

Industrial livestock production and its impact on smallholders in developing countries

*Consultancy Report to the
League for Pastoral Peoples
and Endogenous Livestock Development*

Susanne Gura

April 2008

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Front cover drawing:

The new global divide: Corporations, like Nestlé, have been living on heavily subsidized western dairy farming system. They are now substituting it with cheap supplies from small production units run by very poor Pakistani families. Source: Punjab Lok Sujag (2003): The political economy of milk in Punjab. A people's perspective

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Summary

The industrialisation of livestock production has reached most countries in the world. Three quarters of the world's chicken, two thirds of the milk, half of the eggs and one third of the pigs are produced from industrial breeding lines, i.e. genetically very similar animals bred for high output. This occurs mostly using concentrate feed and frequent chemical veterinary treatments, often on large farms that often are climate controlled, and with increasingly heavy "biosecurity" – measures controlling entrants to factory farms like personnel or visitors, feed, replacement animals - to prevent infections.

The study describes industrialisation of livestock production and its impact on smallholder producers, and discusses what should be done to improve their situation. Smallholder livestock farmers make up 70 % of the world's poor, and small-scale family farms hold the key to more productivity, environmental sustainability, and more employment, as shown by e.g. the recent EcoFair Trade Dialogue studies commissioned by German non-governmental organisations.

Over the past decades, high-bred cows, pigs and chicken together with factory farms have been introduced into developing countries, often aided by development cooperation, and supported by measures such as subsidies, veterinary services, local research and animal health regulations. Where environmental conditions were too harsh for the exotic animals to produce or even survive, crossbreeding with local breeds was the approach advocated, as local breeds and production systems were usually considered unproductive and backward.

Livestock development policies very often resulted in distorting market forces in favour of industrial systems to the disadvantage of smallholder systems which were not only the main providers of products like fertilizer, meat, milk, eggs, wool, hides and skins, but also of essential services, like transport, credit ("banks on hooves"), landscape conservation, environmental protection, and who also formed an important basis of social organisation and cultural identity. Such products and services are still essential in many areas, rural and urban. Productivity comparisons that focus on just milk, meat or eggs quantity and quality, rather than including products and services relevant to smallholders have resulted here in biased evaluations.

The fact that the livestock industry is growing seven times faster than smallholder livestock systems is very likely a result of the heavy support. Not surprisingly, the willingness of the youth to remain in smallholder livestock production is often also decreasing.

In the best case, where there are enough affluent consumers, traditional products can fetch a premium price in a niche market. More generally, however, smallholders tend to become contract farmers or agricultural labourers, or give up livestock raising.

Value chains that integrate farmers through contracts have been established in livestock production in many countries. A value chain comprises the activities bringing a product from the producer to the consumer. International food corporations nowadays are using the term "value chain" to describe the integration –usually by contract- of producers into the corporations' procurement of raw material for processing and trade. Smallholder poultry, pig or milk producers often become part of a contract chain. They usually receive most or all major inputs including credits, and usually deliver the products, often at guaranteed prices, to the same company. In some cases, independent veterinary advice is no longer obtainable. The little available data suggest that contract farmers bear the risk involved in agricultural production, are often indebted, and moreover, have no choice but to upgrade technologies, thereby increasing their indebtedness. This is especially severe in view of the increasing animal disease risk, and the growing investments into biosecurity measures necessary to contain the infection risk.

Examples from chicken and pork production in Brazil and Thailand, where local corporations have set up production and export value chains, show that a concentration process is taking place. The

factory farms increase in size, while most smallholders have to leave the sector. In Thailand, around a quarter of the poultry population was native and raised in smallholder backyards until Avian Flu regulations eliminated many of them by massive culling. A smallholder pig farming business is surviving in the Philippines until in 2009, further market liberalization is expected to lead to its decrease. In China as well as Vietnam, smallholders as well as investors are being incorporated into large pig production industrialization programmes.

Poultry and pig factories integrated into corporate value chains are fast growing in Asia and Latin America, and poultry factories are sprouting up in many African countries as well. The four globally active poultry breeders (Erich Wesjohann Group, Hendrix Genetics, Groupe Grimaud and Tyson) have established multiplication and distribution systems for their hybrid lines in all these areas. Farmers cannot breed the hybrid lines, but need replacements for each production cycle, and this dependency – often contractually exclusive - has fostered an extreme concentration. With the help of hybrid pig lines there is a rapid concentration taking place in the pig breeding industry, which is also spreading its multiplication and distribution systems worldwide. The achievable rates of return have attracted seed corporations like Monsanto to invest in livestock genetics. Exclusive access to gene and information technologies is also fostering further concentration, including cattle genetics. The global market leaders of pig, cattle and shrimp genetics all are subsidiaries of one livestock biotechnology corporation, Genus plc.

Food corporations are increasingly looking for lower cost raw materials in the South. For example, the “Dairy Pakistan” plan is a government plan built on Nestlé’s strategy. Pakistan’s millions of buffalo milk producers will, with the help of a new regulation stipulating that all milk sold to consumers has to be pasteurized, be forced into Nestlé’s value chain. Pakistan is the fourth largest milk producer in the world, with the lowest production cost. Nestlé is Pakistan’s most powerful consumer goods company. In order to increase its access to milk, Nestlé is also planning to replace the buffalos with industrial dairy cattle breeds, although buffalos thrive well on local feed, and their milk is highly valued by smallholders and consumers.

Recent drastic feed price increases may upset many of the plans to further develop industrial livestock production. The competition between food, feed, and agrofuels is expected to only further increase prices. Pressure on the next alternative, locally available feed sources, is very likely to increase. Smallholders, if not protected, may be among those who will suffer most from price increases in local feed resources.

With liberalization, global trade in livestock products has grown substantially over the past decade, and animal diseases and associated regulations have become its major determinants. They usually respond to the needs of industry, not of smallholders. For example, Avian Flu regulations in developing countries are known to have culled backyard poultry in huge numbers, although the disease problems have increased along with the size and uniformity of the factory farms. Another example are export oriented animal health regulations. They have helped to eliminate smallholders in Brazil, while the country with its low cost feed production has become the world’s main meat exporter.

While statistics since their beginnings have recorded China as the world’s largest meat producer, it only became an international factor in the past decade. The country is now playing a major role at the global level due to its current imports, political power, and environmental destruction levels. China’s growing pig production is based partly on smallholders, partly on factory farms up to half a million animals as currently run by the US market leader Smithfield. Local food corporations like COFCO increasingly control the world’s largest market. During 2007, a severe outbreak of a respiratory disease (Blue Ear disease, PRRS) contributed substantially to inflation, and led to new pork production subsidies. China may also increase its influence on international trade standards: A recent deal to import US pork made Smithfield agree not to use the beta blocker Ractopamine which is outlawed in China and the EU.

Nestlé is heavily investing in China, and after having convinced the government to implement a school milk programme, a huge dairy industry is being developed. Its centre is Hohhot, the capital

of Inner Mongolia, while the nomadic livestock herding, the main traditional economic activity of this region, is increasingly restricted. The result is visible in satellite photos. Looking at the border between China and Mongolia, the Chinese area is degraded, whereas in Mongolia, where pastoralists constitute the majority of the population and their movements are unrestricted, there is hardly a desertification problem.

While the social and political problems have not often been a topic, environmental problems associated with intensification of livestock production are being discussed more widely than ever before. Feed grains occupy a far greater area than agrofuels, and methane emissions from ruminants are one of the biggest contributors to global warming. Despite these problems, few countries have sustainable livestock sector policies addressing them. Production increases at almost any price govern policies, without recognizing its limits. Production increases have led to average consumption levels in the South already reaching the maximum levels recommended by nutritionists. They correspond to about half the animal protein levels consumed in the North – levels that are linked to widespread human health problems. Nothing so far has halted the “livestock revolution” where Southern governments cushion the ground for extremely problematic industrial production systems. Consumer and animal welfare organisations all over the world have been advocating on the issue of industrial livestock production, arguing that there is no such thing as cheap meat.

Market power of the food corporations remains a major problem which has not yet been properly addressed. While one of the most influential development policy documents, the World Development Report 2008, was critical about the role of transnational corporations in developing country agriculture and, particularly, the problem of their excessive market power and resulting market distortions, it kept silent on the crucial question of how to regulate market power. The producer organizations recommended by the World Development Report will hardly balance the unequal power distribution between smallholder farmers and larger traders and processors. The development of smallholder agriculture is often paralyzed by their dependency on one product, on a buyer monopoly, and on a single source of input and credit, and on a market that is dominated by a few countries and corporations.

With regard to the loss of livelihoods for smallholders, the World Development Report recommended relocating smallholders as a labour force in industrial agriculture. The FAO, however, had warned that this absorbs only a rather small number of people. Movements of smallholder farmers and pastoralists from around the world who met at the Livestock Diversity Forum held in September 2007 in the Swiss village of Wilderswil argue, that not only livelihoods, but also food sovereignty are lost. Parallel to the United Nation’s Food and Agriculture Organisation’s Conference on Animal Genetic Resources in Interlaken, Switzerland, the Forum demanded a radical reorientation away from the risky and high cost industrial livestock production system. They committed themselves to striving towards food sovereignty by defending the collective rights and interests of pastoralists and other small-scale livestock keepers.

This publication presents many examples of how smallholders and pastoralists have lost out with the expansion of industrial livestock production, but also how their movements and supporting organisations have set out to secure their rights, and continue to develop their breeds, their production systems and their cultures. A series of recommendations for action concludes the study.

1. Introduction

Significant developments have taken place in recent years that affect global livestock production, and especially smallholder livestock keepers. Industrial livestock production had unprecedented growth rates, and international trade is growing fast. Brazil became the world's largest exporter, and China, the world's largest producer, became an international actor. The international expert community intensified considerably its discussion of the environmental limits to livestock growth, especially with regard to climate change. Partly due to increasing competition from agrofuels, feed prices are increasing and may be upsetting many plans to further boost industrial livestock production. During the "Livestock Revolution", the question was rarely asked of how smallholder livestock keepers are affected by the growing industrial production and trade of chicken, eggs, pork, beef and milk. What was realized, however, was that they have played a crucial role in developing the variety of at least thirteen thousand breeds of forty domesticated livestock species, and that these breeds are as fast disappearing as industrial production is spreading. At this turning point of increasing prices and apparent environmental limits, it is time to review the impact on smallholders and discuss possible alternatives.

This publication builds on four case studies. They were chosen for their relevance (poultry and pig industries are far developed in Brazil, Thailand and the Philippines), their planned growth (such plans are in place for the pig industry in Vietnam, and the dairy industry in Pakistan), and their current economic and political relevance (the dairy industry in China is currently one of the fastest growing food sectors worldwide and was recently blamed for rising dairy prices in other countries including Germany). Availability of data has also influenced the choice of cases, as the topic itself has not been intensely studied so far. In addition to the case studies presented in the Annex, many examples are used to illustrate the points made. The wealth of related data may be overwhelming. It is hoped that many others feel encouraged to further analyse the many questions that can't be thoroughly discussed in a single publication. And especially, it is hoped that the conclusions and recommendations drawn will intensify discussion among social movements and civil society organisations as well as policymakers and their advisers and will lead to the necessary prioritizing of sustainable smallholder livestock production systems.

This publication has been produced for the League for Pastoral Peoples and Endogenous Livestock Development (LPP) as part of the civil societies' preparations for the First Technical Conference on Animal Genetic Resources held by the United Nation's Food and Agriculture Organisation in Interlaken, Switzerland, in September 2007. LPP jointly with the International Planning Committee for Food Sovereignty have organised a parallel Livestock Keepers' Forum in nearby village of Wilderswil. There, the main findings of the analysis were discussed, among others, and a Declaration was presented at an event during the FAO Conference. In the preparation process, a study was published on the concentration and proprietary strategies of livestock genetic companies, funded by Greenpeace. Other funding organisations that contributed to the preparations and discussions leading to this analysis, include Misereor, Swissaid, the Swiss Development Cooperation, HIVOS, NOVIB, and the Christensen Fund.

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2. Livestock smallholders – a neglected potential

To many readers it may come as a surprise to learn that smallholders may have a future. Farming communities in developing countries are often believed to be uneducated, traditional, and not working along economic considerations. From that perspective, the most favourable description often found for the supporters of smallholders is “romantic”. How come smallholders have survived against all odds? One of these odds is the financial and regulatory support granted to large operations – which at the same time are believed to work along market laws: They must be economically successful and competitive, because they are large. The following chapter provides some insight into the productivity of livestock smallholders.

2.1. The crucial role of livestock smallholders in economy, environment and society

Not large factory farms and multinational corporations, but small-scale family farms hold the key for more productivity, environmental sustainability, and more employment. This has been recently reaffirmed by civil society organisations collaborating in the EcoFair Trade Dialogue,¹ and many organisations of farmers as well as development and scientific organisations are working on that basis.² Via Campesina, the international peasant movement, is focusing on the importance of food sovereignty³ to achieve the goals of eliminating hunger and conserving the world’s natural resources. They consider industrial livestock production in opposition to food sovereignty.

According to the Food and Agriculture Organization of the United Nations (FAO), 640 million smallholders and 190 million pastoralists are raising livestock. They make up 70 % of the world’s poor.⁴ Developing the livestock sector therefore could have a large potential to reduce poverty. However, the reduction of poverty has made very little progress.

Smallholder farmers and pastoralists have over millennia developed the livestock systems to produce food, fertilizer, fuel, textiles for clothing and housing, and other functions like transport, credit, social organisation and cultural identity. These systems are adapted to their environments, and environments have developed together with these rural cultures. Rural communities have an immediate and vital interest in the sustainability of their production systems. Yet, today’s global livestock production is considered to be one of the biggest threats to environment and climate.⁵

Part of these smallholder systems is the variety of some 40 domesticated livestock species and the diversity of around a dozen thousands of useful breeds that deliver the described multitude of products and services. Already Charles Darwin, in his “Variations of animals and plants under domestication” in 1868 had admired the breeding work of local communities.⁶ In contrast to industrial breeding lines, their breeds have a good level of resistance to diseases and parasites. Mothering instinct, ability to walk or pull or carry are all necessary features. During drought spells, where animals from industrial breeding lines would not even survive, the local breeds only reduce

¹ Heinrich Böll-Stiftung/Misereor/Wuppertal Institut (2007): Slow Trade – Sound Farming. A Multilateral Framework for Sustainable Markets in Agriculture (EcoFair Trade Dialogue), p.10

² e.g. Anthony Weis (2007): The Global Food Economy. The Battle for the Future of Farming. London p9

³ Food Sovereignty is the right of peoples to define their own healthy diet and agricultural practices; to protect and regulate domestic production and trade in order to achieve sustainable development. See www.viacampesina.org

⁴ FAO 2005. FAOSTAT database. Rome, Italy. Cited after ILRI-SLU (2006): Capacity Building for Sustainable Use of Animal Genetic Resources in Developing Countries. <http://agtr.ilri.cgiar.org/Module/module1/Module1.htm>

⁵ H. Steinfeld et al. (2006): Livestock’s Long Shadow. FAO, Rome

⁶ Ilse Köhler Rollefson (2004): Farm Animal Genetic Resources. A summary of workshops held in SADC region. BMZ/GTZ, FAO, CTA, SADC. p15

their production, and resume it when the rains return.⁷ Yet, today, a large part of the breed diversity is threatened by extinction.⁸

Smallholder livestock keepers have also developed a vast veterinary knowledge. A few local organizations in the South are documenting and strengthening it, and databases are set up to make it available internationally.⁹ Northern knowledge is needed in the South besides the traditional knowledge. Yet, veterinary services focus on Northern knowledge and favour industrial breeding lines.

Smallholder livestock keepers have developed strategies to survive and to make best use of their environment. They often keep mixed herds of sheep, goats and cattle, or of several breeds. Some are high producers under good conditions; others perform lower but still produce under difficult conditions. In order to survive and make best use of an area, it is often more important to have many animals than to have highly productive animals.¹⁰

Herders and pastoralists who migrate seasonally to find grazing for their livestock, have been blamed a lot for overgrazing damages. The underlying causes have become more clear in recent years, and many of them are related to occupation of their ancestral grazing lands by other activities, especially crop cultivation and areas put under environmental protection.

Loss of rights and access to resources is an important factor affecting smallholder livestock keepers. Communal land rights, for example, have been under pressure in many areas, and in some West African countries, positive experience was made to secure communal land rights in modern laws.^{11 12}

Pastoralists are not resistant to change. A recent study from Borana in Southern Ethiopia shows that diversification is becoming more and more widespread, while pastoralism remains the most important occupation.¹³ Camel herders from Rajasthan, India, with external support have developed “desert dessert”, camel milk ice cream, which is being successfully sold to tourists.¹⁴ In Argentina, smallholders, again with support from outside, have developed a market for certified goat meat from local breeds.¹⁵

In recent years, the potentials of pastoralism are being recognized by environment and development organisations. The spearhead among mainstream organisations is the World Conservation Union (IUCN) through its World Initiative for Sustainable Pastoralism.¹⁶

New pressure is added by the claim that drought resistant agrofuel crops should be grown on land that is not cultivated –ignoring the fact that such land is often not individually owned but communal land used for grazing livestock and other vital purposes, like collection from the wild.¹⁷

One of the main points that have guided livestock sector policies in most countries is that smallholders’ production systems, and especially their breeds, are mostly considered backward and unproductive.

⁷ Gura, Susanne and LPP: Losing Livestock, Losing Livelihoods. The Seedling, GRAIN, January 2003

⁸ FAO (2007): State of the World’s Animal Genetic Resources. Rome

⁹ Martin M., Mathias E. & McCorkle C. M. (2001): Ethnoveterinary medicine: an annotated bibliography of community animal healthcare. ITDG Publishing, London.

¹⁰ Waters-Bayer Ann and Wolfgang Bayer (1998): Forage Husbandry. London and Basingstoke

¹¹ Interview with Dodo Boureima, in Seedling January 2008

¹² H. Steinfeld et al. (2006): Livestock’s Long Shadow. FAO, Rome, p36

¹³ Wassie Berhanu, David Colman and Bichaka Fayissa (2007): Diversification and livelihood sustainability in a semi-arid environment: A case study from southern Ethiopia, Journal of Development Studies 43:5, pp 871–889

¹⁴ www.pastoralpeoples.org

¹⁵ Mariarosa Lanari, <http://www.fao.org/newsroom/en/news/2006/1000275/index.html>

¹⁶ World Initiative for Sustainable Pastoralism (WISP) <http://www.iucn.org/wisp/myths-misconceptions.html>

¹⁷ e.g. by BayerCropScience

<http://presse.bayer.de/baynews/baynews.nsf/id/53A63D3126A106E4C12573CB00328843?open&ccm=000>

2.2. Productivity of livestock can be understood in different ways

Livestock economists count the number of eggs a chicken lays or the litres of milk, or calculate the feed conversion rate by how many tons of feed it needs per ton of product. They externalize all costs that the industry is not charged directly.

Smallholders may look at it differently. FAO provided data from Vietnam, where even if a native chicken lays only 70 eggs per year, and the family consumes half of them, the annual rate of return can be calculated as 700%.¹⁸ There are plenty of local feed sources, very little labour is required, little capital input needed, and the poultry multiplies effortlessly, even if half of the chicks are lost for various reasons. Meat and eggs fetch an excellent price. In Vietnam, they provide a small but steady income to 8 million families. Policy makers may note that 5% of the Gross Domestic Product is provided by native chicken, without negative environmental costs and with excellent poverty alleviation and nutrition effects. No concentrate feed is bought nor is it transported from Brazil, and no rainforest is destroyed to grow it.¹⁹

Many countries have a strong livestock sector. In South African countries, on average, livestock provides 38% of the whole GDP, before even including some services like draught power and manure.²⁰ As percentage of agricultural Gross Domestic Product, livestock provides 90% in Mongolia, 84% in Niger, 80% in Sudan, 78% in Senegal, 65% in Somalia, 42% in Kazakhstan, and 40% in Ethiopia, all countries without a significant industrial livestock production.²¹ In Tanzania, it is shown that the roast meat industry –based on pastoralism- in Arusha has an annual turnover of US\$ 86 million; each slaughtered cattle contributes to almost a quarter of an annual labour force, supports 1,07 dependents, and provides US\$ 172 value added to the Tanzanian economy.²²

In these countries, production is not in intensive factory-like farms, and not based on animals that are bred for just one product. Livestock keeping communities are the main actors. Some of these communities are sedentary, others nomadic or semi-nomadic; they all move their animals over specific areas, following the rains, or specific summer and winter pastures. Their animal breeds fulfil many functions and suit well to the environmental and social requirements. Their customs and social systems are traditional, but this does not exclude local and transboundary marketing or changes in their production systems. They are usually not integrated in supermarket chains and contracts involving transnational corporations.

Research shows that mobile pastoral systems have higher economic returns per hectare than ranching systems under similar conditions. The difference ranges from two or three times higher to ten times higher. Productivity per unit of labour and per animal is generally lower, although in Uganda, economic returns per animal in a pastoral setting were one third higher than in local ranches. Mobile cattle raising has also been shown to be more productive than sedentary husbandry under the same environmental conditions. In the Sahelian droughts of the 1980s, herders who moved their cattle long distances to find pasture fared much better than those who stayed. In Sudan and Mali, sedentary cattle producers have lower productivity than the nomads.²³

Yet, the perspective of livestock smallholders was largely ignored when the livestock revolution was set in motion.

¹⁸ J. Otte (2006): The Hen which Lays the Golden Eggs. Why Backyard Poultry are so Popular. FAO, Rome

¹⁹ Ibid.

²⁰ SADC/FAO/GTZ/CTA (2004) Farm animal genetic resources. Safeguarding national assets for food security and trade. Summary of four workshops on livestock genetic resources held in Mozambique, Angola, Zambia and Swaziland.

²¹ IUCN/WISP (Feb 2007): Squandered Wealth. A Global Economic Review of Pastoralism.

²² Juliana Letara, James MacGregor and Ced Hesse (November 2006): Estimating the economic significance of pastoralism: The example of the nyama choma sector in Tanzania. London.

²³ Ian Scoones (1995): New Directions in Pastoral Development in Africa: Living with Uncertainty; IUCN/WISP <http://www.iucn.org/wisp/myths-misconceptions.html#7> (accessed 30 Nov 07)

3. Limits to livestock production growth

Increasing economic growth, urbanisation and population growth in many developing countries have led to a worldwide rush for a fast and large growth of livestock production. Massive public funds were invested to support the livestock industry. An important advocate of the demand theory was the Washington-based International Food Policy Research Institute, IFPRI, which in 1999 proclaimed the “Livestock Revolution” with a perspective until 2020.²⁴ The World Bank, only six years later, recognized the flaws and tried to contain them.²⁵ The next year, 2006, saw FAO’s “The Livestock’s Long Shadow” raising the fundamental question of how the impact of the livestock sector on climate can be tackled. It proposed removal of price distortions and factoring in of externalities. And in 2007, feed and food prices started rising under the impact of competition from raw materials for the agrofuels industry.

3.1. The Livestock Revolution at a turning point

Due to increasing urban populations especially in developing countries, and increasing incomes, over recent decades, consumption of livestock products has grown at an unprecedented rate. In developing countries, in the mid-sixties, on average the population consumed 24 kg of meat per person per year, and this has increased to 31 kg in 2005. This is only one-third of the meat consumed, on average, by people in developed countries.²⁶

While meat consumption in industrialized countries is far too high, average meat consumption in developing countries has already reached the levels that are recommended by nutritionists.²⁷ Accordingly, the associated public health problems widespread in the North are now common in Southern urban middle classes that have considerably increased their animal and other energy rich food intake, while the poor continue to consume low levels.²⁸

Daily meat consumption per person (g)²⁹

Africa	31
East and South Asia	112
West Asia (including Middle East)	54
Latin America	147
Developing countries (overall)	47
Developed countries (overall)	224
Global	101

Note: Quantities actually ingested will be lower, especially in high-income countries, where the proportion wasted is higher. 80–100 g of meat is roughly equivalent to a beef patty in a regular hamburger. An American quarter-pounder is about 115 g of meat.

