness stakeholders, and with regards to the goal of capacity building and target publications. The evaluation sought to (1) determine the effectiveness of the project particularly for EWS Batch 1 Regions (III, IVA and X) in its previous activities to achieve its goals; and (2) document / review past activities of the project with regards to the National EWS to come up with recommendations on the project's improvement, focused on regional expansion. The evaluation of the forecasting models developed by the project and the performance of the project against its set budget were not covered.

2. Method

The design of the evaluation is non-experimental. Data were collected during subnational LPI-EWS meetings in Regions III, IVA, and X, during a national level LPI-EWS meeting, and an arranged meeting with PABS at PSRTI through survey questionnaires, focus group discussions and key-informant interviews. These meetings were attended by personnel involved in the project from participating local government units, provincial and regional collaborating agencies, and the latter by several PABS companies. Thus, data were collected in three levels: provincial, regional and national. No sampling was performed in the selection of respondents for the questionnaires, that is, all participants during the meetings served as respondents. Respondents were asked to recall activities of their respective offices/units before the implementation of the BSI-EWS (before 2006), during the BSI-EWS (2006-2009), and during the LPI-EWS period onwards (2010 and after). A total of 44 respondents from the different collaborating agencies made it to the respondents' list, while 5 participants came from the PABS.

Inventory of available documents of the project's conducted activities was also performed. Pertinent EWS documents were provided by the PSRTI, PSA(BAS) and Department of Agriculture Regional Field Units (DA-RFUs). An inventory of activities based on these reports, minutes and proceedings was done as support to the extent of the project's performance against its stated four components, namely: *Data generation, Data organization, Forecasting,* and *Dissemination* of reports and publications, and to include as well, *Capability Building*.

Data collections were conducted during EWS Regional Meetings. The Region IVA meeting however was for the discussion of the Administrative Order 27 and was attended mostly by local Meat Inspectors rather than by personnel involved on the LPI-EWS project. During this gathering, only three participants of LPI-EWS collaborating agencies present were included as respondents, one of which was also chosen as Key Informant to the survey. The documents evaluated were limited to the materials that were provided by the project.

3. Results and Discussion

3.1. Performance Against the Project Objectives

3.1.1. Extent to which the project was able to enhance the L&P data system in terms of collection methodology of primary data and improved collection and compilation of administrative-based data from other regulatory agencies under the DA and from the Local Government Units (LGUs).

The LGU level - ProVets and the PSA(BAS) provincial offices are both at the lower level along the flow of data towards the regional and national levels. These offices are the ones responsible in collecting and organizing information from the municipal level offices, and the feedbacks coming from them are very important as the changes in the data system can be felt strongly at their level.

The PSA(BAS) provincial offices (POs) have always been the source of data (100% participation during the three evaluation periods of the LPI-EWS project). On the other hand, the involvement of the ProVets group was observed to increase by 32.2% (from 64.29% to 85.71%) from periods before 2006 to the BSI-EWS period, then finally reaching 100% during the LPI-EWS period onwards (Figure 1).
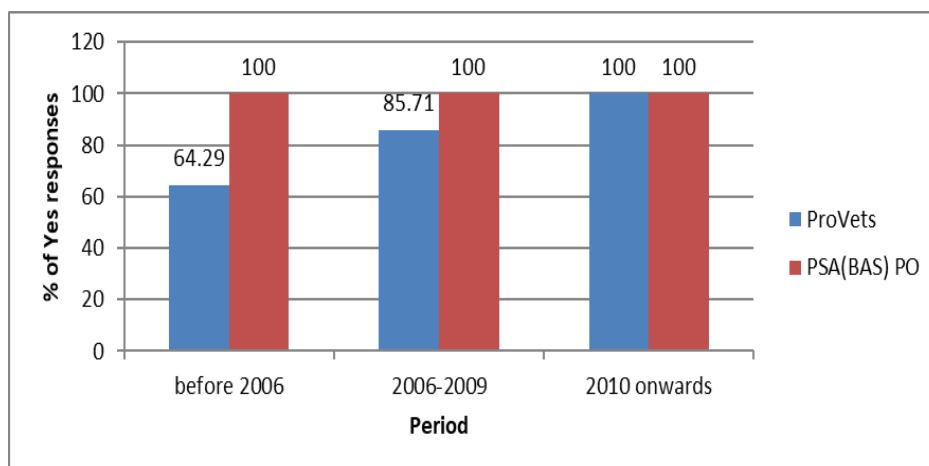
Figure 1. Percent of Offices/units providing data to higher level DA office.

