

## **The Role and Responsibility of Education System in Ensuring Pharmacological and Medical Services for Animals and Livestock in Bangladesh: A Further Essence for Environment and Climate Change**

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**Abstract:** This study intended to comprehend the major gaps that restrict in ensuring a functional policy and action plans in the area of livestock and its sub-sectors in Bangladesh. An analytical approach is used to figure out and to justify the prevailing disagreements by providing specific evidences for expressional barrier for animal and livestock. The objective is also to sort the possible prospect by probable rationality. In order to offer well-timed and functional policy directive, this study has addressed importance of health of animal and livestock, expressional barrier for the need of pharmacological and medical services, mapping situation and current figure of animal and livestock, outlining the effects of climate change to animal and livestock, identifying the lack of support to pharmacological and medical services and drawing the role and responsibility of education system to ensure the betterment in regards to all aspects concerned. Doing the above, this study understands the necessary provision and expanded roles and responsibilities for the sector of animal and livestock and this may eventually help to ensure a well-time policy in placed with a apposite coordination of different units.

**Key words:** Animal and livestock, pharmacological and medical services, environment and climate change, education system, policy issue

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### **INTRODUCTION**

Bangladesh has a remarkable potential as a sub-tropical country toward the favorable agro-businesses climatic conditions in the animal and livestock sector but unfortunately until recently it has been unable to exploit the potential growth and development in this sector. Exposing the expressional barrier for animal and livestock, mapping the current veterinary prospective and situations, outlining available support for pharmacological and medical services for livestock, the role of education system for veterinary outcomes are not dealt professionally. These develop a weaker policy as a product of indecorous coordination amongst different units. Providentially, lately the government of Bangladesh recognizes the potential and comes across some limited

plans, strategies and policies by Ministry of Fisheries and Livestock (MOFL) to support the veterinary potential. However, the national policy faces constraints to show the analytically justified evidences to claim the probable causes making legging behind.

The concerned departments are relatively looking a way forward of expressional barrier for livestock, resource utilization for pharmacological and medical services and research opportunities on veterinary potential to find the gap. The current position of livestock and its sub-sector to overall GDP is about 2.73% and it contributes about 2 million full time and 12 million part time in rural employment (UNDP, 2007; DOF, 2009). Most importantly, >10 million Bangladeshis are directly depending on livestock and its sub-sectors for livelihoods (Karim *et al.*, 2010). However, looking at the number of livestock

outcomes and goals, it is apparent that Bangladeshi livestock mission failed in their objectives in many ways (Al-Amin *et al.*, 2012). The objectives of livestock did not realize the real voice of the community and that leads the lacking toward success and functionally, policy initiatives and implementations did not bear a fruitful outcome.

Ample amount of literature can be found by the research contests on the livestock and its sub-sectors and the findings of these researches fundamentally converse with the issue on activities of genetic factors, species development, climate change impacts, the requirements of protein contents, genetic trends, genetic parameters, related disease outbreaks, disease context, disease influencing factors, importance of pharmacological knowledge and related measures (Al-Amin *et al.*, 2012; Okokon *et al.*, 2008; Gizaw *et al.*, 2007; Jaffary *et al.*, 2007; Shaheen and Yamaura, 2006; Zhu *et al.*, 2006; Ahuja and Montiel, 2005; DANIDA, 2002; Chilliard *et al.*, 2001; Stevenson *et al.*, 1994). However, issues related to (mapping the importance of health of animal and livestock exposing the expressional barrier for animal and veterinary facilities (while they need pharmacological and medical services), outlining the required support for pharmacological and medical services for animals' diseases and the contextual discussion on education system in producing veterinary graduates and the role of primary to tertiary education for overcoming all the shortcoming prevailed and experienced) are always ignored in research discourses and colloquia (Sivaraman *et al.*, 2012; Mbaya and Ibrahim, 2011; Joseph and Raj, 2011; Sanda *et al.*, 2011; Rezaie, 2011; Sarkhail, 2011; Al-Zubairi and Eid, 2010; Yoon *et al.*, 2009; Sittiwet, 2009; Uboh *et al.*, 2008; DANIDA, 2002; Stevenson *et al.*, 1994). The evidence for the Bangladesh is also similar in nature and similar in gaps.

