

Potential Legal-policy and Socio-ecological Compliance Requirements on Developing Slaughterhouse in Tanzania: A Stakeholders' Perspective

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Abstract— This paper examines the compliance requirements of slaughterhouse development on legal-policy and socio-ecological dimensions at Zuzu in Dodoma City Tanzania. It uses a 30 sample size acquired by purposive sampling procedures to implement focus group discussion of the case with a qualitative approach. It also employed 22 Key Informants, and observation methods. Results indicate that stakeholders were supporting the proposed development with concerns on liquid wastes management and treatment. Found that there would be positive and negative impacts such as direct employment of 30 human resource, liquid waste generation, sound, and noise pollution. Others would involve spread and development of Kiswahili, English, and Chinese languages. The project was supposed to implement mitigation and enhancement measures to address the stated impacts. These would include employment of the state of the art technology for waste management, and the use of protective gears for workers. It was also supposed to abide by the Tanzanian laws guiding the establishment, operation, and management of slaughterhouses. The study concludes that stakeholders were supporting the proposed development, due to outstanding positive impacts. The developer was committed to implement the environmental and social management and monitoring plan (ESMP) that would attend to mitigation measures about likely negative impacts on the development while at the same time enhancing positive impacts. It was recommended that the developer should adhere to good practices in all phases of the development by adopting effective ESMP according to the Tanzanian and international standards guiding operation and management of slaughterhouses.

Keywords— Development, Dodoma City, Impact, Slaughterhouse & Tanzania

I. INTRODUCTION

The history of slaughterhouses can be traced in three periodical phases of development. These involved the increase in the concerns about animal slaughtering in the eighteenth century, an industrialised slaughtering in the nineteenth century, and during the twentieth century. In the last period, slaughterhouses were relocated to small rural communities in United States such as Hazlehurst, Mississippi, Pocahontas, and Arkansas [1], and [2]. This shift had meant a migration of the industry's impact on both human health and the environment through a large amount of pollution from slaughterhouses [2]. In this period, they became centralised, large-scale, and mechanized in developed countries such as the United States and United Kingdoms [3]. Slaughter house development in the context of Tanzania is potentially beneficial across communities due to the existing cattle resource endowment. The paper intended to examine the legal-policy and socio-ecological compliance requirements potential to the development of slaughter house in Tanzania using the case of Zuzu slaughter house in the Dodoma City.

The paper is organised as follows: Section one of the paper introduces the article on the topic. Section two is

about the related works of interest to the paper. Section three contains the methodology content of the paper. Section four presents the results and discussion. Section five states the conclusion of the paper. Section six provides the recommendations related to the paper.

II. RELATED WORK

Nowadays, together with undoubted socio-economic, health and livelihood importance of meat products from slaughter houses one of the priorities all over the world on slaughter houses is to find suitable solutions for reducing the environmental pollution and resolve the problem of wastes [4]. It is affirmed that the problem of waste is one of the essential issues of the modern civilization, emerging from the contemporary way of life. In developing countries however, billions of animals were killed for food annually, more than half of them without the benefit of stunning. The slaughterhouses were featured by crowdedness, the inadequacy of vehicles with little protection, and long-distance transportation without water [5]. In Nigeria, Plateau Estate found a practice of abattoir management that poses a high risk of contamination of meat and meat products with harmful bacterial, viral, fungal, and parasitic or chemical agents that can cause severe or even fatal disease in humans [6]. In Kenya, it was found that the state

