

HOG INDUSTRY ROAD MAP (2017-2027)

1. TARGET SETTING (WHERE DO WE WANT TO GO?)

1.1. Industry Vision, Mission, and Goals

1.1.1. Vision

The industry has the following vision:

VISION STATEMENT

A sustainable and globally-competitive hog industry by the year 2027.

1.1.2. Mission

In response to the core challenge, the Hog Road Map has the following missions:

1. Modernize and restructure the production and post-production and marketing system to provide safe nutritious, affordable and accessible products to consumers;
2. Lift small producers from poverty and increase resiliency to climate change, and;
3. Provide opportunities for all segments in the value chain to modernize and be globally competitive.

1.1.3. Goals

In summary, the Hog Road Map sought to achieve the following:

1. Increased farm productivity
2. Reduction of cost of inputs
3. Modernized and restructured post-production and marketing system
4. Increased access to information and extension services of the smallhold farmers
5. Adoption of food safety regulations and standards
6. Improved animal health status
7. Established registry of market players (i.e. meat inspectors, butchers)

2. STRATEGIES AND POLICIES (HOW DO WE GET THERE?)

2.1. Action Programs and KRAs for the Hog Industry

The Philippines is one of the important markets for pork, and demand for meat is positively affected by population and income (Ompoy and Prantilla, 2013). According to the Worldometers estimation, the population of the Philippines reached around 100 M in 2015, and it is increasing at a rate of 2% yearly. About 22M of hogs are needed to satisfy our estimated 1.5M kgs. pork consumption. Hog requirement was calculated to be around 25M and 29.2M heads for 2022 and 2027, respectively. Our present per capita consumption of pork which is 14.9 kg. is expected to further grow. This necessitates the need to increase in the local production to meet the growing local demand, including the requirement of the processors. Given the much needed support from government, local producers can easily supply the pork specifications of the processors (e.g. compliance to food safety standards) so that the latter would not recourse to importation anymore.

Table 1. Baseline (2015) and forecasted hog requirement based on annual income and per capita consumption of pork of the Filipinos

Parameters	Baseline	Forecast	
	2015	2022	2027
Per capita consumption of pork (kg/year)	14.9	15.6*	16.4
Annual income (US \$)	3000	4000	5200
Hog Requirement (million heads)	22	25	29.2

* based on the OECD Forecast (i.e. 5% growth)

In 2016, total hog population was 12.47 M heads. Backyard and commercial farms accounted for 64% and 36% of the total hog population, respectively. Inventory from backyard farms was 7.95 M while population of hogs in commercial farms was 4.51 M. The hog stakeholders targeted that the population of hogs in the Philippines should increase by at least 10% from the present inventory of 12.47M to 13.72 M on the year 2027. At present, we have an approximately 1.6M sows and 35% of the inventory (i.e. 560,000 sows) were from commercial farms. Commercial farms must increase its sow level to match the production of the backyard farms after 12 years.

The following strategies were set to achieve this target. (Note: Summary of the proposed action programs for the government and private sector is presented in Table 5).

KRA 1: Increased farm productivity

It is the target of the Philippine hog industry to improve the productivity of hogs and they identified seven (7) technical parameters to enhance in the coming years: pig sold/sow/year (heads), feed conversion ratio (kg), average daily gain (g), mortality (%), sow index, sow feed/sow/year (kg) and the pig meat/sow/year (kg). Below are the technical targets of the hog industry for 2017-2022 period and the 2023-2027 period.

Technical Parameters	Baseline (2015)	2022	2027
Pig sold/sow/year, heads	18.8	25	30
FCR, kg	3.70	2.53	2.27
ADG, g	563	750	850
Mortality (%)			
1. Pre-weaning	9.3	5	5
2. Post-weaning*	5	4	3
• Nursery/weaner mortality	3	2.5	2
• Finisher/grow out mortality	2	1.5	1
3. Total herd**	3.2	2.5	2.5
Sow index	2.2	2.4	2.4
Sow feed/sow/year (kg)	1,052.26	1,048.52	1,048.52
Pigmeat/sow/year (kg)	1,757.80*	2,656.25**	3,544.50***

Table 2. Technical targets of the Philippine hog industry

* Computed at 110 kgs LW at marketing and 85% dressing percentage

** Computed at 125 kgs LW at marketing and 85% dressing percentage

*** Computed at 139 kgs LW at marketing and 85% dressing percentage

In order to attain the abovementioned targets, there is a need to modernize the hog farms in the country. Tunnel ventilation, farrowing crates, automated feeder, silos and watering systems, and the biogas for waste management are some of the advanced facilities and/or technologies available in big commercial hog farms. Not only the buildings and facilities must be restructured, but also their operation system. An 'all-in-all-out' production system and the use of artificial insemination (AI) in animal breeding are some of the contemporary techniques that can be replicated. More hog production farms, both commercial and smallhold, must be modernized to optimize the hog production in the country.

Research and development (R&D) programs that aim to improve farm productivity and efficiency must continue. More R&D on feed and breed development must be carried out since these are significant factors to enhance animal performances.

Government, private companies and agricultural SUCs must collaborate in doing the R&D.

Another action program identified is the intensification of artificial insemination (AI) through establishment of AI station per province. AI is more efficient and cost-effective in producing superior lines compared to natural mating. Semen that will be available in the AI stations will come from the SBFAP-accredited farms. It is ideal that all commercial and backyard farms source their breeders from SBFAP-accredited farms to make sure that they will be provided with quality semen.

Latest technologies in swine artificial insemination are also available in private breeding companies, while there are also an increasing number of AI centers owned by enterprising individuals. All the private-owned AI facilities must be modernized as their share in achieving KRA 1. At present, the Accredited Swine Breeder Association of the Philippines (ASBAP) has a project to publish all the genetic companies in the e-commerce, so that it will be easily accessed by farmers who are looking for good genetics.