There was also increase towards the use of e-copy by PSA(BAS) POs in submitting data from their respective units to higher level DA/PSA(BAS) offices (Figure 2). Together with the increase in participation of the ProVets was also their use of soft copy submission to DA/PSA(BAS) offices.
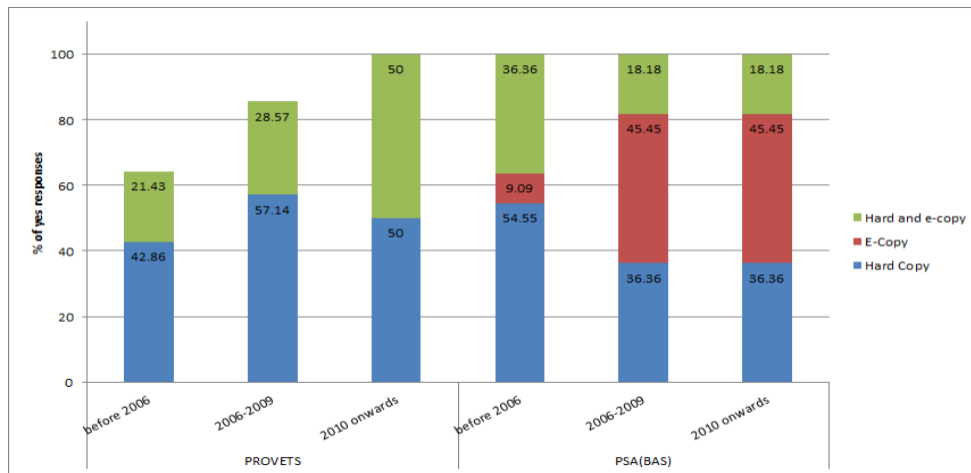
Figure 2. Form of data submission from one's unit office to higher DA/PSA(BAS) offices

The same direction in changes on manner of record keeping by these unit offices can be observed (Figure 3). The ProVets' practices showed changes toward the use of computer filed records, while the PSA(BAS) unit offices were toward the use of computer filed organized data bases.
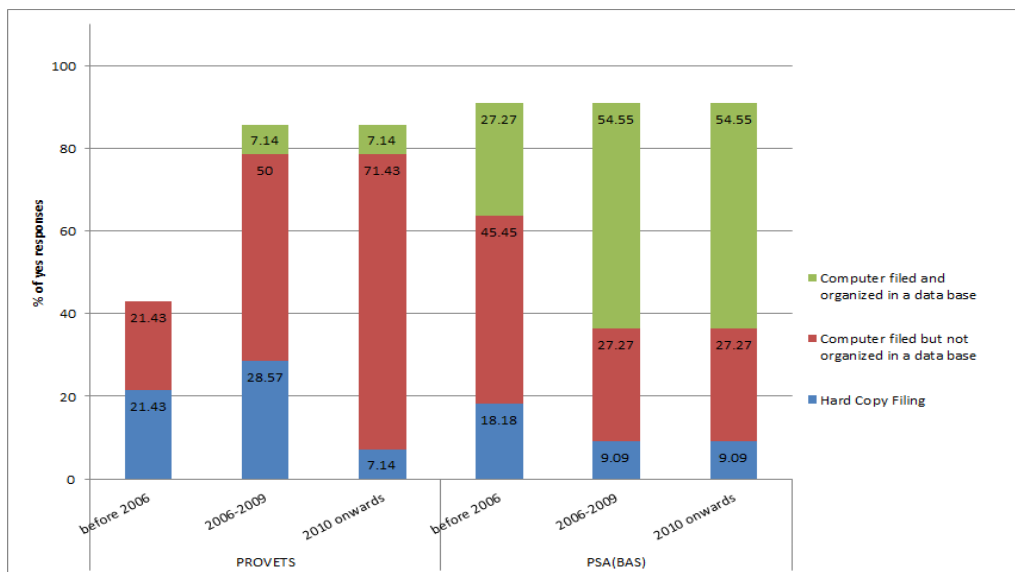

Figure 3. Filing method used by unit office before 2006, 2006-2010, and 2010 onwards

