

Research Article

THE UBIQUITOUS OF LIVESTOCK IN NIGERIA

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ABSTRACT

Livestock almost everywhere in the World, including Nigeria provide meat, milk, raw materials for industries and traction to almost a quarter of the total area under crop production, they also provide a safety net in times of need in form of liquid assets and a strategy of diversification for food production. All the reviews and studies have showed that livestock play multiple roles in the livelihoods of people especially the poor in developing communities, this study presents an overview of the ubiquitous nature of livestock in developing communities, focusing on some of the trends and driving forces of livestock production and their implications for developing communities, it's also suggests some ways of improving livestock production for sustainability.

Keywords: Community, development, livestock, production, ubiquitous.

INTRODUCTION

The contribution of livestock to the livelihoods of the developing communities and the entire world requires enhanced understanding of livestock's numerous and compound roles; their contribution to the dietary status of the world population is well recognized in term of food from animal origin, products and by-products (Bwibo *et al.*, 2003, Randolph *et al.*, 2007 and Ndlovu, 2010). Livestock products account for almost 30 percent of human protein consumption (Stein field *et al.*, 2006). Beyond the important roles that livestock play in the provision of nutritious food in people's diets, animal products and by-products also have societal functions by raising the social status of owners and contribute to gender balance by affording women and children the opportunity to own livestock, especially small ruminants and poultry (Waters-Bayer and Letty, 2010). In trivial agricultural areas with harsh environments, livestock provide a means of reducing the risks associated with crop failure and a diversification approach for resource poor small-scale farmers and their communities (Freeman *et al.*, 2007, Thornton *et al.*, 2007 and Vandamme *et al.*, 2010). The contribution of livestock to crop production through the provision of draught animal, power and manure cannot be over emphasized (Herrero *et al.*, 2010). Livestock support in achieving more efficient and sustainable resources used through enhanced energy and nutrients cycling, in terms of animal manure which replenishes the soil fertility, soil structure and water-holding capacity, about two-thirds of the world's livestock "crops walking" are utilized in farming systems in developing countries where nutrients are scarce and limited (Stroebel *et al.*, 2010). It is obvious that livestock enable saving, offer security, allow resource-poor households to amass assets, and assist finance planned expenditures as well as those that are unplanned (i.e. illness). Livestock functioned as an insurance policies and bank accounts in many parts of the developing world (Pell *et al.*, 2010). As improved incomes and urbanization shift diets towards high value commodities such as meat and milk, the contribution of livestock to economic growth increases through its multiplier effects with agriculture and other sectors outside agriculture. Increased economic activity in livestock fosters forward Linkages through growth in livestock processing, marketing, and

backward linkages through increased demand for inputs and livestock services (van der Zijpp *et al.*, 2010 and McDermott *et al.*, 2010). The objective of this paper is to review the ubiquitous role played by livestock in today's society in order to sensitize the public to hold on to this traditional practices with strong notion of repelling the poverty that is ushering itself with very high degree magnitude in the developing world.

LIVESTOCK AND THE ENVIRONMENT

Livestock has an important function in sustainable land use with both positive and negative environmental impacts, especially due to the rapidly evolving livestock systems, it is significant to increase the understanding of livestock's effects on the environment and undertake the management needed to achieve sustainable use and development of resources (Herrero *et al.*, 2010). In order to support the enhancement of the multi-functionality of livestock in the developing communities effectively, it is important to understand the trends and drivers of livestock production and their implications.

Trends and drivers of livestock production in developing communities

Livestock systems are changing rapidly, especially in developing communities, due to a number of factors such as population growth and urbanization, economic development, environment and climate changes, available technologies and knowledge (Steinfeld *et al.*, 2006 and Moyo *et al.*, 2007). Two broad livestock production and marketing systems are important for the poor in developing communities, the largest and smallholder mixed-livestock systems which supports the livelihoods of more than 600 million people, the main challenges for these systems are in determining how to intensify sustainability in order to meet the increasing demand for agricultural products under the constraints of limited land, water and other natural resources.

Population and urbanization

The human populations are expected to increase from 6.5 billion in 2010 to 8.2 billion by 2020 (Rosegrant *et al.*, 2009). The parallel demand in food/protein from animal origin, livestock and its products

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will upsurge; "livestock revolution" should be up heaving to the demand associated with increase in production and subsequent production methods for livestock products. The World Bank (2008) has projected a rapid growth in the urban population of all developing countries; urbanization is generally associated with higher average household incomes and changing lifestyles with more food consumed outside homes, this fuelled the demand for food and livestock products, current consumption data show that the share of livestock products in household diets has increased steadily in developing countries over the years (Delgado et al. 1999).

