

Applying an environmental public health lens to the industrialization of food animal production in ten low- and middle-income countries

Y. Lam., J.P. Fry, K.E. Nachman (2019)

<https://link.springer.com/article/10.1186/s12992-019-0479-5>

Abstract: Industrial food animal production (IFAP) is characterized by dense animal housing, high throughput, specialization, vertical integration, and corporate consolidation. Research in high-income countries has documented impacts on public health, the environment, and animal welfare. IFAP is proliferating in some low- and middle-income countries (LMICs), where increased consumption of animal-source foods has occurred alongside rising incomes and efforts to address undernutrition. However, in these countries IFAP's negative externalities could be amplified by inadequate infrastructure and resources to document issues and implement controls.

LMICs may be attracted to IFAP for economic development and food security, as well as the potential for increasing access to animal-source foods and the role these foods can play in alleviating undernutrition. IFAP, however, is resource intensive. Industrialized production methods likely result in serious negative public health, environmental, and animal welfare impacts in LMICs. To our knowledge, this is the first systematic effort to assess IFAP trends through an environmental public health lens for a relatively large group of LMICs. It contributes to the literature by outlining urgent research priorities aimed at informing national and international decisions about the future of food animal production and efforts to tackle global undernutrition.

Industrial Food Production in Low- and Middle-Income Countries: A Landscape Assessment

Y. Lam, J. P. Fry, E. Hu, B. F. Kim, K. E. Nachman (2016)

<https://clf.jhsph.edu/publications/industrial-food-animal-production-low-and-middle-income-countries-landscape-assessment>

This report is the first international landscape assessment of IFAP in LMICs to focus on trends in food animal production, related domestic and international policies, environmental and public health impacts, animal welfare, and to outline future directions for research and intervention.

Winders and Ransom, Global meat: Social and environmental consequences of the expanding meat industry

B. Winders & E. Ransom (2019)

<https://direct.mit.edu/books/book/4570/Global-MeatSocial-and-Environmental-Consequences>

See Chapter 8: Livestock Intensification Strategies in Rwanda: Ethical Implications for Animals and a Consideration of Potential Alternatives.

Increasing knowledge and democratizing access to education, public health, traditional agricultural techniques, and technology can all help improve livelihoods without the need for intensified livestock production.

The broiler meat system in Nairobi, Kenya: Using a value chain framework to

understand animal and product flows, governance and sanitary risks.

M. Carron, P. Alcaron, M. Karani, P. Muinde, J. Akoko, J. Onono, E.M. Fèvre, B. Häsler, J. Rushton (2017)

<https://www.sciencedirect.com/science/article/pii/S0167587717301721>

This study highlights significant structural differences between different broiler chains and inequalities in product quality and market access across the system.

The Political Ecology of Factory Farming in East Africa

E. Waithanji (2015)

[https://books.google.co.ke/books?](https://books.google.co.ke/books?hl=en&lr=&id=ULthCQAAQBAJ&oi=fnd&pg=PA67&dq=factory+farming+in+kenya&ots=mXIYnV2J6Q&sig=HtT_Q-a31p1aRbx_wdPTZVV5now&redir_esc=y%23v=onepage&q=factory%2520farming%2520in%2520kenya&f=false#v=onepage&q=factory%2520farming%2520in%2520kenya&f=false)

[hl=en&lr=&id=ULthCQAAQBAJ&oi=fnd&pg=PA67&dq=factory+farming+in+kenya&ots=mXIYnV2J6Q&sig=HtT_Q-a31p1aRbx_wdPTZVV5now&redir_esc=y%23v=onepage&q=factory%2520farming%2520in%2520kenya&f=false#v=onepage&q=factory%2520farming%2520in%2520kenya&f=false](https://books.google.co.ke/books?hl=en&lr=&id=ULthCQAAQBAJ&oi=fnd&pg=PA67&dq=factory+farming+in+kenya&ots=mXIYnV2J6Q&sig=HtT_Q-a31p1aRbx_wdPTZVV5now&redir_esc=y%23v=onepage&q=factory%2520farming%2520in%2520kenya&f=false#v=onepage&q=factory%2520farming%2520in%2520kenya&f=false)