Figure 4 and Figure 5 revealed the extent of the observed increase in data items and transactions with other offices as well as the recognized relevance and improvements brought by these changes among the participants. Higher percentage of ProVets (78.57%) felt increase in data items collected while the results showed higher (54.55%) PSA(BAS) respondents perceived increase in transactions with other agencies within the region. The latter is accompanied by higher percentage of respondents (54.55%) who perceived that the changes are important. Among the Provet respondents, 57.14% acknowledged the changes as relevant and 42.86% as an improvement to the Livestock

and Poultry (LP) data system. The changes due to the project were deemed relevant and important by the same percentage of respondents from the PSA(BAS) group (Figure 6).
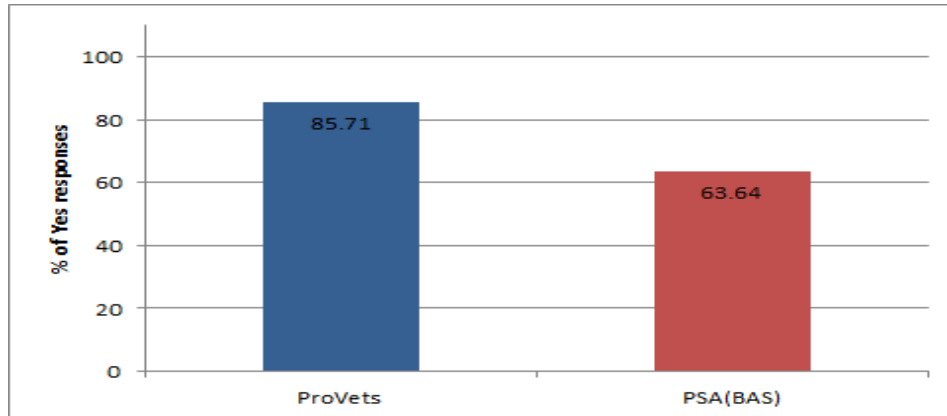
Figure 4. Have observed changes in data exchanges among unit offices and other DA regulatory agencies
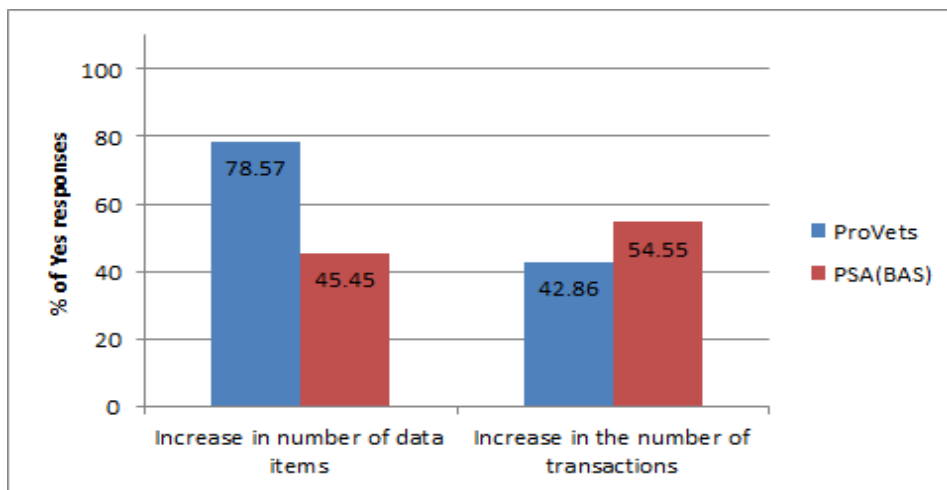
Figure 5. Type of observed changes in data exchanges among unit offices and other DA regulatory agencies.

The ProVet respondents who did not answer yes to the changes as improvements specified the needs for additional manpower, equipment and mobility services for efficient collection of primary data required by the project.
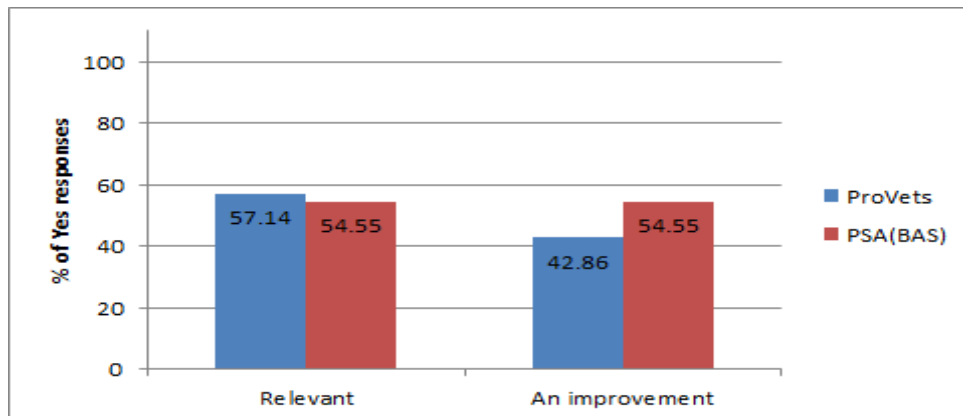
Figure 6. Relevance and Importance of the observed changes in data items and exchanges

