DIERENARTSEN ZONDER GRENZEN | VETERINAIRES SANS FRONTIERES BELGIUM

# VSF Policy Brief

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# ON THE MILKY WAY IN THE GLOBAL SOUTH


- About one billion people in the global South are living on dairy farms, on smallholdings or in landless households and are keeping one or more animals (FAO, 2013). 85% of all smallholders milk their cows and/or small ruminants. Smallholder dairying provides livelihoods and contributes significantly to food and nutritional security.
- To maximize the potential of smallholder dairy farming:
  - (Inter)national governments need to create an enabling environment for smallholder dairy chain development to increase food sovereignty
  - Dairy farmers and transformers' organisations and cooperatives' capacities must be reinforced and they must be included in designing policies affecting them
  - Local collecting, stocking and transforming infrastructure must be developed
  - Local and international transformation units must be encouraged to increase the use of local milk in the dairy production process

**Production and consumption of milk and dairy products is on the rise. Production has increased significantly in the past decades and due to higher incomes, urbanization and social and cultural factors, the demand for milk and dairy products will continue to grow (FAO, 2013). This increase however, is mainly due to sharp growth in milk and dairy production and consumption in a few countries in Southeast Asia, as well as in India and China. In many parts of the global South – such as Sub-Saharan Africa – milk production and consumption has not changed significantly and is in some cases even declining. At the same time, about one billion people in these countries are living on dairy farms, smallholdings or in landless households keeping one or more animals. They keep animals in mixed farming and (agro-)pastoral farming systems with dairying contributing significantly to their livelihoods and creating jobs (Schiere, J.B., Van Mierlo, J. 2010). Globally, it is estimated that one job outside of the farm is created for every 10-20 litres of milk that are collected, processed and marketed. In fact it is estimated that about 150 million farm households (or about 750 million people) are engaged in milk production (FAO, 2010). Smallholder dairying in the global South not only provides food security, but is also very important when it comes to nutrition. According to the World Bank Agricultural Investment Sourcebook, smallholder**



Vétérinaires Sans Frontières
Avenue Paul Deschanel 36-38
B-1030 Brussels
BELGIUM

T + 32 (0)2 539 09 89
F + 32 (0)2 539 34 90

info@vsf-belgium.org
www.vsf-belgium.org

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**dairying is an effective and key source of income and nutrition for 300 million rural and periurban poor. A 200ml glass of milk a day provides a 5 year old child with 21 percent of daily protein requirements and 8 percent of daily calorie intake.**

**Though smallholder dairying in the South provides a lot of benefits, specific challenges related to production, commercialization and consumption persist. Inadequate access to fodder, credit, veterinary services and markets often limit production. A lack of investment in local collecting, stocking and processing units due to liberalizations also affect smallholder dairy production in a bad way. Imported milk powder therefore takes over to keep up with local (urban) demand. Clear strategies involving reinforcing capacities of dairy production, collection and processing cooperatives and organizations, connecting all stakeholders of the value chain, investing massively in small- and middle scale collecting and transforming units are therefore essential to realize the full potential of smallholder dairy production in developing countries.**

## RISING MILK CONSUMPTION

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Milk production and consumption is on the rise and milk and dairy products are becoming increasingly important in human diets all over the world. Recent research from the FAO (FAO, 2013) has shown that the daily energy intake per capita in the South increased significantly between 1961 and 2007 and is in fact approaching the average daily energy intake levels per capita of Northern countries. Milk and dairy consumption seems to take a significant part in this; between 1961 and 2007, it has almost doubled in the global South.

However, there are huge differences between regions. Milk consumption has increased the most in China and East and Southeast Asia, with annual growth rates between 7 and 9.7% for the period 1987-2007. Regarding milk production, Asia is also growing very fast, led by India which was responsible for 16% of worldwide milk production in 2013. In fact, the global South – led by India and China – is expected to produce even more milk and dairy products and by 2020 it is estimated that they will take care of half of global milk production (OCDE/FAO, 2011). Elsewhere in the South, milk consumption has also increased. Milk consumption in Brazil for instance, grew at a growth rate of 1.7% between 1987 and 2007. The big exception seems to be Sub-Saharan Africa where during the same period milk consumption actually decreased with an annual growth rate of -0.2%. In the North, milk consumption hardly increased between 1987 and 2007, from an annual per capita milk consumption of 221 kg in 1987 to 224,1 kg in 2007.

