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In this issue

Foreword

Dear partners and friends of the Sino-German Agricultural Centre,

The pandemic Corona Virus is the omnipresent topic probably in all parts of the world now. Due to the situation first in China, now in Germany, the colleagues in the Sino-German Agricultural Centre (DCZ) mostly work from home, events and meetings had to be cancelled or postponed and even planning is always subject to the developments of the conditions on both sides.

Nevertheless, the DCZ is still running at almost full speed minus the events which had been planned for this period of time. Studies, analyses, research, communication with partners are permanently and without interruption conducted, followed up and published on our website or our LinkedIn account (see below).

Not surprisingly, the cover story by our colleague Dr. Aihemaitijiang Rouzi is also dedicated to the recent crisis and assesses the "Impact of the Corona Virus Outbreak on Chinese Agriculture". Dr. Rouzi looks at the subject from various angles, like economic impact, transport, production, and trade, and also touches on some solutions which have been applied to deal with specific issues, like an increase of digitalisation in agriculture.

Besides this, the newsletter brings to you more news and information about DCZ activities, an overview of some papers and studies recently uploaded on our website, as well as reviews of other publications related to agriculture and food.

For more of these, please also check out our DCZ Website https://dcz-china.org/en/home.html and our LinkedIn account at https://www.linkedin.com/company/13044962/admin/ and follow us for more news on agriculture and Sino-German cooperation.

We wish all of you good health and hope to be back to more normality soon

Dr. Jürgen Ritter

Managing Director

Sino-German Agricultural Centre (DCZ)

Cover Story

Impact of the Coronavirus Outbreak on Chinese Agriculture

Dr. Aihemaitijiang Rouzi

Background

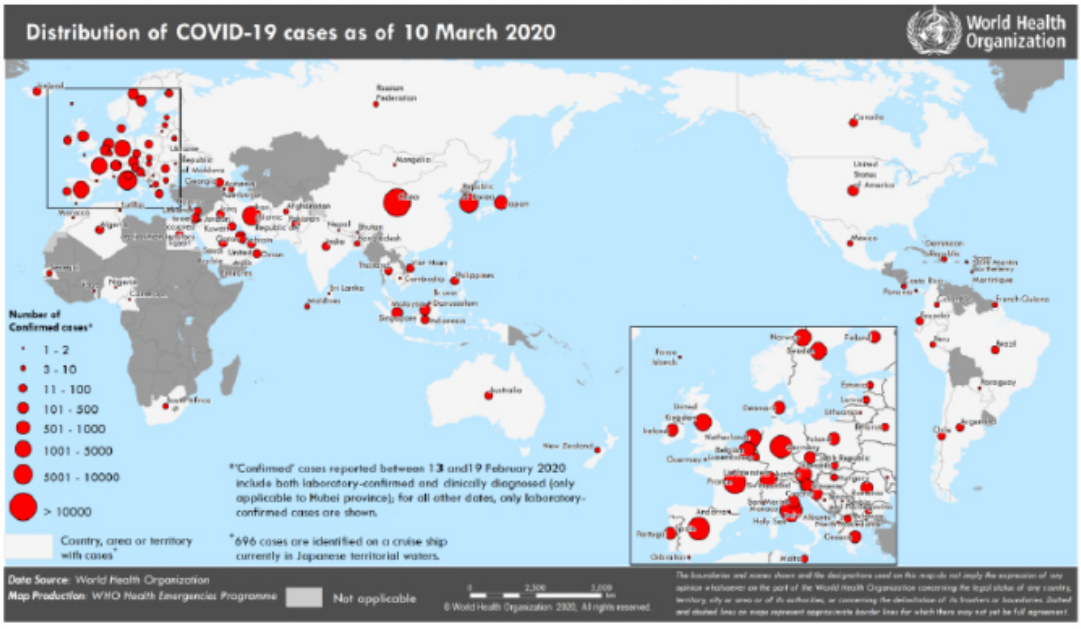
An outbreak of the coronavirus disease 2019 (COVID-19) began in Wuhan, Hubei Province, China, in December 2019, and has spread throughout China and by early March to more than 100 other countries and territories all over the world. COVID-19 is transmissible by human respiratory droplets which makes it more virulent and spread faster than MERS and SARS which also belong to the same coronavirus family. Since early March the spreading of the coronavirus slowed down considerably in China, whereas the spread in the rest of the world is increasingly rapid (Figure 1). By March 11 WHO declared COVID-19 as a pandemic.

COVID-19 is believed to be originated from Huanan wildlife market in Wuhan, Hubei province, where the virus possibly jumped from live animals to humans. As of December 31, it was determined to be a coronavirus and later named COVID-19. The most commonly reported clinical symptom in hospitalized patients is fever, followed by cough, dyspnea, myalgia and fatigue. Less common symptoms are diarrhea and vomiting. The infected people develop symptoms within 4–5 days on average, but the incubation period ranges from 1 to 14 days. About 80% of the patients have a mild to moderate disease (including non-pneumonia and pneumonia cases), 13.8% have a severe disease and 6.1% are critical (respiratory failure, septic shock, and/or multiple organ dysfunction/failure). Individuals at highest risk for a severe disease and death are people aged over 60 years and those with underlying conditions such as hypertension, diabetes, cardiovascular disease, chronic respiratory disease and cancer. Disease in children appears to be relatively rare and mild (EU CDC report).

Economic impact of COVID-19 on Chinese economy and agriculture

COVID-19 has not only brought an enormous public health crisis and human sufferings, but also led to major economic disruptions. In China, unprecedented containment and quarantine measures were taken to stop the spread of the virus. On January 22, the city of Wuhan which was at that time the epicenter of this crisis was under lockdown and most other

Figure 1. Countries, territories or areas with reported confirmed cases of COVID-19, 10 March 2020



cities in Hubei province followed with similar lockdowns, while most other provinces also declared a public health emergency and initiated various degrees of travel restrictions. This resulted in widespread restrictions on mobility of workers and people's travel during and after lunar Chinese New Year and caused a cutback in production and services of many companies, especially small enterprises, which led to both a supply and demand side shock in Chinese economy. China Manufacturing Purchasing Manager's Index (PMI), a critical production index, fell by about 22 points in February (UNCTAD). According to OECD, Chinese GDP growth in 2020 is expected to drop below 5%, IMF estimates it would be lower than 5.6% and many commercial rating agencies like Moody's and S&P estimate even lower values, such as 4%. It is further expected that the crisis will result in higher unemployment rates. The economic disruption affects China's poorest people and might prevent that the goal of eradication of absolute poverty and building up of a "comprehensive well-off society" by 2020 will be achieved.

The economic impact of COVID on Chinese agriculture is unprecedented. Because of the lockdown, main transportation routes have been blocked. Businesses cannot ship perishable produce to markets in the cities, where the price for vegetables and fruits is skyrocketing, while many villages also are locked down. Especially affected by traffic restrictions were also China's 300,000 beekeeping nomads, who could not move with their beehives in time to fields and orchards in blossom where their bees needed for pollination. Moreover, farmers reportedly have not been allowed to work in the fields for some weeks, resulting in rotten produce. The spring plowing and planting season should have begun, but the work has been delayed due to the pandemic. This could result in a major grain shortage. This report tries to address potential impacts of coronavirus on Chinese agriculture and rural development. However, the full extent of the consequences is not clear yet and hence, it could be much more dire than estimated.