3.1.2. Extent to which the project was able to enhance organization and compilation of data and information at the national and sub-national from all sources, that includes administrative-based data generated out of the regulatory function of agencies such as NMIS, DA-RFUs and LGUs, among others.

Shift in filing method practices were observed from the traditional use of hard copy towards the use of at least computer filing (81.25%), majority (56.25%) of which indicated the current practice of computer organized data based filing among these offices (Figure 7). These went along with observed increase in data items collected and more transactions with other collaborating agencies according to 78.95% of the respondents. The changes observed are relevant according to 68.42% of the respondents and an improvement to the system according to 42.11%.

The respondents who did not answer yes to the changes as improvements have the following suggestions: LPI-EWS forms should be short and simple, and further, as expansion sits in, there should also be increase in assistance in terms of man power, vehicle and communications system as well as financial support.
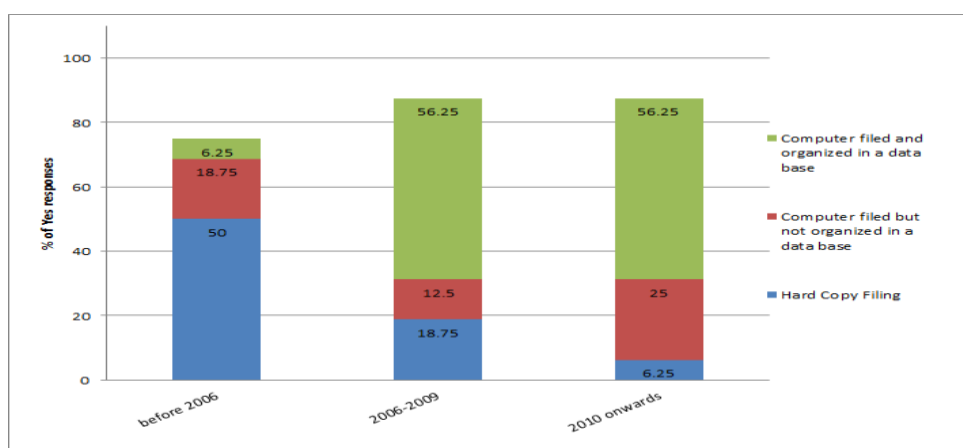

Figure 7. Filing method used before 2006, 2006-2010, and 2010 onwards at the respondent regional offices.

3.1.3. Extent to which the project was able to enhance network and access of unified data holdings within and among DA livestock agencies and among the statistical agencies (NSCB, NSO and National Economic Development Agency (NEDA)) especially in the regions.

The condition of non – unified data holdings within and among DA livestock agencies and among statistical agencies (NSCB, NSO and NEDA) at the national and subnational levels are due to the seemingly separateness or disaggregation resulting to difficulty of access to data and connection between and among these agencies.

Appreciation Seminars on Livestock and Poultry Data Systems conducted during BSI-EWS period were participated by the different agencies on livestock concerns. The events aimed "to forge common understandings and appreciation of the value of livestock and poultry statistical information by all stakeholders, the producers and users of these statistics". These seminars also intended "to preclude a series of inter-agency collaborative efforts wherein the establishment of regional databases will be discussed and agreed upon for implementation."

At the regional level, among the collaborating agencies, the DA-RFO key informants reiterated that the same data items actually were already being collected before by different offices but are not as organized. The project has harmonized data holdings of the different agencies. Before the release of official figures now, the different offices meet and agree on the values that are to be included in the Situationer Report for Broiler and Swine, a publication of the project.

3.1.4. Extent to which the project was able to strengthen linkages with the private agribusiness stakeholders at the national and sub-national levels through access and exchange of information.

