

Prospects of China's Agricultural Economy in 2030: opportunities and challenges

Report of the CATSEI Final Policy Forum¹

Beijing, 19 November 2010

The CATSEI project was concluded by a Policy Forum in Beijing, where the team presented its findings on the trade, social and environmental aspects of China's agricultural transition, as well as the baseline and policy scenario's supporting these findings. The conference was held in the Beijing International Convention Center on November 19th, 2010. The Center for Chinese Agricultural Policy (CCAP) hosted the Forum and was the local organizer. This report summarizes the discussions at the Forum. The list of participants and the agenda are added as annex.

1) Introductory speeches

After the opening of the Forum by Professor Jikun Huang of CCAP, Director-General Hongxing Ni of the Agricultural Trade Promotion Centre of the Ministry of Agriculture delivers the first opening speech, elaborating on the positive and negative aspects of the fast changes of agricultural trade. Due to the current volatility on world markets he considers the seminar topical and timely.

Mrs Jessica Mitchell, Science and Technology attaché of the Delegation of the EU to China, concludes that the CATSEI project has made a strong contribution to facilitating the interaction between China and EU countries in agricultural policy research and, therefore, has enhanced the Commission's strategic cooperation with China. According to the Commission food security is becoming an ever more important topic that needs prioritizing since growth in agricultural production is slowing down, and climate change will have its impact. The EU will prepare new programs to tackle this challenge and the Institute for Prospective Technological Studies of EU's Joint Research Centre (JRC-IPTS) will play a key role in follow-up activities and in monitoring developments in China.

Professor Michiel Keyzer, director of the Centre for World Food Studies and coordinator of the CATSEI project, introduces the program of the Forum by a brief historical resume of the project and the construction of the Chinagro model. He states that serious modeling efforts with elaborate data work are needed for credible policy analysis, but that model work should also be complemented with detailed studies on specific issues. The main message of this seminar must be

¹ The CATSEI-project (*Chinese Agricultural Transition: Trade, Social and Environmental Impacts*), funded under the Sixth Framework Programme of the European Commission, started in 2007. Cooperating partners are the Centre for World Food Studies, Amsterdam (SOW-VU), the Center for Chinese Agricultural Policy, Beijing (CCAP), the International Institute for Applied Systems Analysis, Laxenburg (IIASA), the School of Oriental and African Studies, London (SOAS), the Agricultural Economics Research Institute, The Hague (LEI), and the International Food Policy Research Institute, Washington DC (IFPRI). This report has been prepared by Max Merbis and Wim van Veen, SOW-VU, and Huanguang Qiu, CCAP, December 2010.

seen against the background of imminent world-wide resource scarcity (in short-hand notation F5: food, feed, fuel, fiber and fertilizer scarcity) calling for prudent policies concerning biofuel development and strong ones for recycling of nutrients. China will increase its feed grain imports, and rightly so since livestock is a critical factor for rural development. China may also face labor scarcity in rural areas, soon. So there is need for mechanization, which requires investment. Indeed, the savings rate is high in China but the question is whether investments end up in agriculture or merely flow into the non-agricultural sector.

After these introductory remarks the CATSEI team presents the contents of the work. All presentations and policy briefs are available from the CATSEI website. Therefore, this report focuses on the discussions after the presentations and the main conclusions from the round table panel at the end.

2) CATSEI presentations morning session

Professor Jikun Huang of CCAP holds the first presentation: an overview of China's agricultural development and policies since 1980 with emphasis on the last decade. The second presentation is jointly by Michiel Keyzer and Wim van Veen (Centre for World Food Studies). They address the prospects for China's food demand, supply and trade until 2030 on the basis of simulations with the (revised) Chinagro model,

Comments on these two presentations are given by Professor Weiming Tian (China Agricultural University) and Mr. Marinus Overheul (agricultural counselor, Netherlands Embassy). Professor Tian states that the model addresses China's challenges very well. He endorses the main conclusion that (in his words) China will not make the world hungry. He even has some doubts whether feed imports will indeed become as high as the simulation outcomes indicate. Concerning agricultural policies, he warns for the impact of further liberalization since it may obstruct the targets of the Growth Inclusive Plan, in particular due to increased outflow of rural labor to the cities. These migration flows will speed up ageing in rural areas, where already many farmers are above 40 years of age, as younger cohorts have moved out. The tension between agricultural and nonagricultural development is rising, and asks for a judicious policy mix by the government.