Adverse impact on industrial animal agriculture on the health and welfare of farmed animals

J. D'Silva (2006)

<https://pubmed.ncbi.nlm.nih.gov/21395992/>

Abstract: Industrial animal agriculture is grounded in the concept of maximizing productivity and profit. Selective breeding for maximum productivity in one characteristic of the animal (e.g. milk yield in cows, or breast meat in broiler chickens) has resulted in genotypes and phenotypes that may predispose the animals to poor health and welfare. The conditions in which these individuals are kept may also frustrate many inherited behaviors that they are strongly motivated to perform. In order to curb the resulting harmful aberrant behaviors, such as feather-pecking in chickens, we sometimes resort to mutilating the animals. In many places chickens are routinely de-beaked by means of a hot metal guillotine. Compassion in World Farming (an international organization that promotes the humane treatment of farm animals) believes that it is unethical to treat sentient beings in such ways. We have a duty to respect farm animals' sentience by providing them with housing conditions that take their needs and wants into account, and by reverting to the use of dual-purpose, slower-growing breeds that have the potential for good welfare. Alternatives to current farming practices are available, and we owe it to the animals, and to our consciences, to pursue them.

The Roles of Livestock in Developing Countries

M. Herrero, D. Grace & et al (2010)

<https://www.cambridge.org/core/journals/animal/article/abs/roles-of-livestock-in-developing-countries/F349D13CBF84599AF44952632BC2E48C>

Abstract: Livestock play a significant role in rural livelihoods and the economies of developing countries. They are providers of income and employment for producers and others working in, sometimes complex, value chains. They are a crucial asset and safety net for the poor, especially for women and pastoralist groups, and they provide an important source of nourishment for billions of rural and urban households. These

socio-economic roles and others are increasing in importance as the sector grows because of increasing human populations, incomes and urbanisation rates. To provide these benefits, the sector uses a significant amount of land, water, biomass and other resources and emits a considerable quantity of greenhouse gases. There is concern on how to manage the sector's growth, so that these benefits can be attained at a lower environmental cost. Livestock and environment interactions in developing countries can be both positive and negative. On the one hand, manures from ruminant systems can be a valuable source of nutrients for smallholder crops, whereas in more industrial systems, or where there are large concentrations of animals, they can pollute water sources. On the other hand, ruminant systems in developing countries can be considered relatively resource-use inefficient. Because of the high yield gaps in most of these production systems, increasing the efficiency of the livestock sector through sustainable intensification practices presents a real opportunity where research and development can contribute to provide more sustainable solutions. In order to achieve this, it is necessary that production systems become market-orientated, better regulated in cases, and socially acceptable so that the right mix of incentives exists for the systems to intensify. Managing the required intensification and the shifts to new value chains is also essential to avoid a potential increase in zoonotic, food-borne and other diseases. New diversification options and improved safety nets will also be essential when intensification is not the primary avenue for developing the livestock sector. These processes will need to be supported by agile and effective public and private institutions.

Organic Food Systems: Meeting the Needs of Southern Africa

R. Auerbach, Centre of Excellence for Food Security (2019)

<https://www.cabi.org/bookshop/book/9781786399601/>

Organic agriculture has many benefits in Southern Africa. "The trials show how the yield gap between organic and conventional crops was closed over 3 years. Water use efficiency was also greater in the organic farming system, and pests and diseases were effectively controlled using biological products."

Organic Agriculture: African Experiences in Resilience & Sustainability

R. Auerbach, Centre of Excellence for Food Security (2013)

<http://www.fao.org/agroecology/database/detail/en/c/455511/>

Chapter by Michael Kibue discusses improving conservation efforts by leveraging social capital of Maasai pastoralists in Keekonyokie.

Animal Law in South Africa: 'Until the Lions Have Their Own Lawyers, the Law Will Continue to Protect the Hunter'

A. P. Wilson (2018)

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3542042

Discusses lack of animal law in SA and how the country can move forward to better protect animals.