Through the Livestock and Poultry Statistics Division (LPSD) of PSA(BAS) Central Office (CO), the LPI-EWS project was able to send copies of the S&O on Broiler and Swine publications to the PABS companies identified as major collaborators in the project. At the national level, selected PABS companies are included in the project's Memorandum of Agreement (MOA). Their tasks are to provide information and give feedbacks with regards to the forecasting models for Broiler and Swine. The PABS were also participants to the first two training courses conducted during BSI-EWS period.

Since the implementation of the BSI-EWS, PABS respondents have observed increased frequency in transactions, exchanges and access in information between their companies and PSA(BAS)/DA regulatory offices. One further commented having changes such as "adjustments in data after consultations."

The fact that PABS are benefited by the project is fully recognized. After learning of the publication's S&O figures for instance, they can perform interventions to aid their company's goals. The government on the other hand is usually not informed or unaware of the interventions executed by the PABS. The flow of information towards the government to this effect should be cleared up for appropriate policy making purposes. There were already transactions between PABS and PSA(BAS) and DA regulatory units even before the BSI-EWS project implementation. These companies provide the government suggestions/process improvements (say assistance in definition of terms), and other information such as live prices, performance and supply from their

companies. In return, they also request information such as imports and frozen inventory and production prices from concerned statistical agencies. One respondent indicated having transactions also with regards to industry problems and directions.

3.1.5. Extent to which the project had contributed to capability building through trainings for PSA(BAS), RFO, LGU staff and other member agencies on statistical activities like data collection, data analyses, forecasting and report writing

In a scale of 1 – 5, 5 being the highest, the respondents were asked to rate the training activities conducted by the LPI-EWS project. Twenty seven of the 44 participants who have either attended or have received feedback from those who have attended these trainings from their offices, responded. No less than 20 (74%) respondents gave a rating of at least 4 (VG) on the quality, theoretical content, and usefulness of the trainings, while overall satisfaction was given a rating of at least 4 (VG) by 18 (66.67%) respondents. All ratings were at least 3 (G). The overall mean ratings of the different characteristics were within the very good description.

Table 1. Rating distribution and descriptive statistics on the quality, theoretical content, usefulness and overall satisfaction on the trainings conducted by the LPI-EWS project.

RATING	QUALITY		THEORY		USEFULNESS		SATISFACTION	
	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
3 (Good)	5	18.52	7	25.93	7	25.93	9	33.33
4 (Very Good)	17	62.96	13	48.15	16	59.26	15	55.56
5 (Excellent)	5	18.52	7	25.93	4	14.81	3	11.11
Total	27	100.00	27	100.00	27	100.00	27	100.00
Mean	4.00 (VG)		4.00 (VG)		3.89 (VG)		3.78 (VG)	
SD	0.62		0.73		0.64		0.64	

Legend for the mean:
1-1.80 Very low (VL)   2.61-3.40 Good (G)
1.81-2.60 Low (L)   **3.41-4.20 Very Good (VG)**
4.21-5.00 Excellent (E).

3.1.6. Extent to which the output publications of the project provided Situation and Outlook on Broiler and Swine information

Results showed that twenty (45.45%) of the 44 respondents shared the S&O or the Situation Report for Broiler and Swine to other stakeholders. For instance, ProVets shared the Situation Report on Broiler and Swine to the Municipal/City Veterinarians as well as to graduate students who are conducting researches.

The PABS likewise signified receiving copies of the S&O Report every time there is publication, which agrees to the statement from LPSD PSA(BAS) of sending these PABS companies copies of the publication by email on every issue and distributing hard copies of the same during Task Force on Price and Volume Watch meetings.

The PABS respondents also shared the publication to the members of their corporations/union. Those whom they have shared the publications were appreciative of the product. They have commented that information derived from these publications will improve accuracy of their projections and are essential for planning and computing production share relative to total industry.

