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Продовольственная и
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Organización
de las
Naciones
Unidas
para la
Agricultura
y la
Alimentación

EUROPEAN COMMISSION ON AGRICULTURE

Thirty-sixth Session

Yerevan, Armenia, 11 and 12 May 2010

IMPROVEMENT OF RURAL LIVELIHOODS IN CENTRAL AND EASTERN EUROPE AND THE COMMONWEALTH OF INDEPENDENT STATES THROUGH SUSTAINABLE IMPROVEMENTS IN LIVESTOCK PRODUCTION

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I. INTRODUCTION

1. The transition process from central planning to market economies resulted in fundamental changes of the livestock sector in the Europe and Central Asia region. The forced privatization and restructuring process and the decline of consumer purchasing power in the first transition years brought a dramatic decline of livestock investment, inventories and production in the region. Animals were transferred from large state and collective farms to many private households in the 1990s. Negligible investment and low inputs into the livestock production systems characterize subsistence or semi-subsistence forms of production which became essential for many families in rural areas to survive and to complement their small and insecure wages or pensions.
2. A stabilization process of livestock production has been observed in several countries during the last decade since the overall economic development prompted an increase in demand for food products. Market opportunities led to the modernization of milk and meat processing units and expanded the market for local products. However, the livestock sector in many countries is still dominated by small farm households and many challenges to improve productivity, biosecurity and integration in the formal agrifood market chain remain. Promoting sustainable livestock development is important to cover the growing demand for animal products and to utilize the potential of rural areas. Livestock could play a vital role in rural economic development.
3. The fundamental changes in the livestock sector are of great importance for rural livelihoods, as one of the main causes of low rural incomes is low livestock productivity, particularly in Central Asia, the Caucasus and Southeast Europe. Measures to improve animal production will increase not only the aggregated output of the single farm but also the productivity of the inputs used. Labour productivity is one of the most important criteria for competitive animal production in the development process.
4. Very often simple technological improvements in feeding, nutrition and husbandry or disease control have significant effects in raising product output. Frequently, the feed consumption and feeding costs per unit milk or meat can be reduced significantly by a better feeding regime in line with the specific requirements of the animals. The feed conversion ratio is a very important criterion particularly for the competitiveness of poultry and pigs which are predominantly fed with grain.
5. Increased carcass and milk yields have positive effects on the generation of savings in rural households for investments in further farm development or other activities. Over time, improvements in the yields of livestock might also stimulate labour demand in local processing and marketing activities, particularly in areas near urban centres.
6. Improvements in livestock productivity will vary among regions with differences in resource endowments, demographic characteristics, marketing opportunities and labour supply and demand. Impacts should be such that poor households gain opportunities to improve their livelihoods by generating greater output per unit of owned livestock, land and labour, or by earning greater wages for the labour they provide to others.
7. This paper presents major problems for the sustainable livestock development in the region and suggests policy measures that could be a focus of government attention and upcoming support from the Food and Agriculture Organization of the United Nations (FAO). Five groups of countries in the entire region will be analysed and compared. Due to the compact format of this paper not all the countries could be analysed and also not all analysed countries have the same in-depth review.

II. LIVESTOCK DEVELOPMENT ISSUES IN EUROPE AND CENTRAL ASIA BY GROUP OF COUNTRIES

8. The specific livestock development issues differ from country to country. However, within the region countries with similar development profiles can be grouped by subregions. For the purposes of this paper the Europe and Central Asia region is divided into five subregions. This subdivision is only for analytical purposes and does not imply any political or economic grouping by FAO. Table 1 illustrates some of the structural differences between the five subregions chosen for analysis of livestock development issues. A short summary of the main development issues by subregion follows.

Table 1: Livestock structural indicators¹

Indicators by Sub-region

| Indicator | unit | Sub-region | | | | | | | | | | | | | | | | | | | |
|---|-----------------|-------------------|----|---|---|--------------------|----|---|---|-------------------|----|---|----|-----------------------|----|----|----|------------------------|----|----|---|
| | | 1 Central Asia | | | | 2 Transcaucasus | | | | 3 European CIS | | | | 4 EU CEE Countries | | | | 5 South East Europe | | | |
| contribution of agriculture to GDP | % | 15 (7-28) | | | | 13 (10-21) | | | | 6 (5-18) | | | | 6 (2-11) | | | | 11 (7-13) | | | |
| % of labor in agriculture | % | 23 (16-32) | | | | 20 (11-25) | | | | 10 (9-20) | | | | 13 (1-20) | | | | 17 (4-46) | | | |
| % grassland as a portion of agricultural land | % | 89 | | | | 65 | | | | 39 | | | | 27 | | | | 37 | | | |
| Milk production per cow and year* | kg/cow *year | 1600 (700-2200) | | | | 1400 (1000-2000) | | | | 3500 (2800-3900) | | | | 5300 (3300-6900) | | | | 2700 (2200-3700) | | | |
| % of cattle/small ruminants/hogs/poultry of total livestock units | % | C | SR | H | P | C | SR | H | P | C | SR | H | P | C | SR | H | P | C | SR | H | P |
| | | 74 | 22 | 1 | 3 | 75 | 18 | 1 | 5 | 70 | 6 | 9 | 15 | 63 | 6 | 16 | 14 | 61 | 16 | 15 | 9 |