Consumption patterns of Livestock products

Consumers of Livestock products in developing countries have diversified their diets by increasing the consumption of meat, milk, poultry, fish and an egg that leads to fastest proportional increase in their demand, although beef and milk consumption have grown steadily in the world's fastest growing economies. Annual meat consumption in developing countries with fast growing economics doubled from 14kg per capita in 1980 to 29kg in 2002, while milk consumption increased by 35 percent (FAO, 2006). There are predictions that in the upcoming decades, there will be a general increase in per capita consumption of livestock products globally when compared to other agricultural products, such as cereals, and that the livestock revolution will have the greatest effects in the developing world (IAASTD, 2007 and Seré et al., 2007). Environment and climate changes play vital roles in Livestock production and are the largest land use system on earth, pastoral systems occupy at least 45 percent of the global land area (Reid et al., 2008). As population density increases, the related increased pressure on limited land and water resources which leads to degradation of the natural resource base, as these competing demands and trade-off intensify, so will the need to find ways to balance them in future (Thornton et al., 2009). The increasing risk and uncertainty related to climate changes and associated shocks add another dimension to changes observed in livestock production systems, farmers particularly in developing communities, are threatened by climatic changes such as rainfall shifting patterns, extreme and unpredictable weather events, weather variability is likely to increase in the near future, as such Strategies and adaptation options will need to be enhanced if the production systems and people that derive their livelihoods from livestock are to cope with the changing situations.

Implications and challenges

Changing in production systems of farming with mixed crop-livestock (mix farming) systems face a key challenge in determining how to intensify and sustain the increasing demand for agricultural products under the constraints of limited land, water and other natural resources. They must also support improved participation of poor people in livestock marketing for income growth and employment generation, while improving the efficient use of land, water resources and livestock biodiversity, more marginal systems face further challenges of reducing risks and shocks. They must also have adaptation options and increase the resilience of both the systems and the local people. Both of these systems share livestock research-for-development challenges of critical importance to the poor, such as determining how to address widespread feeds scarcity, how to conserve and utilize available and adapted livestock genetic resources, how to provide vaccines and diagnostics for neglected tropical animals and zoonotic diseases. Some of the broader global issues that are also important in these systems include adaptation to and mitigation of climate changes which increases risks and impacts of emerging human diseases, 75 percent of which are of animal origin (Cunningham, 2009). The increased demand for livestock products that has led to the livestock revolution will be met by expansion and

intensification in poultry and micro livestock production systems, particularly in Asia and Africa, In addition, there is need for increase in sustainable ruminants production, within the available natural resource base, in order to meet the meat and milk requirements of the developing communities, especially in sub-Saharan Africa this offers opportunities for poor livestock keepers in the developing communities to earn increased returns on investment from increased productivity and better marketing of their products. It is estimated that the developing world currently produces 50 percent of the world's beef, 41 percent of the milk, 59 percent of the pork and 53 percent of the poultry (Steinfeld et al., 2006; Herrero et al., 2009 and Rosegrant et al., 2009). The ability of small holder livestock producers in developing countries to increase their production has been confirmed example in India, which recently became the world's largest producer of milk, most of which are produced by smallholders. Similar developments have been reported in the smallholder dairy sector in East Africa (SDP, 2007). The key livestock development challenge remains, determining how to generate productivity growth while improving the efficient use of land and water resources. Access to markets and smallholder farmer's competitiveness, the rapid increase in demand associated with income growth, urbanization and expanded regional markets, plus the relatively higher prices for livestock products compared to other agricultural products, open up new opportunities for poor people in domestic, regional and international markets (ILRI, 2007). However, throughout these different levels, the major challenge is to ensure the competitiveness of smallholder farmers, along with higher value markets income that increased requirements for sanitary and phyto-sanitary compliance, this presents additional challenges to smallholders who must meet the higher food quality and safety standards, an additional development challenge is whether or not poor people, especially those living in risky marginal areas with high transaction costs or without access to adequate information and knowledge, can be productive, competitive and subsequently benefit from these market-driven opportunities?