of slaughterhouses is not in line with the recommendations of the Meat Control Act of Kenya [3]. Hence, experience of limited compliance among investors in slaughterhouse. In the Tanzanian empirical evidence of slaughterhouses, there are relevant policies, practices, laws, and institutional framework of the case. Tanzania accounts for about 1.4% of the global cattle population and 11% of the African cattle population [7]. The main livestock types are cattle, goats, sheep, pigs, chickens, and donkeys. Tanzania has about 28.8 million cattle, 16.7 million goats, and 5 million sheep. Other livestock includes 2 million pigs, 33.3 million local chickens, and 15.6 million improved chicken. This could imply that the contribution of livestock to the national economy has been greatly under-valued [8]. The investment in slaughterhouses is one of the modernisation practices to transform the subsector. Slaughterhouses were characterised by poor hygienic practices with 100% faecal contamination of beef carcasses slaughtered at Vingunguti slaughterhouse of Dar es Salaam [9]. This indicates the low level of practices to effectively invest in slaughterhouses as required in meeting the number of cattle population and standards. The development in slaughterhouses is required to contribute effectively to the various Tanzanian policies relevant as follows: The Tanzania's National Livestock Policy aims to realise food security and marketing of livestock products, improving standards of living, increasing quality and quantity of livestock, sustainable management of livestock, technological support, development of farmers, safe production and mainstreaming gender, land, Humane Immune Virus (HIV)/Acquired Immune Deficiency Syndrome (AIDS) and environmental issues [10]. The development is also relevant to the Tanzania Construction Industry Policy that underscores the application of practices, technologies, and products that are not harmful to the environment and human health [11]. The National Investment Promotion Policy designed to address the objectives of mobilisation of domestic capacity including cooperation with developing and industrialised countries [12]. For that matter, the developer being Chinese would add to the policy's direction. The development should also abide to the National Employment Policy that is premised to promote the goal of decent employment, equal access to employment, put in place enabling and conducive environment for private sector growth, human rights, income security, foster economic growth and allocation of investment in rural areas, and address cross-cutting issues of HIV/AIDS, environment and gender [13]. The Cultural Policy of 1999 stipulates the Kiswahili as the national language of which the development in the area must comply with [14]. According to the Tanzania's National Environmental Policy of 1997, the development should work to maintain sustainability, security, and equitable use of resources to meet the basic needs of the present and future generations [15]. National Land Policy of 1996, among other things, advocates the protection of land resources from degradation for sustainable development for which every development initiative must comply [16].

The Tanzania's National Population Policy of 2006 has the goal of contributing to sustainable development and eradication of poverty, increased and improved availability and accessibility of high-quality social services attainment of gender equity, equality, women empowerment, social justice and development for all individuals and harmonious interrelationships between population, resource utilisation and the environment [17]. The development will improve social services availability because of investment in meat and water supply to the nearby community. The development as a user of electricity should comply with the National Energy Policy of 2003, which aims to establish an end-user system in an environmentally sound and sustainable manner [18]. Regarding the Human Settlement Development Policy of 2000, the development will attract the settlement of immigrant workers and the business population [19]. Hence, need to adhere to the policy's objectives. In implementing the development of National Water Policy of 2002 it would supply water to the community [20]. Thus, adding to the policy's objective of addressing water resources management, rural water supply, and sanitation services. It takes into consideration the sectoral water supply and sanitation as well as it promotes technology for efficient and safe water use, particularly for water and wastewater treatment and recycling. The case study is related to the National Health Policy of 2003 that among others stipulates the reduction of the burden of disease, maternal and infant mortality, and increases life expectancy through the provision of adequate and equitable services and facilitates the promotion of environmental health, sanitation, and adequate nutrition [21]. It should comply with these aims of the policy.

The case study is linked to the Small and Medium Enterprises (SMEs) Development Policy of 2003 objective that intends to foster job creation and income generation through promoting the creation of new SMEs and improving the performance and competitiveness of the existing ones to increase their participation to the Tanzanian economy [22]. This project would create opportunities for SMEs investment due to its central location. Other policies involved in practice are the National Strategy for Growth and Reduction of Poverty of 2005 that is informed by the aspirations of Tanzania's Development Vision 2025 for high and shared growth, high-quality livelihoods [23]. The project also builds on opportunities for investment in Dodoma Capital City. The existence of the Livestock Sector Development Programme of 2011 is designed to implement the National Livestock Policy of 2006 and its livestock sector development strategy of 2009 [24]. It is intended to transform the livestock sector from its current status to a modern one with the potential for a progressive livestock sector which is economically, socially, and environmentally sustainable. In this way, the development would contribute to the programme. The development would also contribute to the Tanzania Strategic Cities Project of 2009 that has the objective to improve the quality of and access to basic urban services in participating Local Government Authorities [25]. There are

three components to the project. The first among others is to develop core urban infrastructure and services. The development of the project will contribute towards the implementation of this objective of the project in the Dodoma City and Tanzania in general. Since slaughterhouses are associated with potential environmental and health adverse impacts, it was important to examine the influence of the development with critical eyes to mitigate such impacts on legal-policy, socio-economic, health, ecological, and welfare promotion. Theoretically, this paper used two theoretical perspectives on development. The first one is the modernisation theory of development. According to the theory, poor societies are so poor because of their traditional ways of life. The theory assumes several setbacks within traditional societies. These involve backwardness in technology, education, industry, leadership, cultural practices, and religion. In such ways, they require abandonment and copying western modern ways of life in the same aspects. The theory is linked to slaughterhouse development which requires livestock for its operation. However, being in Tanzanian societies which are featured by both modern and traditional ways of life, the national policy and practices are influenced by the theory's contentions over changing or transforming animal rearing to modern ways. This implies a shift from the traditionally adopted ways of animal slaughtering to the establishment of socio-ecological and legal-policy compliance on sustainability of slaughterhouses for livelihood promotion. The project is essentially the modernisation perspective in practice for transforming the livestock subsector in Tanzania. According to slaughterhouse modernisation thinking, the project will eventually affect positively the life of communities by the trickledown effect of industrialisation in the promotion of beef production. Hence people will improve their livelihoods once the theory is effectively applied in this case. Secondly, the dependence theory, on the other hand, proposes that poor societies are so poor due to dependence syndrome. The dependence was established due to exploitation that was/is expressed in various ways namely colonialism, neocolonialism, globalisation, slavery, and the slave trade. In this way, the development of the project reduces dependency from other western societies due to increased economic capacity among individuals and society.