C = Cattle; SR= small ruminants; H= Hogs; P=Poultry

* Estimation for the sub-regions; based on country average; source: FAOSTAT

A. CENTRAL ASIA

9. In Central Asia 63 percent of total land or 89 percent of total agriculture land is under permanent pastures. This varies very much from mountainous parts in the Kyrgyz Republic to rather dry areas in Kazakhstan. Central Asia has 11.24 ha of pasture available for one cattle unit (the corresponding figure in the Caucasus is 1.21 ha).

10. The development of the cattle population shows two trends: in Kazakhstan, Kyrgyzstan and Tajikistan the number of heads dropped from the year 1992 to 2000 but has more recently recovered. The numbers in Kazakhstan have yet to reach those of the Soviet era. In Kyrgyzstan and Tajikistan the cattle sector recovered and head numbers came close to the previous level or

¹ Central Asia: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan

Transcaucasus: Armenia, Azerbaijan and Georgia

Other CIS: Belarus, Republic of Moldova, Russian Federation and Ukraine

European Union CEE: Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia

South East Europe: Albania, Bosnia and Herzegovina, Croatia, Kosovo, Montenegro, Serbia and The former Yugoslav Republic of Macedonia

even surpassed it. In Turkmenistan and Uzbekistan, there has been a constant growth since 1992. However, the overall cattle population in Central Asia has remained at the 1992 level.

11. Milk production per cow and year in kilograms is still very low (2007): Kazakhstan, 2 205; Kyrgyzstan, 2 047; Tajikistan, 705; Turkmenistan, 1 368; and Uzbekistan, 1 697. In Tajikistan, yields per cow are low because of limited availability of fodder. Although enough summer pasture is available, there is a shortage of winter pasture. Limited pastures require good and strict pasture management to allow grazing (and avoid overgrazing) and fodder production. Pasture regulations and control should be improved and the operational management transferred to local pasture user associations. Being in charge of their own land, livestock keepers feel ownership which must be considered as key for successful pasture management. Besides appropriate pasture management farmers have to become trained in animal feeding, fodder production, market access and other relevant topics.

12. The overall sheep population decreased from 59 million heads in 1992 to about 44 million in 2007. This is mainly due to the sharp decrease of sheep inventories in Kazakhstan, as the country was the centre of the Soviet era sheep production.

Table 2: Development of Sheep Inventories in Central Asia

| Country | 1992 | 2000 | 2007 |
|--------------|------------|-----------|------------|
| Kazakhstan | 33 908 000 | 8 725 400 | 12 813 700 |
| Kyrgyzstan | 9 225 000 | 3 263 830 | 3 197 067 |
| Tajikistan | 2 484 200 | 1 472 200 | 1 955 200 |
| Turkmenistan | 5 380 000 | 7 500 000 | 15 500 000 |
| Uzbekistan | 8 274 500 | 8 000 000 | 10 383 000 |

13. The number of goats more than doubled between 1992 and 2007 to 7 536 423 heads, pigs dropped from 4 352 500 to 1 507 239 (probably also due to cultural reasons) and chicken inventories are currently at around 50 percent (66 million) of the all time high of 120 million.

14. The epizootic situation is characterized as endemic or with high risks of re-emergence of transboundary animal diseases and zoonoses. In particular, foot-and-mouth disease (FMD), peste des petits ruminants (PPR), brucellosis and diseases caused by endo- and ecto-parasites are placing constant pressure on productivity, resulting in the death of animals or illness leading to slaughter, and reducing the reproductive and work capacity for ploughing and transport.

15. The current trend is therefore characterized more by expansion of livestock numbers rather than by an increase in productivity. If this trend continues, it will put increasing pressure on the available feed resources, even assuming substantial progress in feed conversion efficiency.

16. Animals are often kept on public ground or illegally on state farms or other farmers' private land. In this situation there is no regulation of how many animals should be kept per hectare and consequently, overgrazing occurs. The lack of fodder, especially during harsh winter periods, is significantly hindering the improvement of the livestock sector.

17. In Central Asia, traditional forms of nomadic pastoralism were widely practised, especially in Kazakhstan and Kyrgyzstan. Nomadic pastoralism was sharply reduced during Soviet times but is currently gaining in importance. The most widespread form is a semi-nomadic pastoralism, characterized by the fact that during winter and spring animals graze on fixed grassland where houses, shelters and water points are provided, while during summer and autumn, animals graze in different pastures. Parts of the pastoral households are settled somewhere on their leased pastures and may use their own grassland with yearly rotation. Pastoralism is also

very much affected by access to land. Land ownership in Central Asia differs across states. Kazakhstan and Kyrgyzstan recognize private ownership of agricultural land. In Tajikistan, Turkmenistan and Uzbekistan, all land remains de facto state owned and is transferred to farmers under land use rights. Finally pastoralism is one of the reasons why the processing industry (especially for milk) plays a minor role: a daily collection system could only function if animals do not move. The situation can be different for the meat sector as there are cases where animals are fattened on various summer pastures and then walked back to the slaughterhouses.