²⁴ Christopher Delgado, Mark Rosegrant, Henning Steinfeld, Simeon Ehui, and Claude Courbois (October 1999): Livestock to 2020: The Next Food Revolution IFPRI 2020 Brief No. 61; C. Delgado, M. Rosegrant, H. Steinfeld, S. Ehui, and C. Courbois, ‘Livestock to 2020 – The Next Food Revolution’. Food, Agriculture and the Environment Discussion Paper 28. IFPRI/FAO/ILRI, 1999

²⁵ The World Bank (2005): Managing the Livestock Revolution. Policy and Technology to Address the Negative Impact of a Fast Growing Sector. Washington

²⁶ FAO Food Outlook, June 2006. Rome

²⁷ There is no internationally agreed recommended daily intake for animal proteins, but nutritionists agree that meat consumption in the North is far too high. For example, The German Nutrition Society recommends eating meat once or twice per week. Current average consumption in Germany is more than 200g per day.

²⁸ McMichael, J. Powles, C. Butler, R. Uauy (2007): Food, livestock production, energy, climate change, and health. The Lancet, Volume 370, Issue 9594, Pages 1253-1263 http://www.eurekalert.org/images/release_graphics/pdf/EH5.pdf

²⁹ Salomon JA, Murray CJL. The epidemiologic transition revisited: compositional models for causes of death by age and sex. Popul Dev Rev 2002; 28: 205–28. Cited from A. McMichael, J. Powles, C. Butler, R. Uauy (2007): Food, livestock production, energy, climate change, and health. The Lancet, Volume 370, Issue 9594, Pages 1253-1263 http://www.eurekalert.org/images/release_graphics/pdf/EH5.pdf (accessed 30 Dec 07)

Similarly, milk consumption in developing countries is reported at 46 kg per person per year, while in the North it stands at more than 200 kg per year.³⁰

It is very clear that the world's resources do not allow current Northern consumption levels of livestock products to all countries.³¹ It is equally clear that those who consume a lot need to reduce their levels. The Lancet, a prestigious medical journal, in view of the massive environmental problems, in September 2007, proposed 90 g per day as a working global target, shared more evenly, with not more than 50 g per day coming from red meat from ruminants (i.e., cattle, sheep and goats). The Lancet points out "collateral health benefits": "Substantial contraction in meat consumption in high-income countries should benefit health, mainly by reducing the risk of heart disease (especially related to saturated fat in domesticated animal products), obesity, colorectal cancer, and, perhaps, some other cancers. An increase in the consumption of animal products in low-intake populations, towards the proposed global mean figure (convergence), should also benefit health." The Lancet also referred to Northern consumer organisations advocating reduction of meat consumption.³²

Indeed, Compassion in World Farming offers a radical strategy to address this crisis, based on a planned reduction in meat production and consumption in the high-consuming nations, combined with a positive replacement of industrial agriculture with more environmentally sustainable and humane livestock systems worldwide.³³ Other consumer organisations offer similar strategies and concrete recommendations for action to consumers.³⁴

China with its population of 1.3 billion and a current economic growth of around 10 % is the heaviest factor in the equation. Fu Fu Qiang of the China Meat Association said at the World Pork Congress in China in 2007: "According to the international prevailing view, a daily consumption of 85 g meat per person per day, namely the annual meat consumption of 31 kg per person, is relatively reasonable." In rural China, about half of this level is reached, while urban families are almost there.³⁵ Whether motivated by environmental limits or the current Chinese pork crisis – mainly due to a disease outbreak, prices doubled in 2007 - it is remarkable that the Chinese meat industry, while claiming further needs of the rural population, is recognizing the limits to growth in clear figures. The Chinese livestock development policies, however, do not show signs of concern for limits to growth.

But what about countries, that have reached a reasonable level? Is there really a need to further publicly promote the production and consumption of animal proteins?

3.2. A revolution supported by market distortions

Industrialisation of livestock production has reached almost all countries in the world. Globally, one third of pigs, one half of eggs, two thirds of milk, and three quarters of broilers are produced from industrial breeding lines.³⁶ Production has increased tremendously: Between 1980 and 2002, total meat supply has tripled from 47 million tons to 139 million tons.³⁷

³⁰ H. Steinfeld et al. (2006): Livestock's Long Shadow. FAO, Rome, p15

³¹ *ibid.*

³² McMichael, A.J., J.W. Powles, C.D. Butler, R. Uauy (2007): Food, livestock production, energy, climate change, and health. The Lancet 370/9594, S. 1253–1263

³³ Compassion in World Farming (2006): The Impact of Livestock Farming: Solutions for Animals, People and the Planet www.ciwf.org (accessed 30 Nov 07)

³⁴ e.g. the German Federal Association of Consumer Organisations at the Green Week Agricultural trade Fair on 24 Jan 2008 presented its report "Eating- a climate sin"

³⁵ Fu Fu Qiang, Vice-chairman of China Meat Association, President of Jiangsu Food Group Co., Ltd.: Pork Consumption – From the perspective of China, held at Fourth IMS World Pork Congress in Nanjing, China, 14-17 September 2007

³⁶ FAO (2007): State of the World's Animal Genetic Resources. Rome; FAO Spotlight Sept06

³⁷ FAO (2006): Livestock Report 2006. Rome

The production increase achieved by the livestock industry seems to have hardly helped reduce poverty. 70% of the world's poor keep livestock, according to FAO³⁸, yet the Livestock Revolution has hardly benefited them. Although the International Food Policy Research Institute, which coined the term, strongly recommended policies to enable smallholders to benefit from the Livestock Revolution, it suggested the wrong recipe. It proposed the integration of smallholders and large-scale processors.³⁹ This will be discussed in the following chapter.

Industrial breeding lines and factory farms were introduced, in the past often aided by development cooperation⁴⁰ and nowadays by trade promotion, like Australia's and The Netherlands' dairy cattle breeds' exports to Pakistan (see Pakistan case study in the Annex). FAO's State of the World Report on Animal Genetic Resources describes e.g. how the public veterinary systems used Artificial Insemination to spread Holstein Friesian and a few other industrial dairy cow breeds, as well as beef cattle. The semen was, e.g. subsidized in Botswana.⁴¹ Semen of local breeds was rarely available from public veterinary stations which focused their services on imported Northern breeds. Development policy research organisations such as IFPRI proposed the transfer of the Northern industrial pig and poultry production systems to developing countries.⁴² Policy makers and livestock producers often thought that the readily available industrial breeding lines were the best way forward and considered the development of local breeds too time consuming if not impossible.⁴³ Accordingly, for a long time, most of the local breeds were neglected by research. Livestock scientists in developing countries were educated and focused their research work mostly on industrial livestock systems.

Tax exemptions and subsidies often continue to favour industrial livestock production, as shown by the following examples.

China has earmarked 15.2 billion yuan (US\$ 2.05 billion) in 2007 to support pig production, including direct subsidies, insurance of fertile sows and vaccination of animals against major epidemic diseases. Production has been limited by a massive pig cull after an outbreak of blue-ear disease in some regions. The government has promised to double the subsidy for every fertile sow to 100 yuan from July 2008 for a whole year. By November 2007, China had insured 21 million sows, or 45 percent of the herd nationwide, according to the China Insurance Regulatory Commission.⁴⁴

Thailand's major meat processor and trader, Charoen Pokphand Foods, enjoyed massive tax privileges. While farmers had to pay taxes, Charoen Pokphand Foods' annual report 2003 shows the list of tax exemptions granted by the Board of Investment. This list includes:

1. Exemption from payment of import duty on machinery as approved by the Board.
2. Exemption from payment of income tax for certain operations for a period of 5 years and 8 years from the dates on which the income is first derived from such operations.
3. A 50% reduction in the normal income tax rate on the net profit derived from certain operations for a period of 5 years commencing from the expiry dates in 2 above.

³⁸ FAO 2005. FAOSTAT database. Rome, Italy. Cited after ILRI-SLU (2006): Capacity Building for Sustainable Use of Animal Genetic Resources in Developing Countries. <http://agtr.ilri.cgiar.org/Module/module1/Module1.htm>

³⁹ Christopher Delgado, Mark Rosegrant, Henning Steinfeld, Simeon Ehui, and Claude Courbois (October 1999): Livestock to 2020: The Next Food Revolution IFPRI 2020 Brief No. 61; C. Delgado, M. Rosegrant, H. Steinfeld, S. Ehui, and C. Courbois, 'Livestock to 2020 – The Next Food Revolution'. Food, Agriculture and the Environment Discussion Paper 28. IFPRI/FAO/ILRI, 1999, p. 64

⁴⁰ e.g. crossbreeding of cattle in several countries supported by IFAD (http://www.ifad.org/lrkm/region/pf/bf_229.htm); poultry factory in Afghanistan (<http://afghanistan.usaid.gov/en/Article.329.aspx>)

⁴¹ FAO (2007): State of the World's Animal Genetic Resources. Rome, pp.110-114

⁴² Christopher Delgado, Mark Rosegrant, Henning Steinfeld, Simeon Ehui, and Claude Courbois (October 1999): Livestock to 2020: The Next Food Revolution IFPRI 2020 Brief No. 61; C. Delgado, M. Rosegrant, H. Steinfeld, S. Ehui, and C. Courbois (1999): Livestock to 2020 – The Next Food Revolution. Food, Agriculture and the Environment Discussion Paper 28. IFPRI/FAO/ILRI, p. 64

⁴³ FAO (2007): State of the World's Animal Genetic Resources. Rome, p 111

⁴⁴ Xinhua 25 December 2007 <http://english.peopledaily.com.cn/90001/90776/90884/6326523.html> (accessed 30 Dec 07)

4. A deduction of an amount equal to 5% of the increased income of certain promoted operations over previous year for 10 years.⁴⁵

In the Philippines, pig smallholders are disadvantaged. IFPRI points at, besides a cost advantage of larger farms over small ones, their ability to access privileged prices of crucial inputs that are linked to subsidies.⁴⁶

In Vietnam, industrialisation of pig production is heavily subsidized by national and local governments, motivated by a desire to increase exports, and often at the expense of the small scale producer.⁴⁷ Fifteen potential types of subsidy for imported breeds and their crosses, totalling US \$ 31 per sow per year, provide 19 – 70% of the gross margin.⁴⁸

Market regulations may also put smallholders at a disadvantage, like in Zimbabwe; where the carcass grading system discriminates against smaller cattle and therefore against most indigenous breeds,⁴⁹ those breeds that are mainly kept by smallholders.

It is often argued that large farms could operate more efficiently due to economies of scale and lower transaction cost,⁵⁰ or “because they can obtain agricultural inputs, and access markets and credit more easily,”⁵¹ but data on the publicly provided support to the livestock industry are scarce.

However, many –including the World Bank- agree that smallholder livestock keepers are often put at disadvantage.⁵² The fact that smallholder systems are growing seven times less than livestock industry⁵³ is very likely a result of the heavy support.

The solution to the problem could be simple and low cost; and it could save public funds. Civil society organisations, including those which developed the Wilderswil Declaration,⁵⁴ are demanding governments to abolish subsidies for industrial livestock production. Similarly, development cooperation agencies should stop providing support to industrial livestock production.⁵⁵

⁴⁵ Isabelle Delforge (May 2007): Contract Farming in Thailand: A view from the farm. Focus on the Global South

⁴⁶ Achilles Costales, Christopher Delgado, Maria Angeles Catelo, Ma. Lucila Lapar, Marites Tiongco, Simeon Ehui, and Anne Zillah Bautista (2007): Scale and Access Issues Affecting Smallholder Hog Producers in an Expanding Peri-Urban Market, Southern Luzon, Philippines. IFPRI Research Report No. 151, Washington, <http://www.ifpri.org/pubs/abstract/rr151sum.asp> (accessed 30 Dec 07)

⁴⁷ FAO (2007): State of the World's Animal Genetic Resources. Rome p112

⁴⁸ A. G. Drucker, E. Bergeron, U. Lemke, L. T. Thuy and Anne Valle Zarate (2006): Identification and quantification of subsidies relevant to the production of local and imported pig breeds in Vietnam. In *Trop Anim Health Prod* (2006) 38:305–322

⁴⁹ FAO (2007): State of the World's Animal Genetic Resources. Rome, p 110

⁵⁰ FAO (2007): Poultry in the 21st Century. Bangkok 5-7 November 2007

<http://www.fao.org/ag/AGAinfo/home/events/bangkok2007/en/index.html> (accessed 30 Dec 07)

⁵¹ Peter Hazell, Colin Poulton, Steve Wiggins and Andrew Dorward (2007): The Future of Small Farms for Poverty Reduction and Growth', 2020 Discussion Paper 42, IFPRI: Washington, DC, <http://www.id21.org/zinter/id21zinter.exe?a=1&i=n1sw2q2&u=479a510f> (accessed 30 Dec 07)

⁵² The World Bank (2005): Managing the Livestock Revolution. Policy and Technology to Address the Negative Impact of a Fast Growing Sector. Washington

⁵³ FAO (2007): State of the World's Animal Genetic Resources. Rome

⁵⁴ see Annex 5

⁵⁵ Susanne Gura (2007): Livestock genetics companies. Concentration and proprietary strategies of an emerging power in the global food economy. League for Pastoral Peoples and Endogenous Livestock Development, Ober-Ramstadt

4. Livestock smallholders in corporate value chains

While the term “value chain” has existed for a long time, it has entered economic and development policies only more recently. It describes in the first place the technical production chain, bringing a product from the producer to the consumer, from “farm to fork”, as e.g. the European Commission puts it. Value is added in each part of the chain, and a pivotal point is how risks and benefits are distributed. Especially where the farm focuses on only one or very few products, farmers are often integrated in value chains by contract. Conditions like quality and prices are set by contract, and the weaker contract partner is likely to bear most of the risks, while the stronger partner is likely to enjoy most of the benefits. Companies not only procure raw material for processing and trade, but also provide inputs to the farmers, and increasingly set the rules in the value chains.

Having taken breeding out of the hands of a large part of the farmers, breeding corporations see themselves at the start of the value chain, and the role of farmers is one of the steps in the value chain. Genus plc, the world’s largest livestock breeding company, shows a chain on its home page, where consumers form one end. The other end is not the farmer, as it used to be in textbook agricultural production chains, but Genus plc., that creates “value through science and genomics”.⁵⁶

The following chapter shows that in the concept of the food corporations, the value is for the corporations, while the chains – like production risks and indebtedness - are for the farmers. The chapter starts however, with the exception, the niche markets where smallholders produce added value, usually not within corporate chains.

4.1. Niche markets: More value for smallholders

Outside of the corporate value chains, smallholder livestock keepers –mostly with external support - have developed products from their traditional production systems. For example, in Argentina, a Protected Designation of Origin for native goat meat was developed in order to sell high quality meat produced by a local community.⁵⁷ In Rajasthan, India, a camel breeding community developed ice cream from camel milk and sells it to tourists.⁵⁸ Similarly, camel cheese was developed in Mauritania.⁵⁹

Promoting traditional products and creating new products, improving their quality and developing markets for them is seen as one of the most important ways to conserve traditional livestock breeds. Some rural development activities also work along these lines, stressing the strong linkages with poverty alleviation, employment creation, food security and other crucial development factors. Decentralized research, extension and veterinary health services for small-scale livestock keepers are required for such projects, but not often made available.

These approaches are sometimes, but not always, limited by the number of affluent consumers. Sometimes, a specific “chain empowerment”⁶⁰ approach is used in order to establish ownership by smallholders of the food chain. These cases, however, do rarely concern the products typically procured for large corporations, and especially not such livestock products.

In poultry, a smallholder sector has continued to exist in many countries next to an industrialized livestock sector, and significant native chicken populations continue to supply smallholder families

⁵⁶ <http://www.genusplc.com/corporate.html> (accessed 30 Dec 07)

⁵⁷ see http://www.fao.org/ag/againfo/programmes/en/genetics/documents/Interlaken/sideevent/5_2/INTA.pdf

⁵⁸ www.pastoralpeoples.org

⁵⁹ <http://www.fao.org/newsroom/en/news/2006/1000275/index.html> (accessed 30 Dec 07)

⁶⁰ KIT, Faida MaLi, IIRR, and L. Peppelenbos (ed.)(2007): Chain empowerment. Supporting African farmers to develop markets

with food and income.⁶¹ They often fetch higher prices than factory farm products. For example, in Vietnam, local chicken fetch almost double the price of broilers.⁶² It is estimated that in Thailand, about a quarter of the chicken population is native, and it is expected that the industry will soon “develop the market”, in other words, try to take over this lucrative segment, including for export (see Annex 3). In the Philippines, two thirds of the chicken population is native.

4.2. Contract farming: Exploitation instead of “win-win”?

Contracts between farmers and bulk buyers allow farmers a guarantee to sell their products, and the buyers often provide inputs, expert advice, and credit. The buyers on the other hand have the chance to influence quality, quantity, and timing of supplies. Arguing that this may be a “win-win” situation, current development policies usually include contract farming in their concepts.⁶³ Most recently, the World Development Report 2008, a major tool of the World Bank to mainstream development approaches and funding, propagates integration of smallholders into the world markets with the help of contract farming.⁶⁴ The World Bank sees contract farming as a crucial instrument to integrate smallholders into the market, an important means to achieve poverty reduction and economic growth.⁶⁵ German development cooperation also, for example, considers contract farming as key to rural development and poverty alleviation.⁶⁶

Contract farming is the common approach to livestock industrialization.⁶⁷ It began in the USA after hybrid breeding was applied to chicken around the middle of the past century⁶⁸ (see box page 25). European companies applied it soon after, and it started in Asia and Latin America during the 1970ies. Industrial pork producers copied the concept. In plant crop production, contract farming is widespread, and agrofuel production is developing on the basis of smallholders delivering on contract, nowadays called “integrated into value chains” Various types of contracts have been described. Quantitative data are hard to come by; the USA seem to be the only place where statistics are produced.⁶⁹

Livestock contract farmers receive all inputs (e.g. day old chicks or piglets, feed, veterinary services) from the company that buys the broilers or pigs for slaughter. A study carried out in Thailand by the NGO Focus on the Global South showed that livestock smallholders were urged to leave behind their traditional methods and engage in industrial farming. They were provided far too optimistic projections regarding their income level and income stability. They were not aware of the size of cost and risk involved. None of them received a copy of the contract they have signed. Many ended up in debt. The companies refused to deliver inputs if they did not upgrade technologies, only increasing the farmers’ indebtedness.⁷⁰ The interviewed contract farmers also said they perceived it as very difficult to be a “non-contract farmer”, and to produce food in a non-industrial way.⁷¹

⁶¹ FAO (2007): Poultry in the 21st Century Bangkok 5-7 November 2007 (accessed 30 Dec 07)

⁶² D. Roland-Holst, M. Epprecht and J. Otte: External Shocks & Adjustments in Smallholder Livestock Production. The Future of Poultry Farmers in Viet Nam after HPAI. Hanoi, Viet Nam, 8–9 March 2007
http://www.fao.org/ag/againfo/projects/en/ppipi/docarc/pre070308_externalshocks.pdf (accessed 30 Dec 07)

⁶³ Charles Eaton and Andrew W. Shepherd (2005): Contract farming. Partnerships for growth FAO AGRICULTURAL SERVICES BULLETIN 145

⁶⁴ World Bank, World Development Report 2008

⁶⁵ Ibid.

⁶⁶ Outgrowers – a key to the development of rural areas in Sub-Saharan Africa and to poverty reduction, Workshop Report, Bonn, January 2007; see also the report on an international conference in the framework of the German EU presidency in May 2007 in Berlin, in: D+C .2007:7/8, 273 <http://www.inwent.org/ez/articles/056666/index.en.shtml>

⁶⁷ Ilse Köhler-Rollefson (2007): Endogenous versus globalized. An alternative vision of livestock development for the poor. Ober-Ramstadt

⁶⁸ The World Bank (2005): Managing the Livestock Revolution. Policy and Technology to Address the Negative Impact of a Fast Growing Sector. Washington

⁶⁹ OECD Group on Cereals, Animal Feeds and Sugar and Group on Meat and Dairy Products of the Working Party on Agricultural Policies And Markets (2006): The Implications of Changing Market Structures in the Poultry Industry, p. 3

⁷⁰ Isabelle Delforge (May 2007): Contract Farming in Thailand: A view from the farm. Focus on the Global South, Bangkok

⁷¹ Ibid. p. 6

In the Thailand study cited above, the interviewed broiler farmers were earning an average of around US\$87 per month, generally for two workers. This is less than the minimum wage and the average income in agriculture at the national level. Layer and pig farmers were getting higher incomes on average, even though some of them also were in deficit. They expected income stability, but incomes are fluctuating and extremely difficult to anticipate and monitor. Similarly, companies are not obliged to deliver chicks and piglets regularly. With the bird flu crisis, some farmers received no chicks for more than six months and thus increased their indebtedness. The fluctuating gaps between the production cycles give companies a flexible source of supply, transferring the risk of the market's variations to the farmers.

Moreover, farmers are committed for many years because of their bank loan (five to ten years), while companies sign only year-to-year contracts. More burdensome than the low income is the overwhelming debt problem. The average debt by household in the Thai case study was US\$7,500.⁷² It is more than ten times the national average for farming households already considered as heavily indebted. The debt makes it almost impossible for the farmers to quit the venture and creates a strong dependency on the contracting agribusiness companies.

Workers rights are another concern in contract farming. The Thai case study reports that workers are de facto employees, but the company does not take responsibility for their social benefits. The farmers are not organised and have very little bargaining power with the company.⁷³

These findings of a Thai-based NGO coincide with those of the Thai government. The Thai Senate Committee on Agriculture and Cooperatives in its 2003 report on the one hand recognised the potential of contract farming to modernise the agricultural sector in Thailand. On the other hand it admitted that "most of the contracts exploit farmers and producers. Farmers have to follow the conditions set by the processing factory which are not equitable".⁷⁴

Not only from Thailand, but also from Brazil, the world's major meat exporting country, unfair contract and labour conditions are reported.⁷⁵ Other studies report more favourable conditions for contract farmers; detailed data are, however, scarce. A study for the World Development Report 2008 admits that contract farming for export is not a model to benefit African smallholders.⁷⁶ The same is true for the new demand by supermarkets.⁷⁷

The win-win situation where farmers gain a stable income, and trade and processing companies a stable supply, largely seems to remain a theory. The prevalent situation is exploitation, not cooperation, according to the EcoFair Trade Dialogue report published by the German civil society organisations Misereor and Heinrich Boell Foundation. Contract-farming practiced this way becomes a means of sustained marginalization, rather than sustainable integration into the global economy.⁷⁸

Strong regulations to govern contracts along food commodity chains may offer a solution to ensure small farmers a fair share in the trading, and require corporations to comply with social and environmental process and production standards.⁷⁹ Contract farming therefore needs to be

⁷² Isabelle Delforge (May 2007): Contract Farming in Thailand: A view from the farm. Focus on the Global South, Bangkok

⁷³ *ibid.*

⁷⁴ Report on the investigation on contract farming of the Senate Committee on Agriculture and Cooperatives, Bangkok, 2003 (in Thai, cited after I. Delforge)

⁷⁵ by an unpublished OXFAM report cited by Seedling January 2008, GRAIN

⁷⁶ Denis Sautier, u.a. Case Studies of Agri-Processing and Contract Agriculture in Africa, November 2006 (study contributing to World Development Report 2008)

⁷⁷ Marita Wiggerthale (2007): Supermärkte auf dem Vormarsch im Süden – Bedrohung für Kleinbauern? EED and Forum Umwelt & Entwicklung, Bonn; Estelle Bienabe & Hester Vermeulen (2007): Trends in supermarkets' procurement system in South Africa

⁷⁸ Heinrich Böll-Stiftung/Misereor/Wuppertal Institut (2007): Slow Trade – Sound Farming. A Multilateral Framework for Sustainable Markets in Agriculture (EcoFair Trade Dialogue) 43

⁷⁹ *ibid.*, p.46

monitored. In order to keep up the possibility to bargain, farmers need alternatives. Contract conditions, where farmers are not free to choose their veterinarians or providers of inputs such as feed and breeding stock, should be ruled out.⁸⁰

4.3. Concentration in poultry and pig production

In many countries, a concentration process in livestock farming took place. Here are examples from three countries that have started early to promote livestock industrialization, of poultry as well as pig production (see Annex 3).