1. Food and agriculture produces transport and food security

China's overall food prices increased in February by 21.4% compared to the previous year. When anti-virus efforts disrupted supplies, fresh vegetable prices increased by 9.5%, pork prices increased by 9.3% (ABCnews). To counter the effect of COVID-19 on agriculture, on January 30, MARA issued a notice to support winter and spring food production and beyond. On February 3, MARA also released an urgent notice to guarantee the supply of animal feed and transport of foods and agricultural products during the coronavirus outbreak through "Vegetable basket" and "Green tunnel" access and "Transporting vegetable of the south to north" policies. With abating cases of coronavirus in mainland China in March, many provinces lowered their public health emergency levels and many provinces slowly went back earlier to agricultural activities. According to a survey carried out by Chinese Agriculture Machinery Association, 95% of the agriculture machinery companies would go back to work by March 1.

2. Cropping and spring plantation

According to MARA, in 2020 grain spring plantation area covers 900 million Mu which is more than half of total grain area. To ensure successful completion of spring plantation, various guidelines were issued to facilitate agricultural machinery and seed purchase and to help involved seed, fertilizer and agricultural machinery companies to return to work. As of March 5, return to work rate of 362 seed companies reached 92% and that of fertilizer companies reached 69%. MARA also established a "Spring plantation agriculture machinery service station" to provide

purchase and training services online. On this platform 2 million training sessions have been carried out and MARA also enables farmers to apply for agriculture machinery subsidies through their APP. All in all, central government provided 140 million RMB of agricultural machinery subsidies to 26,000 poor farmers to purchase 40,000 pieces of agricultural machinery.

3. Wild animal trade

Since COVID-19 is believed to have originated from a Wuhan live animal market, there has been intense scrutiny on wild animal trade. On February 24, National People's Congress of China drafted a bill to ban trade and consumption of wild animals nationwide.

4. Agriculture trade

As a country of 1.4 billion people, China relies massively on trade with other countries being both importer and exporter of numerous agricultural produces. On January 15, China agreed to the US-China Phase One trade deal in which a substantial agriculture purchase commitment was made (36.6 billion dollars in 2020, 43.3 billion dollars in 2021). COVID-19 could impact the implementation of the deal by transport and supply disruptions or demand shocks caused by a slowdown in the economy. However, on February 25, USDA and USTR announced progress in the implementation of US-China trade deal in which they stated that China has taken a number of actions to meet its commitment to the agreement such as lifting the ban on imports of US poultry and pet food containing ruminant materials and updating the list of allowed sea food that can be exported to China. China also pledged to honor its commitment to fulfill agricultural purchases. Due to disruptions in Chinese agricultural production and the remaining impact of swine flu, China may need to import a large quantity of foods and agricultural products to meet the domestic demand. On the other hand, quarantine measure can delay the purchase and shipment of targeted products. China also has enormous agricultural trading relationships with countries in Asia, Europe and Latin America which could be affected by the coronavirus.

5. Digitalization of Chinese agriculture

According to Bloomberg and CNBC, there has been a surge in demand for agricultural drones, due to various quarantine measures by local governments. MARA estimates more than 30,000 drones will be deployed for plant protection this spring. The Chinese market for technology-driven smart agricultural products is expected to grow from approximately $13.7 billion in 2015 to $26.8 billion this year, according to Statista. The Chinese government had distributed 140 million RMB (20 million USD) of subsidies for agricultural machine and tool purchases to help farmers to upgrade their equipment to deal with the effects of coronavirus and improve productivity. Online retailers like Alibaba, JD.com and Pinduoduo are stepping up their effort to reach out to farmers, so they can market their agricultural products and interact with potential customers. To provide timely information and policy updates, MARA has established a national coronavirus data platform for farmers and rural areas (http://snsj.agri.cn/cockpit-index).

6. Eradication of poverty and other goals for 2020

Chinese president Xi reiterated his goal of eradicating poverty by the end of 2020 in the Document Number One; however, the outbreak of COVID-19 made this target more elusive. Inferior infrastructure and the lack of a social safety net make some of the impoverished rural areas very susceptible to the effects of the coronavirus. The South China Morning Post reported that by the end of 2019 there were 5.5 million people in poverty which is a reduction from 99 million in 2012. Because of road closures and quarantine measures, farmers could not transport their

products to destined markets and many of these products were spoiled without proper refrigeration what severely reduced farmers' income. Delay and disruption in spring plantation will result in reductions in yields and incomes. However, president Xi instructed the nation that local governments should prioritize both COVID-19 outbreak control and poverty eradication. His instructions include prioritization of rural employment, upgrading of rural infrastructure, expanding the rural social safety net, provision of subsidies to digitize agriculture and enable farmers to sell their products through both traditional and online channels. Whether China can achieve its poverty eradication targets in 2020 remains to be seen.

7. Solutions to deal with impacts of coronavirus

MARA has taken a number of measures to simplify the import approval and registration process for pesticides, fertilizers, livestock feeds and seeds. MARA established the aforementioned national coronavirus data platform for farmers, enables farmer to apply for agriculture machinery through APP and also offered online services and trainings to farmers.

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http://www.gov.cn/xinwen/2020-03/05/content_5487526.htm

https://www.shangyexinzhi.com/article/details/id-551202/

Good to Know

Document No. 1 on Agricultural Development Released

On February 5, the Central Committee of the Communist Party of China released the *Central Document No.1*. under the title "Opinions on Prioritizing 'Three Rurals': Key Work to Achieve a Comprehensive Well-off Society on Schedule. It outlines the 2020 plan for rural and agricultural development. The main points of the document have been presented at the end of December 2019 at the Central Rural Work Conference before the COVID-19 Crisis brought China to a standstill. It remains to be seen how severe the crisis affects China's economy and to what extent it will undermine China's efforts and achievements in rural development. The documents focusing on poverty alleviation, in particular the improvement of the economic status in the remaining so called poverty counties and regions by end of 2020. In comparison with earlier documents, the current Document No. 1 is relatively short. Out of five chapters the first two are devoted to poverty alleviation. In view of the remarkable achievements in recent years - according to the National Bureau of Statistics the number of people living below the official poverty line could be reduced from 99 million in 2012 to about 5.5 million people in 2019 – this year's document aims at a relatively manageable target group. Explicitly mentioned are the so called „3 regions and 3 prefectures" (namely Tibet, the South of Xinjiang and autonomous Tibetan regions in Sichuan, Qinghai, Gansu and Yunnan province as well as Liangshan prefecture in Sichuan, Nujiang prefecture in Yunnan and Linxia prefecture in Gansu). Proposed activities oscillate between technocratic modernisation approaches and recourses to the rhetoric and campaign style of the 1950s and 1960s.

