

Strategies for developing family poultry production at village level - Experiences from West Africa and Asia

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The Danida-financed Network for Smallholder Poultry Development (NESPOD) has several years of experience in supporting family poultry development at village level by focusing on women and the poor. By taking into account that women traditionally are taking care of poultry in most countries and that livestock of the poor mainly consist of small flocks of poultry, NESPOD has developed a strategy which involves not only disease control or introduction of improved breeds, but a holistic approach also taking into consideration social, cultural, marketing, credit and general management aspects. Tools involved in the development of family poultry range from sensitisation of village groups and organisation of women in poultry groups to training of village vaccinators, farmer field schools for poor illiterate women, organisation of local vendors, use of private veterinarians, and not least involvement of national research, education and extension institutions and international organisations. Results from Bangladesh, Benin, Senegal, Burkina Faso and Togo are very promising in terms of creating non-subsidised activities with clear benefits for poor farmers as well as local entrepreneurs.

Keywords: service delivery; vaccination; organisation; training; impact

Introduction

Poultry production in most tropical countries is based mainly on scavenging production systems. It has been estimated that 80% of the poultry population in Africa is found in traditional scavenging systems (Gueye, 1998; Gueye 2000). Women and children are generally in charge of poultry husbandry. The birds scavenge in the vicinity of the homestead during daytime where they may be given sorghum, millet, maize bran, broken grains, or other waste products as supplementary feed. The level of productivity is very low compared to high-input systems; scavenging hens lay 30 eggs per year, while industrialised battery hens lay up to 300 eggs annually. Furthermore, it may take up to 12 months to raise a chicken for consumption. These production systems are often entitled 'low input-low output' systems (Pandey, 1992). A range of factors such as sub-optimal management, lack of supplementary feed, low genetic potential and diseases (Pandey,

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1992; Bagust, 1994 and 1999; Permin and Bisgaard, 1999), causes the low output. Despite the low production, scavenging chickens still account for a major part of all meat produced in many developing countries, where poultry is an important component of rural, peri-urban, and urban households. As such poultry plays a big role in rural as well as national economy (FAO, 2000).

Problems related to village poultry production

The most striking problem in relation to village poultry production is the high mortality: Mortality rates may be as high as 80-90% within the first year after hatching (Matthewman, 1977; Wilson *et al.*, 1987; Kyvsgaard, 1999). Traditionally, Newcastle disease is believed to be the most devastating disease in free-range systems and the main course of the high mortality (Minga, 1989; Aini, 1990; Bell *et al.*, 1990; Kabatange and Katule, 1990; Bell, 1992). However, many other factors affect the efficiency of poultry production either directly or indirectly. These include the genetic constitution of the host, nutrition (or malnutrition), environment, management, other diseases and societal pressures that can interact in multiple ways influencing the ultimate productivity level, the overall mortality rate and the quality of the final product (Calnek, 1998). Successful poultry production also includes the possibility of obtaining loans for further investments and improvements of the production. In village production only small loans are needed, but they are mostly impossible for the producers to get (Fattah, 1999). The village poultry production and the problems related thereto can be scheduled as in *Figure 1* (Permin and Pedersen, 2000).

