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Leibniz Institute of Agricultural Development
in Transition Economies



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Welcome address

The Leibniz Institute for Agricultural Development in Transition Economics has this year once again performed valuable work in Central Asia, where I have been representing the Federal Republic of Germany in Uzbekistan since 2014, and am now representing it in Tajikistan.

The region faces considerable challenges that can only be outlined here using keywords: the transition from a state to a market economy, the as yet unfinished and by no means undisputed formation of property and production structures, the diversification of previous agricultural monocultures, rapidly growing populations, for which not only food but also jobs have to be found:

in Tajikistan, the variable of “arable soil” is constant at only seven percent of the territory, while the level of population growth of two and a half percent is not. The young states that have not yet been finally consolidated have to cope with the most grave security challenges, such as religiously motivated extremism and the hitherto uncertain situation in Afghanistan. Moreover, there are increasing threats from inherited environmental burdens, scarcity of water resources and global climate change. Globalisation is also a major concern, which is making it difficult for countries long isolated from the world to find their place in the global economy and to secure income for their growing populations.

German foreign policy already faced up to these challenges during the German Chairmanship of the Organisation for Security and Co-operation (OSCE) in 2016 and placed connectivity and its significance to the fore of its work whilst particularly focusing on Central Asia. Recent trends towards more openness in Central Asia and a growing willingness of the states of the region to cooperate more closely give us hope that the contributions we Germans make towards the development and stability of Central Asia and Eurasia – and thus the high-quality work of IAMO – will also fall on fertile ground.

I wish them a lot of success with this!



Neithart Höfer-Wissing
Ambassador of the Federal Republic
of Germany in Tajikistan

Contents

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IAMO's Directorate (from left to right):

Professor Thomas Glauben, Dr Stephanie Garling, Professor Thomas Herzfeld, Professor Alfons Balmann

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Foreword

A sustainable development of the agri-food sector, especially in transition economies, involves the development of high quality universities, which focus on international standards both in research and in education. Only in this way can we succeed in training the qualified managers and skilled workers that we urgently need in our partner countries for businesses, and in the fields of administration and science, adequately and in sufficient numbers. International organisations such as the World Bank or the EU have recognised this and are acting accordingly.

IAMO is now already making an internationally recognised contribution towards the development of agro-economic research and training in the Eurasian transition countries with their high levels of agricultural potential. IAMO's staff are involved in various ways in the building up of scientific capacities in our partner countries. As part of the EU Commission-funded project "Building an Excellence Network for Heightening Agricultural ecoNomic researCh and Education in Romania" (ENHANCE), the agro-economic competence of the University of Agriculture and Veterinary Medicine in Bucharest (USAMV) shall be expanded to include sustainable development of agriculture and rural areas in Romania. In addition to the USAMV and IAMO, the University of Natural Resources and Life Sciences in Vienna, Austria, and the Swiss Federal Research Station for Agriculture Economics and Engineering in Ettenhausen, Switzerland, are involved in the ENHANCE project.

In January 2017, scientists from IAMO, in collaboration with partners from the Samarkand Agricultural Institute, held a stakeholder workshop on the future

establishment of a joint, structured PhD programme on sustainable development in Central Asia. The workshop was supported by the State Committee for the Coordination of Science and Technology Development of the Uzbek Government. The Volkswagen Foundation financially supported these activities.

The building up of scientific capacities also forms a mainstay of the "Pilot Project for the Sustainable Internationalization of Ukrainian Research Structures in the Context of the Globalization of the Ukrainian Food Industry" approved by the Federal Ministry of Education and Research (BMBF) in autumn 2017. In cooperation with the Kyiv School of Economics (KSE) that is joint sponsored by the World Bank, summer schools, seminars and workshops for students of Ukrainian research institutions and universities are to be held. The establishment of a chair and an "International Agricultural and Food Industry" research centre should stabilise the building up of agro-economic capacities extending beyond the project phase.

Even in 2017, there were extensive and successful activities in attracting third-party funds. For instance, IAMO is involved in a new research group on land markets, *Agricultural Land Markets – Efficiency and Regulation* (FORLAND), which is funded by the German Research Foundation (DFG) and the Austrian Fund for the Promotion of Scientific Research (FWF). The Humboldt University of Berlin and the University of Bonn are coordinating the project. As of 1 June 2017, the four-year research project *Understanding Food Value Chains and Network Dynamics* (VALUMICS), funded by the EU under Horizon 2020, was also launched. Under the direction of the University

of Iceland, 20 other institutions from the fields of research and industry are also involved in this major project, alongside IAMO. The research project *Revitalizing Animal Husbandry in Central Asia: A five-country analysis* (ANICANET), coordinated by IAMO and funded by the BMBF, commenced almost simultaneously: with partners from the United Kingdom, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. The aim is to develop strategies to revive livestock breeding in the five Central Asian countries just mentioned.

Successful research at a modern institute demands strategies to better reconcile work and family. IAMO has thus been a member of the corporate network "Erfolgsfaktor Familie" ("Success Factor Family"), with 6100 members, since October 2016. The initiative, established in 2006 by the Federal Ministry of Family Affairs and the German Association of Chambers of Industry and Commerce (DIHK), is Germany's largest platform for employers who are committed to family-friendly personnel policies. At IAMO, various measures and offers help to promote the work-life balance. These include flexible working hours, part-time positions, a parent-child office, and child care subsidies for preschool children.

On 8 November 2016, IAMO adopted its own open access policy. In it, the Institute commits itself to Open Access and encourages its researchers to make their research results freely available to anyone, in accordance with the "Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities" and the "Guideline on Open Access within the Leibniz Association" insofar as this is possible. This is performed at IAMO by publishing results as Open Access publications, and, within the realms of what is legally possible, by making them available in parallel or retrospectively in repositories.

Creating an environment that not only stimulates academic performance, but also takes into account the life circumstances of employees and the increasing social demands – whether it involve practicing sustainability or equal opportunity – is not possible without a modern, excellently managed administration that meets the highest demands. This applies all the more due to the fact it is necessary to respond quickly to the rapidly changing demands of a globalising research landscape in the face of ever more intense academic competition. In addition there is the intensified promotion of young scientists at IAMO over the past few years, who mainly come from our partner countries. Here, IAMO's scholarship holders and visiting researchers come from more than 30 countries. An administration that successfully meets these diverse challenges and acts flexibly therefore constitutes one of IAMO's main pillars. We would therefore like to thank the employees of the Administration and Central Services/Technical Support department for their extraordinary dedication.

IAMO would also like to thank the Ministry of Economics, Science and Digitisation of the Federal State of Saxony-Anhalt and the Federal Ministry of Food and Agriculture (BMEL) for the valuable suggestions and diverse support it received in 2017. Manifold ideas, thought-provoking impulses and concrete suggestions also came from the members of the Board of Trustees and the Scientific Advisory Board. We would therefore also like to express our special thanks to them at this point.

The goal of the **IAMO Annual** is to provide exemplary insights into the work of the institute while focusing on the research work. The very first article is about one of the trends in the agri-food sector that is most hotly disputed by society: the formation of agroholdings and megafarms, which is currently occurring on a global scale.

The second article presents the first research results of the IAMO's AGRICHANGE project, which deals, among other things, in a comparative perspective with the institutional transformation of agrarian working conditions in Central Asia.

The third and fourth articles deal with issues of international agricultural trade. For instance, they concern the impact of import substitution policies on Russian pig production and its domestic market and the anticipated trade and welfare effects of the Georgia-EU free trade agreement that entered into force in September 2016.

The next three articles deal with South East Europe as an economically and politically fragile region the stabilisation of which is of crucial importance for Europe and the EU. Firstly, they deal with the promotion of science or agro-economics in Romania within the framework of the ENHANCE project, secondly, an analysis of deforestation in Romania over recent decades is performed, using images from spy satellites, and thirdly, how the reintegration of deported, involuntary returnees to Kosovo could succeed.

The eighth article focuses on the role of education in persisting harmful consumption patterns and their intergenerational persistence in China.

The ninth article then deals with the future of the bio-economy in Europe. Here the content of this article concerns the first theoretical reflections on the investigation of so-called bio-clusters, as regional focal points of the bio-economy, and on policies for their promotion. We round off with a summary of the IAMO Forum 2017 "Eurasian Food Economy between Globalization and Geopolitics".

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Large-scale agriculture

in an international context:

current developments,

social disputed issues and

the future research agenda

Taras Gagalyuk Vera Belaya

/1/ Introduction

The organisation of agricultural production is undergoing dramatic change. The advance of so-called industrial agriculture leads to a rapid expansion of large agricultural enterprises.

The article is based on

Hermans, F.L.P., Chaddad, F.R., Gagalyuk, T., Senesi, S.I. and Balmann, A. (2017)





Figure 1: Large-scale agriculture is not a new idea. Historical examples include the Bonanza wheat farms established in the western United States in the 19th century.

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Over the past two decades, new farm types which differ significantly from traditional farms have emerged. The salient features of this new type of agribusiness are its huge size of operations, which can span hundreds of thousands of hectares of land in one company, the integration of multiple stages of the agrifood value chain, such as growing, processing, and distribution within a company, and the growing influence of outside investors without any experience of primary agricultural production (Petrick et al., 2013). In many developing countries, such companies emerge as a result of foreign direct investment, a development that has already been extensively analysed and debated in the context of land grabbing. In some emerging and industrialised countries, “mega-farms” already account for a significant share of agricultural production (Deininger and Byerlee, 2011).

Large-scale, commercial agriculture is not a new phenomenon. The oldest examples date back to the *latifundia* in the Carthaginian Empire that was then perfected in the Roman Empire. These large estates relied on mass slave labour, and Pliny the Elder famously blamed the *latifundias* for “ruining Rome and its provinces” (White, 1967). The model of the *latifundia* was further developed in the plantations and haciendas of the colonial era. The first large-scale corporate farms were established in the United States in the 19th century in the form of the Bonanza wheat farms. In the Soviet Union, the collective and state farms known as *kolkhozes* and *sovkhozes*, respectively, could also be included in the category of large-scale farming structures that were intended to mirror the organisation of the highly productive industrial sector and away from the allegedly unproductive traditional family farms that were not capable of modernisation.

The modern day equivalent of these former industrial and corporate farms is termed an “agroholding”. So far, the term agroholding has been used particularly in Eastern Europe and the countries of the Former Soviet Union. However, there is no widely shared definition of the legal and organisational structure of an agroholding to date (Kuns and Visser, 2016). The provisional working definition of an agroholding is an agricultural organization whose controlling blocks of shares are owned by a holding company. This holding company acts as an umbrella for a number of horizontally or vertically integrated units in the agri-food chain, such as producers of concentrated fodder, elevators, processing units and wholesalers—all under the umbrella of a joint holding company. An agroholding can thus execute the concentrated management of multiple farms/agricultural enterprises that are officially separate legal entities such as limited liability companies, joint stock companies or even family farms. For instance in Ukraine, these umbrella organisations (holdings) include public joint stock companies, private joint stock companies (often with capital from other sectors such as steel, mining, energy, banking, etc.), and private equity funds (UCAB, 2015). Serova (2007) describes agroholdings in Russia as a phenomenon that *“unites a number of quite different agricultural companies, established in different ways and motivated by different incentives. [...] Sometimes such companies are organized under the control and with the participation of regional and/or local administrations, however in the majority of cases it is purely a private initiative.”* (p. 189). Kuns and Visser (2016) make a distinction in this regard between “oligarch-led” versus “investor-led” agroholdings. The first type of companies have only a minority of shares traded on a stock exchange, while the bulk of the ownership remains in the hands of the founder of the company or an entity controlled by the founder. In

the case of “investor-led” companies most shares are in free-float trading.

Given the wide variety of organisational and legal forms already found in eastern European countries, especially the former Soviet Union, they have a pioneering role in the development of highly integrated, diversified, agrarian-based large companies. It can be assumed that this model of an agroholding can also be applied to some of the large corporate farms in other parts of the world as well. For instance, large-scale farming in Argentina can be organised as a trust fund (*fideicomiso*) or investor-oriented corporate farm but increasingly also a range of hybrid organizational forms in countless versions of horizontal and vertical integration can be found. In the savannas of central Brazil (*cerrados*), Brazil’s Midwest so-to-speak, agroholdings are organised as publicly-traded corporations, privately-held corporations and also as family-owned hybrids, known as family groups (Chaddad, 2016). The first two models include capital structures with equity participation of outside investors, while family groups only retain ownership rights for family members.

Apart from their legal and organisational forms, the other typical feature of agroholdings is their size. Typical farm sizes of mega farms and agroholdings can easily amount to up to 500,000 hectares and sometimes even more. Currently such agricultural giants can be found in Australia, China, North and South America and some of the countries of the former Soviet Union. In Ukraine, 80 agroholdings farm about 6 million hectares; the largest of them operates more than 600,000 hectares (UCAB, 2015). In Brazil, 38 corporate farms and family groups with more than 30,000 hectares of planted area produced 14 million tons of grains in 2012 (Chaddad, 2016).



Figure 2: Comparative values, areas in Germany

In Argentina, the four largest agricultural companies, El Tejar, Los Grobo, Cresud and Adecoagro were estimated to control about 825,000 hectares of agricultural land 2011–2015. In the United States, the Chinese owned company Smithfield Foods Inc. is estimated to produce annually around 18 million pigs in highly intensive livestock farming, which represents more than 9% of total pig production capacities (Allen and Lueck, 1998). On the other hand, there are very large extensive livestock operations as are mainly found in Australia. Here, beef producers such as S. Kidman & Co, the Australian Agricultural Company and North Australian Pastoral, farm areas of up to 10 million hectares and the geographically wide dispersal of these operations is thought to help in reducing farming risks. Even in the European Union, where family farms prevail, several large agricultural enterprises such as Spearhead International Ltd., with a land area of 84,300 hectares in the UK, Poland, the Czech Republic, Slovakia and Romania; or KTG Agrar SE with some 45,000 hectares in Germany and Lithuania have emerged.

Many of the issues of agrohholdings are therefore not necessarily due to their specific legal form, but have to do with the size of the farm and, consequently, farm management challenges. At present, science is particularly concerned with the following questions in this regard:

1. How do different regional or national differences contribute to the emergence of different types of agrohholdings with different business structures, sources of capital and management structures?
2. How are horizontal and vertical coordination processes of farm production and the value chain organised?
3. How are profitability and efficiency of agrohholdings affected in different environments?

The first issue deals with the question of what factors contribute to the emergence and proliferation of

agroholdings in different parts of the world. The emergence and continued growth of agroholdings reopens the debate in agricultural economics regarding the natural scale of farming enterprises. In contrast to other sectors, even modern agricultural production has hitherto not seemed to benefit from significant economies of scale, or benefits of mass production. In fact, the negative relationship between farm size and output per area in non-mechanised agriculture has become broadly accepted in the scientific literature (Eastwood et al., 2010). Often cited reasons include:

- owner-operators of typical family farms have higher incentives to work harder. Farms of a certain size require the input of hired labour that is less motivated. However, by contrast with industrial production, monitoring or the surveillance of the work is very costly;
- family farms have a deep knowledge of local conditions, for instance regarding soil and climate; and
- family farms are more flexible with regard to the employment of their workforce and especially in terms of allocating it to other off-farm economic opportunities (Allen and Lueck, 1998).

Discussions on the economic efficiency of agroholdings, therefore, investigate whether these assumptions are still valid and under what circumstances this new type of large-scale farming operations can succeed beyond the already well-established exceptions of plantations. The plantation models were always able to farm profitably due to the increasing returns to scale because of the typical crops they usually cultivate. They succeeded in doing so by producing either perennial crops with low seasonality of the workforce or crops, such as palm oil and sugar cane, that require perfect coordination of production, harvesting, transportation and processing

in order to maximise processing efficiency and avoid costly deterioration of the raw material (Byerlee and Deininger, 2013). In this special issue we focus on agroholdings that do not fit the plantation model as they mostly produce annual crops, or are involved in animal husbandry.

At the moment the increase in farm sizes can be put down to the most diverse reasons. All of these help to put the benefits of family-run farms into perspective. For instance, the introduction of new technologies is an important reason why farm sizes can constantly grow over time. New technologies related to crop breeding, so-called minimum tillage farming systems, and pest-resistant and herbicide-tolerant varieties reduce the number of production processes and make it possible to substitute capital for labour. Up-to-date IT technologies (e.g. GPS steering) make it possible to supervise hired labour more efficiently, while satellite data and remote sensing may reduce the knowledge advantage of traditional family farms in terms of their local conditions (Byerlee and Deininger, 2013). The introduction of a corporate-style organisational architecture, including clear allocation of decision rights, incentive-based compensation contracts for corporate and farm managers, and performance evaluation systems, also help ameliorate some of the internal transaction (agency) costs in agroholdings (Chaddad, 2014).

Another reason is related to the extent to which changes in the economic efficiency of large-scale farms affecting the relative input prices can also account for changes in farm sizes. One important factor here is rising wages in the non-agricultural sector. Normally this implies substitution of capital for labour and an increase of farm size over time (Byerlee and Deininger, 2013). Although this

is a popular explanation for changes in farm size in the US between 1930 and 1970, it no longer seems to be very compelling since manufacturing wages in the US have stagnated since around 1980 and farm household incomes have caught up to and exceeded non-farm incomes. Substitution of capital for labour can still be accounted for, but now through the falling costs of capital (including equipment prices as well as user costs of capital) relative to wage rates. This American development would be in line with other regions that see an increasing importance of finance related transaction costs for the agricultural industry. Particularly for transition and emergent economies with rather weak financial institutions, traditional family and cooperative farms may especially suffer from credit rationing. The argument here is that very large agricultural enterprises can overcome such limitations through direct investments from companies from other sectors, foreign direct investments or through the access to international financial markets (Byerlee and Deininger, 2013). Some agroholdings certainly have such financial backing.

An additional topic in the analysis of the prospects of agroholdings is the development of horizontal and vertical integration processes in the field of agricultural production. Within vertically organised agricultural enterprises, the farms serve as raw material suppliers of processors. Within horizontally organised agricultural enterprises, management companies operate several farms from one source. Vertical integration can be found in the livestock sector in particular, while horizontally organised firms can be found in the crop farming sector. However, agroholdings are usually part of a mixed form with both horizontal and vertical integration of agricultural production.

According to Byerlee and Deininger (2013), the recent trends in the certification of agricultural value chains with regard to food safety and environmental standards provides an opportunity to find new development pathways for agroholdings because of the associated high fixed costs of the certification process and the need to preserve product identity through the supply chain. They add that high levels of vertical and horizontal integration of agricultural enterprises is also a strategy that helps to overcome some of the aforementioned institutional weaknesses and market failures in transition, emerging and developing countries, leading to lower transaction costs and better prices compared to non-integrated agricultural enterprises which are solely coordinated by the markets. For instance, the emergence of agroholdings in the countries of the Former Soviet Union has less to do with the farm's own economies of scale and more to do with some of the institutional weaknesses of these countries or malfunctioning factor, sales and financial markets. There is also a governmental predisposition for retaining large farms as a notional guarantor of national food security (Wandel, 2009). On the other hand, state intervention, for example in land policy, can have the very opposite effect. This also applies to specific subsidies that can also reduce average farm sizes below what could be expected without government intervention.

Another important point is the influence of technological and infrastructural conditions on the corporate management and profitability of agroholdings. A lot can be learnt from historical examples here. They include the rise and collapse of large-scale corporate farms, such as the Bonanza wheat farms that were established in North-Dakota and Minnesota at the end of the 19th century. The rise of these farms was linked to



Figure 3: Grainaries in Russia. Particularly in countries of the former Soviet Union, the emergence of agroholdings is also due to the state's interest in maintaining large-scale farms. They are viewed as guarantors of national food security.

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new technological developments in the mechanisation of agricultural production and efficient transportation routes with the availability of new railway routes (Benton, 1925). In the end, however, these corporate farms proved very vulnerable for economic boom-and-bust cycles meaning they disappeared in the first major agricultural crisis of the 1920s.

The rise and decline of the Bonanza farms thus seems to show some parallels with their modern day equivalent, the agroholdings. Indeed many agroholdings are facing substantial difficulties trying to make a profit. Issues to be addressed include deficits in the efficient organisation of the production, the high internal transaction and financial risks related to the increased dependence on local and international financial markets. Kuns, Visser and Wästfelt (2016) explain how some of these

problems are related to a lack of understanding of outside investors in agroholdings of the specific nature of (local) agricultural production that often lead to an initial prioritisation of short-term speculative strategies over longer-term sustainable production-oriented strategies. A related question is what kind of organisational structure and management strategies may overcome the challenges of managing large-scale farms, in particular in terms of the human resources management. In addition, questions arise with regard to the quality of corporate governance in agroholdings. Kuns and Visser (2016) demonstrate that there is a great diversity in corporate governance practices of agroholdings, with some agroholdings performing badly, while others rank among the best led and most transparent organisations in their region. An important question regarding corporate governance is therefore how to manage farm labour and corporate managers, and which kind of incentive and control mechanisms contribute to both good governance and the profitability of the firm.

This article provides some first insights into key issues and problems of the emergence of agroholdings and their operations. The following points that have still not been addressed should be considered in further research on agroholdings and mega-farms:

/2/ The interplay between farm size, integration, geographical and institutional frameworks

In the debate on global “land grabbing”, it is increasingly recognised that the social benefits of large-scale agricultural investments in land are highly dependent on the institutional frameworks for land ownership and land management that exist in different countries (Deininger and Byerlee, 2011). Analysis of legal and spatial aspects of access to land, implementation of new production and management technologies as well as their socio-economic effects, increasingly become key questions for assessing the impacts of these investments. The social benefit of large-scale agricultural investments is also highly dependent on the institutional frameworks for land use, human capital development, and the implementation of production and management technologies (Petrick et al., 2013). Ideally, further research should address these questions at the regional and farm levels. At the regional level, it would be necessary to analyse how existing institutional conditions affect different stakeholders (management, employees, rural communities, etc.) of large agricultural enterprises. This type of analysis would help to clarify under which conditions large-scale investments and the emergence of large farms contributes to positive social effects. At the farm level, research should aim to better understand how internal governance structures during the coordination between agricultural enterprises, in the case of the individual farm management and in the area of controlling, affect the performance of large farms. The same applies to the key transaction costs which, for instance, result from labour supervision costs, combating theft and in the area of human resource management. In this relation the question also has to be addressed of

whether the implementation of new monitoring technologies and organisational architecture minimises transaction costs. The obtained results should make an essential contribution towards more efficient land management, reductions in transaction costs and human resource development.

/3/ Organisational structure and performance of mega farms

Further research should also address the issue of economic and financial sustainability of large farms by analysing the interrelationships between financial strategies, access to capital, economic performance and structural characteristics such as organisational and corporate governance structures of large farms. Constrained credit markets also restrict the investment activities of large farms (Swinnen and Gow, 1999). However, many agroholdings have reached a size that makes their access to equity markets possible. Indeed, some of them have successfully undergone listing in international stock markets (Chaddad, 2014; UCAB, 2015). However, this will give rise to new risks stemming from crisis-prone financial markets. The possible implications of growing dependency of financial markets for the stability of agricultural enterprises, as well as for the risks to current and potential investors, shall play a major role in future research. This research could be closely related to the research direction under the last point of discussion, which focuses on interrelationships of governance structures and distributional justice as well as on labour supervision and transaction costs, targeting the question of whether the comparative advantages of large farms fully lie in their ability to overcome challenges caused by non-functioning markets. This research

will particularly contribute to the literature on strategic management and corporate governance.

/4/ The role of technology and of innovations

It is acknowledged in the literature that technological development can both help in streamlining primary production processes and facilitate the management of large agricultural operations. However, current innovation literature emphasises that new technologies are not simply wholly transferred but that they can adapt to very different contexts in the process of their diffusion (Hermans et al., 2016). This thus shifts attention from processes of transfer to processes of “translation” of new technology in different contexts. Furthermore, the important process of “co-evolution” of technology development and its institutional environment has remained underappreciated in the literature of agroholdings so far. The emergence of agroholdings in certain regions, for instance in South America, with the introduction of conservation tillage and new genetically modified seed varieties can provide interesting examples of how technology, institutions and agriculture influence each other.

/5/ The socio-political and ethical aspects of large-scale agricultural production

Large-scale farms are the subject of an intense societal and political debate. The establishment of large-scale farms may come under intense public opposition of the local population as well as campaigns led by non-governmental organisations. An important element of such



Figure 4: Wheat is the main export product of the Russian agriculture sector. The country is one of the world's largest exporters of wheat.

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political debates here concerns discourses about the place of the farm within the countryside as desired by society and its role not just for the landscape. Agroholdings, especially some horizontally integrated large operations that grew out of family run businesses, challenge the official guiding principle of the traditional family farm which is also supported by society as a whole and that still dominates many western countries. This debate often involves discussions about perceptions of scale: when does a large-scale farm become a “mega farm”?

One of the most striking socio-political features of large farms is their power, which originates from their size, control of resources as well as political connections, particularly at a local level and in the rural development context. As this power is held privately, it necessarily raises important ethical and societal issues related to the compatibility of large farms with democratic values. As a response to such societal debates, large farms may implement social responsibility strategies in order to address the ethical dimension of their operations. The entire complex of topics in relations to corporate activity should be analysed in-depth. Here, the external dimension includes aspects such as corporate social responsibility (CSR), the reputation, transparency, stakeholder management, and representation of interests of large farms. The internal dimension addresses so-called agency problems such as trust, social capital, employee rights and “organisational citizenship behaviour” within large farms as they are generally exposed to higher opportunism on the part of their dependent employees than traditional family farms. In developing and emerging countries, large-scale farms are often closely connected with the issue of land grabbing and the tense relationship of agrohholdings with subsistence farmers in their direct environment. Land reforms in many

countries including former socialist countries in Eastern Europe have not always benefitted local smallholders, but instead have allowed outside operators to purchase large pieces of land, causing unemployment and the creation of a class of landless unemployed workers without alternative employment opportunities. Moreover, such operations may gather considerable political clout, influencing political processes in their favour, distorting market forces and locking out alternative types of farms. The question of how mega farms can fit within regional agricultural development strategies is therefore of special interest. /x/

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The reform of workers' pay systems

in post-socialist agriculture:

East Germany and North Kazakhstan compared

Martin Petrick

/1/

Introduction

Based on Petrick (2017), this contribution summarises recent research on the current practice of motivating workers in post-socialist settings and it evaluates the different pay systems observed in reality.

- How do managers of large-scale farms provide incentives to their workers?
- Which are the effects of different pay systems on the productivity and profitability of farms?



/2/ Human resource management as a challenge for business administrators in post-socialist agriculture

The organisation of agriculture in the former socialist countries of Central and Eastern Europe and the Soviet Union was driven by the Marxist ideal that agriculture, like other industrial sectors, should be organised in factory-style collective enterprises and run by a hierarchically structured labour force. Whilst socialist ideology disappeared with the collapse of the political regime, large-scale farming structures survived in many successor countries and with them the need to organise agricultural labour based on hired workers. Human resource management (HRM) under the conditions of a market economy became a key challenge for business administrators in agriculture.

Two extreme cases representing the advancement of fast and slow reform in agricultural restructuring in East Germany and North Kazakhstan are contrasted. The analysis is based on survey data collected by Davier (2007) and the IAMO Kazakhstan farm survey 2012. The questionnaires used in these two surveys included identical questions on HRM and thus allow a direct comparison of pay systems in East Germany and Kazakhstan (Petrick, 2017).

East Germany entered the EU on the day of re-unification with West Germany in October 1990 and completed the transition process by the mid-1990s, when labour productivity had reached the levels of West Germany and the legal and institutional environment of farming was widely harmonised. North Kazakhstan represents a “slow” reform path, characterised by incompletely restructured state farms desperately in need of capital

injection and management upgrading. Today the typical agroholding encompasses several enterprises and cultivates up to 100,000 ha of cropland, occasionally even more. In addition large individual farms based on hired labour have been established.

/3/ Narrow vs. enriched job designs and the role of non-monetary incentives

Management concepts differ in how much emphasis they place on the financial elements of workers’ compensation (Lazear and Gibbs, 2015). At one extreme workers are assumed to be highly averse to drudgery and naturally inclined to shirk hard work, thus requiring strong monetary incentives at the margins. In a “Taylorist” organisation of the workplace independent experts break down the production process into narrow tasks which they optimise ex-ante in the form of detailed instructions and work norms. Workers are closely monitored and strictly paid according to their contribution to total output, typically in the form of piece rates. Historically, this approach of “narrow” job design led to massive gains from specialisation and it is not necessarily outdated.

