

## Intensive livestock production destroys diversity and livelihoods

*Community-based livestock production and the diverse breeds upon which it is based are being squeezed out by intensive livestock production. Many developing countries are risking their local food production systems by boosting industrial livestock production of meat and milk for wealthy consumers and export. It is time to limit the inordinate market power of the livestock industry and develop livestock production based on local resources and local breeds.*

### Livestock Revolution - meat and milk for expanding urban middle classes

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 (FAO/OECD 2006). But 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.

#### Nestlé Pakistan

Nestlé is building the world's largest dairy processing plant in Pakistan, the fourth largest milk producing country.

*Associated Press of Pakistan 14 March 07*

### A revolution supported by market distortions

The production increase achieved by the livestock industry has not helped reduce poverty. 70% of the world's poor keep livestock, yet the Livestock Revolution has not 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 (IFPRI 1999). IFPRI asserted that the high productivity per animal of the industrial breeding lines was the only way forward and considered the development of local breeds too time consuming if not impossible.

#### Health regulations for pig industry in Brazil

Although smallholder pig producers were previously involved in the sector, they have been exiting rapidly, particularly in the southern part of Brazil, which government policy has attempted to transform into disease-free-without-vaccination zones ("OIE List A").

*FAO 2002*

Industrial breeding lines and factory farms were introduced, often aided by development cooperation, supported by measures such as subsidies, veterinary services, local research and animal health regulations - all distorting market forces. 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

#### The world's main meat and milk producers and exporters

- Asia has overtaken Europe in terms of milk production.
- Pork is the most consumed meat in the world, and China produces more than half of it.
- Brazil in 2004 has overtaken the USA as the world's main meat exporter.

*FAO Global Food Outlook 2006*

and production systems were often considered unproductive and backward. Policy decisions very often put smallholder systems them at disadvantage. The fact that they are growing seven times less than the heavily supported livestock industry is very likely a result.

#### Subsidies to the pig industry in Vietnam

Fifteen potential types of subsidy for imported breeds and their crosses, totaling US \$ 31 per sow per year, provide 19 - 70% of the gross margin.

*Adam Drucker (ILRI) et al., 2006*

### Smallholders, contractors and concentration

In the USA as well as in many other industrialised countries, livestock is often grown under 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. Contract growing is the common approach to livestock industrialization. The effect of livestock industrialization on smallholders is often not easy to determine, but sooner or later a concentration process takes place:

- In Brazil, contract growing was already common in units of 24,000 birds in 2002 (FAO/IFPRI 2002). 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.
- In the Philippines, many chicken contract growers gave up during the "Broiler Crisis" 1999-2000 which was due to US chicken meat imports (FAO/IFPRI 2002).

Pig contract growing by smallholders in the Philippines is predicted to be hit by the meat market liberalization due in 2009.

*FAO/IFPRI 2002*

- Similarly, in Thailand, contract growers with less than 50,000 birds gave up under pressure from competition (FAO/IFPRI 2002).
- Smallholder pig producers in Thailand moved into contract farming during the 1990ies, but many gave up

during the economic crisis of 1998 (FAO 2004). A protest rally of pig smallholders was recently held against dumping prices by the domestic meat market leader, Charoen Pokphand (Bangkok Post May 07).

- In Vietnam, industrialization began late, but already at the beginning, investors but not smallholders are participating in the pig business (CIRAD 2006).

Many African livestock farmers have been out competed by dumping, first of milk powder, and later of low quality chicken parts originating from the EU.

*Misereor 2005, EED 2007*

It is expected that smallholder pig farmers, more clearly than poultry farmers, will sooner or later be marginalized. 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 with food and income. Some of them may benefit from high priced niche markets for traditional products, so long as industry does not “develop” – take over - this market. However, Avian Flu regulations have severely hit backyard poultry in recent years.

