
Improving smallholder dairy farming in tropical Asia

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1 Introduction

Globally, agriculture provides a livelihood for more people than any other industry (primary or secondary), while dairy farming is one of the major agricultural activities. The Food and Agriculture Organization (FAO) estimated that the world's milk production in 2012 stood at 754 billion tonnes. Hemme and Otto (2010) estimated that 12–14% of the world's population (or a total of 750–900 million people) live on dairy farms or are within dairy farming households. Livestock provide over half the value of global agricultural output and one third of the value of agricultural output in developing countries. Milk is nature's most complete food and dairy farming represents one of the fastest returns for livestock keepers in the developing world.

The Asia-Pacific region has seen the world's highest growth in demand for milk and dairy products over the last 30 years. Even though Asia has increased its milk output (as a percentage of global production) from 15% in 1981 to 37% in 2011, it still accounts for over 40% of the world's total dairy imports. The consumption of milk and dairy products in Asia has doubled over the last 30 years, now contributing to more than 60% of the total increase in global consumption.

Many of these countries now have school milk programmes to encourage young children to drink more milk and thus improve their health through increased consumption of the energy, protein and minerals (particularly calcium and phosphorus) contained in it.

In future years, as these children grow and have their own families, milk consumption will increase at an even faster rate. In the future, per capita milk consumption in South East Asia is expected to nearly double – from the current 10–12 kg/hd/yr to 19–20 kg/hd/yr by the year 2020 (Delgado et al. 2003). This 3% per annum growth will lead to a total milk consumption of 12 million tonnes/yr by 2020, which Delgado et al. (2003) predict will require a net import of 9 million tonnes of milk/yr. This will be a significant increase from the 4.7 million tonnes of milk/yr imported in 2000. In summary, by 2020, South East Asia will be producing only 25% of its total milk requirements.

Such growing demands have arisen due to a combination of the following factors:

- increasing per capita incomes;
- the emergence of affluent middle-class people in many low- to middle-income countries;
- westernisation trends which increase the demand for protein foods and value-added dairy products;
- increasing urbanisation; and
- expansion of modern retail outlets (with refrigeration cabinets) throughout Asia.

In other words, higher incomes and increasing urbanisation have combined with economic reforms and market liberalisation policies to heighten the import dependency of many countries in this region. Asia has then become increasingly dependent on the highly competitive, but increasingly volatile, global dairy commodity markets. This reliance on imported dairy products is likely to continue for most Asian countries, although many of them are striving towards self-sufficiency in dairy production.

There is a group of Asian countries with low per capita milk consumption and low self-sufficiency and these are likely to be the ones with most proactive dairy development programmes. These include the Philippines, Indonesia, Thailand, Malaysia, Vietnam, Cambodia and Laos.

2 Dairy farming in Asia

Dairy farming in Asia can be broadly classified into three major types of production systems:

- 1 *Mixed farming*, in which income from milk production constitutes only a relatively small proportion of the total farm income. Many of these farms have evolved from essentially cropping enterprises to those where livestock production is becoming more important. Milking herd sizes are generally quite small on these farms, ranging from fewer than 5 to more than 20 cows approximately.
- 2 *Essentially smallholder dairy farms*, where milk production has increased over recent years to become a major contributor to farm income. While in many cases, construction of the dairy facilities has evolved and more land is available, these improvements may not be sufficient to meet future requirements. Milking herd sizes are very small, generally no more than 5–10 cows.
- 3 *Larger specialist dairy farms*, which were established primarily to produce raw milk. Dairy facilities on these farms have been better planned to satisfy the requirements for a predetermined number of milking cows. In most cases, land would have been