Sustainable agriculture and food security in Africa: The role of innovative technologies and international organizations

A.A. Adenie, K. Wedig, H. Azadi (2019)

[https://www.researchgate.net/publication/](https://www.researchgate.net/publication/333053291)

[333053291 Sustainable agriculture and food security in Africa The role of innovative technologies and international organizations](https://www.researchgate.net/publication/333053291)

This paper discusses the question of if advanced technologies can be part of sustainable agriculture development in Africa and if the same can address the economic needs of smallholders in the region, and thereby contribute to agricultural intensification that is socially and economically sustainable.

This paper states that prioritizing smallholders' needs in agricultural development strategies is crucial in a region in which smallholders make up to an estimated 80% of all farms and produce most of the region's food. It further acknowledges that sustainable intensification processes in African agriculture requires adverse and context-specific solutions that include advanced technologies, but also relies on agro-ecological practices to address the immediate livelihood needs of large numbers of smallholders in sustainable ways.

Reconcilability of Socio-Economic Development and Environmental Conservation in Sub-Saharan Africa

L.M. Rudi, H. Azadi, F. Witlox (2012)

<https://biblio.ugent.be/publication/2308399/file/6773573.pdf>

This paper argues for the necessity of implementing environmental measures and development measures simultaneously rather than “development first, environment later”.

Organic Farming and Small-Scale Farmers: Main Opportunities and Challenges

Z. Jouzi, H. Azadi, et al. (2017)

<https://www.sciencedirect.com/science/article/abs/pii/S0921800915306212>

The study showed that the most significant advantages of OF are environmental protection and a higher resilience to environmental changes, increasing farmers' income and reducing external input cost, enhancing social capacity and increasing employment opportunities. As well as enhancing food security primarily by increasing the food purchasing power of local people. However, the main challenges of this food production system include lower yields in comparison to conventional systems, difficulties with soil nutrient management, certification and market barriers, and the educational and research needs of small-holders. The paper concludes that even though OF might present some significant challenges to small-scale farmers, it could/should still be considered as a part of the solution and means of improving their livelihoods.

Organic Agriculture Research Agenda in Africa: The Perspective of the Network for Organic Agriculture Research in Africa (NOARA)

D. Amudavi, Biovision Africa Trust, Nairobi, Kenya (2015)

<https://orgprints.org/28252/1/Amudavi-2015-NOARAPresentation-ScienceDay-Biofach2015.pdf>

Suggests agenda for promoting agro-ecological practices in Africa.

Emerging technologies to benefit farmers in Sub-Saharan Africa and South Asia

Committee on a study of technologies to benefit farmers in Africa and South Asia; Board on Agriculture and Natural Resources (2009)

<https://books.google.co.ke/books?>

[id=Y_pjAgAAQBAJ&printsec=frontcover&dq=industrial+animal+farming+and+africa&hl=en&sa=X&ved=2ahUKEwiVwrje7rPtAhXjEWMBHRDzDMYQ6AEwAHoECAQQAg#v=onepage&q=industrial%20animal%20farming%20and%20africa&f=false](https://books.google.co.ke/books?id=Y_pjAgAAQBAJ&printsec=frontcover&dq=industrial+animal+farming+and+africa&hl=en&sa=X&ved=2ahUKEwiVwrje7rPtAhXjEWMBHRDzDMYQ6AEwAHoECAQQAg#v=onepage&q=industrial%20animal%20farming%20and%20africa&f=false)

The book has an interesting view of finding solutions that relate to Africa. It states that it cannot be assumed that agricultural technologies developed and used in industrial countries will work in Sub-Saharan Africa and South Asia – and so the technology used will need to be evaluated with respect to whether it meets local needs and conditions. A great example given was in relation to vaccines for cattle: there was a need to test the same against regional variants of the pathogens in local breeds of cattle.

There was also emphasis on using local solutions to increase output of agriculture. There was also need for technologies to have the greatest potential impact on agricultural production in Sub-Saharan Africa and South Asia to be ones that addresses four main components of agricultural systems: (1) the management of the natural resource base supporting agriculture; (2) the application of genetic diversity to improve the production characteristics of crops and animals; (3) the reduction or elimination of biotic constraints, disease, pests and weeds, that reduce yields of crops, meat and milk; and (4) the availability of affordable, renewable energy for farmers. The research emphasised that the emerging technologies are unique to the region and should be developed from the needs of the farmers as this is the only way they will have a high payoff for the farmers.