Mr. Marinus Overheul congratulates the team with the comprehensive study and the concise presentation of the outcomes, and raises a number of issues which he considers from his perspective and experience as quite relevant at the moment. First, better management of losses in the food chain may be a source of future gains. Second, rural employment is important for the stability in China, and offers strong opportunities for an emerging agricomplex (as happened elsewhere, e.g. in the Netherlands). In this respect, he wonders how large the capital inflows into rural areas will be, since agrofinance is a critical factor for rural development. Third, rural producers may decide to reduce their exposure to market volatility by switching to contract farming. Finally, he raises the question how much cooperation can be expected from China in developing its external relations (in particular with respect to its activities in Sub-Saharan Africa).

In his response to the discussants, Jikun Huang emphasizes that increasing feed imports can already be observed right now, even for maize, and that China's food system is quite efficient in reducing food losses, especially inside the households and restaurants. Michiel Keyzer adds that

China has indeed made the policy choice to import feed, rather than meat, and that unless drastic policy changes occur, this is the course to stay. Concerning factor markets, he states that many interesting issues have been raised in the discussion but he considers the treatment of factor markets in the model not yet deep enough to deal adequately with all of them. At short notice, a more refined scenario formulation will certainly allow closer analysis of factor scarcities but endogenous factor mobility is for the next generation of the Chinagro model.

In response to Professor Tian's remark that he feels comfortable that China will not make the world hungry, Wim van Veen mentions that China's higher feed demand leads to a rise in world feed prices of 4-5% in the current baserun, which is indeed not dramatic. These international outcomes are based on separate simulation exercises with the GTAP model. Under tighter world market conditions one would expect larger price reactions on the world market, possibly leading to adverse effects on poor urban classes elsewhere in the world. Surprisingly, the GTAP simulations did not show such an increase in the price reactions. Hence, one should realize that the impact on feed grains markets may be underestimated, due to the modest price responses generated by the GTAP model.

Professor Scott Rozelle (Stanford University and CCAP) reflects on the assumptions made at the beginning of the project some 4 to 5 years ago, and finds that the world looks quite different right now. Currently the growth of wages in China may even outpace that of GDP, which will have a huge impact on imports (for instance, more luxury products from the EU among which fruits and vegetables). He also emphasizes that urbanization may turn out to be stronger than expected five years ago, following the latest updates in the 12th Five-year Plan stating that 20 million people per year will move to the coastal areas. If this rate persists, urbanization in 2030 may be 80%, rather than 60% as currently assumed in Chinagro. Concerning the simulation outcomes, he is impressed by the striking differences across regions as shown by the Chinagro graphs and maps, and asserts that China must manage this diversity by differentiated policies and not by uniform policies across all farms and villages (say in terms of infrastructure), as is being intended now. He suggests that in the near future further use is made of the model's capacity to address these regional differences.

Professor Xiubin Li (IGSNRR) questions the assumptions about crop land losses in the base scenario. A total loss of 6.5 million ha crop land between 2005 and 2030 may be on the low side given recent figures about annual crop land decline. He also suggests that labor scarcity in some provinces may reduce the cropping intensity. Mr. Marinus Overheul adds that salinity problems may enlarge the crop land losses.

Professor Junguo Liu (Beijing Forestry University) congratulates the team with the outcomes of the project. Furthermore, he inquires after the data sharing policy, asks how the food losses in the marketing chain are taken into account and offers to compare the outcomes of the nitrogen cycles with his own results.

Also Dr. Hans van Meijl (LEI, The Netherlands) compliments the team on the achievements of the modeling work. Concerning the base scenario assumptions, he refers to the international debate currently going on about the size of future food price increases, in particular to the uncertainty about the mitigating effect of supply responses. Furthermore, he is a bit surprised about the size of the negative effects of the biofuel scenario for the livestock sector. In reaction to

the presentation on China's agricultural policies, he welcomes China's pragmatic attitude concerning the introduction of GMO.