Brazil

With its large poultry and pig contractors Brazil became the world's most important meat exporter in 2007 due to the availability of cheap labour and cheap feed. However, smallholders largely disappeared.

- *Poultry*: By the 1970s, the Brazilian chicken industry was growing by 12% per year. Most of this growth was led by a few large operations in the south, which was also a large corn and soy producing area. In the 1980s, abundant public credit allowed the largest five companies to double their share of national production. Large slaughterhouses were mainly located in the South, spreading to the southeast with the acquisition of traditional slaughterhouses. Commercial poultry production in Brazil has been based on the "integration" system in which small- and medium-sized farmers grow chickens for large processors. In the state of Santa Catarina, for example, typical farmers in 1998 had a building housing 6,000-15,000 chickens.⁸¹ Contract growing was already common in units of 24,000 birds in 2002.⁸²
- *Pig*: In the Brazilian pig sector, the number of producers with over 200 pigs increased in practically all areas of the country between 1985 and 1995. In the states of Rio Grande de Sul, Santa Catarina, and Matto Grosso, there were still a fair number of small-scale hog producers, but their numbers were declining.⁸³

Thailand

- *Poultry*: There are nearly three million farmers who raise chickens in their backyards as a supplementary product, mostly for household consumption. However, commercial broiler farms now account for about 80% of broiler production. According to the agricultural census, the total number of farms that raise chickens increased between 1993-1998, while the number of 500-999 bird and 10,000+ bird farms decreased. Most experts in the field agree that as the commercial sector becomes more and more industrialized, small farms are going out of business. At present, the farm sizes considered "too small" to compete in the industry are the ones with 50,000 birds or less. In most cases, the owners of these farms are middle-class businessmen rather than traditional farmers.⁸⁴
- *Pig*: Smallholder pig producers in Thailand moved into contract farming during the 1990ies, but many gave up during the economic crisis of 1998.⁸⁵ A protest rally of pig smallholders

⁸⁰ Susanne Gura (2007): Livestock genetics companies. Concentration and proprietary strategies of an emerging power in the global food economy. League for Pastoral Peoples and Endogenous Livestock Development, Ober-Ramstadt

⁸¹ Helfand and Rezende 1998, cited after Christopher L. Delgado Clare A. Narrod (2002): Impact of Changing Market Forces and Policies on Structural Change in the Livestock Industries of Selected Fast-Growing Developing Countries. Final Research Report of Phase I - Project on Livestock Industrialization, Trade and Social-Health-Environment Impacts in Developing Countries. FAO, IFPRI <http://www.fao.org/wairdocs/LEAD/X6115E/x6115e07.htm> (accessed 30 Dec 07)

⁸² Christopher L. Delgado Clare A. Narrod (2002): Impact of Changing Market Forces and Policies on Structural Change in the Livestock Industries of Selected Fast-Growing Developing Countries. Final Research Report of Phase I - Project on Livestock Industrialization, Trade and Social-Health-Environment Impacts in Developing Countries. FAO, IFPRI <http://www.fao.org/wairdocs/LEAD/X6115E/x6115e07.htm> (accessed 30 Dec 07)

⁸³ Ibid.

⁸⁴ Ibid.

⁸⁵ Knips, Vivien (2004): Review of the Livestock Sector in Mekong Countries, FAO Rome

was held in May 2007 in Bangkok against dumping prices by the domestic meat market leader, Charoen Pokphand, which sold pork meat below the production price.⁸⁶

Philippines

- *Poultry*: Many chicken contract growers gave up during the "Broiler Crisis" 1999-2000 when massive amounts of subsidized frozen chicken leg quarters were imported from the USA and sold at prices lower than the Philippine farmers could offer.⁸⁷
- *Pig*: In the two major hog-producing regions of Southern and Central Luzon adjacent to the national capital, although the number of registered commercial pig farms significantly increased, the number of farms raising pigs declined between the 1990s and 2000s. According to IFPRI, these numbers suggest a scaling up of larger farms and a displacement of smallholder pig producers. IFPRI points at the cost advantage of larger farms over small ones and at their ability to access privileged prices of crucial inputs that are linked to subsidies.⁸⁸ Almost 80% of Philippine smallholder pig breeders have shifted to industrial breeding lines.⁸⁹ Occurrence of pig diseases like hog cholera, foot and mouth, swine dysentery, and others has dramatically increased with the new breeds and associated production systems. Production cost has increased, and farmers can often not afford the inputs necessary to achieve the quality required by the middlemen. Domestic production cost is much higher than those in other countries, due to high feed grain production cost.⁹⁰ IFPRI argued in 2007 that the 2009 grain market liberalization (so far protected by high tariffs from import competition) will be positive especially for livestock smallholders since feed prices will fall.⁹¹ However, in 2002, IFPRI predicted that pig contract growing by smallholders in the Philippines will be hit by the meat market liberalization also due in 2009.⁹²

MASIPAG, a joint organisation of farmer and scientists, argues that already now, industrial pig raising is not economic in large parts of the country, especially in Western Visayas which ranks second in terms of pig population, after Luzon. The price of inputs is steadily increasing while the price of pork in the market is unstable and very low in rural areas.⁹³ MASIPAG demands that, even in order to compete in the world market, it is important to promote the use of local breeds and available resources. Research must be geared towards the potential of native pigs and how to improve their production in smallholder systems.⁹⁴

It is quite likely, that only very few former smallholder remain in the business. There are not many data available, but it can be assumed that investors play an increasing role. In Vietnam, livestock

⁸⁶ Bangkok Post 8 May 07

⁸⁷ Ibid.

⁸⁸ Achilles Costales, Christopher Delgado, Maria Angeles Catelo, Ma. Lucila Lapar, Marites Tiongco, Simeon Ehui, and Anne Zillah Bautista (2007): Scale and Access Issues Affecting Smallholder Hog Producers in an Expanding Peri-Urban Market, Southern Luzon, Philippines. IFPRI Research Report No. 151, Washington, <http://www.ifpri.org/pubs/abstract/rr151sum.asp> (accessed 30 Dec 07)

⁸⁹ <http://www.bas.gov.ph/> & Swine inventory for 2006.

⁹⁰ Jaime Cabarles, MASIPAG (2007): Effect of Industrialized Animal Production in the Livestock Industry of the Philippines and to the Livelihood of Marginal Farmers <http://www.fao.org/ag/againfo/programmes/en/genetics/documents/Interlaken/sidevent/Cabarles.pdf>

⁹¹ Achilles Costales, Christopher Delgado, Maria Angeles Catelo, Ma. Lucila Lapar, Marites Tiongco, Simeon Ehui, and Anne Zillah Bautista (2007): Scale and Access Issues Affecting Smallholder Hog Producers in an Expanding Peri-Urban Market, Southern Luzon, Philippines. IFPRI Research Report No. 151, Washington, <http://www.ifpri.org/pubs/abstract/rr151sum.asp> (accessed 30 Dec 07)

⁹² Christopher L. Delgado Clare A. Narrod (2002) Impact of Changing Market Forces and Policies on Structural Change in the Livestock Industries of Selected Fast-Growing Developing Countries. Final Research Report of Phase I - Project on Livestock Industrialization, Trade and Social-Health-Environment Impacts in Developing Countries. FAO, IFPRI <http://www.fao.org/wairdocs/LEAD/X6115E/x6115e07.htm>

⁹³ Jaime Cabarles, MASIPAG, personal communication, 7 January 2008

⁹⁴ Jaime Cabarles, MASIPAG (2007): Effect of Industrialized Animal Production in the Livestock Industry of the Philippines and to the Livelihood of Marginal Farmers <http://www.fao.org/ag/againfo/programmes/en/genetics/documents/Interlaken/sidevent/Cabarles.pdf>

industrialization began late, but already at the beginning, investors but not smallholders are participating in the pig business.⁹⁵

What happens to farmers who are victims of the concentration process? The World Bank's World Development Report 2008 foresees the "exit option" where new jobs in larger farms or in agroindustries would employ former smallholders.⁹⁶ FAO, however, argues that "there is also evidence that consolidation into larger farms has displaced the livelihoods of small producing households. The number of individuals absorbed into alternative employment is likely to be less than the number displaced."⁹⁷ Others may contribute to massive rural exodus that fuels the growth of Third World cities, especially their slums.

Hoering compares the Green or Livestock Revolution strategies (both include contract farming) to triage, a term used in military medicine. It describes a process to sort injured persons according to their grade of injury in order not to waste scarce resources on hopeless cases. In terms of the mainstream agricultural development agenda, the exit option is foreseen for those smallholders who will not participate in the contract system. Their "death" as smallholder is followed by a "reincarnation as landless labourer or migrant". The difference to triage is, however, that most "rescue" resources like subsidies, tax exemptions, infrastructure, legal and institutional reforms are allocated to the economically strongest companies and farmers, those who need them least.⁹⁸

4.4. Integration of dairy smallholders into the corporate value chain

Between 800 million and 1,8 billion Euro per year of export subsidies have put smallholder dairy production in the South under pressure for about four decades.⁹⁹ Civil society organisations estimate that milk production in Asia and Africa was reduced by as much as 50%.¹⁰⁰ In 2006, the EU stopped subsidies on skimmed milk powder, and in 2007 all other dairy products followed. Export oriented dairy companies have changed their strategy. Instead of making money from export subsidies, they are looking for low cost milk supplies.¹⁰¹ One of the cheapest milk producing countries is Pakistan.

Nestlé in March 2007 opened in Pakistan what is to be the world's largest milk processing factory. Behind this news is the Dairy Pakistan plan, that aims at integrating most of Pakistan's smallholder milk producers in a collection system, and that includes high yielding cow breeds and an industrial production system. Civil society organisations fear that smallholders will lose most of their family nutrition.¹⁰² Pakistani farmers consume on average about a litre of milk per person per day and sell milk when they have a surplus or need money. Commercial milk production is mainly located around big cities. Nestlé aims at introducing dairy standards and a pasteurization law. Milk sold to consumers will have to be pasteurized, in spite of existing traditional means which work without major problems. Middlemen will be driven out. Large public funds will be spent to go Nestlé's way. Export opportunities are an important motivation, but Nestlé is Pakistan's largest consumer goods company (see Annex 1).

⁹⁵ CIRAD-PRISE publications (Ed.) (2006): Pig Production Development, Animal-Waste Management and Environment Protection: a Case Study in Thai Binh Province, Northern Vietnam, 55-82

⁹⁶ World Bank, World Development Report 2008; World Bank (2005): Agricultural Growth for the Poor: An Agenda for Development; Michael Brüntrup, Merits and limits of contract farming, in: D+C Vol. 33.2006:10, 357

⁹⁷ FAO Trade Policy Technical Notes On Issues Related To The WTO Negotiations On Agriculture 14 (2005): Considerations In The Reform Of Agricultural Trade Policy In Low Income Developing Countries. Rome

⁹⁸ Uwe Hoering (2007): Agrar-Kolonialismus in Afrika. Forum Umwelt und Entwicklung, Bonn/Berlin, p.151

⁹⁹ AbL und MISEREOR 21.08.2007: Milch: Nun schnelles Ende der EU-Exportsubventionen beschließen. Auch kein Exportdumping mit anderen Mitteln! Neue Studie über Exportstrategien der Molkereien zu Lasten von Bauern in Nord und Süd <http://www.lifep.de/pressemeldungen/abl-arbeitsgemeinschaft-baeuerliche-landwirtschaft-ev/boxid-12722.html>

¹⁰⁰ <http://www.misereor.de/themen/welthandel/weltagrarhandel/fallbeispiel-milch.html> Oudet, Maurice (2005):

Agrarsubventionen schaffen Armut. Das Beispiel der EU-Milch in Burkina Faso, Bischöfliches Hilfswerk MISEREOR e.V. (Hrsg.) (2005); Von Milchseen und Schleuderpreisen - Die europäische Milchpolitik und ihre Folgen. Aachen

¹⁰¹ Berit Thomsen (2007): Strategie billige Milch. Hamm/Aachen

¹⁰² Bill Vorley (2003): Food, Inc. Corporate concentration from farm to consumer. IIED, London

Integration of producers into processing is expressed in the percentage of milk collected by dairies, which is extremely variable, from

- more than 90% in many industrialized countries as well as Argentina, Korea, South Africa and Zimbabwe,
- 50 to 90% in Morocco, Tunisia, Switzerland, China, Jordan, Uruguay, Chile Mexico, Estonia, Lithuania, Poland Slovenia, Croatia
- 15 to 50% in Algeria, Kenya, Pakistan, Turkey, Brazil, Paraguay, Peru, Ecuador, Russia Ukraine, Romania, Latvia
- Below 15 % in India, Indonesia, Philippines, Nicaragua, and most African countries.¹⁰³

In Brazil, before the 1990s, most of the main dairy processing firms were central cooperatives. Deregulation of the dairy market between 1989 and 1993 saw almost all of these cooperatives sold to multinationals. Nestlé, Parmalat, and Fleischmann Royal controlled around 60% of the Brazilian dairy market. The number of farmers delivering milk to the top 12 companies decreased by 35% between 1997 and 2000, and the average size of those farm suppliers has increased by 55%. Nestlé alone shed 26,000 farmers from its supply list in the same period – a drop of 75%. Use of production contracts in Brazil has expanded from pork and poultry to milk. New technology and quality standards instituted by leading processors require the adoption of refrigeration tanks at farm level, which in turn demands a minimum scale of operation. Half of Brazilian milk producers immediately found themselves out of the supply system of the leading companies, though processors have encouraged collective tanks in regions dominated by small dairy farms. However, processors report a diminishing number of these collective tanks because of the higher transaction costs of managing these systems.¹⁰⁴

Asian milk consumption is growing fast, but the situation is very different in different countries. Some countries, like India and Pakistan, have a very well developed traditional milk production, and accordingly, a high average milk consumption. In the Far East as well as in South East Asia, milk is not a traditional food, and most inhabitants are unable to digest it. However, when children regularly drink milk, their bodies maintain the lactase enzyme production necessary to digest milk sugar, lactose. Sour milk products can be digested more easily, as their lactose content is low. School milk programmes have been the means to increase milk consumption in those Asian countries. The necessity of consuming milk for a healthy diet is however not given. Calcium is available from other sources than dairy products, e.g. soybean products, which are likely to be environmentally more sustainable. The list of recommendations to avoid osteoporosis formulated by WHO/FAO experts does not include dairy products, but fruits and vegetables as well as physical activity; it recommends to avoid smoking, alcohol and overweight.¹⁰⁵

In Vietnam, public funds are invested to develop the dairy sector. About 24 percent of the private returns of the farms come from external support. Public support for the farms ranges from US\$ 6.0 /100 kg milk for the smallest to US\$ 9.5 /100 kg milk to the largest farm. Vietnam is not a traditional dairy country. With a growth rate of more than 8%, consumers are both expected and pushed to consume more milk products.¹⁰⁶

The largest future milk market is China. Indeed, China's milk production grew by 18 percent in 2007, and China became the third largest milk producing country in the world. High returns and large international investments have spurred development in the Chinese dairy sector in the past

¹⁰³ Philippe Jachnik (2005): Dairy Africa Conference presentation, http://www.dairyafrika.com/html/conferences/pdf/conf01_presentations/Session%201/Philippe%20Jachnik%20%20-%20The%20World%20Dairy%20Economy.pdf (accessed 30 Dec 07)

¹⁰⁴ Bill Vorley (2003): Food, Inc.. Corporate concentration from farm to consumer. UK FoodGroup <http://www.ukfg.org.uk/docs/UKFG-Foodinc-Nov03.pdf> (accessed 30 Dec 07)

¹⁰⁵ Joint WHO/FAO Expert Consultation on Diet, Nutrition and the Prevention of Chronic Diseases (2002 : Geneva, Switzerland) Diet, nutrition and the prevention of chronic diseases: report of a joint WHO/FAO expert consultation, Geneva, 28 January -- 1 February 2002. (WHO technical report series ; 916)

¹⁰⁶ Garcia O., Hemme T., Luong Tat Nho and Hoang Thi Huong Tra (2006): The Economics of Milk Production in Hanoi, Viet Nam, with Particular Emphasis on Small-scale Producers, FAO, Rome <http://www.fao.org/ag/againfo/projects/en/ppipi/docarc/wp33.pdf>

ten years and it keeps expanding at high rates.¹⁰⁷ Dairy is the fastest growing food sector in China, and a large part of the world's dairy growth happens in China.¹⁰⁸ Dairy farms are being established not only around cities. China's vast grasslands once have offered livelihood to many nomadic tribes, until in 1985 it was privatized under the Grassland Law. Fencing of pastures and settlement of nomads has also abolished migration patterns from winter to summer grasslands, which traditionally allowed grasslands to recover. Much of China's grasslands are now severely degraded, and dairying is increasingly based on concentrate feed. Hohhot, the capital of Inner Mongolia, became China's centre of dairy farming and processing. The desertification problem has, however, not been solved, and mobility of livestock keepers was banned again in 2007.¹⁰⁹ Expatriate Chinese Mongolians are attracting public awareness to the social and environmental damage the Chinese livestock sector policy is causing¹¹⁰ (see Annex 2).

4.5. Feed production displaces smallholders, and agrochemicals affect their health

With industrial livestock production systems, the use of concentrate feed is growing in developing countries. Currently, world consumption of oilseed meals/cakes is growing by 3-4 percent per year, most of it being soybean meal for livestock feed. China is absorbing almost 20%. The largest producing countries are US, Brazil, Argentina and China.¹¹¹

In Paraguay, 40% of export earnings are from soybean, an important feed in industrial livestock production. The country is the world's fourth largest exporter of soybeans. In 2007 alone, soy monocultures expanded from 2.4 million to 2.8 million hectares. The expansion of soy monocultures has forced many smallholders to migrate, and it is estimated that the expansion has caused the expulsion of more than 90.000 campesino (smallholder) families since the mid 1990s. More than thirty peasant leaders were assassinated because they struggled for land reform.¹¹²

In February 2007, landless men and women peacefully occupied a 14 hectare soybean field, a plot in the community of Parirí (Eastern Paraguay) whose owner, a large scale soy farmer, did not have proper title to the land. With this action, the campesinos reiterated their demands for regularization of land tenure, as they had been expelled from their communal land. Soy covers approximately 75% of the surface of Parirí, and 60% of plots once held by campesinos are now in the hands of soy producers. International campaigns have recently supported the Movimiento Agrario e Popular, and thus, the land titles of the Parirí smallholders were not passed to large scale soy farmers.¹¹³ Many smallholders left their land simply because of the risk of their lives. The soy fields are sprayed from airplanes: In 2006, 35 million litres pesticides were sprayed. They don't spare villages and fields of campesinos. After cases of illness and death, many campesinos left their villages. The first case of legal action against intoxication and death caused by agrochemicals was won end 2006, again with international support.¹¹⁴

¹⁰⁷ FAO Global Food Outlook November 2007

¹⁰⁸ FAO Global Food Outlook June 2006

¹⁰⁹ Reuters 11 Apr 2007: China imposes grazing ban to restore grasslands
<http://www.alertnet.org/thenews/newsdesk/PEK287035.htm> (accessed 30 Dec 07)

¹¹⁰ http://hrw.org/reports/2007/tibet0607/4.htm#_ftn37 (accessed 30 Dec 07)

¹¹¹ OECD-FAO Agricultural Outlook 2007-2016

¹¹² <http://www.lasojamata.org/?q=node/63/>; <http://www.regenwald.org/protestaktion.php> (accessed 30 Dec 07)

¹¹³ *ibid.*

¹¹⁴ http://www.aseed.net/index.php?option=com_content&task=view&id=338&Itemid=211 (accessed 30 Dec 07)

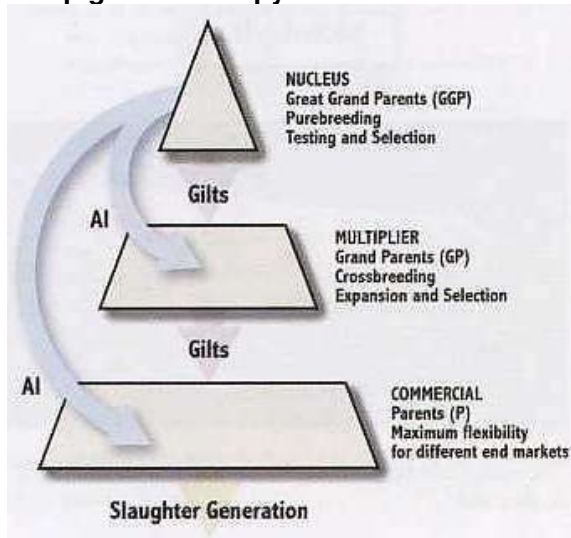
5. Where and how livestock contract production is established

Fewer breeding companies control larger markets. There are only four globally operating poultry genetics companies worldwide, with just two of them, Erich Wesjohann (EW) Group and Hendrix Genetics controlling the global layer hen breeding sector – covering half of the world’s egg production – between them. In 2005 and 2006, consolidation between poultry, pig, cattle and aquaculture genetic businesses intensified substantially, as well as between livestock and plant breeding industries. The world’s largest pig breeding company PIC, the largest cattle breeding company ABS (USA), and the world’s largest shrimps breeder (Sygen) together formed one company together, Genus plc (UK). Monsanto, known for its GMO plant breeding monopolies, also engages in pig and cattle genetics. In 2007, the world’s second largest poultry breeder Hendrix Genetics, bought the second largest pig breeding company Hypor.¹¹⁵ And most recently, the world’s largest poultry breeder EW Group acquired the majority shares of world market leader in salmon and trout breeding, the Norway-based Aqua Gen AS.¹¹⁶

5.1. “De-risking”: How market controls work in the livestock value chain

Proprietary arrangements play a crucial role in the concentration process. Long ago the companies have devised ways to ensure that breeding lines could not be used for further breeding. Production, multiplication and breeding are separate but contractually linked industries that the sector calls a “pyramid”. Hybridization and gene technologies are both set up using proprietary systems.

The pig business “pyramid”



AI: Artificial Insemination

Gilt: young female pig

Source: British Pig Association

Hybrid livestock – a tool for market development and domination

Hybrid chicken were first developed in the 1940s by Henry A. Wallace, who was the 33rd Vice President of the United States (1941–45). Henry Wallace applied the same breeding methods to poultry that he had used to develop Pioneer Hi-bred corn. When two different lines are crossbred, productivity of the offspring can increase due to hybrid vigour. However, this effect gets lost in the next generation, so that farmers using these breeds have to buy new breeding stock every time. It took only 10 years for all commercial poultry breeders to breed poultry hybrids. Now, hybridization has become common in pig and in aquaculture.

¹¹⁵ Susanne Gura (2007): Livestock genetics companies. Concentration and proprietary strategies of an emerging power in the global food economy. League for Pastoral Peoples and Endogenous Livestock Development, Ober-Ramstadt

¹¹⁶ <http://www.aquagen.no/eng/nyheter.php?id=36>

Biological locks in poultry and Closed Herds in pig production (see boxes) are used to control hybrid lines, and increase dependency of producers. Gene technologies, including Marker Assisted Selection,¹¹⁷ are usually controlled by patents. For companies listed on the stock exchange, such as Genus plc and Monsanto, patents are not only important assets to attract shareholders, but also an evidence of market control.

In 2007, the global market leader in pig genetics, PIC/Genus plc announced as further progress in “de-risking” of their business that 70% of its US and European business is now based on a royalty model,¹¹⁸ and 90% of production now sub-contracted.¹¹⁹ In other words, the risk of market volatility is transferred to the multipliers.¹²⁰ Genus’ profit in 2007 increased by 28%; it has mainly been made

“from the ownership and control of proprietary lines of breeding animals, the biotechnology used to improve them and the Group’s global production and distribution network.”¹²¹

Biological locks and Closed Herds

In **poultry**, the multipliers receive hybrid parent animals from the breeding companies, but only male chicken of the male line and female chicken of the female line, to exclude the possibility of breeding by the multipliers – the biological lock.