There is also a need to mainstream the swine genomics application in animal production and health. At present, BAI houses the Swine Genetic Analytical Service Laboratory (SGASL), a major output of the “Private-Public Partnership (PPP) in the Application of Animal Genomics to Increase the Productivity of the Philippine Swine Industry”. DOST-PCAARRD, DA-BAI, PCC and the Animal Swine Breeders Association of the Philippines (ASBAP) collaborated in the conceptualization and implementation of the project. SGASL will offer the following services: 1) Screening of genetic defects (PSS, acid meat, scrotal hernia); 2) Identification of productivity gene (prolificacy, growth rate, meat quality), and; 3) Identification of disease resistance genes (diarrhea, pneumonia and PRRS). Funds for its operations and maintenance must be included in the annual budget of BAI to sustain the project. Moreover, Swine Industry Foundation can also be tapped to be part of the PPP, to provide financial assistance for the initial phase of the project.

Institutionalization, strengthening and modernization of the Boar Performance Testing Station (BPTS) located in the ITCPH was also suggested. BPTS is seen as a potential center for evaluation of boar performance in the entire country. This support program of the government must be strengthened to ensure the stable supply of quality breeders in the country.

It would be advantageous if the average performances of the hogs in the country be monitored. At present, hog production performance is being monitored yearly by PCAARRD and the Philippine Swine Industry Research and Development Foundation, Inc. (PSIRDFI). This monitoring system must be strengthened, encouraging more farms to participate in monitoring of their hog performance.

KRA 2: Reduced cost of inputs

One of the weaknesses of the hog industry identified earlier is the high cost of farm inputs like feeds, electricity, logistics, among others. One of the targets of the hog industry is to lower the cost of production from its current level of PhP90/kg to PhP80/kg on 2022 and to PhP70/kg on 2027.

Table 3. Financial targets of the Philippine hog industry

Financial Parameters	Baseline (2015)	2022	2027
Farmgate Cost of Production, PhP/kg	90.00	80.00	70.00

Demand for corn is continuously increasing and this has caused prices to increase for hog farmers, since corn is a major feed component. Approximately 75-80% of the hog cost of production is spent on feeds (Argañosa, 1999) and corn constitutes around 35% of the total cost of hog feed ration (Mendoza and Rosegrant, 1995). There is a need to research on other feed resources (i.e. cassava, malunggay, among others) to lower cost of production. Various research institutions conduct researches on feed ingredients that would lower the cost but will not compromise the nutrients given to the animals. For instance, there is a research on the development of copra meal with reduced fiber and improved protein (i.e. target crude protein is 42%). This project funded by PCAARRD looked at the possibility of replacing around 50% of soybean meal utilized in feed ration. The government must promote the adoption and commercialization of this technology, i.e. protein-enriched copra meal. The government continues its efforts to discover alternative feeds. BAI, through the Livestock Research Development Division, incorporated in its 5-year Strategic Plan the studies on the nutritional contents of different feed resources and how these feeds would improve the productivity of hogs, among other livestock and poultry.

Reducing electricity/power cost is another way of lowering the cost of production (COP). One of the reasons why it is expensive to conduct business in the Philippines is the high cost of power. The Philippines was one of the ten (10) Asian countries with most expensive power rates (Anonuevo, 2012) since it is heavily dependent on coal and oil which are mostly sourced abroad. One of the interventions requested to the government is to support/incentivize the installation of biogas in smallhold farms. Efficiency of using other alternative sources of power (i.e. solar panel, windmill, among others) can be studied, to reduce our dependence on fossil fuel which is continuously depleting.

Part of the COP is the transport cost. Inter-island shipments in the Philippines are usually expensive compared to the cost of freight coming from other countries (e.g. Thailand). Better option is to avoid inter-island shipment of hog/pork commodities by establishment of more post-production facilities (e.g. livestock auction markets, slaughterhouses, cold storages, and transport facilities) in the

provinces with high supply of hog/pork. When there is an increased number of established slaughterhouses, hog raisers will be encouraged to slaughter their finished hogs in nearby slaughterhouses, and sell the graded carcasses directly to meat vendors and processors. In this way, the participation of middlemen in the supply chain will be lessened, providing better profit to the hog farmers. Decreasing the live hog selling will eventually eliminate the traders in the system.

Construction of more farm-to-market roads would make transporting of goods more efficient and would also cut the cost of production.

Hog/pork producers must also be encouraged to transport pork (e.g. pork-in-a-box) rather than live hog shipment. This is becoming a trend as there are shipments of pork from production areas in Davao, Cagayan de Oro and South Cotabato to consumption areas in Metro Manila and Cebu. Pork transport will prevent transport losses, reduce the risk of disease transmission and will eliminate labor and feed costs incurred in transporting live animals.

Another cost considered as a COP is water. Establishment of water catchment facilities in smallhold farms will be beneficial for the farmers especially if the government will provide support in this project. Climate-resilient farm management systems to reduce water usage in farms (e.g. Dry Cleaning Program, water-impounding system) can also be promoted.

By reducing the costs of feeds, electricity, water and transport, more people will be encouraged to invest in the hog/pork business.

KRA 3: Modernized and restructured post-production system

The hog industry will not be globally competitive unless the production and post-production facilities will be upgraded. One of the action plans set by the industry is the modernization/upgrading of abattoirs to international standards, for public health, safety and environmental protection. While there are substantial numbers of abattoirs, many are not accredited and many are also operating at less than the rated capacity, hence are not financially viable. To date, only 123 slaughterhouses were accredited by the NMIS. Only 5 slaughterhouses have proper facilities and operational procedures for export production, i.e. 'AAA' slaughterhouses. Private sector must be encouraged to invest in the upgrading of the slaughterhouses and its accreditation by the NMIS. This requires technical assistance from the agency, so that slaughterhouse operators will find it easier and will be encouraged to apply for accreditation.