On behalf of the team, the presenters and Günther Fischer (IIASA) react to these remarks. Concerning the scenario assumptions, they explain that the current baseyear assumptions have gradually resulted from mutual discussions in the last five years, allowing for updates whenever new developments emerge. By its mere nature, such a process never ends and, therefore, the team will definitely take into account the remarks made today (e.g. about urbanization, crop land losses, international food prices) for future adjustments of the baseline assumptions. Regarding crop land decline, the scenario specification covers a variety of underlying factors, e.g. conversion into built-up land and conversion for ecological reasons. Also salinization is taken into account, including the effect of government programs in these areas. Food losses in the marketing chain are modeled as exogenous share of the trade volumes. In the biofuel scenario the additional fuel feedstock demand leads also to higher animal feed prices, thereby reducing the profits of the livestock sector. The size of the effects is magnified since the scenario assumes that other countries will also step up their biofuel policies, with an upward impact on world feed prices.

3) CATSEI presentations afternoon session

The first presentation of the afternoon is about agricultural trade between China and EU. It consists of two parts, one by Dr Max Merbis (Centre for World Food Studies) on common concerns and potential conflicts, and one by Dr Zhang Xiaoyong (Agricultural Economics Research Institute, The Hague) on the linkage of small-scale Chinese apple farmers to the world markets.

Professor Zhu Jing from Nanjing Agricultural University is discussant. He states that, traditionally, researchers are studying supply chains separately, either from the perspective of domestic markets or the perspective of international markets. The merit of this research is really linking the domestic market to the export markets and providing a complete picture of the apple supply chain.

The second presentation, by Dr Xiaobo Zhang (IFPRI), addresses the social component of the project. He presents findings on the labor market and household savings in rural China.

Professor Dewen Wang (China Academy of Social Science) is discussant. He asserts that dual labor markets are evolving in China, and that the Lewis turning point (i.e. the end of labor scarcity) may indeed be near. However, regarding the role of the sex ratio bias in explaining China's high saving rates, he disagrees with Xiaobo Zhang. High savings rates are typically found in high-growth countries, and may have a variety of possible explanations that cannot be dismissed so easily, as done by Dr Zhang.

The third presentation is by Dr Günther Fischer (IIASA), who addresses environmental pressure in Chinese agriculture. In particular, he discusses nitrogen surpluses and the impact of climate change and ground-level ozone on crop productivity.

Professor Jintao Xu (Environmental Sciences, Peking University) is discussant. He focuses on non-point source pollution, a major problem for the Chinese society, and raises the question what would be the most effective policy to reduce its consequences.

The open floor discussion around these three presentations tends to concentrate on the explanation of the high rural saving rates. One generally acknowledges that the sex-bias ratio plays a role but has doubts whether it is indeed as dominant as claimed by Xiaobo Zhang. Other explanations could e.g. be the lack of a good rural social security system, the Chinese culture or confusion with corporate savings. The issue is whether the estimation method sufficiently controls for these effects. In his reply, Xiaobo Zhang defends his conclusions. In particular, he admits that retained earnings are an important part of total savings, but cannot be seen as main driver for the increase in savings.

Building on the first presentation, Hans van Meijl reflects further on the question to which extent China and the EU really have common interests in the field of agricultural trade. In his view, such overlaps are limited. Concerning feed they are directly competitors. There is even a fear in the EU that the flexible attitude of China towards GMO's (more flexible than the rigid attitude of the EU itself) will gradually mean that China will take over part of the traditional feed imports from Latin America to the EU. Furthermore, both China and the EU are looking for opportunities to specialize in their own niche markets. Thirdly, an important element of the EU's agricultural policy does not refer anymore directly to trade but consists of transfers to less favorable rural areas, crucial to maintain the quality of living in these regions. A similar choice may have to be made in China when rural wages get higher.

Concerning the question of Professor Jintao Xu about the search for the most effective anti-pollution policy, Günther Fischer emphasizes that an answer to this question requires first a clear definition of 'most effective' in terms of both objective and acceptable side conditions. This is not easy. In his presentation he has confined himself to present 'multiple criteria' outcomes of alternative mitigation strategies. In response to a question from the audience, he explains that crop management strategies are the same in all calculations of the impact of climate change on crop output (except for the selection of the best-suited crop variety).