Following modern views of “enriched” job design, workers are supposed to identify with their firm’s objectives and supply effort out of an intrinsic motivation. Such employees need little monetary incentive to perform their job well and they typically receive a considerable share of their salary as a time rate. Employers expect them to continuously and autonomously improve production outcomes and for their work to involve a high degree of multitasking and decentralised decision making. According to this second view, workers should be



Figure 1: Livestock farming in the Kazakh Steppe; the IAMO Kazakhstan Farm Survey 2012 examined agricultural producers of all sizes in the provinces of Aqmola, in the north, and Almaty, in the south of the country.

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assigned to jobs with which they identify and firms should invest in such attachments. This strategy will be cost-effective to the firm if production uncertainty is high and contracting of effort very costly or impossible, and if workers are particularly risk-averse (Akerlof and Kranton, 2010).

Agriculture has traditionally been regarded as a sector where gains from ex-ante optimisation and Taylorist approaches to industrial mass production are minimal (Allen and Lueck, 1998). The sequential and spatial nature

of crop production inhibits gains from specialisation and makes supervision costly. Throughout the growing season, workers must repeatedly shift from one task to another. Due to the fact that production is highly exposed to the natural environment, the pace of work cannot be controlled and assigning individual responsibility for harvest failures is difficult.

However, these factors seem to be less relevant in some forms of livestock production. If production takes place under controlled conditions within buildings and closed

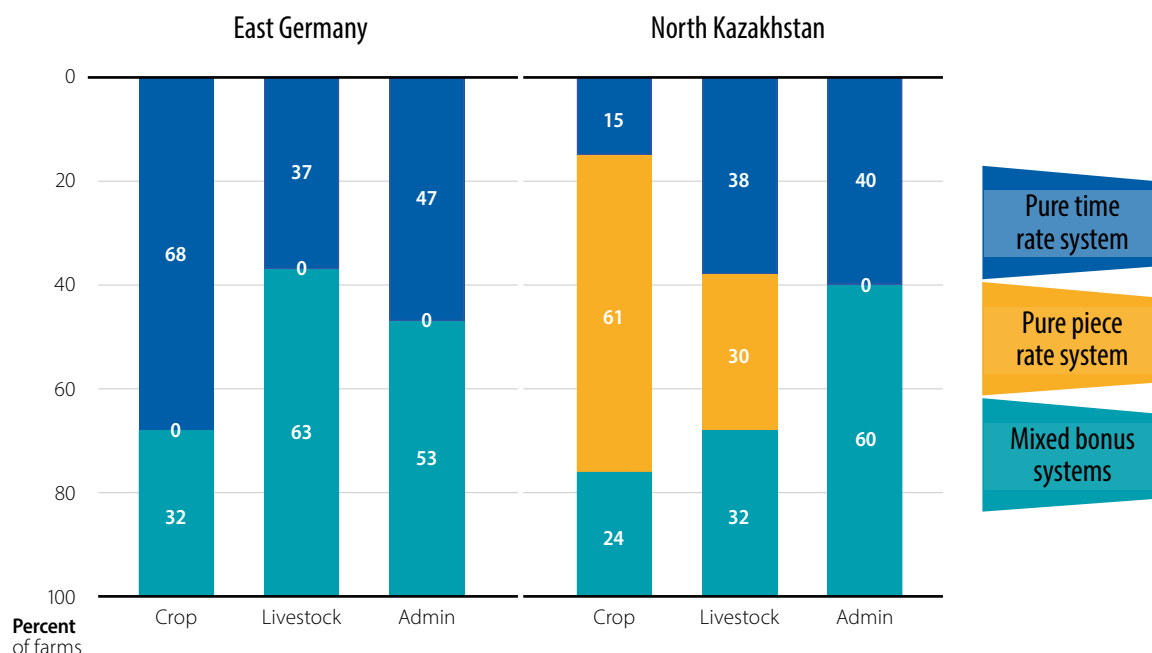


Figure 2: Share of farms using time and piece rate as well as mixed systems by production departments.
N=188 for East Germany and N=150 for North Kazakhstan (N= Number of observations)

Source: Petrick (2017)

production cycles, such as in large poultry breeding and hog fattening operations, payment linked to output, industry-type organisational principles and standardised job designs are observed more often. Moreover, falling communication costs due to new information technology (IT) solutions may allow better ex-ante optimisation and centralised control. This applies, for example, to precision livestock farming based on the monitoring of individual animal performance and health, which allows for workforce supervision and analytics.

4/ **Piece rates still widespread in Kazakhstan**

According to the survey data more German than Kazakhstani farms use time rates as the only payment system and German farms don't use piece rates at all. The starkest contrasts between the two countries can be observed in crop production (Figure 2). 85% of Kazakh farms employ performance pay systems. More than two thirds of those or 61% of all farms use pure piece rate systems in crop production. In East Germany,

68% of farms use simple time rates in crop production. The remaining East German farms run mixed systems in crop production, consisting of a time rate with performance-related top ups.

By contrast with this, the share of farms using pure time rate systems in livestock production, at almost 40%, is similar in both countries. Thus in Germany the prevalence of performance pay is higher than in crop production, whereas in Kazakhstan it is lower. However, 30% of farms in Kazakhstan also work with pure piece rates in livestock, whereas no farm follows this practice in Germany. Pure time rates are widespread in administrative departments in both countries. But the majority of the farms in both countries use mixed systems in this branch.

*/5/ **More enriched job designs in East Germany***

Farmers were also asked about their use of non-wage incentives (Figure 3). Again there is a marked difference between the two countries. Whereas the majority of German farms pursue the whole range of strategies listed in the figure, only gratifications and presents play an important role in Kazakhstan. This strategy probably comes closest to an immediate material benefit for the workers.

Strategies that invest in a long-term relation between the farm and the worker include access to further training, employer contributions to health and pension plans. Other strategies aim at the non-pecuniary factors of work relations, such as flexible working hours and a good working atmosphere. Both groups of strategies

were routinely practised on German farms but were rarely followed by Kazakh managers. In particular the practices to provide further training and to allow flexible working hours are indicators of enriched job designs in East German agriculture.

*/6/ **Farms can be successful with a variety of pay systems***

In Kazakhstan, farms using either mixed systems or pure piece rates were more productive than the reference group using pure time rates (Petrick, 2017). Labour costs per worker were lowest for pure time rate systems in both countries, followed by mixed bonus systems, whereas pure piece rate systems implied the highest cost in Kazakhstan. These results do not suggest that there is one optimal incentive system applicable to all farms in all places. Farms in both countries seem to work well under mixed bonus systems combining a time rate with a simple performance pay scheme, as it balances the trade-off between productivity and cost.

By contrast with their Kazakhstani counterparts East German managers pay a lot of attention to non-wage incentives. In Kazakhstan, even under mixed bonus systems, job designs appear to be still narrower and more hierarchical. Managers tend to move away from the Soviet piece rate system if external investors become engaged in farming operations and if farms specialise in crop rather than livestock production. More research is required into how exactly mixed bonus systems should be designed and how they relate to other productivity and cost affecting characteristics of farms.



Figure 3: Share of farms using specific non-wage incentives

Source: Petrick (2017)

77/ **Lessons for the reform of pay systems in agriculture**

The principles of narrow job designs and piece rate payment heavily influenced the industrialisation of agriculture in the former socialist countries. The evidence presented above suggests that the influence continues today, although it tends to vanish when the overall economy becomes more liberal and individualistic. In the very first years of transition large farm managers in East Germany replaced the Soviet system by much less

complicated time rate schemes. Some managers continued to pay wage bonuses for certain performance parameters, leading to mixed bonus systems. By contrast with this, the Soviet piece rate approach persists up to the present day in many farms in North Kazakhstan. Moreover, the latter rarely use non-wage incentives to motivate their workers. Most East German farmers stress that they invest in team building, allow flexible working hours and provide benefits such as pension plans, further training or job security. These practices indicate that more enriched job designs involving worker

autonomy, multitasking and higher skills took root in East German agriculture. Even so, the majority of farms in both countries use some sort of performance pay in livestock production.

The previous findings raise the question of whether managers in “slowly” reforming countries such as Kazakhstan can learn from more “advanced” reformers in East Germany. A careful assessment of this question should take into account that payment modes represent only one piece of the system of the HRM practices

that reinforce each other. Moreover, they are part of an institutional environment and a set of social habits. In a study of traditional Russian companies under the influence of Western investors, Michailova (2002) points out how Russian managers consider more autonomous job designs for workers as a “dangerous loss of power”. In addition she argues that due to a legacy of a “socialist collectivist-autocratic system”, workers feel secured and guarded by an authoritarian boss and thus “prefer directives instead of discussions” (pp. 183–4).



Figure 4: Labour dimensions; 520 employees, equipped with modern international technology, farm approx. 50,000 ha of land for the supply and milk production of 1500 cows at the Rodina agricultural enterprise.

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After the collapse of socialism the economic environment changed tremendously in East Germany, but much less in the successor states of the Soviet Union. Outside this historical window of opportunity, fundamental change is more difficult to induce. /x/

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Russia's

import substitution policy in the agricultural sector:

***The development of the Russian
pork sector***



31

/1/ Introduction

The Russian government is pursuing an import substitution policy to modernise its domestic agri-food industry. The goal is to ensure Russia's extensive self-sufficiency for all agricultural products and processed foods. What's more, the Russian government aims to make the Russian agricultural sector one of the world's largest exporters of agricultural products and a global player in the field of international agricultural trade.

The goals, which are aimed towards the internal market on the one hand, and the global market on the other, are essentially pursued by means of two instruments: a protectionist agricultural trade policy based on import tariffs, non-tariff barriers to trade and even import bans should keep imports away from the Russian market. In actual fact, the measures are effective in the sense that imports of agricultural products and food have been drastically reduced. At the same time, additional incentives have been created for investments in the domestic agri-food sector, due to the fact goods produced domestically are intended to replace imports. This purpose is served by extensive financial aid or agricultural subsidies are used within the framework of large-scale agricultural support programmes.

However, this policy brings with it a whole range of risks. Thus, protectionism increases the risk of developing an inefficient indigenous agricultural sector characterised by relatively high production costs or low product quality compared to its competitors in the highly competitive global market. If the Russian import restrictions were lifted, it is conceivable that unprofitable Russian providers would themselves be forced out of the market by foreign competitors.

Furthermore, dissociation from the global market can also lead to an increase in price volatility in the domestic market (e.g. Jacks et al., 2011). Our research suggests that the increase in domestic pork price volatility goes hand in hand with Russia's separation of itself from the international pork markets.

12/ Russia's international trade in pork

The development of the Russian pork sector is of key importance to Russia's import substitution policy in the agricultural sector. Figure 1 shows the level of Russian pork imports from the main five countries of origin. It makes evident that Russia's increasingly restrictive pork import policy has had a significant impact on the origins of its pork imports. Between 2004 and 2012, Russian pork imports mainly came from Germany, Denmark, Canada, the USA and Brazil. Now, only Brazil of the five countries mentioned, exports pork to Russia.

The import substitution policy in the pork sector commenced in 2004 upon the enforcement of a tariff quota of 450,000 tonnes. Within this quota an import duty of 40% was applied, which increased to 68% for all other import volumes exceeding this amount (Djuric et al., 2015). This customs regime applied until August 2012, when, following Russia's accession to the WTO, the tariff rate was reduced to 5% for the tariff quota and 65% for the imports exceeding this quota. However, despite the lowering of the pork import duties, imports of pork shrunk markedly from 2012 onwards upon the enforcement of non-tariff trade barriers. Thus, in December 2012, for instance, the Russian government imposed a ban on selected pork export companies in Germany. Since this time they have no longer been permitted to export pork to Russia. This ban was extended to all relevant exporting companies from Bavaria, North Rhine-Westphalia and Lower Saxony in February 2013.

Rosselkhoznador, Russia's Federal Service for Veterinary and Phytosanitary Surveillance, officially justified these interventions by stating they failed to comply with Russian phytosanitary standards. Following the

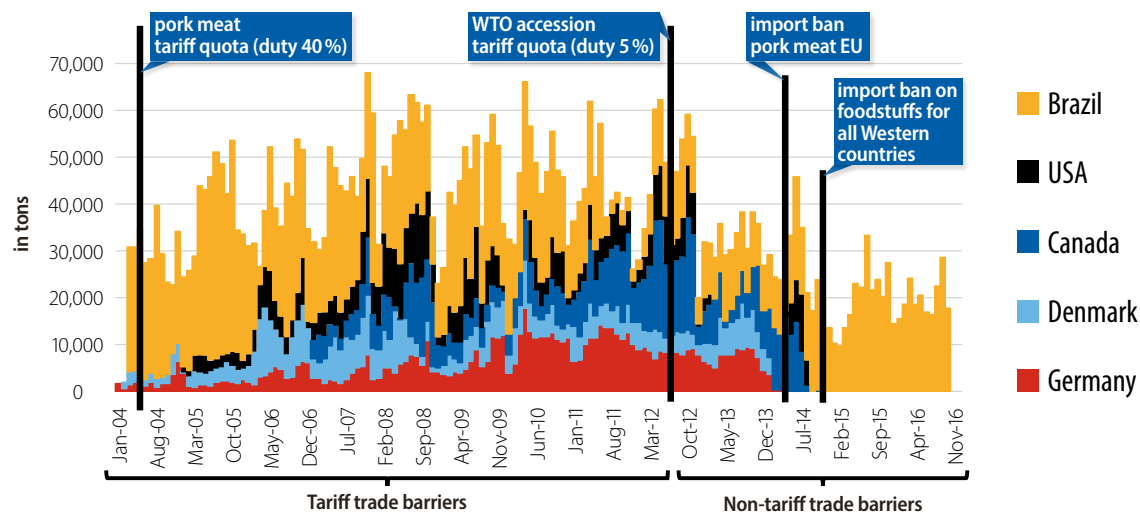


Figure 1: Russia's trade policy for pork: In 2013, the Russian Federation further extended the import ban on pork to all German companies. Since 2014, the country has only been importing pork from Brazil.

© Own research. Data: Rosstat (2016), ITC (2016)

outbreak of African swine fever in the Baltic countries, all EU pork imports were banned in January 2014. Therefore, no pork imports from Germany and Denmark are currently observed. Finally, in the wake of the Ukraine crisis in August 2014, all Western countries were issued with a general import ban on agricultural products. Thus, all pork imports from western countries came to a complete standstill. This also affected Canada and the United States. So far, the Russian import ban on agricultural goods and foodstuffs from western countries has been extended for the third time and is currently valid until the end of 2018.

13/ **Characteristics of the pork sector**

This protectionist trade policy has been accompanied by extensive promotion of investments in the field of pork production through various modernisation programmes for Russian agriculture. Figure 2a displays the subsidies for the pork sector for the period 2008 to 2016 in roubles and in euros. In actual fact, the import substitution policy is successful insofar as it has already been possible to achieve the self-defined agricultural policy goal of increasing the degree of self-sufficiency in the pork sector to at least 85% by 2015. As Figure 2b illustrates, self-sufficiency in the pork sector increased from 67% in 2012 to 88% in 2016 and 2017.

Figure 3 illustrates that through the expansion of domestic pork production, there have been extensive regional relocations from the Southern Region to the Central Region. Pork production has become increasingly concentrated in Belgorod since 2006. This oblast currently covers almost 20% of total Russian pork production. Pork production in the neighbouring regions of Kursk and Tambow has also increased sharply since 2010. Conversely, production in the previously key pork production regions of Krasnodar and Rostov in the Southern Region has decreased markedly.

This development is accompanied by a forced expansion of the highly integrated agroholdings. Agroholdings control several stages of the value chain, from feed production to pig farms, slaughterhouses and

sometimes even distribution to end consumers through their own supermarket chains. According to the Russian statistics office, the share of agroholdings increased from 31% in 2002 to almost 70% of Russian pork production in 2016. In Belgorod, almost two thirds of pork production is accounted for by the two agroholdings Miratorg and Agro-Belgorje.

/4/ The development of price volatility

We measure the development of price volatility in the domestic pork sector at two stages of the Russian value chain for pork, pig production and slaughter and meat processing, in order to analyse the impact of the import substitution policy on price volatility in the pork

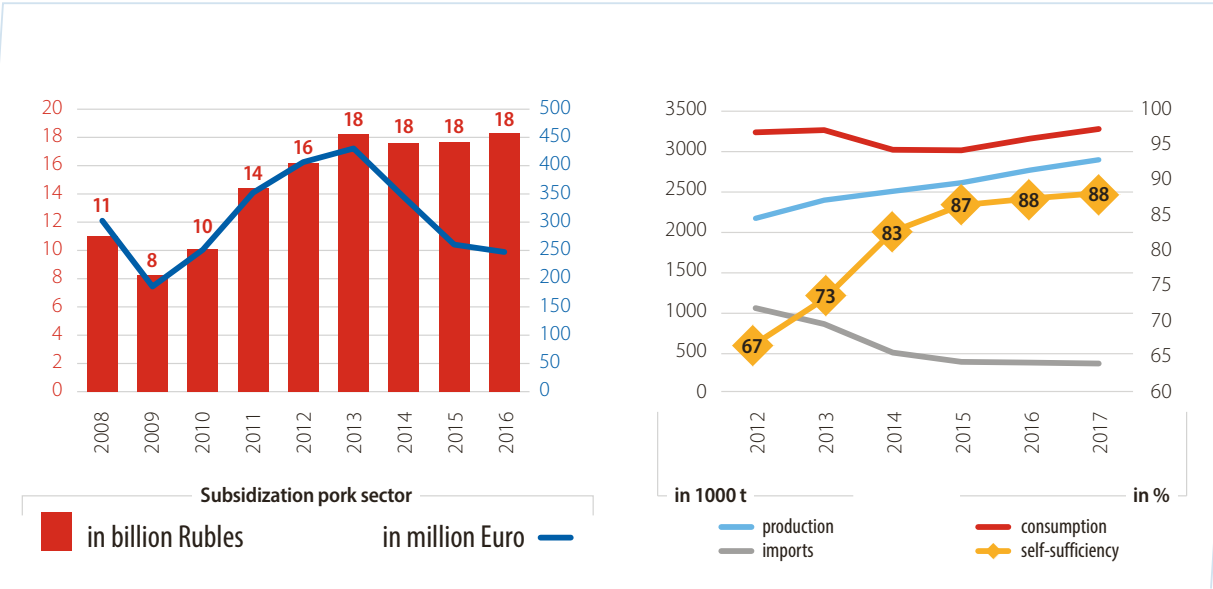


Figure 2a: Subsidising of the Russian pork industry

Figure 2b: Degree of self-sufficiency in the pork sector

© Own research. Data: Russian Union of pork producers (2016), Rosstat (2016)

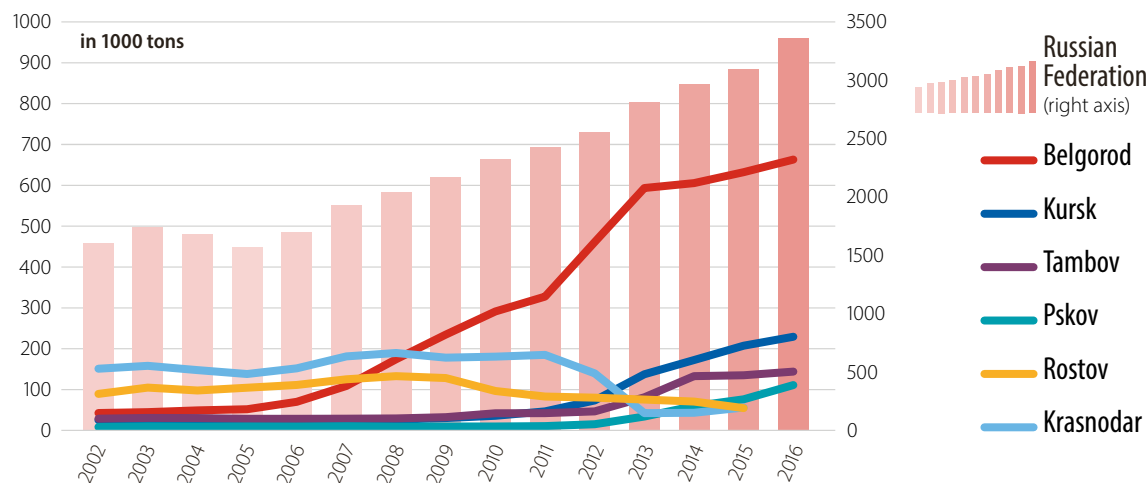


Figure 3: The development of pork production in the key production regions of Russia (2002–2016)

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sector. It can be seen that the prices for pigs according to their live weight and according to their slaughter weight were relatively stable until the beginning of 2013. Following this, and in particular following the imposition of the import ban on agricultural goods and foodstuffs in August 2014, the rates of change and volatility of both prices have increased dramatically. Moreover, all the above pork prices as well as the consumer prices showed a marked increase in 2014/2015.

Our first econometric results (see Götz and Jaghdani, 2017) demonstrate that price volatility increased sharply at the same time as the decline in pork imports and the expansion of domestic pork production. The risks in the pork value chain have thus markedly increased. Price volatility has increased dramatically since the start of 2014. At the same time, the spill-over effects of volatility

and thus the interdependence of the slaughter weight and live weight prices for pigs have greatly increased in the wake of declining pork imports.

Our results suggest that the increase in domestic pork price volatility goes hand in hand with Russia's separation from the international pork markets. This has led to a situation where the domestic offer has a marked impact upon the prices and there are extreme fluctuations in price. Local pork supply shortages or supply surpluses, for example, have been caused by outbreaks of African swine fever and the rapidly increasing regional concentration of pork production in individual regions and the simultaneous decline in production in other areas. A high level of price volatility places special demands upon the risk management, causes additional costs and consequently reduces the profitability of pig production.

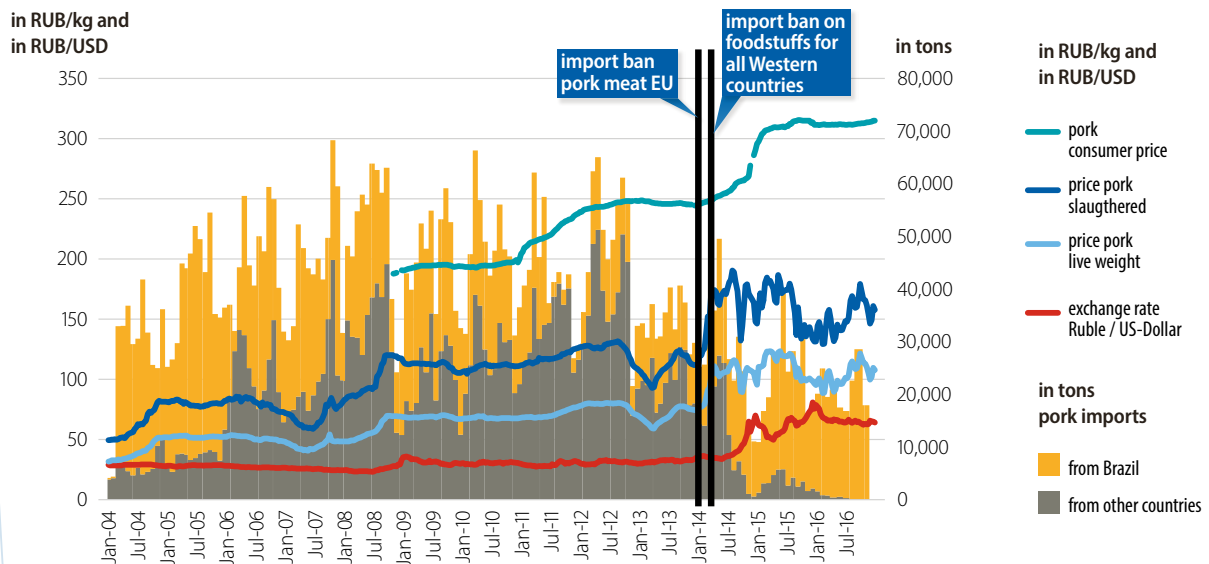


Figure 4: Price developments in the pork value chain

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It is currently not possible to foresee when the Russian import ban, which was extended until the end of 2018, will be lifted, and the Russian pork sector will be fully exposed to international competition. However, there are clear indications that the large integrated agroholdings are able to produce very efficiently and are internationally competitive. Russia is now increasingly acting as an exporter of pork on the international markets. Therefore, despite the increase in risk in the domestic Russian market, it can be assumed that there will only be limited opportunities for the marketing of European or German pork in Russia following the lifting of the import ban. /x/

This study is conducted as part of the STARLAP project funded by the General Federal Ministry of Food and Agriculture (BMEL) and the Federal Office for Agriculture and Food (BLE). The project aims to examine the impact of Russian agricultural and trade policy on the agricultural and food sectors of Russia and their impacts on the EU and Germany. The study is documented as a contribution to the Gewisola conference (Götz and Jaghdani, 2017). You can obtain additional information about the project at

<https://www.iamo.de/forschung/projekte/details/starlap/>



Figure 5,6: Agrohholding in Belgorod, fallow land in European Russia. A rapid increase in the regional concentration of pork production in areas such as Belgorod with a simultaneous decline in other regions can be clearly observed.

© Martin Petrick (above) © Alexander Prishchepov (below)



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/1/ Introduction

In order to prepare future members for EU membership the EU signed an agreement with Moldova, Ukraine and Georgia, the so-called Deep and Comprehensive Free Trade Area (DCFTA) in September 2014. The agreement already entered into force with Moldavia and Georgia in July 2016, and with Ukraine in September 2017. The aim of it is the gradual integration of the economies of the potential accession countries within the European economy. Even if the results of the agreement cannot be precisely quantified due to its short-term effectiveness, it is possible and worthwhile to present a methodology to determine the effects from the point of view of the preferred countries and the EU at this time.

Ulrich Koester

39

The EU-Georgia Free Trade Agreement: The Impact on Agricultural Trade and Welfare

This methodology makes it possible for the preferred countries to indicate how they can further increase potential welfare gains through specific implementation measures and internal adjustments. Although the content of the agreement is the same for all three countries, the effects will vary depending on the respective market situation for individual products and based on the potential for adaptation as well as domestic agricultural and economic policies.

Therefore, an analysis of the potential effects of the EU agreement with Georgia is initially planned. This restriction is appropriate, as the agreement with Georgia has, for instance, been in force longer than with Ukraine. However, the methodology presented can be largely transferred to the analysis of the DCFTA agreements with the other two countries. Research to date has been limited to the effects of the agreement on agricultural trade. This limitation makes sense, as the agreement completely eliminates tariffs on imports from Georgia to the EU and imports from Georgia for the EU with immediate effect; all that remains is an import quota for garlic and specific measures for the importing of fruit and vegetables resulting from the fixing of minimum import prices for fruit and vegetables in particular situations.

The main concern of current research is to identify those particularities of the implementation of the agreement, which, from the point of view of the preferred countries, can be most beneficial.

The research project was inspired by the widespread view that trade preferences would result in an approximation of a free trade situation; free trade can contribute to the integration of national economies and thus

lead to higher levels of welfare, at least for the preferred countries.

A team of experts has already calculated high welfare effects for the preferred countries (Movohab and Shporlyk, 2016). In 2012, another team tried to assess the impacts for Georgia and Moldova (Ecorys, 2012). However, these studies have not discussed alternative methods for quantifying the impact of the agreement and, moreover, they missed the importance of the form of implementation of the agreement on the impact. One aim of this study is to show that the impact of this agreement is related to the existent and chosen institutional framework for the future; hence, the methods for assessing the impacts have to be related to the institutional framework, including specific supporting policies. We intend to show that the direct effects of specific agreements may favour only some domestic or international companies and not the society as a whole. However, the dynamic effects, supported by enabling policies, could result in economy-wide welfare effects.

/2/ **The content of the agreement**

The free trade agreement between the EU and Georgia is called the Deep and Comprehensive Free Trade Area (DCFTA). The name itself indicates that Georgia should be gradually integrated within the European Market. The agreement therefore incorporates much more than agricultural trade liberalisation. Nevertheless, we focus only on this policy change because the agricultural sector in Georgia is still the most important for overall employment. Article 26, "Elimination of customs duties on imports" of the Association Agreement, states:

“The Parties shall eliminate all customs duties on goods originating in the other Party as from the date of entry into force of this Agreement except as provided in paragraphs 2 and 3 of this Article and without prejudice to paragraph 4 of this Article” (EU, 2014). The Agreement entered into force on 1 July 2016.