The proposed measures are listed in five chapters with all together 27 paragraphs. The compilation in the document is more a collection of keywords and ideas needing to be amended by more detailed implementation guidelines (see also additional regulations in the chapter below). The following topics are addressed in the five chapters

1. *Win the battle against absolute poverty.* The five paragraphs of the first chapter are focusing on governance and building of political institutions to reach the goal of elimination of absolute poverty by the end of 2020.
2. *Overcome the shortcomings in rural public infrastructures and public services.* Eight concrete countermeasures will be implemented:

- improve rural public infrastructure such as roads, electricity supply, accessibility to 4G mobile networks in remote areas. To finance construction and maintenance these projects, a potentially controversial rise of gasoline tax is proposed.
- improve drinking water supply facilities. Villages in the vicinity of urban areas shall be connected to urban drinking water supply networks.
- improve rural community hygiene and environmental protection infrastructure; including the upgrading and expanding of rural sanitation and sewage management.
- improve rural education quality and facilities.
- improve rural community health services.
- improve rural social security supply and coverage.

- improve rural community cultural services and relevant facilities.
- control rural ecological and environmental problems, i.e. enhance the treatment and reuse of livestock manures, reduce the application of chemical fertilizers and pesticides, control soil and water pollution, conserve arable farmland.

3. *Ensure the effective supply of major agricultural products and increase farmers' income.*

- stabilize grain production as a basic indicator for food security by ensuring minimum sowing areas, introduce high yield varieties. The fight against plant diseases and pests such as the spreading of the fall armyworm are explicitly mentioned. The document further proposes pilot programs for full cost and income insurances for the production of rice, wheat and corn in order to minimize farmers' risks. The cultivation of high yield soybean varieties and intercropping of corn and soy is recommended. It is further proposed to apply a newly introduced arable land index nation wide.
- recover the ASF stricken pig production and meat supply. By end of 2020 the sector shall have recovered to the production level of former years. The document calls for the strict implementation of the ASF reporting system. To reduce the danger of spreading diseases and to improve farm animal welfare it further suggests the relocation of slaughtering and meat-processing facilities to the vicinity of breeding areas to reduce long-distance transports of live pigs.
- strengthen the modern agricultural infrastructure construction such as the construction of water saving irrigation facilities. This includes the completion of projects connected to the South-to-North Water Transfer. It further proposes the construction of a cold chain logistics network and rural big data centers for application of IoT, blockchain and smart weather applications. In this context national digital pilot villages shall be established.
- government support for the development of rural industries to increase farmer's income, support of large-scale producers, including large agricultural enterprises, large farms, farmer's cooperatives, modern agricultural industrial parks and the support green food, organic food and agricultural products of typical geographical origin.
- create more job opportunities and stabilize the income of rural migrant workers by, inter alia, measures like the introduction of an unemployment insurance for these workers.

4. *Strengthen rural community governance.*

- strengthen the roles of governmental and party organizations in community governance and public services.
- improve rural community governance work system, including grassroot governance.
- harmonize and moderate the rural community conflicts and disputes. This paragraph stipulates the application of the "Fengqiao Experience" (枫桥经验), referring to a 1963 Mao-Era pilot program of the so called Four-Clean-Up Movement (politics, economy, organisations and ideology). It is named after

the Fengqiao township in Zhejiang province, where this practice was first applied, and describes a "grassroot" practice to settle conflicts and monitor and reform those labelled as "class enemies" by a larger group of locals without involving higher authorities. When Xi Jinping became governor of Zhejiang province in the early 2000s the campaign had a revival in Zhejiang province and later was proposed as a grassroot level governance method for the whole country. The paragraph mentions the following conflicts to be settled: fight against criminal offenses, defending women's and children's rights and campaigns against corruption as well as the fight against "illegal religious activities" and "superstition".

- promote safe rural community construction for establishing a harmonized social environment.

5. *Strengthen short-term measures*. This chapter includes a catalogue of "short term measures" for the implementation of the rural revitalization program.

- increase the financial investment by central and local governments and set up rural financing service system, introduce follow up policies for the expiring grassland ecological protection compensation.

- ensure the land resource supply for rural and agricultural development, i.e. setting up arable land red lines, incorporate land use for construction of processing, storage and marketing facilities into land management systems.

- promote and encourage agricultural talents and entrepreneurs going to rural areas to invest and engage in modern agriculture. This includes the proposal to send primary and secondary school teachers and doctors from urban areas at least for one year to rural areas before they have a chance to get promoted.

- strengthen the development and adoption of agricultural sciences and technologies. In this context the promotion of research related agricultural biotechnology and innovative projects of the seed industry and the construction of the Nanfan Scientific and Research Breeding Base for Rice in Sanya, Hainan province, a so called "Agricultural Silicon Valley" for breeding of rice, wheat and maize are mentioned.

- continue rural reform, land tenure reform, structural change, development of large-scale enterprises. Among other measures it proposes a 30-year extension after expirations of land contracts and reforms of the rural property rights system.

More (in Chinese) http://www.gov.cn/zhengce/2020-02/05/content_5474884.htm

(Liu Yonggong and Eva Sternfeld)

Supplementary MARA Regulations in the Context of Document No. 1

Key Points for the 2020 Work in Crop Farming

The document sets benchmarks for minimum planting areas: Staple grains (rice, wheat, corn) 1.4 billion mu (93 mio ha), cotton 59 million mu (3,9 mio. ha), oilseed 190 million mu (12.6 mio), soybeans 140 million mu (9,3 mio ha), sugarcane and sugar beet 24 million mu (1,5 mio mu). It aims for self-sufficiency in cotton, oil and sugar. It further calls to control the spread of the fall armyworm and keep

the losses caused by this pest below 5 percent of total grain production. It furthers proposes strip intercropping of corn-soybean in the North China Plain and the promotion of crop rotation (rice-canola in the Yangzi basin, corn -soybean/peanut rotation in the North China Plain, wheat-potato/soybean, corn-soybean rotation in Northeast China.

More: https://www.dcz-china.org/en/nachrichten-agri-news-d-en/mara-published-official-notice-on-key-countermeasures-to-sustain-china-s-crop-production-in-2020.html and in Chinese: http://www.moa.gov.cn/govpublic/nybzzj1/202003/t20200306_6338382.htm

Notice on 2020 Agricultural and Rural Policies and Rural Reform Works

The notice refers to ongoing reforms of the collective property system. At present reforms are carried out in 20,000 villages in 15 provinces. In 2020, the results will be analyzed and reforms will be initiated in all provinces. The notice further recommends that expiring land use contracts shall be extended for another 30 years. The revised PRC Rural Land Contracting Law (2017) is the legal basis for procedures related to land use. The law distinguishes between "contract right" and "management right" and allows farmers who have transferred the "management rights" of their contracted land to others to regain their contracted land. The notice further mentions the instalment of special government funding programs to strengthen modern family farms.

More: http://www.zcggs.moa.gov.cn/gzdt/202003/t20200311_6338635.htm

Plan for Promoting Healthy Development of New Agricultural Business Entities and Service Providers (2020-2022)

This plans defines the support programs for large-scale family farms (about 400,000), so called demonstration family farms (100,000) and farmers' cooperatives. It further foresees the strengthening of agricultural extension services and rural economic service organisations. MARA further plans to establish regional agricultural service platforms.