4) Round Table

The Forum ends with a Round Table Discussion on resource scarcity and price volatility on international agricultural markets, and issues for further study. The Round Table is moderated by Dr. Xiaobo Zhang. Participants are Professor Youfu Xia (University of International Business and Economics, Beijing), Dr. Yinglan Zhang (Director, Bureau of International Cooperation, Natural Science Foundation of China), Professor Laixiang Sun (School of Oriental and Asian Studies, University of London), Professor Scott Rozelle and Professor Michiel Keyzer.

Professor Youfa Xia emphasizes the need for high investments in the agricultural sector, and advocates institutional reforms, to reduce the oligopolistic power of multi-national corporations and the influence of multilateral agricultural agencies that are controlled by western countries. At the same time, higher technical progress will make the sector less vulnerable to manipulations from the 'unreal' economy such as financial speculation.

Mrs. Yinglan Zhang elucidates plans of the Natural Science Foundation for cooperation with the national agricultural research institutes, in order to pursue a steady growth in agricultural yields. Furthermore, the Natural Science Foundation will continue its policy to facilitate international research cooperation, for instance with IIASA and IFPRI.

Laixiang Sun addresses the need to investigate demographic developments in the long run, and their impact on the food situation nationally and internationally. Twenty years from now, the countryside will look quite different due to the one-child policy with ever more single males, the outmigration of skilled young people and the return of disabled people from the cities. This may lead to serious social problems.

Scott Rozelle points to the recent increases in domestic food prices, partly caused by international scarcity but definitely also related to domestic demand pressure in response to higher incomes. He claims that nowadays investments in Chinese agriculture consist mostly of input-saving technology, in particular replacing labor by machinery, while yield increases per hectare lag behind. Hence, the impact of these investments on supply is just limited, and the upward pressure on prices will persist for a while. The question is whether something can and should be done about the price increases. Price controls are difficult to impose (apart from wheat and rice for which supplies can be released from stocks, but these commodities are not the major problems now). Therefore, and since China's agriculture is known to be very price responsive, it may be better to take no action at all and let supply reactions restore the balance with demand. Government, however, may want to provide some income transfers to the poor.

Michiel Keyzer broadens the topic and addresses worldwide scarcity and price volatility. Like Scott Rozelle in the case of China, he suggests acting with restraint since taming of short-term price fluctuations is hard to realize and easily leads to over- or underinvestment. One had better focus on the structural developments in the longer run. And in this perspective, high agricultural world prices are not merely bad, especially not as long as small farmers, a large part of the world's poor, benefit from the higher prices and governments provide some support to poor urban classes. Still, to meet future demand increases and avoid overly high prices, there is a clear need to increase global food production. An important prerequisite for this increase is the availability of sufficient macro- and micronutrients to produce suitable fertilizers, a fact that remains too often underexposed. Furthermore, higher yields in Africa can make an important contribution in raising worldwide output (and, obviously, improving food security in Africa) but they are not so easy to realize. In this respect, one often refers to lessons that Africa might learn from China. Indeed, China's experiments in providing supply incentives to farmers are valuable examples for Africa but they cannot be copied directly since the African way of decision making is different, with a larger role for kinship relations and less reliance on a Napoleonic code that is universally valid for everybody and enforced by a strong government.

The plenary discussion following these statements tends to focus on rural labor scarcity and the need for mechanization. Although not everybody agrees fully, the general feeling is that rural labor has indeed become scarcer. Living costs in rural areas have not gone up substantially, while bargaining power of workers is improving. "Everybody is working, even 13-15 years old". Slack labor mainly persists among middle-aged woman.

Now, China must get ready for rising wages. It has to transform itself from a low-wage economy into a middle-wage economy. Thus, it faces the huge challenge of readjusting its industry. For

instance, Vietnam has now a cheaper labor force and, therefore, part of China's workforce will have to upgrade to more skilled jobs. The outcome of this process is not necessarily a success. Similar transition processes have failed in quite a few countries (e.g. in Argentina).

Also in agriculture, one can observe labor movements. Young people already react by going to dynamic sectors where good wages can be earned, such as horticulture and the intensive livestock sector. On the other hand, labor shortages will make cropping on steep slopes less attractive and some reforestation in these areas is envisaged.