#### **Native chicken as a proportion of the total chicken population**

Thailand: 34%  
Philippines: 60%

#### **Fewer breeding companies control larger markets**

There are only four globally operating poultry breeding 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 *Hendrix Genetics*, the world’s second largest poultry breeder, bought the second largest pig breeding company Hypor.

#### **Industry is taking over breeding from farmers**

The expansion of industrial animal production increasingly takes animal breeding out of the hands of farmers and livestock keepers. Breeds were once developed by livestock keeping communities.

Breeding companies –mostly from the North- have developed only a few of these into breeding lines. Most cattle farmers and poultry and pig factory farms all over the world are using these breeding lines. Almost all poultry and most pig farmers in industrialized countries buy hybrid animals. Cattle farmers choose semen from

very few high-performance bulls, selected from the 3 to 4 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 pests and 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 breeding stock.

Local livestock keeping communities in developing countries, in contrast, even though their choice is limited, can still continue to make their breeding decisions along criteria that relate to the local environmental, economic and social conditions.

#### **How market controls work**

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.

#### **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 Hybrid 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.

Biological locks in poultry and Closed Herds in pig production are used to control hybrid lines, and increase dependency of producers. Gene technologies, including Marker Assisted Selection, are usually controlled by patents. For companies listed on the stock exchange, such as Genus plc and Monsanto, not only are patents important assets to attract shareholders, but also 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, and 90% of production

#### **Globally,**

- one third of pigs
  - one half of eggs
  - two thirds of milk
  - three quarters of broilers
- are produced from industrial breeding lines

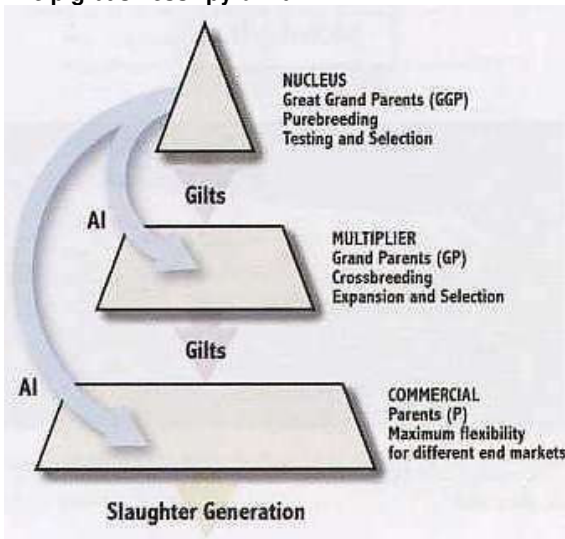
*FAO 2006*

now sub-contracted. It is expected that, similarly to layer hens (two companies), broilers (four companies), and turkeys (three companies), within some years, only a few companies will provide hybrid pigs to the world.

**Market domination by a few genetics companies is a threat to food sovereignty and food security in North and South.**

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

#### The pig business “pyramid”



AI: artificial Insemination Gilt: young female pig  
**British Pig Association**

- **Patents on livestock genes are expected to contribute to market domination and should be ruled out.**
- **Anti-trust legislation must include industrial agriculture. This is not the case e.g. in the EU.**
- **Subsidies to industrial livestock development should be cancelled.**

#### The world meat market – an opportunity for developing countries ?

Some developing countries are trying to exploit their cheap labor and low-cost feed availability to supply the world market. Recently Brazil has become the world's main producer and exporter of chicken and pork. Many Asian and Latin American countries are trying to compete and increase their export earnings, although their conditions for this lag considerably behind those in Brazil. China, Russia and Eastern Europe Eastern, who all buy significant amounts of meat in the world market, are stepping up their own livestock production very quickly. It is very questionable whether countries other than Brazil could expand their exports. They should also consider the high environmental risk associated

#### 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.

with industrial livestock production, as well as the high social price of squeezing out smallholders – almost a necessity if a country aims to fulfill international export requirements and stay free from certain diseases without vaccination (“OIE List A”).

