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Organización
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y la
Alimentación

COMMITTEE ON COMMODITY PROBLEMS

INTERGOVERNMENTAL GROUP ON MEAT AND DAIRY PRODUCTS Twenty-second Session

Asunción, Paraguay, 6-8 May 2009

PROPOSED TIMETABLE AND CONCEPT NOTE FOR THE SYMPOSIUM ON MITIGATING GREEN HOUSE GAS EMISSIONS FROM ANIMAL PRODUCTION: A POLICY AGENDA*

08.00: Registration

09.30-12.30: Opening of the Symposium on Mitigating green house gas emissions from animal production

- Welcome address
- Climate change and agriculture - potential evolution within the framework of the UNFCCC post-Kyoto negotiations (*Wendy Mann FAO-NRDP*)
- Overview of the livestock/climate change nexus: contributing to and being affected by climate change – including short review of technical options for mitigation and adaptation (*Pierre Gerber FAO-AGA*)
- Case studies for Meat and Dairy, possibly based on Life Cycle Analysis (*Theun Vellinga, Wageningen University*)
- Scientific bases for definition of policies regarding greenhouse gas emissions – the case of the Paraguayan livestock sector (*Roberto D. Sainz, University of California, Davis*)

12.30-14.30: Lunch

14.30-17.30: Policy issues surrounding GHG emissions from livestock production

- Policy measures for mitigation and adaptation – pasture management in dry and cold environments (*Richard Conant, Colorado State University*)
- Policy measures for mitigation and adaptation – pasture management in humid and sub-humid environments (*Muhammad Ibrahim, CATIE*)
- Policy measures for mitigation and adaptation – waste management and enteric fermentation (*Nigel Key, FAO-AGA*)
- Agriculture and livestock in Carbon Markets (*Speaker from the World Bank*)
- *Panel discussion: What do we know with sufficient certainty to take action?*

Thursday, 7 May

09.00-12.30: Policy developments in member countries

- Country representatives (5 to 7) introduce their strategy and possibly their experience in designing and implementing policies to reduce GHG emissions from livestock production and in approaching the UNFCCC negotiations. Potential issues to be addressed include:
 - National and regional policies enacted or considered for the future;
 - Link between national policies and international climate treaty obligations;
 - Main challenges in terms of: technological/scientific knowledge, measuring and verifying emissions, regulatory enforcement and compliance, political opposition to and support for policies;
 - Lessons from recent policy experiences;
 - Main challenges in going forward at the national and international levels.

12.30-14.30: Lunch**14.30-17.30: Towards recommendations for mitigation and adaptation policies**

- Country representatives presentations – *continued*.
- Panel discussion: panellists comment on the proposed recommendations to IGG meeting and engage in an open discussion with the plenary.
- The way forward, role for FAO (*Speaker from FAO*)

**CONCEPT NOTE FOR A SYMPOSIUM AT THE INTERGOVERNMENTAL GROUP
(IGG) ON MEAT AND DAIRY PRODUCTS**

**MITIGATING GREEN HOUSE GAS EMISSIONS FROM ANIMAL PRODUCTION:
A POLICY AGENDA**

Background¹

The increase in demand for animal products, driven by growing population and income, is stronger than for most food items. Global production of meat is projected to more than double from 229 million tonnes in 1999/2001 to 465 million tonnes in 2050, and that of milk to increase from 580 to 1,043 million tonnes.

The livestock sector has a primary and growing role in the agricultural economy. It is a major provider of livelihoods for the majority of the world's poor. Animal products are also an important determinant of human health and a growing component of diets. Global demand for livestock products is projected to double by 2050, yet despite this growth, per capita consumption in developing countries will be no more than half that in developed countries. Even with current production levels, the livestock sector is a source of instability to many ecosystems and a contributor to global environmental problems. Greenhouse gas emissions from livestock production, manure, and pasture expansion into forests are important contributors to climate change. The presence of livestock in the vast majority of the world's ecosystems degrades biodiversity and in both developed and rapidly developing countries it is often a major source of water pollution (Steinfeld et al., 2006)².