More: http://www.zcggs.moa.gov.cn/zczc/202003/t20200309_6338414.htm

Subsidy Policy for Scrapping and Updating Agricultural Machines

The document defines subsidy policies to speed up the exchange of old, low efficient and highly energy consuming machinery to modern, energy saving and environmentally friendly machines. Targeted beneficiaries are individual farmers, farmers' cooperatives and agricultural enterprises.

More: https://www.dcz-china.org/en/nachrichten-agri-news-d-en/chinese-ministries-rrelease-subsidy-policy-for-scrapping-and-updating-agricultural-machines.html

And in Chinese http://www.moa.gov.cn/xw/zwdt/202003/t20200303_6338112.htm

ASF

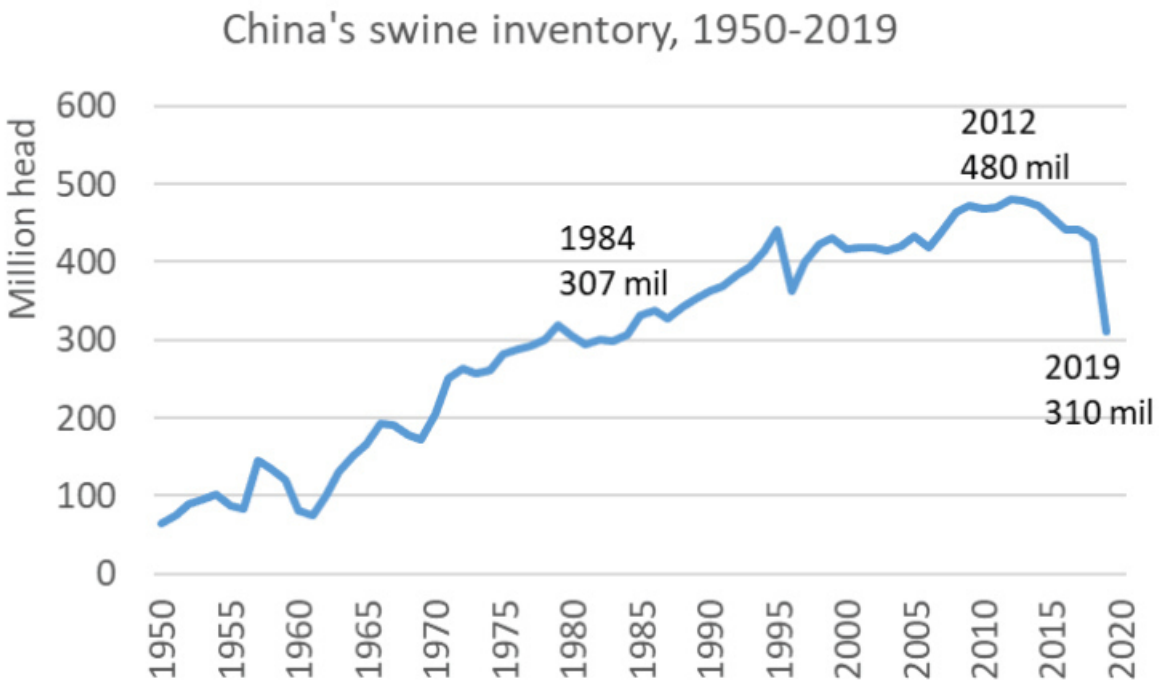
China's Swine Population Smallest in 25 Years

According to data released by the National Bureau for Statistics in January, China's swine population declined by 21% in 2019 compared to 2018, with 310 million heads being the smallest in 25 years. The most dramatic decreases were observed in the second half of 2019 and shortages caused an almost 100% price hike for pork compared with the previous year.

China Livestock Production, 2019			
Item	2019 output	Change from year earlier	
	Million metric tons	Million metric tons	Percent
Pork	42.55	-11.5	-21.3
Poultry	22.39	3.0	12.3
Eggs	33.09	1.8	5.8
Beef	6.67	0.2	3.6
Mutton	4.88	0.1	2.6
Source: China National Bureau of Statistics.			

China's Quarterly Pork Output, 2018-19				
	2018	2019	Change	Percent change
	Million metric tons		MMT	Percent
Q1	15.43	14.63	-0.8	-5.2
Q2	10.71	10.1	-0.6	-5.7
Q3	12.29	7.11	-5.18	-42.1
Q4	15.61	10.74	-4.87	-31.2
Annual	54.04	42.55	-11.49	-21.3
Calculated from China National Bureau of Statistics reports.				

Sources: Dim Sums, Jan.18, 2020



Graph: Dim Sums, http://dimsums.blogspot.com/2020/01/pork-output-down-31-prices-doubled-in.html

Three-Year Plan to Speed Up Recovery of Pork Production

On December 4, the Ministry for Agriculture and Rural Affairs released a Three-Year Plan to rebuild the China's pork industry, which since 2018 had been heavily affected by the impacts of African Swine fever (ASF). 18 policy measures have been introduced which basically focus on building "standardized" modern pig farms, built modern slaughterhouse facilities, improve biosecurity and environmental protection. New pig farm projects can apply for subsidies and are notably excepted from the ban to convert former farmland into construction sites.

18 policy measures to rebuild pork production

1. *Start building farm projects before the end of the year using this year's subsidy funds and use 2020 funds to build projects and rush them into production as soon as possible.*
2. *Order local officials to subsidize purchases of automated feeding equipment, and equipment for environmental control, disease prevention and control, and waste treatment using the agricultural machinery and equipment subsidy program.*
3. *Loosen bans on using farmland to build pig farms, waive the approval process for using village "construction land" for pig farms, and otherwise simplify land approvals.*
4. *Use hog county transfer payments to fund industry development, veterinary services, and marketing infrastructure. Issue ASF culling payments promptly.*
5. *Expand a collateral loan pilot, issue subsidized working capital and construction loans for breeding farms and large-scale farms. Expand insurance for sows and finishing hogs.*
6. *Create 120 replicable high quality demonstration farms to upgrade production.*
7. *Choose 1 or 2 localities for pork-based poverty alleviation projects in provinces of Hunan, Hubei, Guangdong, Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, and Shaanxi. Companies will collaborate with small and medium-scale farmers to expand pork output.*
8. *Urge local officials to ease up on local environmental bans on livestock farms by the end of the year and order local officials to stop declaring "pig-free" cities and counties.*
9. *Carry out environmental impact assessment of pig farms. Utilize an automated system and let farms of 5000 head or more start construction without having to wait for the final approval.*
10. *Monitor disease and movements of pigs, stop feeding kitchen waste to pigs, pay out culling funds.*
11. *Urge farmers to take responsibility for disease prevention by implementing isolation, chemical disinfection, biological immunity, and complete a "farm animal disease cleanup project". Support third-party testing and slaughter plant self-testing.*
12. *Regularize disease reporting, encourage farmers to inspect animals and promptly report diseases. Punish concealment and intentional delays in reporting, false reports, and especially obstruction of reporting by others. Set up a reward hotline for ASF reporting.*
13. *Urge localities to set up a complete province- and city-level animal disease administration, strengthen city and county veterinary lab capacity, launch and fund standardized grass roots animal disease prevention organizations, strengthen disease emergency team construction, fill in*

gaps in disease organization and personnel asap. In big livestock farming counties carry out a special employment plan for disease prevention personnel; employ 10,000 or so personnel.

