

RESEARCH ARTICLE

(Open Access)**Livestock traceability system and sustainability issues in Albania**

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Abstract

Livestock traceability is important to increase efficiency of disease surveillance and control. The livestock traceability system is a thorough system of livestock identification and tagging to assure the ability to trace the animal back to the farm of origin. Albania has embarked and is applying the livestock identification and registration, i.e. livestock traceability system, initially under the European Union (EU) projects in the context of the European Union enlargement. While there is a good opportunity to cover the initial investment and implementation by European Union assistance, it is important for Albania to foresee the sustainability of the livestock traceability system in a long run. Livestock traceability is becoming more sophisticated and it is important to understand the sustainability aspects. Sustainable livestock traceability system needs to balance economic efficiency and to achieve qualitative assurance. Quality assurance goes beyond the technical and economic viability aspects and requires organizational and institutional support.

The paper discusses how the sustainability of the livestock traceability system can be possibly achieved by giving consideration not only the technical technology aspects of livestock traceability system but also socio-economic and institutional developments of the country. The challenge of the sustainability of animal traceability system remains capacity building of strong formal and informal institutional relationships. A model of appropriate livestock traceability service for serving resource-poor farmers and wealthy producers for livestock disease control is discussed. In addition, this model can serve as an appropriate tool to support the subsidy schemes that government applies for rural development.

Keywords: Livestock Traceability, Livestock Identification and Registration, Sustainability, Animal Health.

1. Introduction

The efficiency of disease surveillance and control is on the international agenda and in particular, of the global organization such as Food and Agriculture Organization of the United Nations (FAO), World Organization for Animal Health (OIE) and the World Health Organization (WHO) due to increased outbreaks and spread of livestock diseases affecting animal health, food safety and security and international trade. Given the economic losses in European region from infectious diseases such as Bluetongue, Lumpy Skin Disease, African Swine Fever, etc., loss of confidence in the food industry due to food safety concerns and the danger of increased spread of the other infectious diseases, effective livestock traceability across borders is essential. The livestock traceability is applied in many countries to increase efficiency of surveillance and control of

livestock disease including zoonoses. When effective, the livestock traceability can facilitate the rapid control of transboundary infectious diseases and the cost-benefit control of endemic diseases with impact on animal and public health [5,9,17,18]. In addition, livestock traceability is used as a tool for other purposes, such as genetic improvement, improving meat and milk production and general improvements to production efficiency [11]. In late 1999, animal traceability became initially important and legal requirement in European Union (EU) countries. EU rules on identification and registration of bovine, porcine, ovine and caprine animals are laid down in Council Directive 92/102/EEC [1,8]. Actually, Albania, aiming to become an EU member, embarked the identification and registration for cattle and for small ruminants under of EU projects. While there is a good opportunity to cover the initial investment and implementation by EU assistance, it is important the

sustainability of the livestock traceability system in a long run. Therefore, the paper discusses how sustainability of the livestock traceability system, i.e. identification and registration system, can be possibly achieved when undergoing market oriented reforms, by giving consideration to the socio-economic and institutional conditions in the country.

2. Material and Methods

Information on the livestock traceability system in relation to the sustainability issues are reviewed. Information the livestock traceability system in the country has been given. The discussion has been seen in the light of the institutional reforms of the veterinary services of Albania aiming the EU accession.

2.1. What are Livestock Traceability Systems?

In terms of animal health and food safety, traceability can be defined as the ability to document/record all relevant – movements, processes, controls - needed to define an animal/animal product life history [4]. This means that in case of disease, the system can trace an animal even when sold to new owner, birth to slaughter and when it moves from country to country in order to identify the disease source and to timely taking the necessary control measures [5].

The main technological components described for the livestock traceability systems are mainframe computers to hold the respective databases, the reading digital devices to send details of animal movements from the farm to the central database and specifics elements of individuals identification [2,4,10,12,15]. The new technologies entering in the field of animal identification for ease of use and to avoid transcription error are applied to each above mentioned components. The specifics elements of individuals identification has been improved from the simple numbered eartag to the bar code eartag, injectable transponder and electronic bolus [2,12]. The reading digital device initiates communication and interprets the code. Softwares compile and collate

identification codes with other collected information. Central database records each individual on the system and identity documents (a passport) are issued to accompany the animal throughout life [2,4,10,12,15]. Due to advances in technology, livestock traceability is becoming more sophisticated and it is important to understand the sustainability aspects of livestock traceability system.