The upgraded abattoirs will have chilling and fabrication rooms. These will be complemented with refrigerated transports, cold storage facilities and refrigerated display cases in the public markets, to modernize pork handling and marketing system.

Integrated production, processing and marketing will be encouraged. Profit gain in this kind of business is higher since intervention of traders is reduced, if not totally eliminated. While it is true that the hog industry is fragmented in general, there are existing fully- integrated enterprise in the country. For instance, Monterey have their own pigs slaughtered and cut in their own slaughterhouses, and sold in their own retail outlets. There are also cases that the cooperatives contract grow the pigs with their members, slaughter and fabricate their hogs/pork in their own slaughterhouse and market the meat in their own retail stores. Sorosoro Ibaba Development Cooperative, Inc. (SIDCI) and South Cotabato Swine Association (SOCOSPA) are the examples of this kind of hog business set-up.

Direct selling of pork cuts in the subdivisions by the smallhold hog farmers will also be encouraged and supported. This will provide a sure market to their products and thus, will stabilize and increase the income of the hog farmers. Moreover, this would encourage more people to engage in hog production. However, regulations of the NMIS should be checked first to see if this set-up is allowable and legal.

Diagnostic laboratories and feed laboratories in BAI and in the regions must be upgraded. This is to elevate the level of animal disease diagnostics and feed testing, to protect the producers and consumers. Foot and Mouth Disease (FMD), among other epidemic/epizootic diseases, can be controlled easier if diagnosis is early. Laboratories must comply with international standards, so whatever results will be produced here will also be acknowledged in other countries. Improvement of the facilities must also be complemented by the capability trainings for the personnel conducting the laboratory works.

There is a need for the establishment of meat laboratories and the improvement of the existing ones, since these are critical in detecting antibiotic residues, toxins and metals possibly present in meat. Meat laboratories are required especially if the target is to produce for export markets.

Private sector shared the necessity of establishing models and credit facilities for smallhold farmers, for putting-up of value-adding enterprises such as meat shops, meat stalls, eateries, among others. Through this intervention, there will be ready and sustained markets for their produced

KRA 4: Increased access to information and extension services of the smallhold farmers

Great portion of local hog production is composed of backyard raisers. While there is a gradual “commercialization” of this group, the backyard is projected to continue to be the major producer-segment of the industry. The road map does not aim to eliminate the backyard raisers, but to empower them by increasing their access to information (i.e. technical, market, among others) and extension services.

This can be achieved by supporting the conduct of technical workshops and fora. Occasionally, both the private sector and government (i.e. national and LGUs) are

sponsoring such activities, at the national and local levels. There is a need to increase these types of interventions, especially the village-based activities, in order to reach out and accommodate more smallhold farmers. There are also farm schools and learning sites in the country which aim to provide practical farm training for adults (e.g. animal husbandry, pasture development and management, processing, marketing, among others). Government assistance is in the provision of support to the accreditation (i.e. TESDA) of these facilities (i.e. learning sites and farm schools).

One action program identified in KRA 1 is the intensification of artificial insemination (AI) through establishment of AI station per province. Likewise, AI technician and/or LGU extension worker must be installed per town. They will be the primary providers of extension services in towns thus, they must be equipped with massive trainings (i.e. along the value chain). AI technician and/or LGU extension workers must be well-trained so farmers would be properly guided whenever they need assistance and/or advice on the production, processing and marketing aspects.

The role of the government is also crucial in terms of providing technical assistance, information and market linkages to the smallhold farmers. The DA has the International Training Center on Pig Husbandry (ITCPH) located at Marawoy, Lipa City. ITCPH is the only training center in Asia and the Pacific specializing on pig husbandry providing training and extension services to agricultural extension workers and pork producers from the Philippines and other Asian countries. On the otherhand, it is the Agribusiness and Marketing Assistance Service (AMAS) of the DA that has the authority in the agribusiness and marketing aspects.

While there are commercial companies that can afford to put-up modern production facilities and have access to state-of-the-art technologies, still a lot of producers (especially backyard raisers) have no ability to pay for the facilities and services. They should be assisted by the government by providing shared facilities to the underprivileged. At present, we are in the process of completing an 'AAA' dressing plant in Bamban, Tarlac and 'AAA' slaughterhouse in Tanauan, Batangas as service facilities. There is a need to increase these types of service facilities however, these should be placed strategically. The needs and interest of the local stakeholders or target beneficiaries should be considered in the placement of shared facilities.

Private sector's share is to make sure that Good Animal Husbandry Practices (GAHP) are applied and observed in all the hog facilities.

KRA 5: Adopted food safety regulations and standards

It is the responsibility of hog and pork businessmen to produce safe meat to protect the consumers. Thus, it is a requirement for them to apply good hygienic practices and food safety management procedures [i.e. in accordance to Good Animal Husbandry Practices (GAHP) and Hazard Analysis and Critical Control Point (HACCP) principles] in the farm and post-production operations.

It is the responsibility of the government to fully implement the Republic Act No. 10611, better known as Food Safety Act of 2013. The law aims to strengthen the food safety regulatory system in the country. One way to strengthen the regulatory arrangement in the country is the provision of standard inspection area in ports, i.e. placement of reefer vans in ports for the mandated quarantine inspection at all ports of first entry under the Food Safety Act of 2013.

There is a need to establish a reliable National Pork Traceability System for hogs (i.e. from farm to table) to ensure that hog, pork and pork processed products are properly identified during receiving, processing, storage and marketing. Traceability is reliability since it provides a means of identifying the products for recall. Other programs and projects that will complement the traceability system must also be done or strictly enforced, i.e. functional and responsive ICT systems, national farm accreditation and/or identification system (i.e. GAHP and Animal Welfare), among others. These will strengthen the competitiveness of the local hog industry.

The Philippine National Standards (PNS) that will support the implementation of food safety regulations and standards (e.g. PNS-BAFS 48- Veterinary drug residues in food: maximum residue limits; PNS-BAFS 60- Code of Good Animal Husbandry Practices) must also be developed and adopted.