Monsanto as well as PIC, the hybrid **pig** genetics market leader, have developed Closed Herd systems in which gilts and semen – not boars – are provided by a breeding company that also supplies other services, such as company-contracted veterinarians, as well as evaluation support for the selection of breeding sows. Information on the animals, identified by ear tag, is transferred with the help of barcode scanner and computer to the livestock genetics company. The Closed Herd system is part of Monsanto’s series of pig patent applications.

5.2. Where livestock contract production is established

Poultry genetics distribution chains

Poultry genetics distribution networks are being established throughout the world. The poultry genetics business is extremely concentrated, with only two providers of layer hen genetics, four suppliers of broiler genetics, and three providers of turkey genetics.¹²² Exclusive distribution networks are being established in many countries.

- The international poultry market leader, the Germany based Erich Wesjohann Group operates in 15 countries (including Germany, Poland, US, Canada, Brazil, Japan, South Africa), and has a distribution network serving 250 hatcheries in 85 countries.¹²³
- The Dutch company Hendrix Genetics operates in The Netherlands, France, Canada, Brazil, Venezuela, Indonesia, India and Russia and distributes the hybrid lines in 100 countries.¹²⁴
- The French family business Groupe Grimaud operates in the US, France, Italy, Poland, Netherlands, China, Malaysia, and Thailand.¹²⁵

¹¹⁷ a process used in plant and animal breeding. The place in the DNA is identified where genetic determinants of a trait of interest is located. With the help of DNA analysis, a breeder can identify at embryo stage whether the next generation carries the trait.

¹¹⁸ where license fees are paid by the customers to the company

¹¹⁹ Genus News Release 13 March 2007

¹²⁰ Susanne Gura (January 2008): Livestock breeding in the hands of corporations. In Seedling, GRAIN

¹²¹ Interim Financial Report 31 December 2007

¹²² Susanne Gura (2007): Livestock genetics companies. Concentration and proprietary strategies of an emerging power in the global food economy. League for Pastoral Peoples and Endogenous Livestock Development, Ober-Ramstadt

¹²³ Press Release 10.02.2006 http://www.phw-gruppe.de/seiten/untern_news-18.html (accessed 7 November 2006)

¹²⁴ www.hendrix-genetics.com

Pig genetics distribution chains

Similarly, the pig genetic distribution system is in full swing. Large commercial farms are supplied with foreign genetics, originating from a few internationally operating pig genetic companies. Especially in Brazil, China, and Russia, “nucleus” (breeding) farms are established. In some countries, like China and The Philippines, where livestock sector policies encourage smallholder farmers to invest in industrial production, smallholders are included in the distribution network.

The largest expansion of the industrial pig value chain is currently taking place in China. According to the British-Chinese Business Council, “PIC's cause has been further assisted by the Chinese government offering financial subsidies to farmers who are helping to improve breed stock quality. ...Another welcome trend, so far as PIC is concerned, is the move to set up so-called integrated companies, encompassing everything from animal feed through the raising of animals to the safety of consumer products being sold. Here, PIC can work closely with feed companies to ensure that pigs are being raised appropriately.”¹²⁶

International pig genetics companies in China

The world's largest pig genetics company **PIC** made its first move into China in 1985, supplying 1,800 breeding pigs from the US to Guangdong. A year later the company formed a joint venture in Wuhan with the Ministry of Agriculture in Hubei province to produce breeding stock. In 1996 PIC set up a company in Shanghai. Until 2005, it had established 16 multiplier farms.

One of the four largest pig breeding companies, **Hypor**, now belonging to the Netherlands-based Hendrix Genetics, has in 2003 started the business in China with exporting 600 breeding sows. In 2006, Hypor set up two joint ventures, one in Sichuan province and one in Shandong province, the center of Chinese pig production areas. The two 600-sow breeding farms are part of integrated pork production and processing systems, with the capacity to produce between five and six million slaughter hogs. In 2007, 800 sows were sent from Canada to China.

Topigs has in 2004 set up nucleus farms in Shandong and Hubei provinces, to produce around 6,000 breeding animals a year. In 2008, it set up a nucleus farm in Eastern China in cooperation with Yurun Food Group, a leading food processor, in order to supply its pig production chain.

JSR Genetics started its business in Shanghai in early 2007. **Fast Genetics**, a Canadian pig breeder, in 2008 sold over 800 breeding sows to Tianzow Foods, a holding that runs production and processing chains and has exclusive distribution right for Fast Genetics in China. **Whiteshire Hamroc Company** and China Tangrenshen Group in Hunan Province have signed two contracts in January and February 2008 to import 2,000 U.S. breeding pigs.

PIC and other pig genetics companies will certainly benefit from the fact that the central government is planning to spend 2.5 billion yuan (US\$ 0,35 billion) in 2008 to help build standardized, large-scale pig farms. Vaccinations against major epidemic diseases would be available free of charge and subsidies should be offered to farmers whose pigs were culled to control diseases.¹²⁷

Local governments are urged to support pushing up pork production to 53 million tons. China's largest pig producing operation with 500,000 sows will be set up in Hubei Province. Such large operations exist in the USA, where they cause significant environmental and social problems. The

¹²⁵ http://www.hubbardbreeders.com/hip/Article_International%20Hatchery%20Practice_2005_vol%208_Hubbard%20perfection%20in%20Grimaud's%20Portfolio.pdf (accessed 8 November 2006)

¹²⁶ China-Britain Business Council (2005): High on the Hog
http://www.cbcc.org/the_review/review_archive/sectors/16.html (accessed 30 Dec 07)

¹²⁷ Xinhua 25 December 2007 <http://english.peopledaily.com.cn/90001/90776/90884/6326523.html> (acc. 30 Dec 07)

Hubei provincial government is cooperating with China's largest oil and food importer and exporter, the China Oil and Food Corporation (COFCO), with an investment of 9.7 billion yuan, or US\$ 1.3 billion. When completed, the base will be capable of providing and processing 10 million pigs each year.¹²⁸

Accordingly, the genetics companies are further expanding their distribution systems in China (see box on previous page). The USDA Foreign Agriculture Service reported recently that although backyard farmers are entitled to receive subsidies, the subsidies favour large operations.¹²⁹

5.3. Genetic monoculture

Experts in animal biodiversity and genetic diversity calculate an effective population size to assess genetic diversity. They consider at risk a breed with an effective population size corresponding to less than 100 animals. Although there are millions of animals of the main cattle and pig breeds used in industrial production, they have a very narrow genetic base and their effective population size is very small and could be deemed to be "at risk." This is especially the case for the dairy cattle breeds Holstein-Friesian, Jersey and Brown Swiss, and several pig breeds. On poultry, no public information is available, as it is guarded as trade secrets by the corporations.¹³⁰ Discussion on remedies is still very limited, mostly to Holstein Friesians and other dairy breeds. So far no measures have been taken to monitor the genetic diversity in the livestock breeding industry.

With regard to rare breeds, the main conservation approaches are private initiatives, especially by breed societies and heritage breeders, niche markets, and cryo-conservation, i.e. frozen genetic material. In contrast to breeding industry, private initiatives are often monitored by governments.

Taxation of those who do not cultivate diversity but foster a genetic monoculture is due in order to cover the increasing funding needs for breed conservation, according to the League for Pastoral Peoples and Endogenous Livestock Development.¹³¹

Social movements underline the need to defend the collective rights and interests of pastoralists and smallholder livestock keepers who are the real custodians of livestock genetic diversity.¹³²

5.4. Corporatization of breeding

The diversity of breeds has been developed by communities over several thousand years. In some regions, especially Europe and North America, cooperatives and government breeding organisations as well as breeding companies have achieved further breeding work. They have developed only a few of these breeds into breeding lines, which are used in industrial livestock production. Almost all poultry and an increasing number of pig farmers buy hybrid animals. Dairy cattle farmers choose semen from very few high-performance bulls, selected from the three to four thousand bulls that the industry globally evaluates each year. These lines need more or less standardized production conditions in order to produce the claimed output.

The "superiority" of these lines seems to be the dogma, so that precious traits like robustness, undemanding nature, resistance to diseases- are rarely cherished. Poultry farmers in the North who wish to produce in a more sustainable manner, e.g. organic farmers, cannot find suitable

¹²⁸ *ibid.*

¹²⁹ Jianping Zhang & Eric Trachtenberg (March 2008): China, Peoples Republic of . Livestock and Products, Semi-Annual Report 2007

¹³⁰ Susanne Gura (2007): Livestock genetics companies. Concentration and proprietary strategies of an emerging power in the global food economy. League for Pastoral Peoples and Endogenous Livestock Development, Ober-Ramstadt, p18

¹³¹ Ilse Köhler-Rollefson (2005): Building an International Legal Framework on Animal Genetic Resources Can it help the drylands and food-insecure countries? League for Pastoral Peoples, Ober-Ramstadt

¹³² GRAIN (January 2008): Livestock diversity still threatened. Interlaken conference ducks the issues. The Seedling, GRAIN, Barcelona

breeding stock. Organic chicken producers have to resort to the same hybrid chicken - even though these meet neither the philosophy nor the needs of organic production.¹³³ The available poultry lines are either for broilers or for layers. No dual purpose lines are available, so that the male chicks of the layer lines and the female chicks of the broiler lines of the production generation are not used and therefore killed.¹³⁴

In the North, there have been public breeding organisations for cattle and pigs in many countries. Poultry was mostly bred privately by a multitude of breeders, until a concentration process set in which led to just four companies supplying the global markets for broilers and two for layers. FAO reported that in most Western European countries, public breeding institutions have been systematically reduced in recent years, although in some countries like Germany, pure breeding of swine is still largely in the hands of breeding societies. Public breeding no longer exists in North America.¹³⁵

Breeding is increasingly privatized by law. For example, the new German breeding law reduces the role of the state to monitoring genetic resources.¹³⁶ Industrial genetic holdings are, however, not monitored. They are respected as trade secrets. Poultry (and other small livestock) breeding is exempted from the new law and completely out of public control.

Some developing countries have public breeding organisations besides the local communities. But the participation of livestock keepers in public breeding organisations is very low.¹³⁷ When they deal with cattle, they with few exceptions focus on imported exotic breeding lines. With buffaloes, sheep and goats, the chance is greater that local breeds are the subject. Poultry breeding is dominated by transnational corporations, and pigs are increasingly bred by companies that produce hybrids.

Notable exceptions for public pig or poultry breeding programs besides importing hybrids are China (pigs and poultry), Vietnam (pigs and poultry) and India (poultry). Cuba is the only Latin American country that has breeding programs for pigs and poultry.

Public breeding programs, as an alternative to corporate breeding, however, does not necessarily focus on the needs of smallholders and local livestock keeping communities in developing countries. To meet their needs so that they “may continue to manage and improve animal genetic resources, and benefit from economic development” is one of the aims of the FAO Global Plan of Action on Animal Genetic Resources supported by the FAO member governments.¹³⁸ Smallholders need to maintain and develop their breeds along their own breeding objectives and make their breeding decisions along criteria that relate to the local environmental, economic and social conditions, according to the Wilderswil Declaration made by civil society organisations in parallel to the Interlaken FAO Conference on Animal Genetic Resources (see Annex).

¹³³ FAO (2006): State of the World's Animal Genetic Resources for Food and Agriculture, Rome pp 71 and 145

¹³⁴ Anita Idel (2007): Zweinutzung statt Tötung. Lösungsansätze für die landwirtschaftliche Praxis. In: Tierzucht für den Ökologischen Landbau. Dokumentation der Tagung des Netzwerks Ökologische Tierzucht, Kassel, März 2007. Zukunftsstiftung Landwirtschaft, Bochum

¹³⁵ FAO (2007): State of the World's Animal Genetic Resources. Rome p 200

¹³⁶ Hermann Schulte-Coerne (2007): Novellierung des Tierzuchtrechts in Deutschland. In: Tierzucht für den Ökologischen Landbau. Dokumentation der Tagung des Netzwerks Ökologische Tierzucht, Kassel, März 2007. Zukunftsstiftung Landwirtschaft, Bochum

¹³⁷ FAO (2006): State of the World's Animal Genetic Resources for Food and Agriculture, Rome p 201

¹³⁸ FAO (2007): Global Plan of Action on Animal Genetic Resources , Rome

6. Growing trade, growing liberalization: An opportunity for smallholders?

Growth in the South does not mean the Northern livestock development history is repeated. Liberalization is setting very different conditions. Northern breeding companies that have evolved over several decades are conquering new markets within a few years, and Northern breeding lines and associated industrial farming technologies are being established in most parts of Latin America, Asia and even Africa. Brazil with its cheap soy production and low labour cost has in 2004 overtaken the USA as the world's main meat exporter. China is already producing half of the world's pork, and Asia has overtaken Europe in terms of milk production.¹³⁹

6.1. New exporters - new dumping

In Mozambique, cheap imported low quality frozen chicken is threatening smallholders' income and consumers' health. Mozambique's economic development is heavily based on agriculture with livestock and crop production considered to be the cornerstone of poverty alleviation. Although ranked among the poorest countries in the world, the subsequent political stability after the signing of peace accord in 1992 and continuous economic reforms, has contributed to a very high economic growth rate. Poultry production is one of the main agricultural production activities in Mozambique at family level contributing to household diet and economy. However, the growth of this sector is greatly being affected by imports of frozen chickens from developed countries, especially from Brazil. These also pose a health hazard to the consumers, as chicken near shelf-life expiration and of unknown origin are sold in local super-markets.

Poultry producers have demanded protective measures, and since 2004 import regulations are re-enforced. This has resulted in a drop of imports since 2005, but they are on the rise again. Jacob Wanyama, VET-AID Mozambique demands that the Mozambican government takes measures to improve local poultry production, both at family level and in commercial farms, by encouraging production of local grains and use of fish by-products for poultry feed. The sector needs to organise itself better. And the government needs to guarantee strict control on imports, and challenge international trade agreements with negative effects for the local population.¹⁴⁰

The decrease in demand in many countries due to Avian Flu might be a reason for rerouting the nearly expired frozen chicken from Brazil to destinations like Mozambique. Sub-standard dumping of low quality chicken parts from the EU in West Africa has been a problem since several years. In Cameroun, import tariffs were raised in 2005 to protect local production. A citizens' association succeeded in raising consumer awareness, so that demand returned to local products.¹⁴¹

Although the European Union in the new Doha Round had agreed to abolish export subsidies, it in December 2007 decided new subsidies for pork exports, due to high feed cost and low market prices. While African smallholders on average produce at € 1,72 per kg, the European pork is sold at € 0,44. In addition, according to the German civil society organisation EED, it is expected that in non-muslim countries, the cheap pork will substitute beef and also affect local beef production.¹⁴² The EU pork subsidies were abolished when market prices recovered several months later.

¹³⁹ FAO Global Food Outlook 2006

¹⁴⁰ Endogenous Livestock Development network (ELD) and veterinary faculty in Utrecht November 7th, 2007):The World on Your Plate - Livestock in a Global Perspective
ftp://ext-ftp.fao.org/AG/Data/Upload/ANGR/DAD-Net/ReportSymposium_TheWorldonyourPlateNov07.pdf

¹⁴¹ Francisco Mari <http://www.eed.de/de/de.eed/de.eed.projects/de.project.5/de.eed.project.5.subpage.5/> (accessed 30 Jan 08)

¹⁴² <http://www.eed.de/de/de.col/de.col.d/de.sub.27/de.sub.news/de.news.653/index.html> (accessed 30 Jan 08)

The United States practice subsidized export market development in Mexico, which is currently the largest market for U.S. beef and pork. An effective demand increasing strategy is to reward mothers for buying U.S. meat on a regular basis. The U.S. Meat Export Federation conducts such promotion with public funding through USDA.¹⁴³

6.2. Liberalization governs Southern livestock development

In India, the cooperative dairy movement which had provided a regular source of income to millions of dairy farmers, is about to collapse under liberalization policies. The World Bank, whose loans were used thus far to set up rural dairy cooperatives and federations, in 1996 had recommended creating a level playing field for the private sector to compete with the government supported cooperatives.¹⁴⁴ This was in accordance with the WTO Agreement on Agriculture concluded in 1995. The Government of India deregulated the milk market, e.g. it removed restrictions on the amount of milk traded by a private dairy enterprise. While private dairies were to have increased the choice for farmers and thus improved the price paid to farmers, the liberalization of international trade resulted in a price decrease: In 2001, import restrictions on dairy products were removed and public investments in the dairy sector were drastically reduced, at a time when subsidies in the major exporters of dairy products namely the EU, New Zealand, Australia, USA, reached peak levels. Under pressure of cheap imports, prices paid to farmers declined. Because the cost of concentrate feed increased drastically, dairying became a non-profitable enterprise, especially when using cross-bred animals which require concentrate feed.¹⁴⁵

Liberalization in Indian dairy sector did not only affect prices paid to farmers. A second “significant and visible change is the dismantling of the government veterinary health care delivery systems. Even though veterinary posts continue to lie vacant across the country, the government actively allocated budgets to train private service providers to ‘fill the gap’, provide doorstep services, and sustain themselves through cost-recovery from the farmer. This has paved the way for profit-motivated malpractice, and created an unholy nexus between private drug suppliers and private providers. The collapse of the government referral system and withdrawal of public investments in healthcare has resulted in the growing inability of the system to respond to and handle disease outbreaks. The emphasis on disease control, ironically, has now shifted to controlling diseases of concern to international trade, rather than focusing on the farmers concerns.”¹⁴⁶

Anthra, an non- governmental organization working for strengthening livestock based livelihoods mainly with the poor and marginalized pastoralists, farmers, women, dalits and indigenous people has been involved in challenging the above developments at farming community, public awareness and policy decision making levels.

In addition to WTO, bilateral trade agreements put pressure on smallholders in developing countries.¹⁴⁷ For example, the United States and Peru negotiated a free trade agreement in April 2006 that is to pass US Congress. The Washington-based International Dairy Foods Association (IDFA) supports the agreement because “it will open new opportunities and allow the thriving market with Peru, which totalled approximately US\$ 2 million in dairy exports in 2005, to flourish. Upon implementation, U.S. dairy exporters will gain immediate duty-free, quota-free access for whey and lactose exports as well as sizeable amounts of tariff-free access for cheese, ice cream

¹⁴³ U.S. Meat Export Federation 2007

¹⁴⁴ World Bank, 1996. India Livestock Sector Review: Enhancing Growth and Development. Agriculture and Water Operations Division. Country Department II, South Asia Region.

¹⁴⁵ S. Ashalatha, Sagari R Ramdas and Nitya S Ghotge (October 2007): Implications of Trade Liberalization on the Indian Dairy Sector: the end of the small-holder dairy farmer? ANTHRA, Pune, India. Presented at 20 years Veterinary Medicine in Development Cooperation (DIO): Symposium "The world on your Plate – Livestock in a Global Perspective". Netherlands. November 7th 07

¹⁴⁶ Sagari R. Ramdas and Nitya S. Ghotge: India's livestock economy

http://www.india-seminar.com/2006/564/564_s_r_ramdas_&_n_s_ghotge.htm (accessed 30 Jan 08)

¹⁴⁷ For a complete list of bilateral trade agreements concluded and under negotiations: www.bilaterals.org

and processed dairy products.”¹⁴⁸ In the run-up to the deal, FAO had recommended to limit the foreseeable dumping of US dairy products in order to protect Peru’s smallholders,¹⁴⁹ but in vain.

How the US industry associations pressure their government to move forward the bilateral trade agreements, is well documented on their websites. For example, the National Pork Producers Council documents its successful work regarding free trade agreements with Colombia, Panama, Peru and South Korea. “Increasing export markets through international trade agreements is vital to the profitability of U.S. pork producers”, an Iowa State University economist assessed, and the agreements are estimated to increase US live hog prices by up to US\$ 10 per exported pig.¹⁵⁰ NPPC also pushed for the subsidy increases of the Market Access Program within the US Farm Bill of 2007, and is lobbying against the new EU pork export subsidies.¹⁵¹

6.3. The world meat market – an opportunity for smallholders in the South?

International trade in livestock products is fast increasing. From the early eighties to beginning of the millennium, the share of beef production entering international trade increased from 9 to 13 percent, pork from 5 to 8 percent, poultry from 6 to 13 percent, and milk from 9 to 12 percent.¹⁵²

As argued earlier, expert economists do not yet have the environmental limits to production growth within their view. Further demand growth is expected in developing countries, and many of them are importing substantial amounts.

Brazil has recently become the world’s main producer and exporter of chicken and pork, and a major supplier of milk and beef. Main reason is a combination of both cheap labour and feed.¹⁵³ Other developing countries are trying to exploit their cheap labour availability to supply the world market. Some other countries have large programmes aiming at such exports, and many others facilitate the establishment of industrial livestock production, with a reference to possible exports. During the current phase of expansion, the limits of global livestock trade are rarely considered. Other exporters like the USA, Canada, the EU, Australia and New Zealand have established support systems, and increasingly, bilateral trade agreements secure favourable terms.

The world’s main meat importers are China, Russia and Japan. Both China and Russia, Eastern European and other countries are quickly stepping up their own industrial livestock production.¹⁵⁴ China is investing US\$ 2 billion at national government level in 2008 and local governments are adding comparable sums. 10 million pigs are planned to be produced each year.