18. Agricultural extension services are underdeveloped, especially in terms of provision to smallholders. Veterinary services still exist to a certain extent with the remaining state farms as long as they still keep livestock, but these are generally weak. On the other hand some efforts can be seen, for example in Kyrgyzstan, where a system of enforcing registration and animal identification to facilitate movement control is being developed. Setting up such data bases necessitates strong support services. Both, public and private veterinary services should be improved by number of personnel, transport facilities and technical equipment to implement an appropriate veterinary information system and to improve services to livestock farmers and animal health surveillance.

B. TRANSCAUCASUS

19. Armenia, Azerbaijan and Georgia are characterized by a high ecological diversity, high rainfall and subtropical climate near the Black Sea and a dry and continental climate at the Caspian Sea and in the eastern plains. In the highlands a continental alpine climate prevails with hot summers and cold winters. The extensive land cultivation over recent decades has resulted in reduced land productivity and erosion, and has led to the abandonment of some areas on hillsides.

20. Grasslands cover approximately 60 percent of the Caucasus' total agricultural area. They can be found at altitudes of 3 500 metres down to the sea level and pastoralists have developed strategies to maximize milk, meat, wool, dung and transport from these fragile environments that are not suited to agricultural intensification.

21. In Azerbaijan, more than 3 million heads of sheep, goats and young cattle are taken every year to summer pastures to graze for 100-120 days from May to September. Winter pastures, with a total area of 1.7 million ha are considered an indispensable cheap fodder resource for nomadic cattle and sheep. Over the last few years many traditional movements of animal herds between seasonal grasslands have been reduced or eliminated. The new management practice with heavier grassland use has negative ecological effects. Over 80 and 86 percent respectively of the grassland of Georgia and Armenia are degraded. Some 50 percent of total pastures and rangeland in Azerbaijan are subject to degradation. Winter pastures and their genetic resources are eroding. There are no policies regulating overgrazing and bad management practices such as cultivation of fragile soils.

22. Between 2000 and 2007 the cattle inventory grew by around 30 percent; the exception is Georgia where it dropped by 5 percent. From 1992 to 2007 the overall cattle population in the Transcaucasus increased by 16 percent. In almost all countries cattle (mainly the Caucasus Gray cattle) are used both for meat and dairy production. The Caucasus Gray cattle breed is very well adapted to local conditions. Currently cattle are often fed inadequately to achieve their genetic potential of more than 2 000 kg/cow/year. However, the systematic selection of breeding animals for further genetic improvement of local breeds, a breeding programme and the extension of artificial insemination services are important for the future development of livestock performance and the health and productivity of livestock business.

23. Milk production in this group stands at around 1 400 kg/cow/year. Due to the limited number of cows per household and owing to limited product market access, a large part of the milk is used for self-consumption; in Armenia this average figure is above 50 percent, the reasons for this are that dairy farms are usually located in remote, small rural communities with poor road

infrastructure. Limited milk volume does not encourage the establishment of milk collection networks with cooling facilities and therefore, these milk farms have almost no access to commercial milk collectors and processors.

24. Limited processing capacities of local dairies and liberalized trade regimes, especially in Georgia, combined with a lack of food inspection systems at border level, enabled additional import of all kinds of products including milk.

Table 3: Development of Sheep Inventories in Caucasus

| Country | 1992 | 2000 | 2007 |
|------------|-----------|-----------|-----------|
| Armenia | 1 000 000 | 505 580 | 589 972 |
| Azerbaijan | 5 098 500 | 5 279 690 | 7 290 590 |
| Georgia | 1 411 000 | 553 300 | 698 800 |

25. With regard to the sheep population, there was an increase from about 7.5 million (1992) to 8.5 million in the Caucasus (2007). The inventories in Azerbaijan have been increasing whereas the head counts in Armenia and Georgia have dropped significantly. The overall number of goats increased constantly from 275 750 (1992) to 713 131 (2007) as goats are also well adapted to Transcaucasus growing conditions.

26. Land from the former collective and state farms in all three countries was distributed to farm members or rural citizens free-of-charge or for a very small sum of money. Armenia, Azerbaijan and Georgia recognize private land ownership. Armenia and Azerbaijan prioritized privatization and farm break-up and accomplished them simultaneously, while Georgia has accomplished both to a significant degree. The land privatization in the Transcaucasus led to fragmented small plots and the average farm size is between 1 and 2 ha. The land structure is a real challenge for the commercialization of livestock production and attracts investors in milk and meat processing.

