

Poultry as a Tool for Poverty Alleviation: Opportunities and Problems Related to Poultry Production at Village Level

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Abstract

Poultry, the largest livestock group, account for more than 30% of all animal protein. However, this production is mainly based on commercial poultry, which accounts for only 20% of the total poultry population. The remaining 80% of poultry are found in traditional production systems entitled 'low input – low output' systems. Here the mortality is around 80% within the first year after hatching. The constraints for improving productivity are, however, not only related to diseases (e.g. Newcastle disease) but also to management systems, lack of supplementary feeding, predators, and inappropriate breeds. Despite their low productivity, village poultry are owned by almost all poor households in developing countries and are thought to be an excellent tool in poverty alleviation due to their quick turnover and low investment requirement. In Bangladesh, a successful production model has been developed which currently involves more than 2 million women (households). This model has a structured approach to improve smallholder poultry production and health, and socio-economic development at village level and it addresses both technical and organisational issues. These aspects are discussed in this paper.

POULTRY is by far the largest livestock group and is estimated to be about 14 000 million, consisting mainly of chickens, ducks and turkeys (FAO 1999). In total, poultry products (egg and meat) constitute 30% of all animal protein consumed worldwide. Within the last 10 years, this proportion has increased from 20% to 30% of all animal protein and is predicted to increase to 40% before the year 2015 (IFPRI 2000). Poultry production in most developing countries is based mainly on scavenging backyard systems. For example, it has been estimated that 80% of the poultry population in Africa is found in traditional production systems (Gueye 1998) called low input/low output systems. Little attention is given to this means of production even though 30% to 100% of the animal protein consumed in some villages is from this source. This low input/output practice has been a traditional component of small farms all over the developing world for centuries and is thought to continue as such in the future.

The low output is primarily caused by diseases, lack of supplementary feed and sub-optimal management (Pandey 1992; Bagust 1994 and 1999; Permin and Bisgaard 1999). Poultry production still accounts for the major part of all meat produced in many developing countries, and is an integral component of nearly all rural, peri-urban and urban households. It is of considerable significance to the rural as well as the national economy and is also an important source of animal protein (FAO 1999). Women and children are generally in charge of poultry husbandry. Generally, poultry scavenge in the vicinity of the house during daytime where they may be given sorghum, broken grains, maize bran or other waste products as additional feed. In many circumstances, they are not given anything at all, but have to walk long distances (up to four kilometres per day) to find feed and water (Gueye 1998). Additional feed is then occasionally given at night where the animals are kept inside the houses or in simple shelters. The level of productivity is very low compared to high-input systems; for example, a scavenging hen lays only 30 eggs per year, while an industrialised battery hen lays 280 eggs annually.

Disease prevention measures are rare and high mortality rates are common (Pandey 1992). Studies

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in Nicaragua and Mali (N. Kyvsgaard 1999 pers. comm.; Wilson et al. 1987) have shown chick mortality to be in the range of 30% to 40% within the first three to four months after hatching. In Nigeria, Matthewman (1977) reported a mortality of more than 80% within one year after hatching. The constraints for improving productivity are, however, not only related to diseases but also to management systems, lack of supplementary feeding, predators, and inappropriate breeds for the environment (Bagust 1994 and 1999). In the case of backyard poultry that scavenge, feed costs are kept at a low level and do not seem to represent the main constraint for production. Diseases, predators, and management factors appear to be more important for survival of the individual bird and for the overall productivity of the flock.

Despite the many problems involved in keeping poultry, almost all poor households, including the landless, own poultry. Thus, if production could be improved, poultry would create an opportunity for development of the poor segments of a society (Gueye 1998; Todd 1998; Quisumbing et al. 1995). Experience in several countries points to a number of reasons why poultry can be used in a way that makes it an excellent tool for poverty alleviation (Todd 1998). Some of these reasons are:

- nearly all households (poor and landless) own poultry;
- poultry is mainly owned and managed by women and children;
- there are few religious taboos related to poultry;
- poultry is socio-culturally important;
- low cost technology is available;
- low investment is needed;
- land is not needed; village poultry production is relatively environmentally friendly;
- 10 chickens under improved conditions are enough to make a difference for one household;
- poultry production can be a self-sustaining and income-generating system; and
- poultry production can serve to build up an entitlement base for poor women.

In spite of the importance and the potential of backyard poultry, few activities have successfully improved the output. Development projects have traditionally focused on vaccine production and vaccination campaigns, cockerel exchange programs, and institution building. 'Imitations' of intensive commercial systems have, in some cases, been successful from an economic point of view, but have not necessarily alleviated poverty. The effects of previous projects have been small because these projects have not focused on a coherent production and management system for rural poultry production. It is unlikely that an isolated technical intervention

aimed at any one constraint could in itself make a significant difference at production level. Instead, a multidisciplinary approach is required to improve the productivity and health of poultry under village conditions.