2.2. Considerations for Sustainability of Livestock Traceability System

Agenda 21 of United Nations (1992) [16] on sustainable development provide orientation for transfer of environmentally sound technologies: “*Environmentally sound technologies are not just individual technologies, but total systems which include know-how, procedures, goods and services, and equipment as well as organizational and managerial procedures. This implies that when discussing transfer of technologies, the human resource development and local capacity-building aspects of technology choices, including gender-relevant aspects, should also be addressed.*” FAO Council (1988) with regard to technology transfer for sustainable development refers that appropriate technology must be environmentally non-degrading, technically appropriate, economically viable and socially acceptable. With regard to livestock traceability system, main consideration for sustainability are the technical components, economic feasibility, social and institutional development where decision-making issues and tradeoffs may arise.

Different authors assess in the same time the technical and economic feasibility of the livestock traceability. IDEA (Identification électronique des animaux) project of European Union (EU) identifies the technical aspect important for electronic livestock traceability application such as application techniques, reading methods, transponder recovery techniques, reliability of the electronic identification devices, tamper-proof nature of the system, etc. [12]. The traceability systems developed in different countries are involving different implementation cost. The costs

range from U\$S 1 to U\$S 25, with an average of approximately U\$S 7 [3]. The total cost of the livestock traceability system is related not only to the identification devices (e.g. tags) but also maintenance cost. For example, a given identification device may be relatively inexpensive, but could require the animal to be restrained during application, thus increasing labour costs. Identification devices that are difficult and time-consuming to read may also increase labour costs. However, a more expensive device that can be read at a distance, without restraining the animal, may reduce labour costs. In modern systems, computerised records can expedite the data entry and retrieval process and help to reduce administrative costs [12]. Disney et al [5] provide a conceptual benefit cost framework for evaluating the economic usefulness of improved animal identification systems designed to reduce the consequences of animal diseases enabling faster traceback of infected animals, reducing the costs of government control for the intervention and eradication, minimising potential trade losses, etc.. Other studies from Saatkamp et al. [13] combine economic and epidemiological approach and indicate factors influential in economic decision-making with respect to livestock traceability such as economic losses of disease, frequency of its epidemics, operational costs of the system, etc..

Despite being fixed elements, traceability systems are complex. The new technologies applied to livestock traceability can facilitate the data exchange, record, retrieval and management. The establishment of a quality assurance service goes beyond the technical and economical viability aspects and requires organizational and institutional support. Changes in ownership and size of establishments are very frequent for certain species, production systems and countries. In some countries, herds move from one place to another (e.g. transhumance). The application of traceability systems depends on a series of factors, such as species, type of production, national legislation and livestock production customs [2]. Such system requires a consistent connection between multiple identification and registration

systems based on clear rules and procedures that all stakeholders (animal keepers, veterinary services, associations of farmers, breeding organizations, slaughterhouses, etc.) must follow, to assure the integrity of the entire system and to establish an efficient and effective one [2,4,19,20]. If procedures are not followed strictly, even by single participant or within limited geographical areas, the system could rapidly become invalid. In other words, the livestock traceability system, like a puzzle, requires that all the 'pieces' be present and in the right sequence, in order to show the complete final image [4]. The operation of an identification and traceability system depends to a great degree on the general operation of the Veterinary Services [7].

Therefore, the challenges to achieve sustainability demand new multidisciplinary approaches to decision-making and action which consider the analysis of technicalities, institutional and social-economic aspects and their interaction.

2.3. Understanding the Implementation of Livestock Traceability in Albania

EU funded projects of livestock traceability have been a great technology investment as well as related technical expertise has been committed in Albania. A Livestock and Veterinary Information System supported by a database called RUDA was built. RUDA is an application which enables livestock identification and registration and traceability. The model application is the client-server type. All the created, consulted and processed information are stored in RUDA database in a server and in the computer, independently in which network computer is created and modified. RUDA has two components Identification - Registration and Epidemiology. The national responsible unit of identification and registration ensures and coordinates the operative management of RUDA and assess the identification and registration at national level. The regional veterinary sectors contract the field private practitioner for the implementation of the identification and registration field activities. The

Regional Veterinary Sectors through the official veterinarians administrate the RUDA database in the district level which includes the data entry and data transmission. Private practitioners contracted from Regional Veterinary Sectors register the livestock farm which is in the territory of their activity, identify all animals in the livestock farm with numbered eartag and update the farm register according the regulations. Official veterinarians authorize the animal movement after the veterinary control. The farmer has the responsibility to communicate at the responsible unit of the Identification and Registration system (private practitioner and/or official veterinarian) related the newborn or the entry of an animal in the farm, ask the veterinary authorization for the animal movement, keep the farm register, keep the passport and allow veterinary control according to the related veterinary regulation.