III. METHODOLOGY

The study was done at Zuzu in the Dodoma City of Tanzania. This was a case study design that used a qualitative approach because of the need to describe the case for the impacts of the project. The sampling was purposive to get 30 sample of target participants who comprised various officials in the relevant ministries, local authorities, and community members of Zuzu. The sampling was purposive because of the need to involve the relevant stakeholders and dealers of the project in policy, implementation, and ownership. Data were collected using the observation method. The method was used to obtain and identify the ecological impacts of the development.

The documentary review and focus group discussion were done to identify the health impact through the review of literature on the project documents and relevant policies. The interview was another method; this was done through the participation of 22 key informants including the developer, local government officials, various related central government agencies such as the former Capital Development Authority, Ministry of Livestock and Fisheries Development, Ministry of Lands and Human Settlements Development to mention but a few. The impacts on the slaughterhouse activities expected during preparedness, renovation, operation, and decommissioning phases were obtained. The impacts were determined from participants' point of view on socio-economic, ecological, and legal-policy compliance and health aspects of living. Others were key informants from government offices. Data Analysis was executed to obtain the impact and types as negative or positive impacts. This was done by expert judgment, theme, and content analysis as well as by matrix table. The expert judgment was based on two criteria: One criterion is the duration of the impact in which the identified impact can affect the socio-economic, health, and ecological aspects of life. Through this criterion, the impact could be short term or long term in the extent of persistence. The second criterion was the influence or significance of impact which denoted the extent to which the impact affects the socio-economic, health, and environmental impacts aspects of life. The third criterion was the type of impact. This indicated the nature of the impact produced to affect social development. This could be a positive or negative impact in nature.

IV. RESULTS AND DISCUSSION

The study examined the stakeholders' perspective potential to an adherence of local standards related to developing and managing slaughter house in Tanzania. The study found that there are a number of issues related to the development standards as follows: Firstly it was found that the development of slaughterhouse in the area required consistence with the existing land use plan and the ability to have a grazing land for cattle. The interviews with key stakeholders revealed the existence of land use plan in the project area set for grazing that occupies 44,028 hectares. It was indicated that given this new development over the area it was considered important to have a thorough understanding of the type and at least names of the common pasture, fodder trees and shrubs in the project site that was meant for grazing. The results indicated that land use plan was imperative in proposing the need to have a new development in the area. This had relation to the scale of the project and various requirements for managing the project such as animal folder or grazing land as stipulated in the Grazing-land and Animal Feed Resources Act No. 13 of 2010, The Public Health Act No. 1, and The Urban Planning Act No. 8 of 2007 [26, 27, 28]. Hence the project is required to pay adherence to the legal standards of practice. The results on stakeholders' perspective relate to the National Land Policy of 1996 that among other things advocates for *"the protection of land resources from*

degradation for sustainable development. It addresses several environmental issues such as, among others observing land use planning” [16].

Secondly, the interview with key actors identified the need for preparedness on an employment plan by the project. It was argued that employment plan would constitute the structure, types and levels (educational and professional) of employees which were considered important elements of the project. The results indicated that the development of slaughterhouse has its own nature in terms of human resource capacity requirements and levels. This was an important elements to ensure effective management and operation of the project given the multiple technical and semi-technical components needs of the project including, transportation, processing, storage, and collection of cattle from various places. Reiterating the issue of employment one local government officer articulated that *“the project was introduced to the office and would contribute to employment generation. However, it should accord to the employment standards of Tanzania in its operation phase”*. The results related to the directives of Tanzania’s Employment and Labour Relations Act, 2004 that stresses the need for the capacity and compliance of actors to employment standards including recruitment, management, and termination procedures of human resources [29]. The results also relate to the National Investment Promotion Policy in Tanzania of 1996 that:

“Addresses the objectives of mobilization of domestic capacity including cooperation with developing and industrialized countries, promotion of export orientation on domestic production of goods and services, ensuring inflow of external resources and adoption of new technologies in production, and facilitate guarantee of protection to all forms of investment activities [12].