Animal Rights in South Africa

Michele Pickover (2005)

<https://books.google.co.ke/books?>

[id=TvGJIDh0PPIC&pg=PA164&dq=industrial+animal+farming+and+africa&hl=en&sa=X&ved=2ahUKEwiVwrje7rPtAhXjEWMBHRDzDMYQ6AEwAXoECAAAQAg#v=onepage&q=industrial%20animal%20farming%20and%20africa&f=true](https://books.google.co.ke/books?id=TvGJIDh0PPIC&pg=PA164&dq=industrial+animal+farming+and+africa&hl=en&sa=X&ved=2ahUKEwiVwrje7rPtAhXjEWMBHRDzDMYQ6AEwAXoECAAAQAg#v=onepage&q=industrial%20animal%20farming%20and%20africa&f=true)

The book bases its study on South Africa's animal industry and how it hides behind assumptions that animals are incapable of suffering and throws in questions that seek to see the bigger picture – questions like, how does the universally accepted cultural practices affect the way people behave? It emphasises that the current industrialised animal food production system allows the mindset that allows injustice, subjugation, exploitation and violence – coupled up with cultural and religious practices and prejudices and aided by mechanisation and commodification which allows animal cruelty practices to stay hidden and to grow.

The book also explores how the meat industry has made sure that consumers become

disconnected from the truth of cruelty – this is done by the clever use of language in its advertisements. For example, slaughter houses become meat processing plants, pig tails are docked not amputated, chickens have their beaks trimmed not debeaked, among other language phrases interplay.

The book then states that animals are the direct victims of the profit-driven, industrialised food production system and this has proven to pose a great economic, ecological, health and social risk to humans. Therefore, the books recommend that to change the unsustainable consumption and over-consumption practices there is need to provide programs that seek to educate the consumers so that they can question their own lifestyles. It states that hunger results from a variety of factors, including socially-constructed economic and political systems that do not have adequate safety nets; international financial institutions that reduce government autonomy and social spending; trade liberalisation; multinational corporations that prioritise profits over people; an emphasis on intensive farming methods which concentrate wealth and directly increase scarcity.

Increasing Livestock Water Productivity under Rain Fed Mixed Crop/Livestock Farming Scenarios of Sub-Saharan Africa: A Review

M. Alemayehu, T. Amede, M. Böhme, K. J. Peters (2012)

<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.822.6545&rep=rep1&type=pdf>

Although water is a renewable natural resource, it has become insufficient at the global level. Unless the current efficiency level of water use can be increased, the trend of water shortages will become more serious. Among agricultural activities, livestock production is mostly considered an intensive water consuming operation although the knowledge and information related to livestock-water interaction appears to be limited in scope. The present review focused on the livestock-water interaction with the following objectives: 1) to strengthen the current understanding of the concept of livestock water productivity and relate it to life cycle assessment analysis framework; 2) to provide insights on the methodology of livestock water productivity estimation using water foot printing approach; 3) to assess the potential integrative intervention options towards improving livestock water productivity pertinent to the contexts of rain fed mixed farming. The concept of water accounting for livestock production is reviewed to reflect feasible options for improving animal productivity, income, livelihood and ecological benefits per unit of water input, especially the practical implications of these options for the rural poor in Sub-Saharan Africa. Utilising the rainfed mixed farming endowment as a relatively less competitive water scenario is also emphasised. In line with the intention for increased livestock water productivity, the likelihood of its negative impact on the environment and possible mitigating methods are outlined.

Regulating the environmental impacts of factory farming in South Africa: Legal perspectives

R. Grobler (2012)

http://repository.nwu.ac.za/bitstream/handle/10394/9053/Grobler_R.pdf?sequence=1&isAllowed=y

The purpose of the study was to determine the impact of factory farming on the environment in South Africa and also determine if the legislation was adequate to regulate the growing industry.