It is the duty of the National Meat Inspection Services (NMIS) to monitor the meat from slaughterhouse to the markets thus, confiscating meat and meat products that were below the standards is their task. There is a need to intensify the enforcement of Republic Act 9296 or the Meat Inspection Code. Hot meat should be apprehended and be buried to prevent it from re-entering the market. A.O. No. 5 and 6 should be fully implemented.

KRA 6: Improved animal health status

Improving the health and welfare of hogs is of utmost importance to all the hog stakeholders. One of the factors that dictates our ability to compete in a highly competitive ASEAN market is our reputation as a producer of high welfare pork. Hogs' health and welfare affects not only our cost of production but also the safety of the food (Agriculture and Horticulture Development Board, 2011).

BAI continuously fulfills its mission to investigate, study and report the causes of dangerous communicable diseases and the means of preventing them. Thus, the Philippines maintained its freedom from Foot and Mouth Disease (FMD). Our FMD-freedom status is maintained and protected by the continuous surveillance, monitoring activities, biosecurity and border controls.

While we are free from FMD for the past few years, there are still other diseases that occur from time to time. There is a need to eradicate the notifiable diseases like classical swine fever (CSF), pseudo-rabies virus (PRV), porcine epidemic diarrhea (PED), among others, since these diseases will continue to hamper the growth of the hog industry. At present, the eradication of CSF and the control and eradication of

PED and PRV are the priorities of the industry. One action program identified is the eradication of CSF and control of other diseases like PRV and PED by 2020. A PhP100M funding is suggested for the eradication of CSF.

Hog diseases that are endemic per region must be identified and placed in a database. This is to determine which top diseases that should be prioritized by the government in crafting of disease eradication programs. Quarantine laws must be strictly and properly implemented. There is also a need to enforce and monitor other regulatory policies like the Administrative Order 8 series of 2004 that targets to register and license all the handlers of livestock, poultry and its by-products, and to accredit the transport carriers in the Philippines. The regulation somehow monitors the movement of animals thus, in the event of disease occurrence, strict implementation of this regulation will enable the government to easily tract and contain the disease.

As for the private sector, their strict implementation of veterinary drug order is their best contribution in improving the animal health status of the country. It would also be of great help if they strictly cooperate with the government by allowing their entry to farms for inspection.

Establishment of a National Biosecurity Program is also deemed necessary for the achievement of KRA 6.

KRA 7: Established registry of market players (i.e. meat inspectors, butchers, among others)

There is a need to establish a registry of market players like traders, meat inspectors, butchers, among others, for ease of coordination whenever there is a need for the government to have a dialogue with them. Like if there would be disease occurrence in an area, it would be easier for the government to identify the hog raisers and traders that might be affected or are prone to be affected by the disease. Then, the government can immediately formulate strategies to prevent disease from spreading to other areas. Also, the government can simply download assistance (e.g. veterinary drugs and supplies) if there is a ready listing of affected population.

It was suggested that the wet markets must be strengthened, and protected from the entry of frozen meat. In case there will be an abnormality, someone from the LGU must be held accountable. Therefore, there should be identification of accountable person per LGU and their directory must be prepared for easy access (e.g. there is a need to file for dereliction of duty).

Hog stakeholders also expressed that there is a need for the strict enforcement of the registration and monitoring of handlers/traders, since they are the most probable vectors of animal diseases. Development of more IECs on A.O. 8 series of 2004 is necessary to inform the public that this regulation is existing.

Table 4 shows the summary of the proposed action programs enumerated by the hog stakeholders.

Table 4. Summary of the proposed action programs for the government and private sector

Key Result Areas (KRAs)	Action Programs	
	Government	Private
1. Increased farm productivity	<ul style="list-style-type: none"> ○ Conduct of more R&D on feeds and breeds development ○ Establish AI station per province (where organized backyard farmer groups can source quality semen) ○ Mainstream the swine genomics application in production and health ○ Institutionalize, strengthen and modernize the Boar Performance Testing Station (BPTS) located in the ITCPH ○ Strengthen the Swine Production Performance Monitoring Project of PCAARRD and encourage more farms to participate 	<ul style="list-style-type: none"> ○ Modernize the backyard and commercial piggery farms (i.e. buildings, facilities and operation system) in the country ○ Modernize the artificial insemination (AI) facilities ○ Strengthen the SBFAP
2. Reduced cost of inputs	<ul style="list-style-type: none"> ○ Conduct of research on other feed resources (i.e. cassava, malunggay, among others) to help in lowering cost of production ○ Adopt and commercialize protein-enriched copra meal ○ Support/incentivize the installation of the biogas in smallhold farms ○ Study the efficiency of using other alternative sources of power (e.g. solar panel, windmills, etc.) 	<ul style="list-style-type: none"> ○ Invest on more post-production facilities (e.g. livestock auction markets, slaughterhouses, cold storages and transport facilities) in the provinces with high supply of hog/pork ○ Encourage the transport of pork (i.e. pork-in-a-box) rather than live hog shipment ○ Promote climate-resilient farm management systems to reduce water

	<ul style="list-style-type: none"> ○ Construct more farm-to-market roads ○ Support the establishment of water catchment facilities in smallhold farms 	usage in farms (e.g. Dry Cleaning Program, water-impounding system).
3. Modernized and restructured post-production system	<ul style="list-style-type: none"> ○ Upgrade the diagnostic laboratories and feed laboratories in BAI and in the regions ○ Provide technical trainings on autogenous vaccines and modern diagnostic procedures to the government laboratory personnel ○ Establish meat laboratories and improvement of the existing ones ○ Establish models and credit facilities for value-adding enterprises (i.e. meat shops, meat stalls, eateries, among others) for smallhold farmers. 	<ul style="list-style-type: none"> ○ Modernize/upgrade abattoirs to international standards ○ Encourage investment for more slaughterhouses be accredited by the NMIS ○ Encourage investment for more refrigerated transports, cold storage facilities and refrigerated display cases in public markets ○ Encourage an integrated type of hog production (i.e. integration of production, processing and marketing)
4. Increased access to information and extension services of the smallhold farmers	<ul style="list-style-type: none"> ○ Support the conduct of technical workshops and fora ○ Support to the accreditation of learning sites/farm schools ○ Install AI technician per town (LGU) ○ Provide massive trainings (i.e. along the value chain) of the LGU extension workers ○ Provide market linkages, information and technical assistance to the smallhold farmers 	<ul style="list-style-type: none"> ○ Apply and observe GAHP in the hog facilities