The Bangladesh Model

The many problems faced in smallholder poultry production systems have for some time attracted special attention in Bangladesh. Over the past two decades, a successful approach, known as the Bangladesh poultry model, was developed as a collaboration between the government (Department of Livestock Services (DLS)) and NGOs (Saleque and Mustafa 1996; Jensen 1996; Ambar and Rahman 2000). So far, women from about two million poor households have been involved in the model. With the ability to reach especially poor women, and create additional income for the households, the model has proven to be a viable poverty alleviation tool (Alam 1996 and 1997). This model, being a structured approach to improve smallholder poultry production and health and socio-economic development, addresses both technical and organisational issues (Table 1 and Figure 1):

- On the technical side, the main idea is to establish a large number of small household-based production units, the so-called key rearers. Each key rearer will be supplied with a small number of improved breeds, simple technical tools, and access to supplementary feed. The key rearers are also supported by vaccination programs, by provision of training, awareness raising, micro credit, by input supplies, and marketing established within the local community, thus making up an integrated production chain with a minimum dependency on external inputs (Table 1 and Figure 1).
- On the organisational side it is realised that government agencies have limitations in resources, which makes it difficult for these agencies to provide services directly to a large number of poor people in the rural areas. The NGOs, on the other hand, have developed grassroots-based operational networks and a participatory approach, which involves community organisation, awareness raising activities, vocational training, saving and micro-credit schemes, and often a long-term commitment in an area.

All units at village level must operate on free market principles, which is important for the model to be economically sustainable. The approach includes direct targeting of women.

Table 1. The components of the three-line organisation of the poultry model (adapted from DANIDA 1999).

A. Primary production	B. Input supply and marketing	C. Services to establish and maintain the model
<p><i>1. Mini hatcheries</i> Small low-cost hatcheries operated with solar energy and kerosene. Black pillows filled with rice husks are heated in the sun or by means of a kerosene lamp, and the eggs are placed into a cylinder between two pillows for hatching. Each hatchery has a capacity to hatch 1000 chickens per month.</p> <p><i>2. Chicken rearers</i> Small rearing farms, each with a capacity of 200–300 chickens-4 batches per year. The chickens are reared in low cost houses from day-old to 8 weeks of age. The chickens are fed with balanced feed supplied by the local feed mixers and sellers.</p> <p><i>3. Pullet rearers</i> Small rearing farms which receive 8-week-old pullets from chicken rearers (or government farms) and rear them to the age of 18 weeks.</p> <p><i>4. Model breeders</i> Small low-cost parent farms with 25 parent hens per farm. The hens are kept in confinement and fed with balanced feed. The parent stock is either RIR males and Fayoumi females or Fayoumi males and commercial hybrid females.</p> <p><i>5. Key rearers (95% of the beneficiaries)</i> Small farms with only 10 hens, mainly improved breeds supplied by the chicken rearers, and a few hens of local breed. The hens are kept under semi-scavenging conditions and fed with 30–70% supplementary feed.</p>	<p><i>1. Parent stock</i> The parent stock is supplied from government or NGO hatcheries at market price for day-old chicken.</p> <p><i>2. Feed mixers and sellers</i> The feed is supplied by a number of small feed sellers located in the villages. The sellers purchase local by-products from the milling industry and mix it with fishmeal, vitamins, and mineral. A feed mixer and seller prepares and sells about 1 ton of feed per month.</p> <p><i>3. Poultry workers</i> A number of poultry workers are trained to make simple diagnoses and vaccinate the birds. The vaccine is supplied by the government and the poultry workers charge a vaccination fee.</p> <p><i>4. Egg collectors</i> Table eggs and chickens are collected from the key rearers by egg collectors and marketed in the nearby towns, or the poultry holders sell the eggs and chickens themselves in the village.</p>	<p><i>1. Surveys and group information</i> The involved NGOs perform area and household surveys. Potential beneficiaries are selected based on poverty criteria and organised to form small village groups with some 30 members each. The groups hold weekly meetings to discuss relevant subjects and new poultry holders are selected from the groups.</p> <p><i>2. Training</i> Before a poultry holder is established, she has been through a 3–day training program followed by refresher courses.</p> <p><i>3. Credit</i> Depending on the activities, each group member is provided with a small loan ranging from US\$25 to US\$200. The repayment period is one year.</p> <p><i>4. Extension</i> Extension services are provided as a cooperation between the government and the involved NGOs.</p> <p><i>5. Research</i> Research is conducted as per identified needs by national and international universities and sector research institutions.</p>

The fundamental idea of the integrated poultry production model is based on a three-line organisation: a) primary production, b) input supply and marketing, and c) services (Table 1). The first and the second line contain the components, which make up the actual poultry production and input supply at village level (except for input of parent stock). The third line contains the implementation and extension services of the government and the NGOs, as well as the research component. However, while Table 1 explains the various components of the model, the diagram in Figure 1 illustrates the dynamics of the poultry model as it is currently applied in Bangladesh.

Strengths and weaknesses of the Bangladesh model

The poultry model has shown to be a viable tool for poverty alleviation. This is further supported by two

impact studies carried out in relation to the initial project (Alam 1996 and 1997). The strength of the model is a combination of technical features and a means of implementation, which, among other things, directly targets the poor. The following technical features facilitate the involvement of poor people:

- the model requires no assets to begin with;
 - it is based on traditional poultry rearing knowledge;
 - required inputs are (mostly) locally available;
 - it has a built-in marketing and sales mechanism (aiming at village and local markets); and
 - activities are inter-linked (community groups involved).
- The achievements include:
- actual participation of poor women;
 - social awareness raising;

- empowerment of women (women influence on household decisions);
- employment opportunities and income generation for the poor; and
- nutritional status in households improved.