Russia, the largest importer of broiler meat, is forecast to decrease imports substantially as Russian poultry production has been increasing steadily in recent years. The U.S. supplies most of its poultry import needs and the rest is covered mainly by Brazil, Canada and the EU. Brazil’s supplies were banned due to a Foot-and-Mouth-Disease outbreak.¹⁵⁵ President Vladimir Putin instructed the Russian pig industry, to initiate a total overhaul so that it can become self sufficient, as soon as possible. The plan in 2006 was for a total of 50,650 sows comprising 45,000 parent sows, 5,000 multiplication sows and 650 nucleus sows provided by JSR Genetics.¹⁵⁶ In 2007, Hypor added nucleus farms with more than 3.000 sows from Canada.¹⁵⁷

¹⁴⁸ <http://www.idfa.org/intl/freetrade.cfm> (accessed 30 Jan 08)

¹⁴⁹ FAO (2006) The Politics of Livestock Sector Policy and the Rural Poor in Peru http://www.fao.org/ag/againfo/projects/en/ppipi/docarc/pb_wp32.html (accessed 30 Jan 08)

¹⁵⁰ May 11, 2007 NPPC Applauds Deal To Vote On Trade Agreements

¹⁵¹ <http://www.nppc.org/wm/show.php?id=737&c=1> December 03, 2007 (accessed 30 Jan 08)

¹⁵² H. Steinfeld et al. (2006): Livestock’s Long Shadow. FAO, Rome, p61

¹⁵³ Fiona Boal, Rabobank International (2007): The Changing Dynamics of World Meat Trade. International Livestock Congress, Calgary 2007

¹⁵⁴ Fiona Boal, Rabobank International (2007): The Changing Dynamics of World Meat Trade. International Livestock Congress, Calgary 2007

¹⁵⁵ USDA October 2006: Livestock and Poultry: World Markets and Trade <http://www.fas.usda.gov> (accessed 30 Jan 08)

¹⁵⁶ <http://www.jsrgenetics.com/genetics.php?Display=1858&type=1> (News Release 22 Jan 07)

¹⁵⁷ Hypor News Release, August 07, 2007 (accessed 30 Jan 08)

According to Rabobank International, a bank naming itself the “financial link in the global food chain”TM, meat production cost comparisons are tricky. A main cost factor is concentrate feed,¹⁵⁸ and the cost of raw materials for concentrate feed, e.g. oilseeds like soybeans, is rising with the increasing sales of agrofuels. Brazil as a main and low cost producer of feedstock, has the necessary preconditions to remain the world’s main meat exporter for a long time. FAO and OECD expect that by 2016, net exports of Brazil may surpass those of the four others combined to take a 28% share of total world meat exports.¹⁵⁹

Looking at export opportunities for smallholders is for many reasons usually a dead end. In livestock, a hurdle nearly insurmountable by most developing countries and especially their smallholders are the international efforts, led by the World Animal Health Organisation (OIE), FAO and others, to control transboundary diseases.¹⁶⁰ Another major reason is long term domination of export markets by Brazil. The Brazilian example also clearly shows that during the development of its livestock export trade, smallholders lost out (see Annex 3). Smallholders, with a few exceptions, usually benefit best from local marketing.¹⁶¹

¹⁵⁸ Fiona Boal, Rabobank International (2007): The Changing Dynamics of World Meat Trade International Livestock Congress Calgary,

¹⁵⁹ OECD-FAO Agricultural Outlook 2007-2016

¹⁶⁰ GRAIN (January 2008): Viral times. The politics of emerging global animal diseases. The Seedling, GRAIN, Barcelona

¹⁶¹ Heinrich Böll-Stiftung/Misereor/Wuppertal Institut (2007): Slow Trade – Sound Farming. A Multilateral Framework for Sustainable Markets in Agriculture (EcoFair Trade Dialogue)

7. The way forward

“The industrial model of production is not durable. We cannot keep importing genetically modified soy beans from Brazil in order to feed poultry in the EU, which is then dumped on third markets in the South – forcing the Brazilian farmers to overexploit their land, the EU farmers to pollute their land nearby factory farms, and the small farmers in the South to be driven out of production,” said François Dufour of Confédération Paysanne, a French farmer organisation.¹⁶²

Bouréïma Dodo, of the Association for the Re-dynamisation of Livestock in Niger (AREN), reported that “we are always being told that our animals are not productive ...but we believe that an animal needs above all to be adapted to its environment.”¹⁶³

These are two aspects of the same approach that smallholder livestock keepers nurture. They are facing little comprehension by major organisations that shape much of the development mainstream. The International Food Policy Research Institute (IFPRI) states that “the growing power and leverage of international corporations is transforming the opportunities available to small agricultural producers in developing countries” and assumes that most if not all smallholders have a chance in the corporate value chains, that could be seized with the help of technology¹⁶⁴

Large numbers of farmers are not convinced. In the Indian federal state of Andhra Pradesh, a massive public program to establish agricultural contract production with modern technologies for corporate value chains (“Vision 2020”) was planned. It was, however, stopped when the majority of the population did not accept the plan and elected a different government.¹⁶⁵

Particularly in livestock value chains, corporate power is fast increasing. The problem of excessive market power of transnational corporations and resulting market distortions was discussed by the World Development Report 2008, but it had no solution for the crucial question of how to regulate market power. Producer organizations will hardly balance the unequal power distribution between smallholder farmers and larger traders and processors.¹⁶⁶ Smallholders need alternatives, to avoid dependency on one product, on a buyer monopoly, on a single source of input and credit, and on a market that is dominated by a few countries and corporations, suggests Uwe Hoering, a German journalist, in his analysis of the current agricultural colonialism in Africa.¹⁶⁷

As a result of the EcoFair Trade Dialogue, several German NGOs are demanding that the United Nations should set up a publicly accessible databank containing information on the size and scope of large agribusinesses, as well as information on mergers, acquisitions and joint ventures in the food system. In addition, the EcoFair Trade Dialogue is proposing the establishment of an independent multilateral Anti-Trust Body, which would scrutinize mergers and acquisitions, and prevent corporations from abusing their market power (by controlling prices, for example, or building cartels). For the national and local level, the EcoFair Trade Dialogue report is recommending a set of policies that would regionalize production chains and favour rural economies over transnational commodity chains.¹⁶⁸

The enormous environmental damage caused by the livestock industry has hardly been assessed in economic terms. The FAO had alerted in a major study that industrial livestock production is at its environmental limits. It reckoned that the production of nitrogen fertilizer just for growing the

¹⁶² François Dufour, Confédération Paysanne, France, at the EcoFair Trade Dialogue panel discussion in Hong Kong, December 2005, p36

¹⁶³ Interview with Dodo Bouréïma, Seedling, GRAIN, January 2008, p.18

¹⁶⁴ Joachim von Braun (December 2007): The World Food Situation. New Driving Forces and Required Actions. IFPRI, Washington

¹⁶⁵ Uwe Hoering (2007): Agrar-Kolonialismus in Afrika. Forum Umwelt und Entwicklung, Bonn/Berlin, p.119

¹⁶⁶ Sophia Murphy and Tilman Santarius (October 2007): The World Bank’s WDR 2008: Agriculture for Development. Response from a Slow Trade — Sound Farming Perspective. Discussion Paper No. 10

¹⁶⁷ Uwe Hoering (2007): Agrar-Kolonialismus in Afrika. Forum Umwelt und Entwicklung, Bonn/Berlin, p.119

¹⁶⁸ Heinrich Böll-Stiftung/Misereor/Wuppertal Institut (2007): Slow Trade – Sound Farming. A Multilateral Framework for Sustainable Markets in Agriculture (EcoFair Trade Dialogue)

33% of global crops that are fed to farm animals results in an estimated annual emission of CO₂ of more than 40 million tonnes. The livestock sector is the largest source of water pollution contributing to “dead” zones in coastal areas, pollution of drinking water, human health problems, emergence of antibiotic resistance and many others.¹⁶⁹ In addition, the genetic variety of breeds has been replaced by a dangerously narrow genetic basis, that is kept in “biosecure” farms, in the attempt to prevent the increasing spread of diseases.

The cost to fight animal diseases that are developing in the narrow cages together with the factory animals is increasing. The livestock industry is facing substantial losses because of disease - For example, ten to fifteen percent of the potential profit in poultry production.¹⁷⁰ Increasingly, the industry is demanding that the taxpayers should bear the cost. The problem in essence is systemic, according to many experts including those of the FAO. GRAIN in its Livestock Special Issue of the Seedling, in January 2008, interprets that “according to FAO, ‘upsurges in animal disease emergencies emerging worldwide are linked to the increased mobility of people, goods, and livestock’ (read: globalisation), ‘changes in farming systems’ (read: more factory farming), ‘and the weakening of many livestock health services’ (read: neo-liberal privatisation and deregulation).¹⁷¹

A global livestock production system has emerged that is a major pollutant of Planet Earth, and dangerously dependent on a few corporations and a vulnerable, narrowing genetic base.¹⁷² Increasingly, human diseases occur that are related to overconsumption of animal products, even in developing countries where average consumption has reached a critical level. With livestock industrialisation, more meat has become affordable to more consumers.

Many consumers start to realize that they pay only part of the costs at the supermarket checkout. They are also paying for subsidies and grants at their tax offices – for livestock gene technology research, for preventing the spread of diseases, for dumping Northern products in the South, for conserving genetic resources in gene banks. Health and environmental damages take their toll as well. Economic data on environmental issues, like the Stern report on climate change¹⁷³, are increasingly influencing policy decision making. Consumer and animal welfare organisations all over the world have been advocating on the issue of industrial livestock production, arguing that there is no such thing as cheap meat.¹⁷⁴

Awareness of the lack of long-term ecological sustainability of these livestock production systems is growing, but alternative strategies still need to be developed. The contract farmers integrated in corporate value chains are not likely to drive the necessary changes, nor the genetics companies, who are heading for proprietary approaches and gene technologies.¹⁷⁵

The issue is on the agenda of social movements, recognizing the urgent need for pastoralists and other livestock keepers to reclaim their rights.¹⁷⁶ Representatives of 30 organizations of pastoralists, indigenous peoples, smallholder farmers and NGOs from 26 countries in both the North and the South came together in Wilderswil at the “Livestock Diversity Forum: Defending

¹⁶⁹ H. Steinfeld (2006): Livestock’s Long Shadow FAO, Rome

¹⁷⁰ Susan J. Lamont, Department of Animal Science, Iowa State University (2006): Integrated, Whole-Genome Approaches To Enhance Disease Resistance In Poultry. 8th World Congress on Genetics Applied to Livestock Production, August 13-18, 2006, Belo Horizonte, MG, Brasil

¹⁷¹ GRAIN (January 2008): Viral times. The politics of emerging global animal diseases. The Seedling, Barcelona

¹⁷² Patrick Mulvany and Susanne Gura (January 2007): Reclaiming Livestock Keepers’ Rights in: The Seedling, GRAIN, Barcelona

¹⁷³ <http://www.hm->

[treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/sternreview_summary.cfm](http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/sternreview_summary.cfm)

¹⁷⁴ Compassion in World Farming (28 August 2007): No Such Thing as Cheap Meat <http://www.ciwf.org.uk/publications/prs/NR2207.pdf> (accessed 30 Jan 08)

¹⁷⁵ Susanne Gura (2008): Livestock: Contracted in Global Value Chains. Exploitation of producers instead of “win-win”. In: World Economy and Development, Issue 3, 2008

¹⁷⁶ GRAIN (January 2008): Livestock diversity still threatened. Interlaken conference ducks the issues. The Seedling, GRAIN, Barcelona

Food Sovereignty and Livestock Keepers' Rights". They met in parallel with FAO's International Technical Conference on Animal Genetic Resources held in Interlaken in September 2007.

They noted, as a consequence of the massive support to industrial livestock production: loss of small and family based production; smallholder bankruptcies and suicides; economic dependency, including through importation of feed; destruction of environment; young and new herders cannot enter into production because of economic barriers; breakdown of social relations; government research and breeding policies geared towards "high productivity" with the indiscriminate introduction of new breeds which have caused them to lose their local breeds.

Their demands do not deal with industrial livestock production but with local livestock keeping communities, and include:¹⁷⁷

- States should recognise the customary laws, territories, traditions, customs and institutions of local communities and indigenous peoples, which constitute the recognition of the self-determination and autonomy of these peoples. Governments should accept and guarantee collective rights and community control over natural resources, including communal grazing lands and migration routes, water, and livestock breeds.
- Governments should engage in creating legally binding international instruments which would oblige States to guarantee the full respect of these rights.
- No patents or other forms of intellectual property rights on biodiversity and the knowledge related to it.

¹⁷⁷ For the full text of the Wilderswil Declaration see Annex 5.

8. Conclusions and suggestions for action

Farmer and civil society organisations, scientific as well as development organisations point out that not large factory farms and multinational corporations, but small-scale family farms hold the key to more productivity, environmental sustainability, and more employment. 640 million smallholders and 190 million pastoralists raise livestock, according to FAO. What is the impact of industrialisation on smallholder livestock producers who make up 70 % of the world's poor, and what should be done to improve their situation?

Contract farming is a common way to establish industrial livestock production. When smallholder poultry, pig or milk producers become contract farmers, they usually receive most or all major inputs including credits from the meat processing company, and usually deliver the products, often at guaranteed prices, to the same company. In some cases, independent veterinary advice is no longer available. The study shows that in developing countries, where industrialisation is advanced like in Brazil, Thailand and the Philippines, a concentration process has taken place, so that many smallholders have given up livestock keeping. The little available data suggest that contract farmers usually bear the risks involved in agricultural production, often become indebted, and moreover, they have no choice but to upgrade technologies and thereby increase their indebtedness.

Strong regulations to govern contracts along food commodity chains may offer a solution to ensure small farmers a fair share in the trading, and require corporations to comply with social and environmental process and production standards.

Contract farming needs to be monitored. Contract conditions where farmers are not free to choose their veterinarians or providers of inputs such as feed and breeding stock should be ruled out.

Smallholders who continue to produce in non-industrial systems do not remain unaffected. In general, credit, subsidies or veterinary services, foster industrial production and discriminate against traditional systems. Meat, eggs and milk produced in the industrial system have decreased market prices. In many places, traditional products receive a premium price, but in others, where there are no rich clients, the cheaper industrial products attract more consumers, and smallholders lose out.

The multi-purpose breeds of smallholders are accused of being less productive than industrial breeding lines, simply based on the evaluation of just one product. The failure of industrial breeding lines will promptly become apparent once the **productivity evaluation of industrial breeding lines have to include all functions of local breeds.**

Herders and pastoralists who migrate seasonally to find grazing for their livestock, have been blamed for overgrazing damages. The underlying causes of overgrazing have become more apparent in recent years, and many of them are related to occupation of ancestral grazing lands by other activities, especially crop cultivation and areas put under environmental protection. New pressure is added by the claim that drought resistant agrofuel crops like *Jatropha* should be grown on land that is "not cultivated" – not acknowledging the fact that such land is often communal land used for grazing and collecting wild plants and animals. These traditional land rights are often under pressure, as are other traditional rights of pastoralists and smallholders.

States should recognise the customary laws, territories, traditions, customs and institutions of local communities and indigenous peoples which constitute the recognition of the self-determination and autonomy of these peoples.

Governments should accept and guarantee collective rights and community control over natural resources, including communal grazing lands and migration routes, water, and livestock breeds.

Governments should engage in creating legally binding international instruments which would oblige states to guarantee the full respect of these rights.

Community-based livestock keepers should participate in related policy decision making, and effective ways need to be found for this.

For a decade, trade liberalization and its effects have pushed livestock smallholders out of business. While powerful countries maintain large parts of their subsidies to agriculture, poor countries have to comply with the WTO Agreement on Agriculture, usually strengthened by corresponding conditionality of The World Bank and IMF development financing. In addition, livestock products are usually included in bilateral trade agreements, resulting in the subsidized Northern products pushing aside local products on the markets in the South. Therefore, **subsidies for industrial livestock production should be abolished in the North as well as in the South, in order to re-establish a level playing field for the smallholder-based production systems. Where production cost is above the world market price, smallholders need support.**

Brazil has become the world's leading exporter of industrial livestock products; one of the reasons is the country's vast resources to produce concentrate feed. In the current phase of global trade expansion, some other countries like Vietnam have large programmes aiming at such exports, and many others facilitate the establishment of industrial livestock production, with a view to possible exports. However, large importing countries are fast stepping up their production, and consumption in the South cannot be expected to reach current Northern levels. Moreover, animal disease control measures have a crucial influence on international trade. Smallholders have not benefited but lost out in Brazil, and it is not likely that elsewhere they will benefit from export oriented policies. **The limits of global livestock trade should be assessed and widely discussed.**

China is, or is becoming, the largest producer country of major livestock products. Large corporations are fuelling the demand and working towards the establishment of corporate value chains. Chinese companies are fast growing and pursuing the same goals. While China still is an importing country, efforts are high to increase national production, as well as exports. Corporations are increasingly influencing production conditions. Accordingly, Chinese politicians increasingly engage in setting international standards that favour corporations; again, food sovereignty is being lost. **Efforts to develop independent smallholder production systems should include China.**

Annex

- 1. Dairy Pakistan: A plan to squeeze smallholders**
- 2. China: Boosting milk production at the expense of pastoralists and the environment**
- 3. Coexistence of livestock companies and smallholders? Pig and Poultry industries in the Philippines, Thailand and Brazil**
- 4. Smallholder pig farmers in Vietnam**
- 5. Wilderswil Declaration**

ANNEX 1

Dairy Pakistan: A plan to squeeze smallholders

Pakistan is the fourth largest milk producing country in the world. 80% percent of milk is produced by farming families from small herds of buffaloes using locally produced feed. They account for 11 % share in the Gross Domestic Product, employ 30-35 million rural people, and constitute 30-40 % of their income.¹⁷⁸ Almost all rural families, especially women, keep some buffaloes to provide milk for the family, the basic staple next to wheat. Family consumption is around a litre per person per day, one of the highest levels of milk consumption in the world. Middlemen buy what farmers are willing to sell, either due to surplus or to a dire need of cash. In the cities, “gowalas” kept animals within the urban area and supplied fresh milk directly to urban families twice daily, usually on contract.¹⁷⁹

Farm gate milk prices are among the lowest in the world.¹⁸⁰ Selling milk makes smallholders even poorer, notes the Punjab-based civil society organisation Punjab Lok Sujag and asks: What nutritional value can a farmer buy for Rs 11 (around 0,16 € in 2003), made by selling a litre of milk?¹⁸¹ Despite a massive milk trade, commercial or intensive dairy farming hardly exists, as the price is not an incentive, especially if feed concentrate has to be bought.

Pakistan in the late 70s was a favourite dumping ground for Western dairy surpluses, enabling the establishment of a processing industry. The NGO Punjab Lok Sujag reported:

“We were told that this nutritional influx is for the good of the poor here. The massive stocks available at lower than the local cost of production overtook urban markets, markets, jolted peri-urban production systems and made local dairy processing unfeasible. The tide then started to settle down. Big corporations took over the market in 90s, and started substituting imports with ‘local production’. Corporations now oppose imports into Pakistan at subsidized rates. They are convincing everyone that exporting milk from Pakistan, not importing, is for the good of the poor.”¹⁸²

The NGO Punjab Lok Sujag in 2003 reckoned that packaged milk could never win over consumers if the supply line from peri-urban producers was not cut off.

“Centerpiece to the packaged milk marketing strategy in Pakistan is a countrywide TV campaign. An over ten-minute long docu-drama is aired frequently. It paints local milkmen as infectious animals, and their elimination would be the only way to safeguard public health. Horrifying wide-angle close-up shots and derogatory language declares *gawalas* as cruel villains. They are shown blowing cigarette smoke in people’s faces and mixing dirty pond water in milk. In contrast the companies are shown doing all the good to a gift that nature made so great but only forgot to pack. The milk packaging is compared to peels and shells.”¹⁸³

By the early 90’s, livestock together with the gowalas were chased out of the capital Lahore, and large “cattle colonies” were established where the owners keep their animals, and milk is collected and processed by dairy companies, usually Nestlé Tetrapak. Other cities followed. In Karachi,

¹⁷⁸ Pakistan Economic Survey 2005/2006; Tanvir, A (2007) Pakistan: A case study of milk production and marketing by small and medium scale contract farmers of Haleeb Foods Ltd, Regoverning Markets Innovative Practice series, IIED, London

¹⁷⁹ Punjab Lok Sujag (2003): The political economy of milk in Punjab. A people’s perspective www.loksujag.org (accessed 20 Jan 07)

¹⁸⁰ IFCN International Farm Comparison Network

¹⁸¹ Punjab Lok Sujag (2003): The political economy of milk in Punjab. A people’s perspective www.loksujag.org (accessed 20 Jan 07)

¹⁸² *ibid.*

¹⁸³ *ibid.*

however, producers formed the Al-Momin Cooperative Dairy farming Society. They now have a modern collective farm, milk processing and marketing facility (Royal Dairies) and a brand (Milkflo). This demonstrates that local milk producers have the potential to develop to an industrial level.¹⁸⁴ They pay higher prices than elsewhere and are despised for it by the mainstream industry.¹⁸⁵

Such competition is not in Nestlé's interest. Nestlé is Pakistan's largest consumer goods company, with sales of Rs 22 billion (€ 0,24 billion) in 2006.¹⁸⁶ Sponsored by Nestlé and its subsidiaries in Pakistan, an unprecedented plan for a White Revolution was set up. "The central platform mobilized and structured for the effort is "Pakistan Dairy Development Company" registered as a guaranteed limited company, generally known as "Dairy Pakistan". This platform consists of representation and policy support from the Government, Industry and the farmer groups whereby core leadership is provided by the private sector by virtue of their expertise."¹⁸⁷ Other organizations through which the plan is implemented include ProFarm Pakistan of which Nestlé Pakistan is the initiator.¹⁸⁸

"The White Revolution is at hand! Traditionally symbolized as the "Doodh Darya" meaning the "river of milk", this is a vision to re-engineer Pakistan's dairy sector, transforming it to become one of the world's most competitive dairy sectors (local market) with a possibility of becoming an exporter in the long run. It envisions the dairy sector as serving as an "engine of economic growth" for the country and taking the responsibility to "drive the development of the socio-economic landscape of rural Pakistan."¹⁸⁹

The Dairy Pakistan plan foresees various components. The elements scheduled for a later stage (2009) are a research centre, farmer training, and a biogas project, among others. The most urgent ones (2006/7) include over 6000 cooling tanks, more than 2000 model farms, and the importation of foreign dairy cow breeds¹⁹⁰ in order to base Pakistani dairy production on crossbred cows.¹⁹¹

In order to maintain the hybrid vigour of the crossbreeds, this would entail maintaining pure breeds in specific facilities. While this concept does not seem to have been developed yet, it may mean that farming communities which use crossbreeds may lose free access to the genetics they have been developing for several thousand years, including Sahiwal, Red Sindhi, Tharparkar, Cholistani, and Kankrej cow breeds.

The Dairy Pakistan plan takes a strange position towards buffaloes which constitute 70% of the dairy animals. Among smallholders, buffaloes are valued higher than cows. Buffaloes produce even on meagre feed, and their milk fat and solid contents are much higher than those of cow's milk. Still, the plan refers to research (without proper citation) suggesting that buffalo milk is less profitable than cow's milk to the farmer, and proposes to look into the matter without pre-empting "that buffaloes should be phased out". It suggests that selected model farms are used for research to know the facts, model farms which elsewhere are dubbed "Nestlé farms".

ProFarm has already developed a breeding programme "to realize the enormous potential of AI and Breeding, to double or sometimes even triple the milk yield of Nestlé farms." Five Artificial Insemination (AI) centres were established. The Dutch Ministry of Economic Affairs supported the project with a substantial subsidy in the first three years. The cattle breeding company providing the genetics is CRV Holding, a Dutch company.¹⁹² A second importation of 2200 cows of foreign

¹⁸⁴ Punjab Lok Sujag (2003): The political economy of milk in Punjab. A people's perspective www.loksujag.org

¹⁸⁵ Pakistan Dairy Development Company (2006): White Paper on Pakistan's Dairy Sector, p.71

<http://www.pddc.com.pk/DairyPakistan-Publication.pdf> (accessed 20 Nov 07)

¹⁸⁶ Associated Press of Pakistan, March 14, 2007: Asia's largest milk plant becomes operational on Friday

¹⁸⁷ Pakistan Dairy Development Company (2006): White Paper on Pakistan's Dairy Sector

<http://www.pddc.com.pk/DairyPakistan-Publication.pdf> (accessed 20 Nov 07)

¹⁸⁸ <http://www.profarm.com.pk/alliances.htm> (accessed 20 Nov 07)

¹⁸⁹ Pakistan Dairy Development Company (2006): White Paper on Pakistan's Dairy Sector

<http://www.pddc.com.pk/DairyPakistan-Publication.pdf> (accessed 20 Nov 07)

¹⁹⁰ *ibid.*, p 67

¹⁹¹ *ibid.*, p 64

¹⁹² 2005 - CRV and The Blue Link agree on establishing a joint venture for Pakistan

dairy breeds was effectuated from Australia, supported by Austrade, which is implementing the private sector linkages component of the Australia Pakistan Agriculture Sector Linkages Programme.

Unlike dairy cattle, there are few “improved” buffalo breeds available that produce a far higher output than the traditional Pakistani breeds, but depend on concentrate feed and other expensive inputs. Nestlé aims at increased milk quantities which can only be achieved with concentrate feed, but not under the local production system. Seasonality is an aspect: The local breeds, cattle or buffalo, have a slack period in summer due to water and feed shortage. Nestlé, however, would like to collect milk all year.

The dairy companies are facing the middlemen as an impediment. While the establishment of more collection centres is a necessary condition to allow more milk to be handled through the formal sector, this is not by itself sufficient to change present supply patterns in a major way. Middlemen also provide credit to the farmers, and the new collection system also has to fulfil this function.

In 2003, the civil society organisation, Punjab Lok Sujag, calculated how middlemen make profit on the back of milk producers, and how dairy companies make profit in a much bigger way. The local milkmen pay farmers 11 thousand rupees for 1,000 litres of milk. They take out 12 kg of fat from it and add 300 litres of water and sell ‘the milk’ at Rs 15 per litre. This generates a margin of up to Rs 9.90 per litre for the chain of middlemen involved.

The companies also pay farmers the same amount of Rs 11 (€ 0,22 in 2003) per litre. They take out a hefty 31 kg of fat from a thousand litre of pure milk and sell the remaining low fat milk after processing and packing at Rs 32 per litre. This generates a margin of Rs 24.66 per litre for the companies. Another method used to get the standardized milk out of the one purchased from farmers is as follows: Adding 800 litres of water to 1,000 litres of pure milk reduces fat percentage from 6.6 to 3.5. But it also reduces the **Solids-non-fat (SNF)** percentage specified in food laws. To make up this shortage one has to add 83 kg of skim milk powder to the 1,800 litre mixture. Skim milk powder is available internationally at \$1 per kg and locally at the retail level at Rs 112 per kg. Packaging and selling this ‘pure milk’ gives companies a margin of Rs 40.17 to 44.30 per litre.¹⁹³ Nestlé collects milk from 140,000 contracted farmers in Punjab who, as a result, receive Rs 6 billion per year directly from the company.¹⁹⁴ They delivered 374,000 tons in 2006, meaning that the price may have been as little as 6 Rs (0,086 € in 2003) per litre milk.