	<ul style="list-style-type: none"> ○ Provide shared facilities, e.g. 'AAA' slaughterhouse in Tanauan, Batangas 	
5. Adopted food safety regulations and standards	<ul style="list-style-type: none"> ○ Fully implement the Food Safety Act (e.g. Quarantine First Policy and provision of standard inspection area in ports, provision of reefer vans) ○ Establish a reliable National Pork Traceability System (i.e. from farm to table) ○ Develop and adopt Philippine National Standards (PNS) that will support the implementation of food safety regulations and standards ○ Fully implement A.O. 5 and 6 ○ Intensify the enforcement of Republic Act 9296 or the Meat Inspection Code 	<ul style="list-style-type: none"> ○ Apply good hygienic practices and food safety management procedures (e.g. GAHP, GMP and HACCP) in the farm and post-production operations
6. Improved animal health status	<ul style="list-style-type: none"> ○ Eradicate CSF and control other diseases (PRV, PED) by 2020 ○ Identify and make a database of hog diseases that are endemic per region ○ Strict implementation of quarantine laws ○ Enforce and monitor the regulatory policies (e.g. A.O. 8 series of 2004) ○ Establish the National Biosecurity Program 	<ul style="list-style-type: none"> ○ Implement strictly the veterinary drug order ○ Strict cooperation with the government entities (i.e. allow entry to farms for inspection)
7. Established registry of market players (e.g. meat inspectors, butchers)	<ul style="list-style-type: none"> ○ Make a directory/database of market players like traders, meat inspectors, butchers, among others 	

	<ul style="list-style-type: none"> ○ Identify accountable person per LGU (i.e. entry of frozen meat in the wet markets) and their directory must be prepared ○ Develop more IECs (i.e. A.O. 8 series of 2004 among others) 	
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2.2. Proposed Government's Support and Policies

The hog stakeholders, reiterated their suggestions to increase, enhance, expand and improve governmental support and participation in the whole supply chain. Below are their wish list of government's support and policies.

- Make credit easily-accessible for the hog farmers
- Strengthen the livestock insurance system (i.e. Philippine Crop Insurance Commission, among others)
- Establish indemnification program for farms stricken by disease
- Review of land use policy and zoning regulations
- Provide irrigation, dryers/milling stations for grains used as animal feeds
- Construct market infrastructure and develop area-based processing facilities
- Endorse in the new Investment Priorities Plan (IPP) of Bureau of Investments (BOI) the inclusion of piggery projects to receive Non-Pioneer Status Incentives. This will encourage the local producers to invest in new modern tunnel ventilated housing, to be at par with the world's best practices and climate change.
- Study possibilities of reducing tariff on feed ingredients
- Increase tariff rate for offal and skin to 30%, same to that of the pork prime cuts
- Study the possibility of reducing electricity/power cost through subsidy
- Study the legal basis of imposing passing through fees and the possibility of removing them in the system
- Study the possibility of having a special inter-island shipping rate for registered hog stakeholders
- Encourage and support the possibility of direct selling of pork cuts in the subdivisions by the smallhold hog farmers.
- Make a clear policy on live hog shipment and study the possibility of providing exclusive transport facility for live animals
- Sustain support in the operationalization of the Swine Genetic Analytical Service Laboratory (SGASL) now housed in the BAI
- Source genetics from artificial insemination for those farms with 200 sows and below

- Create a law that would require all breeder importers (i.e. importing live animals and semen) to be members of the Accredited Swine Breeders Association of the Philippines (ASBAP)
- Promote programs on waste management and utilization (e.g. Biogas Program, composting/organic fertilizer production)
- Provide technological support to producers on the proper design (i.e. small scale and cost-effective) and operations of waste treatment facilities
- Integrate the Corn Program with the Livestock Program
- Strengthen the regulatory system on food safety, quarantine and inspection system to prevent smuggling
- Strengthen the regulatory, monitoring and police action on the implementation of Administrative Orders 5 (Rules and Regulations on Hygienic Handling of Newly-Slaughtered Meat in Meat Markets) and 6 (Rules and Regulations on Hygienic Handling of Chilled, Frozen and Thawed Meat in Meat Markets) series of 2012
- Intensify enforcement of the Animal Welfare Act to achieve global competitiveness since this is now required by multinational customers of chicken in the Philippines (e.g. McDonalds and KFC). There should be a plan to improve animal housing, transport and slaughter that would meet the minimum requirements of the global animal welfare regulations
- Establish a national hog farms' accreditation and registration system that will also support disease control and eradication initiatives and product traceability. Farm registration must facilitate implementation of R&D projects in terms of accessing necessary samples from private hog farms
- Review and modify, if necessary, the PSA's categorization of the hog farms (i.e. backyard vs. commercial)
- Establishment of an agricultural trade data system

Aside from the aforementioned suggested government support, the hog producers would like to be benefited as how the hog producers in other countries are assisted by their respective government. The governments of Thailand, Vietnam, the US, EU member states and Canada have set up the broad policy directions to support their livestock industries and in guaranteeing private sector activity (please see Annex 1).