The future of the livestock-environment interface will be shaped by how we resolve the balance of two competing demands: one for animal food products and the other for environmental services. Both demands are driven by the same factors: increasing population, growing incomes and urbanization. The natural resource base within which these must be accommodated is finite and the continuing expansion of the global livestock sector must, therefore, be accompanied by substantial reductions in livestock's environmental impact. In particular, the role of the livestock sector in climate change deserves immediate attention.

Gaseous emissions and climate change

Estimates of Green House Gas (GHG) for the livestock sector throughout the livestock commodity-chain are substantial. GHG emissions arise from feed production (e.g. chemical fertilizer production, deforestation for pasture and feed crops, cultivation of feed crops, feed transport and soil organic matter losses in pastures and feed crops), animal production (e.g. enteric fermentation and methane and nitrous oxide emissions from manure) and as a result of the

¹ This section draws from a report submitted to the 20th session of the Food and Agriculture Organisation of the United Nation (FAO) Committee On Agriculture (COAG), held on 25 to 28 April 2007 in Rome.

² Steinfeld, H., Gerber, P., Wassenaar, T., Castel, V., Rosales, M. and de Haan, C., 2006. Livestock's long shadow - Environmental issues and options. FAO, Rome.

transportation of animal products. It can be shown that livestock contribute about 9 percent of total anthropogenic carbon-dioxide emissions, but 37 percent of methane and 65 percent of nitrous oxide emissions. The combined emissions expressed in CO₂ equivalents amount to ca. 18% of anthropogenic GHG emissions. The commodity-chain methodology used in the FAO calculations (Steinfeld *et al.*, 2006) is not used by the IPCC and, therefore, emissions may be attributed in a different manner.

Carbon dioxide is released when previously-forested areas are converted for feed into grazing or arable land. The expansion of pasture and cropland at the expense of forests releases significant amounts of carbon dioxide into the atmosphere as does the process of pasture and arable land degradation, often associated with a net loss of organic matter. Carbon dioxide releases resulting from fossil fuel consumption used for the production of feed grains (tractors, fertilizer production, drying, milling and transporting) and feed oil crops need also to be attributed to livestock. The same applies to the processing and transport of animal products. Methane is emitted from rumen fermentation and from livestock waste when stored under anaerobic conditions, for example in so-called lagoons. Nitrous oxide emissions from intensive feedcrop production and related chemical fertilizer application need also to be considered.

There are huge differences in green house gas emissions from the different forms of livestock production, and between species. Livestock related green house gas emissions are often diffuse and indirect; emissions occur at both the high and low end of the intensity spectrum, but are probably highest for beef and lowest for poultry.

Technical options are available to mitigate the gaseous emissions of the sector. Carbon-dioxide emissions can be limited by reducing deforestation and the sector can contribute to carbon sequestration through a range of practices including: restoring organic carbon in cultivated soils, reversing soil organic carbon losses from degraded pastures and sequestration through agro-forestry. Improved livestock diets and better manure management can substantially reduce methane emissions, whilst careful nutrient management (i.e. fertilization, feeding and waste recycling) can mitigate nitrous oxide emissions and ammonia volatilization. Furthermore, the use of biogas technology provides a means of redirecting emissions from manure management and increasing farm profit (e.g. from savings on energy bills, electricity trading) and providing environmental benefits, such as reduced fossil fuel consumption).

What needs to be done?

Given the projected expansion of the livestock sector, major corrective measures need to be taken to address the environmental impact of livestock production that will otherwise worsen dramatically. Growing economies and populations together with the increasing scarcity of environmental resources and rising environmental problems are increasing demand for environmental services, such as clean air and water, and recreation areas. Increasingly, this demand will broaden from immediate factors of concern, such as reducing the nuisance factors of flies and odours, to the longer-term environmental concerns, including climate change, biodiversity, and water resource management. At the local level, markets will undoubtedly develop for the provision of such services as is already the case for water in many places. At the global level, the emergence of such markets is uncertain although promising models already exist, for example for carbon trading.

Pathways for intervention include: Encouraging natural resource use efficiency; correcting for environmental externalities; accelerating technological change; reducing negative environmental and social impacts of intensive production; diversifying extensive grazing with the provision of environmental services.