Therefore, to explore the key point of view and to determine the scope of this research, this study pays a caution attention to the areas that are ignored earlier with a hope of offering some epoch-making inputs for developing and ensuing a well-timed policy in placed and practiced.

## MATERIALS AND METHODS

**Framework of strategies and importance of health of animal and livestock:** Currently the contribution of the agro-based economy in Bangladesh is around 8% and it accounts about 32% of the total income of agriculture and the role to national GDP is about 2.73% (Al-Amin *et al.*, 2011). The overall 10 million people are reattached with rural employment in livestock and its sub-sectors. The government of Bangladesh realizes the importance of

agro-based potentials and therefore, currently working with Plan of Action (PoA) under the National Food Policy (NFP), Bangladesh Country Investment Plan (CIP) and Bangladesh Food Security Initiative (AFSI) under the animal and veterinary scopes (Al-Amin *et al.*, 2011). However, looking at the mapping of livestock and its related projects, it is evident that the overall contribution of livestock and its sub-sectors to overall GDP is decreasing. More specifically, the growth rate of livestock sub-sector of GDP was 7.23% in the year 2004-2005 and 6.15% was the year 2005-2006. Therefore, the trend and figures indicate the decreasing trend.

The fundamental reason may not be obvious and sometime is affected by manifestation on policy action like approaches, channels and objectives focusing the needs within the sectors (Al-Amin *et al.*, 2011). Not only that the raised issues, the veterinary facilitates by the Directorate of Livestock Services (DLS), Bangladesh Livestock Research Institute (BLRI) and Non-Governmental Organizations (NGOs) in coping with diseases are not sufficient as the services by Veterinary Vaccine Production Laboratory (VVPL). Most importantly the veterinary diseases related services are limited to examination of blood, sera, faecal samples and post-mortem examinations (Al-Amin *et al.*, 2011). The vaccines produce by Veterinary Vaccine Production Laboratory (VVPL) can only meet 25 million doses against anthrax, foot and mouth diseases, newcastle disease, haemorrhagic septicaemia and black quarter which is about 80% and there are 20% are lacking. On the other hand, the service by DLS network hardly facilitates services beyond 10 km from the Upazilla (sub-district) level. Therefore, the service delivery at a grass root level is inadequate and infrequent.

**Gap and issues-expressional barrier for animal and livestock:** Literature testifies that important challenges are shortages of institutional support, particularly to the poor livestock farmers (Al-Amin *et al.*, 2012). The government of Bangladesh has taken some initiatives but still there are lots of barriers in the livestock and its related sectors which are largely revolving by credit limitations and financial constraints. The support gaps supposed to be reduced by the national policy and operational plans. An earlier study by Al-Amin *et al.* (2012) has addressed some issues on Rural Credit Policy (ARCP). They addressed that there should be a good co-ordination with Agricultural and Rural Credit Policy (ARCP) of the Bangladesh Bank (BB) and Agricultural Credit Department (ACD) to disbarment of agricultural loans to support of livestock and veterinary facilities. Therefore, in order to get effective outcomes, a sound framework and action

policy requires eliminating the gap. Hence, a new framework of strategies must fulfill these gaps and the initiative should concentrate in order to address the needs and should reflect real voice of the community.

**Mapping the situation and current figure of animal and livestock:** As the study has identified earlier that albeit, Bangladesh might be substantially potential, unfortunately livestock sectors in Bangladesh are distressed more than expected. The poor farmers cannot get straightforward access of government and non-government credit institutions. Missing of effective policy supporting the poorer alongside the bureaucratic barriers is causing one step further the drawback (Al-Amin *et al.*, 2012). The UNDP (2007) identified parallel issues what e.Krishi Vision 2025 addressed for Bangladesh (Al-Amin *et al.*, 2012). The findings of UNDP (2007) are somehow alike as we have noticed on the gaps and issues. The gaps are classified as poor epidemiological information, lack of research and development, poor disease control programs, inadequate technologies for disease diagnosis and sufficient financial support from the government support.

