CHAPTER I

INTRODUCTION AND OBJECTIVES

1.1 Background and description of the problem

Livestock production in Thailand has developed with modern industrialization especially in the poultry production line for export purposes, similar to the country's swine production which continues to develop also more commercially for export (Christopher L. Delgado et al., 2003). However, the livestock production value chain from farm to slaughterhouse until transportation to the domestic market still has wide gaps in terms of standards and hygienic status to the export sector (Thammasat University Reseseach and Consultancy Institute, 2007). The implications of international standards for food safety related to world trade have encouraged the Thai government to improve the domestic meat control mechanisms. In 2002, the Department of Livestock Development (DLD), Ministry of Agriculture and Cooperatives (MOAC) was appointed as the competent authority to control slaughterhouses and the slaughtering process for domestic consumption under the Animal Slaughter Control and Meat Sale Act B.E. 2535 (1992) as a result of government reorganization. Thus, DLD surveyed the slaughterhouses throughout the country and set up the training programmes for DLD local officers, meat inspectors, slaughterhouse owners and staffs. In 2004, the Government declared the `Food Safety Year´ and developed a Road Map and the National Food Safety Strategic Plan along the food chain from farm to table. Under the Food Safety Campaign, DLD set up the strategy plan for slaughterhouse standard development which covers farms, slaughterhouses, meat dealers, training and finding of investment fund sources. The Bureau of Livestock Standards and Certification (BLSC), which is the responsible DLD division, started a routine surveillance and monitoring system in domestic slaughterhouses for testing antimicrobial residues and bacterial contamination as part

of the strategy; and it also included drafted a proposal to revise the existing laws and standards.

After DLD revision, the new regulation "Ministerial Regulation on Determination of Criteria, Procedures and Conditions for Establishing the Slaughterhouse, Lairage and Animal Slaughter B.E. 2555 (2012)" was announced and came into force on 4 July 2012. This regulation now deals with more improved, updated, and more precise hygiene criteria in slaughterhouses as well as with regards to the construction and registration system. It is also states clearly that old licensed slaughterhouses must be improved to prescribed standards within one year (Ministry of Agriculture and Cooperatives (MOAC), 2012). This new regulation is stricter in hygiene and outlines many more requirements regarding construction and management. Consequently, a Thai domestic slaughterhouse must undergo substantial changes to comply with the standards set by following the hygiene process according to the law but also considering other factors such as needs of consumers, and competition in the market.

Improvement of construction and processing in a slaughterhouse means more investments. However, most of the slaughterhouses are small slaughterhouses with limited financial investment capacity. Thus, in 2010 DLD set up the "Slaughterhouse and Butcher Shop Improvement Project" to help small and medium size slaughterhouses and butcher shops which intended to upgrade their slaughter and butcher facilities up to the standards set and eventually build consumer confidence in terms of food safety. This DLD project wants to prepare the slaughterhouses in the project as the models for the other slaughterhouse. The DLD project has four areas of activity (i) ante-mortem and post-mortem inspection, (ii) certification of butcher shops, (iii) quality analysis of meat from slaughterhouses and butcher shops, and (iv) public education and public relations. Since April 2011, DLD trained 190 meat inspectors and sent them to work at slaughterhouses in 63 provinces. The main responsibilities of a trained meat inspector are performance of ante-mortem and post-mortem inspection and sampling of meat for monitoring of antimicrobial residues and

microbiological contamination (Bureau of Livestock Standards and Certification (BLSC), 2012).

Meat inspection not only plays a crucial role in the control of human health risks, but also in the detection of signs of abnormality or diseases of individual animals and of herds/ flocks reflecting farm management and animal welfare deficiencies (World Organisation for Animal Health (OIE), 2005, Lis Alban et al., 2010, Löhren, 2012). It is important for persons involved in meat inspection to be provided with the necessary tools and a suitable working environment and sufficient facilities to be able to perform their duties properly. However, as the meat inspectors just started inspection in April 2011 information on the suitability of the facilities for their work and an overview of post-mortem findings from domestic slaughterhouses is not yet available.

Currently, DLD receives the reports on meat inspection from DLD meat inspectors but only for the domestic slaughterhouses participating in the project. Due to the Animal Slaughter Control and Meat Sale Act B.E. 2535 (1992) stating that the authority of appointing a meat inspector is with the local authority, the other domestic slaughterhouses not participating in the project and having their own meat inspector do not send meat inspection reports nor monitoring samples for hygienic meat to DLD. Thus, there is still a lack of information on post mortem inspection lesions, from the overall country and sharing meat inspection data between responsible organizations.

At least one meat samples under the "Slaughterhouse and Butcher Shop Improvement Project" are taken once every month in each slaughterhouse and sent to the designated laboratory in each livestock region for testing for antimicrobial residues and bacterial contamination. Antimicrobial residues are tested by the Microbiological Assay (Six-plate test) and bacterial contamination as hygiene monitor is checked by Aerobic Plate Count (APC) for *Salmonella spp*. and *Staphylococcus aureus*.

Furthermore, for slaughter conditions and processing in a slaughterhouse one needs to consider preparedness for and be in compliance with the new regulation, nonetheless to observe and measure the advancement during the study period; regular testing for bacterial contamination of meat can and will be related to slaughterhouse condition and hygiene during processing.

Against this background and the reasons above-mentioned, this study was conducted in a group of pilot domestic slaughterhouses of the "Slaughterhouse and Butcher Shop Improvement Project" under the new regulation outline whereby associations of bacterial contamination of meat samples with slaughterhouse hygiene, and observations of post-mortem inspection facilities and records of post-mortem findings were monitored during study period, by collecting the respective data in order to set up a model data base for post-mortem data.

1.2 Objectives of the study

The objectives of this study are therefore:

- To describe and monitor pig and poultry slaughter conditions, facilities and operations in slaughterhouses under the DLD Slaughterhouse and Butcher Shop Improvement Project from January to April 2013
- To assess facilities for meat inspection and to record post-mortem inspection findings of pigs and poultry in the a.m. slaughterhouses
- To determine the hygienic status of the slaughterhouse studied using the results of bacterial contamination testing in meat