It is clear that domestic policy actions can have implications for markets, both domestic and international. Policy actions may be both local and national, and may have important implications for domestic and international markets. It is therefore imperative to foster broad discussion among jurisdictions and develop coordinated policy responses which will encourage adaptation of effective policy measures without unduly affecting comparative advantages in livestock production.

The challenge ahead

Given the planet's finite natural resources, and the additional demands on the environment from a growing and wealthier world population, it is imperative for the livestock sector to move rapidly towards far-reaching change. Four lines of action are suggested:

First, efforts to improve efficiency in the use of resources for livestock production must continue if the much-required price corrections for inputs are to be achieved, and the current suboptimal production replaced with advanced production methods for feed production, through livestock production and processing, to distribution and marketing. Policy-makers are called upon to steer and facilitate this process.

Second, there is a need to recognize that the intensification of livestock production is an inevitable consequence of the process of structural change that exists in most of the sector. The key challenge is to make this process environmentally acceptable by identifying the right location so as to enable waste recycling on cropland, and applying the appropriate technology, especially in feeding and waste management. Locating industrial livestock units in suitable rural environments and not in congested peri-urban but otherwise favoured settings, provides both the required land area and opportunity for recycling of nutrients. The consideration of social impacts is crucial if adverse environmental effects are to be mitigated when changes are being made to the structure of livestock market chains.

Third, recognizing that extensive land-based production will continue to exist, decision-makers will need to ensure that grassland-based production includes the provision of environmental services as a major purpose, probably as the most important one, in vulnerable areas. Policy makers need to provide a framework for carbon sequestration, biodiversity protection and landscape maintenance from extensive grazing systems, in addition to that for the production of conventional livestock commodities.

Finally, there is an urgent need to not only improve policies at local, national and international levels, but also to facilitate greater policy coordination to assure that international market implications are respected. A strong political will and urgency, together with the identification of potential contributors and beneficiaries, are required to initiate action and investment in creative ways to avert the environmental risks of continuing "business as usual."

Focus of the Symposium

Ensuring environmental sustainability is one of the Millennium Development Goals to which FAO and its Members are committed. The conservation, improvement and sustainable utilization of natural resources, including land, water, forests, fisheries and genetic resources for food and agriculture is one of the three global goals of FAO's Strategic Framework 2000 to 2015. Climate change is however still a relatively new scientific domain, and its interaction with the livestock sector even more so. The symposium will contribute to FAO's commitments by providing

Member States with state of the art analysis. It will also develop recommendations for action by member states, and by FAO to guide its work in the area.

The contribution of the livestock sector to anthropogenic green house gas emissions currently receives high attention. A number of events are addressing the issue of livestock and environment in general, and of climate change in particular. To mention a few in 2008: the International Dairy Federation Summit (IDF - <http://www.sustainabledairyfarming.com/default.htm>) the World Meat Congress organised by the International Meat Secretariat (IMS - <http://www.worldmeatcongress2008.co.za/>), or the Annual Meeting of the European Association for Animal Production (EAAP - <http://www.eaap2008.org/>). Addressing the private sector and academia, these events mostly focus on the technical dimensions of the livestock-climate change nexus.

In contrast to these events, the proposed symposium will focus on the economic and policy elements of the issue. Technical presentations will be limited to those required to provide a sound scientific basis for discussion. The participants will be invited to address questions such as:

- Do we have sufficient evidence to put policy emphasis on limiting livestock's sector contribution to climate change?
- What guidelines would best assist the international community in establishing a policy framework to mitigate GHG emissions from livestock production? What are the most cost-efficient and practical areas for policy intervention?
- How can the livestock sector participate in carbon trading?
- Would the enforcement of mitigation measures significantly affect the price of livestock commodities and the relative competitiveness of given systems/countries?

Expected participants

Participants will include:

- Country representatives at the Intergovernmental Group Meat and Dairy Products.
- Private sector: Sectoral organizations (global, regional and national), large integrators (global) and professional organisations (global and regional)
- Academia (global)