The demands for trade preferences fundamentally only result from the protection of trade in the preference-granting country. Trade preferences are thus a child of protectionism. These preferences are not – as shown below – equivalent to what is almost an approximation of a free trade situation. Nevertheless, reducing protectionism of the EU for preferred countries can generate positive effects in these countries; the original trade flows from Georgia to the EU were depressed due to higher protection for agricultural products in the EU. EU protection for agricultural products is significantly higher than for non-agricultural products (about 4.4%

for non-agricultural products and 14.4% for agricultural products). Therefore, abolishing EU tariffs for imports from Georgia may well have positive trade and welfare effects for Georgia.

However, it would be misleading to assess the impact of the trade association on the welfare of participating countries based only on trade information. Trade is not performed by countries, but by traders. Traders may be located in countries other than the preferred country in which the foods in questions were purchased for export to the EU. Moreover, traders have no direct incentives and can hardly be forced to hand over the profits gained due to the trade agreement to domestic consumers or producers. Whether they themselves can retain the potential profits depends primarily on the competitive situation and the domestic market situation. Therefore, it is important to particularly present this aspect in detail in the following.

Table 1: Import duties of the EU and Georgia before the Agreement and with the Agreement

Source: WITS Datenbank

Simple average		
A. All the products		
	2013	2015
Georgia	0.6%	0%
EU	6.5%	0%
B. Agricultural products		
	2013	2015
Georgia	12.0%	0%
EU	14.4%	0% with exceptions

In order to assess the impacts of the preference agreements on the change in trade flows, the size of income, its distribution, and welfare of the population of a country, we use a partial market analysis taking into account the differences in trade protection for the individual products and the specific market situation for the individual products in the EU and in Georgia. We apply a comparative-static analysis in the first step in accordance with traditional trade theory. The rationale for these assumptions was to clarify the effect of abolished tariff rates on induced trade flows.* However, the free trade agreement will not only lead to direct trade effects. Indirect effects caused by changes in domestic economic and agricultural policies may instead augment the direct effects significantly.

If the EU generates an export surplus for individual products and domestic producers are only protected by import duties, these tariffs are redundant. The relevant domestic price is equal to FOB parity prices. Hence, lowering EU tariffs for imports from Georgia will have no effect on the prices in the EU. For this reason Georgia will not receive higher prices than previously for these products in the EU. It should be noted that this group of products includes narrowly defined goods with respect to time, location, and any other attributes that make the products different from the point of view of consumers at a specific point of time. In particular, the market situation may change significantly from year to year, and from place to place and seasonally, in particular for the products of the product groups mentioned.

/3/ The trade potential of Georgia for products with an exportable surplus in the EU

Georgia generated 25.6% of its total export earnings from exports of agricultural products in 2016. Of this, 21.13% was accounted for by the product groups of wine and spirits, as well as fruit and nuts and 2.6% by livestock. Due to phytosanitary reasons and corresponding trade restrictions, initially only an increase of the first two product groups mentioned will be possible. However, the question of whether the Georgian export potential to the EU for individual products of these groups can be significantly increased as a result of the changed EU import regulations depends on the market situation for the individual products in the EU and in Georgia.

/4/ The trade potential of Georgia by diverting exports and import needs in the EU from third countries

If Georgia has an export surplus for certain products as a result of exports to non-EU countries, diversion of export flows will only occur if the EU has an import requirement for this product. In this case, FOB parity prices are applicable to domestic market prices in Georgia. In the EU, on the other hand, the EU import prices plus the fixed import duties on imports from third countries apply. Traders from Georgia can therefore export to the EU at a profit. In Georgia, the domestic price will initially not change merely as a result of the diversion of trade flows. It only increases if the total exports of individual export products to the EU displace all EU imports from third countries. However, as a result of the trade diversion into the EU market in an import situation, a price change may occur if exports from Georgia would not

* Georgia is an overall net importer of food products (by 30% of domestic production); the EU is an overall net exporter of food products, but a net importer or seasonal importer of some food products..



Figure 1: About 50% of Georgian workers work in agriculture. They do not necessarily benefit from an increase in trade. Whether exporting traders pass on increased profits to farmers depends on the market situation.

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only completely displace but also exceed exports from third countries to the EU. However, this kind of situation would appear very unlikely at this point of time.

An interesting case concerns a situation in which Georgia is an exporter of a specific good to destinations other than the EU and the EU is an importer of this product. Tariff reduction will lead to a redirection of Georgian

export destinations in this case. Traders will then make a profit from trade with the EU. Because Georgia will most likely not be able to cover the whole import gap of the EU and the EU may still have to import from countries that do not enjoy trade preferences, the EU price will not be affected by additional imports from Georgia. Likewise, the price in Georgia will not increase because there is only a redirection of the export flows.

/5/ Trading potential in the case of the import of the product concerned by both trading partners

The most interesting case concerns a situation in which both parties are importers and, hence, domestic prices are equal to cif border prices plus tariffs. Because tariff rates are higher in the EU than in Georgia, abolishing tariffs may lead to profitable trade from Georgia to the EU. Internal prices in the EU will not be affected as long as the EU still has to import from countries, which do not enjoy trade preferences. Prices in Georgia may also remain unchanged because Georgia has to submit a certificate of origin for exports to the EU. Thus, additional exports to the EU will be compensated by additional imports from the world market by Georgia. Consequently, tariff revenue of Georgia will rise. The effect on tariff revenue in the EU is the opposite; the EU has to import tariff-free from Georgia, and reduces imports from third countries by the same amount. The loss in EU tariff revenue is larger than the gain in tariff revenue for Georgia due to the positive difference in tariff rates between the two parties. Thus, the agreement will lead to a transfer of income from the EU to traders who deal with exports from Georgia to the EU. Of course, these traders may be of Georgian or foreign origin, including international companies. For instance, 230 German companies were represented in Georgia in 2016. It is thus not at all clear that the Georgian society gains directly from this additional trade. However, there is one clear benefit for Georgia: customs revenues increase as the exported volume to the EU will be balanced by imports from third countries. Thus, welfare of Georgia increases somewhat even if trading companies transfer the profit from additional trade to foreign countries. The loss to the EU due to the loss in tariff revenue will be significantly higher

than the gain to Georgia while the effects do not make a contribution towards an efficient transfer policy. There are better alternatives to support the adjustment process for Georgia to prepare for EU membership.

/6/ Political strategies for adjusting the Georgian economy to the new trading conditions: Focus on dynamic effects

In spite of the reservations mentioned above, the DCFTA may contribute to significant positive effects in Georgia. The trade agreement will contribute to higher tariff revenue, even in the short run, making public funds available for promoting further economic reforms and thus stimulating agricultural production and trade. Moreover, enhanced openness of the country will stimulate internal adjustment and will promote agricultural as well as overall growth of the economy.

1. Georgia is not the only country that has benefitted from special trade preferences. Therefore, we recommend investigating the experiences of other countries. Countries with outstanding experience include Brazil, Turkey, Serbia (concerning trade in raspberries), and Kenya (concerning trade in flowers). Organised tours to these countries for entrepreneurs and policymakers could serve as an eye opener and could give rise to new ideas.
2. The benefits from trade agreements mainly depend on the parties' willingness and ability to change. Better education and the opening up of economic alternatives will mitigate traditional constraints.
3. Benefits of the trade agreement could be enhanced through ongoing market observation in the EU ensuring

- potential traders are sufficiently well informed. This information is necessary because the market situation will change rapidly especially in those markets where Georgia expects to expand its trade and will be influenced in particular by the EU's minimum import price. A "market intelligence unit" could inform domestic and foreign agents of new trading opportunities. Improving education and offering specific seminars and information on EU markets, including the effect of EU market regulation, could be helpful.
4. The sown area in Georgia in 2014 was only 45.4% of that in 1990. The hypothesis is that insecure property rights are the main cause of this. The government of Georgia could make an important contribution to growth in the agricultural sector by enforcing property rights.
 5. The small average farm sizes in Georgia limit market integration of the numerous agricultural enterprises. There are some good examples available from other countries showing that setting up regional markets or collecting centres contributes to market integration of farms.
 6. The shadow economy in Georgia has declined over the last couple of years, but the share of the informal economy in percent of Gross Domestic Product (GDP) seems to be high in rural areas, mainly due to high rates of unemployment. Integrating this part of the economy into the formal economy would give rise to increased transactions and, thus, a higher GDP growth rate that would help to boost trade.
 7. Supporting the improved quality of products, in particular in the livestock sector, would widen trading opportunities with the EU.
 8. It is a worldwide observation that trade in processed foods has grown significantly more than trade in pure agricultural products over the last decades. Georgia is still mainly trading unprocessed agricultural products. The country's competitiveness in the trade of processed foods therefore has to be strengthened.
 9. International trade in agricultural and food products is increasingly the result of sophisticated supply chains, where one country may be an exporter of raw material and an importer of the final product. Georgia has to build up supply chains for individual products, starting with those products, which seem to have the best prospects in EU markets.

/x/

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Thomas Herzfeld
Axel Wolz

Promotion of science in the new EU member states:

Experiences from the ENHANCE project

47

// Introduction

In addition to the implementation of research projects and policy advice, the promotion of young talent constitutes one of the IAMO's core tasks. In addition to supervising doctoral candidates at IAMO, holding of courses at Martin Luther University and within the framework of the Graduate School of Agricultural Economics, this also includes the provision of qualification offers in the countries of the area under examination. Among them, summer schools represent an instrument that has been successfully implemented for a long time. A special approach and one that is also new for the IAMO, is the ENHANCE (Excellency **N**etwork for **H**eighting **A**gricultural **e**co**N**omic **r**esear**C**h and **E**ducation, PN 691681) "Twinning" project, funded by the European Union under the "Horizon 2020" research framework programme. This project was launched on 1 January 2016 and will run for three years until 31 December 2018.

/2/ **Motivation of the European Commission for the launching of the twinning programme**

The starting point for the launch of this cooperation programme was the recognition that most of the new EU Member States in Central and Eastern Europe are significantly lagging behind in the areas of (agricultural) scientific research and education compared to the “old” EU states. Scientific excellence, however, is a key element to train current and future generations for the increasingly complex tasks in science, but also in business and administration, as well as to attract and successfully implement innovative research projects when

faced by international competition. Here the indicator used throughout Europe, which measures scientific excellence at a national level, itself comprises four individual indicators. On the one hand, it concerns the number of published scientific publications and the volume of research funds obtained. In addition, the number of patent applications as well as the number of top universities and public research institutions are listed as individual indicators. These four individual indicators are used to derive an overall indicator that makes it possible to compare countries (EU 2013).

The European Commission, with the Twinning instrument, aims to bridge the research and innovation gap

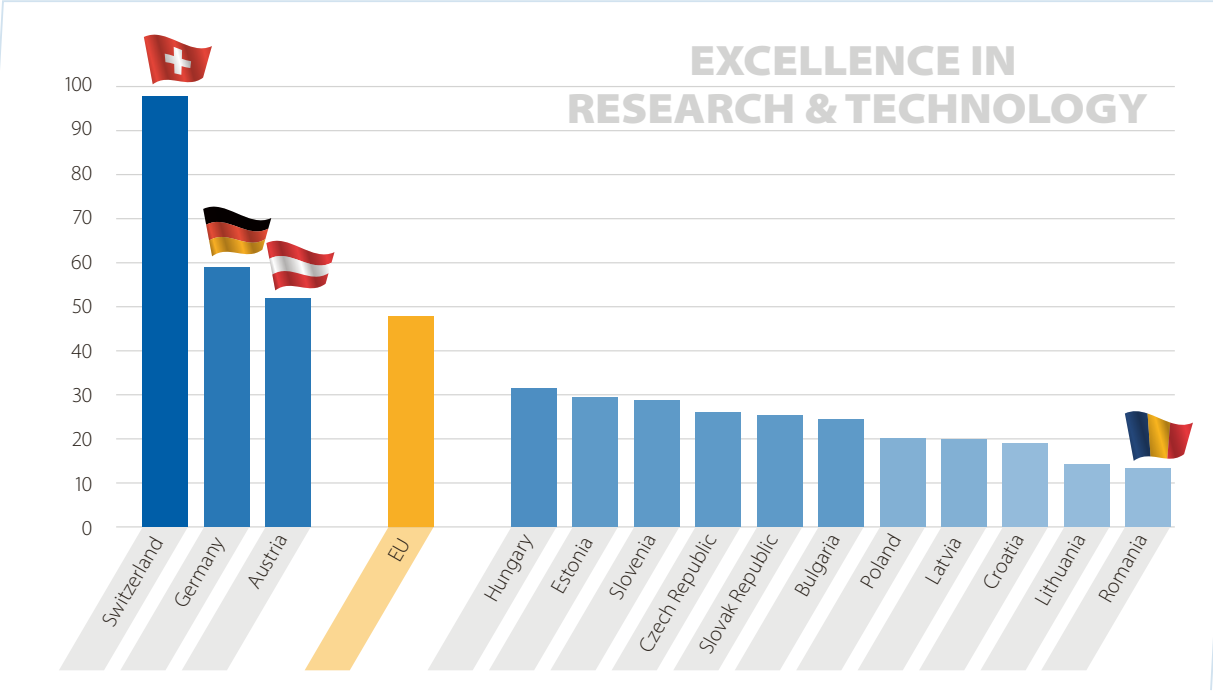


Figure 1: Indicator for the assessment of excellence in research and technology development in the EU

© Own presentation according to European Commission (2014)

in the EU and strengthen science organisations in countries that are not as strong in research terms through cooperation with leading international partners in Europe (EU, 2017). Twinning projects aim to boost excellence in research and technology development in those countries whose overall indicator is below the 70% mark of the EU-27 average. In the EU, this applies to 16 countries, mainly the accession countries in 2004 and 2007. For example, at 13 points, Romania is well below the EU average at 48 points and the threshold value of 34 points (Figure 1, values for 2012). In delimited projects, scientific teaching in particular should be strengthened in order to improve the quality of research (in the medium term) in the countries concerned. The analytical-methodical processing of research questions, as IAMO has already frequently successfully performed in international project networks, is not provided for in this instrument. Instead this is more about a transfer of know-how. More intensive networking among the partners involved should enable the hitherto less successful member states to catch up with the leaders in the medium term. In addition, the EU Commission expects the economy to benefit from twinning projects, e.g. through well-educated graduates. Therefore, the funded projects should build on the national development strategies and thus contribute to a positive overall development.

As in the case of other Horizon 2020 projects, there is an annual call for proposals for the instrument and applications are subject to a rigorous review process.



/3/ **The “ENHANCE” project**

Although Romania has historically been a major agricultural producer and its potential is very high, it is only being exploited to a very modest extent. Among other things one of the main reasons is the low level of agricultural research and training. Although the University of Agriculture and Veterinary Medicine (USAMV) in Bucharest is one of the country's premier universities, its international reputation is a modest one. Against this background, the EU is promoting a project proposal to enhance training and scientific excellence in the field agricultural economics at the Faculty of Management, Economics and Rural Development (FMIEARD). Within the framework of this project, the level of scientific excellence of the agricultural economists should be increased and brought up to international standards. Under the guidance of the USAMV, IAMO, the Federal Department of Economic Affairs, Education and Research in Ettenhausen (AGROSCOPE, Switzerland) as well as the Department of Economic and Social Sciences of the University of Natural Resources and Life Sciences Vienna (BOKU, Austria) have formed a consortium to manage this task.

Concrete project goals of ENHANCE are to create incentives for researchers to conduct research and publish works on an international level and to enter into international cooperation (Figure 2). Due to the fact twinning pursues a sustainable strategy, a central component of

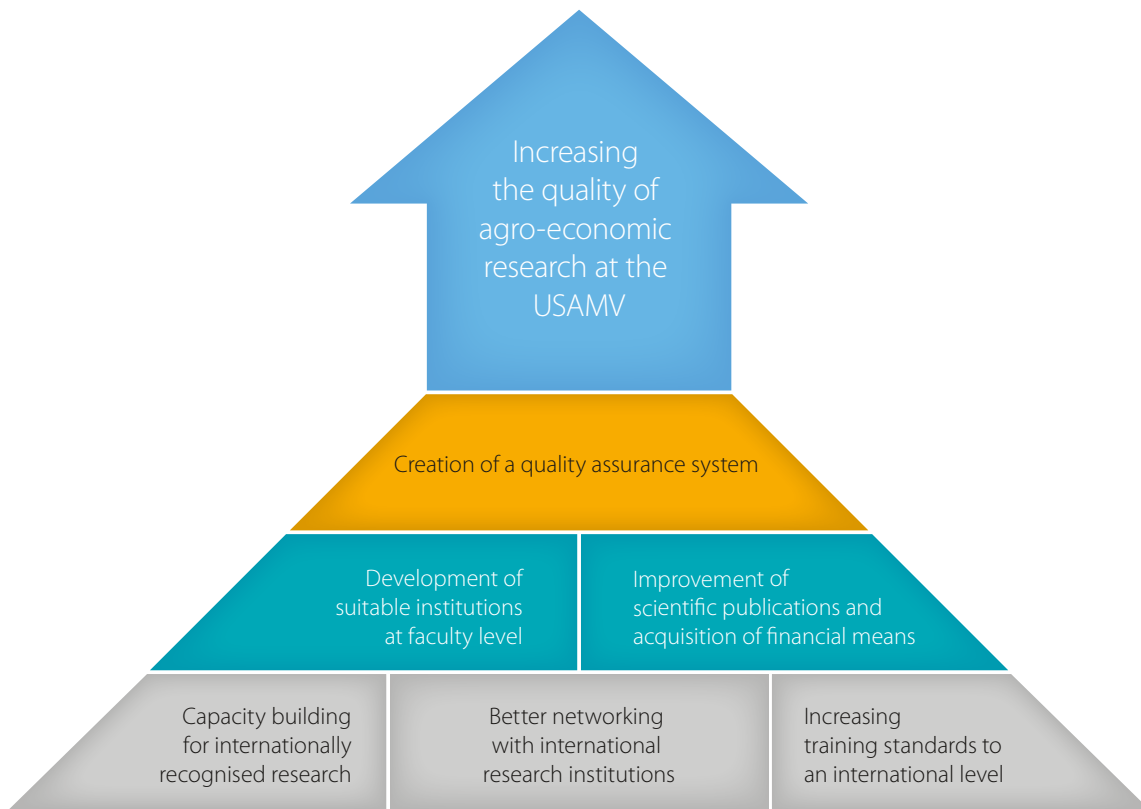


Figure 2: General and specific objectives of the ENHANCE project

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the project is to raise the standards of post-graduate education at the FMIEARD. The aim is to achieve a substantial increase in the quality of agro-economic research and, as a result of this, the international recognition and visibility of the USAMV's Agricultural Economics Faculty. By way of an increased appreciation of its research, the visibility of the increased publication in international journals and the acquisition of competitive third-party funds should increase. This ensures that even following completion of the project the research level can be

maintained and further expanded. In the medium term not only a clear improvement of scientific achievements should be striven for, but ENHANCE also wants to contribute to the strengthening of sustainable development of agriculture and rural areas in Romania through the training of highly qualified and methodically accomplished agricultural economists.

/4/ *Specific forms of cooperation: Training courses, summer schools and staff exchanges*

In order to achieve this goal, it is necessary to fully exploit and further develop the USAMV's existing agro-economic potential. In terms of the content, the focus is both upon teaching quantitative methods, such as modelling, simulation and econometrics, as well as qualitative concepts. However, multiple methods of institutional economics are also considered. In this case, the three Western partners have different priorities: AGROSCOPE focuses on methods of applied statistics and econometrics, BOKU on qualitative and quantitative methods, while the IAMO focuses on economic modelling and simulations.

The project goal is implemented in four work packages (WP) in addition to the task areas of public relations work (WP5) and coordination tasks (WP6). WP1 is about improving the strategic teaching and research planning ("Institution Building") at the faculty. Specifically, this includes a critical self-assessment of its own teaching and research activities according to a criteria matrix that is used internationally in evaluations of universities and research institutes. This evaluation also includes an outlook on which aims FMIEARD wants to achieve by the end of the project. In addition, a mentoring program has been set up in which FMIEARD employees and the three partner institutes cooperate with regard to their research work on specific, mutually interesting topics. This ranges from the discussion of specific questions to the double-checking of draft texts for articles or the development of joint articles to the preparation of joint research applications.

The second WP is about deepening the expertise of FMIEARD staff, as well as PhD students and Master's students during four-day seminars. Each partner institute focuses on one of the subject areas mentioned in the previous section and offers four seminars each during the three-year project term. The IAMO has held three training courses to date. Specifically, these are an "Introduction to Agricultural Commodity Future Transactions" (15–18 November 2016), "Economic Models of Policy Evaluation" (27–31 March 2017), and "Agent-Based Models in Agriculture" (24–27 November 2017). The fourth course "Sector Models in Agriculture" took place in the spring of 2018.

The third WP promotes the mutual interchange of ideas between employees of the participating research institutes. The FMIEARD has a total of 44 person months available, which are relatively evenly distributed between the three partner institutions in two to three month stays. Conversely, IAMO has eight person-months available for stays at the USAMV. These mutual research visits should consolidate the scientific interchange of ideas on methods and theories and create opportunities for joint research projects and publications. Six colleagues have each come to IAMO from Romania for periods of up to three months until December 2018. IAMO employees will also take advantage of this opportunity in the course of 2018.

The fourth WP aims through summer schools to improve the agro-economic professional standards of FMIEARD PhD students and employees. Moreover, PhD students from all over Europe can apply to attend the summer schools. The summer schools are held for a week in September in each case. Up to 25 doctoral candidates can

participate in a course and receive 5 ECTS credits if successful.

In September 2016 BOKU organised one summer school entitled "Scientific work". In September 2017, a course conducted by AGROSCOPE dealt with the topic of "Evaluations of Policies and Welfare Analysis". In September 2018, three lecturers from IAMO taught concepts of institutional economics. One goal of ENHANCE is the permanent establishment of this sum-

mer school and its continuation under the auspices of the FMIEARD.

The project is subject to constant critical reviews by external assessors. These include, on the one hand, the Practice Advisory Council, which includes representatives of Romanian agricultural associations and the national Ministry of Agriculture. In addition, a scientific advisory board supervises the project's specific steps. It consists of certified experts from various EU countries



Figure 3: Prof. Sorin Mihai Cimpeanu, Rector of the University of Agriculture and Veterinary Medicine (USAMV), welcomes the participants in the kick-off meeting of the 2016 ENHANCE project.

who are very familiar with the problems of agricultural economics research in Central and Eastern Europe.

/5/ **Evaluation of the work to date**

The course of the project to date has above all revealed the high level of motivation of the persons involved to contribute towards the implementation of the project goals. A large portion of the planned project steps have been successfully implemented to date. The equipment at the USAMV is excellent in ensuring all lectures run smoothly. However, two particular problems have emerged. On the one hand, as is the case in many other universities in transition countries, the USAMV still suffers from the “classical” division in planned economies of research and teaching in the past. Universities are primarily responsible for teaching, while research is the responsibility of the scientific academies. In spite of a change of direction and a more marked emphasis on research on the part of the university management, only modest financial resources have been made available for research at the universities thus far. The teaching load of the staff is very high and additional courses are also financially rewarded. It is thus quite commonplace that most USAMV employees teach 14–18 hours per week. On the one hand, this is problematic when ENHANCE courses with their own teaching obligations overlap in time and lead to temporary absences or even limited preparation and follow-up of the courses offered. In the meantime, the problem has been recognised and the ENHANCE events are increasingly taking place during the period where no other lectures are held. On the other hand, there are few incentives for FMIEARD employees to invest their limited time in independent and, above all, medium-term research projects.

Ultimately it is not all that surprising under these circumstances that FMIEARD employees only publish scientific publications that can be viewed internationally in exceptional cases. Although they author a large number of articles in national journals or conference anthologies, they do not write in internationally renowned scientific journals. However, the incentive system used to date has also not encouraged this. This is where the ENHANCE project comes in to play so they can write their first articles together with the international partners. However, the project can only provide initial stimulating approaches, as it is essential in the medium term that the institutional framework conditions are adapted in line with the needs of the employees of the USAMV. First positive examples help to provoke a rethink on the part of the parties responsible at a national level.

/6/ **Outlook**

Of course, the agro-economic education and research level of the FMIEARD cannot be raised to an internationally competitive level within the three year period of the project. This requires a longer timeframe. A special goal is therefore to find a financial framework in order to be able to continue offering the summer schools even following the end of the project. But a start has been made that will be consolidated in the next few years.

A trusting network and partnerships have emerged that can be used in the future for co-operations such as joint participation in EU tenders, joint publications, mutual doctoral student exchanges or participation in conferences. First forms of cooperation that go beyond the ENHANCE project have already been established. As part of an exchange programme funded by the Federal

Ministry of Education and Research (BMBF) for researchers within the European Research Area ("ERA-Fellow Program") in September/October 2016, a staff member of the USAMV spent six weeks at IAMO. USAMV also acts as a local partner in the IAMO-coordinated project "International Center of Competence for Large-Scale Agriculture" (LaScala), which has been running for three years since the autumn of 2017. In addition, the USAMV was a partner in a consortium coordinated by the IAMO, which participated in an EU call for tenders to promote smallholder agriculture within the EU in February 2017. Thus, the mutual partnership is consolidated extending beyond the actual project, which is indeed a key objective of EU research funding. /x/

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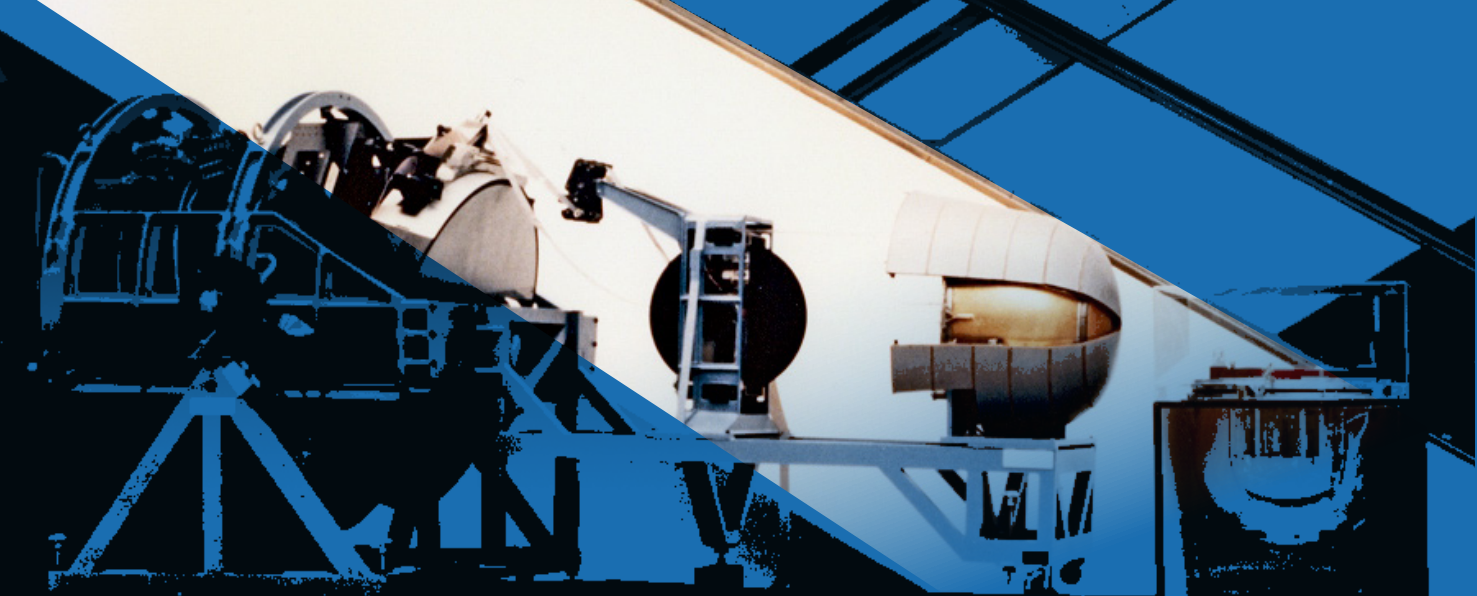
Further information

<http://enhance-project.ro/>

<https://www.facebook.com/Enhance-Project-534894780055222/>

Doktoranden Sommerschule 2018:

<http://course.enhance-project.ro/>



Catalina Munteanu Daniel Müller Mihai Daniel Nita

Assessing

land-use change

using spy satellite photographs

from the Cold War period

/1/ Introduction

Humans shaped the environment for centuries by interacting with the land and changing the way it is used. However, most land use change assessments that cover large areas are limited to the availability of modern remote sensing products, which in most cases date back to the 1980s, but not beyond. One data source that has the potential to extend the time-frame of land change assessments by at least two decades prior to traditional remote sensing products (1980s) has recently been declassified and made available: Corona.