The project would address the objectives of this policy on the livestock sector.

Thirdly, the focus group discussion revealed that the development required an observation of the mechanism related to water management and treatment. It was found that given the existence of a bore hole in neighborhoods, the project should observe the legal limit of 60 metres distance from the borehole to human activities. The key informant participants also revealed the requirement of water right for the project according to legal procedures that involve the application by the developer on commercial purpose to the Internal Drainage Basin (IDB) Sub-office in Dodoma. The application for water rights was the requirement for achieving water availability by the developer that needed consultation with the IDB offices for underground water feasibility study at project area. The results are consistent with the Tanzania’s National Water Policy of 2002 that addresses:

“water resources management, rural and urban water supply and sanitation services. It takes into consideration the sectoral water supply and

sanitation as well as it promotes technology for efficient and safe water use, particularly for water and waste water treatment and recycling [20].

The project would utilize water from borehole (underground water resources), hence the need to comply with this policy. It would supply water to Zuzu community and would establish the required waste water treatment mechanism to safeguard the environment and community.

Regarding liquid waste management it was found that the development of slaughter house would produce effluents that require treatment and disposal. The best practice for managing effluents considered by participants of focus group discussion was the establishment of a pond known as an oxidation pond be installed for the project purpose of handling the likely liquid wastes from the plant. The participants identified the lack of water supply and sanitation system by the Dodoma Urban Water Supply and Sanitation Authority (DUWASA) for both drinking and waste water namely the sewer system in Zuzu village. It was found that the project promoter would consult DUWASA for the purpose of connecting the project with water for consumption via the Itega hill water tank that is near Zuzu village and project area. Hence the project was considered as an opportunity to expand the DUWASA water and sanitation system. Again these results are in line with the Tanzania’s National Health Policy of 2003 that is centred on:

“the reduction of the burden of disease, maternal and infant mortality, and increase life expectancy through the provision of adequate and equitable services and facilitate the promotion of environmental health, sanitation and adequate nutrition” [21].

The project would employ number of people directly and indirectly. It would observe the health issues of safety and health to workers and the public.

Education and awareness in the area of waste management is increasingly important from a global perspective of resource management. Also is argued that the local, regional global air pollution, accumulation and distribution of toxic wastes, destruction and depletion of forests, soils and water, depletion of the ozone layer and emission of greenhouse gases threaten the survival of humans and living species, the integrity of the earth and its biodiversity, the security of nations, and the heritage of future generations [30].

The results are also consistent with the Tanzania’s Environmental Management Act No. 20 of 2004 that puts the requirement of 60 metres distance from any human activities for the need to conserve water resources sustainably for both current and future generations [31]. For that matter the slaughterhouse development in the area is beneficial for the current livelihood but should not be the

source of emptying water resources which have use value of not only the present livelihood but also in the future livelihood and opportunities in development. On the side of solid waste management, it was found that the development required animal manure and other solid waste management including how to handle skins and hides. The method of salt as used in the treatment of hides and skins was recommended despite its problem of disposal that required the construction of a system for containing the salts. The need for an incinerator was also recommended for managing animal wastes of the proposed slaughter house. It was also considered that animal manure required its own and separate treatment portion before sale. The slaughter house solid wastes generally consists of livestock manure, rumen content, meat, fat, leather, bone and grass residues [32]. These require management where they could be processed into manure and be used for agricultural production.

Fourthly, the focus group discussion by community stakeholders found that the capacity of the borehole to fit project water consumption was an issue of concern. It was argued that the project water use capacity should conform to the borehole production capacity. The participants identified the use of submersive pump as one of the recommendable ways of ensuring adequacy in the production and consumption of water. Related to this was the issue of water pollution as the results of slaughterhouse development in the area due to likely production of waste water. It was allegedly put forward that the project must find good ways of treatment of waste water and should put away activities of garage from the project site. It was found that water management and treatment were the potential issues of concern in maintaining standards in the area. The concern was that waste water from slaughter house would cause a high percentage of blood which constitutes high amount of biological oxygen demand (BOD), chemical oxygen demand (COD), and Nitrogen. The waste water required biological treatment to minimize the incidence to pollute water bodies and the environment. The developer was required to build waste water treatment facility to accommodate the waste water that would be generated from the plant. The stakeholders emphasized the use of the best available technology which would treat water accordingly without polluting water bodies and groundwater. Likely, it was observed that the adoption of a good means of managing odor and smell resulting from slaughtering process was important. Methods such as bio-filtration was found useful to remove odor. Also it was observed that the slaughter house should be away from residents' location in case of downwind to minimize unpleasant smell. The results from stakeholders were in line with Tanzania's Meat Act of 2006, Water Resources Management Act of 2009, and that the results were also relevant to the National Environmental Policy of Tanzania of 1997 [33], [34]. The National Environmental Policy of Tanzania constitutes:

“objectives of sustainability, security and equitable use of resources to meet the basic needs of the present and future generations,

without risking health and safety, prevention of degradation of land, water, vegetation and air, which constitute our life support systems, and to conserve and enhance our natural and man-made heritage, including biological diversity of the ecosystem of Tanzania. The project will require compliance to this policy in its activities”[35].