Policies and Institutions

Farmers, public, private and community-based organizations in developing communities need support in strengthening their capacities to face the demands of evolving opportunities and challenges. Areas that need policy support include: delivery of veterinary services; provision of credit; delivery and uptake pathways of technologies; improvement of market infrastructure; strengthening the capacity of livestock keepers and communities to adapt shocks and change; and mitigation of the negative impacts and increase the positive impacts on the environment Policy needs are evolving, and new roles for the public and private sectors are emerging as the livestock sectors of developing communities responded to the different drivers of change. In India and Kenya, for example, private sector companies play an increasing role in the milk supply chain and new models of vertical integration are developing. Public/private sector involvement will need to pay attention on how the poor can benefit from these emerging opportunities. India once became the largest milk producer in the world, mainly through smallholder producers (Cunningham, 2009). These and other trends drivers of change in the livestock production of developing communities have implications that require technological, institutional and policy interventions.

CONCLUSION

The study highlighted the livestock sector as a critical component of developing communities and identified the multiple roles that livestock play in the livelihoods of people in developing communities. A good understanding of how multi-functionality can be enhanced which is

necessary for this sector to continue contributing to communities' poverty reduction and increase the income of the people who derive their livelihoods from livestock while sustaining the environment. Research and development practitioner's faces challenges in enhancing multi-functionality related to the uses of livestock and still achieve the required impact levels; Practitioners should consider this potential in all phases of project development, from design through implementation and finalization. Livestock production trends in developing countries where there is increased demand for livestock products which indicates that there are opportunities for livestock keepers to increase their returns on investment through increased productivity and better marketing of their livestock and livestock products. A single individual or organization cannot address the research and development challenges presented above. Instead, research and development agencies representing public, private and civil society organizations should come together to tackle the challenges in a more comprehensive manner.

Recommendation

The contribution of livestock to the livelihoods of the entire world cannot be over emphasized hence there is a need for these actions to be in place.

- There is a need for enhanced development of the livestock sector worldwide and adopt modern technologies in livestock production.
- Industries shall be developed and installed at strategic positions to enhanced livestock by-products utilization efficiently.

