Native animals are important components of most agricultural production systems in the rural areas of the Asian region. Traditionally, these animals are sources of high quality protein food and additional income to small-scale farmers and other rural dwellers. Native animals also perform other functions, in support of the cultural, social and economic status of rural farming communities particularly in the warm climate zone (WCZ). However, the need to produce more meat and other animal products to meet the increasing demand of a growing human population has brought about intensive animal farming using exotic commercial breeds and hybrids, and imported technologies and other inputs which are beyond the capacity and capability of small-scale farmers. Hence, while native animals are often discriminated against because of their small body size, slow growth rate and unpredictable production performance and product quality, they continue to exist and provide significant socio-cultural and economic contributions to rural farming communities. The ability of native animals to adapt to local environmental conditions and to utilize locally available feed materials enables them to survive and reproduce even with minimal human intervention. Moreover, products of native animals are highly preferred and paid a premium price by consumers.

Regional forum on native animals
Native animals have undoubtedly made positive contributions to the rural economy. However, these contributions are limited due to poor production performance. Two major concerns must therefore be addressed: poor efficiency in the use of locally available feed materials, and generally low production efficiency and productivity. Against this backdrop, FFTC, in partnership with the Philippine Council for Agriculture, Forestry and Natural Resources (PCARRD) of the Department of Science and Technology (DOST) and the Philippine Carabao Center (PCC) organized the international seminar-workshop on the "Utilization of Native Animals in Building Rural Enterprises in Warm Climate Zone" in Muñoz, Nueva Ecija, Philippines on July 19-23, 2010. The seminar-workshop primarily aimed to gather and organize practical strategies and technologies that would enhance sustainable production and utilization of native animals in building rural enterprises. The activity also sought to build research and development (R&D) partnerships and collaboration between and among participating countries toward the development and promotion of products from native animals. A total of 12 resource speakers from 7 participating countries namely, Indonesia, Japan, Korea, Philippines, Taiwan, ROC, Thailand and Vietnam and 40 local participants and observers participated in the seminar-workshop.

Use of native animals in building rural enterprises
The unique characteristics of native animals fit to the limited capability and capacity of small-scale farmers in terms of cash capital, technical know-how and access to technical services. Current trends in animal production and consumer preferences such as range management, natural or organic animal production system, and chemical-free food products and consumer preference for meat with 'exotic' or unique taste and flavor also favor the production and utilization of native animals.

However, success in harnessing livelihood opportunities from native animals is only possible if technologies and production systems are compatible to the small-scale farmers’ limited resources and capabilities. For example, the apparent success of rabbit production in Indonesia is largely attributed to the government’s deliberate effort to introduce technologies that are compatible to the farmers’ resources and to the establishment of systems that ensure sustained supply of inputs (breeder animals and feed) and support in terms of infrastructure and technical services, and product development and promotion. Meeting consumer demands in terms of quality and food safety standards is another important issue to consider in ensuring sustainability of native animal-based enterprises.
Production, utilization and marketing
Native animals and other newly domesticated endemic animal species have the ability to survive and reproduce under natural environments with minimal material and technological inputs, have perceived nutraceutical value, and are highly preferred for their taste, flavor and texture of meat. Due to the native animals’ adaptation characteristics, cost to produce them is generally lower compared to their hybrid counterpart. Moreover, the unique attributes of their products, which are preferred and paid a premium price by consumers, highlights their potential as a source of livelihood to poor rural farmers.

In some advanced countries, technological advancement and industrialization has initially caused negative impact on the diversity of native animal genetic resources. However, advanced technologies have now successfully hastened the development and enhancement of the value of genetic resources. Application of molecular genetics has facilitated genetic purification and improvement of native animals. In Korea, the use of molecular marker tracking technology in combination with a practical product tracking method made possible the implementation of a traceability system that is vital in maintaining the competitiveness of Hanwoo meat against imported beef. Breeding populations of native breeds such as the Korean native chicken, once considered on the brink of extinction, have been successfully re-established through the application of appropriate biotechnology.

Sustainability and profitability of native animal production systems is largely dependent on the availability and accessibility of genetic resources that meet the needs of small farmers and the demands and preferences of consumers. The experience of Taiwan in the development of meat type chickens highlights the importance of a thorough understanding of the characteristics of the native breeds and identification of unique traits that would address the needs of farmers, meet the demands of consumers and promote environmental protection.