2.3. Investment Requirements

The private producers must handle the investment for the 1) modernization of farms; 2) Upgrading/modernization of the abattoirs, 3) Provision of refrigerated transport; 4) Provision of cold storage in the public market, and; 5) Provision of the refrigerated display cabinet in the public markets. This will require PhP5.49 billion for 2017-2022 and PhP1.15 billion for 2023-2027.

On the other hand, the government will be requested to invest on the following projects: 1) Establishment of the AI station per province; 2) Institutionalization, strengthening and modernization of the Boar Performance Testing Station (BPTS) located in the ITCPH; 3) Mainstreaming the swine genomics application in production and health; 4) Conducting more R&D on feed resources and breed development; 5) Strengthening the laboratory capabilities; 6) Establishment of meat laboratories or upgrading of the existing ones; 7) Establishment of Triple-A abattoirs for common use; 8) Provision of standard inspection area in ports (i.e. provision of reefer vans); 9) Establishment of reliable National Pork Traceability System; 10) Hog disease programs, and; 11) Production of information, education and communication (IEC) materials. These would amount to PhP2.47 billion for 2017 to 2022 and PhP2.03 billion for 2023-2027.

Total investment for Hog Program will be PhP7.96 billion for 2017-2022 and PhP3.18 billion for 2023-2027.

Table 5. Investment for the hog program

Action Programs	2017-2022		2023-2027	
	Quantity	P'million	Quantity	P'million
Private Investment:				
• Modernization of farms (KRA 1)	30	600	20	480
• Modernization/upgrading of abattoirs (KRA 3)	9	558	9	670
• Provision of refrigerated transports (KRA 3)	148	251.6		
• Provision of cold storage in public markets (KRA 3)	148	3,700		
• Provision of refrigerated display cabinets in public market (KRA 3)	9,421	376.84		
Sub Total for Private Investment		5,486.44		1,150.00
Government Support:				
• Establishment of AI station per province (KRA 1)	40	53.2	40	58.52
• Institutionalization, strengthening and modernization of the Boar Performance Testing Station (BPTS) located in the ITCPH (KRA 1)		5		10
• Mainstreaming the swine genomics application in production and health (KRA 1)		117.87		129.66
• Conducting more R&D on feed resources and breed development (KRA 1 and 2)		188		41.8
• Strengthening the laboratory capabilities* (KRA 3)		921.82		702.9
• Establishment of meat laboratories (KRA 3)	6	150	6	150
• Establishment of Triple-A abattoirs for common use (KRA 4)	2	300	1	150
• Provision of standard inspection area in ports (KRA 5)	9	11.7		
• Establishment of reliable National Pork Traceability System (KRA 5)		106.15		41.36
• Hog disease programs (KRA 6)		611.40		740.85
• Production of IEC materials, e.g. A.O. 8 series of 2004 (KRA 7)		4.8		5.28
Sub Total for Government Support		2,469.94		2,030.37
Total for Hog Program		7,956.38		3,180.37

* includes upgrading of the RADDLs and RFLs facilities and capabilities of the laboratory personnel

3. IMPLEMENTATION AND MONITORING

3.1 Implementation

The implementation of the Hog Industry Roadmap will be guided by a Hog Steering Committee. It will comprise of twelve members: Seven from the private sector–representatives from NFHFI, Propork, PCSP, PSPA, PAFMI, UNIBAT and Swine Industry Foundation (one of whom will be Chair) and five from the government (BAI, NMIS, PCAF, ATI-ITCPH and DOST-PCAARRD) (Figure 1).

The Hog Steering Committee will be organized as soon as possible in order that the roadmap implementation can proceed in earnest to detail its mandate. The committee will make sure that the industry roadmap is disseminated closer to the provincial levels with the support of the LGUs, industry associations and other stakeholders.

The Hog Steering Committee will meet at least quarterly. The secretariat will be headed by a coordinating officer. Several Project Implementing Teams will be formed. Each Team will be responsible for (a) Input supply and farm production; (b) postharvest; and (c) Logistics and marketing. The Steering Committee will evaluate the function of the Project Teams as and when necessary.

Funding. In order to sustain the implementation of the Hog Roadmap, the DA should release the fund as indicated in the roadmap.

3.1.1 Creation of Technical Working Groups (TWGs)

Two Technical Working Groups shall be created – one for provincial and another for regional. The Regional TWG shall act as the secretariat to consolidate specific policies and directives from the Provincial TWG for submission to the Hog Steering Committee.

The Provincial TWG shall be formed and act as the secretariat of the different Project Implementing Teams, to consolidate specific policies and directives from the Hog Steering Committee for implementation in the province.

Compositions, roles and responsibilities of the TWGs are as follows:

Technical Working Group – Regional

Composition:

- Comprised of head of provincial action teams and provincial vet, as determined by the Hog Steering Committee
- Should be co-chaired by the public and private sector representatives of the region

Roles and responsibilities:

- Monitor, facilitate and connect with the national agencies on hog investments
- For backyard raisers: help organize municipal/provincial clusters
- Facilitate formation of provincial TWGs if and when necessary

Technical Working Group – Provincial

Composition:

- Representatives from backyard raisers, cooperatives, processors, traders, exporters, and public sector in the province
- Should be co-chaired by the public and private sector representatives of the provinces

Roles and responsibilities:

- Seek LGU support for the hog enterprises
- Facilitate financing from LBP and DBP
- Coordinate with DA-RFU for counterpart support
- Help package projects for ODA and investors
- Assign point person for every key activity
- Monitor progress of various activities