“In Pakistan, milk is always boiled before consumption. Unboiled milk is considered another commodity with specific uses. One can find families that boil pasteurized or even UHT milk. *Karrhni* is a special stove that uses dung as fuel to give very low heat. Milk is put on these for hours to simmer and become fit for consumption. This is being practiced in our villages since centuries. **Longer shelf life and packaging are requirements of dairy industry and not of consumers.**”¹⁹⁵

Punjab Lok Sujag considers that for Nestlé, Pakistan is not only a growing milk market, it is also an unmatched source of cheap milk supplies, the more so as smallholders are unorganized and already crippled by poverty. They can be coerced into accepting any rate for their produce. This nutrition drain will increase poverty. The Plan itself considers a farm gate price maximum of 12,3 Rs as likely, of course only if all other financial conditions, e.g. tax exemptions, subsidies and donor support are fulfilled.¹⁹⁶

¹⁹³ Punjab Lok Sujag (2003): The political economy of milk in Punjab. A people’s perspective www.loksujag.org (accessed 22 March 07)

¹⁹⁴ Associated Press of Pakistan, March 14, 2007: Asia’s largest milk plant becomes operational on Friday (accessed 20 Nov 07)

¹⁹⁵ Punjab Lok Sujag (2003): The political economy of milk in Punjab. A people’s perspective www.loksujag.org (accessed 22 March 07)

¹⁹⁶ p32 “...price presently paid for milk in New Zealand, Australia, Argentina, Brazil and Uruguay is of the order of \$US0.18 per litre”

The Dairy Pakistan plan is obviously not market based. Moreover, it may succeed only if directly supported by a long list of favourable government policies:

- *Media campaign*: The Government will carry out a *media campaign* called the Dhoodh Darya Media Campaign for a period of five years 2006-2011. This information campaign will educate consumers on the health risks of unhygienic loose milk, encouraging farmers or groups of farmers to develop a cold supply chain and adopt best farm practices to economically benefit from the production of more milk and developing a better quality supply mechanism.
- *Tax exemptions and subsidies* listed in detail in the Dairy Pakistan document.
- *Dairy Food Safety Standards*. A draft is included as Annexure. The proposed standard fat and solid content of cow and buffalo milk are far lower than that achieved now by smallholder animals. This is meant to allow the industry to skim off fat and dilute the product, and thus increase profits. The freshly milked produce is no longer termed “milk” but “raw milk”.
- A *Pasteurization Law* (drafted in Annexure 2 of the Dairy Pakistan document), providing that all milk sold to Pakistani consumers has to be pasteurized. Although traditionally, milk is not consumed without appropriate treatment, the Plan specifically states that pasteurization in the processing centres has no alternative. The Pasteurization Law Implementation Plan is until 2015.¹⁹⁷

These are the measures that are necessary to help dairy companies penetrate the largely informal dairy sector. In March 2007, Nestlé set up the world’s largest milk processing factory in Kabirwala, Pakistan.

¹⁹⁷ for details see Pakistan Dairy Development Company (2006): White Paper on Pakistan’s Dairy Sector pp 78/79

ANNEX 2

China: Boosting milk production at the expense of pastoralists and the environment

Mid 2007, European consumers experienced price hikes of milk and butter. They were explained by the rising appetite in China for dairy products.¹⁹⁸

The former Chinese Premier Wen Jiabao is often cited “I have a dream to provide every Chinese, especially children, sufficient milk each day”. His second thought, according to the largest Swiss daily newspaper, may have been that Chinese adolescents, although not malnourished, tend to reach a smaller body size than in the West.¹⁹⁹ Research funded by the Nestlé Foundation and Dairy Australia showed that Chinese adolescent girls grew taller when their diet was supplemented with milk.²⁰⁰

The dairy market in China could best be developed through children. Chinese food habits, with some exceptions of pastoralist and other livestock keepers, exclude dairy products, and adults are usually lactose intolerant and suffer from digestion problems when consuming milk. By regularly consuming milk after weaning age, the body maintains its capability to digest lactose. Processed milk however, is low in lactose and can be digested, but traditionally, people disliked products such as cheese. School milk programmes and public education campaigns are the key to dairy market development.²⁰¹ But also “dairy diplomacy” may be useful to develop business. For example, “Israel’s Prime Minister Ehud Olmert spent his first day in China learning to milk a cow on a farm yesterday, and hoped people of this vast country get accustomed to dairy products.”²⁰² Israel has the highest milk yields per cow in the world, and hopes to sell its technologies.

Current growth rates are at 15%, the highest in the Chinese food sector. A large part of the world’s dairy growth is happening in China.²⁰³ China in 2007 overtook Russia and Pakistan to rank third in the world after India and the United States in the dairy products sector. Indeed, China is expected to boost milk production by 18 percent this year, becoming the third largest milk producing country in the world. High returns and large international investments have spurred development in the Chinese dairy sector in the past ten years and, while many anticipate production growth to slow, it keeps expanding at high rates.²⁰⁴ The Dairy Association of China attributes the rapid development of the country’s dairy sector to a fast growth in the sector’s processing capacities. Both industrial output and sales revenue of major dairy processing companies in 2006 were seven times the 1998 figures.²⁰⁵ The world’s largest dairy companies are the main actors:

In December 2006, Danone considerably increased its China business through a new joint venture with Mengniu Dairy Co Ltd, China’s largest dairy company. It holds a 32% market share and is

¹⁹⁸ Finlo Rohrer: China drinks its milk. BBC News Magazine 7 August 2007
<http://news.bbc.co.uk/1/hi/magazine/6934709.stm> (accessed 22 Nov 07)

¹⁹⁹ Neue Zürcher Zeitung 20 May 2007 <http://www.nzz.ch/2007/05/20/hg/articleF6YUM.html> (accessed 22 Nov 07)

²⁰⁰ Kun Zhu, Xueqin Du, Chris T Cowell, Heather Greenfield, Barbara Blades, Timothy A Dobbins, Qian Zhang and David R Fraser: Effects of school milk intervention on cortical bone accretion and indicators relevant to bone metabolism in Chinese girls aged 10–12 y in Beijing. American Journal of Clinical Nutrition, Vol. 81, No. 5, 1168-1175, May 2005

²⁰¹ Finlo Rohrer: China drinks its milk. BBC News Magazine 7 August 2007
<http://news.bbc.co.uk/1/hi/magazine/6934709.stm> (accessed 22 Nov 07)

²⁰² Olmert tries hand at dairy diplomacy. People’s Daily Online January 10, 2007
http://english.people.com.cn/200701/10/eng20070110_339801.html (accessed 22 Nov 07)

²⁰³ June 2006 FAO Food Outlook Global Market Analysis

²⁰⁴ FAO Global Food Outlook November 2007

²⁰⁵ Business Standard June 26, 2007

headquartered in Hohhot, the capital of Inner Mongolia.^{206,207} China contributes 10 % to Danone's turnover.²⁰⁸

Nestlé is building its first research centre outside Switzerland in the hightech zone of Zhongguancun, an environmental park, in Beijing. It is expected to become the largest food research centre in Asia, with an investment volume of US\$ ten million.²⁰⁹ Nestlé in 2007 also opened its 21st milk processing plant in the country, in Inner Mongolia. Nestlé claims to provide technical services and a regular income to some 40.000 dairy farmers in China.²¹⁰

In 1949 in China, there were only some 100.000 head of dairy cattle. Sector development was slow and milk was in short supply and available on quota. During the eighties, the smallholder sector was developed by crossbreeding local breeds with Holsteins and establishing artificial insemination centres, by providing subsidized concentrate feed to supplement the local roughage and silage, and credit and technical services, and establishing processing plants. Growth rates of around 15 % p.a. were achieved. Today, 1,5 million smallholder producers form an important socio-economic group. They hold 76.8% of total dairy cattle in China and keep on average around five cows.²¹¹ They provide about two third of the required feed²¹² and more than 70% of China's milk production.²¹³ Their production system is considered inefficient, with low milk yields and dubious quality, and its inability to deal with the manure.²¹⁴

In the past years, several hundred large dairy farms have been established around Chinese cities. The country's largest dairy farm, however, has been established in Hohhot, Inner Mongolia, with 10.000 cows, by the market leader in milk processing, Mengniu.²¹⁵ The cost of producing milk in Inner Mongolia and other parts of the grassland belt of northern China is up to 50 percent less than it is farther south where Chinese industrial development and urban growth are concentrated and land is much more expensive.²¹⁶

Inner Mongolia, similarly to Tibet,²¹⁷ has been deeply affected by the policy to change the traditional livestock production system. For nearly six decades since communist rule began, Beijing has tried to settle nomadic pastoralists who primarily belong to Mongolian, Tibetan, Kazakh and other ethnic minorities. Farmers were encouraged to cultivate land in nomadic areas, and keep dairy cows.²¹⁸ The Grasslands Law of 1985, updated 2003, aimed at dividing communal pastureland and fencing it off, at "scientific" breeding, and at sedentarizing mobile populations.²¹⁹ Fencing of pastures and the settlement of nomads has also changed migration patterns from winter to summer grasslands, which traditionally allowed grasslands to recover. Much of China's grasslands are now severely degraded,²²⁰ and sand is carried away by storms to Beijing and as far away as California. Few policymakers seem to have recognized the land tenure changes as the

²⁰⁶

http://www.emfis.de/global/global/analysen/beitrag/id/China_Mengniu_Dairy_fuer_Fonds_interessant_Wachstum_bis_2010_ueber_20_ID42838.html (accessed 22 Nov 07)

²⁰⁷ <http://www.chinadairy.net/english/List.Asp?ListID=199> (accessed 22 Nov 07)

²⁰⁸ Financial Times Deutschland 02.06.2007

²⁰⁹ China.org.cn, 2. August 2007 (accessed 22 Nov 07)

²¹⁰ Reuters, July 5, 2007

²¹¹ J.X. Liu, Y.M. Wu and Z.E. Zhou: Current situation and prospect for dairy production in China

http://www.ilri.org/InfoServ/Webpub/Fulldocs/South_South/ch13.htm (accessed 22 Nov 07)

²¹² Zhang Ziyi, Chinese Academy of Engineering: China's livestock development: the past, present and future

²¹³ WANG Jiaqi, Institute of Animal Science, Chinese Academy of Agricultural Sciences: Integration and conflict: Small farms and big dairy plants, n.d.

²¹⁴ J.X. Liu, Y.M. Wu and Z.E. Zhou: Current situation and prospect for dairy production in China

http://www.ilri.org/InfoServ/Webpub/Fulldocs/South_South/ch13.htm (accessed 22 Nov 07)

²¹⁵ Peoples Daily Online, 3 December 2004

²¹⁶ "MEANWHILE : Buoyancy in milk from Inner Mongolia" SEPTEMBER 25, 2002 Herald Tribune

²¹⁷ "No One Has the Liberty to Refuse" Tibetan Herders Forcibly Relocated in Gansu, Qinghai, Sichuan, and the Tibet Autonomous Region, by Human Rights Watch, June 2007 Volume 19, No. 8 (C)

<http://hrw.org/reports/2007/tibet0607/2.htm> (accessed 22 Nov 07)

²¹⁸ Xin Hua News, June 6, 2002 China's largest Grassland starts an "ecological" revolution on the mode of production

²¹⁹ http://hrw.org/reports/2007/tibet0607/4.htm#_ftn37 (accessed 22 Nov 07)

²²⁰ Lester R. Brown, 'Dust bowl threatening China's future,' Earth Policy Institute, May 23, 2001.

<http://www.earthpolicy.org/Alerts/Alert13.htm> (accessed 22 Nov 07)

root cause, they rather see population pressure, over-grazing and climate change as the primary cause of grassland degradation. In China, the National Commission of Ethnic Affairs seems to revise its analysis and “there is discussion within the government to re-think the relationship between nomad and the ecosystem”... “Some herders have merged their fragmented pasture and graze their animals together, a semi-nomadic way of herding in the new era. Co-operatives have also been established among herders.”²²¹

Whether this thin voice will be heard, is very questionable. In April 2007, for the second year, China has imposed a nationwide grazing ban to prevent overgrazing and erosion of its grasslands.²²² Animals have to be fed in feedlots to reduce the pressure on grazing pastures, raising China's demand for feed grains and also increasing herders' expenses.

Stable milk prices are a high priority in China. Similar to Europe, dairy prices are rising in China. According to the Dairy Association of China, 40% of the country's dairy farmers are making losses due to increasing prices for feed, energy, transport and water. Dairy farmers will receive government subsidies to make up for losses. The State Council announced assistance including up to 500 yuan for each breeding cow.²²³

Development cooperation organizations like the World Bank and the Canadian CIDA were involved, and the world's second largest cattle breeder, the Canada based Alta Genetics, benefited from this investment when establishing its business in China.²²⁴ Alta is also the exclusive representative in China of ABS, the world's largest cattle breeder.

China is said to have a general concern about opening up agricultural trade in a way that could hurt its farmers, particularly in dairy. In 2005, New Zealand alone was responsible for about half of global dairy exports to China, according to Rabobank. Improving access for New Zealand dairy exports is an unresolved point in the free trade agreement talks with China. With dairying a fast-growing industry in China, the question is who should capture the lion's share of that growth.²²⁵

²²¹ China Development Brief, 3 July 2007 <http://www.chinadevelopmentbrief.com/node/1166> (accessed 22 Nov 07)

²²² China imposes grazing ban to restore grasslands, Reuters 11 Apr 2007
<http://www.alertnet.org/thenews/newsdesk/PEK287035.htm> (accessed 22 Nov 07)

²²³ Diao Ying: Dairy farmers will get subsidies (China Daily) http://www.chinadaily.com.cn/bizchina/2007-10/09/content_6159790.htm (accessed 22 Nov 07)

²²⁴ <http://www.altagenetics.com/English/W/hatsnew/20060727AgricorpChina.htm> (accessed 22 Nov 07)

²²⁵ Stephen Ward: China milking free-trade talks to protect interests of farmers. NZ Herald, January 22, 2007
http://www.nzherald.co.nz/section/466/story.cfm?c_id=466&objectid=10420202 (accessed 22 Nov 07)

ANNEX 3

Coexistence of pig and poultry factory farms, and smallholders?

Poultry: Most smallholders dropped out

Thailand: Most smallholder poultry producers have exited, and the rest is pressured by Avian flu regulations

In Thailand, two-thirds of the total egg production is supplied by less than a dozen large companies with more than one million layers and which also import, raise, and supply the breeding stocks. Smaller farms continue to disappear, especially those raising 100-1,000 hens.²²⁶

The broiler industry, today a very important exporting sector, was established with Charoen Pokphand Group (CP) by two Chinese brothers in 1921 in Bangkok's Chinatown. By 1956, they had set up a feedmill and by the early 1970s, they were supplying the feed to contract poultry producers, processing the poultry from these producers and exporting them to Japan. The CP Group applied this same strategy to other industries, including pork and prawns in Thailand as well as in other South-East Asian countries. The CP Group holds the Thai franchise for the Seven Eleven convenience store chain, and is a partner in the Makro supermarket chain in Thailand. It operates petrol stations, some of which share their sites with Chester Grill (a fast food chain owned by CP), and it is also the franchise holder for Kentucky Fried Chicken in a number of Chinese cities. CP was operating 75 feedmills and poultry breeding facilities that turned out 260 million day-old chicks in 1994.²²⁷

Already by the mid-1990s family farms accounted for less than 25 % of production due to the expansion of commercial farms. In 2002, there were nearly three million farmers who raised chickens in their backyards as a supplementary product, mostly for household consumption.²²⁸ It is estimated that 20 percent of poultry production will remain independent of large operators.²²⁹

In most cases, contract growers are middle-class businessmen rather than traditional farmers.²³⁰ Contract growing with smaller growers is declining due to their inability to compete with large commercial growers. At present, the farm sizes considered "too small" to compete in the industry are those with 50,000 birds or less.²³¹

Thailand is far more concerned with exporting broilers than with smallholder poultry production. The country had become a leading broiler exporter, benefiting from cheap labour until Thailand's wage rate for unskilled labour soared in the 1990s. As a result, some exporters have transformed their broiler exports from frozen boneless chicken to processed or precooked chicken (usually in ready-to-reheat or ready-to-eat form).

²²⁶ Christopher L. Delgado Clare A. Narrod (2002) Impact of Changing Market Forces and Policies on Structural Change in the Livestock Industries of Selected Fast-Growing Developing Countries. Final Research Report of Phase I - Project on Livestock Industrialization, Trade and Social-Health-Environment Impacts in Developing Countries. Annex. FAO, IFPRI <http://www.fao.org/wairdocs/LEAD/X6115E/x6115e07.htm>

²²⁷ Reithmueller, P. (2002): Some Issues Associated With The Livestock Industries Of The Asia-Pacific Region, *Fao-Rap*

²²⁸ Christopher L. Delgado Clare A. Narrod (2002) Impact of Changing Market Forces and Policies on Structural Change in the Livestock Industries of Selected Fast-Growing Developing Countries. Final Research Report of Phase I - Project on Livestock Industrialization, Trade and Social-Health-Environment Impacts in Developing Countries. Annex. FAO, IFPRI <http://www.fao.org/wairdocs/LEAD/X6115E/x6115e07.htm>

²²⁹ FAO (2007): State of the World's Animal Genetic Resources. Rome

²³⁰ Knips, Vivien (2004): Review of the Livestock Sector in Mekong Countries, FAO Rome

²³¹ Christopher L. Delgado Clare A. Narrod (2002) Impact of Changing Market Forces and Policies on Structural Change in the Livestock Industries of Selected Fast-Growing Developing Countries. Final Research Report of Phase I - Project on Livestock Industrialization, Trade and Social-Health-Environment Impacts in Developing Countries. FAO, IFPRI <http://www.fao.org/wairdocs/LEAD/X6115E/x6115e07.htm>

Other Asian countries with cheaper labour costs, especially China and Vietnam, began to catch up on broiler exports. Moreover, Thailand began to lose another former advantage - its proximity to Japan - to China, which has become an increasingly important broiler exporter to Japan in recent years.²³²

There is an emerging market for antibiotic-free broilers, especially in Japan. Japanese importers used to pay about a 20% premium for antibiotic-free broilers, which is sufficiently high to cover the increased costs. However, as more broiler farms in Thailand are capable of raising and exporting antibiotic-free broilers, the premium appears to have decreased. The EU does not require antibiotic-free broilers. However, it requires that the growers stop using antibiotics and vaccines for a certain period before slaughtering. Both countries' more stringent demand has resulted in better farm management that has led to the reduction of antibiotic use in the broiler industry.

The European Union's (EU) stance on animal welfare issues has led many Thai exporters to view the measure as protectionism. However, since the EU was Thailand's most important export market for broilers, major Thai exporters tried to comply with those standards. Many large-scale firms are rather optimistic, since they believe that Thailand is in a better position to follow these guidelines than a major competitor like the US.

The requirement to increase traceability in a "farm to table" approach has transformed the Thai broiler industry. Since most large-scale farms rely heavily on export, this effective tracking scheme forces them to comply with the export standard to avoid heavy penalties.

As for the domestic market, the success of the broiler industry in keeping chicken prices down has contributed to a continual increase in chicken consumption in Thailand. Domestic per capita broiler consumption has increased gradually from 3.5 kilograms per year in 1973 to around 12 kilograms per annum in 1997. Per capita consumption decreased slightly after the financial crisis, but has since rebounded to 12 kilograms per annum in the year 2000.

In the past, stringent export standards led to a dual standard system where the domestic market was flooded by lower-quality chicken (including chicken with more residuals such as antibiotics). Since, however, the majority of exports now are not whole birds but only certain parts (e.g., white breast to the EU), the rest of the chicken sold in the supermarket are more likely to be of the same export standard.²³³

In a study carried out in Thailand, the interviewed broiler farmers were earning an average of around US\$87 per month, generally for two workers. This is less than the minimum wage and the average income in agriculture at the national level. Layer and pig farmers were getting higher incomes on average, even though some of them also were in deficit. They expected income stability, but incomes fluctuate and are extremely difficult to anticipate and monitor. Similarly, companies are not obliged to deliver chicks and piglets regularly. With the bird flu crisis, some farmers had been unemployed for more than six months without any prior notice or any compensation. The fluctuating gaps between the production cycles give companies an extremely flexible source of supply, transferring the risk of the market's variations to the farmers. Moreover, farmers are committed for many years because of their bank loan (five to ten years), while companies sign only year-to-year contracts. More burdensome than the low income is the overwhelming debt problem. The average debt by household in the Thai case study was US\$7,500. It is more than ten times the national average for farming households already considered as heavily indebted. The debt makes it almost impossible for the farmers to quit the venture, and creates a strong dependency on the contracting agribusiness companies. This case study also reveals serious concerns in terms of workers' rights. Workers are bound by a contract

²³² Christopher L. Delgado Clare A. Narrod (2002) Impact of Changing Market Forces and Policies on Structural Change in the Livestock Industries of Selected Fast-Growing Developing Countries. Final Research Report of Phase I - Project on Livestock Industrialization, Trade and Social-Health-Environment Impacts in Developing Countries. FAO, IFPRI <http://www.fao.org/wairdocs/LEAD/X6115E/x6115e07.htm>

²³³ *ibid.*

without receiving a copy of it, and sometimes, without even being given a chance to read it. They are de facto employees, but the company does not take responsibility for their social benefits (e.g. social security, sick leave, paid leave, severance pay). The interviewed farmers were not organised and had very little bargaining power with the company. They had no mediator to turn to in case of a dispute.²³⁴

The Philippines: Smallholder poultry producers supplanted by integrators

Backyard production systems in the Philippines were virtually supplanted by industrial production. While there are still identifiable smallholder operations of up to 1,000 birds per farm, these now remain outside the mainstream of the broiler chicken market.²³⁵ However, the Bureau of Agricultural Statistics reported that in 2002, around sixty percent of the chicken population was native.²³⁶

By the late 1990s, some 80% of broilers in the Philippines came from six large companies engaged in breeding, feed formulation, contract-growing, and processing branded meat products. Independent medium sized farmers supply between 15 percent and 25 percent of broilers (Dobashi et al. 1999).²³⁷ The independents also largely depend on the integrators for day-old-chicks supply, which is often volatile.²³⁸

Large integrators are organized into a marketing association and have access to dressing, freezing and storage facilities to partly weather a temporary glut in the broiler market. The integrators also have captive outlets for their branded products, institutional clients under contracts, and their own retail stores. In contrast, independent commercial producers are more vulnerable to market changes. Each day of delay in marketing output over/through optimal schedules results in higher feed costs without corresponding net benefits.²³⁹

Integrators also have access to cheaper feed corn (35% tariff compared to 60 percent effective rates paid by everyone else). Under these conditions, neither smallholders nor the large-scale independent commercial raisers are in a position to compete effectively.