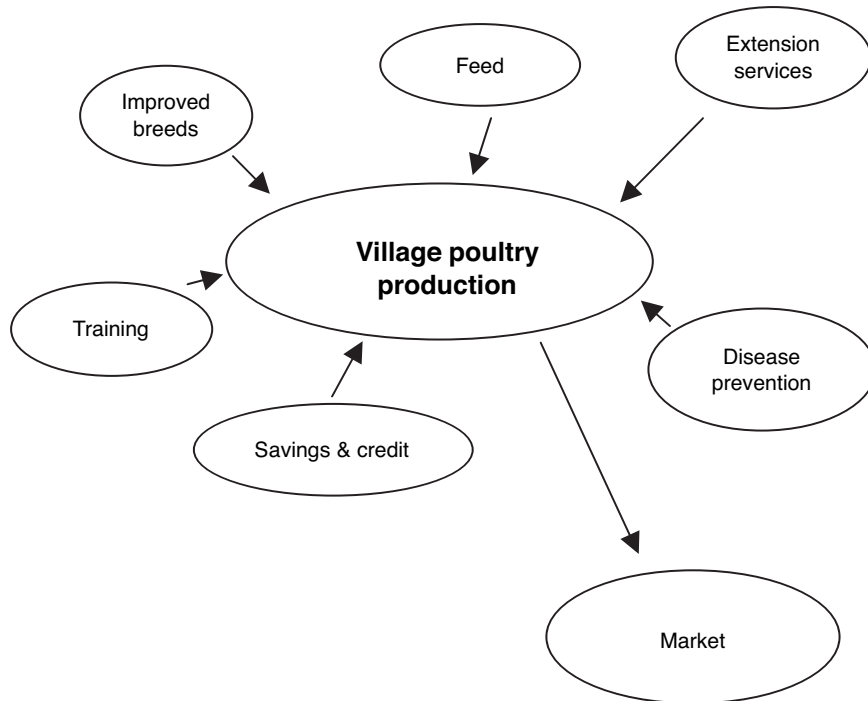


Figure 1

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Village poultry production has over the years attracted some attention due to the enormous potential for increasing the output vis-à-vis the relatively low output at present. However, the view has been that traditional village poultry production could only be improved by just preventing few diseases in the flocks. This point of view has, however, not lead to an increased production. The reasons for this lack of success are maybe quite obvious if we look at Figure 1. Here we can see that disease prevention only is a part of the overall problems related to village poultry production. Recent experiences from Bangladesh, Benin, Burkina Faso, Senegal and Togo have shown that it is possible quickly to improve the poultry production at village level, although the means to do so may differ from region to region.

The organisation of the smallholder poultry production support may be divided into a production line, a supply line and one or more service lines (*Table 1*). In fact, the major challenge for improving poultry production at village level lies in the organizational aspects, not in the technical. Solutions for technical problems relating to disease, nutrition and management have long been known and applied in large-scale farming, but how to organize the production at village level for the benefit of small-scale farmers with 5-50 chickens remains a major task. The vast experience from Bangladesh (Askov-Jensen, 1996; Saleque, 1996; Alam, 1996 and 1997; Fattah, 1999 and Ahamed, 2000) has shown that it is possible to “atomise” an industrial system into small enterprises, whereby poor, often illiterate, women producers may earn a living from having only 5-10 egg-laying hens. However, that experience from Bangladesh is not directly applicable in an African or even Asian context has been shown by staff of the Network for Smallholder Poultry Development (www.poultry.kvl.dk) involved in transferring ideas to other parts of the world since 1999.

Table 1 The village poultry production model (adapted from Askov Jensen, 1996).

Production	Supply	Service (local)	Service (government)
Egg, meat or dual purpose	Vaccine/medicine	Organisation and training of producers	Training of trainers Research
	Feed Chickens	Marketing Savings and credit	Research

Strategies for smallholder poultry development

The strategy for smallholder poultry development will differ from area to area, from country to country. The smallholder production line in Bangladesh usually consists of small-scale egg-producers (5-10 hens), small-scale chick rearers (200-300 chicks, 0-8 weeks), small-scale hatcheries (500-1000 eggs/month), small-scale parent stocks (40-60 hens and 6-10 cocks) (Askov-Jensen, 1996). The integrated “Bangladesh Poultry Model” was developed over 20-30 years, and the strategies for starting new approaches in *e.g.* West Africa have naturally been different. Pilot activities in Benin (Chrysostome *et al.*, 2002), Burkina Faso (NESPOD, 2003) and Senegal (Frederiksen, 2004) were initially organized around local chickens or guinea fowl for a dual-purpose egg and meat production, but with a clear marketing strategy focusing on sale of live birds and occasionally eggs for incubation. The marketing aspects are important when dealing with poultry production as an income generating activity. Fortunately, most studies on marketing aspects show no saturation for indigenous products on a local or even national level, whereas production of improved meat (broilers) or eggs needs more attention on the national and even global markets.

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It is important to stress that when dealing with poultry as a means of addressing poverty, the risks involved in starting up or improving the production have to be minimal from a producer's point of view. Introducing new high-yielding breeds should be done in a careful step-wise manner, ensuring that producers know how to handle disease and management problems first. It is also necessary to recognize that the sale of a few eggs per day or a few live birds per month should have a remarkable effect on the income at household level. Otherwise, it makes little sense to focus on indigenous birds. Learning how to rear 5-50 local chickens is just the first step out of poverty, not a goal in itself (Dolberg, 2003).