As in the EU, agricultural policies may go more in the direction of support to poor rural regions than to farm output itself. Furthermore, in order to maintain viable farms, their size must increase. In this process one should avoid becoming too dependent on the banking system, as happened for instance with quite some Dutch high-technology farms, which have high debts and are threatened by insolvency.

Regarding the impact of speculation on rising food prices, the opinions of the audience diverge. Some do hold food traders responsible for at least part of the price increases, others claim that no large-scale future agricultural transactions take place inside China itself (only on the world market), thereby ruling out the option of any substantial impact of speculation on prices. As an aside, part of the demand increase for non-staple food (e.g. sugar, edible oil) may be temporary since it consists of inventory changes due to the rapid expansion of the retail trading system.

5) Closing remarks

Michiel Keyzer expresses his thanks to the project team and the organizers of the Forum, and concludes that there is plenty of room for further exploitation of the current simulation model and that new interesting themes have emerged for developing a successor model. These activities should overlap, and he suggests that the China side takes the lead in extending the work of the consortium.

Jikun Huang welcomes the new evidence brought forward in this Forum on China's agricultural development, substantiated through the policy briefs which he will distribute further among Chinese policy makers. Regarding continuation of this work, he concurs that China should take the lead in finding additional donors who are willing to support an international consortium.

Annexes:

- Agenda of the Forum
- List of participants

Prospects of China's Agricultural Economy in 2030: Opportunities and Challenges

Final Policy Forum CATSEI project

November 19, 2010,
Beijing International Convention Center, Beijing

**Chairman in the morning: Jikun Huang, Director, Center for Chinese
Agricultural Policy (CCAP), CAS**

- 9:00-9:30** **Opening ceremony**
- Hongxing Ni, Director General, Agricultural Trade Promotion Center, MOA
- Jessica Mitchell, Science and Technology Attaché, Delegation of the European Union to China
- Prof. Michiel Keyzer (introduction of the forum), Director, Centre for World Food Studies, the Netherlands
- 9:30-12:00** **Prospects of China's food demand, supply and trade in 2030**
- 09:30-10:00 Overview of China's agricultural development and policies in the past three decades and the coming decades
- Jikun Huang, CCAP; Scott Rozelle, Stanford University; Huanguang Qiu, Associate Professor, CCAP; Jun Yang, Associate Professor, CCAP.
- 10:00-10:20** **Tea break**
- 10:20-11:00 China's food demand, supply and trade in 2030
- Michiel Keyzer and Wim van Veen, Research Fellow, Centre for World Food Studies, the Netherland
- 11:00-11:20 Invited discussants:
- Weiming Tian, Professor, China Agricultural University
- Marinus Overheul, Agricultural counselor, Netherlands Embassy
- 11:20-12:00 Open discussion
- 12:00-13:30** **Lunch**

Chairman in the afternoon: Scott Rozelle, Professor, Stanford University

13:30-15:40 Trade options, social concerns and environmental sustainability: specific topics in CATSEI

13:30-14:05 Trends in agricultural trade between China and EU, and scope for expansion

Hans van Meijl and Zhang Xiaoyong, Research fellow, LEI, the Netherlands, and Max Merbis, Deputy Director, Centre for World Food Studies

Discussant: Zhu Jing, Deputy dean and professor, Economics and Management College, Nanjing Agricultural University.

14:05-14:45 Labor migration and social safety nets in rural China

Zhang Xiaobo, Research Fellow, International Food Policy Research Institute, and Sun Laixiang, Professor, London University

Discussant: Wang Dewen, Professor, Chinese Academy of Social Science

14.45-15.20 Water, environment and sustainable agricultural development in China

Guenther Fisher and Tatiana Ermolieva, Group leader of LUCC, International Institute of Applied System and Analysis

Discussant: Jintao Xu, Professor, College of Environmental Sciences and Engineering, Peking University

15:20-15:40 Open discussion

15.40-16.00 Tea break

16.00-17:45 Round Table: Resource scarcity and price volatility on international agricultural markets, and issues for future study

Moderator: Xiaobo Zhang, Senior Research Fellow, IFPRI

Panelists:

Youfu Xia, Professor, University of International Business & Economics

Yinglan Zhang, Director, Bureau of International Cooperation, Natural Science Foundation of China

Laixiang Sun, Professor, London University

Scott Rozelle, Professor, Stanford University

Michiel Keyzer, Director and Professor, Centre for World Food Studies, the Netherlands