Fifthly, interviews with key informants found that Zuzu industrial area was formally dedicated for the Tanzania's Public Sector Reform Commission, then to Consolidated Holding Corporation and currently was given to the Treasurer Registrar. It was found that the nature of the building structure of the project site should conform to the Tanzanian specifications for slaughter house development with such elements as railage system, starting boxes, date area, and kin area among others. The project also required fencing in attempt to make it intact from the outside surrounding as per the building requirements. Regarding, registration it was indicated that the project should had undergone premises registration as per Tanzania Food and Cosmetics (TFDA) Act Cap 219 (fees and charges) Regulations 2011 and apply for the land use change to fit its requirements [36]. It was found that there would be cattle holding ground namely Kizota holding ground at which the cattle would be transported from the ground after inspection. This required management on the procedures and standards of handling the ground. It was revealed that the type of cattle to be slaughtered would include goats, sheep and cows consistent with the Tanzanian culture. The results were relevant to The Cultural Policy of Tanzania of 1997 that *“articulates the importance of cultural resources assessment in development projects promoting the existence of traditional knowledge, skills and technology of communities”* [14]. The project will promote the local cultural elements as stipulated in this policy. These results are related to the Tanzania's Construction Industry Policy of 2005 that states that:

“The vision of the construction industry is to have a dynamic, efficient and competitive local construction industry that is able to undertake construction projects of any magnitude and participate effectively in providing its services in the regional and global market place. The objectives of the policy among others include: improve capacity and competitiveness of local construction enterprises, (contractors, consultants, and informal sector), develop efficient and self-sustaining road network, and ensure application of practices, technologies and products that are not harmful to the environment and human health” [14].

The project would employ local consultants. In this way it would fulfill the policy's objectives.

Sixthly it was found that Zuzu village community had potential beneficial expectations over the slaughterhouse development. The community oriented benefits involved

employment by the working population, meat products and retail trading on the products of the project including retails cattle business from the surrounding community. It was indicated that the policy of cooperate social responsibility would be paid to the attention by the developer who promised to offer water service to the Zuzu community upon project commencement. These results on stakeholders' perspective are relevant to the Tanzania's National Livestock Policy of 2006 in Tanzania that advocates for the need to exploit the sector effectively:

"The policy's vision states that by 2025, there should be a livestock sector, which to a large extent shall be commercially run, modern and sustainable, using improved and highly productive livestock to ensure food security, improved income for households and the nation while conserving the environment."

The mission targets to: *"ensure that livestock resource is developed and managed sustainably for economic growth and improved livelihoods"* [24]. The policy's objectives includes among others:

"the realization of food security and marketing of livestock product, improving standards of life, increasing quality and quantity of livestock, sustainable management of livestock, technological support, development of farmers, safe production and mainstreaming gender, land, HIV/AIDS and environmental issues" [24].

This policy holds the rationale to commercialize the industry and stimulate its development while conserving the environment aiming at supporting the livelihoods of livestock farmers through increased incomes and self-sufficiency in food of animals' origin. The project is the means towards attainment of policy objectives and would promote policy's justification. Again the Tanzania's National Employment Policy of 2008 seeks to:

"stimulate national productivity, to attain full, gainful and freely chosen productive employment in order to reduce unemployment, underemployment rates and enhance labour productivity. Its objectives are to promote understanding of unemployment, enhance skills, promote goal of decent employment, equal access to employment, put in place enabling and condusive environment for private sector growth, human rights, income security, foster economic growth and allocation of investment in rural areas, and address cross cutting issues of HIV/AIDS, environment and gender. The project would fulfill the policy's objectives to employees" [13]. The other of equal relevance to these results is the Tanzania's Community Development Policy of 1996 that aims to: *"educate communities on the importance of environmental conservation in pursuing social and economic development"* [37]. Some of the areas of emphasis of the Policy include:

" health and sanitation in rural and urban areas; water and environmental

sanitation; appropriate technology for domestic energy use, in particular improved cook stoves; and improving rural and urban environment [37].

Given the demand of water resource by the community the corporate social responsibility was of the policy concerns. Therefore, the project capacity and willingness was confirmed to supply water for the village community.