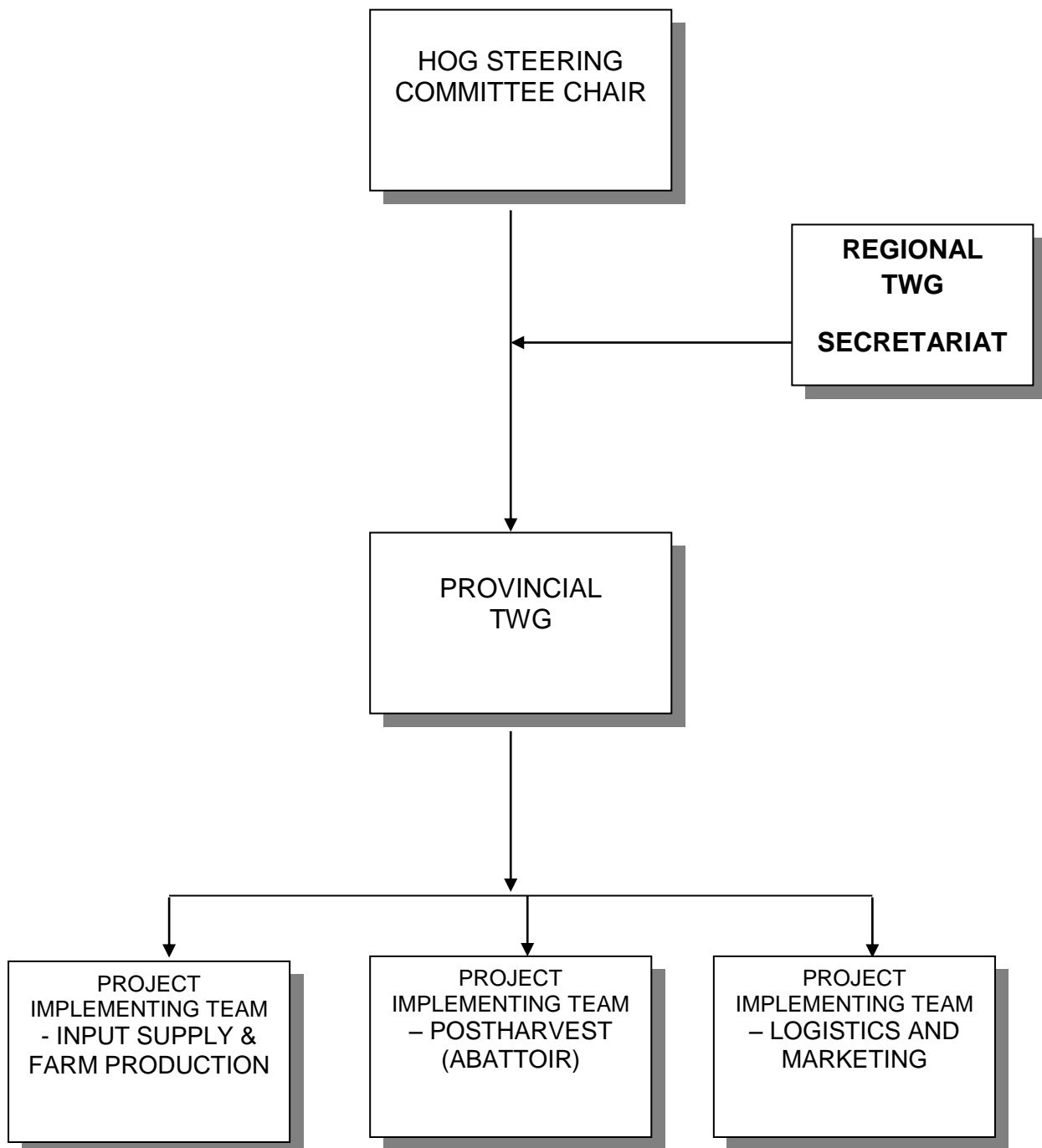


Figure 1. Proposed hog roadmap implementation structure

3.2 Monitoring

Initially the PCAF shall handle the monitoring system. Once the Hog Steering Committee is formalized, it shall agree on a monitoring system at the provincial and regional level.

The monitoring system shall include at the minimum the following parameters:

1. Production
2. Amount of public and private investments in the province
3. Potential job creation
4. Imports substitution

The monitoring group will have a high level of independence and may hire external experts.