REFERENCES

- Bwibo, N., Murphy, S.P, & Allen, L.H. (2003). Role of animal source foods to improve dietary quality, growth and development of Kenyan schoolers. *Journal of Nutrition*, 133:3941-3949.
- Cunningham, K. (2009). Rural and urban linkages: Operation floods role in Indias dairy development (Vol. 924). Intl. Food Policy Res Inst. Washington, D. C., USA.
- Delgado, C., Rosegrant, M., Steinfeld, H., Ehui, S., & Courbois, C. (2001). Livestock to 2020: the next food revolution. *Outlook on Agriculture*, 30(1), 27-29.
- FAO. 2006. Statistical database of the Food and Agriculture Organisation of the United Nations, FAO, Rome, Italy. <http://faostat.fao.org/faostat/>
- Freeman, A., Kaitibie, S., Moyo, S., & Perry, B. (2007). Livestock, livelihoods and vulnerability in selected SADC countries (Lesotho, Malawi and Zambia). International Livestock Research Institute (ILRI) Research Report, 8.ILRI, Nairobi, Kenya.
- Herrero, M., Thornton, P. K., Notenbaert, A. M. O., Mwangi, S., Wood, S., Kruska, R. L., & Li, X. (2010). Drivers of change in crop-livestock systems and their potential impacts on agro-ecosystems services and human well-being to 2030. CGIAR System wide Livestock Programme (SLP). ILRI, Nairobi, Kenya. Available at <http://www.vslp.org/vslp>.
- Herrero, M., Thornton, P.K., Gerber, P., van der Zijpp, A., van de Steeg, J., Notenbaert, A.M., Lecomte, P. and Grace, D. (2010). The way forward on livestock and the environment. In: Swanepoel, F.J.C., Stroebel, A., & Moyo, S. (Eds) The role of livestock in developing communities: Enhancing multi functionality. CTA, Wageningen, The Netherlands.
- ILRI (2007). Markets that work: Making a living from livestock. Annual Report 2007. ILRI, Nairobi, Kenya. www.ilri.org.
- International Assessment of Agricultural Science and Technology for Development (IAASTD2009). Agriculture at a crossroads: (Synthesis Report). Washington, DC: Island Press.
- McDermott, J., Rich, K., Gebremedhin, B. and Burrow, H. 2010. Value chains and innovation. In: Swanepoel, F.J.C., Stroebel, A., & Moyo, S. (Eds) The role of livestock in developing communities: Enhancing multi functionality. CTA, Wageningen, The Netherlands.
- Moyo, S., McDermott, J., Herrero, M., Van de Steeg, J., Staal, S. and Baltenweck, I. (2007). Development of livestock production systems in Africa: Challenges and opportunities. In: Rosati, A., Tewolde, A., & Mosconi, C. (Eds). Animal production and animal science worldwide. World Association for Animal Production. Wageningen Academic Publishers, Wageningen, The Netherlands.
- Ndlovu, L. (2010). Food, nutrition and health. In: Swanepoel, F.J.C., Stroebel, A. & Moyo, S. (Eds). The role of livestock in developing communities: Enhancing multi-functionality. CTA, Wageningen, The Netherlands.
- Pell, A.N., Stroebel, A. and Kristjanson, P. (2010). Livestock development projects that make a difference: What works, what doesn't and why. Centro Internacional de Agricultura Tropical. Available at <http://agris.fao.org/agrissearch/search.do?recordID=QT2016103472>
- Randolph, T., Schelling, E., Grace, D., Nicholson, C.F., Leroy, J.L., Cole, D.C., Demment, M. W., Omere, A., Zinnstag, J., & Ruel, M. (2007). Invited review: role of livestock in human nutrition and health for poverty reduction in developing countries 123. *Journal of animal science*, 85(11), 2788-2800.
- Reid, R. S., Galvin, K. A., & Kruska, R. S. (2008). Global significance of extensive grazing lands and pastoral societies: an introduction. In *Fragmentation in semi-arid and arid landscapes* (pp. 1-24). Springer, Dordrecht, The Netherlands.
- Rosegrant, M.W., Fernandez, M., Sinha, A., Alder, J., Ahammad, H., de Fraiture, C., Eickhout, B., Fonseca, J., Huang, J. and Koyama, O. (2009). Looking into the future for agriculture and AKST (Agricultural Knowledge Science and Technology). In: McIntyre, B.D., Herren, H.R., Wakhungu, J. & Watson, R.T. (Eds.). *Agriculture at crossroads*. Island Press, Washington D.C., USA.
- Scoones, I. (2009). The politics of global assessments: The case of the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD). *Journal of Peasant Studies*, 36(3), 547-571.
- Seré, C., van der Zijpp, A., Persley, G., & Rege, E. (2008). Dynamics of livestock production systems, drivers of change and prospects for animal genetic resources. *Animal Genetic Resources/Resources génétiques animales/Recursos genéticos animales*, 42, 3-24.
- Steinfeld, H., Gerber, P., Wassenaar, T. D., Castel, V., Rosales, M., Rosales, M., & de Haan, C. (2006). Livestock's long shadow: environmental issues and options. Food & Agriculture Organisation, Nairobi, Kenya.
- Stroebel, A., Swanepoel, F. J. C., & Pell, A. N. (2011). Sustainable smallholder livestock systems: A case study of Limpopo Province, South Africa. *Livestock Science*, 139(1), 186-190.
- The Kenya Smallholder Dairy Project (SDP 2007). Nairobi, Kenya. www.smallholderdairy.org

- Thornton, P.K., Boone, R.B., Galvin, K.A., BurnSilver, S.B., Waithaka, M.M., Kuyiah, J., Karanja, S., Gonzalez-Estrada, E. & Herrero, M. (2007). Coping strategies in livestock-dependent households in East and southern Africa: A synthesis of our case studies. *Human Ecology*, 35, 461-476.
- Thornton, P.K., van de Steeg, J., Notenbaert, A.M. and Herrero, M. (2009). The impacts of climate change on livestock and livestock systems in developing countries: A review of what we know and what we do not know. *Agricultural Systems*, 101: 113-127.
- Van der Zijpp, A., Wilke, P. and Carsan, S. 2010. Sustainable livestock intensification. In: Swanepoel, F.J.C., Stroebel, A. & Moyo, S. (Eds). *The Role of Livestock in Developing Communities: Enhancing Multi functionality*, 123., Wageningen, The Netherlands.
- Waters-Bayer, A., & Letty, B. (2010). Promoting gender equality and empowering women through livestock. *The Role of Livestock in Developing Communities: Enhancing Multi functionality*, 31.CTA, Wageningen, The Netherlands.
- World Bank (2008). *Agriculture for development. World Development Report 2008. The World Bank.* Washington.D.C.,USA.<http://www.econ.worldbank.org/website/external/extdec/extresearch/extwdrs/extwdr2008>.