27. Along with the privatization of land and agricultural enterprises, the role of government in the agricultural sector has been reduced dramatically. Support services, especially in Georgia, have taken a very liberal course towards a market economy and the approach is that the market should regulate itself. The former public livestock service has been abandoned almost completely but very few private service providers filled the gap as the small-scale farmer cannot afford advisory services. As long as farmers cannot pay for support services, the government should facilitate and subsidize the extension and veterinary services. The risk of incursion and spread of FMD from neighbouring FMD endemic countries remains high; in addition African Swine Fever (ASF), Classical Swine Fever (CSF), anthrax and brucellosis are the major livestock health issues for Transcaucasus countries.

C. OTHER COMMONWEALTH OF INDEPENDENT STATES (CIS), BELARUS, THE REPUBLIC OF MOLDOVA, THE RUSSIAN FEDERATION AND UKRAINE

28. During the past 20 years of transition a dramatic decline of livestock inventories took place in Belarus, the Russian Federation and Ukraine. For example, the total number of dairy cows decreased in the Russian Federation from 20.8 million in 1989 to 9.3 million in 2008. Even more drastic developments regarding livestock inventories can be observed in Ukraine.

29. Many large state and collective farms were liquidated in the first transition years and animals were slaughtered or transferred to or bought by private households. Only a very few

private entrepreneurs in rural areas established peasant farms and bought animals from collapsing state or collective farms.

30. Currently, the livestock sector is dominated in this subregion by a dual structure of many subsistence farm households and a relative small number of large-scale commercial farms. Household farms mostly have reasonable yields per animal with capital extensive and labour intensive production technology. Most smallholders previously worked in other jobs and therefore received no formal training in modern animal husbandry. However, this low cost livestock production system was, and still is, very important for many poor households in rural areas in the four countries, particularly to survive with low wages or pensions, to supply families with food of animal origin and to provide a capital reserve against risks. A key challenge for the further development of the smallholder livestock subsector is the integration in the formal agrifood chain.

31. In the Russian Federation nearly one third of the demand for milk and meat products was covered by imports in 2008, while a large part of production potential remains poorly utilized. Although the decline of livestock inventories in Ukraine was even more drastic, Ukraine is still an export country for milk and meat products as it was traditionally. In the mid-1990s, Belarus started support measures for stabilizing and modernizing former large agriculture enterprises. Therefore, the decline of livestock production in Belarus was less drastic than in the Russian Federation and in Ukraine. The smallest country in this group, the Republic of Moldova, historically had few large state and collective livestock farms. Sheep and goat production is still very important and more stable in the Moldovan livestock sector.

32. Stabilization of livestock production in this group of countries has been observed over the last decade as the overall positive economic development resulted in an increasing demand for food products. Also the strong devaluation of the Rouble in the Russian Federation in the late 1990s improved the competitiveness of domestic livestock production. Investments in the modernization of livestock production began in the Russian Federation, continued in Belarus and a couple of years later started also in Ukraine.

33. In 2005/2006 the Russian Federation initiated with a National Support Programme to increase livestock production in order to achieve better self-sufficiency in milk and meat and to support employment in rural areas. Until 2008 the support measures for the livestock sector focussed mainly on the modernization of large-scale production enterprises and processing units. Since 2009 the support for “peasant model farms” has also been part of the programme. In the period 2006-2008 the state subsidies and growing market demand for milk and meat products stimulated continued investment (e.g. financial support for the purchase of improved animals from abroad, investment in modern housing and milking technology, etc.). In the Russian Federation the average milk yield per cow and year increased from about 2 300 kg 20 years ago to nearly 4 000 kg in 2009. Similar base levels and trends can be observed in the milk yields per cow in Belarus and Ukraine.

34. In addition, the poultry sector, which is more in the hands of large enterprises, has developed quite well in the Russian Federation and Ukraine over recent years. Investments took place in modern production technology (mostly capital intensive-labour extensive production systems). Self-sufficiency in poultry meat is expected to reach more than 85 percent in the Russian Federation in 2012.

35. In 2009 the global economic and financial crises led to a strong decline in producer prices for milk and some other livestock products and led to retardation of the further modernization process of the livestock sector. However, a recovery is expected in 2010. In the Russian Federation the National Support Programme to increase livestock production will continue over the coming years at least until 2012. Special attention is also now given to beef production.

36. Although smallholder farms and household production have presented a large part of all meat and milk production to date, in this subregion, the state support to these producers has been

very limited. At the political level discussions began recently in the Russian Federation in order to establish specific farmers' markets especially devoted to these producers and to support the development of family farms with dairy cows.

37. With regard to animal health, the major issues are CSF, bovine leucosis and Highly Pathogenic Avian Influenza (HPAI). The most recent outbreaks of ASF in the Russian Federation confirm the high threat of ASF incursion to neighbouring countries and the need for vigilance of veterinary services for early detection and early response to this exotic disease.

D. NEW EUROPEAN UNION MEMBERS (EUROPEAN UNION CENTRAL AND EASTERN EUROPEAN COUNTRIES)

38. The majority of the European Union Central and Eastern European countries which are now members of EU-27, have already undergone substantial livestock sector restructuring during the last 20 years, especially in Central Europe and the Baltic States. A sharp decline in both animal inventories and meat and milk production occurred during the early years of the transition. In most countries, except in the Czech Republic/the Slovak Republic and in parts of Hungary where large units were maintained, the farm structure changed to large numbers of small-scale households/farms as in CIS countries.