During the "Broiler Crisis" of 1999-2000, independent farmers, particularly in Central and Southern Luzon, the major broiler production centres, came under pressure from the surge in imports of very cheap frozen chicken leg quarters from the U.S. Those who could not withstand the losses either became contract growers of one of the integrators, or simply folded up. "Economies of scale" operations had a substantial cost advantage due to access to inputs at much lower costs than was possible for an independent farmer.²⁴⁰

At a point of time when backyard poultry farming is marginalized, a recent programme develops information, education and communications materials to disseminate technologies and other information vital to the Philippine native chicken production and marketing. It promotes adoption by

²³⁴ Isabelle Delforge (May 2007): Contract Farming in Thailand: A view from the farm. Focus on the Global South, Bangkok

²³⁵ Christopher L. Delgado Clare A. Narrod (2002) Impact of Changing Market Forces and Policies on Structural Change in the Livestock Industries of Selected Fast-Growing Developing Countries. Final Research Report of Phase I - Project on Livestock Industrialization, Trade and Social-Health-Environment Impacts in Developing Countries. FAO, IFPRI <http://www.fao.org/wairdocs/LEAD/X6115E/x6115e07.htm>

²³⁶ BAS (2004) Chicken Industry Performance Report Jan-Dec 2003, cited after Chang, H.S. (2006): An analysis of the Philippine Chicken Industry: Commercial Versus Backyard. University of New England

²³⁷ Riethmueller, P. (2002): Some Issues Associated With The Livestock Industries Of The Asia-Pacific Region, Fao-Rap pp71/72

²³⁸ Christopher L. Delgado Clare A. Narrod (2002) Impact of Changing Market Forces and Policies on Structural Change in the Livestock Industries of Selected Fast-Growing Developing Countries. Final Research Report of Phase I - Project on Livestock Industrialization, Trade and Social-Health-Environment Impacts in Developing Countries. FAO, IFPRI <http://www.fao.org/wairdocs/LEAD/X6115E/x6115e07.htm>

²³⁹ *ibid.*

²⁴⁰ *ibid.*

smallholder native chicken farmers of improved technology on production of improved/ upgraded native day-old and hardened chicks and adoption of improved free-range native chicken production system. It encourages the use of market and pricing information system and disseminates information on available credit facilities and technology services.²⁴¹

Native chicken often command premium prices and are in short supply. There is strong interest to revive native chicken production, breeding and management in countries like Taiwan, Thailand and China. Thailand is tipped to export native chicken in the foreseeable future. Also, there is a potential to market as a free-range or organic product. Smallholder incomes could be significantly improved.²⁴²

The Brazilian Poultry Sector: Smallholders vanished

Poultry breeds from all over the world have been naturalized in Brazil, and sustained smallholder production systems over several hundred years.²⁴³ Today, Brazil is the world's top exporter of poultry meat, produced in large broiler units. The genetics are provided by the four transnational companies which share the global broiler genetics market. All four, Aviagen (Erich Wesjohann Group),²⁴⁴ Hybro (Hendrix Genetics)²⁴⁵, Hubbard (Grimaud Group)²⁴⁶, and Cobb (Tyson)²⁴⁷ established breeding units in Brazil in 2006 or 2007. The breeding lines, from which hybrid chicken are produced as fourth generation, are kept under very close control by the companies, and not many breeding units are spread around the world. Aviagen, the genetics company of the German EW group, has two more such facilities in Europe and the USA.

"The growth of the poultry sector in Brazil began with the importation in the late 1950s and early 1960s of more hardy and productive breeds of hybrid chicken. By the 1970s, the Brazilian chicken industry was growing by 12% per annum. Most of this growth was led by a few large operations in the south, which was also a large corn and soy producing area. In the 1980s, abundant public credit allowed the largest five companies to double their share of national production. Large slaughterhouses were mainly located in the South, spreading to the southeast with the acquisition of traditional slaughterhouses."²⁴⁸

Commercial poultry production in Brazil has been based on the "integration" system in which small- and medium-sized farmers grow chickens for large processors. The standard building houses 24,000 chickens, with automatic feeders and controls for temperature, humidity and light. The trend is towards greater integration between the processing industry and a smaller number of large farmers located close to soy- and maize-producing regions.²⁴⁹

It is sometimes suggested that the integration (also termed "coordination") between chicken farmers and processors "has been a key element of the industry's strong performance. Different forms of contracting are used and a common arrangement is one whereby the processor provides

²⁴¹ <http://www.darag.wesvarrdec.org/htm/07%20news%20and%20events/0206iecropgtakesoff.htm> (accessed 23 Nov 07)

²⁴² Chang, H.S. (2006): An analysis of the Philippine Chicken Industry: Commercial Versus Backyard. University of New England

²⁴³ Brazil country report, FAO State of the World of Animal Genetic Resources

²⁴⁴ <http://www.aviagen.com/output.aspx?sec=338&con=3505> (accessed 23 Nov 07)

²⁴⁵ <http://www.thepoultrysite.com/poultrynews/10664/cutting-through-the-red-tape-first-hybro-flock-placed-in-new-brazilian-pure-line-facility> (accessed 23 Nov 07)

²⁴⁶ <http://www.hubbardbreeders.com/news/index.php?id=48> (accessed 23 Nov 07)

²⁴⁷ Cobb Vantress, June 13, 2006

²⁴⁸ Christopher L. Delgado Clare A. Narrod (2002) Impact of Changing Market Forces and Policies on Structural Change in the Livestock Industries of Selected Fast-Growing Developing Countries. Final Research Report of Phase I - Project on Livestock Industrialization, Trade and Social-Health-Environment Impacts in Developing Countries. FAO, IFPRI <http://www.fao.org/wairdocs/LEAD/X6115E/x6115e07.htm>

²⁴⁹ *ibid.*

inputs such as the chicks and technical assistance and farmers are guaranteed a market outlet and remunerated according to their efficiency.²⁵⁰

Poultry processors in some states in the central-west region benefited from state tax exemptions and infrastructure improvements when they established their plants in those states. In addition, the federal government provided low interest rates for long-term investments in poultry plants; these have benefited mostly medium-sized grain cooperatives and induced them to invest in poultry and pork production.²⁵¹

Brazil's domestic consumption has increased from 2.3 kg chicken meat per person in 1973 to more than 35 kg in 2005. Brazil's traditional preference for pork and beef remained unaffected.²⁵² Increased economic growth, lower inflation rates, stable unemployment levels, and improved consumer purchasing power are credited with creating a strong domestic demand for animal protein. Demand is also expected to increase from the food service industry for products such as frozen chicken meals, pre-cooked meals, and chicken burgers.²⁵³ Some 70% of Brazil's chicken is sold on the domestic market, with a small but increasing quantity as a further processed product.²⁵⁴

Around 30% of production is exported to Europe and other markets, such as Russia, Malaysia, and African countries. Brazil's broiler production and exports were recently hindered due to the impact of avian influenza on world broiler consumption and a stronger Brazilian currency. World poultry consumption is expected to recover, although production in countries which were heavily affected by avian influenza will take a while. However, Brazil also takes advantage of avian flu outbreaks in competing export countries, like UK, Thailand and China.²⁵⁵ Most of Brazil's broiler exports go to Asia, mainly Japan. Saudi Arabia is Brazil's single largest market for chicken meat. The European Union was the third largest market for Brazilian broiler exports until it imposed quotas. While shipments to Russia recently declined significantly, Brazil increased its broiler exports (both whole and cuts) to Africa, mostly to South Africa.²⁵⁶ The export success is in spite of recurrent bans in several countries (EU, Russia, USA) due to Newcastle disease.

A factor that has been stimulating exports is the support by the Brazilian Agency for Export Promotion providing R\$4.5 million to promote exports of Brazilian broilers. The programme is similar to the Market Access Program of the USDA in that the Brazilian government pays half of the export promotion costs. Similar to that for pork meat, the export promotion programme focuses on market studies and participation in 19 food shows overseas.²⁵⁷

The chicken meat exports from Brazil are very diverse, owing to the many different specifications from more than 150 importing countries. The capacity to simultaneously meet all those requirements is seen as one of the most important advantages the local poultry industry has over its international competition. The cheap labour²⁵⁸ and low feed cost add substantially to the advantages, making Brazilian broilers the cheapest in the world market.

²⁵⁰ Silva, Joao F. (2005) Brazil Poultry and Products: Annual Poultry Report, Global Agriculture Information Network Report No. BR5620, Foreign Agriculture Service, USDA
<http://www.fas.usda.gov/gainfiles/200508/146130627.pdf>

²⁵¹ USDA (1997); FAS Report no BR7626, cited after Christopher L. Delgado Clare A. Narrod (2002)

²⁵² Fabio G Nunes (2005): Brazilian chickens fly higher and further fabio.g.nunes@uol.com.br
www.worldpoultry.net/ts_wo/resources/attachments/download/true/im/false/id/10085/08_Brazilian%20chickens.pdf
(accessed 23 Nov 07)

²⁵³ *ibid.*

²⁵⁴ *ibid.*

²⁵⁵ F. Costa, Rabobank International, Brazil (2005): International Poultry Management Conference "Poultry and Egg production in Brazil" <http://www.poultryclub.net/activities/index-1.html> (accessed 23 Nov 07)

²⁵⁶ USDA's Agricultural Marketing Service (February 28, 2007): International Egg and Poultry Review

²⁵⁷ Christopher L. Delgado Clare A. Narrod (2002) Impact of Changing Market Forces and Policies on Structural Change in the Livestock Industries of Selected Fast-Growing Developing Countries. Final Research Report of Phase I - Project on Livestock Industrialization, Trade and Social-Health-Environment Impacts in Developing Countries. FAO, IFPRI
<http://www.fao.org/wairdocs/LEAD/X6115E/x6115e07.htm>

²⁵⁸ Fabio G Nunes (2005) Brazilian chickens fly higher and further fabio.g.nunes@uol.com.br
www.worldpoultry.net/ts_wo/resources/attachments/download/true/im/false/id/10085/08_Brazilian%20chickens.pdf

Brazil's poultry exports also benefit from an exemption from the state value-added tax in the south where production is concentrated. Brazilian poultry exporters also obtain financing (for whole frozen broilers) from Brazilian banks at better rates than financing for domestic production.²⁵⁹ Credit lines with interest rates below market rates available for Brazilian industries have also been used by poultry exporters. Similarly, as an export industry, poultry producer-processors can get long-run investment loans at favourable rates.²⁶⁰

Most, if not all, of this support is not available to smallholders.

Family farms, with less than about 100 ha, in 2002 represented 89% of Brazil's farms, occupied 20% of the land, and were responsible for 40% of the value of the production of poultry. Smallholder poultry production systems still exist in Brazil but similarly to larger scale systems, usually through contracts to larger firms. It is estimated that close to 95% of poultry production take place under contract in Brazil. A high degree of concentration is observed in the poultry sector, where the largest four companies are responsible for 64.5% of total product.²⁶¹

Family farms are also important because they produce the bulk of food in Brazil, a country in which 32% of the population still lacks income enough to eat properly. Food security, in fact, was classified as high priority by the public administrations in the nineties. Recognizing the overall importance of family farms, agricultural policy has changed to less credit and price support to commercial farms and more credit programmes directed to small-scale producers. The extent to which small farms have had enough access to these programmes is not well established yet. Simultaneously, relatively substantial resources have been allocated to agrarian reform.²⁶²

Pig: Drop out of smallholder producers at slower rates

Brazil: Exit of smallholder pig producers

Brazil has vigorously pursued technology acquisition for large-scale hog production and export markets for pork products. Pig genetics companies like TOPIGS and PIC deliver hybrid lines to Brazil and maintain artificial insemination stations. It is anticipated that patterns of change in industrial organization similar to those observed in the United States in the 1990's will be observed in Brazil in the near future. This will involve rapid scaling up and increased vertical-coordination. It is becoming the world's lowest-cost producer in its large-scale sectors in the southern parts of the country. Although smallholders were previously involved in the sector, they have been exiting rapidly. Pork consumption in Brazil, currently 12 kg per person per year, is increasing, although less than consumption of other meats. In addition to a domestic campaign to increase consumption of fresh pork, Brazilian exporters initiated a marketing program to expand their overseas sales. Around 20% of Brazil's pork production is exported. Pork exporters target Russia, Asia, and Latin American countries.

Sanitary restrictions have limited Brazilian exports, especially to Japan, the US and EU, but also to Russia. Since OIE permits disease-free-without-vaccination zones (OIE List A), areas in the southern part of the country are transformed into such zones. Domestic livestock health policies

²⁵⁹ USDA (1997):, FAS Report no BR7626, cited after Christopher L. Delgado Clare A. Narrod (2002)

²⁶⁰ Christopher L. Delgado Clare A. Narrod (2002) Impact of Changing Market Forces and Policies on Structural Change in the Livestock Industries of Selected Fast-Growing Developing Countries. Final Research Report of Phase I - Project on Livestock Industrialization, Trade and Social-Health-Environment Impacts in Developing Countries. FAO, IFPRI <http://www.fao.org/wairdocs/LEAD/X6115E/x6115e07.htm>

²⁶¹ Christopher L. Delgado, Clare A. Narrod, Marites M. Tiongco (2003): Policy, Technical, and Environmental Determinants and Implications of the Scaling-Up of Livestock Production in Four Fast-Growing Developing Countries: A Synthesis. Final Research Report of Phase II. FAO, IFPRI <http://www.fao.org/WAIRDOCS/LEAD/X6170E/x6170e43.htm>

²⁶² *ibid.*

are considered a major reason for the exit of smallholders.²⁶³ Russia in December 2006 lifted an import ban on meat and dairy products from those states that were affected by foot-and-mouth disease. Meanwhile, the Brazilian producers association ABCS is producing technical standards of good practices in pig production, which may turn into another hurdle for smallholders.

Thailand: Smallholders leave pig production, while pig offal is entering the country

Pork production has moved from a system dominated by small growers to large scale commercial operations. Until the mid 1980s, traders collected animals from the villages. Industrial pig production in Thailand began in 1973 with the public sector introducing modern exotic pig breeds from England. It rapidly increased during the 1980s. Especially the 1998 economic crisis forced many small farms out of operation, and credit was not available to them after the crisis.²⁶⁴ Today, around 80% of pigs produced are from integrated farming systems. Contract growing takes place, with companies providing piglets, animal feed, veterinary services and know-how to contracted pig growers.²⁶⁵ Contract farming, or “vertical coordination” according to FAO/IFPRI, is the only solution to keep smaller scale commercial producers involved in the sector.²⁶⁶

Genetics continue to come from abroad. The UK company ACMC established, early 2007, a new 500-sow nucleus herd in Central Thailand.²⁶⁷ Hypor (Hendrix Genetics, NL) in 2006 brought 600 breeding animals (Grandparent and Great-Grandparent animals) as a one-time supply. Semen imports ensure genetic variation for the breeding programme, which is supervised on-line from Canada. Their Thai partner markets parent-stock breeding pigs that have been produced by contracted multipliers.

Swine production in Thailand is still primarily for a domestic market. Due to Foot-and-mouth-disease (FMD), only processed pork is exported, e.g. to Japan. Efforts were made to establish an FMD free zone in the eastern provinces to promote exports.²⁶⁸ The USA, including its National Pork Producers Council,²⁶⁹ are pushing for a bilateral trade agreement that would provide the USA access to Thai consumers. The US government postponed the several year-old negotiations after political changes in Thailand in November 2006.²⁷⁰

The Thai producers' association has alleged that Australia is adding to a glut of pig offal products on the market in Thailand. It wants to see a reduction in Australian supplies which it says has been the primary reason for pig prices dropping below the cost of production at the start of 2007. According to the association, 10 000 tons of pig offal products valued at some US\$14 million were shipped to Thailand from Australia in the past 12 months under a free trade agreement between the countries.²⁷¹

²⁶³ Delgado, C. and C. Narrod 2002) : Impact of Changing Market Forces and Policies on Structural Change in the Livestock Industries of Selected Fast-Growing Developing Countries. Final Research Report of Phase I - Project on Livestock Industrialization, Trade and Social-Health-Environment Impacts in Developing Countries. FAO

²⁶⁴ Knips, Vivien (2004): Review of the Livestock Sector in Mekong Countries, FAO Rome

²⁶⁵ Cameron, Randal D. A. (2000) : A Review Of The Industrialisation Of Pig Production Worldwide With Particular Reference To The Asian Region. Brisbane Australia

²⁶⁶ Christopher L. Delgado Clare A. Narrod (2002) Impact of Changing Market Forces and Policies on Structural Change in the Livestock Industries of Selected Fast-Growing Developing Countries. Final Research Report of Phase I - Project on Livestock Industrialization, Trade and Social-Health-Environment Impacts in Developing Countries. FAO, IFPRI <http://www.fao.org/wairdocs/LEAD/X6115E/x6115e07.htm>

²⁶⁷ ACMC News Release 3 Jan 2007 <http://www.thepigsite.com/swinenews/13026/uk-pig-breeders-acmc-secure-thai-deal>

²⁶⁸ Knips, Vivien (2004): Review of the Livestock Sector in Mekong Countries, FAO Rome

²⁶⁹ <http://www.us-asean.org/us-thai-fta/NPPC.doc> (accessed 23 Nov 07)

²⁷⁰ http://www.bilaterals.org/article.php3?id_article=6404 (accessed 23 Nov 07)

²⁷¹ <http://www.wattnet.com/newsletters/Pig/htm/feb07pigenews.htm> (accessed 23 Nov 07)

Philippines: Smallholder pig producers –a “sensitive sector”-protected until 2009

In the Philippines, industrial pig production grew between 2001 and 2006 from 2,5 million to 3,3 million heads, while backyard production grew from 8,5 to 9,6 million heads.²⁷²

However, the observation that backyard operations continue to account for about 80 percent of swine inventory may be misleading. In the past two decades, household level operations have become intensely commercially oriented. The Philippines hog "model" is one where smallholders have essentially adopted the improved breeds used by the commercial sector and use commercial feed. They remain in business because of the high price of pigs (partly a result of trade policy), and partly because of their willingness to supply family labour very cheaply. Most backyard production is by persons who will stay at home in any event and hogs are a not-too-distracting sideline.²⁷³

Global livestock genetics companies have adjusted to the situation. The world pig genetics leader PIC (belonging to Genus plc, UK) has “developed an innovative business model that enables the more numerous, but smaller, backyard farmers to have access to the same world-class genetics as the commercial segment”, while “roughly one-third of the sows are in commercial farms and form the core of PIC's customer base.”²⁷⁴ PIC has established three nucleus farms in the country to provide the genetics to multipliers, who sell the hybrid sows to the fatteners. Other global suppliers like Hypor (Hendrix Genetics, NL) have also established nucleus farms in the country.²⁷⁵

There is a growing contract farming sector, where feedmillers use smallholder labour, land, and afford impunity from the enforcement of environmental regulations. FAO/IFPRI consider “the institutional forms observed here offer promise to achieve a form of vertical coordination that can overcome transactions costs barriers to smallholder participation (principally access to capital and market reputation). A major question for the Philippines small-scale hog sector is what happens after 2009, when trade liberalization of the hog market is supposed to occur.”²⁷⁶

Livestock and feed grains have been deferred from trade liberalization, at least until 2009, as “sensitive sectors”. The ASEAN-CEPT agreements allow the Philippines to classify meat into the ‘Sensitive List’ of commodities, the liberalization of which only needs to commence in 2009.

²⁷² <http://www.pcarrd.dost.gov.ph/cin/SWIN/facts.htm> (accessed 23 March 2007)

²⁷³ Christopher L. Delgado Clare A. Narrod (2002) Impact of Changing Market Forces and Policies on Structural Change in the Livestock Industries of Selected Fast-Growing Developing Countries. Final Research Report of Phase I - Project on Livestock Industrialization, Trade and Social-Health-Environment Impacts in Developing Countries. FAO, IFPRI Annex IV <http://www.fao.org/wairdocs/LEAD/X6115E/x6115e07.htm>

²⁷⁴ PIC News Release July 04, 2005

²⁷⁵ Hypor News Release Manila, 1 February 2005

²⁷⁶ Christopher L. Delgado Clare A. Narrod (2002) Impact of Changing Market Forces and Policies on Structural Change in the Livestock Industries of Selected Fast-Growing Developing Countries. Final Research Report of Phase I - Project on Livestock Industrialization, Trade and Social-Health-Environment Impacts in Developing Countries. FAO, IFPRI <http://www.fao.org/wairdocs/LEAD/X6115E/x6115e07.htm>

ANNEX 4

Smallholder pig farmers in Vietnam

Pig is, apart from fish, the most important livestock in Vietnam, and the development of pig production currently is a major national objective. Establishment of industrial production units is strongly supported, with most instruments, however, hardly appropriate for the situation of smallholders. The change from local to exotic breeds, and from on-farm feed to purchased feed are important features. Also, longer marketing chains are developing, with collection companies and contracted farmers.

Four different farm types

Pig production is a traditional activity, and its sale represents a significant source of income for a large majority of rural households. The typical farm follows the VAC system, an acronym for “Vuon-Ao-Chuong” meaning “Garden-Pond-Livestock shed”. It integrates cropping, aquaculture and livestock (mainly pig, ducks and chicken) and recycles nutrients and water. Manure provides fertilizer for the crops as well as fish feed. The pond provides floating vegetation, such as water hyacinths, for livestock feed. Crops, fish and livestock provide diverse products for healthy diets and for low risk of yield, or of price fluctuations. Fish is the most consumed livestock product. Almost every rural family keeps at least one or two sows and a dozen fatteners, depending on feed availability and market prospects; 80 to 90% of fattened pigs are sold, usually to local slaughterers and urban retailers. Small-scale production accounts for at least 80% of pigs produced.²⁷⁷

A few long established state owned larger farms account for 4-5% of production, also along the lines of the VAC nutrient and water cycling system, integrating aquaculture and cropping.

Since the mid-90s, private commercial farms have started operating around Ho Chi Minh City with a capacity of 20,000-200,000 pigs.^{278 279} They use exotic breeds and commercial feed, and integrate feedmills.

„Family farm“ is a concept playing a strong role in the national pig development policy. It is defined as ranging between 5 and 19 sows (or 19 to 99 fatteners). Such farms may be situated within villages and may have developed from traditional farms. They may also result from the specialized area policy, where communities are required to set aside a specific area for pig production.

There are approximately 3.5 million imported, 12 million crossbred (imported × local) and 6 million local breed pigs. Of imported breeds, 56% are found on intensive farms, while smallholders have only 9% imported breeds. Local breeds and local crossbreeds are found mainly in smallholder farms (58% compared to 28% on intensive farms).²⁸⁰

²⁷⁷ General Context of a dynamic agricultural sector in the Red River Delta.. In: Vincent Porphyre, Nguyen Que Coi (eds.): Pig Production Development, Animal Waste Management and Environment Protection. A Case Study in Thai Binh Province, Northern Vietnam, CIRAD

²⁷⁸ Cameron, Ranald D. A. (2000) : A Review Of The Industrialisation Of Pig Production Worldwide With Particular Reference To The Asian Region. Brisbane Australia

²⁷⁹ Knips, Vivien (2004): Review of the Livestock Sector in Mekong Countries, FAO Rome

²⁸⁰ A. G. Drucker · E. Bergeron · U. Lemke · L. T. Thuy · A. Valle Zarate (2006): Identification and quantification of subsidies relevant to the production of local and imported pig breeds in Vietnam. In Trop Anim Health Prod

National pig development policy

The industrial system of pig production under controlled conditions has become the objective of both government and entrepreneurs, in a situation where production is not meeting demand, and livestock prices are high. Feed costs are high. Domestic trade costs are high, and an organized animal market with quality standards is lacking.²⁸¹

The role of the government is limited to a monopoly of agricultural produce exports. The public sector has ceased all activity on the domestic meat produce market. No public service carries out animal slaughter; fiscal and sanitary inspections are not very common. Producer groups, unions, fairs, wholesale markets, etc. ensuring the proper practice of trading activity do not exist either.²⁸² No comprehensive policy is in place for the livestock sector, which has received very little budgetary support and also little regulatory interventions concerning marketing, health and environment. This is most apparent in the condition and location of slaughtering, processing and marketing facilities (IFPRI 2001). In 2001, 34,000 metric tons were exported, mostly to Russia and Hong Kong.²⁸³ However, the poor quality of Vietnamese pork, too fatty, and its high production costs penalize it on world markets.

In Vietnam, as in most developing countries, consumption of livestock products is increasing. Fish is the most popular livestock product, and pork is the most popular type of meat. Meat consumption increased from 14,5 kg per person in 1991 to 23,3 kg in 2000. Most of the meat eaten and most of the increase is pork: 10,7 kg pork was consumed in 1991 and 18 kg in 2000.²⁸⁴

However, country-dwellers do not consume much pork compared with urban Vietnamese. Surveys in rural areas have shown that between 40 and 64% of people questioned ate pork meat less than three times a month. On the other hand, in Haiphong, consumption is apparently daily for 40% of families and every other day for 46%.²⁸⁵

In rural areas, traditional high fat content pork from local breeds is cherished and commands a price premium of 1,8 times the price of lean meat. In urban areas, the premium is on lean meat.²⁸⁶

A National Programme for Lean Meat Pig Development was set up in 1999/2000, with clear quantitative production and export goals by 2010. It foresees investment in animal husbandry infrastructure, concentrated feed production commodity chains, slaughtering facilities and the introduction of breeds with high growth potential.