17:45-18:00 Final remarks by Michiel Keyzer and Jikun Huang

18:00 Reception and dinner

Policy Forum on Prospects of China's Agricultural Economy in 2030: Opportunities and Challenges

2030年中国农业经济展望政策论坛：机遇与挑战

序号	姓名 Name	工作单位 Employer	职位 Position
1	Aalto Juhana	Embassy of Finland	Academic Trainee
2	Andres Sierra Javier	Embassy of Spain	Agricultural Counsellor
3	Borchers Jonas	Delegation of the European Union to China and Mongolia	Agricultural Counsellor Assistant
4	Bu Yibiao	National Grain&Oil Trade Center	Director
5	Chen Ruijian	International Economic Cooperation Center, MOA	Official
6	Cheng Han	Embassy of France	Agricultural Counsellor Assistant
7	Chung Chung Gil	Korea Rural Economic Institute	Chief Representative
8	Deng Xiangzheng	IGSNRR	Associate Professor
9	Fischer Guenther	IIASA, Land use change group	Professor
10	Hu Dinghuan	CAAS	Professor
11	Huang Zhurong	CCAP	Senior RA
12	Huang Jikun	CCAP	Director and Professor
13	Jia Shaofeng	IGSNRR	Associate Professor
14	Keyzer Michiel	Center for World Food Studies, Netherlands (SOW)	Director and Professor
15	Kim Grace	Embassy of Canada	First Secretary
16	LEE James	Australian Embassy Beijing	Agricultural Counsellor
17	Li Xiubin	IGSNRR	Professor
18	Li Qiang	Beijing Forestry University	Associate Professor
19	Li Zhaozhan	Beijing XinHeng company	Representative
20	Liu Junguo	Beijing Forestry University	Professor

21	Liu Yu	State Information Center, National Development and Reform Committee of China	Official
22	Lohmar Bryan	Bunge company	Economics
23	Merbis.D.Max	SOW	Deputy Director
24	Min Qingwen	IGSNRR	Professor
25	Mitchell Jessica	Delegation of the European Union to China	Science and Technology Attaché
26	Mo Haixia	CCAP	RA
27	Ni Hongxing	Agricultural Trade Promotion Centre, MOA of China	Director General
28	Marinus Overheul	Embassy of the Kingdom of the Netherlands	Agricultural Counsellor
29	Peng Bowen	CCAP	Senior RA
30	Post Jaap	LEI, Netherlands	Senior Research Fellow
31	Qiu Huanguang	CCAP	Associate Professor
32	Rozelle Scott	Stanford University	Professor
33	Steffes-fnn Dirk	German Embassy	Official
34	Sun Laixiang	SOAS, London University	Professor
35	Tian Weiming	Chinese Agricultural University	Professor
36	Tian Zhan	Shanghai Meteorologic Bureau	Associate Professor
37	Trevilla Jorge Natalia	Embassy of Spain	Agricultural and Veterinary Affairs
38	Vanmeijl Hans	LEI, Netherlands	Research Fellow
39	Veen van Wim	SOW	Research Fellow
40	Wang Dewen	World Bank and Chinese Academy of Social Science	Senior scientist and Professor
41	Wang Jinxia	CCAP	Deputy Director, Professor
42	Wang Huan	Delegation of the European Union to China	Agricultural Counsellor Assistant
43	Wang Li	CCAP	Assistant

44	Wijdooge.M.Fulco	Dutch Potato Center	GMV Food Technology (China) Office
45	Xia Youfu	University of International Business and Economics	Professor
46	Xu Jintao	Peking University	Professor and Dean
47	Yang Liexun	National Natural Science Foundation of China	Director
48	Yang Jun	CCAP	Associate Professor
49	Zhang Xiaoyong	LEI, Netherlands	Research Fellow
50	Zhang Xiaobo	IFPRI	Senior Research Fellow
51	Zhang Yinglan	International Cooperation Bureau, National Natural Science Foundation of China	Director
52	Zhang Linxiu	CCAP	Deputy Director, Professor
53	Zhou Lichun	Ministry of Commerce	Official
54	Zhu Jing	Nanjing Agricultural University	Professor, and Deputy Dean