39. However, the dimension of decline of animal production during the first decade of transition was different in the European Union Central and Eastern European countries depending on the historical structure of farming, the base level of productivity and comparative advantages for milk and meat production with different animal species, the framework for privatization and modernization and many other factors. Some countries moved more quickly to liberalize markets and privatize state property, creating in this way a friendlier environment for foreign investment and know-how transfer in livestock production and processing.

40. Farm types differ greatly between European Union Central and Eastern European countries in terms of size, objectives and methods. Many farms in Bulgaria, Hungary, Poland, Romania, Slovenia and the Baltic States are very small, family-owned entities focusing on subsistence traditional labour-intensive farming methods. In contrast to the grazing livestock sector, the majority of pig and poultry production is in the hands of large business units producing primarily for commercial sale and using advanced capital-intensive methods.

41. Since 2000 the economy recovered in many countries and investments in the modernization of the livestock sector increased. With the help of European Union co-financed Special Accession Programmes for Agriculture and Rural Development (SAPARD), the modernization process of the whole value chain of the livestock sector progressed significantly in the ten countries which joined the European Union in 2004. Investments took place to modernize milk processing units and slaughterhouses and to introduce modern technologies on livestock farms. Strong pressure was exerted for raising the standards to comply with European Union regulations and the new European Union support system with emphasis on food safety, animal welfare and environmental stewardship. Beside better conditions for animal husbandry through investments in new equipment, many livestock farms improved the performance of their animals by continued introduction of better animal genetics from abroad and by better fodder production and feeding systems (e.g. new varieties of fodder crops, improved forage conservation technologies and feeding management).

42. Whereas many large livestock farms have progressed very well with livestock development during the last years, the majority of small-scale livestock farms have participated very little in the recent development process. Several countries developed and implemented successful approaches for microcredits and other activities focused on small- and medium-scale livestock farms with potential for further business development. For example, small milk producers invested in milk cooling equipment and refrigerated storage for raw milk or established producer groups to organize better access to food processors and urban markets. Several milk

processors established the milk collecting centres in villages to improve milk quality of small dairy farms. Problems remain but in many countries efforts are being made to encourage the further amalgamation of small herds into medium-sized farms which have a sustainable commercial future. Integrated approaches were necessary to achieve expected results (including vocational training, extension and consultancy, financial support, access to market information and markets, etc.).

43. For small producers, the raising of their standards to comply with European Union regulations has been a difficult task and all countries show a substantial decline in the numbers of producers in this category since the turn of the century. In Estonia, Hungary and Latvia, the number of herds with five or fewer cows has more than halved since 2000.

44. The milk yield which was on average about 5 300 kg/cow/year in the new European Union Member States in 2007, is significantly lower than that in the EU-15 which was around 6 600 kg. Nonetheless, the average in the European Union Central and Eastern European is rising more rapidly than that in EU-15 as they modernize and adopt European Union standards. In 2003 the average milk yield of the European Union Central and Eastern European at 4 536 kg/cow/year was only 72 percent of that of the EU-15 6 275 kg/cow/year as compared with 77 percent of the EU-15 average now. As the farm structure evolves towards larger farms and as good husbandry practice becomes more universal, the increase in average yields can be expected to continue.

45. Bulgaria and Romania, which joined the European Union later in 2007, still have very small livestock farms and yields of less than 4 000 kg/cow/year. The livestock situation there is currently more similar to the Southeast European countries.

46. The quota system allocates two "national reference quantities" to each Member State, one for deliveries of milk to dairies, and another for direct sales of milk and dairy products. If either quota is exceeded, a levy is payable to the European Union budget. The level of milk quota is a problematic issue in many new European Union countries. In the Czech Republic and in Poland, the national milk quota is a serious barrier to the further development of the dairy sector. While the total output of the Polish dairy industry is approximately 12.0 million tonnes, the output allowed under the national milk quota is only 9.2-9.4 million tonnes, which means that only about 75 percent of the output is commercially utilized. The European Union has agreed to retain the milk quota system until 2015, after the end of the current Common Agricultural Policy reform.

47. The consumption of milk and milk products in new European Union Member States is relatively low compared with EU-15 and is tending to further decrease. Other issues are volatile prices for raw milk and constantly increasing production costs (feedstuffs, energy, fertilizers, etc.).

48. Although livestock production has been contributing to poverty reduction in rural areas during the transition process, there are good reasons to believe that future economic development in rural areas in this subregion will rather come from outside the agricultural sector while agriculture will continue to play the role of a social safety net.

49. CSF, HPAI and Newcastle Disease are major transboundary animal diseases in this group of countries.

E. SOUTHEAST EUROPE (ALBANIA, BOSNIA AND HERZEGOVINA, CROATIA, KOSOVO, MONTENEGRO, SERBIA AND THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA)

50. Countries of this group in general have good natural conditions for agriculture and especially for livestock production. However, the potential is marginally utilized. Albania has the most difficult structure in this group.