The increase in milk and dairy consumption in the global South is determined by several factors including economic, demographic and socio-cultural drivers. Firstly, **increased incomes**, as part of the economic drivers, have had a huge impact on expenditures for dairy products. Small increases in income tend to lead to large increases in expenditures for livestock products. This, however, also varies from one region to another. Income growth in low-income countries has a much bigger impact on demand for milk and dairy products than income growth in high-income countries. In many Asian countries for example, demand for milk and dairy products has risen because people are spending more disposable income on livestock products. Secondly, **urbanization** is one of the demographic drivers stimulating milk and dairy consumption. Considered an unstoppable phenomenon, urbanisation seems to increase demand for animal products as people in cities have a preference for precooked, fast convenience food (Gerosa, S. et al, 2012). Finally, **social and cultural drivers** also play an important role. In Japan for example, consumption of milk and dairy products is much lower than in several other similar high-income countries. Overall, consumption of milk and dairy products is on the rise, though significant differences exist between regions and continents.

Even if differences exist between regions, it is clear that global milk consumption and production are increasing and that this trend will continue for the upcoming years. At the same time, the world population is growing rapidly and by 2050, world population is expected to be at 9.1 billion people (FAO, 2009), 70% of whom will be living in cities. It can be assumed that a great proportion of these people will also be consuming milk and dairy products. The challenge will therefore be to

develop policies and practices that promote sustainable milk and dairy production and to increase access to milk and dairy products for all.

## SMALLHOLDER DAIRY FARMING IN THE GLOBAL SOUTH

In the global South, about one billion people are living on dairy farms, smallholdings or in landless households keeping one or more animals (FAO, 2013). Estimates show that about 85% of smallholders keep cows or small ruminants while others keep camels, buffaloes, horses or donkeys for milking. Depending on their culture and habits, people milk different animals, ranging from larger animals to small, less costly ruminants such as goats. In 2010, the FAO reported that 150 million farm households – or about 750 million people – are involved in milk production. The majority of them live in the global South and practice smallholder dairy farming, as part of family farming (VSF-DZG 2014). Smallholders can therefore play a pivotal role in providing milk and dairy products, especially on the local level.

Local smallholder milk production can play an important role in satisfying local milk and dairy demand, and in attacking problems such as **under- and malnutrition and poverty** (FAO, 2013). Smallholders and family farmers keep animals because they provide animal products such as milk and meat as well as services on the farm such as traction for ploughs and manure to fertilize the crops. These services are important to increase crop production and therefore to augment the household income (Corniaux, C., et al 2013). Dairying is a stable source of income because milk can be produced and sold daily. Apart from this, dairying is rarely the main reason why smallholders keep animals (Corniaux, C., et al 2013); other reasons include savings, cultural value (dowry…), and esteem.

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Smallholder dairying also **creates jobs** for traders, transporters, mobile milk traders, processers, etc. Globally, it is estimated that one job outside of the farm is created for every 10-20 litres of milk that are collected, processed and marketed. Women play a pivotal role in smallholder milk production and collection, and in the processing and marketing of dairy products. The role of women in dairy production varies from one country to another and important regional differences exist. Gender relations are therefore important in smallholder milk production systems and need to be considered when designing policies and programs to develop them.

Next to generating jobs and additional income, smallholder milk production also contributes significantly to **food security** and is important for **tackling under- and malnutrition**. As previously mentioned, keeping dairy animals makes dairy products both available and accessible. Although a proportion of the milk is sold or exchanged for other foodstuffs, smallholders tend to consume the greater part of their own milk production (Otte et al., 2013). Smallholder milk production uses mostly grass, crop residues and (agro-)industrial by-products to produce milk, which makes it a very sustainable production system as it does not compete with other available food stuffs for human consumption such as soya, corn and cereals. Dairying is also important for accessing food products: all around the world, dairy products are preserved for consumption in the winter and during dry seasons.

Milk and dairy products are also very **nutritious** foodstuffs that are part and parcel of a healthy diet (Otte et al, 2013). Milk is a very important source of protein, especially for those that have high needs and a reduced access to food, for instance young children, pregnant and lactating women and people living with HIV or AIDS. Dairy consumption can therefore make an important contribution to improving nutrition for women and children and is an important constituent in food products aimed at treating malnutrition. Consumption of milk and dairy products also has a positive effect on cognitive development. In some regions, such as the drylands of Africa – which cover about 43% of the African land surface and home to 325 million people – animal products such as dairy and meat are often the only source of protein as the land is too arid to grow protein containing crops (UNCCD, 2009). In pastoral communities, milk consumption is pivotal. For example, according to a study carried out in 2009 with pastoralists in Ethiopia and Somalia, the average milk intake during the wet season provided a one year old child with 2/3 of the mean energy required and 100% of the protein required by a child of his/her age (Sadler, K., Catley, A. 2009). Besides proteins, milk and dairy products also provide carbohydrates and lipids which are important components of daily food intake. Milk also contains calcium and vitamins that are very important for child growth (Gerosa, S., etal, 2012).