14. *Collect manure and utilize it. Set up centralized collection or facilities near fields. Solve the manure treatment problem for small and medium farms. By the end of 2020, raise the national livestock and poultry manure utilization rate to 75% or higher, and 95% of scaled-up farms should have manure treatment infrastructure and equipment.*
15. *Create a system of collection points for safely disposing of diseased hog carcasses. Design a spatial layout of disposal enterprises, ensure biosecurity in collection, transportation, and disposal of carcasses, distribute support funds and ensure the sustained operations of the disposal system.*
16. *Regulate and standardize hog slaughter. Shift slaughter enterprises to major production regions in the northeast, Huang-Huai region of northern provinces, and south central provinces. Starting from the current 5,000 slaughter enterprises, rectify small slaughter points and create 100 demonstration slaughter enterprises by 2020. Ensure that it becomes normal for slaughter facilities to carry out self-inspection of hogs and to have veterinary inspectors posted in facilities.*
17. *Strengthen R&D and technical services to farmers. Increase effort in ASF vaccine development. Demonstrate ASF control methods, promote use of effective control methods on large-scale farms. Implement the subsidy for use of improved breeds and increase use of artificial insemination. Bring into play veterinary and livestock bureaucracy, industry associations, and a hog technology organization to increase farmer training and visits.*
18. *Promote direct links between production and sales areas. Urge net-deficit cities and coastal regions to maximize self-sufficiency and to form direct coordinated links with production regions to fill pork deficits. Adopt a "farm-slaughter link, direct supply" system, use a pilot electronic system to transmit animal inspection certificates and collect statistics monitoring pig movements. Ensure orderly marketing and transport of pigs using a point-to-point marketing system.*

Source: Dim Sums, Dec. 14. 2019

New ASF Vaccine

This might be a break through in the ASF crisis: End of February the Harbin Veterinary Research Institute which is overseen by the China Academy of Agricultural Sciences stated that a vaccine against ASF has passed laboratory testing and was also effective with pigs and sows. So far the institute did not reveal when the vaccine will be commercially produced. International Experts interviewed by *Pig Progress* author Vincent ter Beek expressed moderate optimism that the Chinese development is indeed a breakthrough in vaccine development. However, some experts also expressed concerns if the vaccine's effect could weaken over the time.

More: https://www.pigprogress.net/Health/Articles/2020/3/Chinese-Harbin-Institute-New-ASF-vaccine-is-effective-549147E/?utm_source=tripolis&utm_medium=email&utm_term=&utm_content=&utm_campaign=pig_progress

https://www.pigprogress.net/Health/Articles/2020/3/Moderate-optimism-about-Chinese-ASF-vaccine-551287E/

Other News

Notice on Examination & Approval of Management of Rural Residential Land

On December 12, MARA and the Ministry of Land and Resource issued a notice on Management of Rural Residential Land. It states that the agricultural departments shall be in charge of management of rural residential land and punishment of illegal land use. The natural resources departments will be in charge of land space planning, landuse planning and planning permissions. The notice further provides details on the application and review procedures for homestead and house building applications.

Reform Plan for National Pilot Areas for Integrated Development of Urban & Rural Areas

On December 29, 2019 the National Development and Reform Commission (NDRC) published details of a plan for national pilot areas, which include 11 provinces (Jilin, Jiangsu, Zhejiang, Fujian, Jiangxi, Shandong, Henan, Guangdong, Shaanxi, Sichuan and Chongqing). The plan, to be realized between 2022 and 2025, intends to narrow the gaps between urban and rural development and improve the living standard of rural residents. The plan lays a focus on economically better developed areas and suburbs of big cities. The red lines for protection of agricultural land and the protection of ecological resources need to be observed. Proposed measures include incentives for the return of migrants to rural areas, a reform marketing collectively owned construction land and a secondary market for land use rights to recover abandoned land. It further proposed the coordinated development of rural and urban industries. Special funds to support urban-rural integration shall be set up. This includes funding for infrastructure improvements such as new city-suburb railway connections, construction of schools and living allowances for rural teachers.

More: https://www.ndrc.gov.cn/xxgk/zcfb/tz/201912/t20191227_12167773.html

List of national urban and rural integration areas

- Jiaxing & Huzhou, Zhejiang province
- Guangzhou & Qingyan, Guangdong province
- East area of Fuzhou City, Fujian province
- Nanjing & Wuxi, Jiangsu province
- Jinan & Qingdao, Shandong province
- Xuxhang, Henan Province
- Yingtan, Jiangxi Province
- West of Chengdu, Sichuan province
- West of Chongqing, Chongqing
- Xi'an & Xianyang, Shaanxi province
- Changchun & Jilin, Jilin Province

China's Rural Employment Dropped by 9.4 Million in 2019

China's rural employment dropped by 9.43 million and urban employment grew by 8.28 million in 2019 as the country continued its transformation from rural to urban, according to data reported by the National Bureau of Statistics. The number of Chinese people employed in the countryside has fallen by 158 million over twenty years, according to data reported by the Bureau. The proportion of workers in the countryside fell from 70 percent in 1999 to 43 percent in 2019. The report noted that overall employment has been declining the last two years along with shrinkage of the working-age population aged 16-64 years old.

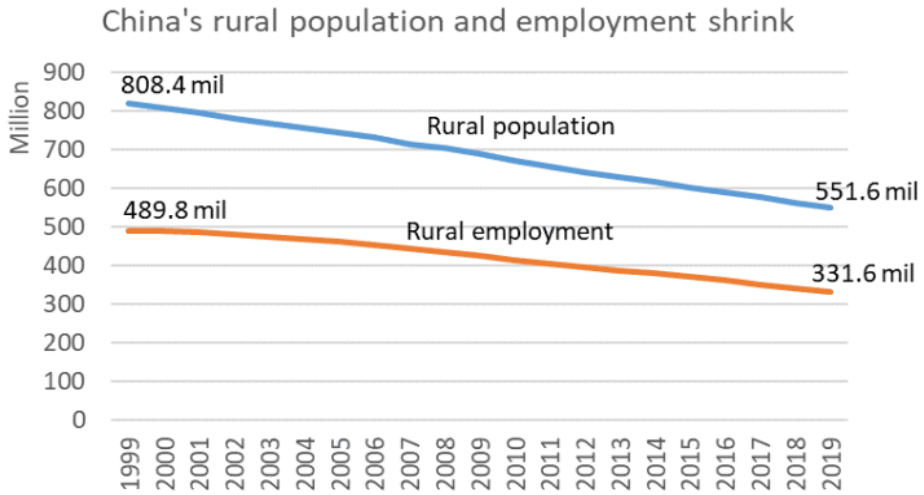
According to official statistics, China's population surpassed 1.4 billion at the end of 2019 and the urban share of the population reached 60.6 percent. The rural population fell by 12.39 million and the urban population rose