Identification and development of phenotypic and genetic characteristics
The economic importance of native animals largely depends on their unique phenotypic and genetic characteristics that make them fit into the environment and conditions of small-scale farms. The native animal’s importance is also influenced by its ability to produce products with attributes that are preferred and paid a premium price by consumers. Thus, success in the conservation and utilization of native animals largely depend on the identification and development of these unique characteristics.

In the Philippines, the carabao (buffalo) traditionally provides draft power, as well as meat and milk to small farmers. Conservation and development efforts on carabao have now shifted toward increasing milk and meat production. Assisted reproduction and marker-aided selection are among the technologies currently utilized for this purpose. Similarly, selection and identification of unique characteristics of native chickens in Taiwan is also pursued through molecular means. Conservation and genetic improvement efforts on the ‘Wagyu’ of Japan is generally focused on marbling of the meat, fatty acid composition, growth and reproductive performances, and efficiency in feed utilization.

In Thailand, native cattle development is likewise geared toward meat and milk production. Improvement in meat and milk production of the Thai native cattle is achieved through a series of crossbreeding using European breeds of beef and dairy cattle. Current initiatives are also focused on improving the adaptability of the animals to local environmental conditions to ensure optimum production performance even in sub-optimal conditions.

Development and promotion of native animal products
The role of the government in promoting the development and utilization of native animals must be focused on technology generation and promotion, delivery of technical support services and implementation of policies, which are vital to conservation, improvement and profitable utilization of these animal genetic resources. Although commercial production and utilization of native animals is best implemented by the private sector, government must play a very important role in animal conservation and breed development to provide the initial stocks that will be used particularly by the small-scale farmers. Animal breeding, which requires long-term investments, is less likely to be pursued by the private sector. Hence, government stock farms and/or animal R&D centers must be established to serve as sources of good quality animal genetic resources particularly for small-scale farmers.

Looking forward
Through the international seminar-workshop, native animal R&D and technology commercialization priorities and product promotion strategies of each participating country as well as potential areas of collaboration were identified. Among the most urgent issues identified are activities related to characterization and conservation of native animals, improvement of the native animals’ productivity and production efficiency, food safety, resource sharing and establishment of networks for effective marketing of native animal products.
International Seminar-Workshop on Utilization of Native Animals in Building Rural Enterprises in Warm Climate Zone

Held in Nueva Ecija, Philippines, 19-23 July 2010
No. of participating countries: 7 (Indonesia, Japan, Korea, Philippines, Taiwan ROC, Thailand and Vietnam)
No. of papers presented: 11
No. of participants: 12 speakers and 50 local participants/organizers
Co-sponsors: Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (PCARRD); Philippine Carabao Center (PCC); Central Luzon State University (CLSU), Philippines; Council of Agriculture (COA), Taiwan ROC

List of papers
1. Potentials and livelihood opportunities from native animal production in the Philippines
   - Synan S. Baguio
2. Micro- and small-scale rabbit farming based on farmers’ cooperation as a means to build rural enterprise
   - Yono C. Raharjo
3. Production and profitable utilization of rare local animals in Vietnam
   - Vo Van Su
4. Management and use of native animal genetic resources in Korea
   - Poongyeon Lee
5. Utilization and conservation of native chickens in Taiwan
   - Yen-Pai Lee
6. Native chicken: small-scale enterprise and conservation in Indonesia
   - Sofjan Iskandar
7. Mong Cai pig conservation and development
   - Ta Thi Bich Duyen
8. Genetic diversity in native chicken
   - Chih-Feng Chen, Michèle Tixier-Boichard and Yen-Pai Lee
9. Utilization of indigenous swamp buffaloes under a changing agricultural setting
   - Libertado C. Cruz
10. The Wagyu cattle breeding in Japan: progress and future prospects
    - Hiroaki Iwaisaki
11. Conservation and optimization of genotype by environment in Thai native cattle
    - Sornthep Tumwasorn
12. Role of government stock farms in the development of Philippine native pigs, chicken and ducks
    - Rene C. Santiago

For further information, contact:
Mr. Shan-Nan Lee, FFTC Technical Consultant