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Overall, smallholder milk production in the global South offers plenty of opportunities due to the great number of smallholder dairy farmers, its sustainable way of producing animal food products and its contribution to food and nutritional security. Smallholder milk production, as a part of family farming, should therefore be encouraged by an enabling environment to optimize production because notwithstanding the numerous advantages of smallholder dairy production, several challenges still exist.

## CHALLENGES FOR SMALLHOLDER DAIRY PRODUCTION IN THE GLOBAL SOUTH

One of the first series of challenges can be identified at the **production level**. Smallholder dairy production in the global South usually takes place in mixed farming systems, but also in (agro-)pastoral systems (ILRI, 2008). While the former is mostly based on the integration of crop and livestock farming, the latter is grounded upon mobility and herders move from one place to another in search of water and pasture. These (agro-)pastoral systems are mainly found in the arid and semi-arid regions which cover large parts of the Earth. Both production systems face similar challenges. A first series of challenges related to dairy production revolves around **the access to fodder and water** (Corniaux et al, 2013). (Agro-)pastoral dairy systems rely mainly on water and pasture to feed their animals and to a lesser extent on crop residues, as is mainly the case for mixed smallholder dairy farms. Water is very important for milk production as 87% of milk consists of water.

Cows have to drink between 4-8 liters of water per day for every liter of milk they produce. Access to water and fodder also depends on the time of the **season** (IIED, 2010). During the wet season, pasture can be accessed more easily and milk production will be high, but during the dry season, milk production is only feasible if additional fodder is fed to the animals. Access to pasture is also becoming increasingly difficult due to competition with other forms of land use such as agriculture, tourism, mining and wildlife conservation. Furthermore, due to climate change, there is less pasture, water and crop residue, which has a negative impact on smallholder dairy and livestock production (Rivera-Ferre, 2012). Next to accessing fodder, smallholder dairy producers find difficulties in **accessing basic services** that would have a positive impact on milk production. A better access to veterinary care and to credit would definitely boost smallholder dairy production (FAO, 2013). Other measures such as a better herd management to increase fertility also have a positive impact on dairy production.

Another series of challenges revolves around the **commercialization of milk and dairy products**. Firstly, dairying is not always perceived as a commercial activity but rather as a by-product of livestock keeping (Corniaux et al, 2013). Milk is often consumed directly, at the household level, instead of being sold. Another issue revolves around **the lack of infrastructure to collect, store and transform local milk**. Investments in roads, electricity and storage/transforming capacities of local collecting units on the one hand; and in organizations of dairy producers and collectors on the other, are needed in order to realize the full potential of locally produced milk. Due to the lack of investment, local milk is sometimes thrown away because of incapacity of collecting, storing and transforming larger quantities of milk. This mainly happens during the wet season, when milk production is significantly higher than during the dry season (Schiere, J.B., Van Mierlo, J. 2010). This is also often the consequence of not investing in the **organization** of the dairy sector and mainly in milk cooperatives and producers' organizations, which should be responsible for collecting and transforming the milk. This lack of investment in local structures increases prices of local milk, compared to imported milk coming from South America, New Zealand and Europe. This leads us to another challenge related to the commercialization of local milk, namely **the competition between local and imported milk** (Corniaux, 2012).

In big parts of the global South, milk powder has been imported in the past decades to follow the rising demands for milk and dairy products. Following this evolution, an entire dairy industry has been developed using mainly imported milk powder and providing livelihoods for a lot of people. This industry often prefers using imported milk rather than local milk because of issues such as high prices, seasonal production, questionable hygienic production conditions of local milk, long distances between main production areas and urban centers, etc. Even local transforming units – who normally use local milk to produce dairy products – regularly use milk powder during the dry season to keep up with the local dairy demand (Corniaux, 2013). In fact, as cities are growing throughout

the global South, dairy demand increases and local milk has a hard time keeping up. The import of milk powder is simply necessary to keep up with urban demand. The import of large quantities of milk powder is actually the consequence of a lacking investment in local milk production following years of liberalization of the dairy sector.