On the other hand, there are clear weaknesses and need for further improvement of some of the model components and the way the model is implemented. This was clearly identified during recent workshops conducted in Bangladesh by the Network for Small-holder Poultry Development. For instance:

- some of the technical packages can be improved and made more economically viable;
- supply of external inputs such as parent stock, vaccine, and feed ingredients needs to be better secured;
- training of trainers (i.e., training of NGO staff) must be more effective to improve the quality of the NGO staff's training of beneficiaries; and
- though involvement of both government agencies and NGOs is a strength, attention must be paid to

further develop operational procedures, which will overcome the institutional differences between the involved partners and provide clear guidelines for division of work and responsibilities.

Conclusion

The positive experience from the activities in Bangladesh, based on the involvement of almost two million poor women, shows that poultry production can be used as a viable tool in poverty alleviation. Poultry production can be a tool for improving the immediate welfare in households, especially for women and children. Furthermore, the small but regular income from poultry rearing activities in the hands of women may constitute an important starting point for strengthening the position of women in the households and the community in general (Alam, 1996 and 1997). This is partly due to the fact that income earned by women typically remains under

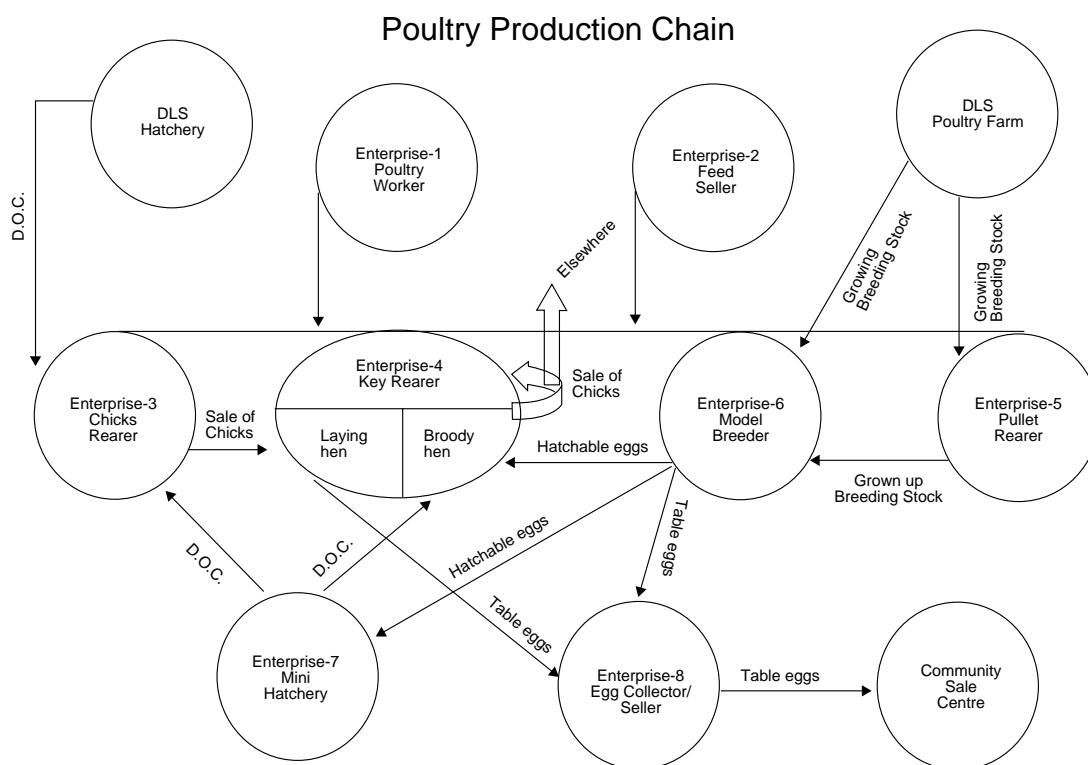


Figure 1. Diagram of the poultry production chain as currently applied by The Government of Bangladesh (DANIDA/Darudec 2000).

the control of women (Quisumbing et al. 1995; Todd 1998). Experience from various projects, in Bangladesh and outside, also shows that considerable attention is needed to adapt the poultry model to the cultural, technical, economic, and institutional situation in the target country.

Over the years, many donors, including Danida, IFAD, WFP and ADB have supported the poultry projects in Bangladesh with funding and technical assistance. In acknowledgment of the importance of the traditional poultry production systems in the developing countries, DANIDA has supported the establishment of the Network for Smallholder Poultry Development, which is focussing on poultry production at village level in Africa and Asia. The main objective of the Network is to analyse the experience from Bangladesh, and develop a conceptual framework, which can be applied to projects in other developing countries. This will include support to design and implementation of such projects as well as to capacity building, research, training and education.

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