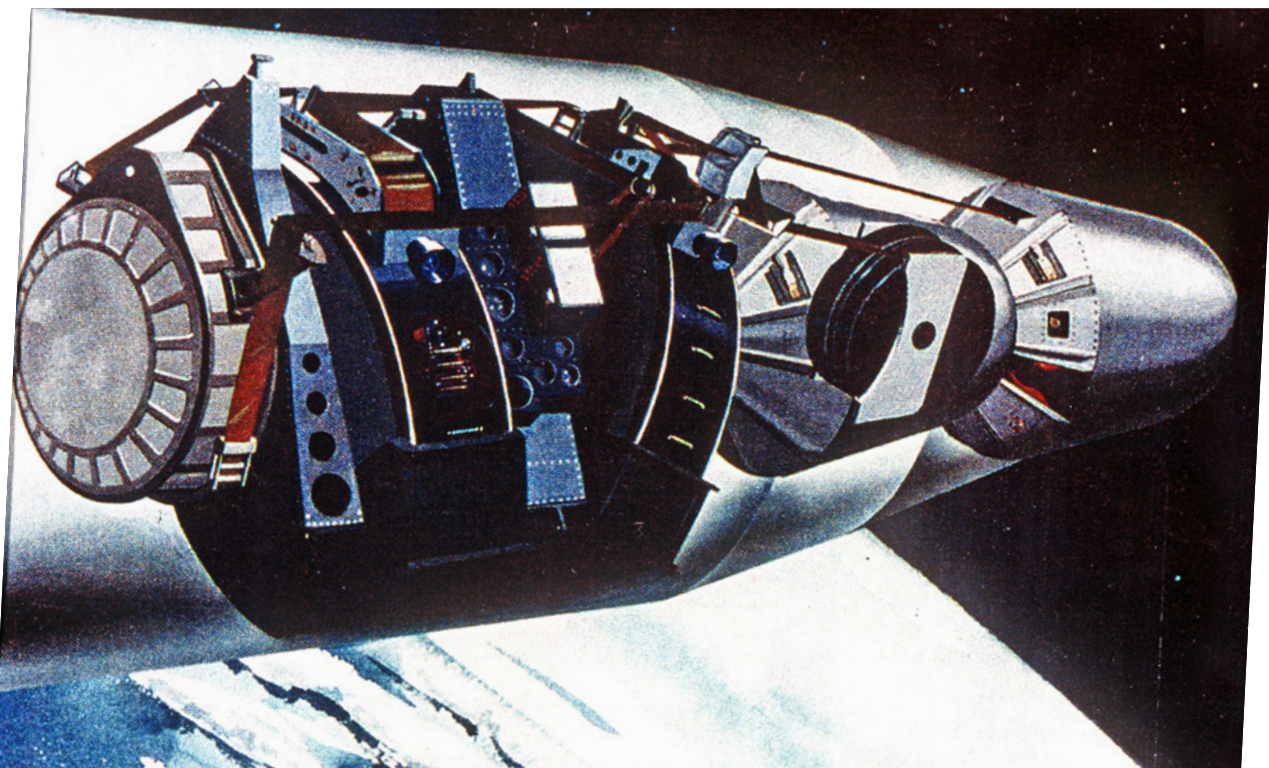


Figure 1: Illustration of the reconnaissance satellite type KH-4B, which was employed for espionage purposes in the Corona programme. The film cassette (left) provided a 70 mm film that is 7.5 km long, which was illuminated and transported through a complex system into two return capsules that could be retrieved independently.

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Corona was the codename for the US reconnaissance satellite, which collected fine resolution images world-wide starting in the 1960s. Here, we provide an overview of a time-effective method to rectify these images and provide an example of how they can be used for land-change assessments for a transition economy that has experienced drastic socio-economic and political shocks since the Second World War – Romania. The collapse of the Soviet Union, and the related economic and institutional shifts have caused major land changes,

Corona data is available for download via the United States Geological Survey web-portal.

<https://earthexplorer.usgs.gov/>

such as massive forest loss, but also forest recovery due to widespread agricultural abandonment in Romania, and Corona has proved itself to be a great source to capture these changes.

/2/ **Corona data processing**

The Corona Mission, was a US government intelligence programme that collected space borne photography globally during the Cold War era. Corona was operated starting in the early 1960s, long before more sophisticated digital satellite imagery became available in the late 1970s (Figure 1). Imagery was collected by two stereographic cameras, via analogous film roll, and stored in a dedicated “film bucket”. The satellite orbited at approx. 150 km above the Earth’s surface and once imagery was collected, the film bucket separated from the satellite and was parachuted to Earth. To retrieve the film, a military airplane would then catch the bucket in mid-air, allowing for the images to return to Earth for further processing (Figure 2).

Corona data remained classified until 1996. Since then, it has only been employed in very few scattered studies because high distortion, missing camera parameters and only partial digital availability, that have compromised wider usage. This is unfortunate because the stereographic, panchromatic filmstrips with high spatial resolution provide a unique opportunity to assess land use changes since the 1960s.

The imagery consists of panchromatic, stereographic film strips that each cover roughly an area of 17 by 230 km on the ground and have varying spatial resolutions, between 1 to 30 m. For the processing, a pair of overlapping images which were collected via the stereo-cameras mounted on each Corona satellite is necessary. For the geo-rectification of the data, we developed a novel method that is currently widely employed for drone imagery and relies on a mathematical algorithm called “structure from motion”. This algorithm



Figure 2: Archive image of a military aircraft capturing a CORONA capsule from space.

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reconstructs objects based on photographs of the same object acquired from different viewpoints. The method is very advantageous when camera parameters (such as location, angle, and height) are varied or unknown, as is the case for Corona imagery. The “structure from motion” algorithm is implemented in the AgiSoft Photoscan software, which can be used to correctly assign the geographical location to each Corona image. The end-product of this process is an accurately geo-located image, and a digital surface model that can easily be compared with more recent digital remote sensing products such as Landsat or Google Earth. The overall accuracy of the final product can vary between 0.3 and 43 m depending on the image quality and terrain ruggedness. Geo-rectified images can be used to extract landscape information such as harvested forest patches, location of agricultural fields, types of crops, location of abandonment settlements and even smaller scale elements such as timber rafts or burrows of steppe mammals. This information can be then compared to more recent imagery (Figure 3).

/3/ **Cold War deforestation in Romania**

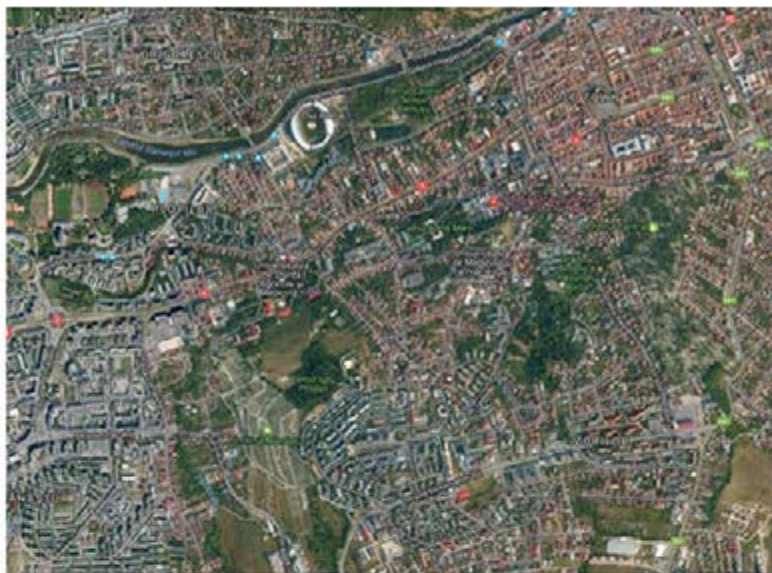
The land changes that occurred after 1990 in Romania are rooted in much longer institutional and land system processes, for which we only have scattered evidence at hand. For example, following the Second World War, the Soviet Union secured large reparation payments from many countries in Eastern Europe, including Romania. Most of the payments were made in form of natural resources such as oil, ore and timber, and most of them had long-lasting environmental and economic effects. Anecdotal evidence suggests that Romania had agreed to pay war reparations to Russia by harvesting 256,000 ha forest by 1956 and a national report dated 1974 confirmed broad scale harvests between 1949 and 1964 that exceeded the sustainable thresholds by up to 47% countrywide. However, the question of how much wood was really harvested in Romania, and where these harvests occurred remains unknown to this day. This is important, because historic harvests may still impact forest systems today and current forest management could be improved if account is taken of these historic events.

We rectified a total of 208 pairs of Corona photographs acquired between May 1962 and August 1968 and covering an area of 200,000 km² in Romania. We digitised all forest disturbances, mainly harvests, from 1955 to 1965 using standard visual interpretation techniques. Finally we compared the historic harvests with more recent (1985 to 2000) forest dynamics and forest type data mapped from Landsat imagery.

Results suggest that the forest coverage of the study area was approximately 6.1 million hectares (Mha) in 1950, of which 0.53 Mha (9%) were harvested between



Figure 3: Comparison of Corona images (left) from 1960s and Google Earth (right) from 2010s for the city of Cluj, Romania

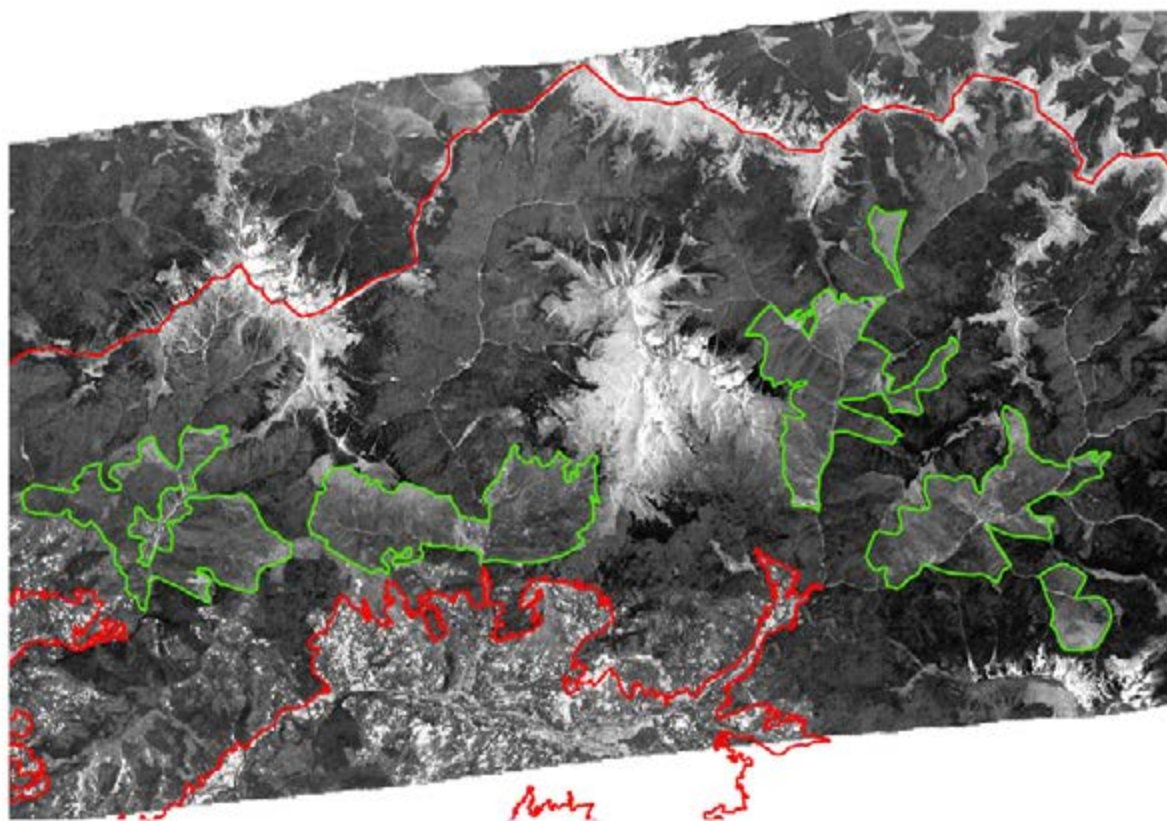


1955 and 1965. This represents more than twice as much as the reported war reparation payments agreed upon between the Soviet Union and Romania. The average size of individual clear-cuts was around 120 ha, but in the mountain areas, we could identify logged areas that were up to 100 times larger. Over 10,000 forest patches were clear-cut in that decade, and overall the rates of clearcutting were three times higher than the current rates in Romania. Most of the logging occurred in spruce, beech and mixed beech-spruce forests due to the fact spruce is a widely used softwood and beech represents a highly valued hardwood for building and furniture. Most of the clear-cut areas were later replanted with fast-growing tree species, such as spruce or black locust, which has an effect on the ecological functions in those landscapes up to the present day.

Our results suggest that many ecologically valuable forests may have been disturbed in the aftermath of the Second World War, and although Romania still represents a stronghold for old-growth forests in Europe, those forests may have already been decimated well before 1990, and not as much afterwards, as previously suggested. In a broader sense, these results also suggest that the effects of wars on ecosystems persist much longer than the wars themselves and that effects have time-lags, particularly in cases where policies, such as war reparations, affect ecosystems for decades after the conflict ended.

/4/ **Other potential uses of Corona data**

Many other regions worldwide also experienced major changes in land use in the period covered by the Corona data. For example, Russia and Kazakhstan were largely



0 2 4 km

Figure 4: Example of forest harvest mapped from 1968 Corona data (green outline) in a protected area (red outline) in Romania.

affected by the Virgin Lands Campaign, during which large tracts of grasslands in the Eurasian steppe were converted into cropland with the aim of alleviating the food shortages induced by the agricultural crisis in the Soviet Union. In tropical regions of South America and South East Asia, the 1970s mark the onset of broad-scale deforestation and the expansion of agricultural production. The Corona data represents a unique opportunity to map land change processes in those regions. Due to its broad extent, high resolution and stereoscopic capabilities, Corona could serve the purposes of large-scale landscape mapping such as assessing the extent and crop types used in the Virgin Lands Campaign or the agricultural expansion into the Brazilian Amazon. Corona data can also be used in conjunction with more recent remote sensing imagery such as Google Earth, for mapping historic and contemporary natural hazards like landslides or floods. Corona has also been successfully used to map peri-glacial landscapes and archaeological sites, so the opportunities are endless and the approach we present here opens a wide window into understanding the past of many regions worldwide. /x/

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A photograph of a person walking away from the camera on a dirt path. The person is wearing a patterned sweater and dark trousers, and is carrying a walking stick. To the right is a stone house with a tiled roof. In the background, there are bare trees and a hazy landscape. The entire image has a blue color overlay.

Involuntary

return migration

to Kosovo:

tackling

challenges for

successful

reintegration

63

/1/ Introduction

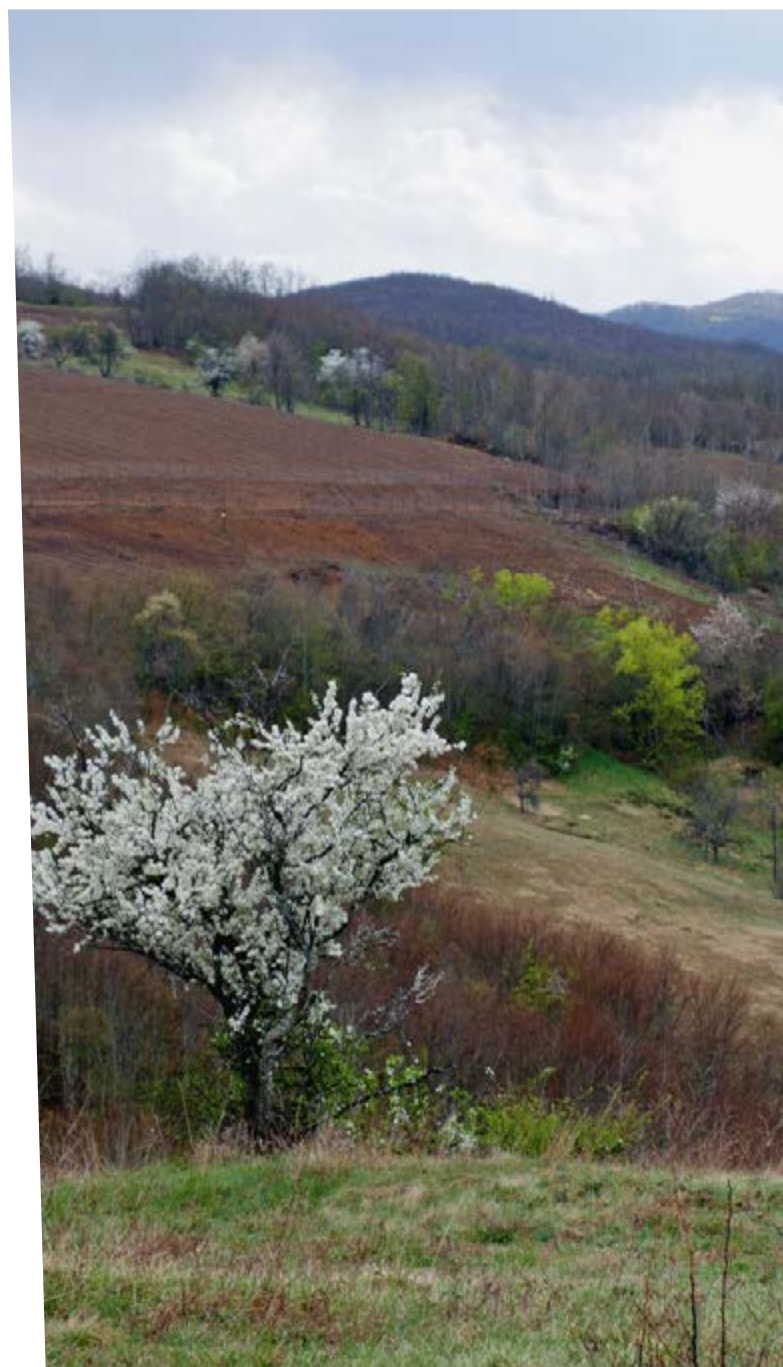
International migration has been an important element of the livelihood strategies of Kosovars for a long time. The country strongly depends on remittances, which contribute some 15% to the national GDP. Much like in other Eastern European countries, migration is constantly pushed by high unemployment combined with a very low formal labour-force participation rate as well as quality-of-life considerations.

Judith Möllers
Diana Traikova
Thomas Herzfeld
Egzon Bajrami

In 2014 and 2015, migration reached a remarkable peak when up to 100,000 people left Kosovo for Western Europe via the so-called Balkan route through Serbia and Hungary towards Austria. This recent wave of migration was provoked by additional triggers including changes in travel regimes, a rumour-driven snowball effect, and a high level of dissatisfaction with state governance and politics (Möllers et al., 2017).

It poses significant challenges for the country, not least because the outpouring of people was soon followed by significant (involuntary) returns. While, in the past, Kosovar migrants could hope for long procedures – which would often allow them to stay (and work) for years in the destination country – this is no longer the case. In countries such as Germany (the main destination of Kosovar migrants) the large influx of refugees from the Middle East has pushed authorities towards speeding up asylum procedures and stricter enforcement of repatriation laws.

In the literature, the positive effects of remittances on consumption and income levels are highlighted. Returning migrants might contribute further benefits if they become innovators who bring different views – for example in terms of social norms and gender roles – as well as business ideas. However, negative effects of migration and return migration might also be at work. Migration is, for example, linked to disincentive effects with regard to work or education, or an increase in income inequality and mental stress. Return migration may be burdened by a lack of relevant new skills and work experience hindering successful reintegration. Involuntary returns and disrupted migration circles, in particular, put successful reintegration at threat: the experience of “failed migration” causes not only mental stress,





but most returned persons have to restart their life with fewer resources and are forced to depend on social assistance.

/2/ **Data and objectives**

This article is based on an analysis of a survey financed by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). The dataset includes interviews with 179 returnees sampled from ten Kosovar municipalities with comparatively high numbers of returnees. The sampling procedure aimed at covering all the relevant ethnicities (Albanian, Roma, Ashkali, Egyptian) plus gender and age groups respective to their shares among the returnees. Interviews were conducted during April 2017. The main objective of the research was to shed light on the socio-economic situation of (involuntarily) returned migrants as well as opportunities for, and barriers, to their reintegration.

/3/ **Key results of the study**

The survey results highlight four key issues of high relevance for reintegration. They are linked to economic vulnerability, skills levels, health and mental stress, as well as intentions to stay.

Figure 1: The Kosovo survey was conducted in ten rural communities in April 2017. (Read more about the wave of emigration in 2014/15 in the IAMO Policy Brief 24.)

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1. Economic vulnerability of return migrants

Returnees are economically vulnerable. They positioned themselves in the lower deciles of income distribution before and after migration (Figure 1). Economic downward mobility as well as indebtedness were observed as a result of the costly migration. A high proportion of returnees (86%) indicated problems covering even basic needs. Although the majority lived in a house belonging to the family, appropriate housing remained an issue for some. The most important barrier to improving livelihoods and smooth reintegration is the labour market situation. Unemployment and economic inactivity is rather the rule than the exception: often many household members depend on just one income earner, and in many cases this income is derived from occasional, non-regular jobs. While only one-quarter of the interviewed returnees worked for money at the time of the interview, 88% were looking for work. Around 27% of returnee households fully depend on the small amount of social welfare (and in a few cases remittances) that they receive.

2. Education, skills and work experience as barriers to labour market

In a generally difficult labour market situation, low educational levels and a lack of skills and work experience are important barriers for returnees. Around 17% of the return migrants interviewed had no education whatsoever or only primary school education, while more than 50% did not go beyond lower secondary school (nine years of schooling). Furthermore, returnees were characterised by a lack of work experience and professional skills. As the study deals with the involuntary return of asylum seekers, the opportunities for migrants

to acquire new skills were, without doubt, limited. Less than 20% of returnees worked while abroad; however, some returned with business ideas and almost 30% of male respondents and 21% of female respondents indicated that they view themselves as self-employed entrepreneurs in their home country, Kosovo, in the future.

3. Feelings of failure and health issues

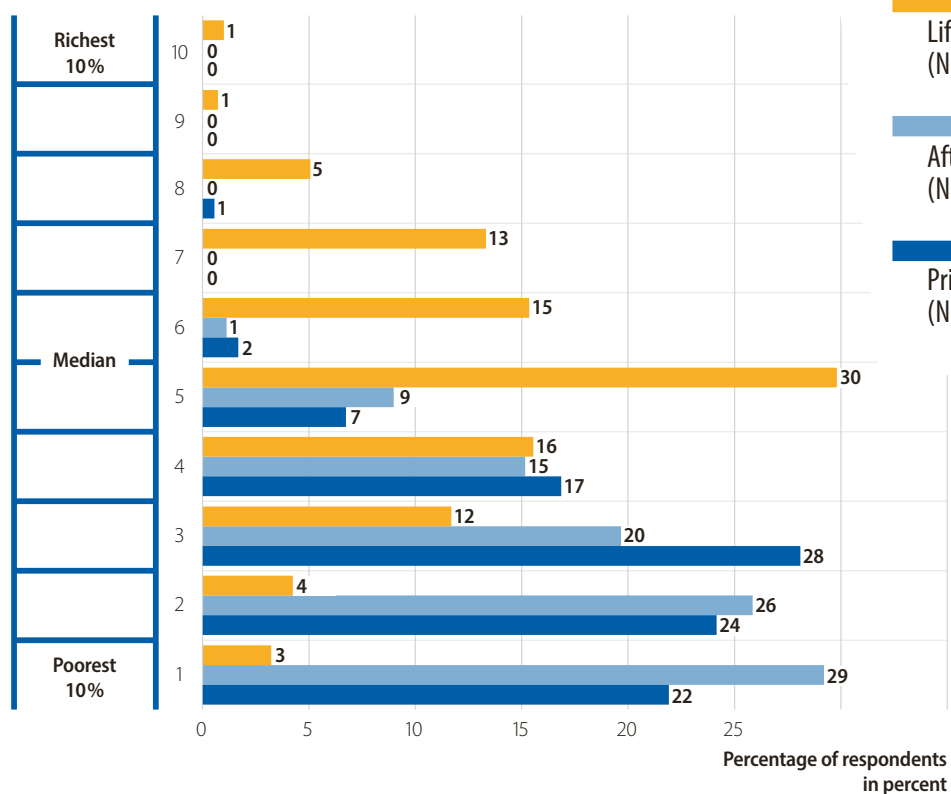
Not only the often desperate economic situation but also the stress caused by the (failed) migration and return contributed to very low levels of life satisfaction and a high prevalence of mental stress. The level of life satisfaction was significantly lower than the national level (as measured by the European Quality of Life Survey) and was even comparable to values found among homeless people, who score the lowest in other international studies. Failed migration and their return were furthermore linked to a worsening of general health indicators as well as mental and somatic symptoms. The prevalence of symptoms of depression was clearly elevated: more than one-third of returnees showed symptoms that are normally only found in the 84th percentile or higher for average Western European adults, and 15% reported severe symptoms that are usually only found in 2% of this comparison group. The condition of more than half of the returnees with mental and somatic symptoms deteriorated following their return. Chronic diseases were reported by 15% of interviewees. Health-related issues were the second most important reason for the recent migration episode. Furthermore health issues were also mentioned as an issue for reintegration: 36% of returnees reported a worsening of their general health following their return.

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Figure 2: Position on the income ladder in the opinion of the respondents before and after the migration compared to the nationally representative sample of the Life in Transition Survey (2010)

Income ladder decile perception in percent



4. A vicious cycle of involuntary return, unsuccessful reintegration and re-migration?

According to the literature, involuntary returns tend to be followed by unsuccessful reintegration and the intention to re-migrate. Indeed, the survey results revealed an overall low level of willingness to stay in Kosovo. More than 40% of respondents placed their probability of staying at 20% or lower. For around 70% of the respondents, both males and females, the probability of leaving again was higher than the probability of staying. Economic conditions and unemployment were the most important reasons mentioned as a trigger for repeated migration, followed by health care. The willingness to stay was linked to close bonds with family, friends and culture, as well as economic assets such as a business or livestock. It was also linked to a number of conditions such as access to work, health insurance or health care.

In many of the aspects discussed above, vulnerable groups – such as ethnic minorities and women – were found to be in a comparatively less favourable situation. Ethnic minorities (Roma, Ashkali, Egyptian) for example, scored the lowest in terms of life satisfaction, and showed more somatic and mental symptoms as well as a higher level of aggravated symptoms compared to the pre-migration situation. Women had lower education levels and lacked work experience, which, among other things, makes them more dependent on the income of male household members.

Furthermore, despite significant reintegration problems the outreach of assistance measures was found to be relatively low – and much too low in critical areas such as health and psycho-social treatment. Most support came from the close family. NGOs played an important

role as providers of formal support. Direct state support was reported as comparatively low, but with regional variations. The low level of awareness of reintegration support measures was striking: most of the measures were familiar to less than one-third of the interviewed returnees.

/4/ **Conclusion and policy implications**

Without doubt, return migration is a major challenge for Kosovo as a country as well as for thousands of concerned returnees and their families. The study points to several fields in which policies could increase efforts to support and facilitate the integration of return migrants.

Firstly, any improvement in the state of the labour market will have direct positive effects on the successful reintegration of returnees. The Kosovar labour market is characterised by a very low level of labour force participation rate (38% versus 73% in the EU28 in 2015) and an extremely high unemployment rate (33% versus 9% in the EU28 in 2015). Return migrants tend to be vulnerable in terms of their socio-economic, physical and mental well-being. Therefore, they are disadvantaged in the labour market and may need support to be able to find work. A focus on sectors and occupations with low entry costs (i.e. close to zero upfront investments) could help to generate broad and quick income-generating activities. Since agricultural resources seem to be rather neglected by the return migrants, farm activities should be explored as a potential income source. Furthermore, it seems important to make the best use of the entrepreneurial spirit and ideas brought from abroad. An effective spread of information about business opportunities as well as available support is important. However,



Figure 3: Livestock that needs to be looked after has a positive impact on the returnees' willingness to stay.

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acknowledging the fact that Kosovo's labour market – even in the best of scenarios – will not provide as many jobs as are needed for its young population and that time is required before reforms can show positive effects, migrant labour and remittances will remain important in the near future. Agreements on circular migration with EU countries, for example for seasonal work, or other legal ways of migration could further reduce the pressure on (often unsuccessful) migration via asylum procedures. Given that legal ways exist, information about them and the skills that are needed to gain access to EU labour markets should be promoted.