51. Apart from poultry production, livestock is mostly kept on small-scale mixed family farms focusing on semi-subsistence production. Consequently productivity levels are very low, due to the lack of capital needed to modernize and raise production and productivity. The production on such farms tends not to enter the formal market chains. This is especially the case on cattle, sheep and goat farms. In 2007 milk yields ranged from 2 192 kg/cow/year in Albania to 3 655 kg in Croatia. However, structural change has started in recent years. Several small mixed livestock farms are now undergoing a transition to commercial orientation. Commercially oriented livestock farms can soon receive support through the European Union Pre-accession Instrument for Agriculture and Rural Development (IPARD).

52. Apart from Serbia, self-sufficiency for meat is at a low level, down to 60 percent in Bosnia and Herzegovina. Self-sufficiency for milk was achieved in Serbia (2007) whereas the other countries are net importers. The total number of livestock heads kept in the former-Yugoslavian countries has decreased significantly over the last two decades while the total number of pigs has slightly increased. Due to the enhancement of productivity, the total production of milk has increased by more than 10 percent since 1992.

53. Poultry production, and to a lesser extent pig production, tends to be mostly vertically integrated, with single businesses usually organizing every stage from rearing to delivery to retailers and with movement of live animals kept to the minimum. In contrast, beef and veal may have several distinct stages in both their production and distribution handled by different businesses, often necessitating significant movements and transportation of live animals. In locations where semi-subsistence farming is predominant, very little in the way of supply infrastructure has been developed.

54. In Albania, the majority of cattle is kept in the lowlands and the majority of small ruminants in the highlands, where they graze on the extensive mountain pastures during the summer months.

55. An important problem in Albania and also in some neighbouring countries is the weak technical and administrative capacity of public veterinary services to effectively implement their animal disease surveillance and control programmes. They are also constrained by the limited capacity of the private veterinary sector. While there are a sufficient number of private veterinarians in rural areas, they are under-resourced and frequently lack the transport and equipment necessary to carry out vaccination and screening activities.

56. Insufficient funding for disease control programmes has led to a deteriorating animal health situation in Albania. Due to its proximity to the European Union and the relatively open nature of its borders, the weakness of veterinary and phytosanitary controls is of particular concern for ensuring the biosecurity against transboundary animal and zoonotic diseases such as CSF, bluetongue, and brucellosis.

57. In summary, these countries are facing similar structural problems: low capital intensity results in low productivity, relatively high production costs and low profitability which in turn prevent the accumulation of capital to finance investment, thus perpetuating the low production and productivity levels. In the processing sector few establishments currently meet European Union standards in food safety hence they are handicapped by not being able to export to the European Union Member States.

III. RECOMMENDED POLICY MEASURES

58. The following important measures are suggested by the authors to improve livestock yields and livestock sector development. Annex 2 summarizes a list of already mentioned challenges for the sector development and their immediate importance in the five country groups (severe, middle, low, no priority). Although most challenges are relevant somehow for all countries, the importance and urgency of interventions are different in the five country groups,

especially if Central Asia and the Transcaucasus countries are compared with the more developed European Union Central and Eastern European countries in the north.

59. Worldwide experience has demonstrated that sustainable progress in livestock sector development depends largely on integrated approaches which take into consideration many relevant activities of the whole value chain. An approach which integrates improvement of feed and fodder levels, advice and other activities to improve breeding and the husbandry and animal health situation as well as access to inputs, credit, market information and markets are important to achieve sustainable development of livestock farms.

60. Policy measures and instruments to improve the situation with regard to the most immediate problems are presented in Annex 1. Central Asia and the Transcaucasus as well as the European Union Central and Eastern European and Southeast European subregions are summarized as the situation and the most immediate problems have many similarities. A list of recommendations directed to FAO for support can be found at the end of Annex 1.

ANNEX 1

Recommended policy measures for countries in Central Asia and the Transcaucasus

| Important problems for further livestock sector development | Impact | Policy measures and instruments to improve the situation |
|--|---|---|
| <ul style="list-style-type: none"> • Lack of regulations and control mechanism on pasture management • Degradation of grassland • Limited land access • Deficit in fodder supply particularly in the winter period | <ul style="list-style-type: none"> • Overgrazing • Low livestock yields • Low productivity • Low income | <ul style="list-style-type: none"> • Improve legal framework of regulations, control mechanism and responsibilities for sustainable pasture management • Support the foundation of pasture user associations at local level by providing information, guidance, technical assistance and training • Transfer management and control of pasture land to local responsibility with regional/national overall monitoring and guidance • Support livestock farmers in the country with information and group advice on sustainable pasture management, knowledge of fodder production and animal feeding and provide tools and advice for planning fodder balance for the flock |
| <ul style="list-style-type: none"> • Low access to markets in rural areas | <ul style="list-style-type: none"> • Predominance of subsistence production • Low income • Stagnation in rural areas | <ul style="list-style-type: none"> • Improve the overall infrastructure in rural areas (transport, communication, etc.) • Provide public support for the establishment of small milk processing units in rural areas through information, public awareness and financial support • Support investment in milk cooling and storage facilities by financial support measures and advice • Encourage the agroprocessing industry to utilize the potential of rural areas by private/public initiatives for livestock development including financial support • Provide group advice and training to farmers to improve the utilization of animal by-products (coat, skin, etc.) for marketing |
| <ul style="list-style-type: none"> • Insufficient support services for small livestock farms in place | <ul style="list-style-type: none"> • Predominance of subsistence production • Low productivity • Low income | <ul style="list-style-type: none"> • Improve and subsidize extension and information services (e.g. training of staff, transport means, extension methodology and tools for group advice) • Improve veterinary services with better equipment, organizational structure and implement an animal identification and registration system and holding register • Increase use of relevant vaccines and antibiotics by public support |
| <ul style="list-style-type: none"> • Lack of | <ul style="list-style-type: none"> • Low | <ul style="list-style-type: none"> • Develop or update livestock sector development |