The study concluded that South African legislation in relation to factory is quite limited and there was need to regulate it properly and efficiently to ensure that South Africa does not eventually suffer the same consequences as the US and Europe. The study also stated that there was need to find a balance between food production, security and the conservation and protection of the environment – economic and social development should not justify the pollution or potential pollution caused by factory farms.

Understanding African farming systems: Science and policy implications

D. Garrity, J. Dixon, J.M. Boffa (2012)

https://aifsc.aciar.gov.au/sites/default/files/images/understanding_african_farming_systems_report_for_aifsc_conference.pdf

The article gives an analysis of the implication of having large industrialised agricultural farms. This is mostly owing to the capitalist nature of most African countries. The study The implications of smallholder farm size cannot be discussed without touching on the issue of foreign investment in land and commercial farming in Africa, a phenomenon that has burst into policy debates with great force and impact since the 2008 food price spike. For the host African countries, the economic benefits of such investments may be over anticipated as well. The major presumed positive benefits are improved economic multipliers in the input supply markets for the schemes, expansion of the transport systems and an attendant reduction in commodity transport costs in the area, and more jobs for local people. But these may be offset to a considerable degree by the increased social tensions that arise with the inevitable displacement of local populations and the opportunity costs of public sector investments by governments that will be required in order to attract and support the schemes.

The attraction of this model of agriculture is based on the confidence that there will be a trickle-down benefit to the much larger pool of smallholder agriculturists. But this is dubious if the smallholders in the neighbourhood themselves obtain no respite from the basic limitations of land, labour, knowledge and capital.

A critical perspective on the environmental regulatory requirements for dairy farming in South Africa

R. A. Diedericks (2018)

http://repository.nwu.ac.za/bitstream/handle/10394/31237/Diedericks_RA.pdf?sequence=1&isAllowed=y

Farms and farming are intrinsically linked to human civilization and have had a dramatic impact on the planet's landscape and environmental systems. As with any form of intensive agriculture, there are environmental aspects that hold the potential of leading to severe environmental impacts. These impacts are associated with the general management practices on dairy farms. The various impacts activities on dairy farms possibly will have on the environment are discussed in detail and they include water

pollution, air pollution, soil pollution, loss in biodiversity, waste generation and the use of energy and non-renewable resources. In the field of dairy farming particular focus is centred on the degradation of water resources, especially as this is a major environmental issue around the world. Environmental regulation in South Africa is still relatively new compared to other fields of law. The applicable laws are discussed in detail and also applied to the environmental impacts caused by the activities on dairy farms to determine the strengths and shortcomings in South African environmental legislation, regarding regulation of the industry. The main aim of the dissertation was to critically reflect on the implications of the environmental regulatory requirements for dairy farming in South Africa. This study concluded that there is a comprehensive framework for environmental legislation and an existence of well-documented regulations connected to environmental protection. However, the implementation and enforcement of these environmental laws on dairy farms is unsuccessful. Environmental law and regulations are lacking, which specifically regulate and resolve the environmental problems relating to the activities on dairy farms. The farmers are also not aware of all the relevant environmental regulations with which they need to comply. This will then lead to the mismanagement of environmental aspects of the farm and the utilisation of inefficient farming methods, which can lead to pollution to the environment. Without sufficient and effective legislation to regulate the industry, activities on dairy farms due to the unregulated nature thereof, may lead to severe environmental impacts.

Reducing GHG emissions from traditional livestock systems to mitigate changing climate and biodiversity

D.E. Mushi, L.O. Eik, A. Bernues, R. Ripoll-Bosch, F. Sundstol, M. Mo (2015)

https://www.researchgate.net/publication/283264853_Reducing_GHG_Emissions_from_Traditional_Livestock_Systems_to_Mitigate_Changing_Climate_and_Biodiversity

Climate change (CC) directly impacts the economy, ecosystems, water resources, weather events, health issues, desertification, sea level rise, and even political and social stability. The effects of CC affect different groups of societies differently. In Tanzania, the effects of CC have even acquired a gender dimension, whereby women are viewed as more vulnerable than men because of socioeconomic and historic barriers. In this paper, we first very briefly review emissions of GHGs from different livestock production systems in Tanzania with the view of identifying the main hot spots. Then, we concentrate on the available adaptation options and the limitations on the adoption of such adaptation options in Tanzania. Emission of these GHGs per unit product varies with the level of intensification, the types of livestock kept, and manure management. Intensification of livestock production reduces the size of the land required to sustain a livestock unit and frees up the land necessary for carbon sequestration.