Table 2. Overall Benefit of the Project to the Livestock and Poultry sector

RATING	REGIONAL / NATIONAL N=19			PROVINCIAL N=25			COMBINED N=44		
	Frequency	Percent	> Cum Percent	Frequency	Percent	> Cum Percent	Frequency	Percent	> Cum Percent
5				1	4.0	72.0	1	2.3	75.0
7	1	5.3	78.9	1	4.0	68.0	2	4.6	72.7
8	2	10.5	73.6	8	32.0	64.0	10	22.7	68.2
9	5	26.3	63.1	5	20.0	32.0	10	22.7	45.5
10	7	36.8	36.8	3	12.0	12.0	10	22.7	22.7
Valid Mean	9.2			8.4			8.8		
SD	0.94			1.20			1.15		

In a scale of 1-10, 10 being the highest, the respondents from the collaborating agencies and the PABS were asked to rate the project. The mean rating of the scores obtained from the PABS' is a moderate 6 (SD = 1.41) accompanied by the following comments: The agency (*referring to PSA(BAS))* will need more cooperation from industry players to gain more accuracy in forecasts thus more relevancy and credibility; Improvements: analysis, significance of the project to the government; Good point: we(PABS) can now see the overall scenario of the industry in terms of production, and we can measure on where we are now versus global hog industry.

On the other hand, more than half (68.1%) of the respondents from the government gave the project scores of at least 8 resulting to an overall mean of 8.8 (SD = 1.15).

3.2. *Performance Against Project Components, founded on The Inventory of Activities based on Documents.*

An inventory of documents was performed to further describe the extent of the LPI-EWS performance and accomplishments against the project's stated components. Documents used were the project's memorandum of agreements, completion reports, minutes of meetings, and copies of presentations. The Accomplishment Reports were used in summarizing the development and enhancement of the forecasting models produced by the project.

Memoranda of agreement showed that each project phase spanned around an effective coverage of one year. The bulk of documents provided for evaluation basically covered the period from 2007 to 2012.

Table 3. BSI / LPI -EWS effective contract dates.

PHASE	EFFECTIVITY From	To	YEAR
BSI-EWS I	16-Oct-06	30-Jun-07	2007
BSI-EWS II	Dec 1, 2007	Dec 31, 2008	2008
BSI-EWS III	Dec 1, 2008	Jan 31, 2010	2009
LPI-EWS I	Sept 1, 2009	Dec 31, 2010	2010
LPI-EWS II	Jan 1, 2011	Dec 31, 2011	2011
LPI-EWS III	Dec 15, 2011	Dec 15, 2012	2012

3.2.1. Data Generation and Data Organization
a) Workshop on Preparation of Provincial Database for Livestock and Poultry

To start with, it was noted that PSA(BAS) conducted activities leading to the enhancement of the Livestock and Poultry database before and during the implementation of the project. Records show that workshops at the regional/provincial levels was held on February 2, 2006 at Region IVA and during BSI-EWS I, at Regions XI and XII on February 13-14, 2007. In these occasions, participants were trained on validating and reconciling provincial data of swine, chicken and chicken eggs, cattle, carabao, goat, duck and duck eggs. Another activity in these workshops was the ranking of provinces according to production of livestock/chicken/egg types.

b) Appreciation Seminars on Livestock and Poultry Data System

The Appreciation Seminars during BSI-EWS-I were conducted in Regions X and XI, while during BSI-EWS-II, the same activities were held in Regions V, and III and IV. As mentioned earlier, these seminars were participated by agencies on livestock concerns: Central and/or Regional Offices of PSA(BAS), LDC, DA, NEDA, NSO, NSCB, NMIS, BAI, and National Dairy Authority (NDA), and as well as LGU Provincial/City Veterinary Offices (PVO /CVO) and Provincial Agriculture Office (PAO) and at one time, also by the Philippine Carabao Center (PCC). The events' aim was "to forge a common understanding and appreciation of the value of livestock and poultry statistical information by all stakeholders, producers and users of these statistics".

c) Agri-Business Expectation Survey (ABES)

Aside from the Consultation Meetings conducted with the PABS, collaboration with the sector is made possible by PSA(BAS) through the Task Force on Price and Volume Watch meetings which turned out as the venue for the conduct of the Agribusiness Expectation Surveys (ABES) from which are derived information that are important and used by the project to validate the results of its forecasts. As reported on record, the ABES which started in June 2012 (LPI-EWS year 3) is conducted every quarter along with the releases of the S&O publication to the sector.

d) Pilot Survey on Broiler Production in Commercial Farms in Regions I, III, IVA, and X

The report included in the BSI-EWS III documents mentioned that the first run of the pilot survey on Broiler Production in commercial Farms was conducted during July 2008 in Regions III and 4A, the second run during January 2009 which also included Region X, and the third was on April 2009, further including Region I. These activities are part of the Data Generation improvement component of the project.