| | | |
|-----------------------------|---|--|
| consistent livestock policy | productivity <ul style="list-style-type: none">• Low income in rural areas• Production and marketing potentials unutilized | strategy supported by technical assistance of international organizations (FAO, World Bank, Asian Development Bank, European Union) <ul style="list-style-type: none">• Carry out feasibility studies on specific challenges• Organize regional workshops to create awareness in the country on problems and solutions for livestock sector development• Increase agriculture budget to support livestock sector development |
|-----------------------------|---|--|

- Recommended policy measures for other CIS

| Important problems for further livestock sector development | Impact | Policy measures and instruments to improve the situation |
|---|---|--|
| <ul style="list-style-type: none"> • Low quality of animal breeding services | <ul style="list-style-type: none"> • Limited progress on livestock yields • Low productivity | <ul style="list-style-type: none"> • Enforce further privatization and modernization of livestock breeding centres in the region and extend services (breeding associations, artificial insemination, advice) • Intensify the cooperation with foreign breeding organizations and services |
| <ul style="list-style-type: none"> • Insufficient support of smallholders with extension and veterinary services | <ul style="list-style-type: none"> • Low productivity and progress of smallholders • Low income | <ul style="list-style-type: none"> • Improve and subsidize extension and information services (e.g. training of staff, transport means, extension methodology and tools for group advice) • Improve veterinary services with better equipment, organizational structure and implement animal identification and registration system and holding register • Increase use of relevant vaccines and antibiotics through public support • Support local private veterinarian offices to update knowledge and equipment |
| <ul style="list-style-type: none"> • Low access of small-scale farms to markets in rural areas | <ul style="list-style-type: none"> • Subsistence production • Low income • Stagnation in rural areas | <ul style="list-style-type: none"> • Improve the overall infrastructure in rural areas (transport, communication, etc.) • Support the establishment of specific farmers' markets in rural areas • Support investment in milk cooling and storage facilities by financial support measures • Encourage the agroprocessing industry to utilize the potential of rural areas by private/public initiatives for livestock development • Support the creation of producer groups at local/regional level by technical assistance, guidance and financial support for start up activities |
| <ul style="list-style-type: none"> • Low forage production and feeding technology | <ul style="list-style-type: none"> • Low productivity and progress • Low income | <ul style="list-style-type: none"> • Introduction of improved maize, alfalfa and grass breeds through international cooperation • Improve fodder production, forage conservation and feeding management by vocational training and extension activities |

Recommended policy measures for new European Union (Central and Eastern European) countries and particularly Southeast European Countries

| <ul style="list-style-type: none"> • Important problems for further livestock sector development | <ul style="list-style-type: none"> • Impact | <ul style="list-style-type: none"> • Policy measures and instruments to improve the situation |
|--|---|--|
| <ul style="list-style-type: none"> • Land fragmentation • Land registration and cadastral not completed • Insufficient farm structure | <ul style="list-style-type: none"> • High costs of farm mechanization • Limited collateral to achieve access to credits for further farm modernization • Low working productivity | <ul style="list-style-type: none"> • Enforce the land consolidation process by public programmes • Finalization of land cadastral and land registration issues • Facilitate structural changes by specific credit programmes for growing livestock farms • Implement specific programmes to support small- and medium-sized farms with commercial future (specific credit programmes) |
| <ul style="list-style-type: none"> • Low access to markets in rural areas | <ul style="list-style-type: none"> • Subsistence production • Low income • Stagnation in rural areas | <ul style="list-style-type: none"> • Support the establishment of producer groups by technical assistance and vocational training activities • Support investments in milk cooling and storage facilities • Support activities to increase milk and meat hygiene by investment in modern laboratory equipment and networks • Upgrade the capacity of public and private veterinary services to effectively implement animal disease surveillance and control programmes by specific technical assistance and capacity-building programmes, promotion of international cooperation, private-public partnership, and advocacy for appropriate state budget support and investments in veterinary services. |
| <ul style="list-style-type: none"> • High European Union standard on food safety, animal welfare and environment protection | <ul style="list-style-type: none"> • High competition of well developed European Union Member States • Necessary investments are increasing production costs • High pressure for production and processing units to modernize the business | <ul style="list-style-type: none"> • Upgrade organizational structure, procedures and equipment for raw milk quality monitoring to provide farmers with instruments and services to improve raw milk quality • Provide specific grants and technical assistance to improve storage of manure and silage • Provide vocational training and consultancy support to small- and medium-sized farms with commercial future on European Union standards • Support animal production and processing sector to modernize livestock farms, milk processing and slaughterhouses (IPARD programme) • Encourage the further development of |