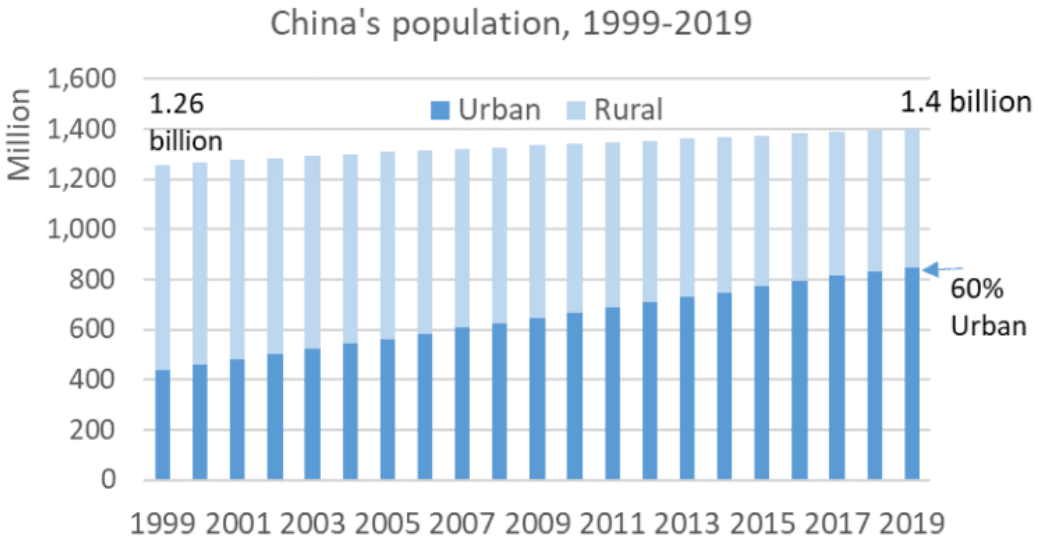
China: Urban Employment Growth and Rural		
	Employment	Change
	Million	
Total	774.71	-1.15
Urban	442.47	8.28
Rural	332.24	-9.43
Source: China National Bureau of Statistics		

by 17.06 million during 2019. The rural population has fallen by nearly 269 million over the last 20 years. The rural share of the population has fallen from 65 percent in 1999 to 39.4 percent in 2019.

Graphs: Dim Sums Feb 12, 2020

http://dimsums.blogspot.com/2020/02/chinas-rural-employment-dropped-94.html?utm_source=feedburner&utm_medium=email&utm_campaign=Feed%3A+DimSumsRuralChinaEconomicsAndPolicy+%28Dim+Sums%3A+Rural+China+Economics+and+Policy%29





China's Fall Armyworm Situation Set to Worsen in 2020

According to China's agriculture ministry, the danger from the fall armyworm pest is more severe this year. Therefore, prevention and control measures will be more aggressive.

The pest is expected to affect about 100 million mu (6.67 million hectares) of corn acreage this year, as well as other crops like sugar cane, sorghum and winter wheat.

More: https://www.reuters.com/article/us-crops-armyworm-china/chinas-armyworm-situation-set-to-worsen-in-2020-agriculture-ministry-idUSKBN20F1YL

Slow Growth for China's Food Sector

In 2019 China's food sector was growing more slowly than in previous years. Compared to 2018 the sector grew only by 2.1 percent, reports Stefanie Schmitt from German Trade & Invest. Her analysis (in German) is available at https://www.gtai.de/gtai-de/trade/branchen/branche-kompakt/china/branche-kompakt-die-ernaehrungswirtschaft-in-china-macht-gute-228924

China Plans to Issue Biosafety Certificates to Domestic GM Soybean and Corn

China's agriculture ministry plans to issue biosafety certificates to a domestically grown, genetically modified (GM) soybean crop and two corn crops, in a move toward commercializing GM grain production in the world's top market. China will grant the certificate to SHZD32-01 soybean developed by Shanghai Jiaotong University. Beijing has long approved imports of these products.

Source: https://www.reuters.com/article/us-china-gmo-crops/china-plans-to-issue-biosafety-certificates-to-domestic-gm-soybean-corn-idUSKBN1YY0MO

Dozens of Brucellosis Cases Reported at Lanzhou Veterinary Research Institute

Last November health officials in Lanzhou, Gansu Province, in Northwest China reported dozens of brucellosis cases in the city. In late November four students of Lanzhou Veterinary Research Institute of the Chinese Academy of Agricultural Sciences were serologically tested positive for brucellosis. After receiving the report, the institute immediately established an investigation team to close the related laboratories and conduct investigations. 263 people at the institute had been tested, of which 65, mainly laboratory staff, were confirmed antibody-positive by the Gansu Provincial Center for Disease Control and Prevention. Some of the seropositive individuals felt physically uncomfortable, whereas others did not show obvious clinical symptoms. Brucellosis is a contagious disease of animals that also affects humans. The disease is also known as Bang's Disease. In humans, it's known as Undulant Fever.

Source: http://outbreaknewstoday.com (December 7, 2019)

DCZ Activities

A. Rouzi Participates in 2020 Tsinghua Forum on "Three Rural Issues"

Dr. Aihemaitijiang Rouzi, senior expert on agricultural sustainability at DCZ, participated in the "2020 Tsinghua Forum on Three Rural Issues" on January 4 which was organized by the China Institute for Rural Studies of Tsinghua University. "Three rural issues" was proposed by Chinese president Hu and refers to the agriculture sector, rural areas and farmers. This year's theme was "broadly achieving affluent societies". It was a one-day event with morning plenary and afternoon parallel sessions which is held annually – this was the 8th forum. Dr. Rouzi attended both morning plenary and afternoon session on "sustainable agriculture". Keynote speakers

included the Vice Minister of MARA, Han Jun, and the Vice President of Chinese Academy of Social Science, Cai Fang, the Dean of China Institute for Rural Studies at Tsinghua University, Chen Xiaohua and others.

In the morning plenary, speakers gave a general outline of agricultural and rural development in China and stressed the importance of achieving an affluent society and eradicating poverty. Minster Han Jun said that 2020 is a critical year to achieve multiple objectives such reforming rural land institutional reforms, upgrading rural infrastructure and improving rural social services. Mr. Cai fang summarized achievements in poverty eradication in China and its positive contribution to the world. Chen Xiaohua, dean of China Institute for Rural Studies at Tsinghua University gave a talk about establishing high-quality farmland and its importance to achieving food security. He also noted that further reform is needed in the agricultural subsidy system, so China can guarantee its national food security. Keynote speaker Bai Shanlin also talked about agriculture 4.0 and how China should integrate the 4th industrial revolution in its agricultural production, in order to rather 'leapfrog' than catch up with developed countries.

The afternoon session on "sustainable agriculture" focused on local experiences from other provinces in rural development and vice CEO of Pinduoduo also spoke about how the company started as a platform for selling agriculture products and how it is still committed to sustainable agriculture and improving the Chinese farmers lives by connecting them to the market supply chain, so they could sell their agricultural products more quickly and efficiently.