Input supplies

From an organizational point of view the supply of vaccines and medicine are essential. The first supplier to contract locally will thus be a veterinary service, either private or governmental. A veterinary service deliverer at minimum has to assure a sustained supply of vaccines against Newcastle Disease (ND) and Fowl Pox, as well as medicine against coccidiosis, internal worms, ticks and flies. If vaccine against ND cannot be delivered according to agreed schedules, small-scale poultry production will never succeed at village level (Alders *et al.*, 2002). However, delivery is not enough, vaccination campaigns should preferably cover at least 80% of the poultry population to be effective against epidemic diseases (Permin, pers. Comm.), and this calls for the involvement of veterinary assistants or "barefoot vets" to cover the vast number of chickens in the villages. Village poultry programmes in Bangladesh have today trained more than 20,000 so-called poultry workers responsible for vaccinating village chickens. Recent experience from VSF-Togo (Bebay, 2003) shows that village vaccinators may earn a good income from vaccinating indigenous birds, and more interesting, private veterinarians earn a higher profit on selling drugs for poultry than for cattle. Feed supplies are another challenge in village-based poultry production systems. By reducing the supplementation given to adult birds to 40 g/day or less, the cost of production is reduced drastically (NESPOD, 2002 and 2004). It is possibly to keep up productivity, if adult birds are left scavenging for scraps and feeds during the day. In Bangladesh (Ahmed, 2000; Askov-Jensen, 1996) feed sellers have been trained in mixing local ingredients to semi-balanced feeds for different age-groups. In Burkina Faso (NESPOD, 2003) and Benin (Chrysostome *et al.*, 2002), small-scale producers were taught how to mix semi-balanced feeds themselves, as well as on techniques for collecting termites and growing maggots out of manure and waste. Simple techniques for improving village-base small-scale poultry production systems have been gathered in a number of technical manuals (Alders *et al.*, 2002; NESPOD, 2004), which are now being field tested and reviewed by Government and Non-governmental organizations in several countries in Africa and Asia.

To make development sustainable, input supplies are rarely subsidized. Activities in Burkina Faso, Benin and Senegal involved giving the first vaccination for free to show smallholders that vaccination works. Subsequently, vaccines and medication were sold at market prices including a vaccination fee for the village vaccinators. Activities in Senegal and Benin have involved small loans (30-50 USD/farmer) based on the so-called micro-credit systems approach, whereby farmers are acting as collateral for each other. Farmers pay back loans including an interest of 20-24% within the first year (Frederiksen, 2004; Nielsen, 2003). In general subsidies have been given mainly for organization and training, and rarely for "hard" inputs such as housing materials (Frederiksen, 2004).

Service lines

The most important aspects in developing village based poultry production systems are “the soft parts”, dealing with the social, cultural and economic context of the smallholders. A slow participatory sensitisation process of all village members, including village heads, women, children and men, is an essential starting point for the development of village-based poultry production focusing on the poor (Askov-Jensen, 1996; Frederiksen, 2004). Subsequently, the training aspects of the service delivery are important. Recent experience from Vietnam and Kenya shows how to develop participatory training approached for extension personnel as well as farmers based on the so-called Farmer Field School (FFS) principles (Khisa and Ondwasy, 2004; Riise *et al.*, 2004). The basis of the FFS are groups of farmers, who decide with or without external support to start up common-interest- or -self-help groups, which meet regularly to share experience and exchange ideas on how to develop their production, market their products etc. Experience from Benin and Senegal for example, show remarkable results on mean flock size after only one year of intervention (*Figure 2* and *Table 2*). At the same time, the approach may be highly efficient in reaching out to poorer segments of the villages, as shown in Benin (Nielsen, 2003) and Bangladesh (Alam, 1997). Last but not least, it is crucial to attract national and international research programmes for developing village based poultry production systems. Recent results from a multidisciplinary Master of Science degree programme in Denmark have been remarkable in addressing issues relevant for small-scale farmers, and at the same time assuring a high standard of research to be published internationally (NESPOD, 2002).