Secondly, it is important to improve strategies towards reaching the target groups of integration support measures. A relatively modest use of support measures in the field of reintegration and a lack of knowledge about them calls for a timely identification of (1) individuals ready to be integrated into labour markets, (2) individuals who need medical or psycho-social treatment and/or need targeted social support. Available measures and support infrastructure should be adapted to the needs identified during this process.

Thirdly, medium-term strategies are needed to create an enabling environment in terms of business creation, social security, education and healthcare. Without such a supportive institutional framework, high rates of repeated migration could undermine reintegration efforts.

/x/

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Unhealthy consumption behaviours and their intergenerational persistence

in China: the role of education

Yanjun Ren Yanjie Zhang Bente Castro Campos Jens-Peter Loy

/1/ Background

Cigarette smoking and alcohol consumption are two crucial forms of behaviour that can negatively affect health and longevity. The Chinese government is increasingly concerned about the public health burden that arises from the smoking of cigarettes and consumption of alcohol. National legislators are starting to consider national bans on smoking in public and at work places as well as a ban on cigarette advertising. Nevertheless, tobacco control in China has remained particularly cumbersome because of the tobacco industry.





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There are over 300 million cigarette smokers in China who consume roughly one-third of the world's cigarettes (WHO, 2015); 1.4 million people in China die annually from smoking-related diseases, and this number is expected to rise to over 3 million by 2050 if current smoking rates persist (Yang et al., 2015).

Drinking alcohol is another harmful health-related form of behaviour. As shown in Figure 1, there has been striking evidence in recent decades for an increase in alcohol consumption. Alcohol Use Disorders (AUDs)* have become frequent problems linked to disturbances in

mental and physical health (Tang et al., 2013). Precisely, the AUD rates in China are 9.3% and 0.2% among men and women, respectively; these shares are comparatively higher than in other countries (WHO, 2014).

Do parental consumption patterns affect filial consumption behaviours?

Many studies suggest that parental consumption behaviour may influence filial consumption behaviour. Regarding cigarette smoking and alcohol drinking, the empirical results are mixed. Some studies find a positive

* AUDs encompass harmful patterns of drinking such as alcohol dependence and abuse.

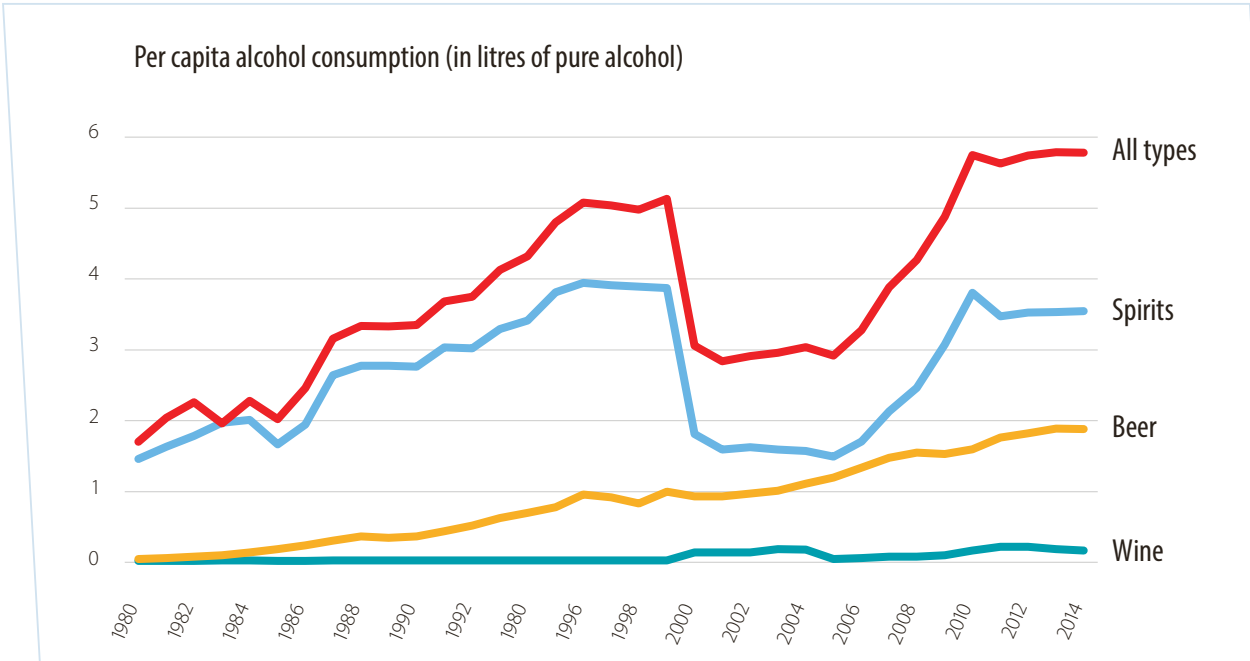


Figure 1: Per capita alcohol consumption (in litres of pure alcohol), WHO

Source: WHO, individuals whose age is above 15 years

correlation between parental and filial alcohol consumption (Schmidt and Tauchmann, 2011), while others find no significant correlation (Yu, 2003). Alternatively, filial consumption behaviour might depend either on maternal or paternal consumption behaviour. Francesconi et al. (2010) find that young adults who live with an unmarried mother are more likely to smoke. Gundy (2002) claims that alcohol consumption is higher among children whose mothers typically drink approximately three or more drinks daily or who drink on a weekly basis, while fathers' alcohol consumption only positively influences sons' drinking behaviour and not daughters' drinking behaviour. The studies suggest that parental consumption behaviour influences filial health outcomes; nevertheless, this issue has not been rigorously explored in the literature on China.

The role of education in preventing unhealthy consumption behaviours

If there exists a higher correlation of unhealthy consumption behaviours between generations, how could offspring be efficiently prevented from perpetuating their parental unhealthy consumption behaviours? Education as a form of human capital investment can improve cognitive skills and enhance positive health behaviour (Kenkel, 1991), implying a negative effect on the probability of smoking or on binge drinking (Jensen and Lleras-Muney, 2012; Kemptner et al., 2011). Since Currie and Hyson (1999) find a reverse relationship between education and health, the endogeneity of education in estimating the impact of education on cigarette smoking and alcohol consumption should be taken into consideration.

/2/ Empirical approach

As Cowell (2006) points out, most empirical studies that focus on cigarette and alcohol consumption are not only of concern for policymakers but also provide the opportunity to study the interrelationship between smoking and drinking. In our study, we estimate two main health-related behaviours: cigarette smoking and alcohol drinking (drinking and binge drinking). Smoking and binge drinking increase the risk of premature death, while a certain light-to-moderate drinking might actually decrease all-cause mortality (Hao et al., 2004). Hence, we specify alcohol consumption by two behaviours of drinking and binge drinking, in which binge drinking is defined for a male who consumes 14 drinks and a female who consumes 7 drinks a week.**

After identifying the intergenerational persistence of unhealthy consumption behaviours, the impact of education on unhealthy consumption behaviours is investigated. We hypothesise that education may discourage offspring from perpetuating parents' unhealthy habits, such as smoking and binge drinking, while the impact of education on drinking is ambiguous given that moderate drinking might not necessarily be an unhealthy consumption behaviour.

**As defined by the National Institute on Alcohol Abuse and Alcoholism (NIAAA), for women, low-risk drinking is no more than 3 drinks on any single day and no more than 7 drinks per week. For men, it is no more than 4 drinks on any single day and no more than 14 drinks per week. The study by Li et al. (2011) has defined binge drinking as consumption of 50 grams or more pure alcohol for men / 40 grams or more for women on at least 1 day in the previous 12 months. Since we have no information on daily drinking behaviour, it should be noted that the probability of binge drinking calculated from our measurement may be higher than that from the NIAAA.



Map 1:
Map of survey regions

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Base map: Wikimedia Commons. Source: CHNS

The potential endogeneity of education has to be taken into consideration when investigating health and health-related consumption behaviours. Law changes as quasi-experiments generate exogenous variation in years of schooling both across regions and over time. A change in the Compulsory Schooling Law serves as a valid instrumental variable (Kemptner et al., 2011; Xie and Mo, 2014). Additionally, the enactment of the Provisions on the Prohibition of Using Child Labor in 1991, which aims to prohibit child labor in China, has increased educational attainment and serves as a potential instrument in health estimations (Xie and Mo, 2014).

To detect how education impacts the intergenerational persistence of unhealthy consumption, we further introduce an interaction term between parental unhealthy consumption and filial education. The null hypothesis is that additional education can prevent individuals from perpetuating their parents' unhealthy behaviours; thus, the coefficient for the interaction term is assumed to be negative. Given the potential endogeneity problem of education, the interaction term between parents' unhealthy consumption and the two institutional changes for education (the law and the provisions discussed above) are used as instrumental variables for the interaction term.

The data used in this study are from the China Health and Nutrition Survey (CHNS) over the period of 1991–2011. The CHNS covers nine provinces (Heilongjiang, Liaoning, Jiangsu, Shandong, Henan, Hubei, Hunan, Guangxi, Guizhou) for the years of 1989, 1993, 1997, 2000, 2004, 2006, 2009 and 2011, and three municipalities (Beijing, Shanghai, Chongqing) for the year 2011. The provinces and municipalities vary substantially in geography, economic development, public resources, and health indicators (see Map 1).

The sample consists of 13,470 observations over the period from 1991 to 2011. There are approximately 25.6%, 35.1%, and 10.8% smokers, drinkers, and binge drinkers, respectively (Table 1). Regarding parental consump-

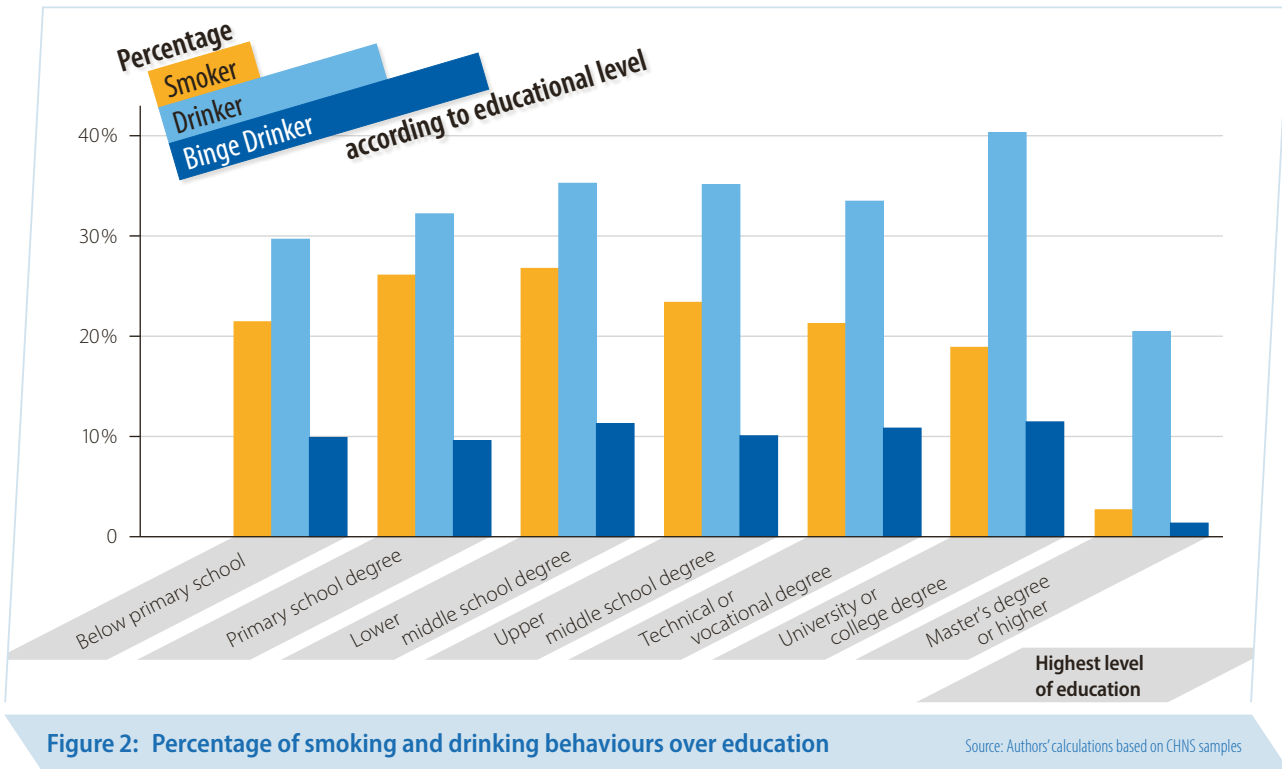
tion behaviours, there are approximately 4.7% smoking mothers and 58.8% smoking fathers; similar to smoking behaviour, fathers also have a higher likelihood to be drinkers (62.6%) and binge drinkers (24.3%) compared to mothers (12.7% drinkers and 5% binge drinkers).

The average years of education obtained by offspring are approximately 9.5 years, which indicates that most of them have obtained six years of primary education and three years of secondary education. The evidence from two institutional changes supposed to influence individuals' educational attainment shows that approximately 58.3% and 45.8% of the total sample population are affected by the Compulsory Schooling Law and the Provisions on the Prohibition of Using Child Labor, respectively. Figure 2 shows the percentage of smoking and drinking behaviours over education. Smoking tends

Table 1: Filial and parental smoking and drinking behaviours

Source: Authors' calculations based on CHNS samples

Variable	Definition	Mean	Std. Dev.
Dependent variables			
Smoking	Probability of smoking	0.256	0.436
Drinking	Probability of drinking	0.351	0.477
Binge drinking	Probability of binge drinking	0.108	0.310
Parents – unhealthy consumption behaviour			
Smoker Mother	Mother smokes (0/1)	0.047	0.211
Smoker Father	Father smokes (0/1)	0.588	0.492
Drinker Mother	Mother is a drinker (0/1)	0.127	0.333
Drinker Father	Father is a drinker (0/1)	0.626	0.484
Binge Mother	Mother is a binge drinker (0/1)	0.050	0.218
Binge Father	Father is a binge drinker (0/1)	0.243	0.429



to decrease with education after primary school but there is no obvious relationship between alcohol consumption and education.

/4/ **Results and findings**

Significant correlation between parental and filial cigarette and alcohol consumption

The results show that parents' smoking and drinking habits have statistically significantly positive correlations with filial behaviours. The marginal effects from the

estimates for smoking show that an individual whose mother or father is a smoker has an approximately 5.6% or 6.7% higher probability of smoking than do those whose mother or father is a non-smoker, respectively.

Similar findings are also observed for alcohol consumption. The results show that parental drinking and binge drinking habits have statistically significant positive correlations with filial drinking behaviours in all model specifications. Surprisingly, an individual with a drinking mother or father tends to be 21.7% or 18.7% more likely to drink, suggesting that the maternal effect is stronger than the paternal effect in the intergenerational persis-

tence of drinking habits. Regarding binge drinking, an individual whose mother or father is a binge drinker has a 12.5% or 14.1% higher probability to be also a binge drinker, respectively.

Negative impact of education on cigarette and alcohol consumption

The marginal effect of education from a regular Probit model is negative and statistically significant for smoking and binge drinking, suggesting that higher education decreases the probability of smoking and binge drinking. With regards to drinking behaviour, however, the marginal effect of education is positive and statistically significant, indicating that an additional year of education raises the probability of drinking by approximately 0.2%.

As mentioned previously, the estimation from the regular Probit model might be biased due to the potential endogeneity of education. An instrumental Probit estimation is, thus, employed to further address this issue and to better understand the impact of education on smoking, drinking, and binge drinking. The results from the instrumental Probit model show that, as expected, education has a statistically negative effect on smoking, drinking, and binge drinking, decreasing their probabilities by 3.4%, 2.7%, and 1.8%, respectively.

Heterogeneity of the impact of education on intergenerational persistence of cigarette and alcohol consumption

The results show that education has no specific impact on an individual whose mother is a smoker compared with an individual whose mother is a non-smoker.

However, an additional year of education can decrease the likelihood of smoking for an individual with a father who is a smoker. With regards to binge drinking, an additional year of education cannot prevent intergenerational persistence of binge drinking from the mother, but it can counteract the intergenerational persistence from the father. Moreover, education has neither a statistically significant impact on the intergenerational persistence of drinking from the mother nor from the father.

/5/ Conclusion

The empirical estimates indicate that a significant intergenerational persistence in cigarette and alcohol consumption exists in China; especially, alcohol consumption behaviours show stronger intergenerational persistence than do smoking behaviours.

Education is found to be an efficient method to prevent cigarette and alcohol consumption, as well as their intergenerational persistence. Precisely, one additional year of education decreases the probability of smoking, drinking, and binge drinking by 3.4%, 2.8%, and 1.8%, respectively. Interestingly, an additional year of education can counteract intergenerational persistence of smoking and binge drinking from the father, but it has no impact on intergenerational persistence from the mother. Since it is not entirely clear whether drinking is an unhealthy consumption behaviour, no significant impact of education on the intergenerational persistence of drinking has been found.

Our results suggest that policies oriented to regulate cigarette and alcohol consumption should take parental

consumption behaviours into consideration; education is expected to be an efficient way to control unhealthy consumption behaviours in China; however, education may not be an efficient way to prevent intergenerational persistence of unhealthy consumption from the mother. /x/

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Bioclusters:

***Analysis and
policy implications***

– first theoretical thoughts

*Frans Hermans
David Ayrapetyan
Ram Kamath
Kerstin Wilde*

81

/1/ Introduction

The growing and developing global population in combination with the projected effects of climate change requires a major shift in the way food, energy and raw materials are produced, consumed, processed and disposed of. The concept of the bioeconomy has received increasing attention as a potential solution to address some of these challenges.

82

The bioeconomy encompasses the production of renewable biological resources (biomass like wood, plants and algae) and the conversion of these resources and waste streams into useful products, such as food, feed, bioplastics, pharmaceuticals and bioenergy. The bioeconomy promises to contribute towards the creation of new economic opportunities for instance through the promotion of sustainability-oriented entrepreneurship, improved resource efficiency, energy independence and employment creation in “knowledge based” sectors related to biotechnology and genomics, plant breeding and plant-based processing (Bugge et al., 2016). The ultimate goal of the bioeconomy is thus to replace our current fossil-based sources of carbon with renewable sources of carbon that are based on processes of photosynthesis. The profound changes that are required for a successful shift from a fossil based economy to a bioeconomy are called transitions and the relatively new scientific field of transition studies has emerged to analyse them (Markard et al., 2012).

Bioclusters are expected to play an important role in the transition towards a bioeconomy. Clusters can be defined as geographic agglomerations with a specialised set of economic activities (Porter, 1990). For bioclusters these economic activities are related to the various sectors of the bioeconomy: agriculture, forestry, paper and pulp, green chemistry, construction materials and textile industry. The exact combination depends on the geographical context and historical development paths of the region in which the biocluster is embedded. Silicon Valley is without a doubt the most famous example of a cluster and the successful example of this particular cluster has instilled a desire by policy makers to create the “next Silicon Valley” for the bioeconomy.

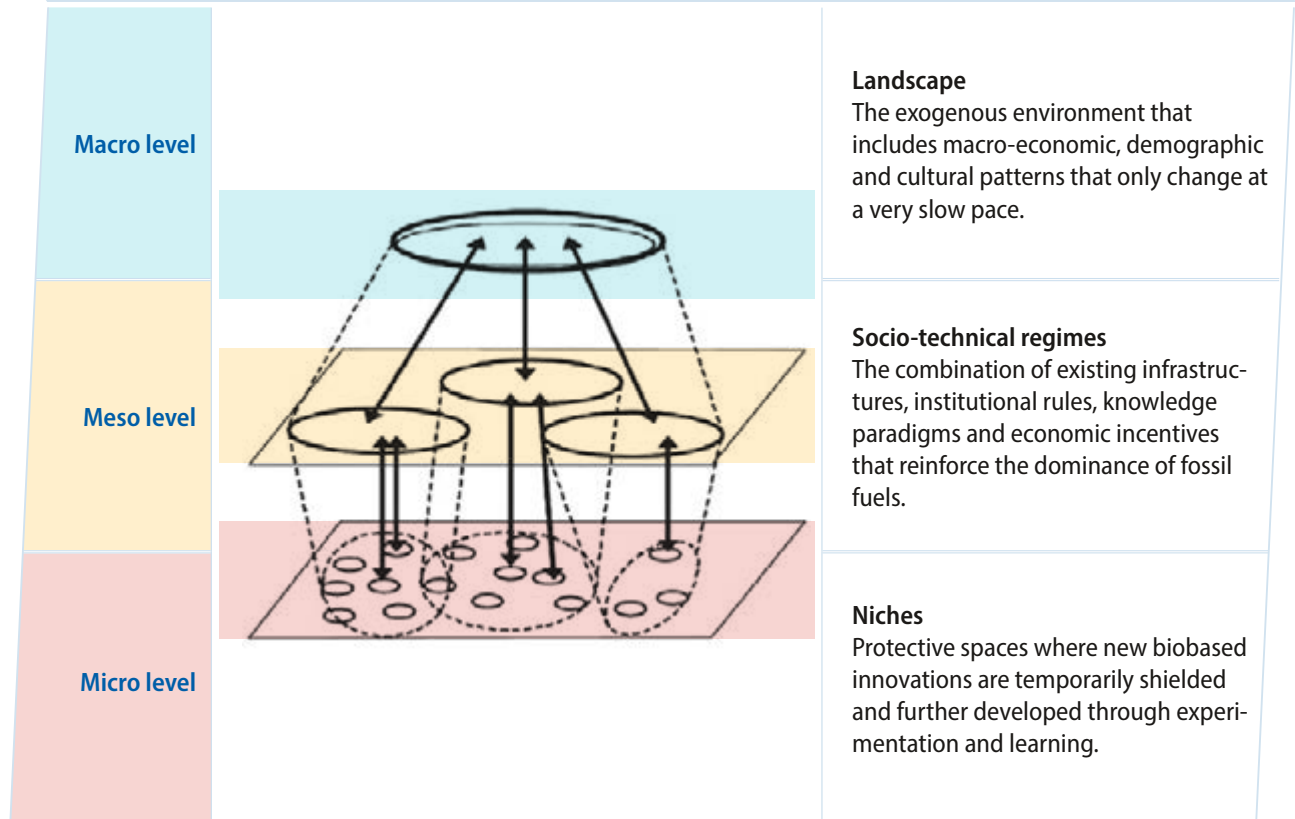
The promotion of bioclusters operates on the intersection of different policy fields: objectives are derived from transition policies towards a bioeconomy, cluster-based regional development policies and/or policies that are derived from a systemic perspective on innovation. These policy fields are based on different research frameworks which don’t overlap much. In this chapter we will review some of the existing theories that inform policy making on bioclusters. We will do this by reviewing some of the theoretical frameworks that underpin the research on clusters and transitions and how these theories have shaped the policies. By making a comparison between them we will demonstrate where cluster and transition policies can strengthen each other.

^{12/} **Policies promoting sustainability transitions**

An important framework within transition studies is the *Multi-Level Perspective*, or MLP for short. The MLP, has been developed especially within the context of Strategic Niche Management which aims to replace the current unsustainable technological regime with more sustainable alternatives (Schot and Geels, 2008). The MLP is used to explain how local knowledge and innovations in a specific (experimental or pilot) context spread from the micro-levels of small groups of innovators to higher macro levels in society. The MLP makes a distinction between three more or less hierarchical levels of niches, regimes and socio-technical landscapes that form the micro, meso and macro level of bottom up socio-technological development processes, see Figure 1 (Geels, 2002). Micro-level niche structures can change fast while the constellations at the regime level

Figure 1: The different levels of the multi-level perspective

© Geels, 2002



tend to be quite stable and macro-level structures may even take decades to change.

The MLP holds a bottom-up perspective to stimulating transitions with a focus on the creation of “niches”: places where radical new technologies get a chance to develop. These niches operate for shorter or longer periods, outside of the mainstream economy. Historical studies have demonstrated how, under the right circumstances, a particular niche may eventually take over

the existing regime and become the dominant new technology. However, since it is impossible to predict beforehand which niches eventually might be successful, strategic niche management suggests the creation of a broad portfolio of different niches where different types of idea are being tested and experimented with.

Transition policies therefore firstly support the creation and development of niches. Examples are the creation of a “protective space” through temporal exemption

of existing legislation that allows more freedom for experimentation. Secondly, transition policies can focus on strengthening some of the internal niche dynamics through “nurturing”: creating favourable conditions that stimulate experimentation and learning, for instance by making it easier to access new knowledge or develop new multidisciplinary networks.

More recently, attention has been shifting from policies promoting the niches to also include attention for policies that try to influence the level of the socio-technical regime: the dominant technological structures that are difficult to change. The concept of the socio-technological regime consists of existing socio-technical structure that favours certain directions of thinking and investments giving radically new technologies a hard time. When government interventions focus on how to destabilise the existing regime, opportunities are created for niches to mature into a new dominant regime or to fundamentally transform the established practice (Kivimaa and Kern, 2016). Examples of such regime destabilisation policies are calls for the “divestment” of governments and pension funds away from fossil fuels or applying increasingly strict policies inducing an improvement of existing industrial technologies (through a carbon tax for instance).

The question now is: how do bioclusters fit the different levels of MLP? First of all, bioclusters can be viewed as a kind of niches where innovations are being developed that aim to eventually take over the existing socio-technical regime that is currently based on a strong dependence of fossil fuels. Some of the processes in bioclusters represent the most important internal niche processes: government promotion of research and networking in a biocluster generates innovations which would not

have occurred under the selection pressures of mainstream markets. Through interactive experimentation and intensive learning innovative products, services and processes eventually become ready for the market. “Niche shielding” often also takes place via subsidies and/or tax breaks that specific industries can receive to establish themselves in a particular geographical biocluster. However, a difference from the implementation of the niche concept in other industries is that in bioclusters, the players from the socio-technical regime hold an important role: the players in a biocluster don’t necessarily have an “outsider” status as compared to the bulk of companies in many other niches.

/3/ **Policies promoting clusters**

Cluster promotion as a government intervention tool was popularised by the work of Michael Porter (1990). Rooted in his work on the competitiveness of nations, industrial cluster initiatives have become an important tool for governments. They aim at improved competitiveness via the establishment and strengthening of economic collaborations, innovation and new knowledge diffusion processes. They also serve as a strategy to expand (highly) skilled employment within a certain region. Studies on clusters focus on the effects that the geographical proximity of firms within a cluster have in lowering their transaction costs, facilitating the exchange of tacit knowledge and knowledge spill-overs, and increasing new business formation through the availability of role models and mentors.

Cluster policies are derived from *Porter's diamond*. The four sides of the diamond are made up of

1. factor conditions such as technologies, capital, etc.,
2. demand conditions from (technically sophisticated) customers,
3. links to related and supporting industries, and
4. firm strategies, structure, and rivalry.

The more developed and intense the interactions between these four sets of factors in a location with functionally related industries, the higher will be the competitiveness of the firms involved. Geographical clustering of firms increases the interaction of the four elements of the diamond and is therefore thought to be beneficial for regional development. Regional policy derived from the diamond model can focus on one of the four elements. Business friendly policies (like tax credits) can be used to lure new businesses to a region. Government procurement policies can favour cluster products and thereby increase demand. The forward and backward linkages of new firms (preferably with a complementary specialisation) feed into local economies of scale or advance specialisation. Investments in relevant public infrastructure and research capacities are also examples of policies that help to strengthen the development of regional clusters and their competitiveness.

Despite the popularity of the Diamond model in policy making, Porter's work is viewed with scepticism in the scientific world. Critical assessments have questioned the analytical concept of a cluster and the policies derived from the model (Martin and Sunley, 2003).

4.4 Policies based on regional and technical innovation systems' perspectives

The third rationale for policies to establish bioclusters is derived from the National Systems of Innovation perspective (Freeman, 1988). The innovation system perspective provides an analytical framework to study technological change as a complex process of interactions among a diverse set of actors engaged in generating, exchanging, and using knowledge. Both cluster theory and transition theory have incorporated innovation system thinking as a framework, albeit in different forms. Recent contributions of cluster theory come from the field of evolutionary economic geography, which focuses more on the development of clusters from a perspective of regional and sectoral innovation systems (RIS and SIS) (Cooke, 2002). In a similar fashion, transition theory has taken on board thinking in innovation systems, especially technical innovation systems (TIS), as a new way of studying sustainability transitions (Markard and Truffer, 2008).

Figure 2 shows how bioclusters can be placed on the intersection on some of these different types of innovation systems. First of all bioclusters usually operate within a specific RIS. However some especially large clusters can even extend beyond the boundaries of the region. Within bioclusters a number of different economic sectors are active ranging from agriculture and forestry, green chemistry, pharmaceuticals but also textiles, paper and pulp and construction materials. The governance of innovation processes in all these branches of industry is affected by different institutionally determined steering mechanisms. Bioclusters can combine a number of very different SIS that are not necessarily the same for each biocluster.