More: http://www.cirs.tsinghua.edu.cn/gzdt/20200105/3033.html

(A. Rouzi)

Reports from Other Bilateral Co-operation Projects

Recent Activities of the ChinaRes Project

In the framework of the *IEA Bioenergy-Summit China* on November 6 to 7, 2019 in Beijing, Dr. Walter Stinner (DBFZ) presented the project ChinaRes and the possibilities of using biogas from agricultural residues in the energy system to a large audience with representatives from the agricultural and energy sector of different Chinese ministries (national level as well as provincial). In stakeholder discussions the possibilities of the fermentation of agricultural residues have been discussed regarding the following aspects:

- for the environmentally friendly and hygienic treatment of agricultural residues
- the efficient closing of material cycles
- the improvement of fertilizer and nutrient efficiency (aiming for less nutrient emissions, which always lead to environmental pollution, NH3, N2O emissions into the atmosphere, NO3 leaching into groundwater or eutrophication by N, P, K into surface waters
- added value and high-quality jobs in rural areas
- to avoid greenhouse gas emissions

Photo: DBFZ

(mainly storage related CH4 emissions, depending on the initial conditions also N2O)

- for the production of flexible, cross-sectoral renewable energy

Furthermore, the very different structures on the animal husbandry side were discussed, for instance the large and very productive dairy herds in the two northeastern provinces Jilin and Liaoning. For this purpose, participants of a dairy cattle congress, which took place from November 8 to 10, were also invited. With these participants also the following aspects have been discussed: biogas fermentation for fertilizer production; performance strategies of herds in connection with biogas treatment, manure removal technology and treatment of feed residues (interaction with performance); methane reduced feeding (e.g. condensed tannins) and the possible effects on animal performance, possible utilisation of the saved C in animal products; and methane yield or fermentation residue (and also in the biogas process still inhibiting effect of the tannins, e.g. from horn clover).

During a working meeting on November 5, 2019 at the Sino-German Agricultural Centre (DCZ) in Beijing, Dr. Walter Stinner presented essential contents, objectives and challenges of the use of agricultural residues for biogas production. The DCZ sees the regionally different, partly very small-scale agricultural structure (often 1-5 Mu per family) as a particular difficulty, which contributes to massive rural exodus and aging of rural areas. This causes that the education and training level of the remaining farmers is rather low. In combination with the sizes of typical efficient western technology (in terms of size not adapted to China) makes the use of more efficient technology difficult. As a result, more and more land is no longer farmed (approx. 2 million hectares of fallow land in China).

（Walter Stinner, walter.stinner@dbfz.de)

News on DCZ Website

Zhang Taolin, Vice Minister of MARA Visits Saxony

In January during the GFFA, IAK Leipzig organized a site visit to Saxony for Mr. Zhang Taolin, Vice Minister of MARA. DCZ program manager at IAK Leipzig, Stanimira Penkova, and State Secretary for Environment and Agriculture, Gisela Reetz, accompanied the Chinese delegation at the visit of the agricultural cooperative Kitzen eG.

More: https://www.dcz-china.org/en/nachrichten-agri-news-d-en/vice-minister-of-agriculture-of-the-people-s-republic-of-china-visits-saxony.html

China's Rural and Agricultural Digitalization Development Plan of China 2019 – 2025

On January 20, the Ministry of Agriculture and Rural Affairs and the Central Cyberspace Affairs Commission jointly released a 2020-2025 development plan to push forward the digitalization of agricultural development and rural governance.

DCZ senior expert Aihemaitijiang Rouzi summarizes the key strategies of the plan:

In 2018 total online sales of agriculture products in China amounted to 554.2 billion Yuan which was 9.8% of the total agriculture sales. "Internet+" is gaining more popularity. The proportion of digital agriculture economy increased to 7.3% of total agriculture economy. Nationwide coverage of optic cable and 4G reached above 98%, in poor rural areas broadband coverage exceeded 94%, in rural areas computer and mobile phone per 100 households reached 29.2 and 246.1 respectively, "High resolution No 6" satellite for agriculture observation launched successfully.

Table: Main indices for digital agricultural and rural development

Index	2018	2025	Annual increase (%)
1. Proportion of agriculture digital economy of total agricultural economy (%)	7.3	15	10.8
2. Online sale of agricultural products in total agricultural sales (%)	9.8	15	5.5
3. Rural internet coverage rate (%)	38.4	70	10.5

More: https://www.dcz-china.org/en/nachrichten-agri-news-d-en/rural-and-agricultural-digitalization-development-plan-of-china-2019-2025.html

More: http://www.ecns.cn/news/2020-01-20/detail-ifzsuknk2868884.shtml

http://www.moa.gov.cn/gk/tzgg_1/tz/202001/P020200120391822331350.pdf

DCZ Study: Antimicrobial Resistance (AMR) in Livestock and its Global Impact on Health. DCZ short term expert Prof. Thomas Blaha discusses the dangers of AMR. A free download of the study is available at https://www.dcz-china.org/en/reports-studies-and-policy-briefs.html

DCZ Study: Agrobiodiversity, Ecosystem Functioning and Adaptation to Climate Change. DCZ short term experts Prof. Li Long and Prof. Liu Yunhu (China Agricultural University, Institute for Natural Resources and Environment) introduce to China's traditional concepts of integrated farming and present strategies for intercropping and their value for ecology and protection of biodiversity. A free download is available at https://www.dcz-china.org/en/reports-studies-and-policy-briefs.html

Review of Publications

DCZ Publication: Climate Change and Agriculture. Perspectives from China and Germany. This reader includes a compilation of articles contributed by DCZ climate project's Chinese and German experts. The Chinese expert group (Li Bo, Li Yu'e, Dong Hongmin, Xu Wenzheng and Yan Yan) summarized their findings and impressions from the study tour to Germany in their article: "Germany's Mitigation Policies and Measures of Climate Change in Agriculture and Its Inspiration to China". Li Yu'e and Wang Bin (CAAS) introduce to "Mitigation Policies, Measures, and Recommendation for the Agricultural Sector of China", Barbara Amon (ATB) discusses the "Nitrogen Use Efficiency in Livestock Production: Relevance and Options for Improvement". Wei Sha, Dong Hongmin and Zhu Zhiping (CAAS) ask "How to Make Use of Livestock Manure?". Sophia Lüttringhaus (HFFA research) looks at "Climate Change Impacts on Crop Production in Europe and Opportunities for Adaptation and Mitigation by Plant Breeding" and Daniel Müller (IAMO/Humboldt University Berlin) assesses the "Effects of Sino-American Trade War and African Swine Fever for Greenhouse Gas Emissions in Pork Production" A free download of the publication is available at

https://www.dcz-china.org/files/Seiten/Reports%20and%20studies/Brochure-Climate%20change%20and%20Agriculture%20perspectives%20from%20China%20and%20Germany_2020.pdf

Food-Planet-Health – Healthy Diets from Sustainable Food Systems Report by Lancet EAT-Commission

One of the future big challenges is to provide a growing world population not only with sufficient, but also with healthy and sustainably produced diets. While global food production in general kept pace with population growth, about 820 million people still lack access to sufficient food supply, whereas others consume either low quality or too much food. To investigate these issues, *Lancet,* the world leading medical journal, invited 37 scientists from 16 countries and different disciplines. Their report the EAT-Lancet Commission formulates two targets and five strategies to achieve one goal: *"Planetary Health for Nearly 10 Billion People by 2050"*. They state that *"a radical transformation of the global food system is urgently needed" (p.5)*. This transformation would require including scientific targets for healthy diets and sustainable food production.