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The import of milk powder to satisfy local (urban) demand in the global South leads to another series of challenges related to **consumption**. Many urban consumers in the global South prefer to buy dairy products that were made with imported milk powder because they are cheaper (Broutin et al, 2007). Local dairy products tend to be more expensive because the costs to collect the milk are very high. Local milk is mostly transformed by small dairy transforming units that don't always have a good reputation and they don't have the same marketing budget as larger transforming units to change their image. People are often convinced that hygienic and sanitary conditions of local milk are not as strict as those used for imported milk.

These challenges related to production, commercialization and consumption of local milk products coming from smallholder dairy production systems should be addressed in a holistic and coherent way. Not only does local production of milk have to be improved in quality and quantity, production should also remain stable throughout the year. The influence of seasons must be mitigated if one wants to consider local milk commercialization.

## AN ENABLING ENVIRONMENT FOR SMALLHOLDER MILK PRODUCTION AND CONSUMPTION IN THE SOUTH

In order to create an enabling environment for local milk in the global South, it is clear that local milk production needs to be stimulated while the dependence on the import of milk powder needs to be reduced. Several measures can be taken to improve and accelerate this process. They must, however, be part of a holistic strategy for smallholder dairy development. A first clear step is to actively **reinforce, promote and support organizations and cooperatives of local dairy producers, collectors and transformers** (Corniaux, et al 2013). Smallholder dairy producers and small-scale dairy transformers need to be increasingly included in designing and developing strategies and actions that promote smallholder dairy development. Their role is pivotal and their capacities need to be enhanced. As smallholders themselves are essential in developing smallholder dairy production, they must get a predominant role in designing all policies, programs and actions affecting them (AVSF, 2010). They have a positive impact on all challenges outlined in the above and often have specific and thought-through ideas on the development of "their" sector (Bill and Melinda Gates Foundation, 2012). Farmers' organizations and cooperatives also provide many advantages for producers as they provide a way to organize milk collection, to reinforce their negotiating power with large transforming units or to manage their own transforming units (Knips, V. 2005).

Secondly, the most urgent problem to address is related to the commercialization of dairy products (Corniaux, 2013). It makes no sense to try and optimize local production before the current local production can be commercialized. **Massive investment in collecting, stocking and transforming capacities of small and average local dairy units is key**. Energy access is very important because local collecting and transforming units need electricity to be able to cool the milk and to transform it into dairy products. Roads should be built to connect urban centers – with high milk and dairy demand – with rural areas where milk is produced. With regard to pastoralists, clear strategies should be developed to fully realize their potential milk production.

Thirdly, concerning the import of cheap milk powder, local transforming units should be encouraged to use **local milk in their dairy products**. Local organizations of livestock keepers should be reinforced to increasingly interact with local transformers in urban and rural areas to supply local milk for their dairy products. International companies exporting milk powder to the global South and local companies, who use the imported milk to produce dairy products, should be made aware of the many opportunities and socio-economic and ecological advantages of local milk. This will encourage them to invest in local milk transformation instead of transforming imported milk. Connecting all stakeholders in the milk supply chain is pivotal to encourage smallholder dairy development and to increase the food sovereignty of countries in the global South through smallholder dairy production. Thus consumers should be made aware of the many advantages of local milk and dairy consumption.

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# IN CONCLUSION

*Despite a clear increase in milk production and consumption throughout the world, this evolution has yet to take off in the global South. At the same time, a great proportion of people in the global South are involved in smallholder dairying through either mixed farming or (agro-)pastoral farming systems. Smallholder dairying in the global South improves livelihoods, creates jobs and improves food and nutritional security. However, several challenges at the production, commercialization and consumption level prevent maximizing the benefits related to smallholder dairying. Clear policies must be developed and actions must be taken. Key to successful smallholder dairy development in the global South is the inclusion of small scale dairy farmers and transformers' organizations in the drafting of policies. They should be increasingly involved in designing national agricultural and development policies and their capacities should be increased in order to do so. Increasing smallholder milk production in the global South has to include smallholder dairy producers. Local and national authorities, private milk transformers and international development organizations must define coherent strategies and execute actions to encourage the development of the smallholder dairy chain and local authorities should also raise awareness on the importance of local milk consumption and invest in campaigns addressing the issue.*

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