#### Animal health policy for export promotion

The approach of industrial livestock production to save animals from diseases is to kill healthy animals. This is in order to maintain the disease-free-without-vaccination (“OIE List A”) status, so that exports can continue.

*OIE (Office International des Epizooties) sets international animal health regulations.*

- **When assessing potential export earnings from industrial livestock products, countries should also assess the environmental and social risks.**

#### Genetic monoculture

Experts in animal biodiversity and genetic diversity calculate that 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 (see box) and could be deemed to be “at risk”. Discussion on remedies is still very limited. So far no measures have been taken to monitor the genetic diversity in the livestock breeding industry.

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.

#### Industry breeds “at risk”!

(Effective population size < 100 animals)

**Cattle:** Holstein Friesian, Jersey, Brown Swiss

**Pig:** Pietrain, Duroc, Hampshire

**Poultry:** No public information – trade secrets

### **Privatization of breeding – out of public control**

Breeding is increasingly privatized by law. For example, the new German breeding law reduces the role of the state to monitoring genetic resources, but industrial genetic holdings are 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.

### **Corporate genetic holdings are neither transparent nor accessible...**

The breeding industry concentration has crucial implications for the sustainable use and conservation of livestock genetic resources. Its impact on the long-term accessibility to genetic material need to be analyzed urgently. Whether there is need for a global body or mechanism that monitors and regulates the consolidation in the livestock breeding sector should also be examined. Imposing disclosure and transparency obligations about corporate genetic holdings would be a first step.

### **...but private conservation initiatives are**

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

- ***Industrial livestock production should be taxed in order to finance breed conservation.***
- ***Governments should require industrial livestock production to pay for and internalise costs of disease control.***

### **Livestock productivity in USA 2005**

Number of eggs per chicken/year: 300  
 Number of eggs per ton concentrate feed: 9000  
 Feed conversion ratio in broiler: 1,7  
 Liters milk per lactation: 10.000

***van der Steen/Prall/Plastow 2005***

### **Performance in question**

Since the 1960s, the production increases per animal are significant, e.g. the number of eggs per hen per year or per ton of feed has been increased by 30% and 80% respectively. More meat has become affordable to more consumers. However, many consumers don't realize yet that they pay only part of the costs at the supermarket checkout.

The enormous environmental damage caused by the livestock industry has hardly been assessed in economic terms. The FAO has recently produced a study which alerts us that industrial livestock production is at its environmental limits. The public cost to fight animal diseases that are developing in the narrow cages together with the factory animals are huge. Increasingly, human diseases occur that are related to overconsumption of animal products.

Large parts of livestock genetic diversity have been or are about to be lost – again the taxpayers are asked for funds to conserve what is left.

The narrow view on performance has put climate and environment, and Northern and Southern food security and food sovereignty in jeopardy.

### **Products that count**

In Southern Africa, the livestock sector contributes 38% of Gross Domestic Product – before including the contribution to the subsistence economy of draught animal power and manure. Most of the sector is based on local breeds.

*SADC/FAO/GTZ/CTA 2002-2005*

### **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 calculate differently. In Thailand, 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%. No concentrate feed is bought nor is it transported from Brazil, and no rainforest is destroyed to grow it. 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 Thailand, 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 (FAO 2006).

### **Productivity of family poultry in Thailand**

Number of eggs per chicken/year: 70  
 Annual rate of return: 700 %  
 Annual Income: US\$ 50 Million  
 for 8 Million families  
 (US\$ 6 per family)  
 5% of Gross Domestic Product

*FAO 2006*

### **Livestock sector policy reforms are needed**

Awareness of the lack of long-term ecological sustainability of these livestock production systems is growing, but alternative strategies still need to be developed.

**For further information:** [www.pastoralpeoples.org](http://www.pastoralpeoples.org)

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