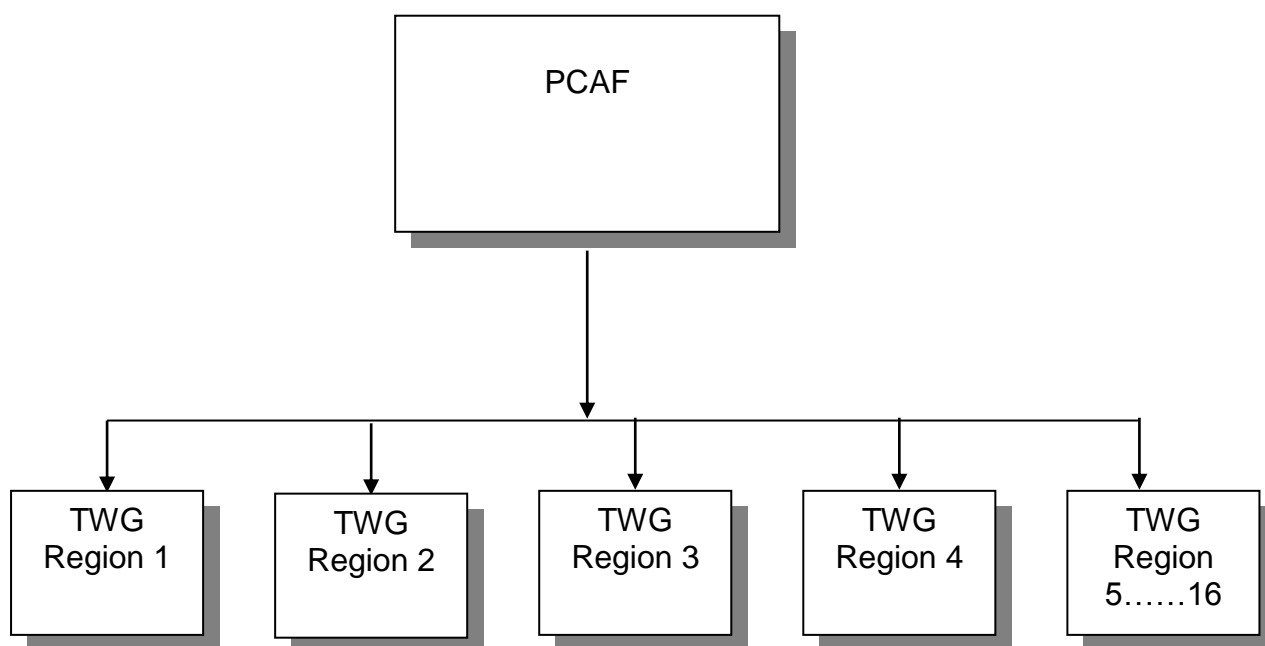


Figure 2. Hog Industry Road Map Proposed Monitoring Structure

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ANNEXES

Annex 1. Assistance provided to the livestock industry by the governments of other countries (e.g. Thailand, Vietnam, the US, EU member states and Canada)

- Free irrigation/irrigation service facilities fees to crop growers (corn for feeds)
- Discounts on farm inputs and certified seeds (corn for feeds)
- Accessible low-interest loans (non-collateral) to small producers or raisers
- Price support (or guaranteed farmgate price) among corn growers
- Provision for common/shared post-production facilities (i.e. slaughterhouse, cold storage; dryers, silos/warehouse for corn)
- Income stabilization insurance to all farmers through a risk management program – ensuring a positive net income when farm prices drop below an established minimum
- In the US, pork producers avail of other federal risk management programs like AgriStability, AgriInvest and AgriRecovery as subsidy programs that benefit hog producers
- In Canada, the Canadian Agricultural Loan Act guarantees 95 percent of loans made by private lenders. The government has committed to making a \$1 billion of guarantees over the last five years. Farm Credit Canada provides low cost, flexible financing to hog producers.
- The thrust of most governmental support to their agri sector in recent years are on full risk (investment, price) insurance and easy access to credits.
- The Thai government requires that at least 20 percent of loans given by commercial banks be allocated to agricultural activities at 12.5 percent
- Underwriting the activities of and investment promotion privileges are being extended to the livestock industry. These includes:
 - a) Exemption from the import tariff on machines, farm equipment and raw materials (except soybean meal);
 - b) Fifty per cent (50%) reduction on the sales tax of imported machines;
 - c) Exemptions from export and sales taxes; and
 - d) Exemption from the income tax during the first five years of business.

Note: Aforementioned information were provided by the NFHFI.

**Consultative Meetings/Workshops Conducted by the Bureau of Animal
Industry for the Crafting of the Hog Roadmap**

- **Consultative Meeting with Hog Stakeholders for the Finalization of the Hog Road Maps**
Hotel Rembrandt, Quezon City
November 27, 2014
- **Consultative Workshop on the Development of Hog Road Map: Part 2**
BAI-OD Conference Room
December 11, 2014
- **Consultative Workshop on the Development of Hog Road Map (with MITA and PAMPI)**
BAI-OD Conference Room
December 15, 2014
- **Follow-Up Consultative Meeting on the Development of Hog Road Map (with NFHFI)**
BAI-OD Conference Room
March 9, 2015
- **Hog Industry Roadmap Technical Working Group 1st Meeting**
BAI-OD Conference Room
April 26, 2016
- **Hog Industry Roadmap Technical Working Group 2nd Meeting**
PCAF- Apacible Conference Room 1
June 10, 2016

Hog Industry Roadmap Technical Working Group

Private Sector

Mr. Jayson Cainglet	National Federation of Hog Farmers, Inc. (NFHFI) and SINAG
Mr. Edwin Chen	Pork Producers Association of the Philippines (Propork)
Dr. Arnulfo Frontuna	Philippine Veterinary Drug Association (PVDA)
Dr. Jose Molina	Philippine College of Veterinary Public Health (PCVPH)
Dr. Wilfredo Resoso	Philippine College of Swine Practitioners (PCSP)
Dr. Jose Sabater	Philippine Veterinary Medical Association (PVMA)
Dr. Jaime Sison	Foremost Farms
Mr. Leo Obviar	San Miguel Foods, Inc.
Ms. Rosette Arca	San Miguel Foods, Inc.

Government Sector

Ms. Ruth Miclat-Sonaco	ATI-International Training Center on Pig Husbandry (ITCPH)
Ms. Elizabeth Cabrera	Philippine Statistics Authority (PSA)
Mr. Hernando Avilla	Bureau of Animal Industry (BAI)
Dr. Marvin Vicente	National Meat Inspection Service (NMIS)
Ms. Manolita Gaerlan	Agribusiness and Marketing Assistance Service (AMAS)

Bureau of Animal Industry's Facilitating Team

STEERING COMMITTEE

- Chair : Rubina O. Cresencio, DVM
Acting Director IV
- Vice Chair : Simeon S. Amurao, Jr., DVM, MBA, CESO IV
Acting Director III
- Over-All Focal Person : Maria Laarni P. Cerna, MSc, LRDD

HOG ROADMAP WORKING COMMITTEE

- Focal Person** : Mr. Hernando Avilla, LRDD
- Members** : Ms. Marilou Estherlina Arifalo, AFVDBCD
Ms. Marites Gealone, AHWD
Ms. Melinda Bayot, LRDD
Dr. Florence Silvano, NVQSD
Dr. Magdalena Cruz, VLD
Dr. Rosemarie Antegro, VLD
- Writers** : Maria Laarni P. Cerna, MSc, LRDD
Ms. Aileen Casa, LRDD
- Secretariat** : Jocelyn V. Borejón, AHWD

Legend:

AFVDBCD- Animal Feeds, Veterinary Drugs and Biologics Control Division
AHWD- Animal Health and Welfare Division
LRDD- Livestock Research and Development Division
NVQSD- National Veterinary Quarantine Services Division
VLD- Veterinary Laboratory Division