The TIS transcends both the geographical boundaries of the RIS as well as sectoral delineations of the SIS. For instance, some typical technologies such as batteries are manufactured in different countries and are also embedded in different industries ranging from consumer electronics and ICT to the car manufacturing industry for electric cars. Therefore, multiple sectors and technologies are normally represented in a biocluster.

Due to the fact the features of TIS, RIS and SIS differ, the policy prescriptions derived from each of these theoretical perspectives will also differ slightly. However, these perspectives overlap in the sense that all these innovation system perspectives argue that market failure alone is not an adequate factor to explain why many innovations fail. Instead the presence or absence of other system components and functions should be considered as well. Policies derived from the innovation system approach focus on the quantity and quality of the structural components of the system: the players, networks, institutions and infrastructure. When one of these components is not sufficiently present, or even completely absent, the overall innovation system is likely to suffer (Wieczorek and Hekkert, 2012).

From this perspective, policies promoting bioclusters can try to increase either the quantity or quality of one of these four system components. By investing in the physical and knowledge infrastructure of a region, it becomes more attractive for companies to choose that particular location. Publicly funded research institutes represent attractive partners for industry and also raise the quantity and capability of knowledgeable players in the region. Cluster management units promoting innovation activities can also try to establish new

relationships between relevant stakeholders, thereby improving the regional network.

/5/ **Comparison of frameworks and implications for bioclusters**

Many traditional innovation policies don't solely belong to one particular theoretical framework. Stricter environmental policies have been thought to spur sustainability innovations from the transition perspective ("destabilising the regime"), but are also advocated in regular cluster theory where they are known as the *Porter hypothesis*. Actual policies promoting bioclusters often show a great overlap in the proposed policy measures. However, comparing these conceptual frameworks illustrates some of the blind spots the frameworks have. Currently, the three theoretical frameworks presented here (1) the Multi-Level Perspective, (2) Porter's Diamond and (3) (Regional) Innovation Systems are not equally important when it comes to the actual biocluster policies.

The literature on bioclusters is dominated by the general thinking on the bioeconomy that focus on issues like knowledge creation, competitiveness and employment and their contribution towards the knowledge economy more generally, while issues like sustainability and environmental innovation are somewhat neglected (Ramcilovic-Suominen and Pölzl, 2016).

The sustainability transition perspective therefore seems to provide a welcome alternative framework with which to assess bioclusters instruments. Issues such as sustainable regional development and climate change require increasing attention upon the establishment of bioclusters. The transition literature

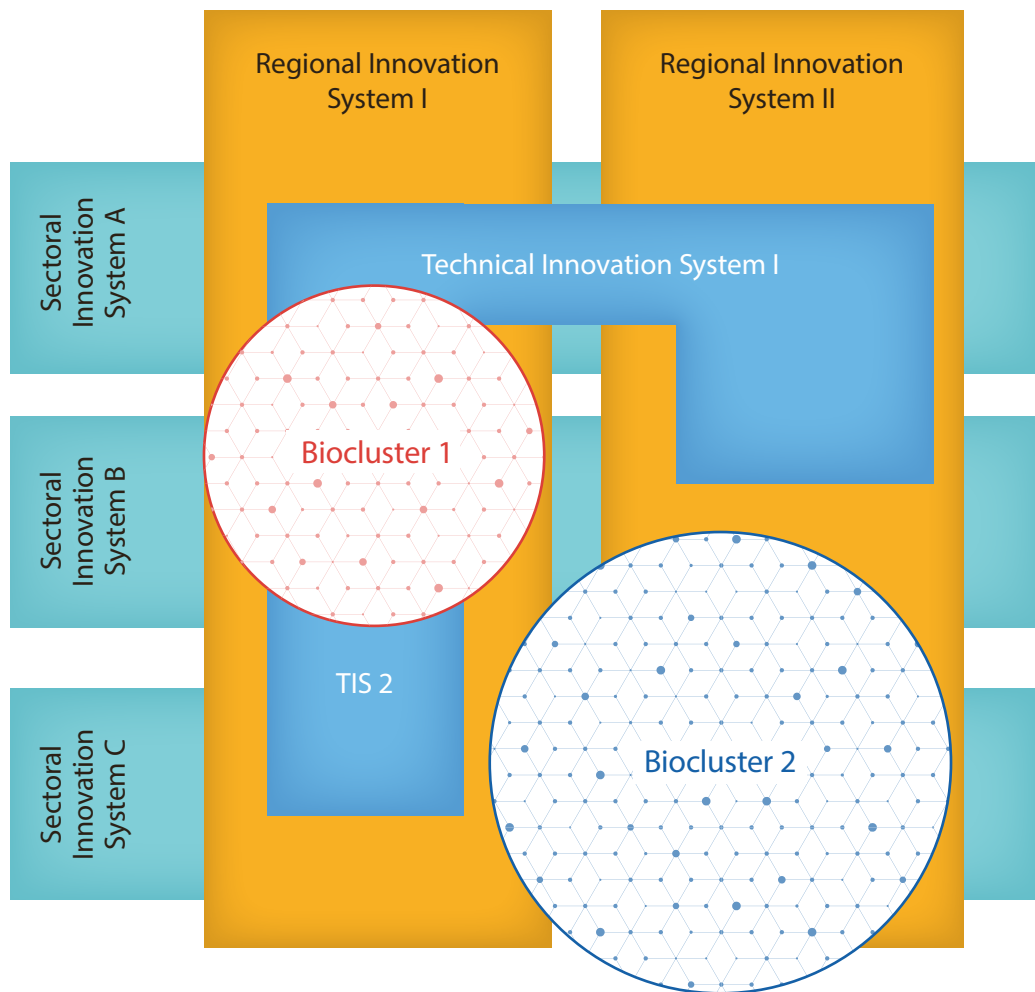


Figure 2: Delineation of bioclusters from a regional, sectoral and technological innovation system perspective (adapted from Markard and Truffer, 2008)

Table 1: Types of systemic problems and potential policies (adapted from Wieczorek and Hekkert 2012)

Potential systemic problems	Goals/solutions	Specific policy instruments suggested
Quantity and capability of players	Stimulate participation of new players and/or develop their capability	PPPs, interactive stakeholder workshops, innovation platforms, innovation labs
Quantity and intensity of interactions (network ties)	Stimulate occurrence of interactions, prevent ties that are too strong or too weak	Cooperative research programs, centres of excellence, collaboration and mobility schemes, debates facilitating decision making
Quantity and capacity of hard and soft institutions	Secure presence of hard and soft institutions and prevent application of rules that is either too weak or too stringent	Awareness building measures: information campaigns. Regulations, norms, agreements, patent laws
Quantity and quality of physical, financial and knowledge infrastructure	Stimulate and ensure adequate quality of physical, financial and knowledge infrastructure	Taxes, loans R&D grants, subsidies, public research labs. Foresight studies

suggests that the incumbent large firms that are pushing different forms of biofuels are possibly not the right players to go for the radical alternatives that a bioeconomy might entail. As such the simple “replacement” of fossil fuels by renewable resources (e.g. second generation biofuels and a portion of the bio-based polymer production) leaves the current industrial value chains, more or less intact. These activities are therefore of interest for many of the established large players, currently making up the bioeconomy sector. Instead transition theory would suggest the involvement of more SMEs, civil society organisations and government authorities in the innovation process and aim towards

a broader variety of small-scale experiments with more radical types of innovation.

However, as local raw material availability, acceptance and demand structures are of decisive importance for a flourishing bioeconomy, attention has to be paid towards suitable regional development strategies as well. This is where the Regional Innovation Systems approach may assist in shaping a sustainable future. Policies developing the regional innovation system therefore should not only focus on the development of the technical capabilities of local players (although these are also important). Instead room should be created for

the development of a collective strategy involving local cluster players in order develop new organisational networks for the success of sustainability innovation within a region. /x/

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IAMO Forum 2017

"Eurasian Food Economy

between

Globalization and Geopolitics"

*Britta Paasche
Michael Kopsidis
Lena Kuhn*



91

/1/ **Introduction**

International researchers met with representatives from politics and business in Halle (Saale), Germany, from 21 to 23 June 2017 for the **IAMO Forum 2017** "Eurasian Food Economy between Globalization and Geopolitics" to debate food security and trade in the context of globalization and geopolitical tensions.

No economic process is currently as intensively and controversially discussed as globalization. However, it is often overlooked here that these debates do not only take place in the West but, under other circumstances, lead to very specific problems and are overshadowed by geopolitical conflicts in the transition countries of the Eurasian region as well. The agri-food sector is of strategic economic importance in all the large territorial states of the former Soviet Union, but also in the smaller states of the Caucasus and Central Asia, in addition to China. On the one hand, many of these countries have enormous untapped agricultural export potential, on the

other hand, food security is endangered, especially in the poorer Eurasian states. In view of the economic and geopolitical importance of this region and the central role that (agro-)economic aspects play in the geopolitical conflicts in this area, the existing major knowledge gaps concerning the effects, opportunities and perceptions of globalization are even more significant in the Eurasian transition countries. A contribution to closing these gaps was made by the **IAMO Forum 2017** with 126 participants from 23 nations in three plenary sessions, 18 parallel sessions and a panel discussion.



Figure 1: IAMO Director Thomas Glauben, in discussion with forum participants (2nd from the right)

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The conference was based on three guiding questions:

1. **The Changing Face of Globalization – How Does it Challenge the Eurasian Food Economy?**
2. **Geopolitical Conflicts, Economic and Political Crises. How Can the Global Food Economy Deal with it?**
3. **Fit for the Future – How to Create Innovative and Sustainable Food Value Chains in Eurasia?**

The conference was opened by Thomas Glauben, the Director of the Leibniz Institute of Agricultural Development in Transition Economies (IAMO). In his speech Glauben referred to changing geopolitical constellations which will not least result in a reorientation of globalization strategies and trading relations. He stressed that now US has largely withdrawn from the political and institutional shaping of international trade, it would now be the responsibility of Eurasia's three major economic powerhouses, notably China, the European Union and the Russian Federation, to guarantee a cooperative and liberal one trading system. Only the future will tell if this is at all possible.

/2/ *En route towards the trade agreements of the 21st century, ...*

The highlight of the first day of the conference was the plenary session "The Changing Face of Globalization – How Does It Challenge the Eurasian Food Economy?". The first speaker, Bernard Hoekman, Director of Global Economics at the Robert Schuman Centre of the European University Institute in Florence, Italy, highlighted the exponential growth of digital trade flows and the

growing importance of the service industry in his presentation. In this sector, regulatory heterogeneity, i.e. the discrepancy between national regulations or the multitude of regulations, is a more pressing challenge than traditional trade barriers or subsidies. In his opinion, trade agreements of the 21st century should begin here.

Tim Josling from Stanford University, USA, provided a comprehensive overview of existing trade agreements and those in preparation. However, the trend towards mega-regional trade agreements has been stopped for the time being by the current developments in Great Britain and the USA, i.e. Brexit and the new President at the White House. He emphasised that the EU is despite this currently in discussions with 28 countries about trade agreements and, in particular, is expanding its relations with Asia. Roman Mogilevskii from the University of Central Asia, Kyrgyzstan, focused on Central Asia. He explained that region is strongly dependent on oil and gas exports and thus on price developments in the energy market. With regard to the export of agricultural and food products, he recommended focusing on quality and niche products. Natalya Volchkova, Professor at the New Economic School in Moscow, Russia, and Policy Director of the Centre for Economic and Financial Research (CEFIR), focused in her presentation on global value chains in the agri-food industry. She took a closer look at forward and backward integration in the value chains of individual countries.

/3/ *... about geopolitical conflicts, ...*

At the centre of the plenary session on the second conference day was the question "Geopolitical Conflicts and Macroeconomic Downturns: How Can the Global

Food Economy Deal With it?”. Josef Schmidhuber from the UN’s Food and Agricultural Organisation (FAO) provided an outlook on global agricultural trends. Even in the long term, according to his studies, a sharp rise in the agricultural price level and the fluctuation intensity of agricultural prices, which was feared just a few years ago, is not expected. Instead, he predicted that a globally intensified stockholding will dampen price fluctuations. Furthermore, the Chinese demand for food could be more easily covered as the population growth has slowed down and there are significant productivity gains. In addition, the demand for biofuels is becoming much more subdued than initially assumed.

Bettina Rudloff from the German Institute for International and Security Affairs (SWP) in Berlin dealt with the return of protectionism and the new “economic nationalism”. Globally, but especially in the USA, there is growing public distrust of free trade and trade liberalisation. In her opinion, this is also due to a lack of transparency in negotiation processes. On a global level trade policy is increasingly becoming migration policy.

Federica Saliola from the World Bank called for efficient, but not overbearing, regulation of farms. Recent empirical studies have shown that higher-quality regulation also increases in efficiency in agricultural production. Xiaobo Zhang, professor of economics at Beijing University, People’s Republic of China, and researcher at the International Food Policy Research Institute (IFPRI), provided insights into the developments and challenges of Asian agriculture. Functioning agricultural service markets make the necessary mechanisation of Chinese small farms possible. Mechanisation by outsourcing is thus a promising strategy to increase the productivity of small farms.

/4/ ... to the redesign

In the plenary session on the third conference day, the Director General of the International Food Policy Research Institute (IFPRI), Shenggen Fan, demanded in his keynote speech “Sustainable Food Systems in a Global Economy: Eurasia and Beyond” a redesign of the global food system. Worldwide, 795 million people suffer from hunger. In addition, two billion suffer from “hidden hunger”, i.e. vitamin and mineral deficiencies. In Central Asia, 12.5% of under-5s are affected by malnutrition and 10.7% of them are overweight. This will also continue to have a massive impact on the health of the individual and the health systems. At the same time the vulnerability of the global food system is increasing. Risk factors are climate change, extreme weather conditions, resource shortages, but also political conflicts and growing welfare inequalities. Agriculture, which consumes 70% of the global water resources and 34.3% of the land, must become a part of the solution, Fan insisted. The goal is the production of nutrient-rich foods with reduced use of fertilizers and water as well as lower carbon emissions. He also argued for the introduction of taxes on unhealthy and unsustainably produced food and strategies to reduce food waste.

The question about practical challenges in the development of innovative and sustainable food chains in Eurasia was raised in the subsequent panel discussion. On the podium were Julitta Bollow, from METRO Cash & Carry, IAMO researcher Linde Götz, Judith Kons from the German Federal Ministry of Food and Agriculture, Sayat Shortan from Kazakhstan-based Triesdorf Agro LLP, Josef Schmidhuber from the UN’s Food and Agriculture Organisation (FAO), and Olga Trofimtseva, Deputy Minister of Agrarian Policy and Food of Ukraine. The



Figure 2: IAMO Forum, lecture hall

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discussion was moderated by Jens-Peter Loy from the Christian-Albrechts-University Kiel. First, current challenges for the development of economically and ecologically sustainable food chains in Eurasia were discussed. Deputy Minister Trofimtseva pointed out the crucial role of trade agreements for the functionality of food chains. She also emphasised the importance of climate change and sustainable production. For example, Ukraine, the grain chamber of the world, is also producing food applying organic farming techniques. For Sayat Shortan, a farmer from Kazakhstan, one of the most urgent problems is the underfunding of the agricultural sector. Moreover, interest rates on loans in Kazakhstan are much higher than in Western Europe. These financial constraints hamper the activities of local farmers and condition the dominance of globally operating companies in the Kazakh market. According to Ivonne Julitta Bollow, METRO's claim is to offer 90% local products in all 25 sales countries. However, the major challenge with local purchasing is to ensure METRO's demands in terms of security, quality, reliability, and price are met. Furthermore, informal structures and corruption are also an obstacle for investors. Schmidhuber pointed out that the Central Asian countries depend to a large extent on the transfers of migrants working abroad, which is why e-currency has a great potential. The panelists agreed that sustainable international standards for food value chains are needed.

Serious geopolitical challenges in the region were also discussed. Judith Kons explained that the Eurasian Union is not yet a single economic area and that Russia is issuing sanctions to partners within the Union. To begin with, these internal issues in the Eurasian Union have to be clarified before one can discuss the vision of a single economic area from Lisbon to Vladivostok. Linde Götz

pointed out that Russia is currently subsidising domestic food producers with a lot of money to push the growth of the national agricultural and food industry with the goal of boosting national self-supply and food exports. However, the sustainability of these developments will only have to be proved if the Russian ban on imports of foodstuffs from western countries is lifted and the Russian agricultural and food industry have to compete with international companies. Recent developments have shown that economic initiatives are highly questionable with regards to the achievement of political objectives, even more so when they involve attempts to achieve economic goals. The sanctions of the Western countries imposed on Russia should therefore be questioned once more. /x/

The **IAMO Forum 2017** was organised with the technical support of the Food and Agriculture Organisation of the United Nations (FAO) and in partnership with the Committee on Eastern European Economic Relations (OA). The conference was sponsored by the German Research Foundation (DFG), the Leibniz ScienceCampus "Eastern Europe – Global Area" (EEGA), the Leibniz research association "Crises of a globalised world" and the Halle (Salle) city council sponsored the conference.

You can obtain additional information about the conference at

www.iamo.de/forum/2017



Michael Kopsidis

About

IAMO

97

/1/ **Goals and tasks**

The Leibniz Institute of Agricultural Development in Transition Economies (IAMO) analyses the major economic, social and political processes of change in the agriculture and food sector, and in rural areas of its geographical area of research. This covers Central, Eastern and South Eastern Europe. It also covers the transition countries of Central and Eastern Asia, especially China. The level of research has been markedly increased especially in relation to Central Asia over the last few years.

Despite great efforts and many successes, agricultural and food industry development in many of these regions still lags well behind the western industrialised nations, and in some instances embarking on their own, very specific development paths. In addition, an enormous development gap between successful and stagnant regions within individual countries and between states can be seen. Different courses of transition, which still have an effect until today, are of great significance in explaining divergence in addition to structural factors of the most diverse kinds.

Large emerging nations such as Russia and China have risen to become “global players” on world agricultural markets. We need to determine what must happen in these key economies to promote environmentally sustainable economic growth in agriculture and the food sector, and ensure long-term national and global food security despite the growing demands being placed on agricultural resources. At the same time in the countries we cover, but not only in these, adapting agriculture and land use to climate change in a globalising economy also represents a major undertaking. Because of this, IAMO faces a very broad research challenge, both thematically and regionally.

With its thematic and geographical focus, IAMO is a unique global research institution. Since its establishment in 1994 it has been a member of the Leibniz Association as a non-university research centre. The Leibniz Association includes research institutes which are scientifically, legally and commercially independent, together with service institutions. Both these are jointly funded by the federal administration and the Länder to address current problems of national interest (www.leibniz-gemeinschaft.de).

The aim of IAMO's work is not just to help understand, but also manage the far-reaching processes of change to reduce ongoing development deficits in the agricultural and food sector, as well as in the rural areas of the Institute's geographical area of research. This goal gives rise to the three core tasks of the Institute:

- **Internationally oriented research into agricultural and food economics including the development of rural areas**
- **Exchange of ideas between the academic, business and political communities**
- **Support for young academics**

The Institute sees itself as a driving force of international research into agricultural economics. Outstanding research is the engine of the Institute's development, and it creates the conditions in which the other two core tasks can be performed. For instance, IAMO acts as a forum for exchange, and in this way it supports the crosslinking of German research and dialogue between decision makers from the academic, political and business communities. In view of the unprecedented major challenges, delivering scientifically based policy advice for the agricultural sector and political community in our partner countries is becoming an increasingly important part of IAMO's work. The Institute also uses its expertise and capacities to help academic scholars become fully qualified. Here there is a particular focus on supporting young academics from partner countries. Through its international orientation and cooperation with other teaching and research institutes, IAMO is helping to strengthen Halle's profile as a centre of science and research in Central Germany. Our close cooperation with Martin Luther University Halle-Wittenberg (MLU) – especially with the Institute of Agricultural



Figure 1: Rural area in Saxony-Anhalt, the federal state, where IAMO is situated

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and Food Sciences at the Faculty of Natural Sciences III, and the Economic Sciences Department at the Faculty of Law and Economic Sciences – is an important factor here.

/2/ Academic departments, research fields and key topic areas

IAMO's threefold research structure with the departments Agricultural Policy, Agricultural Markets and Structural Development (these are abbreviated descriptions) is derived from the orientation of its research. The basic conditions of agricultural policy and opportunities for shaping policy, markets in the agricultural and food sector, and the development of farms and structures in rural areas are all analysed by the Institute. Developments at the individual farm level and in rural areas, the creation of functioning agricultural markets, and the shaping of agricultural policy are all closely interlinked. Decisions relating to farm development and agricultural policy, as well as market processes also have an impact

on human-environment interaction in rural areas. In addition, they have an effect on the two key issues of the future: food security and food safety.

IAMO's academic work is organised interdepartmentally into five key research areas which focus on major problem areas of agricultural development in Eurasian transition countries and emerging nations. The more intensive level of communication in key research groups counteracts any possible fragmentation of research. Besides positive bundling effects, greater individual responsibility of the key research groups allows efficient, result-oriented research management. These five research areas are:

I. Policy and Institutions

II. Natural Resource Use

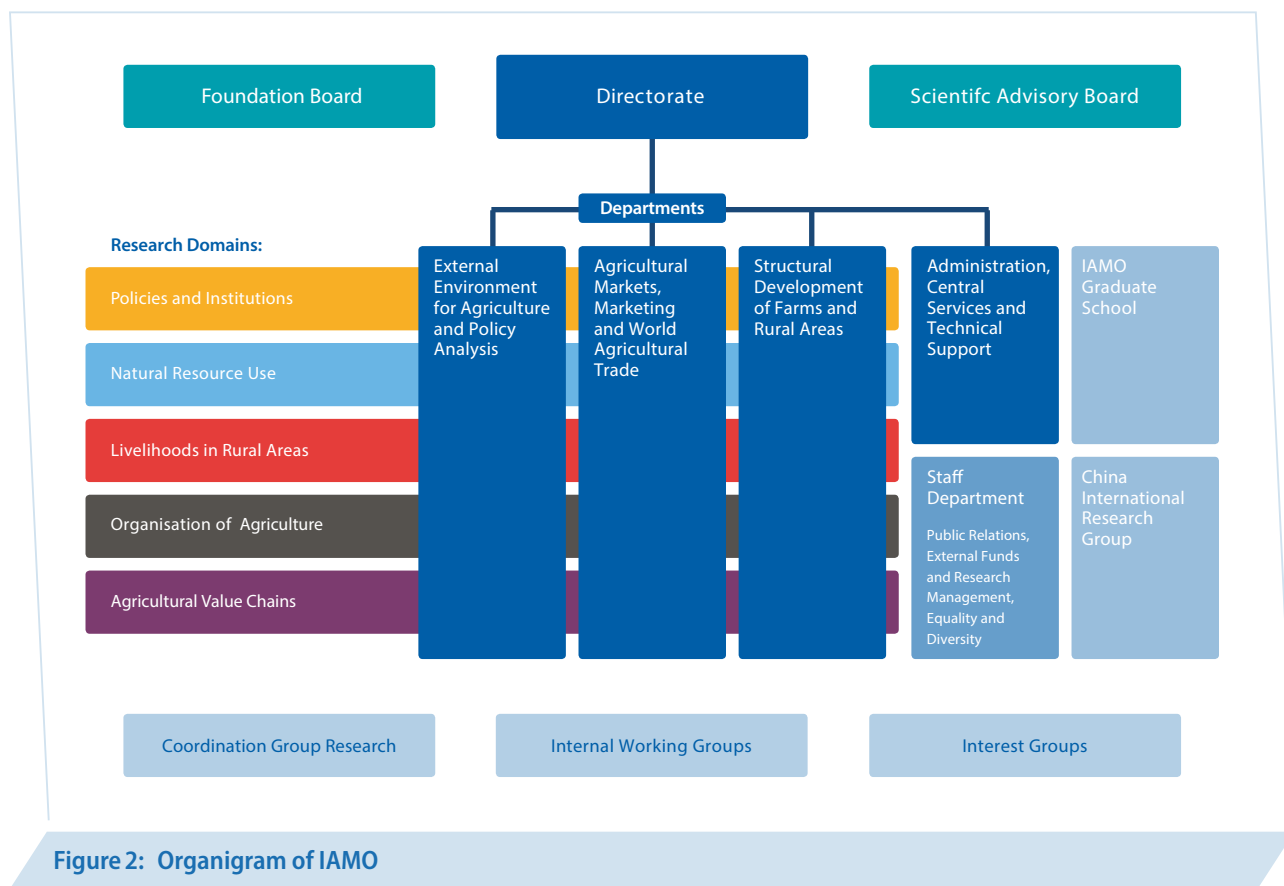
III. Livelihoods in Rural Areas

IV. Organisation of Agriculture

V. Agricultural Value Chains

With the new medium-term agenda for 2016–22, which came into effect on 1 January 2016, we have restructured our emphasis, adapting our key research areas to the changing problems in those regions of the world studied by IAMO. The following will now be given greater consideration than in the 2008–15 medium-term agenda:

- **The impact of global processes on the economy and environment of the study region,**
- **Developments in Central Asia, the Caucasus region, Russia and Ukraine,**
- **Comparative analyses between countries,**
- **Interdisciplinary nature of research,**
- **Dialogue with society, politics and business.**



/3/ **Institutional structure**

IAMO is a public foundation. Its bodies are the Board of Trustees, the Directorate and the Scientific Advisory Board. The Institute is divided into three academic departments:

- **External Environment for Agriculture and Policy Analysis** (abbreviated as: agricultural policy), head of department is Professor Thomas Herzfeld,
- **Agricultural Markets, Marketing and World Agricultural Trade** (abbreviated as agricultural markets), head of department is Professor Thomas Glauben,
- **Structural Development of Farms and Rural Areas** (abbreviated as Structural Change), head of department is Professor Alfons Balmann.

The heads of the academic departments, together with the head of

- **Administration and Central Services/Technology** (abbreviated as Administration), Dr Stephanie Garling,

form the Directorate of the Institute. Since January 2013, all four directors of the Institute have been on an equal footing as managing directors with collective responsibility.

In coordination with the Board of Trustees, this collegiate body manages the Institute's business and directs the long-term research and development planning at IAMO.

Foundation Board

As of 1/1/2018, the following were members of the Foundation Board:

- **Ministerialrat (Undersecretary) Thomas Reitmann**, Chairman, Ministry of Economy, Science and Digitization of Saxony-Anhalt
- **Ministerialdirigent (Head of Section) Friedrich Wacker**, Deputy Chairman, German Ministry of Food and Agriculture
- **State secretary Ralf-Peter Weber**, Ministry of the Environment, Agriculture and Energy of Saxony-Anhalt
- **Ministerialrat (Undersecretary) Jobst Jungehülsing**, German Ministry of Food and Agriculture
- **Professor Michael Bron**, Martin-Luther-University Halle-Wittenberg, MLU
- **Dr Lothar Hövelmann**, Manager of the DLG centre of expertise for agriculture
- **Professor Sebastian Lentz**, Leibniz Institute for Regional Geography, Leipzig, IfL
- **Professor Martin Odening**, Humboldt University Berlin

Scientific Advisory Board

As of 1/1/2018, the following were members of the Scientific Advisory Board:

- **Professor Bernhard Brümmer**, Chairman, Georg August University Göttingen
- **Professor Hermann Lotze-Campen**, Deputy Chairman, Potsdam Institute for Climate Impact Research (PIK)
- **Professor Martina Brockmeier**, Hohenheim University
- **Professor Silke Hüttel**, Rheinische Friedrich-Wilhelms-Universität (University of Bonn)
- **Dr Ekaterina Krivonos**, Food and Agriculture Organization of the United Nations (FAO), Trade and Markets Division
- **Professor Laure Latruffe**, French Institute for Research in Agriculture (INRA), Rennes
- **Professor Ada Wossink**, University of Manchester
- **Dr Martin Banse**, Johann Heinrich von Thünen-Institut (TI), Federal Research Institute for Rural Areas, Forestry and Fisheries
- **Professor Olaf Christen**, MLU
- **Professor Emil Erjavec**, University of Ljubljana
- **Professor Imre Fertö**, Hungarian Academy of Science, Budapest
- **Prof. William H. Meyers**, University of Missouri

The Scientific Advisory Board advises the Directorate and the Board of Trustees on scientific matters and regularly evaluates the Institute's work.