Table 2 Mean flock size per farm and total in three villages in Kolda region, Senegal (Frederiksen, 2004).

Villages	month	Cocks	Hens	Growers	Chicks	Total	Mean/farm
DIOUROUR	nov-02	177		117	0	294	13,5
	dec-03	39	146	188	150	523	17,4
BAYEMBA	nov-02	257		159	0	416	14,9
	dec-03	42	108	229	155	534	22,3
DIOULAYEL	nov-02	52		20	0	72	6
	dec-03	33	105	142	235	515	19,1

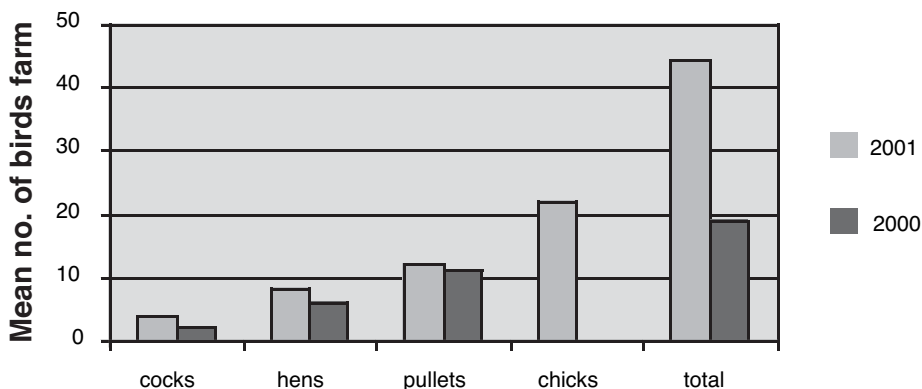


Figure 2 Mean size of poultry flocks, Department Donga, Benin, 2000-2001.

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Senegalese example, results and impact

“The most important about this project is that we have started to think ourselves”, one the beneficiaries, Mrs. Mariama Coulibaly in Faoune, expressed during the evaluation workshop in Senegal, June 2004 (Cts, 2004). A unique collaboration between the Network for Smallholder Poultry Development, a Danish NGO, Bicycles for Senegal, and the Senegalese farmers’ association, COLUFIFA (Comité de Lutte pour la Fin de la Faim) resulted in a highly successful pilot poultry project in seven villages in Casamance in Southern Senegal. As an immediate output of the project after 1,5 year the number of chickens has increased significantly, and, more important, the women have experienced more self-confidence and a higher social standing in their community. Now more than 200 women are involved in smallholder poultry activities, and numbers chickens and women involved are growing by the day. The beneficiaries are among the poorest of the poor, and they have been selected through a participative process in each target village. Besides increasing the income of the families, the project also aims at empowering the women and strengthening the capacity of their organisation. Women received technical training (housing, feeding, health, and general management of the poultry) in order to be able to generate a small income from semi-scavenging poultry. After an introduction to savings, credit and marketing, they get access to a small credit of up to about 55 USD each. A very important part of the project is the organisation of the women. The 30 beneficiaries per village are divided into small groups of 5 in each with social collateral for the credit, and they meet once a week to discuss the problems encountered in the management of the chickens. A Farmer Field School approach is being used. The project is implemented by COLUFIFA, which has contracted local partners to undertake the training, the credit and the veterinary assistance. Besides, COLUFIFA has engaged in collaboration with the Senegalese Institute of Agricultural Research (ISRA) in Dakar. As an immediate result of this collaboration, a PhD student is writing his thesis on the project, and the I2 vaccine against ND has been tested in two of the villages. The most important lessons learnt by the NGO-based project in Senegal were that 18 months is too short time to assure the sustainability of the activities; that an interdisciplinary approach supported by the Network for Smallholder Poultry Development, an international NGO and a local farmers’ association was very fruitful; that it is essential that the implementing organisation has a well-established local basis; that literacy courses should be included in the activities; that activities must be implemented with a highly participative approach; that marketing must be well organised; that micro-credit loans should be kept small, and the interest rate as low as possible (Cts, 2004).

Conclusion

By having a holistic approach to village poultry development, taking into account technical as well as organizational aspects, it is possible within a relatively short period to develop poultry production systems based on locally available resources, which may help the poorer farmers in developing their skills and creating a sustainable income with very few inputs.

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