In Tanzania, such intensification could take the form of the early harvesting and storing forage for dry-season feeding. The advantage of this intervention is twofold: young harvests have higher digestibility and emit less CH₄ when fed to ruminants than mature lignified forage; use of stored roughage in the dry season will reduce the desertification

of rangeland and deforestation that occur when livestock search for pastureland. Dry-season supplementation of ruminants with energy and protein-rich diets will reduce CH₄ emission. The chemical treatment of crops by products will increase the crops' digestibility and reduce CH₄ emission from ruminants. Crossbreds of indigenous and exotic breeds are more efficient converters of feed into products like meat and milk, with less GHG emitted per unit product. The use of manure for biogas production will reduce the emission of both CH₄ and N₂O into the atmosphere. Shifting from liquid to solid manure management has the potential to reduce CH₄ emissions.

Most of these interventions, however, are not cost neutral – enhancing awareness alone will not lead to their widespread adoption. In the absence of subsidies, the adoption of these interventions will depend on the relative cost of other options. Although some traditional livestock systems in Tanzania are already coping with the impact of CC, such efforts are handicapped by inadequate resources, poor coordination, and implementation of competing measures.

Improved feeding and forages at a crossroads: Farming systems approach for sustainable livestock development in East Africa

B.K. Paul, J. C.J. Groot, B. L. Maass, A.M. Notenbaert, M. Herrero, P. A. Tiftonell (2020)

<https://journals.sagepub.com/doi/full/10.1177/0030727020906170>

Dairy development provides substantial potential economic opportunities for smallholder farmers in East Africa, but productivity is constrained by the scarcity of quantity and quality feed. Ruminant livestock production is also associated with negative environmental impacts, including greenhouse gas (GHG) emissions, air pollution, high water consumption, land-use change, and loss of biodiversity. Improved livestock feeding and forages have been highlighted as key entry points to sustainable intensification, increasing food security, and decreasing environmental trade-offs including GHG emission intensities. In this perspective article, we argue that farming systems approaches are essential to understand the multiple roles and impacts of forages in smallholder livelihoods. First, we outline the unique position of forages in crop-livestock systems and systemic obstacles to adoption that call for multidisciplinary thinking. Second, we discuss the importance of matching forage technologies with agroecological and socioeconomic contexts and niches, and systems agronomy that is required. Third, we demonstrate the usefulness of farming systems modelling to estimate multidimensional impacts of forages and for reducing agro-environmental trade-offs. We conclude that improved forages in East Africa are at a crossroads: if adopted by farmers at scale, they can be a cornerstone of pathways toward sustainable livestock systems in East Africa.

From Footnote to Forethought: Considering the Consequences of Large-Scale, Industrialized Animal Agriculture in Developing Countries

C.G. Lee (2019)

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3395324

Abstract: Large-scale, industrialized animal agriculture — often referred to as “factory farming” — harms the welfare of animals, the environment, and humans. Although

factory farms have a limited presence in developing countries, they are far less prevalent than they are in industrialized areas like the United States and the European Union. As the human population grows and developing nations begin to enjoy more prosperity, they are in a unique position either to welcome the expansion of factory farming to meet rising demand, or to consider its dire consequences, learn from the mistakes of developed regions, and promote more sustainable practices instead. This Article summarizes the negative impacts of factory farming and argues that developing nations should reject its expansion in order to protect animals, the environment, and all of humanity.

Money Flows: What is Holding Back Investment in Agroecological Research for Africa?

Biovision, IPES FOOD and Institute of Development Studies (2020)

<https://www.agroecology-pool.org/moneyflowsreport/>

This report, co-developed by Biovision, IPES-Food and the Institute of Development Studies (IDS), zooms in on the all-important financial flows in food system research to sub-Saharan Africa, with a view to understanding more about how the industrial model is perpetuated and where the opportunities lie for sparking agroecological transition.

