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PANEL REPORT: THE LIVESTOCK REVOLUTION IN DEVELOPING COUNTRIES

ORGANIZER, CHAIRPERSON AND RAPPORTEUR

Simeon Ehui (Ethiopia) with Chris Delgado (USA)

PANEL DISCUSSANTS

Impact of the Livestock Revolution on Food Security and Poverty Alleviation in Developing Countries *Chris Delgado (International Food Policy Research Institute, Washington, DC, USA)*

Productivity Growth and International Trade in Livestock Products *Thomas Hertel with Alexandero Nin (Purdue University, West Lafayette, Indiana, USA)*

The Rise of Livestock Product Consumption and Human Nutrition *Charlotte Neumann (University of California at Los Angeles, California, USA)*

Livestock and Natural Resource Management in the Developing World
Henning Steinfeld (Food and Agriculture Organization of the United Nations, Rome, Italy)

The panel focused on the implications of the livestock revolution in developing countries for a number of key issues. It began with Chris Delgado, who reported that, from the beginning of the 1970s to the mid-1990s, consumption of meat and milk in developing countries increased by 175 million metric tons, more than double the increase in developed countries. The market value of that increase was approximately \$155 billion (1990 US\$), more than twice the market value of increased cereals consumption during the 'Green Revolution'. In the early 1990s, the share of the world's meat consumed in developing countries was 47 per cent, and their share of the world's milk was 41 per cent, up sharply from the early 1980s. IFPRI projections to 2020 place the developing countries' meat production share at 60 per cent, and that for milk at 52 per cent, a veritable 'Livestock Revolution'. The population growth, urbanization and income growth that fuelled the recent increases are expected to continue. Farm income in those countries could rise dramatically, but whether this will be shared by the rural poor who need it most is still undetermined. Furthermore, current rapid increases in pollution, land degradation and the incidence

of zoonotic disease from increasing concentration of animals near major cities are expected to continue and even accelerate.

Delgado also noted that structural changes and policies in three large countries – China, India and Brazil – are especially important in influencing the likely course of world real prices for meat and milk over the next two decades. However, the best estimate under a wide variety of scenarios is that inflation-adjusted world prices for livestock products will be within 20 per cent up or down from average real prices in the early 1990s, and thus will remain very substantially below the high prices of the early 1980s. While trade in livestock products is likely to expand rapidly, including North-to-South and South-to-South trade, it will be small relative to a projected huge increase in feedgrains exports from the more developed to the less developed countries. Though the shares of cereals and livestock in the total agricultural output of the OECD countries has remained fairly constant since the 1960s, the share of livestock in total agricultural output in the South is rising rapidly. Protection of the livestock sector in most rapidly growing East Asia economies – which account for 30 per cent of world meat trade – remains high. It is up to 70 to 80 per cent in the case of dairying, although it is unlikely that this will be maintained as countries in the region assess their overall interests with respect to forthcoming WTO negotiations.

Against this background, Hertel and Nin examined the evolving trends in global livestock productivity, as well as meat demand and trade, and made projections to the year 2010 using a global general equilibrium model. While their analysis of historical rates of productivity growth showed that developing countries have lagged behind high-income producers in the past three decades, they anticipate that this will be reversed in the coming decade. This change will be fuelled by productivity ‘catch-up’ in the developing countries. However, this acceleration in supply appears to be insufficient to satisfy the emerging demand for meats in the developing world. Therefore imports are expected to rise and developing countries are projected to absorb one-third of global meat trade by the end of the 1990s. The study (illustrated by the case of China) also suggested that the developing countries’ net trade position is very sensitive to changes in either the livestock or the non-livestock economies. If livestock growth is at the high end of possible outcomes, and if there is a slow-down in the rest of the economy, developing countries such as China (where productivity growth is already high) could become a fierce competitor in export markets by 2010. However, slower than expected diffusion and adoption of livestock technology, coupled with a rapidly growing macro-economy, could make developing countries major importers of livestock products.

Charlotte Neumann argued that the implications of the livestock revolution for human nutrition are especially critical. As many as 1.3 billion people currently suffer from anaemia and hundreds of millions more from other forms of micronutrient malnutrition – the great ‘silent hunger’. Deficiencies in intake of iron, iodine, vitamin A, zinc and other micronutrients are needlessly condemning masses of poor people in developing countries to disease and decreased ability to live a full and productive life. It is possible to deliver the needed nutrients through daily pills or a highly varied vegan diet. However, there is an

increasing consensus that in rural areas in most developing countries only intake of at least a small amount of meat and milk can supply the necessary nutrients on a widespread sustainable daily basis in bio-available form. Fifty grams of meat daily for a young child could greatly improve nutritional status, including the utilization of ingested foods of vegetable origin. However, many developing countries are still far from reaching this level of consumption even on a national average basis, much less in the diets of the children of the poor.

Henning Steinfeld posed a problem: the implications of the livestock revolution for environmental sustainability are worrying, in both the North and the South. Livestock currently use just under half the world's arable area (26 per cent directly, 21 per cent indirectly for feedgrain). Much of East Asia, in particular, has seen increases in the density of annual carcass-equivalent meat production of at least 6 tons/km² over the last 25 years. Other 'hot spots' for nutrient loading are being observed in the southeastern seaboard of the USA, Northern Europe, Central America and Southeast and South Asia. Of the anticipated increase in world meat production up to 2020, 70 per cent is projected to come from non-ruminant sources. The primary associated pollution problems are nutrient loading and greenhouse gases from manure handling. These, as in the case of ruminants, can be successfully addressed by a combination of policy changes and technology development, but greater attention needs to be devoted to the interaction of the two instruments. Improved policy can capture the externalities inherent in point-source pollution, for example through the creation of markets for tradeable property rights for carbon sequestration and improved enforcement of regulatory control. Technologies can both lower the amount of waste and improve its utilization for purposes such as biogas.

The increasing concentrations of veterinary pharmaceuticals in both edible livestock products and residues are another major issue. In the North, such drugs account for roughly half of chemical input costs of livestock production. Food safety issues have also become more prominent with the rise in trade of meat and milk, and it will be critical to distinguish between vital food safety concerns and non-transparent use of health regulations for protectionist purposes. Evidence also suggests that the resolution of food safety and protection issues in developing countries can also have a major impact on the scale of livestock production units, and thus on how the growth of production affects poor rural people in developing countries.