Researchers have observed that the contribution of livestock and its related sectors to the national GDP is dampening gradually over time. There must have fundamental reasons to this challenge. Researchers still consider the livestock sub-sectors and industries as the key pillars of agricultural development and growth in Bangladesh (Al-Amin *et al.*, 2012). Therefore, we must come in the frontline of some vital questions-the problem of Bangladeshi livestock sector facing is it belonging to the problem on government policy? Or is it belonging to the problem of implementation procedure? Consequently, the concerned body and policy makers need to eliminate the fundamental challenges to have a fruitful result such as by appropriate agenda setting, policy orientation and implementation and evaluation as discussed by Al-Amin *et al.* (2012) in their earlier study.

**Exploring the impact on climate change due to damage of animal and livestock:** The existing arrangement of climate change related animal health impacts, awareness issues, mapping of livestock potential and national policy are also lacking in Bangladesh (Al-Amin and Alam, 2011). Researchers know that the impacts of on animal health and the danger of climate change is complex in nature and lots of socio-economic factors are related. Researchers still have some lacking regarding the subject matter in the case of Bangladesh and we did not know efficiently how animal health and veterinary facilitates are related with the climate change matters and how an effective framework

can be placed to overcome the issue. We have some evidence from the literature that Bangladesh has some shortcomings on existing veterinary education arrangement and therefore we do not know the linkages between climate change issue and impacts on animal health properly.

Bangladeshi policy maker and concerned body must capture useful initiatives and programmes on animal health and veterinary facilitates. As Bangladeshi livestock service did not follow top-down process in the national policy therefore, it does not correspond to the needs and real voice of the community efficiently. A study by Al-Amin and Alam (2011) indicated that climate change issues can not be overlooked as animal health, impacts and livestock are very interrelated in their nature and disease outbreak. As climate change issues are new in animal health, particularly in Bangladesh, therefore we need a good number of related researches distant climate change impact on animal health and veterinary. The policy maker of Bangladesh should come across with the issue and must present top priority in the upcoming national planning.

**Support for pharmacological and medical services for animals and livestock:** The position of animals and livestock health impacts, awareness, mapping of national strategy and action guideline are widely recognized. However, some essential features have remained underappreciated basically in the developing country likewise in Bangladesh. Researchers have perceived key fundamental lacking in the issues of support of plant biology to pharmacology and medical knowledge in exploring the links to pharmacy. As a developing country we understand Bangladesh's limitation of research between plant function and pharmacology. Bangladesh has constraint of explore between risk awareness and technical knowledge within the pharmacological comprehension. However, with this constraint, Bangladesh has potential to move local knowledge in some extents and able to support to integrate plant biology and current paradigm of medical services for animals and livestock. Here, most importantly Bangladesh concerned body needs to address effective framework to support for pharmacological and medical services for animals and livestock-but there is a must to acquire scientific educational understanding in exploring the links between plant biology to pharmacology and precise medical service in the researchable issues.

Therefore, Bangladesh needs to focus what should be placed for an effective plan for biology to pharmacology to deal with the raised issues and what aspects of plant biology can offer a benefit in

pharmaceutical service. At this juncture, appropriate knowledge will provide an admiration of the related background and nature of the quandary skillfully. It will emphasize the related fact of science and technology in pharmaceutical service and will clarify professional revamp with responsibility. As we know that pharmacy, biology, pharmacology, pharmacy and pharmaceutical science are interrelated; therefore, key knowledge and research in the related sciences and areas provides a scientific phenomena and application to make progress on step ahead. However, Bangladesh needs a sound mapping of framework issues to consider the linkage of plant biology and pharmacy and needs to explore the appropriate level of relative environment. Until recently, no mapping issue regarding to support for pharmacological and medical services for animals and livestock has been focused. Therefore, Bangladesh must acquire scientific educational understanding in exploring the linkage.