Milk Society and Industrialization in East Africa

K. Herman Mkwizu, R. Matama, N. Marika (2019)

<https://journals.udsm.ac.tz/index.php/orsea/article/view/3088>

Abstract: This paper explored the relationship of milk society and industrialisation in East Africa by analysing milk production and inclusive mechanisation. Study countries are Kenya, Tanzania, Uganda, Burundi, Rwanda and South Sudan as East African Community (EAC) member states. The application of documentary research and literature analysis methods revealed that the milk societies are heading towards industrialisation through mechanisation of milk production. However, opportunities still exist in non-mechanised or traditional milk production via milking cows by hand. This study recommends that additional revenue sources for milk societies through cultural tourism by welcoming visitors to experience non-mechanised milk production as seen in Igongo Cultural Centre Museum should be promoted in order to have sustainable industrialisation but consider the culture attachments and views to cows for each country. The implication of this study is for stakeholders to emphasise mechanized milk production by small-scale producers relating to pasture so as to promote inclusive industrialisation.

Broiler Production in South Africa: Is there space for smallholders in the commercial chicken soup?

M. Louw, T. Davids, N. Scheltma (2017)

<https://www.tandfonline.com/doi/abs/10.1080/0376835X.2017.1335593>

Abstract: It is agreed that agriculture provides avenues for impoverished households to produce and trade their way out of poverty. However, this requires market access and value chain integration of small-scale farmers. This paper explores the possibilities for integration of small-scale farmers into the mainstream commercial broiler value chain in

South Africa. Production costs of small-scale producers are evaluated within the context of their commercial counterparts, with a case study approach. It revealed that small-scale producers pay more for inputs but also receive a substantial premium for sales of live birds in the informal market. This results in attractive gross margins for small-scale producers. There is, however, a production ceiling, due to demand and production considerations, associated with small-scale broiler production. This ultimately results in a dualistic industry with an informal (live sale) value chain at one end of the spectrum and a sophisticated large-scale commercial value chain at the other. Given the salient production features and investment requirements associated with large-scale broiler production, organic growth from the small-scale value chain into the commercial value chain seems improbable. The dual nature of this industry should therefore be considered when developing policy geared towards development, poverty alleviation and value chain integration.

Commercial Rabbit Farming and Poverty in Urban and Peri-Urban Kenya

C. Mutsami, S. Karl (2020)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7325956/>

Abstract: Research has shown that agricultural commercialization is an effective way of boosting farmers' welfare. Is this true for urban or peri-urban farmers? We attempt to answer this question by assessing the effects of rabbit commercialization on multidimensional poverty among urban farmers in Kenya. While previous studies have analyzed commercialization in terms of crops, small livestock such as rabbit has received little attention. Additionally, most studies use income to capture poverty without considering other deprivations such as education, health and living standards. Here, we assess the effect of rabbit commercialization on multidimensional poverty among urban and peri-urban farmers. Data from 260 respondents is used. Findings show that rabbit commercialization is associated with a decrease in multidimensional poverty among urban and peri-urban farmers. This means that rabbit commercialization has a potential of improving living standards of urban poor. Other findings show that multidimensional poverty is positively associated with increase in education, access to credit, and reduced family sizes. Policy implication of our findings is that there is need to focus on promotion of commercialization among smallholder urban farmers through expansion of microfinance sector among urban dwellers to reduce financial market failures caused by inadequate access to financial services. Additionally, we recommend the promotion of training programs in different sectors such as rabbit farming. Urban dwellers with large households to be empowered to ensure all household members participate in income generating activities such as rabbit farming and commercialization.

Further Websites & Resources:

<https://www.meals4ncds.org/en/>

<https://www.ilri.org>

<https://www.ilri.org/publications>

<https://cgspace.cgiar.org/explorer/>

<https://whylivestockmatter.org/>

<http://www.livestockdialogue.org/>

<http://www.fao.org/publications/sofa/en/>