e) BLPS Improvement

During BSI-EWS III, the project dealt with the improvement of the PSA(BAS) Backyard Livestock and Poultry Survey (BLPS). Sampling experiments using Census 2002 and Avian Population Survey / Livestock Population Survey (APS/LPS) data as frame was performed. In summary, the activity report stated that the Census 2002 which included only a sample of all barangays nationwide is comparable to the APS/LPS

which completely enumerated all barangays through key informant interviews. The final research output dated January 2013 discussed the activities for the improvement of the BLPS. The pilot survey's list of activities covered the following: (1) data capture and questionnaire design, (2) listing of households, (3) drawing of sample barangays and sample households, and (4) data processing and generation of output tables. Results are to be used as bases for recommending a design for national implementation.

f) Consultation Meetings with the PABS

Several consultation meetings with PABS were conducted. These meetings were the venue for the presentation of forecasting models, dissemination of the S&O publications and solicitation of feedbacks from the sector.

g) National Consultation Meeting

The National Consultation Meeting held on October 8-9, 2008 during BSI-EWS II was attended by different agencies such as NMIS, NSCB, NEDA, LDC, GMA-Livestock, DA-RFUs, PSA(BAS)-RASOs and selected PSA(BAS) CO personnel, while the National and Regional Steering Committee Meeting on December 15, 2009 during BSI-EWS III was held specifically with the officials and staff from regional units of DA and PSA(BAS). For the latter event, the proceedings reported having tackled the S&O publication and the production of Regional Situation Reports for the three regions (III, IVA and X).

h) Regional Statistical Handbook

The Statistical Handbook was prepared by constituents of the EWS project in Region X. Based on record, present during the consultative forum on Statistical Handbook were personnel from PSRTI, PSA(BAS) CO, PSA(BAS)-X, DA-X, DA-RFO X, AMAD-X, DA-BAI, P/CVO, and representatives from the PABS namely Agri-Chamber, SMF Magnolia, SMFI, and Vista Del Rio Farm.

The December 2014 Accomplishment Report of DA-RFO III likewise mentioned that the Statistical Handbook for Region III on data series 2005-2011 was ready for printing.

i) Manual of Operations

A Manual of Operations was printed in June 2010 (LPI-EWS I). This publication is a joint undertaking of PSA(BAS), NMIS, P/CVO and DA in Region X.

j) Updating / continuous updating of data holdings

Terminal reports of BSI-EWS I, II and III showed additional data series included in the variables needed for forecasting. Continuous updating was reported in all phases, and regional database updating and enhancement activities were cited as well starting from BSI-EWS II (2008).

3.2.2. Forecasting
a) Consultation Meetings on Modeling

Frequent consultations on modeling were conducted from the first phase of the BSI-EWS towards the LPI-EWS years. Improvement/enhancement of the models continued

during the years as new variables were decided to be included in the model, and different strategies were compared to arrive at a better forecasting model each time. A group of modelers was assigned for broiler and another group for swine. The groups meet separately and together for consultations with the experts Dr. LGS Bersales (BSI-EWS I – III, LPI-EWS I) and Dr. D. Mapa, assisted by Prof. ML Albis (LPI-EWS II - III), and for presentations and evaluation together with the Steering Committee, other agencies, and PABS.

b) Development and Enhancement of Forecasting Models

Before the implementation of the project, PSA(BAS) was using the Life Cycle Model and a Regression Model to forecast broiler and hog production respectively. These models were revisited first before enhancements were introduced to both, and at the same time, models for demand and supply were also developed. In each phase of the BSI and LPI periods, the production, supply and demand forecasting models both for swine and broiler had undergone either changes in variables incorporated in the model, change in type of model, or parameter estimates were updated in the model. Corn production model was also developed in 2008.

c) Alternative Forecasting Method

The survey-based modeling training course was conducted at the national level and at Regions IVA, X and VI. The 2015 Work and Financial Plan for Region III does not include this course in the list of courses to be conducted. As one of the Batch 1 regions, this course can be added as one of the courses in the proposed list.

