agricultural business organization provides backing, the company entering agriculture has a solid bottom line. 3) The primary purpose is local revitalization through the use of surplus labor within society in the case of Company A and through the use of pastureland in the case of Company B. Secondary purposes include the revitalization of the region and agriculture through the utilization of agricultural land not being used and also for the president and employees to enjoy agriculture. 4) In terms of profitability, the aim is to secure a profit through agricultural management in the medium term while revenues for the present remain an unknown factor.

Research on the Potential of Food Production Taking into Account Environmental and Resource Limiting Factors in Major Regions Around the World

Koichiro AKASHI

The global food supply is unstable in the medium to long term, because it is limited by population increase, as well as economic development and resource and environmental limiting factors. It is therefore necessary to thoroughly comprehend developments regarding global warming and other environmental factors as well as soil deterioration, competition for water supplies, and other resource limitations. The modalities of these factors are furthermore widely varied depending on the region. As a result, in this research, we conduct an evaluation of environmental and resource limiting factors that have an impact on agriculture and food production in major regions (countries) around the world, with the aim of contributing to a more precise understanding of trends within the food supply.

We conducted analyses of the potential for food production, taking into account the environmental and resource limiting factors that have an impact on agriculture and food production in the form of country studies. Countries targeted for analysis include China, Mongolia, CIS member countries, Vietnam, Africa, Australia, and Brazil. A summary of the results obtained is given below.

(1) With regard to China, we examined measures for the stable supply of food from the current state of agricultural land deterioration, water resources, and other environmental factors, and clarified the need for measures to conserve land area for food production, and the need for investment for the reform of agricultural land due to the extensive waste of water resources in water systems.

(2) We clarified the need for the development of joint management and monitoring activities in the steppes in order to resolve the issue of desertification in the arid areas of the Nei Mongol region of China and Mongolia, and for the dissemination of livestock farming technology for the improvement of land productivity.

(3) Based on an analysis of statistical data from the CIS member countries, we clarified that agriculture in the CIS region has been in a trend of gradual improvement since the end of the 1990s, and that the increase in abandoned farmland and the loss of cultivated land as a result of agricultural reform within the process of transformation to a market-driven economy may become serious limiting factors in agriculture in the CIS region.

(4) With regard to Vietnam, we conducted an analysis taking into account land resources, a limiting factor in agriculture, and clarified that there is a need for the further development of the market economy, deviation away from rice and increased non-agricultural employment in rural areas and that industrial crops may become a key industry in Vietnam in the future.

(5) We attempted a multifaceted approach to the problem of food in Africa and clarified the actual situation of the increase in population that is unrelated to economic growth, low agricultural productivity, inefficient distribution and other factors that exist in the background of the food problem, while pointing out that agriculture will be positioned as the central issue in economic development in the future.

(6) We introduced the SRI agricultural method developed in Madagascar in Africa. This method realizes high-yield harvests without using any additional investment whatsoever, excluding labor for weeding and harvesting, using Madagascar's low-fertility soil, and indicated that it would be sustainable with the existing environmental and resource limitations.

(7) We conducted an international comparison of Australia with New Zealand, the US, France, Japan and the Philippines. We clari-

fied that it is the country that has attained the highest agricultural growth rate among the target countries during the period 1962-99 due to the increase in fertilizer application per land unit and rate of arable land (defined as arable land area plus permanent crops area over agricultural land area).

(8) With regard to Brazil, we clarified that its influence on Japan will increase in the future due to the massive amount of developable land and the nonexistence of resource limitations in land area, that agricultural exports continue to expand without government subsidies, that it has the potential for becoming a major agricultural country ranking with the U.S., and that it has a central position among developing countries in the WTO.

Comparative Study of Institutions and Policies for Food Safety

Tomoko ICHIDA

1. Objectives

This study aims to analyze the trend of organizations and related associations for food safety, and changes of to labeling and examining systems in such countries as Europe and the United States. It focuses on institutions and policies for safety and traceability, mainly of the meat sector, comparing Japan and other countries. In the end it aims to clarify the extent of traceability and the relationship between cost-bearer and beneficiary.

2. Methods

(1) A case study on the beef traceability system in two German states was employed in November 2003, comparing a northern state, Lower Saxony (Niedersachsen) and a southern state, Bavaria (Bayern).

(2) In Japan, we examined how the beef traceability system initially implemented by prefectures and retailers changed after obligatory livestock identification was put into effect by the national government in December 2003.

3. Recent Trends in Beef Traceability Systems in EU and Germany

In February 2004, the total number of BSE cases in 15 EU countries amounts to 187,276, of which 182,170 are in the UK according to OIE, and 294 are in Germany. In 2003, the number of German cases is 54, although this is under examination because of check system error. Beef consumption in Germany drastically decreased after the first BSE case was revealed in 2000, but it has recovered to nearly the same level as before BSE.

The beef traceability system was implemented not only to guarantee the minimal standard of safety, but also for controlling quality. In most cases the former is obligatory, while the latter is voluntary. Based on Reg. 1760/2000, the EU has made livestock identification and labeling of bovines obligatory in order to guarantee the minimal standard of safety for beef. Since September 1999, the German federal government has obliged all bovine holders to send information on their livestock's birth, movement, death, and slaughter to the nearest livestock database organizations. Each state has its own livestock database organization, while one company manages nation-wide. They are all engaged in collecting data from farmers, and updating and controlling the database. It is noteworthy that bovine holders must send the concerned information to the database organizations if they wish to receive a bull premium from the government.

Quality control of beef, on the other hand, is especially progressing in France, where the market for beef products are segmented by their origin and way of feeding, etc., and each of them is strictly identified and labeled. In northern German states, private companies voluntarily manage quality control, while in southern states, the state governments own their local food marks and are eager to market high-qualified local foods. In the Bavarian beef market, three types of labeling are used, and product suppliers can choose any: the QS mark, guaranteeing the nation-wide commonly legitimated minimal level of safety and quality; the GQ mark, showing higher-level than QS, and private brands of nation-wide supermarkets or food retailers. As to GQ, the Bavarian original local food logo, the quality standards became stricter than that of the nation-wide logo used QS, by prohibiting the use of anti-biotic growth hormone and the cutting of carcasses through the backbone. In both cases of QS and GQ, private-sector non-profit organizations examine and certify the concerned people once a year on commission of the state government (see Fig. 1).