Rabobank points out that significant investment will be required in genetics, infrastructure, disease control, and border surveillance if the industry is to reach the export target of 100,000 tonnes a year set by the Vietnamese government. While non-China Asia will remain a large consumption market for pork, production in most of these countries will not keep pace with domestic demand, Vietnam may be an exception to this trend.²⁸⁷

The government has therefore implemented measures to support and encourage the development of intensive pork production.

- Subsidies are allocated to livestock farmers buying batches of more than 6 exotic sows.
- Easier access to credit is arranged for intensive pig farming investment projects.

²⁸¹ Knips, Vivien (2004): Review of the Livestock Sector in Mekong Countries, FAO Rome

²⁸² General Context of a dynamic agricultural sector in the Red River Delta. In: Vincent Porphyre, Nguyen Que Coi (eds.): Pig Production Development, Animal Waste Management and Environment Protection. A Case Study in Thai Binh Province, Northern Vietnam, CIRAD 2006

²⁸³ *ibid.*

²⁸⁴ *ibid.*

²⁸⁵ *ibid.*

²⁸⁶ A. G. Drucker · E. Bergeron · U. Lemke · L. T. Thuy · A. Valle Zarate (2006): Identification and quantification of subsidies relevant to the production of local and imported pig breeds in Vietnam. In Trop Anim Health Prod

²⁸⁷ Fiona Boal, Rabobank International (2006): Competition from Eastern Europe and Beyond – New Players in the Global Pork Industry. New York

- Training courses are given in several communes in order to improve livestock farming performances and to encourage production of leaner animals (feeding practices, genetic choices).
- A specialization plan for communities has been set up, making provision for the development of 5 to 10 hectares set aside for livestock production in each village by 2006.

This specialized area policy requires pig farms to follow industrial livestock farming technology, use veterinary services, set aside land for growing feed like maize and soybean, and use biogas systems to deal with the effluents.

Practice, however, shows that requirements are often not fulfilled. Especially, animal effluents are a major problem as they are often dumped in water courses. Biogas systems are often not established or not working.²⁸⁸

Heavy subsidies to industrial pig production

The various subsidies available in Vietnam for pig production were analysed for their relevance to the loss of local breeds. Vietnam is considered a typical example.²⁸⁹

Fifteen potential types of subsidy were identified. The total subsidy for imported breeds and their crosses corresponds to approximately US\$ 31 per sow per year. Compared to a range of estimates regarding the profitability of pig rearing, this represents 19–70% of the gross margin typically associated with sow production. Such findings are compatible with the OECD findings, subsidies as a portion of farm receipts reaching 60% in some cases. The findings are also comparable to those of pig production in Mexico and Canada, which were approximately US\$ 17.²⁹⁰

Approximately two-thirds of the total subsidy arises from two sources:

- Direct subsidies to two state run breeding farms for exotic breeds, and
- Subsidized prices for commercial farmer (multipliers) purchase of breeding stock from state-run breeding farms.

Additional subsidies are available from provincial governments regardless of the pig breed, although exotics are strongly encouraged.

More recently, very large subsidized loans (“Decision No. 257”) are available to establish new farms raising more than 30 sows or 100 fatteners per year. Drucker et al. estimate that they will mainly benefit farmers or investors who can bring capital to build such farms.

The current high subsidy levels, the prospects of further increases and the degree to which local breeds are already endangered suggest that mitigating measures for AnGR conservation urgently need to be implemented rather than, or in addition to, simply advocating the removal of distorting subsidies. The expenditures associated with the resulting conservation programmes should be treated as a direct cost of the current subsidy policy.

Indirect subsidy through support to the functioning of breed societies, including record-keeping, dissemination of information and storage of semen, may also be appropriate.

The National Programme on Conservation of Vietnamese Animal Genetic Resources, established in 1990, is currently following a combination of these strategies. The programme explicitly favours on-farm conservation of local breeds (Lemke et al., 2000), with economic incentives (financial and technical) provided to participating farmers. Such initiatives will have to be considerably expanded

²⁸⁸ General Context of a dynamic agricultural sector in the Red River Delta. In: Vincent Porphyre, Nguyen Que Coi (eds.): Pig Production Development, Animal Waste Management and Environment Protection. A Case Study in Thai Binh Province, Northern Vietnam, CIRAD 2006

²⁸⁹ A. G. Drucker · E. Bergeron · U. Lemke · L. T. Thuy · A. Valle Zarate (2006): Identification and quantification of subsidies relevant to the production of local and imported pig breeds in Vietnam. In Trop Anim Health Prod (2006) 38:305–322

²⁹⁰ *ibid.*

for pigs and, increasingly work in remote areas where on-farm conservation of local pig breeds will still be of interest to farmers.²⁹¹

Evidence from Thai Binh Province²⁹²

Provincial governments are in charge of implementing the policy. For example, by 2010, the provincial government of Thai Binh in Northern Vietnam, aims at achieving a value of livestock production within agriculture totalling at least 40%. It also wishes to see the proportion of fattened cross-bred pigs with exotic breeds rise to 40% by 2010.

The provincial pig herd has grown on average by roughly 10 % annually since 1993, rising steadily from 400,000 animals to about 1.1 million in ten years. This development has come with deep structural changes and this trend should continue over the coming years, because the provincial authorities consider the increase in pork production as a priority. The province is already moving away from rice production to increase maize and soybean production for animal feed.²⁹³

Smallholders are not heard

The Vietnamese-European research team concludes that “The pig farmers and farm households are naturally involved in the national development projects. Every farmer involved in the process of intensifying pig, fish or crop production through individual initiatives now expects technical support and advice. They all demand a better dialogue with policy makers and official services, collectively seeking to ease their main constraints (economic, technical, veterinary and environmental).”²⁹⁴

However, “farmers wishing to increase their pig production are thwarted by a lack of funds to invest, an absence of land on which to extend their buildings and limited technical know-how to manage an industrial-scale production.”²⁹⁵ This conclusion was drawn after around 100 interviews were carried out with all stakeholder groups involved in pig development in the province, including of course smallholders. To note, 60% of the producers in Thai Binh are women, with an average age lower than 45 years.

Land specialization not suitable for smallholders

Every village in the province must reserve 10% of its land for livestock farms, in the proximity of a road and a water source. Preferably, less fertile lands should be chosen. Few villages have successfully implemented this land policy, as difficult land transfers must be resolved. Generally, those who wish to set up a large new farm are already large farmers who already have expanded their production, not smallholders who usually lack access to credit.

²⁹¹ A. G. Drucker · E. Bergeron · U. Lemke · L. T. Thuy · A. Valle Zarate (2006): Identification and quantification of subsidies relevant to the production of local and imported pig breeds in Vietnam. In *Trop Anim Health Prod* (2006) 38:305–322

²⁹² The CIRAD and six partners in Vietnam (NIAH, VTGEO, NISF, HAU), Thailand (AIT) and Spain (AIDA) jointly implemented a multidisciplinary programme funded by the ASIAPROECO programme of the European Commission. The 12-month E3P Project, acronym for Environmental Protection and Pig Production, aimed to establish baseline work for designing and implementing a geographical information system; as a diagnostic tool, it has been dedicated to pig production development in order to assess the surpluses of animal waste, the nutrient needs of crops and fishponds, and to define the most reliable animal waste management and technological options.

²⁹³ General Context of a dynamic agricultural sector in the Red River Delta. In: Vincent Porphyre, Nguyen Que Coi (eds.): *Pig Production Development, Animal Waste Management and Environment Protection. A Case Study in Thai Binh Province, Northern Vietnam*, CIRAD 2006

²⁹⁴ *ibid.*

²⁹⁵ D. Pillot, J.F. Le Coq, Nguyen Thi Hoa, V. Porphyre (2006): Stakeholders' Perceptions of Pig Effluent Management in Thai Binh Province. In: Vincent Porphyre, Nguyen Que Coi (eds.): *Pig Production Development, Animal Waste Management and Environment Protection. A Case Study in Thai Binh Province, Northern Vietnam*, CIRAD

The intention of the policy is to reduce environmental and health problem of raising large numbers of pigs near human settlements. However, since hardly any provisions are made for the recycling of nutrients and water, severe environmental and health problems are bound to arise. The VAC system is ideally foreseen for the livestock area since it is supposed to work not only in small farms. However, there is too little experience regarding calibration of the various components in a larger system.

Environmental problems unresolved

For example, a biogas plant is required to treat effluents from pig farms. Problems are foreseeable as very few biogas plants in the region are in working condition due to lack of well trained experts. However, smallholders rarely have enough space within villages or access to capital to set up such a system. If such solutions are applied strictly, they run the risk of heavily penalizing smallholder farmers.²⁹⁶

Other solutions to recycle nutrients from manure have hardly been discussed in Thai Binh Province.

- Composting is suggested as a solution that is better accessible to smallholders and allows nutrient transport and marketing.
- The use of large amounts of water to clean stables and animals could be substantially reduced by scraping. This would help composting and avoid a large number of health and environmental problems due to water contamination (pollution of drinking water and fish ponds; contamination of fields)

Number of smallholders slightly decreased

An overview on the development of pig farms types in this province shows that during the past decade, while some 180 large and medium sized commercial farms were established, the number of smallholders has slightly decreased. Larger farms, in contrary, have experienced an unprecedented growth rate.

Table: Pig farms types and numbers in Thai Binh Province, Vietnam²⁹⁷

	Local name	Size	1993	2004
<i>Traditional farms</i>	<i>Nong Ho</i>	<i>Less than 5 sows (or 19 pigs)</i>	<i>420,000</i>	<i>412,000</i>
<i>Family farms</i>	<i>Gia Trai</i>	<i>From 5 to 19 sows (or 19 to 99 pigs)</i>	<i>89</i>	<i>2,452</i>
<i>Farms</i>	<i>Trang Trai</i>	<i>More than 20 sows (or 100 pigs)</i>	<i>88</i>	<i>1,335</i>

Livestock breeding for smallholders?

Organisational units of pig breeding are state farms (under government administration) and provincial farms (under the People's Committee of the province). Most breeding centres are involved not only in breeding but also in fattening due to lack of funding. The emphasis is on short term commercial gain and at the expense of a long-term national vision of livestock improvement. Mass organisations and national development projects play a role in the distribution of pigs to farmers. The AI network strongly supports the distribution of exotic germplasm at village level.

²⁹⁶ D. Pillot, J.F. Le Coq, Nguyen Thi Hoa, V. Porphyre (2006): Stakeholders' Perceptions of Pig Effluent Management in Thai Binh Province. In: Vincent Porphyre, Nguyen Que Coi (eds.): Pig Production Development, Animal Waste Management and Environment Protection. A Case Study in Thai Binh Province, Northern Vietnam, CIRAD

²⁹⁷ General Context of a dynamic agricultural sector in the Red River Delta. In: Vincent Porphyre, Nguyen Que Coi (eds.): Pig Production Development, Animal Waste Management and Environment Protection. A Case Study in Thai Binh Province, Northern Vietnam, CIRAD 2006

Donor agencies, commercial importers, and breeding associations are major driving forces in the gene flow of higher yielding breeds to Vietnam, but their actions are not centrally coordinated, and information on them is lacking.²⁹⁸ Although farmers are organized in cooperatives for procurement and marketing, they are not regularly involved in breeding.

For example, the Swiss agency for development and co-operation is providing the equivalent of US\$756 900 towards a pig/poultry project in northern Vietnam for a breeding scheme carried out over the next 3 years, aimed at raising the living standards of 6000 households by importing exotic breeds.²⁹⁹

Vietnam with its pig development programme and as Asia's second largest pig producer after China, is very interesting to international livestock breeding companies. A franchise for JSR Genetics stock was set up in December 2006 in Vietnam in partnership with Korea's largest pig breeding company Darby Genetics. JSR has exported 500 grandparent stock, which produce parent stock gilts and Duroc Terminal boars to Vietnam to allow Darby to open its second pig farm in the country.³⁰⁰

Smallholders may reach the same conclusion as a researcher recently did: "Higher performances of exotics or crossbreeds have so far been mainly recorded under improved keeping conditions. Lemke et al. evaluated semi-intensive pig production with higher-yielding Mong Cai, opposed to extensive production with local Ban pigs. Semi-intensive production with Mong Cai yielded a higher output but required a higher input; while extensive production with Ban pigs yielded a lower output at a lower input. The resulting net benefit per household per year did not differ statistically between production systems and breeds."^{301, 302}

Local breeds might be competitive under low-input conditions, and their replacement might endanger the livelihoods of smallholders in low-input systems depending on those breeds.³⁰³

Market protection for smallholders?

Initiatives to maintain and improve production systems based on local breeds seem to work especially where industry pigs have no chance at all. A group of Vietnamese and Germans worked with households in mountainous Northern Vietnam to improve the local Ban pig. This breed is suited to harsh upland climates and varying feed supplies, whereas the Mong Cai pigs and their offspring, usually crossbred with exotic boars, needs higher inputs to perform well. Ban pig products are marketed as a branded local specialty.^{304, 305}

But will this initiative and smallholder production be able to more generally withstand globalization?

Vietnam became a WTO member on 11 January, 2007. A few weeks earlier, in December, the US Senate approved a Permanent Normal Trade Relations (PNTR) status for Vietnam. With PNTR,

²⁹⁸ Lemke, U. , L. T. T. Huyen , R. Rößler, L. T. Thuy, and A. Valle Zárate (2005): Impact of the use of exotic compared to local pig breeds on socio-economic development and biodiversity in Vietnam Tropentag Stuttgart-Hohenheim

²⁹⁹ Vietnamese news services file:///C:/Pig%20International/Newsletter/oct05pigenews.htm (10 of 14)10/28/2005 4:54:30 AM

³⁰⁰ <http://www.jsrgenetics.com/genetics.php?Display=12841&type=0> (accessed 23 Nov 07)

³⁰¹ Lemke, U. , L. T. T. Huyen , R. Rößler, L. T. Thuy, and A. Valle Zárate (2005): Impact of the use of exotic compared to local pig breeds on socio-economic development and biodiversity in Vietnam Tropentag Stuttgart-Hohenheim

³⁰² Lemke, U. (2006): Characterisation of smallholder pig production systems in mountainous areas of North Vietnam. Institute of Animal Production in the Tropics and Subtropics, University of Hohenheim, Germany. (PhD thesis)

³⁰³ Lemke, U. , L. T. T. Huyen , R. Rößler, L. T. Thuy, and A. Valle Zárate (2005): Impact of the use of exotic compared to local pig breeds on socio-economic development and biodiversity in Vietnam Tropentag Stuttgart-Hohenheim

³⁰⁴ FAO (2006): SOW, First Draft p.369

³⁰⁵ Lemke, U. (2006): Characterisation of smallholder pig production systems in mountainous areas of North Vietnam. Institute of Animal Production in the Tropics and Subtropics, University of Hohenheim, Germany. (PhD thesis)

U.S. exporters can now take advantage of Vietnam's accession to the World Trade Organization. Tariff rates for about 75 percent of U.S. agricultural exports to Vietnam, including pork, will decline to 15 percent or less. The tariffs on pork products variety meats will decline substantially. The deal is expected to increase U.S. pork variety meat exports to Vietnam to \$16.5 million by 2012 from \$3.3 million in 2004 and will raise live hog prices by \$0.52 per hog. The US National Pork Producers Council called it a tremendous victory. Vietnam also made numerous improvements to its implementation of WTO rules on sanitary and phyto-sanitary measures and agreed to recognize the U.S. inspection system for pork as equivalent to its inspection system. Additionally, the U.S. will have recourse to WTO dispute settlement mechanisms should Vietnam not live up to its obligations.³⁰⁶

Depending on the price, the US may be able to flood the Vietnamese pork market and outcompete local products. Smallholders are not protected at all.

Conclusions

Strong policy priorities and heavily subsidized industrial pig production, imported breeds and technologies, put much pressure on traditional systems. There are attempts to include smallholders in the industrialization by establishing the "Family farm" concept and opening subsidies for as little as 6 sows. New marketing channels are established with contracted production, on which however very little data is available. There are signs that the differentiated structure prevailing in OECD countries with primary breeders, multipliers and fatteners, is being established in Vietnam. Primary breeders from such countries (e.g. JSR Genetics from UK) have established nucleus herds, and it can be expected that smallholders are not the ones who will shape the terms in this industry, but international breeding, and processing companies.

The traditional system of integrated fish, livestock and crop production which was pursued not only by smallholders but also by large state farms, is not consistently being followed up. With regard to feed, there is a policy to make pig farms also grow feed, but information on this practice is hardly available. The same is true for fish ponds, and it is not clear whether aquaculture and pig development policies are coordinated. A comprehensive study on effluent treatment has shown that, although attempts are being made to introduce biogas plants, no working solutions have been found yet, for either large farms nor for smallholders. A more suitable solution would be composting and the development of a market for compost. Water saving solutions have also been proposed that would suit both small and large farms and considerably reduce water pollution.

In practice, smallholders seem to rarely benefit from the national pig development policy, since there is no development of smallholder production systems or traditional breeds. Liberalization is likely to exacerbate the situation by decreasing import tariffs and accepting regulations from other producing countries, currently especially the US, thus opening the Vietnamese market to heavily subsidized US pork products.

³⁰⁶ <http://www.nppc.org/wm/show.php?id=631&c=1> (accessed 31 May 07)

ANNEX 5

WILDERSWIL DECLARATION ON LIVESTOCK DIVERSITY

Wilderswil, Switzerland, 6 September 2007

We, representatives of 30 organizations of pastoralists, indigenous peoples, smallholder farmers and NGOs from 26 countries in both the North and the South came together in Wilderswil at our “Livestock Diversity Forum: Defending Food Sovereignty and Livestock Keepers’ Rights”. We met in parallel with FAO’s International Technical Conference on Animal Genetic Resources held in Interlaken.

We are here to fight for our rights as livestock keepers. We realize that we are just a small fraction of all the organizations that exist throughout the world. But we recognise that our struggle is common to the social organisations of nomadic pastoralists, herders, indigenous peoples and small farmers in both the North and South. Our main purpose of coming together was to further strengthen our movement and deepen our analysis and collaboration.

The global livestock crisis

The industrial model of livestock production is causing the destruction of our animal diversity as well as our own livelihoods. Today, the industrial livestock breeding and production system is being imposed globally as the dominant model for the world’s livestock production. It requires high levels of investment in technology and receives subsidies and other resources, which have distorted the market. This has led to an unprecedented concentration of, and dependence upon, the livestock breeding industry. For example, there are only four globally operating poultry breeding companies worldwide with only two of them controlling half of the world’s egg production. While the breeding companies are Northern, the growing market for their products is increasingly in the South because industrial livestock production is being promoted there. The growth of industrial livestock production has already resulted in the destruction of the livelihoods of small-scale livestock producers. Furthermore this model of production is based on a dangerously narrow genetic base of the world’s livestock, propped up by the widespread use of veterinary drugs. Yet this risky and high cost system is providing more and more of our food: globally, one third of pigs, one half of eggs, two thirds of milk and three quarters of broilers are produced from industrial breeding lines.

How industrial livestock production is advanced

The industrial model is imposed on us through land grabs and evictions based on systems of private property ownership, forced sedentarisation policies and disruption of pastoral migration routes, liberalization of markets, contract farming, large scale economic development projects such as mining (and their consequences such as the privatisation of water resources by transnational companies), agrofuel production schemes, and even through policies that aim to conserve nature through national parks and protected areas. In recent decades, it has also been achieved through the imposition of trade rules that enable dumping, which destroys local markets, and that force us to produce food based on the industrial model for export.

The policies of structural adjustment and the privatization of land, water and veterinary services and the drive for proprietary technologies, such as cloning and genetic modification, are other tools used to destroy our way of life. Tragically, these policies have led to an increase in competition for the appropriation of natural resources which has resulted in a dramatic increase of violent conflicts, wars and occupations.

This model of production is detrimental to health of both humans and livestock. Marketing strategies are used to encourage high and unhealthy quantities of livestock products for consumption. Health measures that facilitate the global trade of industrially produced livestock are destroying our local small-

scale production. We cannot accept that sanitary and hygiene regulations should be defined under the control of the World Trade Organisation responding only to the demand to liberalise markets. The standards of health and quality of livestock products must respond to the needs of consumers and not the needs of industry.

The consequences of industrial livestock production

We note the following consequences in our communities: loss of small and family based production; smallholder bankruptcies and suicides; economic dependency, including through importation of feed; destruction of environment; young and new herders cannot enter into production because of economic barriers; breakdown of social relations; government research and breeding policies geared towards “high productivity” with the indiscriminate introduction of new breeds which have caused us to lose our local breeds.

Towards Food Sovereignty and collective rights

We affirm that it is not possible to conserve animal diversity without protecting and strengthening the local communities that currently maintain and nurture this diversity. We want livestock keeping that is on a human scale. We defend a way of life that is linked deeply with our cultures and spirituality and not just aimed at production. We are building our capacities to organize ourselves to counter the pressure to conform with the industrial model. We are adopting the framework of food sovereignty which was developed by small farmers’ movements and others, who face many similar problems stemming from industrial agriculture, and which is already starting to be recognized by several governments. We will continue to further develop alternative research approaches and technologies that allow us to be autonomous and put control of genetic resources and livestock breeding in the hands of livestock keepers and other small-scale producers. And we will organise ourselves to conserve rare breeds.

We are committed to fighting for our lands, territories and grazing pastures, our migratory routes, including trans-boundary routes. We will build alliances with other social movements with similar aims and continue to build international solidarity. We will fight for the rights of livestock keepers which include the right to land, water, veterinary and other services, culture, education and training, access to local markets, access to information and decision making, that are all essential for truly sustainable livestock production systems. We are committed to finding ways of sharing access to land and other resources with pastoralists, indigenous peoples, small farmers and other food producers according to equitable, but controlled, access.

Ownership, knowledge and innovation at the community level are often of a collective nature. Therefore local knowledge and biodiversity can only be protected and promoted through collective rights. Collective knowledge is intimately linked to cultural diversity, particular ecosystems, and biodiversity and cannot be dissociated from any of these three aspects. Any definition and implementation of the rights of livestock keepers should take this fully into account. It is clear that the rights of livestock keepers are not compatible with intellectual property rights systems because these systems enable exclusive and private monopoly control. There must be no patents or other forms of intellectual property rights on biodiversity and the knowledge related to it.

States should recognise the customary laws, territories, traditions, customs and institutions of local communities and indigenous peoples, which constitute the recognition of the self-determination and autonomy of these peoples. Governments should accept and guarantee collective rights and community control over natural resources, including communal grazing lands and migration routes, water, and livestock breeds. Governments should engage in creating legally binding international instruments which would oblige States to guarantee the full respect of these rights.

The FAO Global Plan of Action

The FAO Report on the State of the World's Animal Genetic Resources contains a good analysis of some of the key causes behind the destruction of the biodiversity of domestic animals and the undermining of the livelihoods of local communities that nurture this diversity. The Report squarely points to the industrial livestock system as one of the main forces behind this destruction. However, in the Global Plan of Action there is nothing that addresses these causes. It is totally unacceptable that governments agree on a plan that does not challenge the policies that cause the loss of diversity. Nor are governments even committing themselves to make any substantial financial engagements to implement their own Plan.

The social organizations of pastoralists, herders and farmers have no interest in participating in a plan which does not address the central causes behind the destruction of livestock diversity but rather provides crutches / weak support / for a collapsing global livestock production system. Because the Global Plan of Action does not challenge industrial livestock production, we reinforce our commitment to organise ourselves, to save livestock diversity and to counter the negative forces bearing on us. However, we remain open and willing to participate in any useful follow up that might be facilitated through FAO.

Defending livestock diversity is not a matter of genes but of collective rights.

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