CHAPTER I

INTRODUCTION AND OBJECTIVES

1.1 Background and rationale

Pork in the Philippines is a major commodity that has contributed greatly to the considerable growth of the country's livestock subsector of agriculture in the recent years. During the first quarter of 2012, the hog industry boosted the livestock subsector's growth with a recorded output increase of 3.42 percent (BAS, 2012). As such, swine production is considered the main livestock industry and is the largest contributor to meat output in the Philippines. The industry comprises about 58 percent of total meat output and is growing at a rate of 5.5% per year (Costales et al., 2007).

In 2012, about 65% percent of the swine population was raised in backyard or small-hold farms and the rest (35%) were stocked in commercial production (BAS, 2012). This reflects findings in a study on pig production in ASEAN countries that showed 70% of all pigs in the four countries (Cambodia, Laos, Philippines and Vietnam) are raised in small-scale farms (Huynh et al., 2006).

In the recent years, swine production in the Philippines has intensified in the urban and peri-urban areas in response to structural changes in the pig industry and largely due to a growing demand for pork products which is concentrated in the National Capital Region (NCR) or Metropolitan Manila, a major urban and commercial center (Catelo et al., 2008). Arguably, NCR is the largest market for meat and meat products in the country. It is a major endpoint of livestock shipments for slaughter from surrounding source regions and has an intermittent swine population of 7,000 – 10,000 hogs in its numerous slaughterhouses and holding yards (BAI, 2011).

Slaughterhouses that cater to urban areas such as those in the 16 cities and one municipality within NCR are of small to medium-scale, mostly for swine and some for bovines. The standards of these slaughter facilities, although in many cases not fully satisfactory, have improved over the years as the National Meat Inspection Service (NMIS) of the Department of Agriculture imposed a system of quality categorizing. This accreditation system, which adopts provisions of the Presidential Decree 856 also known as the Code of Sanitation of the Philippines (DOH, 1976, DOH, 1998), implements guidelines and policies on proper handling, inspection, processing, storage and preservation of meat and meat products. It is anchored on guidelines prescribed by the NMIS in compliance with the Standard Sanitary Operating Procedures (SSOP), Good Manufacturing Practices (GMP) and Hazard Analysis and Critical Control Points (HACCP) Standards. The establishment of this accreditation system which classifies slaughterhouses according distribution and capacity has encouraged many abattoir owners to modernize and follow the rules on hygiene and sanitation (Heinz, 2008).

Apart from those accredited by the NMIS, there is a large number of licensed slaughterhouses that amount to approximately four times that of accredited slaughterhouses (Heinz, 2008). These slaughterhouses are licensed for commercial slaughtering by Local Government Unit (LGU) authorities (provincial, municipal/city) who oversee and who are responsible for sanitary control in these facilities.

Slaughterhouses and the processes involved in their operation have always been a factor of interest in the government's endeavors to address animal diseases, enhance quality of animal products and contribute to the improvement of public health. These facilities have thus been at the heart of disease control and eradication programs in the Philippines. Swine abattoirs and *lechon* (roast pig) establishments especially in the NCR were a major arena in the National Foot and Mouth Disease Eradication Campaign where disease detection and stamping out procedures were performed. Such drastic disease control activities were always accompanied by

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implementation of a thorough cleaning and disinfection program as a measure to prevent reoccurrence.

Government interventions in slaughterhouses included Knowledge Attitudes and Practices (KAP) surveys and campaigns that were aimed towards stakeholders such as slaughterhouse and *lechon* establishment operators, butchers and livestock traders or locally known as *viajeros*. Such information, education and communication campaigns aimed towards spreading awareness and promoting attitude change among concerned stakeholders especially emphasizing their role in the prevention of disease spread (BAI, 2011). These were conducted in tandem with vigilant implementation of government policies and monitoring of stakeholder compliance to such policies focusing on animal movement management and traceability of animals accepted for slaughter through required permits and other valid documents as well as strict observance of daily slaughterhouse operation schedules to allow cleaning and disinfection to be properly performed.

The strict maintenance of good practices of slaughter hygiene in meat production is of vital importance for the prevention of microbial carcass contamination in the interest of ensuring both health protection and meat quality (Zweifel et al., 2005). The continuing growth of the Philippine swine industry and intensification of swine production due to an ever increasing demand for pork and pork products in the country warrants effective and sustainable measures in slaughter facilities to ensure safety and quality of products as well as prevention of disease spread.

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1.2 Objectives of the study

There have been few and mostly unpublished studies done concerning slaughterhouse sanitation in the Philippines, let alone the area of concern in the study, the NCR. This study seeks to contribute to better understanding of the current hygienic conditions in such facilities and in the process identify gaps which will help to determine appropriate interventions that may be considered for improvement. The objectives of this study are the following:

- To identify the number of hygiene indicator microorganisms in slaughterhouses in the National Capital Region (NCR)
- To compare the microbiological status between two classifications of slaughterhouses (NMIS-accredited and LGU-licensed) in NCR
- To determine the presence of *Salmonella* in environmental and carcass samples and to compare the prevalence between two slaughterhouse classifications

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