/4/ **Cooperation with university institutions**

Since February 1998 IAMO and MLU have been working together under a comprehensive cooperation agreement, which includes joint appointments. IAMO's work is especially closely linked with the Institute of Agricultural and Food Sciences, which is part of the Faculty of Natural Sciences III, and the Economic Sciences Department at the Faculty of Law and Economic Sciences at MLU.

The heads of IAMO's academic departments take part in MLU's teaching and committee work. Many academic members of staff from IAMO with post-doctoral and doctoral qualifications are also involved in university teaching, and in the running of a nationwide PhD student programme. Staff links between MLU and IAMO are also strengthened by the fact that MLU's Prorector of Research and Student Education, Professor Michael Bron, sits on IAMO's Board of Trustees. Cooperation between MLU and IAMO assumed a new dimension when the ScienceCampus – Plant-based bioeconomy (WCH) was opened in Halle in June 2012. The ScienceCampus aims to strengthen the interdisciplinary collaboration between the Halle-based Leibniz Institutes and the corresponding academic departments at Martin Luther University Halle-Wittenberg in the sphere of plant-based bioeconomy. It will also advance higher education in the Halle (Saale) region, as well as supporting knowledge and technology transfer in politics, business and public life.

IAMO also works in close conjunction with many other universities, chiefly with faculties of agriculture and economics. Depending on the requirements of

interdisciplinary research, other social science and humanities subjects may be brought in, e.g. human geography and history. As far as our partners in Germany are concerned, we have strong links with Berlin, Bonn, Göttingen, Hohenheim, Kiel, Munich and Münster. Since 2010 IAMO has had a cooperation agreement with the Humboldt University in Berlin. There are close relationships, too, with chairs of agricultural economics and institutes at agricultural and economics colleges and universities in our partner countries.

Amongst our partner universities abroad we should give special mention to

–in China–

- the Peking University,
- the Sichuan Agricultural University,
- the Chinese Agricultural University – Peking and
- the Lanzhou University

–in Russia–

- the Higher School of Economics in Moskau (HSE) and
- the New Economic School Moskau (NES),

–in Ukraine–

- the Kyiv School of Economics (KSE),
- the National University of Life and Environmental Sciences of Ukraine – Kyiv and
- the Zhytomir National Agro-Ecological University,

–in Uzbekistan–

- the Samarkand Agricultural Institute (SamAI),

–in Kazakhstan–

- the Kazakh National Agrarian University (KazNAU) and
- the Nazarbayev University-Astana,

–in Slovenia–

- the University of Ljubljana,

–in Serbia–

- the University of Belgrade,

–in Romania–

- the University of Agronomic Sciences and Veterinary Medicine of Bucharest (UASMV),

–in the Czech Republic–

- the Czech University of Life Sciences (CULS) – Prag.

In addition, IAMO maintains a wide range of scientific exchange with Wageningen University in the **Netherlands**; in **Denmark**, the University of Copenhagen; in **Sweden**, the Swedish University of Agricultural Sciences (SLU) in Uppsala and the Centre for Environmental and Climate Research (CEC) in Lund and in **Austria** with the University of Natural Resources and Life Sciences in Vienna (BOKU). This is in addition to the Catholic University of Leuven, the University of Bath and the University of Newcastle upon Tyne, both **United Kingdom**. In the **USA** we have close contacts with Stanford University, Ohio State University and the University of Wisconsin in Madison.

/5/ **Cooperation with non-university institutions**

The numerous contacts with non-university institutions are also very important for IAMO's work. We collaborate with the Johann Heinrich von Thünen Institutes of Farm Economics, Rural Studies, and Market Analysis and Agricultural Trade Policy in Brunswick-Völkenrode (TI); the Leipzig-based Leibniz Institute for Regional Geography (IfL); the Leibniz Institute for the History and Culture of Eastern Europe (GWZO); the Kiel Institute for the World Economy (IfW) in Kiel; the Halle Institute for Economic Research (IWH) in Halle; the Potsdam Institute for Climate Impact Research (PIK) and the German Committee on Eastern European Relations.

There are close relations with many non-university research institutions abroad, especially in Central and Eastern Europe, Southeast Europe and Eastern Asia. We have excellent and regular professional contact with institutes in academies of sciences or agricultural sciences, regional research institutes and advisory boards, as well as agricultural economics research institutes that are subordinate to the corresponding ministries of agriculture. Of note here are

- the Center for Chinese Agricultural Policy (CCAP) in Beijing at the Chinese Academy of Sciences,
- the Ukrainian Agribusiness Club (UCAB) and the Institute for Economic Research and Policy Consulting (IER), both in Kyiv,
- the All-Russian Institute for Agrarian Problems and Information Theory (VIPI) in Moscow,
- the State Altai University Barnaul / Russia,
- the Kazakh Analytical Center of Economic Policy in the Agricultural Sector (ACEPAS) / Astana and the Central Asia Regional Economic Cooperation Institute (CAREC), whose partners are several international development banks and organisations as well as Central Asian countries and China,
- the National Statistical Committee of the Republic of Kyrgyzstan,
- the International Center for Agribusiness Research and Education (ICARE) in Armenia,
- the Georgian Center for Agribusiness Development (GCAD) in Georgia,
- the Agro Information Centre of Azerbaijan (AIM) and the Ministry of Agriculture, Forestry and Rural Development of the Republic of Kosovo.

IAMO's partners in Western and Northern Europe are: the International Institute for Applied Systems Analysis (IIASA) in Laxenburg, Austria and the French consulting

firm Euroquality based in Paris. Our partners amongst international organisations are the Food and Agriculture Organization of the United Nations (FAO), the World Bank, the International Food Policy Research Institute (IFPRI), the International Water Management Institute (IMWI-CGIAR).

/6/ New Leibniz ScienceCampus “Eastern Europe – Global Area”

The Leibniz ScienceCampuses offer completely new opportunities for academic cooperation with university and non-university research institutes. In Central Germany a new “Eastern Europe – Global Area” (EEGA) Leibniz ScienceCampus was officially opened on 26 January 2017 which will be ground-breaking in the context of global challenges for research on and into the countries of Eastern Europe. In cooperation with universities and non-university institutes in Leipzig, Halle (Saale) and Jena, IAMO investigates the globalisation of Eastern European and Central Asian regions through economic ties, geopolitical changes, cultural exchange and migration movements. The Leibniz ScienceCampus “Eastern Europe – Global Area” offers all participating institutions excellent interdisciplinary cooperation possibilities for their research and transfer activities as well as in further academic education and training of researchers with particular focus on communication of research results to the media and wider public. The ScienceCampus ‘Eastern Europe – Global Area’ will be supported by the Leibniz Association for a period of 4 years. Under the auspices of the Leibniz Institute for Regional Geography (IfL), the IAMO, the Universities of Leipzig, Halle-Wittenberg and Jena, the Max Planck Institute for Social Anthropology in Halle, the Fraunhofer Center for

International Management and Knowledge Economy (MOEZ), and the Centre for the History and Culture of East-Central Europe (GWZO) are all involved in the development of the ScienceCampus.



/7/ Supporting young academics

One of IAMO's three core tasks is to help developing the next generation of researchers, the Institute therefore supports the implementation of doctoral and habilitation projects. A large number of dissertation topics are also assigned for master's, diploma and bachelor degrees. At the end of 2017, 37 theses, 20 of them written by women, got supervised at IAMO.

/8/ Equal opportunities at IAMO

In 2016 IAMO received the TOTAL E-QUALITY award for equal opportunities a second time after successfully winning it in 2013. IAMO received the award due to its successful, long-term commitment to equal work opportunities for men and women. TOTAL E-QUALITY stands for Total Quality Management (TQM), supplemented by the gender component of equality. With

In the twelve months from October 2016 to September 2017, eleven long-standing IAMO staff members submitted their theses to the Martin Luther University and successfully defended:

Eefje Aarnoudse	"Tapping two sources: Farmers' conjunctive use of groundwater and surface water in Northwest China"
Denitsa Angelova	"A Model of Enterprise-Level Crop Yields under Climate Change. Proof of concept, general computational strategy and partial implementation for the case of grain production in Saxony-Anhalt, Germany"
Nurzat Baisakova	"Trade policy impacts on net wheat importers in the CIS: three Essays"
Maria Belyaeva	"A comprehensive analysis of current state and development perspectives of Russian grain sector: Production efficiency and climate change"
Aaron Grau	"Market power in the German dairy supply chain"
Konstantin Hahlbrock	"Entstehung und Produktivität von Agrohholdingkonstruktionen: theoretische Ansätze und empirische Untersuchungen"
Nizami Imamverdiyev	"Essays on trade patterns across South Caucasus and Central Asia and the role of Kazakhstan, Russia and Ukraine in the global wheat market"
Mathias Kloss	"Factor productivity in EU agriculture: A microeconomic perspective"
Frederike Klümper	"The land and water nexus in a transition context: the case of Tajikistan"
Lena Kuhn	"The Brink of Poverty – Efficiency and effectiveness of targeted social assistance for poverty reduction in rural China"
Andriy Matyukha	"Business Groups in Agriculture Impact of Ownership Structures on Performance: The Case of Russia's Agrohholdings"

Two external theses co-supervised by IAMO staff were also successfully passed:

Florian Gollnow	"Land-use change and land-use displacement dynamics in Mato Grosso and Pará, Brazilian Amazon, Geographie"
Qianqian Shao	"Essays on the Political Economy of Trade and Regulation: Biotechnology and Conservation"

Two external Habilitations co-supervised by IAMO professors were also successfully passed:

Miroslava Bavorova	"Innovations and food chain actors' behavior", Agricultural and Food Sciences, Martin Luther University Halle-Wittenberg
Gabriela Vacekova	"The nonprofit sector in economic theory: beyond mainstream explanations", Economics, Masaryk University, Brno, Czech Republic

retaining this predicate, the Institute enters into an individual self-obligation to continually monitor its equal opportunities and ensure they are permanently anchored. The award acknowledges the Institute's successful equal opportunities policy. Besides equal career opportunities based on talent, potential and skills, the Institute places great importance on guaranteeing and enhancing the compatibility of family and career. The establishment of equal opportunities as well as promoting the compatibility of the work-life balance in everydaywork is the result of a proactive personnel management, career support and support for young academics and involvement with the Dual-Career Network of Central Germany.

IAMO has successfully raised funds for the position of an Equal Opportunity Officer via the "Promoting Equal Opportunities between Women and Men in Science and Research (FEM-Power)" programme funded by the European Social Fund (ESF) of the State of Saxony-Anhalt, in order to promote and institutionalise gender equality activities at IAMO. The project shall run for five years. The focus of the FEM-Power programme is on job-related promotion of women in the so-called MINT area (mathematics, information technology, natural sciences and technology), in which women are underrepresented. Mr Fabian Baier was appointed Coordinator for Gender Equality at IAMO in October 2017.

/9/ **Prizes and awards**

IAMO PhD students **Arjola Arapi-Gjini** and **Miranda Svanidze** were among the 350 junior economists who were selected in 2017 to take part in the 6th Nobel Laureate Meeting in Economics. From 22 to 26 August 2017,

they met 17 Nobel Laureates in Lindau am Bodensee, including Bengt Holmström, Oliver Hart and James Heckman. The Nobel Laureate Meetings have been held annually since 1951 in memory of Alfred Nobel in Lindau at Lake Constance, and for the sixth time a meeting will be specifically held for the field of economics.

At the proposal of the Leibniz Association, the IAMO researchers **Linde Götz** and **Judith Möllers** have been appointed as members of the AcademiaNet network, the Internet portal for outstanding European female researchers. AcademiaNet, which was established in 2010 by the Robert Bosch Stiftung in cooperation with *Spektrum der Wissenschaft* and many respected partners from academia and the business community wants to make women more visible in scientific leadership positions. The aim is to accelerate the appointment of female scientists in senior positions and committees. Other target groups of AcademiaNet include journalists and conference organizers searching for proven experts.

At the 57th annual conference of the Gesellschaft für Wirtschafts- und Sozialwissenschaften des Landbaues e.V. (Society for Economic and Social Sciences in Farming) (GEWISOLA), which took place from 13 to 15 September 2017 at the Technical University of Munich in Weihenstephan, the following were awarded a GEWISOLA Best Paper Award: **Franziska Appel** for her study "How does the behavior of farmers influence the resilience of agricultural structures – an analysis of agent-based participatory experiments" as well as **Linde Götz** and **Tinoush Jamali Jaghdani** for their research on "Russia's Agricultural Import Substitution Policy: Price Volatility Effects on the Pork Supply Chain". **Miranda Svanidze** received a GEWISOLA Best Presentation Award for her presentation, "How Well is the Russian Wheat Market



Arjola Arapi-Gjini



Miranda Svanidze



Egzon Bajrami



Tinoush Jamali Jaghdani



Linde Götz



Judith Möllers



David Ayrapetyan

Portraits © Markus Scholz

Functioning? A Comparison with the Corn Market in the USA". Within the framework of the USAID Transformational Leadership Program – Citizen Corps (TLP-CC), **Egzon Bajrami** was honoured with a Volunteer of the

Year Award 2017. Young scientist **David Ayrapetyan** won the "Best Poster Award" at the Eu-SPRI Forum that was held from 7 to 9 June 2017 in Vienna, Austria.

/10/ Training for doctoral students: IAMO Graduate School, seminars and Doctoral Certificate Programme

At the end of 2017, 37 researchers were completing their PhDs at IAMO. Their education meets international standards as part of the "Pact for Innovation and Development", which corresponds to the excellence initiative of the German government and the Länder to promote science and research at German universities, the Institute established the IAMO Graduate School in 2007. Starting out for four years as a pilot measure, since 2011 the Graduate School has become a fixed and permanent component of PhD training at IAMO. All doctoral students at IAMO are automatically members of the Graduate School, which is also IAMO's contribution to Doctoral Certificate Programme in Agricultural Economics.

The Doctoral Certificate Programme in Agricultural Economics was established in 2005 by IAMO, the Johann Heinrich von Thünen Institute (TI) and institutes of agricultural economics at several German universities.

www.agrarroekonomik.de

The "Doctoral Certificate Programme" offers the first structured training in Germany, and now in Austria too, for doctoral students in the areas of agricultural and food economics and rural development. The systematic teaching of essential theory and methods aims to increase the quality of students' education and improve efficiency when working on dissertation topics. Doctoral study is the third stage of a consecutive study programme, following bachelor's and master's degrees in

agriculture, food and the environment. The Doctoral Certificate Programme is jointly run by:

- the Agricultural and Food Economics Faculty at Christian Albrecht University in Kiel,
- the Faculty of Agriculture at the Rhine Friedrich Wilhelm University of Bonn,
- the Albrecht Daniel Thaer Institute of Agriculture and Horticulture at the Humboldt University in Berlin,
- the departments of Agricultural Sciences, Ecotrophology and Environmental Management at Justus Liebig University Giessen,
- IAMO,
- the Faculty of Agricultural Sciences at Hohenheim University,
- the Institute of Agricultural and Food Sciences at Martin Luther University Halle-Wittenberg,
- the department of Ecological Agricultural Sciences at Kassel University,
- the Faculty of Agricultural Sciences at Georg August University in Göttingen,
- the Faculty of Economic Sciences and Center of Life and Food Sciences Weihenstephan at Munich Technical University,
- the Faculty of Agricultural and Environmental Sciences at the University of Rostock,
- the University of Natural Resources and Life Sciences in Vienna,
- and the Thünen Institute, Brunswick.

The PhD course is based on a modular system. From October 2016 to September 2017 IAMO professors and staff helped organise academic events relating to the following modules:

- The Political Economy of Agriculture in High-Income Countries
- Agent-Based Modelling in Agricultural and Resource Economics I
- Foundations of Agricultural Economics
- Introduction to Geographic Information Systems and Spatial Data Analysis

In close cooperation with the PhD students, the IAMO Graduate School also offers specific further education seminars at the Institute, for which IAMO invites outside speakers.

Besides structured training for doctoral students, the IAMO Graduate School specifically involves IAMO academics who already have PhDs, giving them the opportunity to develop further their fields of research and gain experience in research management. The IAMO Graduate School also serves as a point of contact for all PhD students. Since March 2012 the IAMO Graduate School has also been a full member of the International Graduate Academy (InGrA) of Martin Luther University Halle-Wittenberg. InGrA supports the setting up of all forms of structured doctoral programmes, coordinates the existing programmes and helps create a productive research environment, while taking into account the university's internationalisation and equal opportunities strategies.

www.ingra.uni-halle.de

Jointly with the agricultural economics professors of business, agricultural market theory, agricultural business management, and agricultural, food and environmental policy at MLU's Institute of Agricultural and Food Sciences, IAMO also runs a PhD student seminar. This seminar acts as a forum for scientific exchange about research questions, methodological approaches and results.



*/11/ **China International Research Group at IAMO***

In 2008 the International China Research Group was set up at IAMO on a fixed-term basis to work on the topic "Economic Growth and Social Equilibrium in Rural China". The international research group works towards the structural and sustained international cross-linking of IAMO's research activities into economic and social processes in rural areas of the People's Republic of China. In the beginning the group consisted of IAMO staff only and was later joined by academic colleagues from Göttingen, Wageningen and Beijing. In 2011 the Centre's future was secured by a permanent partial funding from the Pact for Research and Innovation.

In 2017 the research group was working on eight projects, which covered a wide range of different topics, mainly in the key research areas of "living conditions in rural areas" and the "use of natural resources". The thematic spectrum runs from the potential effects of liberalising the land market, questions of social, health and education policy, to the impact of Chinese environmental programmes on ecological circumstances and rural living conditions. The individual projects are helping to identify approaches by addressing the sharp increase in social and environmental problems in rural China. The main issues here are targeted policy measures and the shaping of a growth-inducing economic environment.

As of 15 October 2017, five internal and one external PhD project on China were ongoing within the China Group. Moreover one PhD was successfully completed in 2017. The following are some examples of research results. An evaluation of wide-ranging household surveys showed that in a social transfer programme to combat poverty in rural China, only a small proportion of needy households actually received transfer payments. Interviews with households and with representatives of the various levels of administration involved gave an insight

concerning possible ways of improving it. Research in another project showed that reforms introduced in the province of Sichuan since 2008, including a reform of land law, have actually advanced the trade in land-use rights and improved the agricultural structure as well as farming productivity. Repeated visits by IAMO researchers to China have proven to be essential to their successful research work. Likewise, guest visits to IAMO by foreign colleagues, especially Chinese, are important for orienting research adequately in line with current



Figure 3: IAMO researcher Zhanli Sun (2nd from left) und Daniel Müller (right) during a research stay in Pingzhang, China

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developments. For example, the group is working jointly with colleagues from Sichuan Agricultural University in Chengdu, who, together with the Center of Chinese Agricultural Policy in Beijing and the IAMO China Group, held a symposium on their campus in September 2016, at which more than 40 German and Chinese academics discussed their research into the transition of rural areas in China. More information can be found on our website.

www.china.iamo.de

/12/ **Guests and fellowships at IAMO**

The further training and education of academic scholars is one of IAMO's core tasks. As mentioned above, IAMO focuses mainly on supporting young academics from its partner countries. In this regard a great importance lies on study visits by researchers, which usually range from

a few weeks up to two years. Besides being involved in joint publications, those who come for long-term visits also concentrate on their doctoral studies, financed by external and IAMO grants, and third-party funded projects. From October 2016 to September 2017, 25 fellows worked at IAMO, concentrating mostly on their theses. Over the same period of time 22 predominantly young visiting academics from a total of 19 different countries carried out research here, at IAMO.

By working together closely on international, third-party funded research projects, young researchers from partner countries integrated themselves into the international academic community. Former IAMO staff, both from Germany and partner countries, are now working in international organisations such as the EU and World Bank, or they have acquired management positions in their respective national agricultural administrations. An even larger number of them are continuing their academic careers back in their home countries.



Figure 4: Within the framework of the ANICANET project a Summer School entitled "Quantitative analysis of animal husbandry in Central Asia" took place in Halle (Saale) from 25 to 29 September 2017. More information about this and other third-party funded projects on the following pages ... © Britta Paasche

Project funding 2017
(October 2016–September 2017)

Project titel	Funding source	
I. Newly approved research projects with third-party funding		
Research group “Agricultural Land Markets – Efficiency and Regulation” Subproject SP 6 Can agricultural land market regulations fulfill their promises? Agent-based simulation studies for selected German regions	ALM_Balmann	German Research Foundation (DFG)
Research group “Agricultural Land Markets – Efficiency and Regulation” Subproject SP 7 Spatiotemporal analysis of farm-level and environmental outcomes of land markets	ALM_Müller	German Research Foundation (DFG)
Research group “Agricultural Land Markets – Efficiency and Regulation” Subproject SP 3 Ethical issues in agricultural land markets	ALM_Valentinov	German Research Foundation (DFG)
Uzbekistan agricultural sector review	Uzbekistan Review	World Bank
Establishment of a junior research group in the field of “Economics and Institutions of the Bioeconomy”	WCH Nachwuchsgruppe	Leibniz Association
International Competence Center on Large Scale Agriculture	LaScalA	Leibniz Association (Leibniz Competition)
Preparation of a structured doctoral programme on sustainable agricultural development in Central Asia	VW PREP	Volkswagen Foundation
Understanding food value chains and network dynamics	VALUMICS	EU Horizon 2020
Towards sustainable and resilient EU farming systems	SURE-Farm	EU Horizon 2020
Assessment of Common Agricultural Policy (CAP), Pillar II measures upon on-farm	PPP Slowenien 2017	German Academic Exchange Service (DAAD)
Revitalising animal husbandry in Central Asia: A five-country analysis	ANICANET	Federal Ministry of Education and Research (BMBF)
Promoting competitiveness of the private sector in rural regions	GIZ Kosovo 2017	Gesellschaft für Internationale Zusammenarbeit (GIZ)
Promotion of gender equality for female scientists at Leibniz Institute of Agricultural Development in Transition Economies (IAMO) – Creating the position of equality and diversity coordinator	FEM Power	Investitionsbank Sachsen-Anhalt
Professionals from abroad in Saxon agriculture	Sachsen 2017	Free State of Saxony
The Ethics and Economics of Modern Agricultural Myths	WCH AgriMyths	Investitionsbank Sachsen-Anhalt

Eurasian Food Economy between Globalization and Geopolitics	IAMO Forum 2017	Food and Agricultural Organization of the United Nations (FAO) German Research Foundation (DFG) Leibniz Research Alliance “Crises in a Globalised World” Leibniz Science Campus Eastern Europe – Global Area City of Halle (Saale)
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II. Ongoing projects with third-party funding

A spatial-dynamic approach to land rental markets	LandPM_MG and LandPM_AB	DFG Research Grants
New Institutionalism and Bayesian Networks: Establishing an analytical framework to model migration decision making in rural Kazakhstan	SoNeoBaN I+II	DFG Research Grants
Political economy of agricultural policies in federal systems	FEDAGRIPOL	Leibniz Association (Leibniz Competition)
Institutional Change in Land and Labour Relations of Central Asia's Irrigated Agriculture	VW AGRICHANGE	Volkswagen Foundation
Balancing trade-offs between agriculture and biodiversity in the steppes of Kazakhstan	VW BALTRAK	Volkswagen Foundation
Building an Excellency Network for Heightening Agricultural Economic Research and Education in Romania	ENHANCE	EU Horizon 2020
Global Trade Reversal – Trade Barriers between East and West: Impact Analysis on Serbian Agri-Food Trade	PPP Serbien 2016	German Academic Exchange Service (DAAD)
German-Ukrainian Agricultural Policy Dialogue	APD Ukraine	Federal Ministry of Food and Agriculture (BMEL)
Pathways to sustainable land management in Northern Argentina	PASANOVA	Federal Ministry of Education and Research (BMBF)
Competence management to promote skilled foreign workers in agriculture	Alfa Agrar	Federal Ministry of Education and Research (BMBF)
“Bioökonomie als gesellschaftlicher Wandel” The role and functions of bioclusters in the transition to a bioeconomy	TRAFOBIT	Federal Ministry of Education and Research (BMBF)
Analysis of the strategy of the Russian Federation for the expansion of agricultural production	STARLAP	Federal Ministry of Education and Research (BMBF)
Research on the influence of ethnic migration on the development of agriculture	Ethnic Migration	Ministry of Science and Education of the Republic of Kazakhstan
Editor-in-chief of Dr Daniel Müller for the Journal of Land Use Science	Journal Müller	Journal of Land Use Science

III. Projects with third-party funding that have finished

The global food crisis – Impact on wheat markets and trade in the Caucasus and Central Asia and the role of Kazakhstan, Russia and Ukraine	VW MATRACC	Volkswagen Foundation
Exploring the potential for agricultural and biomass trade in the Commonwealth of Independent States	AGRICISTRADE	7. Forschungsrahmenprogramm der EU
Economics of Climate Change Research in Dry Areas	ICARDA	International Center for Agricultural Research in the Dry Areas (ICARDA)
Interdisciplinary project KULUNDA: How to prevent the next “Global Dust Bowl?” – Ecological and Economic Strategies for Sustainable Land Management in the Russian Steppes	KULUNDA	Federal Ministry of Education and Research (BMBF)
Global Food Security and the Grain Markets in Russia, Ukraine and Kazakhstan	GERUKA	Federal Office for Agriculture and Food (BLE)
RURAGRI: MULTAGRI – Rural development through governance of multifunctional agricultural land-use, Subproject: Land-use conflicts and impacts on agricultural development trajectories in different rural areas	MULTAGRI	Federal Ministry of Education and Research (BMBF)
Determinants of Diet and Physical Activity; knowledge hub to integrate and develop infrastructure for research across Europe	DEDIPAC	Federal Ministry of Education and Research (BMBF)
Pilot measure Agricultural Restructuring, Water Scarcity and the Adaptation to Climate Change in Central Asia: A Five-Country Study	AGRIWANET	Federal Ministry of Education and Research (BMBF)
German-Kazakh Agricultural Policy Dialogue	APD Kasachstan	Federal Ministry of Food and Agriculture (BMEL)
The evolution of agriculture in East Germany and Eastern European Countries during transition and implications for North Korea	KREI_2016	Korea Rural Economic Institute
Regional Conference “Regional and International Integration in Caucasus and Central Asia: The recent changes in trade policies”	RIITP_FAO and RIITP_DAAD	FAO and DAAD
Legal and Economic Challenges for Sustainable Food Security in the 21st Century	International Summer School for Alumni	DAAD
Expert Round Table Best practices in export promotion: Experiences in Latin America, Eastern Europe and Central Asia	Round Table FAO	FAO
Subsidy for the Silk Road Conference Almaty Kasachstan	IAAE_Silk Road Conference 2016	IAAE
Sino-German Symposium about “Explaining Transition of Chinese Rural Areas: A System Perspective” Chengdu, China	Symposium Chengdu 2016	Sino-German Center for Research Promotion

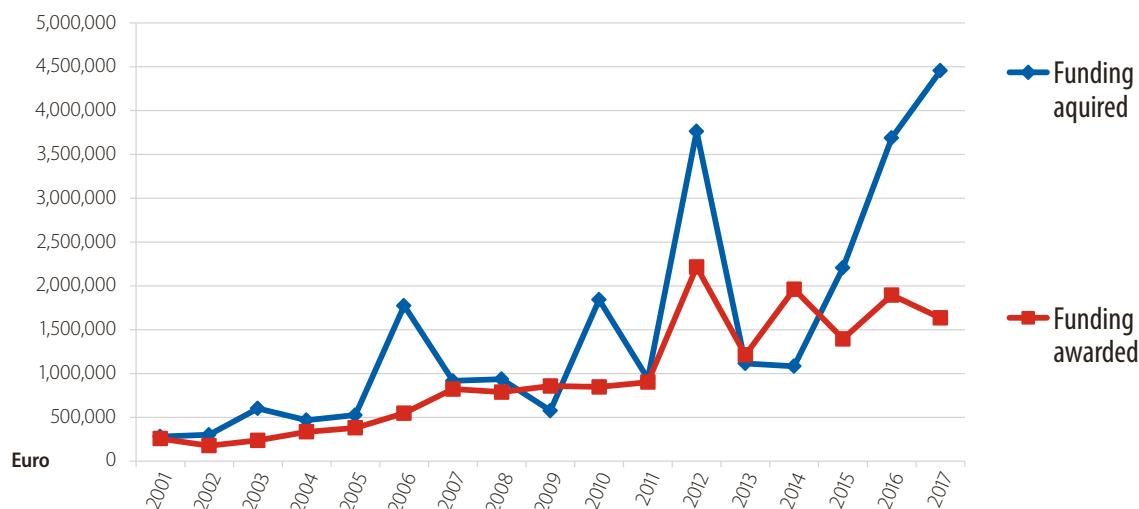


Figure 5: Development of third-party funding: In 2006, 1.775 million euros were approved, 601,000 of which went to project partners. In 2012, 3.763 million euros were approved, 2.008 million of which went to project partners. In 2012, 2.211 million euros were given out, 1.104 million of which to project partners. © Institute's own statistics

/14/ **Selected third-party funded projects**

Below is an outline of the most important projects for which new third-party funding has been obtained. It is demonstrated that, with regard to both, its basic research and scientifically based policy advice, IAMO's expertise is highly valued and that the Institute is exploring new ways of research cooperation to permanently establish Halle as a centre of science and research.