Target 1 (Healthy diets) is defined as follows: "*Healthy diets have an optimal caloric intake and consist largely of a diversity of plant-based foods, low amounts of animal source foods, contain unsaturated rather than saturated fats, and limited amounts of refined grains, highly processed foods and added sugars"* (p. 10). In consequence this includes increased consumption of fruits and vegetables and more than 50% reduction in global consumption of added sugars and red meat.

Target 2 (sustainable food production) focuses on *"boundaries that global food production should stay within to decrease the risk of irreversible and potentially catastrophic shifts of the Earth system"* (i.e. climate change, land system change, freshwater use, nitrogen cycling, phosphorus cycling, biodiversity loss) (p.15).

Source: EAT-Lancet Commission Summary Report 2019, p. 5

To reach these targets, the EAT Lancet Commission suggests 5 strategies:

1. Seek international and national commitment to shift to healthy diets
2. Reorient agricultural priorities from producing high quantities of food to producing healthy food – in other words "*produce enough calories to feed a growing global population but also produce a diversity of foods that nurture human health and support environmental sustainability*"(p.22). This also means to increase the variety of food to enhance biodiversity rather than to focus of increase of production of a few crops
3. Sustainably intensify food production to increase high-quality output – in other words sustainable intensification, which includes improvements in fertilizer and water use efficiency, recycling of phosphorus, enhancing biodiversity and achieve mitigation of greenhouse gases
4. Strong and coordinated governance of land and oceans – this implies the implementation of a zero-expansion policy for agricultural land into natural ecosystems and improve sustainable management of

fishery and aquaculture production

5. At least 50% reduction of food losses and waste

Download the summary report at: https://eatforum.org/eat-lancet-commission/eat-lancet-commission-summary-report/

Architecture for Pigs – Barn. Slaughterhouse.Shop Exhibition Catalogue AEDES Architecture Forum

Between January 18 and March 5, 2020 the AEDES Architecture Forum in Berlin hosted a very special exhibition. It showed the prize-winning designs of a student design competition "Architecture For Pigs" launched by the German Association of Technology and Construction in Architecture (Kuratorium für Technik und Bauwesen in der Landwirtschaft e.V. KTBL).

Reflecting the current public debate on farm animal welfare, environmental protection and meat consumption. The competition *From Barn to meat counter – animal welfare thought through from start to finish* called for a design for a small-scale pig farm (up to 500 fattening pigs), a slaughterhouse and a farm shop. In April 2019 architecture students from four German universities (TU Braunschweig, TU Darmstadt, TU München and Universität Stuttgart) had been asked to redesign an existing farm in the nature reserve "Rieselfelder Münster". The exhibition showed seven award winning designs.

Entrance to the exhibition (photo: Sternfeld)

The first price was awarded to Katharina Münch's (Technical University Darmstadt) design for a "Pig villa". Münch envisions a combination of livestock farm and recreational area for humans. Münch divides the farm into seven landscape islands with meadows, vegetable patches and three double story pigsties where about 20-30 animals are raised.

Pig villa (source: exhibition catalogue)

Xiaorong Yu's (TU Darmstadt) design "swimming pool for pigs" (commendation) reflects the pigs as social and playful animals. They live in groups and prefer dark space for taking a rest. They prefer to keep their living space clean and if they have the choice excrete away from the area where they are normally resting. Pigs can swim very well and that is why Yu planned a swimming pool for her pigs where they can cool down, clean themselves and just play. Yu also foresees separate areas for younger pigs (a piglet kindergarten) and elder pigs and toys from natural materials.

Mengye Feng and Guisong Zhang (TU Braunschweig) (commendation) designed a "Hybrid ground" with pitched green roofs of the barns as free-range area for the animals and also areas which can be entered by visitors to observe the pigs.

Two essays in the exhibition catalogue provide a deeper insight into the history of pig farming and the history of slaughtering in Germany. In the essay "Of farmers, barns and pigs" (p.44-50) the historian Gisbert Strotdees describes how pig breeding over the time developed from outdoor grazing of pigs in summer to all year indoor farming and large-scale farms for pig fattening which emerged around 1900. Erwin Tönges looks at "the history of slaughterhouses over time". With meat becoming more affordable meat consumption in Germany increased from 14kg per capita per year (mid of 19th century) to 60 kg in present days. He shows how requirements for meat hygiene and new technologies such as refrigeration machines reformed the slaughter business in the late 19th century and how the business changed again in the early 21st century with newly defined EU hygiene regulations and industrialization of meat production. In present times the German meat market is dominated by 10 slaughter companies which slaughter about 80% of all pigs in Germany. For smaller, local businesses it had been very difficult to comply with the highly detailed industrially oriented regulations. Only when in 2010 these very strict regulations were replaced, new opportunities for small locally operating butchers opened up.

Useful websites

GFAR – Global Forum on Agricultural Research www.gfar.net

Multi-stakeholder global forum on agricultural research and innovation. Includes expert database with more than 8000 entries.

Upcoming Events 2020

With ongoing Corona crisis all dates of conferences and trade fairs tbc.

Date	Location	Event	Contact
		April	
3-4		**Workshop in Agricultural, Environmental and Health Economics**	Environmental Research Center, Duke Kunshan University, Jiangsu Province Deadline for paper proposals, March 1, 2020 Questions about the workshop and paper submissions to en-
		May	
13-15	Shanghai	**Biofach China** together with **Natural Expo China**	Shanghai World Expo Exhibition & Convention Center www.biofachchina.com/en/
16-18	Beijing	**China International Modern Agricultural Exhibition**	China International Exhibition Center
		June	
3-5	Guangzhou	**China (Guangzhou) International Food Exhibition and Import Food Exhibition (IFE China)**	Guangzhou Exhibition Center
8-10	Beijing	**International Conference on Agriculture & Horticulture**	Double Tree by Hilton Hotel Xicheng District, Beijing Guang An Men Wai Avenue No. 168 Zip Code: 100055
16-18	Gut Brockhof, Erwitte Lippstadt (Germany)	**DLG-Feldtage** Meet the Crop Professionals	www.dlg-feldtage.de
24-26	Halle (Saale) Germany	**IAMO Forum 2020 – Digital transformation- towards sustainable food value chains in Eurasia**	Deadline for paper proposals Feb. 20 https://www.iamo.de/en/events/
		August	
8-9	Urumqi	**China Xinjiang International Agricultural Fair (CXIAF)**	Xinjiang International Convention and Exhibition Center
		November	
23-27	Beijing	**Sino-German Agricultural Week**	www.dcz-china.org

Imprint

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Any news about upcoming events and conferences to share? Please send your information to e.sternfeld@iakleipzig.de

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