3.2.3. Dissemination
Dissemination of Products and Services.

The main outputs or products of the project are the Situation and Outlook (S&O) Publications at the National level, the Situationer Report at the Sub-national Level, and the EWS Webpage. The National Level S&O production started in 2007 and was then quarterly produced. The Situationer Reports are Regional level publications with the pilot regions' reports started in 2009. The project also aims for Subnational/Regional level S&O publications. The Project's Webpage Layout plan was developed and presented during BSI-EWS-I (2007). Then during BSI-EWS II, the webpage was reported to having included several main hyperlinks such as About the BSI-EWS, EWS Updates, Database, and 9 more other main links. BSI-EWS III reported further enhancement of the webpage, while during the LPI-EWS', the S&O's were reportedly uploaded. However, access to the webpage was selective (only for concerned agencies). Information on the overview of LPI-EWS, rationale, framework, composition and directory of involved government officials can be obtained from the webpage. S&O publications can also be downloaded from it.

3.2.4. Capability building
Trainings

The reported self-evaluation results in one of the trainings, specifically the *Training-Workshop on Forecasting using single Equation Models and System of Equations Models* showed that the participants' self-assessment with regards to their pre and post

training average rating differences on the different topics were all positive, favoring towards gain in self-assessed knowledge. The evaluation report concluded training is successful in terms of the satisfaction of the participants in their perception on knowledge gained, their relationship with the resource speakers, co-participants and training coordinator, and the general organization of the training program as a whole.

3.2. Regional Expansion

The effort to replicate the EWS project to the regions started in 2008. The first batch composed Regions III, IVA and X. First, appreciation seminars on Livestock and Poultry were conducted, followed by organizational meetings held to introduce EWS concepts, layout work plans and identify expected regional outputs, and then trainings and consultative meetings were conducted. The first Situationer Reports Volume 1 Number 1 each of Regions III, IVA and X were for the December 2009 issue.

The LPI-EWS Terminal Reports indicated activities for expansion to other regions. As of February 2015, DA-RFO III had started its RLPI-EWS plan of activities: schedule of consultative meetings and trainings, and financial plan. The inventory of trainings conducted includes those which were held in the other regions other than Regions III, IVA and X.

3. Conclusion

The involvement of the ProVets in the L&P data system improved from before 2006, during the BSI-EWS period, and during LPI-EWS period. Together with the increase in participation is also their use of soft copy submission of information to DA/PSA(BAS) offices and changes toward the use of computer filed records. The relevance and improvements brought by these changes are well recognized.

There were changes in the filing method practices from the traditional hard copy towards the use of computer filing. This is accompanied with observed increase in data holdings and more transactions with collaborating agencies. The current practice of computer organized data based filing is indicated. These changes are recognized as relevant. Further improvements are suggested on the length and easiness of answering the LPI-EWS questionnaire, improved packaging, funding and technical support for the project.

The project has harmonized data holdings of the different collaborating agencies of the project. Specifically, now at the regional level, before information is released or published, these figures are being agreed upon through a consultative meeting among the different agencies.

The project has improved the transactions, exchanges and access of information between the PABS and PSA(BAS)/DA regulatory offices. Aside from the usual information from the government, PABS can also be informed of the projected broiler / swine production, supply and demand, and information for input in forecasting and as check to the forecasts. Two–way trust between the government and PABS is a continued challenge.

Results in a training evaluation favored towards gain in self-assessed knowledge after the activity. The trainings can be described as "very good" in terms of quality, theoretical content, usefulness and overall satisfaction of the participants. There is

clamor for refresher courses on the different statistical trainings especially for new personnel.

The PABS are provided copies of every issue of the S&O publication on broiler and swine while at the regional level, Situationer Reports are also published and distributed to local government units such as the ProVets who in turn also share the materials to the PABS, municipal veterinarians/agriculturists, students, and researchers. These recipients and those who were shared the publications showed appreciation of the product. The publications are said to be useful in planning purposes and provide stakeholders a picture of the total industry. However, two–way trust between the government and PABS is a continued challenge. The government is usually not informed or unaware of the interventions executed by the PABS at different situations of the livestock and poultry industry, thus current activities such as Consultative Meetings with the PABS and the Task Force on Price and Volume Watch meetings should be sustained. The flow of information towards the government to this effect should be cleared up for appropriate policy making purposes.

As the livestock and poultry data system is continuously enhanced through the project, accompanied by increased activities in terms of data collection and additional data series being maintained, corresponding appropriate support in terms of manpower, equipment and financial allocation is advised. The slight low rating with regards to the changes described as an improvement to the livestock and poultry data system may not be about the data system per se, but rather on the provision which accompanied the implementation of the project at the subnational level where the changes were impressively prompted.

Acknowledgement

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