Discussion

The development would be located in the designated industrial estate in Zuzu industrial area. The site was featured by other undeveloped industrial sites and the neighboring agricultural land. The proposed project was intended for the acquisition of cattle and the processing of meat products for commercial purpose. The processing activities would supply packaged meat products for internal and export markets. The likely negative impacts associated with this development would include sound and noise pollution, liquid waste generation, solid waste generation, water pollution, land degradation, deforestation, the occurrence of accidents, unemployment at decommissioning phase, leaving plot land unutilized, air pollution, the spread of HIV/AIDS, and diminishing of local cattle species. These negative impacts by the development are linked to the traditional dependence theory of development that the project was intended to mitigate the livestock practices in Tanzania. This is because there had been long lived experiences of traditional livestock keeping that had been revealing less beneficial impacts among famers of which this proposed development was going to undergo transformation to modern and more beneficial ways. The positive impacts would include a contribution to urban-rural commuters, employment opportunities, promotion of rural livelihoods and contribute to rising of cattle prices in local markets. The project would also contribute to the revenue generation to the local and central government directly and indirectly. The potential project's products of the industry would benefit the locality and the nation as it would promote the development of animal farming subsector in Tanzania consistent with The Tanzania Development Vision 2025 and sectoral policies.

Other benefits resultant from project development are the contribution to export trade, interbreeding, cultural influence, spread and development of Kiswahili, English and Chinese languages, agglomeration of business activities, strengthened health status of the population, promotion of local trade and enhanced development partnership between China and Tanzania. The development was relevant to the Cultural Policy of Tanzania of 1997 that directs the use of

"Kiswahili as the national language. Vernacular languages are regarded as language of communities for research, preservation and translation to other languages. English language is the compulsory subject in preprimary and secondary education levels. It is also encouraged in higher education with other languages. The

policy recognizes arts and crafts for Tanzanian societies and puts management elements including cultural sites, tourist attractions, art objects, archaeological, paleontological and botanic remains, and monuments. It articulates the importance of cultural resources assessment in development projects promoting the existence of traditional knowledge, skills and technology of communities [14].

The project would promote the local cultural elements as stipulated in this policy. The project would also impact positively to social issues including contribution to population increase therefore contributing to the Tanzania's National Population Policy of 2006 that states:

“the specific goals of this policy that are to contribute to sustainable development and eradication of poverty, increased and improved availability and accessibility of high quality social services attainment of gender equity, equality, women empowerment, social justice and development for all individuals and harmonious interrelationships between population, resource utilization and the environment [17].

The development of the project would improve social services availability due to water and meat products supply. The other positive influence would be influence of peoples' eating habits, reduced women workload on the search for vegetables, enhanced family ties for direct and indirect employment, reduced men's absenteeism in their families for job search, enhanced security from the redevelopment of the site, reduced incidences of offenses in the village community and enhanced food security. It would contribute to the revenue generation to the local and central government directly and indirectly. The potential project's products of the industry will benefit the locality and the nation as it would promote the development of animal farming subsector in Tanzania.

The proposed development would be in the designated industrial site in the peri-urban area of the Dodoma City. It is relevant to the national plans on reshaping the livestock subsector. The investment in the proposed project was likely to generate more net public benefits compared to its former state of the site and the negative impacts identified. This is because the negative impacts could be mitigated through the mitigation measures.

The project would use the currently underutilised animal resources domesticated to maximise production. It had a good technological capacity to contain the likely negative impacts associated with air, land, water, social, and economic in maximizing the public and intended benefits. It was relevant to the objectives of the sector, subsector, and national frameworks guiding the development of Tanzanian societies. Comparatively the social costs of developing the projects are lower than the benefits. Yet the costs can be minimized by the proposed mitigation

measures. The study did not encounter risk and uncertainty from the information and decision on the assessment process. However, the social risks could be regarded as less predictable.

The contribution of animal farming into the economy of the nation is potential despite long existed underdevelopment of the subsector. However, it was not well understood the contribution of the project into boosting the local animal farmers' livelihoods due to market variability and the quality needed to meet international markets. This puts a question on improvement efforts of the animal husbandry subsector on local farmers who were mainly subsistent and traditional. The proposed project is located in Zuzu village of Dodoma urban district. The area is one of the industrial estates that is following the Dodoma Master plan of the city. Tanzania is promoting the investment in industrial estates particularly the promotion of cattle related investment for increasing the value of animal products and improving farmers' standards of living. Other options for investment in the plot could be assigned for the former tiles and brick-making activities or as residential. The project site would have other utilities in steady of the proposed project including leaving unutilized or setting as the conservation area. However, this would have been less advantageous comparing to the developed values of its location.