**Mapping the education system and its role from primary to higher education:** Researchers know that about 25% of Bangladeshi population is involved livestock and its related sectors, therefore, there is supposed to have fundamental value of this sector in the related economic activities in Bangladesh. However, the potential outcome can not be achieved due to lacking of the existing support systems both for institutional and diseased induced arrangement. Currently, there is no research institute available which is directly contributing related to climate change diseases spreads and treatments (Al-Amin and Alam, 2011). Researchers can easily recognize the gaps related to animal health and it's affecting factors of considering animal health and veterinary facilitates in Bangladesh. We know that the fundamental lacking surrounding to the issues of limited technological capacity and research limitation. The basic livestock related activities, understanding and its economic contribution should be conveyed from the root level and consequently, we should bear in mind at least limited knowledge from the primary to higher education.

Researchers do not challenge the numbers of veterinary science graduates and veterinary surgeons in Bangladesh (Al-Amin and Alam, 2011). However, here we need to breakdown the function of veterinary science graduates and the role as general knowledge on the gap related to animal health and it's affecting factors. The literature indicates that Bangladesh has deficient in the field of veterinary science and suffers for trained veterinary field assistants from rural to urban level. We have noticed that the veterinary science graduates sometimes are reluctant to work in the related areas and the public service commission sometime can not

guarantee the future of veterinary science graduates. Therefore, generally one fundamental question arises: what is the ground behind the issue? Consequently, we have identified that Bangladeshi veterinary education system is not effective for long-run to overcome the concern. This kind of issue must be considered for developing a strong policy framework. Therefore, we can not ignore the new mapping the education system and its role from primary to higher education and its future direction.

## RESULTS AND DISCUSSION

This study aimed to comprehend the lacking following on the role and responsibility of the education system in ensuring pharmacological and medical services for animal and livestock in Bangladesh. To address the issue, this study raised some key drawbacks by focusing on importance of health of animal and livestock, the expressional barrier for animal and livestock as they need pharmacological and medical services, mapping the stations and current figures of animal and livestock related sectors, mapping the effect of climate change on animal and livestock damages, lack of support for pharmacological and medical services for animals and livestock and mapping the education system to gain further benefit in Bangladesh. To get a clear understanding and problem of issues, the framework and rational argument help to understand the fundamental lacking and guidelines with precise evidence.

The study introduced several kinds of barriers that are responsible and discussed a way forward to overcome of the challenges. The study also finds lacking on institutional capacity, limited resources, fundamental knowledge and a research gap as a whole together with the drawback of effectiveness of national policy action by the Government. Sometime the poor infrastructure, poor communication systems, poor action plan and even different political agenda and issues are causing extra negative impacts. Therefore, we have placed a framework of issues and drawn awareness on how to get the potential scope to reach an effective outcome by focusing on health of animal and livestock mapping together with the existing stations and current figures. We have also drawn attention how refined mapping on research and pharmacological knowledge in medical services can extend the benefit.

## CONCLUSION

This study aimed to understand the policy gaps that are barriers to obtain the utility and scope of livestock

(animal and veterinary) and its sub-sectors in Bangladesh. In order to have a sound policy directive, some key features are exploited to figure out the factors that are responsible for the drawbacks. Specifically, we have addressed importance of health of animal and livestock, expressional barrier for the need of pharmacological and medical services, mapping the existing stations and current figures of livestock, mapping the effect of climate change to animal and livestock, lacking of support on pharmacological and medical services and mapping the education system to gain a further benefit for Bangladesh. This study also helps to understand the necessary provision, expansion the role and responsibility of the education system in ensuring pharmacological and medical services for animal and livestock and finally, this study provides key concerns and outlines for a sound framework to the concerned body and policy makers in Bangladesh.

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