LaScala – International Competence Centre on Large Scale Agriculture

On June 1, 2017, the LaScala project was launched by IAMO as part of the Leibniz Competition that was funded by the Leibniz Association. The project runs for three

years with a funding amount of € 831,516. Dr Taras Gaga-lyuk is the main coordinator of the project. Coordinated by IAMO, 10 research institutions from eight countries collaborate with LaScala. As an international Competence Centre for large scale agriculture LaScala forms an international network of scientists and young researchers. The project enables the systemization of theoretical/ empirical research and acts as a forum for exchange of research ideas in the sphere of large scale farming. It investigates the organisational and ethical aspects of large scale agriculture, as well as institutional frameworks that enable persistence of large scale agricultural enterprises. LaScala aims especially to fill existing research gaps in understanding the effects of large scale agricultural businesses on economic and social performance of the sector, welfare and distributional justice in rural areas,

competition in factor and output markets. The project is broken down into three general and mutually nurturing work packages. Work package 1 comprises research on the organisational, ethical and institutional aspects of large scale farming. Work package 2 aims at the networking of scientists, while Work package 3 comprises the establishment of an interactive online data platform on this subject area. On 11 and 12 September 2017, IAMO in cooperation with the Ukrainian Agribusiness Club (UCAB) hosted a kick-off meeting with the project partners in Kyiv, Ukraine.

Revitalising animal husbandry in Central Asia: A five country analysis (ANICANET)

The ANICANET project funded by the Federal Ministry of Education and Research (BMBF) was launched on 1 July 2017. The funding amount provided is € 147,744. ANICANET that has a 2 year project duration is mainly supervised Professor Martin Petrick and Dr Nodir Djanibekov. Including IAMO institutions from seven countries collaborate in the project (Germany, United Kingdom, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan). The background to this project is the fact that increasing incomes of the urban population have stimulated demand for livestock products in Central Asia. Given their extensive grazing areas, Kazakhstan and Kyrgyzstan are even considered as future exporters of meat and dairy products by international observers. In fact livestock is of manifold importance for the economic and social development of the region. However, after the collapse of Soviet livestock herds in the 1990s, all five Central Asian countries Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan struggled with finding a suitable development strategy for their livestock sectors. Against this background the project aims

at gaining empirically founded insights into strategies stimulating the revitalisation of livestock husbandry in the five Central Asian countries. In addition to quantitative data collection extending beyond national boundaries it focuses on the promotion of research capacities in Central Asia.

Understanding food value chains and network dynamics (VALUMICS)

Funded by the European Commission within the framework of the Horizon 2020 programme, the four-year research project VALUMICS was launched on 1 June 2017. Under the direction of the University of Iceland, 20 other institutions from the fields of research and science are also involved in this major project, alongside the IAMO. The research funding granted to IAMO amounts to € 377,295. IAMO's work package of IAMO in the VALUMICS project is coordinated by Dr Ivan Djuric. The overall objective of VALUMICS is to provide decision makers at all levels of food value chains with a comprehensive range of approaches and tools to assess the impacts of strategic and operational policies and improve the resilience, integrity and sustainability of food value chains in the EU. VALUMICS pursues a comprehensive and multidimensional approach that goes beyond the current state of the art. Based on new modeling approaches, consumer research and prospective analysis, policymakers and industry leaders need to open up new perspectives for the development of value chains for food.

Besides publishing their work in journals, another important activity of IAMO staff is the presentation and discussion of research results at national and international conferences, forums and workshops. A large proportion of lectures by IAMO staff are delivered at international events. In the period of 1 January 2017–30 December 2017 the costs of 111 lectures given were fully covered by the organisers (11), third parties (26), or other sources (10). There was mixed funding for eleven lectures, while expenses for 49 lectures were entirely covered by IAMO's budget. Four lectures were covered by in-house funding.

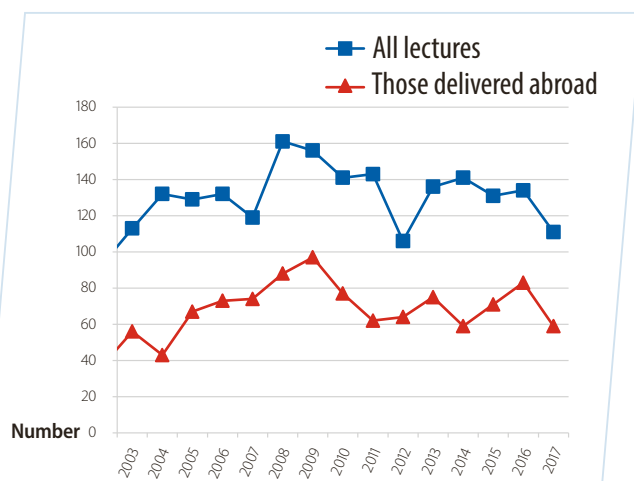


Figure 6: Development of IAMO lectures © Institute's own statistics

Conferences and seminars are essential for IAMO to be able to fulfill its third core task, which is to act as a forum for the exchange of scientific ideas in all questions of agricultural development in transition countries. The events organised by the Institute represent an important platform for scientific exchange, both on a national and international scale. Besides greater academic collaboration, the meeting of academics with decision-makers from the food industry and politics often provides an impetus for restructuring in the agricultural and food sectors in partner countries. Here we should also highlight the fact that in the field of agricultural economics IAMO makes an important contribution to a so-called scientific "capacity building" in research and teaching in our partner countries, and has a crucial role in developing long-term viable networks. Apart from the IAMO Forum we outline the most important conferences, symposia and workshops held at the Institute from October 2016 to September 2017 inclusive.

Samarkand Conference "Regional and International Cooperation in Central Asia and South Caucasus: Recent Developments in Agricultural Trade"

On 2 to 4 November 2016, in cooperation with the Samarkand Agricultural Institute and the Food and Agriculture Organization of the United Nations (FAO), IAMO organised an international conference on "Regional and International Cooperation in Central Asia and South Caucasus: Recent Developments in Agricultural Trade". More than 230 participants discussed the developments and effects of agricultural trade in the countries of Central Asia and the Caucasus at four plenary sessions and 22 parallel sessions. Throughout the three-day

event, regional and international experts, as well as representatives of companies involved in agricultural trade, and representatives of ministries and local government agencies were provided with a platform for scientific exchange and thereby strengthened future research activities in the region.

Professor Toshtemir Ostonakulov, Rector of the Samarkand Agricultural Institute, and Talantjon Esirgapov, Deputy Mayor of Samarkand, welcomed guests to the Samarkand Conference from a total of 28 countries including Kazakhstan, Turkmenistan, Ukraine, Russia, Israel and China. IAMO Director Thomas Glauben introduced the topics of the conference in his opening speech. He particularly highlighted the importance of regional and international cooperation as well as the future development of the food economy and the rural areas of Central Asia and the South Caucasus.

Plenary and parallel sessions on the first day discussed the various challenges facing vibrant agricultural trade in the landlocked countries of Central Asia and the Southern Caucasus, as well as options to overcome these challenges by developing trade infrastructure. The conference also provided a productive environment to discuss the performance and challenges of agricultural trade policies in recent years. A further topic central to the conference was the impact of climate change on agricultural trade. Policy recommendations provided during the first day included the reduction of transportation time by designing more efficient customs declaration procedures at the borders, diversification of export products, as well as diversification of import sources.

Keynote speeches, as well as paper and poster presentations on the second day of the conference covered a wide range of topics related to regional cooperation, supply chains and agricultural resource use. These highlighted the achievements in regional cooperation as well as the remaining challenges to be solved. There was also an intense discussion on strategies to modernise value chains and appropriate policies to increase production efficiency in agriculture.

The importance of regional cooperation and trade in reducing poverty and increasing food security in the region and the impact of climate change on household welfare were discussed on the third day of the conference. Furthermore, the impact of macroeconomic shocks on food security as well as the effect of changing macroeconomic policies (e.g. Russian import ban) on the agricultural sectors of the Central Asian and Caucasus countries were addressed. The ambassador of Germany to Uzbekistan, Neithart Höfer-Wissing, participated in several sessions of the conference.

The conference was supported by the German Academic Exchange Service (DAAD), the Regional Environmental Centre for Central Asia (CAREC), Kazakhstan, and the Coordinating Committee for Science and Technology Development under the Cabinet of Ministers of the Republic of Uzbekistan. It received wide media coverage both in Uzbekistan and internationally. Please find the conference webpage and photo gallery here

www.samarkand.iamo.de

IAMO expert panel at International Green Week 2017

An agricultural policy expert panel under the title “Everything Flows? Water as Decisive Resource and Factor for Agriculture in Eastern Europe and Central Asia” was organised by IAMO in cooperation with the Working Group for the Agricultural Industry of the Committee on Eastern European Economic Relations of German Industry on 19 January 2017 at the Global Forum for Food and Agriculture (GFFA) held during the International Green Week in Berlin, Germany. During the event, representatives from the areas of politics, agricultural

engineering, international collaboration and agricultural practices, together with around 130 guests, discussed the challenges of sustaining an adequate water supply for agriculturally used land in the region.

IAMO Director Alfons Balmann opened the expert panel with a speech on the increasing importance of the Eastern European and Central Asian countries as exporters of agricultural products such as wheat, oilseeds, fruits and vegetables. Despite significant deficits still to be found in infrastructure and institutional rules as well as a lack of capital and know-how on the part of the



Figure 7: Expert panel Eastern Europe at the Global Forum for Food and Agriculture (GFFA) in Berlin, 2017. The GFFA took place under the title “Agriculture and Water – Key to Feeding the World” under the auspices of the Federal Ministry of Food and Agriculture (BMEL).

© Peter Himsel

agricultural holdings, existing potential must be put to use. Although there are substantial fertile lands, there are also often distinctive climatic conditions including extreme temperatures and lack of water. Above all, the scarcity of water resources and the increasing demand for water is a major challenge for this region.

Hermann Onko Aeikens, State Secretary of the Federal Ministry of Food and Agriculture (BMEL), stressed in his opening address, that soil and water are essential resources in agriculture: "Recent projections show that the planet will be populated by around 10 billion people by 2050. Functional agricultural production is therefore necessary in order to be able to supply the growing world population with sufficient food," Aeikens explained. Only through the sustainable management of resources can a continuous increase in agricultural productivity in Eastern Europe and Central Asia be encouraged in order to feed the world and stabilise the global economy.

In the face of increasing water scarcity, Professor Dieter Gerten, Professor for Global Change Climatology and Hydrology at Humboldt University (Berlin) and Coordinator Earth Modelling at Potsdam Institute for Climate Impact Research (PIK), gave a keynote speech in which he presented solutions for efficient water management in agriculture. Measures need to be taken to considerably reduce the use of fresh water and the pollution of ground water. Improved irrigation systems, rain water collection and the prevention of water evaporation could lead to a reduction of around 20 percent of global water use and lessen the negative effects of climate change.

During the ensuing panel discussion, Professor Hans-Georg Frede, former longstanding chair of the Institute of Landscape Ecology and Resources Management at the University of Gießen, and expert on water use at the German Agricultural Society (DLG), explained that the greatest proportion of fresh water is used for the cultivation of agricultural lands. Traditional irrigation methods still used in many Eastern European and Central Asian countries today cause a loss of between 70 to 80 percent of water. The implementation of a modern and efficient irrigation system in agriculture could provide the best means of saving water whilst also contributing to the development of agricultural production.

Despite frequent periods of drought in southern Ukraine, Dr Olga Trofimzewa, Vice Minister of Agricultural Policy and Food in Ukraine, remained positive that there is great potential in agriculture. According to her, the government has made top priority of the revision of partly outdated legislation, the improvement of infrastructure and above all the collaboration between state and private investors. Of particular importance for increased agricultural production is the rapid and effective design of water management and water conservation measures taking into account all stakeholders involved at all stages of the value chain.

Askar Nametov, Chairman of the board of the National Agricultural Research & Education Center Kazakhstan, stated during the expert panel discussion that the Kazakh government has also decided to focus on a marked intensification of agriculture. Particular problems for farming in the region are soil salinity and the drying up of rivers. Water conservation technologies must therefore be developed, saline soils avoided or made usable again, salt-resistant crops cultivated and the use of

transnational rivers with neighboring countries agreed upon. In addition to international solutions, investments in new technology such as drip irrigation and greenhouse cultivation as well as state assistance for investors in the form of tax cuts and reduced customs duties were discussed.

Host Torsten Spill, co-chair of the Working Group for the Agricultural Industry of the Committee on Eastern European Economic Relations of German Industry (OA) summed up the event, declaring that “the consequences of water shortage, poor harvests and drought do not stop at national borders. The use of water resources therefore requires, in addition to the necessary judgement, a political, economic and social collaboration that spans national borders. Modern technology is essential for efficient water use. Investments in new technology allow for the efficient use and protection of resources.”

/17/ Publications

The scientific staff at IAMO is publishing their research results in academic journals, monographs, anthologies and discussion papers. Increasingly they are also communicating them in Policy Briefs. A complete publication list is available on IAMO's homepage.

During the reporting period, the publication activities have developed satisfactorily. This applies in particular to referenced articles with an impact factor, which are listed on the Science Citation Index (SCI) and the Social Science Citation Index (SSCI). The internal IAMO quality management of publications shows a lasting effect.



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www.iamo.de/en/publications/iamo-policy-briefs

IAMO Policy Briefs

Since 2011, IAMO's socially relevant research results have been published in a loose sequence in our IAMO Policy Briefs, in a short and general manner. They are particularly aimed at politics, business and the media as well as members of the public with an interest in the area. The IAMO Policy Briefs were continued in 2017 with the following issues, which can be downloaded as a pdf file free of charge from the IAMO homepage:

MÖLLERS, J., TRAIKOVA, D., HERZFELD, T., BAJRAMI, E. (2017): **Involuntary return migration to Kosovo: Tackling challenges for successful reintegration.** IAMO Policy Brief No. 33, Halle (Saale), (also in German and Albanian available).

KOESTER, U. (2017): **The EU-Georgia Trade Agreement: The Impact on Agricultural Trade and Welfare.** IAMO Policy Brief No. 32, Halle (Saale), (also in German available).

KUHN, L.; BROSIG, S.; ZHANG, L. (2017): **Sozialhilfe im ländlichen China: Trägt sie zur Armutsreduktion bei?** IAMO Policy Brief No. 31, Halle (Saale), (auch in Englisch).



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IAMO Discussion Papers

The series of the IAMO Discussion Papers were continued in 2017 with the following issues, which can be downloaded as a pdf file free of charge from the IAMO homepage:

TLEUBAYEV, A.; BOBOJONOV, I.; GÖTZ, L.; HOCKMANN, H.; GLAUBEN, T. (2017): **Determinants of productivity and efficiency of wheat production in Kazakhstan: A Stochastic Frontier Approach.** IAMO Discussion Paper No. 160, Halle (Saale).

BELYAEVA, M.; BOKUSHEVA, R. (2017): **Will climate change benefit or hurt Russian grain production? A statistical evidence from a panel approach.** IAMO Discussion Paper No. 161, Halle (Saale).

MOGILEVSKII, R.; ABDRAZAKOVA, N.; BOLOTBEKOVA, A.; CHALBASOVA, S.; DZHUMAEVA, S.; TILEKEYEV, K. (2017): **The outcomes of 25 years of agricultural reforms in Kyrgyzstan.** IAMO Discussion Paper No. 162, Halle (Saale).

GORETZKI, P.; PEREKHOZHUK, O.; GLAUBEN, T.; LOY, J.-P. (2017): **Preisdiskriminierung und Marktmacht auf den internationalen Düngemittelmärkten: Empirische Evidenz aus dem russischen Düngemittelexportmarkt.** IAMO Discussion Paper No. 163, Halle (Saale).

GANIEV, I.; DJANIBEKOV, N.; HASANOV, S.; PETRICK, M. (2017): **The state of doctoral research in Uzbekistan: Results of a survey of doctoral students in agricultural economics.** IAMO Discussion Paper No. 164, Halle (Saale).

WEGMARSHAUS, G.-R. (2017): **Uzbekistan's higher education and research system: Main actors and recent reforms of doctoral graduation.** IAMO Discussion Paper No. 165, Halle (Saale).

MÖLLERS, J.; TRAIKOVA, D.; HERZFELD, T.; BAJRAMI, E. (2017): **Study on rural migration and return migration in Kosovo.** IAMO Discussion Paper No. 166, Halle (Saale).

KERIMOVA, U. (2017): **Текущая роль производственных и обслуживающих кооперативов в сельском хозяйстве Южного Казахстана (Current role of production and service cooperatives in agriculture in**

southern Kazakhstan). IAMO Discussion Paper No. 167, Halle (Saale).

ESENGAZIEVA, S. (2017): **Влияние несельскохозяйственного бизнеса на уровень занятости в сельской местности Южно-Казахстанской области.** IAMO Discussion Paper No. 168, Halle (Saale).

BEKENOVA, G. (2017): **Карьерные ожидания студентов, магистрантов и докторантов в сельскохозяйственных университетах Казахстана.** IAMO Discussion Paper No. 169, Halle (Saale).

PEREKHOZHUK, O.; GLAUBEN, T. (2017): **Russian Food and Agricultural Import Ban: The Impact on the Domestic Market for Cattle, Pork and Poultry.** IAMO Discussion Paper No. 170, Halle (Saale).



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Studies on the Agricultural and Food Sector in Central and Eastern Europe

In a series of publications **Studies on the Agricultural and Food Sector in Central and Eastern Europe**, IAMO

has published monographs and conference reports dealing with questions of agricultural economics in the countries of Central and Eastern Europe, as well as other transition countries. All publications from volume 22 onwards can be downloaded as pdf files for free from our website. End of 2017 32 conference reports or volumes and 57 monographs have appeared in this series. The publications in 2017 were as follows:

KLOSS, M. (2017): **Factor productivity in EU agriculture: A microeconomic perspective.** Studies on the Agricultural and Food Sector in Transition Economies, Vol. 89, Halle (Saale): IAMO.

VANTOMME, K. (2017): **Labour rationing of different farm types in Kazakhstan: A shadow price analysis.** Studies on the Agricultural and Food Sector in Transition Economies, Vol. 88, Halle (Saale): IAMO.

BAISAKOVA, N. (2017): **Trade policy impacts on net wheat importers in the CIS: Three essays.** Studies on the Agricultural and Food Sector in Transition Economies, Vol. 87, Halle (Saale): IAMO.

BURGGRAF, C. (2017): **Russian demand for dietary quality: Nutrition transition, diet quality measurement, and health investment theory.** Studies on the Agricultural and Food Sector in Transition Economies, Vol. 86, Halle (Saale): IAMO.

MATYUKHA, A. (2017): **Business groups in agriculture. Impact of ownership structures on performance: The case of Russia's agroholdings.** Studies on the Agricultural and Food Sector in Transition Economies, Vol. 85, Halle (Saale): IAMO.



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/18/ **Research communication**

IAMO not only presents its work in the scientific community to discuss, but also informs policy makers and business decision makers as well as the general public about research results as well as current trends in the agricultural and food industry. In addition to the media work, the IAMO press office carries out the publication of the IAMO Policy Briefs and the newsletter, supervises the Internet presence and the social media channels of the institute. IAMO organises high-ranking scientific and public relations events in Germany and abroad itself or participates in them.

A special highlight is the IAMO Forum that is held every year. In 2017 the topic of the three day conference was "Eurasian Food Economy between Globalization and Geopolitics". More than 120 international guests from politics and business came to Halle (Saale), Germany, from 21 to 23 June 2017 to jointly debate food security and trade in the context of globalization and geopolitical tensions. The panel discussion "Fit for the Future – Innovative and Sustainable Eurasian Food Chains" on the last day of the conference addressed the issue of

the future shaping of sustainable Eurasian food chains. The IAMO Forum 2017 was organised with the technical support of the Food and Agriculture Organization of the United Nations (FAO) and in partnership with the Committee on Eastern European Economic Relations (OA). A detailed report on the contributions of the renowned plenary speakers can be found in this issue.

An agricultural policy expert panel under the title "Everything Flows? Water as Decisive Resource and Factor for Agriculture in Eastern Europe and Central Asia" took place in cooperation with the Working Group for the Agricultural Industry of the Committee on Eastern European Economic Relations of German Industry (OA) on 19 January 2017 at the Global Forum for Food and Agriculture (GFFA). The panel was held by the IAMO during the International Green Week in Berlin, Germany.

Together with the German Business Alliance at the German Asia-Pacific Business Association (OAV) and the German-Sino Agriculture Center (DCZ) IAMO also organised a panel discussion at the Global Forum for Food and Agriculture on 20 January under the title "Three sides of one coin: Agriculture and Water in China." At the same time, the guests of the GFFA events were able to talk to the scientists of the IAMO at the cooperation exchange and learn about the institute's research activities.

In 2017, IAMO also supported the International Large Farm Management Conference in Kyiv, Ukraine. Top managers of agroholdings, investors, political decision-makers, researchers and other stakeholders met at the conference held from 13 to 14 September 2017. The experts at the event exchanged views on future trends in agriculture in terms of large-scale agricultural

enterprises and networked with each other. The kick-off meeting of the “International Center of Competence for Large-Scale Agriculture” (LaScala) founded by IAMO was the Pre-Conference Workshop of the “VIII International Large Farm Management Conference”. It took place in Kyiv from 11 to 12 September 2017.

At the Agritechnica the IAMO held a round of discussions on the topic of “Potential in Agriculture of the Ukraine – Visions of Ukrainian Agricultural Industry” with the German-Ukrainian Agropolicy Dialogue (APD), Working

Group for the Agricultural Industry of the Committee on Eastern European Economic Relations of German Industry (OA) and the DLG e.V. The event took place on 14 November 2017 on the Hanover Trade Fair Grounds.

The institute presented itself to the general public at the 16th Long Night of the Sciences in Halle (Saale) with a comprehensive programme. In addition to several presentations from the agricultural and food sector and an information stand, visitors at the IAMO grounds looked forward to a tractor race and a potato exhibition.



Figure 8: A small potato exhibition at the 16th Long Night of the Sciences in Halle (Saale) presented exotic spuds from all over the world.

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Besides events, our press releases and publications in various formats, as well as our website and social media presence are of great importance for research communication.

Papers and articles about current research results, events and partnerships at IAMO were published in various print and online media as well as broadcasted over the radio. Topics that attracted particular attention in 2017 included structural change in the German agricultural sector, the agricultural market situation in Ukraine, rural emigration and the return to Kosovo, as well as animal welfare in agriculture. Media reporting is based in part on the institute's own press releases. IAMO press releases have been distributed in German and in English via IAMO's own mailing list to representatives from the media and published on the website and the Science Information Service portal. Under the "IAMO in the Media" section of the Institute's website, selected contributions from the public and industry press can be viewed.

With its series of IAMO Policy Briefs, the Institute draws on important agricultural policy questions based on its own research position. Socially relevant topics are presented briefly and in a general manner in the Policy Briefs and made accessible to different target groups such as political decision-makers, media representatives and the interested public. In 2017 the Policy Briefs addressed subjects such as social assistance in rural China and the EU-Georgia Free Trade Agreement. The IAMO Policy Briefs are published in German, English and partly in other languages and can be downloaded free of charge under the heading "Publications" on the institute's website.

The electronic IAMO Newsletter is released quarterly in German and English. Sent by email, it informs almost 2,000 recipients about the Institute's news, covering subjects such as new IAMO research projects, IAMO staff research visits, events, awards and current publications. The Newsletter is available on our website, and can also be subscribed free of charge.

Our internet presence www.iamo.de provides easy access to information on research and project results, events, support for young academics, job advertisements and IAMO staff members. The content of the website is regularly updated and expanded. The website is also compatible with smartphones and tablets. On the mobile version, the content is optimised in screen size and suitable design on different devices. The latest news from the IAMO is also available via the social media channels Facebook (www.facebook.com/iamoLeibniz) and Twitter (<https://twitter.com/iamoLeibniz>).

If you have any questions, please contact IAMO's press office at presse@iamo.de.

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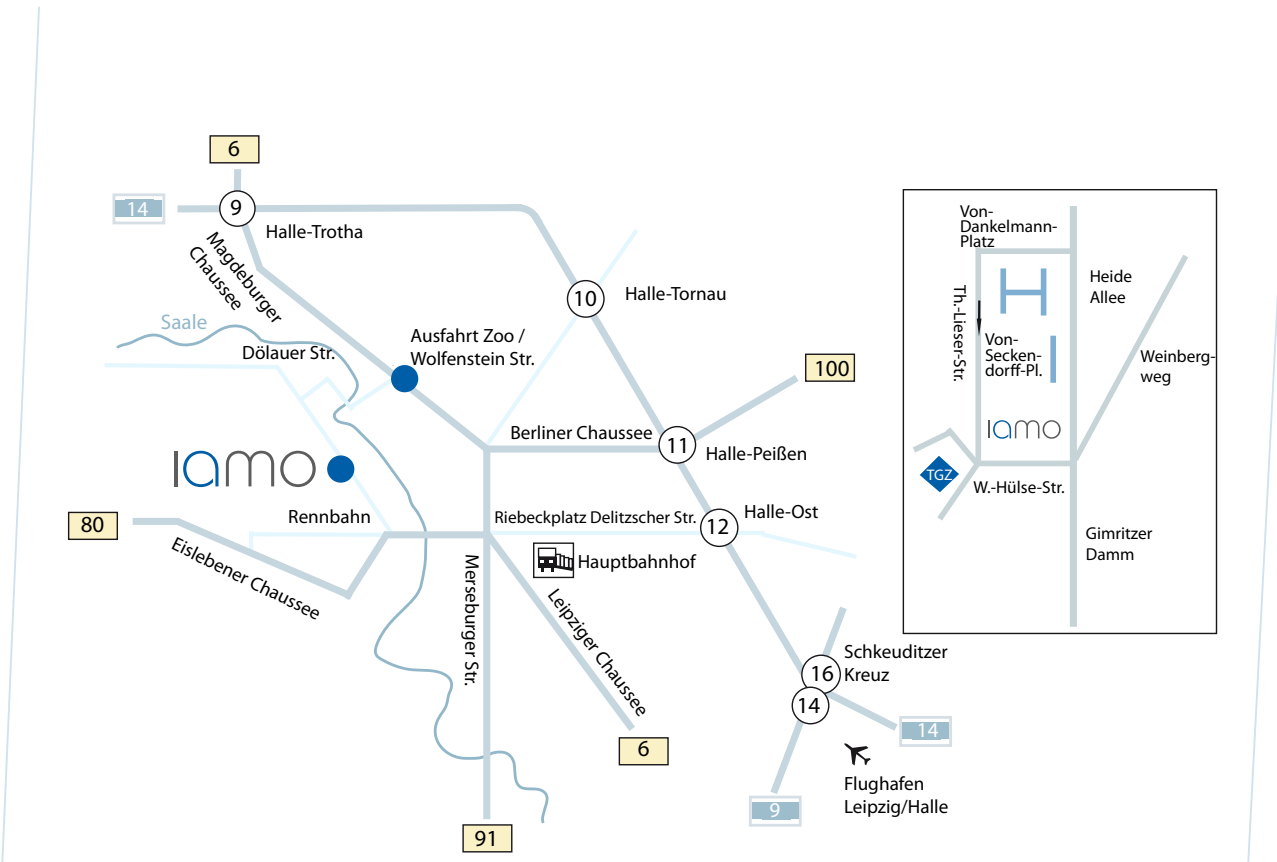
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/>/ by train

Leave the station by the main exit and follow signs to the tram stop “Riebeckplatz/Hauptbahnhof”. From here take **tram number 4** towards Kröllwitz. Alight at the **Weinberg Campus stop** (about 15 minutes from the station). The Institute is on the left-hand side of the road as you get out. Alternatively you can also take to **tram number 5**.

/>/ by plane

Leipzig-Halle airport is 20 km from Halle. A regular shuttle train takes you to the main station. See “by train” to find the way from there.



Imprint

In addition to this publication series, IAMO's publications include the **Discussion Paper** series, the **Studies on the Agricultural and Food Sector in Transition Economies** series, the Institute's **Annual Reports** and the **Policy Briefs**.

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