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| | | associations in animal production and the processing sector as important organizations to disseminate knowledge and skills to implement European Union standards |
| <ul style="list-style-type: none"> • Weak technical and administrative capacity of veterinary services | <ul style="list-style-type: none"> • Animal diseases | <ul style="list-style-type: none"> • Upgrade the capacity of public and private veterinary services to effectively implement animal disease surveillance and control programmes by specific technical assistance and capacity building programmes, promotion of international cooperation, private-public partnership, and advocacy for appropriate state budget support and investments in veterinary services |

Recommendations directed to FAO to support further livestock sector development in close partnership/harmonization with partners (European Union, World Bank)

- Organize platforms to support the regional and subregional exchange of experience focused on livestock sector development in the entire region by workshops, conferences and seminars on specific topics (topics for example: organization of milk collection and cooling centres, marketing of livestock products, improved animal breeding approaches, animal identification/traceability schemes, services of animal breeders' associations, experience with extension and advisory services for livestock farms, etc.).
- Preparation and dissemination of brochures or handbooks on improved production and marketing approaches focusing on small-scale livestock farms.
- Offer vocational training activities for staff of extension and advisory services in the countries of the region focused on livestock sector development issues.
- Carry out feasibility studies to identify specific regional challenges and opportunities to improve production, marketing, services, environment and policy issues related to livestock sector development in different countries of the region.
- Provide information on European Union legislation, standards and programmes for the livestock sector.
- Support the national/regional animal disease surveillance and control programmes and epidemiological and laboratory networking on important animal diseases in the region (FMD, ASF, CSF, brucellosis, etc.) under existing agreements (European Commission for the Control of Foot-and-Mouth Disease [EUFMD]; Global Framework for Progressive Control of Transboundary Animal Disease [GF-TADs] for Europe).
- Assist implementation of the World Trade Organization (WTO) Agreement on the Application of Sanitary and Phytosanitary Measures.
- Assist countries in preparation of national strategies and action plans for animal genetic resources in line with the Global Plan of Action on Animal Genetic Resources and update of national breeding strategies for characterization, conservation and sustainable management of animal genetic resources.
- Recognize and protect livestock's safety-net function for the very poor.
- Technical assistance to consider market-based policies, such as taxes and fees for natural resource use or payments for environmental services to ensure that livestock production is carried out in a sustainable way.
- Support to increase investments in national animal health and food safety infrastructure to reduce the risks of animal diseases to humans.

ANNEX 2

Challenges for livestock sector development and their immediate importance

| Challenge | Central Asia | Caucasus | Other CIS | EU CEE Countries | Southeast Europe |
|--|-------------------------|-----------------|----------------------|-----------------------------|-----------------------------|
| Limited land access | Middle | Severe | Low | Low | Middle |
| Lack of regulations on land and pasture management | Severe | Severe | Low | Low | Middle |
| Limited winter fodder | Middle | Middle | Low | No priority | Low |
| Overgrazing | Middle | Severe | No priority | Low | Low |
| Poor forage production and feeding knowledge and management | Middle | Middle | Middle | Middle | Middle |
| Limited animal husbandry knowledge | Severe | Severe | Middle | Middle | Severe |
| Limited animal breeding and genetic improvement support | Low | Low | Middle | Low | Middle |
| Limited veterinary services and zoonotic diseases control | Middle | Middle | Middle | Low | Severe |
| Limited extension and consultancy services | Middle | Middle | Severe | Low | Severe |
| Limited vocational training offers for livestock farmers | Middle | Middle | Severe | Middle | Severe |
| Environmental problems with storage of manure and silage | Low | Low | Severe | Severe | Severe |
| Lack of livestock holding register and animal identification and registration system | Low | Low | Middle | Low | Middle |
| Poor hygienic standard on milk and meat production | Low | Low | Middle | Middle | Severe |
| Poor milk and meat processing | Middle | Middle | Middle | Middle | Severe |
| Poor integration of smallholders in the formal agrifood chain | Middle | Middle | Severe | Middle | Severe |
| Limited access to rural finance services (e.g. credit) and support programmes | Low | Low | Middle | Low | Severer |
| Poor overall framework for livestock farming | Low | Middle | Middle | Middle | Middle |
| Small and fragmented farm structure | Middle | Middle | Middle | Middle | Severe |
| Poor overall infrastructure in rural areas (transport, communication, health, education, inputs, etc.) | Middle | Middle | Severe | Low | Middle |
| Lack of consistent livestock policy | Severe | Severe | Middle | Low | Middle |