The option for the project development received much higher values in terms of urban development, employment opportunities, contribution to national income, and urban growth. Thus investing in the proposed land use is potential for availing both socio-economic and environmental beautifulness. Tanzania is promoting the livestock sector by making it become modernized to boost livestock keepers. This project is central to promoting the external livestock markets as well as local cattle keepers' livelihoods through the market provision of the abundant cattle species of Tanzania as related to the modernization practices of development interventions. Its location in Dodoma is centrally required to give equal access to market points from all directions of the available cattle and goat species. Dodoma is also accessible to the Dar es Salaam as local market and point for export to the external markets.

The development should consider important aspects of planning and management in the time of decommissioning. This would involve building infrastructure, unemployment, and land issue. When the project comes to an end as the result of any factors, such as the need to change the project, the decommissioning plan should be prepared to serve the purpose of the closure of the project. This should be approved by the relevant authorities.

The decommissioning phase would involve the demolishing of the sites' built structures and leveling activities to leave the land open for other utilities. The project would handle human resources unemployment issues by responding to forced retirement that is following

the Tanzanian laws. Environmental procedures for auditing in this phase would be part of the exit strategies of the project to be developed by the promoting company. The industrial infrastructures would be demolished properly and auctioned. Site leveling would be the requirement of the site. An environmental audit would also be the necessary tool after the closure of the project. At the end of the project, employment would cease to the project personnel. The workers would be prepared for finding alternative jobs. Others will find the opportunity to employ themselves. The project promoter was required to prepare well the workers to be members of the social security fund and health insurance schemes such as Community Health Fund (CHF) and National Social Security Fund (NSSF). According to the Tanzania's Land Act No. 4 of 1999, the land is vested to the President of Tanzania. The land should be returned to the State so that it can be allocated for use by others after completion of the project [38].

Other legal standards of relevance to slaughterhouse development in Tanzania involve the Tanzania's Hides, Skins and Leather Trade Act of 2008 that develops and regulates the production and preservation of hides, skins and leather and promotes trade in hides skins and leather and provides directions for related matters [39]: Part II-10 (1) of the Act states that: *"a person shall not use premises for the purpose of shading or suspension drying wet salting or for any other methods of drying hide and skins and processing hides and skins into pickled pelt or into any stage of leather tanning or finishing unless the premises has been approved as suitable for that purpose by an Inspector.* Part IV- 14 (1) directs that: *"a person shall not by any way of trade: prepare, grade or store any hides, skins, or leather at any premises, Make or accept delivery of any hides, skins or leather on or for sale at any premises or export any hides, skins or leather from any premises unless- the occupier of the premises is the holder of a valid license in respect of the premises and the relevant Act is carried out in accordance with the conditions of the license. Or the premises are declared by the Director to be exempt premises and the relevant act is carried out in accordance with conditions subject to which they are so exempt".* This project will produce hides and skins which will be sold to the dealers immediately after their production, in this way it shall adhere to the licensing conditions under this act.

The Meat Act of 2006 *"makes provisions for the restructuring of the Meat Industry, to establish a proper basis for its efficient management, to ensure provision of high quality meat products and for matters related therewith. It applies to all meat and meat products except for those not intended for sale and those produced for consumption of the producer.* The Animal Diseases Act, 2003 [40] *makes the provisions for control and prevention of animal diseases for monitoring production of animal products, for disposal of animal carcasses and for other matters.*

Section 8 (1) states that: *"no person shall move any animal, animal produce, animal feed, litter, animal waste*

or anything as may be prescribed in the regulation into or from an infected area without a written permission of the Inspector". Section 10 (1) puts that: *"every owner of any animal affected or suspected of being affected with a disease shall have the duty to keep such animal isolated and separated from other animals.* Section 15 (1) describes that: *"where any animal is affected or suspected of being affected or dies of a disease or from any cause, other than disease, which is not apparent, the owner of the animal shall, within twenty four hours, report the matter to the nearest Veterinarian or paraprofessional.* Section 18 (1) directs that: *"an Inspector shall cause to be slaughtered and or destroyed any animal affected or suspected of being affected with or which has in contact with a disease registered with the Director as a notifiable disease pursuant to this Act".*

Section 19 (1) provides that: *"where an animal has been slaughtered under the authority of this Act or animal products or wastes destroyed under any provision of this Act, the Carcase or animal products or animal wastes shall belong to the government and shall be disposed by the inspector".*

