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in Transition Economies

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Challenges for sustainable land use

Panellists discussed ways to better use soil resources

Halle (Saale), 11 February 2022 – Climate change, land degradation and water shortages threaten soil fertility - the foundation of agriculture. One particular challenge lies in satisfying the growing demand for agricultural commodities while maintaining environmental integrity. With this in mind, experts from politics, business and research came together online to discuss the topic "Securing #soilidity. Challenges and solutions for sustainable land use". The expert panel took place on 27 January 2022 as part of the Global Forum for Food and Agriculture (GFFA) and was organised by the German Agribusiness Alliance (GAA) in cooperation with IAMO.

The panel discussion was moderated by **Julia Harnal**, Chairperson German Agribusiness Alliance. In her opening speech, she highlighted the key role of agriculture. According to her, agricultural practices must not only focus on producing food, but respecting nature and the environment. Debates are currently taking place around the world as to how to achieve long-term balance between economic and environmental efficiency. The expert panel provided a means of discussing potentials and solutions from different perspectives from both research and practice.

Dr Ophelia Nick, Parliamentary State Secretary to the Federal Minister of Food and Agriculture, provided a welcome address in which she emphasised that conserving and protecting soils is a global responsibility. Healthy soils are not only important for producing food but they help mitigate climate change as carbon sinks, and are vital to plant and animal life. However, in many parts of the world, soil fertility is threatened by climate change and soil degradation. The growing demand for food as well as agricultural raw materials that are used as a substitute for fossil fuels requires sustainable and soil-friendly practices. The German Ministry of Agriculture is engaged in a wide range of partnerships and projects in Russia, China and around the world that aim at successfully addressing global challenges related to agriculture, food and climate change.

Measures to reduce emissions

Prof. Julia Pongratz, Director Department for Geography at Ludwig-Maximilians-University Munich, explained that a quarter of man-made emissions each year come from agriculture and forestry. Substantial long-term emissions targets are therefore also needed in agriculture. Carbon sequestration measures, such as reforestation, soil carbon storage, biomass plantations and the use of biochar could be used to offset any unavoidable emissions. This could remove several billion tonnes of carbon from the atmosphere each year. However, even if these measures successfully contribute to climate neutrality, a comprehensive scientific and political assessment must nevertheless be conducted to identify any unwanted consequences, such as negative environmental impacts or competition with other land use options.

Climate change mitigation and soil conservation in Russia

Prof. Pavel Krasilnikov, Dean Department of Soil Geography at Lomonosov Moscow State University, spoke of the intensive farming that once took place in the south of Russia. The heavy soil pollution had many negative effects, including soil degradation, erosion, salinisation, compaction and loss of humus. Climate change is also having a growing impact on Russia in the form of droughts and heavy rainfall. The knowledge gained should be used to implement climate-adapted agriculture. Measures for preserving soil fertility and mitigating climate change include reducing ploughing and the use of pesticides, and using optimised irrigation systems and digital technologies. In Russia, large farms tend to be favoured, as these often have a greater sense of responsibility when it comes to climate change and soil conservation.

Digital agriculture

Cornelia Horsch, Managing Director of agricultural machinery producer HORSCH Maschinen GmbH, explained that her company develops soil cultivation machines and seeders that are adapted to different soils and climates. She believes that the modern agricultural sector will move towards a hybrid style of farming that combines conventional and organic practices. While farmers need to be experienced and knowledgeable, digitalised machines and processes can act as important decision-making tools. Expanding digital networks in rural regions, in particular, could better facilitate the exchange of information in agriculture.

Plant breeding for sustainable land use

Torsten Spill, Chief Representative of the German Seed Alliance GmbH, explained how seed development and production contribute to sustainable land use. Optimised mixtures of catch crops or cover crops can permanently improve soils, for example through nitrogen fixation, by producing humus and nutrients, and by reducing erosion and weeds. New crop varieties are also being developed that produce sufficient yields even under extreme soil conditions, such as drought, flooding and salinisation. Spill called for a solid legal framework in plant breeding to protect plant varieties, ensure licensing rights in research and maintain the intellectual property rights of breeders. In addition, industry and state-run institutes should increasingly work together to conduct fundamental research on crop production and international collaboration should be further developed. **Prof. Pavel Krasilnikov** added that Russia depended greatly on seed imports from other countries. The Russian agricultural sector is therefore working on developing more new seed varieties and making them available internationally.

Expansion of cultivated areas in China

Prof. Bin Zhang, Chief Scientist at the Chinese Academy of Agricultural Sciences (CAAS), spoke of the importance of food self-sufficiency for China's population of around 1.4 billion people. However, given the reduction of arable lands caused by urbanisation as well as soil degradation, water shortages, environmental pollution and food waste, achieving this will be very challenging. The goal is to sustainably expand cultivated land areas and yields and to increase incomes in agriculture in order to be less dependent on food imports. To this end, the Chinese government has implemented numerous new action plans for environmentally friendly agriculture, including legal regulations for the protection of ecosystems, soil quality and rural areas as well as financial subsidies for the use of new technologies and improved seeds.

The panel discussion took place in cooperation with the German Eastern Business Association and the Deutsch-Russischer Agrarpolitischer Dialog.

The recording of the expert panel 10 can be found at: www.gffa-berlin.de/en/aufzeichnungen

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About GFFA

The 14th Global Forum for Food and Agriculture (GFFA) entitled "Sustainable land use: Food security starts with the soil" took place virtual from 24 to 28 January 2022. The GFFA is an international conference on agri-food policy issues. It is organised by the German Federal Ministry of Food and Agriculture (BMEL) in cooperation with the Senate of Berlin, Messe Berlin GmbH and GFFA Berlin e.V. General information on the GFFA 2022 can be found on the conference website: www.gffa-berlin.de/en.

About IAMO

The Leibniz Institute of Agricultural Development in Transition Economies (IAMO) analyses economic, social and political processes of change in the agricultural and food sector, and in rural areas. The geographic focus covers the enlarging EU, transition regions of Central, Eastern and South Eastern Europe, as well as Central and Eastern Asia. IAMO works to enhance the understanding of institutional, structural and technological changes. Moreover, IAMO studies the resulting impacts on the agricultural and food sector as well as the living conditions of rural populations. The outcomes of our work are used to derive and analyze strategies and options for enterprises, agricultural markets and politics. Since its founding in 1994, IAMO has been part of the Leibniz Association, a German community of independent research institutes.

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