When addressing the implementation of livestock traceability system in Albania, aiming to become an EU member, it is important an understanding also the socio-economic conditions and institutional developments. During the last decades the country faced political-economical changes of the transition from the state run economy to open market system. Livestock production continues to be divided between many small subsistence farms and few modern commercial farms. However, there is a need for exporting the livestock products to obtain income revenues. In the meantime, domestic livestock products is trying to compete with attractively imports from the Western countries despite the opening of international borders. Barriers for improved livestock production and export remain major livestock diseases which are causing economy losses, discouraging investment and sometime are wiping out the assets of families reliant on the animals for their survival. As far as related the institutional developments, the re-organisation reform of state veterinary service has been approached but the delivery of modern veterinary service needs to be achieved. Policy issues related public and private veterinary service partnership need to create effective veterinary

organizations. The clarification of the roles of public veterinary service and private veterinary service will simplify certain functions of veterinary service delivery. The development of private veterinary service is taken and confirmed by law but the service delivery needs to be consistent and improved. Improvement is needed in the operational components of veterinary service delivery and allocation of adequate human and financial resources.

3. Results and Discussion

The livestock traceability systems is important to support livestock disease control, improve livestock health and production and consequently improve livelihood of livestock farmers. Furthermore, the livestock traceability will be important to support programmes on food quality and safety. As a prerequisite for international trade, individual identification and traceability can facilitate the commercialization of animals and animal products and contribute to economic growth in the country. As part of EU negotiation for membership, Albania will be required to meet the existing European legislation and to develop EU integrated livestock traceability systems. EU regulations require a thorough system of identification and tagging of livestock to assure the ability to trace the animal back to the farm of origin. Actually, when addressing a sustainable livestock traceability system in Albania it should be characterize as manageable, accurate, liable and efficient to trace animal movement, animal health and production history on a continuing basis and in compliance with the EU technological standards. While it was a good opportunity to cover the initial investment and implementation on livestock traceability by EU assistance, it is important for Albania to support and improve the livestock traceability system in a long run. A sustainable livestock traceability system needs to be guided from economic rationale of its technology and to provide adequate service to all the livestock farmers. However, it is not clear how long it will take to Albania to implement and establish an efficient liable

livestock traceability system? As a matter of fact, due to constrain of human and financial resources the operational duties for livestock traceability are transferred to private practitioners. The advantage lies in the flexibility to better manage the human and financial resources by making use the existing network of private practitioners in the field. The livestock traceability fall into the category of public service and given the mandatory approach by EU Policy, it remains responsibility of the National State Veterinary Service to ensure proper financing and find mechanism for a sustainable service delivery in a long term. The livestock traceability systems are expensive and difficult to be implemented and maintained particularly with the existence of many small farms in the husbandry system and located in the remote areas. While more responsibility are given to the private veterinary sector due to privatization reforms, the EU regulations and other international standards require the strengthening of public veterinary services. Moreover, the service delivery will require to electronically upgrade the infrastructure, which should be ensured from the Veterinary State Service. When the Veterinary State Service cannot financially afford to improve and to electronically upgrade the infrastructure of the system, it may attempt to cost - recover from individual farmers. The cost recovery will be good incentive to ensure the financial sustainability for an effective traceability system. However, the question on sustainability remains how the demand of livestock traceability reflects the priorities of subsistence farmers which will be able and willing to pay. Therefore, a financial sustainability in practice may be a mixture of public and private financial elements. At least in some stages, the National Public Veterinary Service can follow a model of subsidized public provision for serving resource-poor farmers and cost recovery from the wealthy producers in order to achieve adequate provision of service for all livestock producers. This model can serve as an appropriate tool to support the subsidy schemes for all farmers that government applies in the framework of agriculture and rural

development. In the meantime, challenges on reliability and sustainability of livestock traceability system can be the potential fear on unwarranted intrusion into the private affairs of some livestock producers and transparency may cause difficulties to some livestock traders who might hide the origin of animals. Livestock producers' associations and breeding organization, benefiting from using the livestock traceability, can be involve to play an important role in the enforcement and sustainability of the livestock traceability system. However, ensuring efficiency and sustainability remains the responsibility of the National Veterinary State Service which needs to strengthen the institutional relationships with different stakeholders, organizational development and appropriate legislation and regulation.

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