Part VII (43) of the Act states that: *"no person shall sell or buy meat from a diseased animal that may affect human health or influence the spread of diseases to other animals or to areas in the country. It also prohibits compounding animal feeds using diseased meat or meat products, sale or buy meat from animal affected by any other conditions considered to render the meat unfit for human consumption".* Section 53 (1) puts that: *"the slaughter house premises or establishment shall be of suitable design, layout and construction in order to facilitate disease detection during ante mortem inspection and post mortem inspection by an Inspector".* Section 53 (2) further directs that: *"an ante mortem inspection shall be carried out within twenty four hours preceding slaughter in a registered slaughter house premise or establishment so as to ensure that only those animals that are free from diseases or conditions are permitted to proceed for slaughter".* Part VIII (57) states that: *"no person shall make or import or use genetically modified organisms of animal origin without a permit from the Director"*[40]. The act is central to the implementation of the project activities of meat processing and marketing. There are also regulations related to the development. These involve: Guidelines for Registration and Licensing of Food Premises, Revision N0 3 of 2011 that:

"Stipulates general and specific requirements for registration of premises and business permit. It is stated that: "any person who intends to carry out a business of food for human consumption shall apply to TFDA for registration of premises and permit of carrying out such food business" [41]. The proposed project fell under food manufacturing facilities so it had to follow the requirements of the guidelines. The Guidelines for Importation and Exportation of Food, Revision N0: 3 of 2011 that provide for:

“procedures for exportation of food. Certificate of food for export is normally done when necessary or upon request from an exporter or importing country. TFDA shall issue health certificate to accompany food for export [42].

The proposed project falls under company category of exporters, thus has to register as food exporter for this purpose. The Guidelines for Application for Registration of Prepackaged Food in Tanzania .

“This provides for the requirements according to section 28 of the Tanzania Cosmetics Act, 2003 that no person shall be granted with permit to manufacture or import prepackaged food into Tanzania unless the food has been registered with TFDA” The proponent should had followed the guidelines in order to be certified for meat processing activities [43].

The Guidelines for Investigation and Control of Food Borne Diseases, Revision N0. 2 of 2011 that provides for procedures of management and mitigation of food borne diseases that the project was obliged to adhere to [44]. The Risk Based Food Inspection Guidelines, Revision N0. 1 of 2009 provides Guidelines of risk based inspection of primary food production, processing and catering/retail establishments [45]. The proposed project fallen under food processing that needed adherence to these standards of the guidelines.

The amount of cow dung generated from rearing of cattle is rapidly increasing over time due to increased agricultural activities involving a high demand for meat, milk, and hides as a result of population increase [46]. This produces concern over not only environmental management due to methane emission but also present a significant health risk, risk due to water pollution, as well as air contamination. These results are consistent to the recommendations for the need to educate local people about more sustainable use of the forest and about ecological and economical roles that aim to protect, and restore resources in attempt to develop the local economy in Northern Africa [47].

V. CONCLUSION AND FUTURE SCOPE

The development of slaughterhouses in Tanzania is an opportunity for advancing the livestock subsector from its traditional practices that have less socio-economic, ecological and legal-policy benefits. The development had more potential positive and beneficial impacts like employment generation, improving nutrition status, export and local markets and livelihoods promotion than the negative ones such as water pollution, production of wastes and accidents. The established mitigation measures for the negative impacts were sufficient to protect from the project's negative influence over the socio-economic and environmental processes. Also, the proposed enhancement measures for the positive and beneficial impacts provide conducive and enabling socio-economic and environmental conditions for the project to realise the intended objectives

with effectiveness. Therefore the project was considered important to be implemented due to the shown potential benefits of both the locality and the nation as a whole provided that it observes to the maximum the state of the art technology in production in all phases while limiting the negative impacts.

FUTURE SCOPE

The paper recommended that the implementation of the development was vital for the locality and the nation as a whole. These will lead to the direct, indirect, and induced employment and livelihood promotion. It will lead to realisation of expected objectives for transforming the livestock sub-sector. It was therefore recommended that the developer should adhere to the effective implementation of environmental and social management plans (ESMP) for the project that provided measures to enhance and mitigate the positive and negative impacts resultant from the project respectively. Again the study recommends for use of railway mode of transport for the project's raw materials from sources and markets in Tanzania. This would be complemented by road mode in areas of missing railway lines. Moreover, the periodic environmental audit is the requirement for sustaining the project. On managing the slaughterhouse, the study recommends the employment of veterinary personnel, food science advisor, and an environmental officer for management purposes of the project. The project should effectively implement the decommissioning plan once the project comes to an end. When the project comes to an end as the result of any factor, such as the need to change the project, the decommissioning plan should be prepared to serve the purpose of the closure of the project. In addition, the compliance to the Tanzania's national ecological, socio-economic and legal-policy requirements is the necessary requirement to be enhanced for both project and national benefits on sustainable basis.

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