Chinese Agricultural Transition: Trade, Social and Environmental Impacts

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Proposal summary

Proposal full title: Chinese Agricultural Transition: Trade, Social and Environmental Impacts

Proposal acronym: CATSEI

Research objective: what is the impact of China’s current economic transition on its agricultural economy with special reference to the consequences of trade liberalization and of changing trade flows.

Proposal abstract

The project studies the impact of China’s current economic transition on its agricultural economy with special reference to the consequences of trade liberalization and of changing trade flows. The project will track impacts on social conditions and on the environment in China’s rural areas as well as on markets in the rest of the world, with particular emphasis on the EU. For this, the research considers (a) the dynamic, rapid pace of the transition; (b) the size and geographical diversity of the country; and (c) the effect of the changes on the rest of the world. The research opts for a quantitative approach, supplemented by qualitative investigations, and focuses on three themes: trade, social conditions, and environment. On trade, the research aims to account for the size of China’s trade and take a closer look at trade between the EU and China with scenario simulations over the period 2000-2030, by establishing a linkage between (a) the Chinagro-model, a spatially explicit equilibrium model that comprehensively depicts China’s farm sector in 2433 counties, while connecting these through trade and transportation flows; (b) the GTAP-model of world trade; (c) FEA-27, a model of EU-agriculture for 27 members states. The research on social conditions proceeds by linking geo-referenced household surveys to a population census of China and a detailed geographical data set, relying on a suitable adaptation of poverty mapping methodology, so as to trace impacts at household level. Finally, we use agro-ecological assessment tools to quantify the environmental pressures resulting from intensified livestock industry as well as from intensified horticulture production. Findings on the three themes are subsequently integrated to arrive at policy suggestions that account for efficiency, equity and sustainability considerations. Throughout the project, a policy dialogue and dissemination program, conducted in both China and the EU, maintains communication with policy makers.
B.1 Scientific and technological objectives of the project and state of the art

Scientific and technological objectives

The research aim of the CATSEI-project is to shed light on the impact of the current economic transition in China on the agricultural economy of the country, focusing on developments in the sphere of trade. The project will track three types of effects: the impacts on social conditions in China’s rural areas; on the environment; as well as on how changes in China affect the rest of the world, with particular emphasis on the EU. The policy aim is to identify problems and opportunities that might arise in the social and environmental domains – both inside and outside of China – and to suggest a coherent set of policy measures that can face these jointly rather than for each domain separately. To accomplish such an ambitious set of objectives, the research approach needs to consider (a) how the dynamic, rapid pace of transition in both the economic and the policy domain affect the agricultural sector; (b) the size and geographical diversity of China; and (c) the country’s connection to world markets and the rest of the world.

First, the challenge to trying to work on agricultural policy in China is fundamentally that the object of the research (China’s agriculture) is in transition as the nation as a whole is changing so fast. This makes it more difficult to define the policy package that will be most effective in enhancing the benefits of growth while curtailting the negative consequences. Rising wealth, falling fertility rates, migration, industrialization, increasing openness in domestic and international markets and changing preferences of China’s urban and rural consumers all will have wrenching effects on the supply, demand and trade of the agricultural economy of China and will affect who benefits and who gets hurt and how the environment will be affected. In part a cause of these changes and in part a response to them, the government’s policy also is changing fast. In the same way that government’s efforts to support agricultural R&D, land tenure, water management, market reform and rural to urban migration in the past have had large impacts on the agricultural sector, it is expected that newly adopted policies in these areas will have similarly significant impacts in the future. In fact, it is arguable that the current government’s commitment to building up the rural economy is a new watershed in the magnitude, comprehensiveness and direction of support. Fiscal reform, enormous investments into rural infrastructure, emerging subsidy programs, new education and health initiatives – all coming under the new umbrella of China’s “New Rural Development Program” – need to be considered in any effort to understand where the agricultural sector is heading, how rural residents inside China will be affected, how the environment will fare and what will be the impact on the rest of world. We use a scenario approach to analyze these changes, meaning that we opt for quantification and seek to understand how the forces will change over time and capture their impact on the economy. In other words, our main task is to describe both the forces and their impacts.

Second, China’s diversity is geographic as well as social. Indeed, geographical distance itself significantly affects the agricultural prospects of many of its regions due to their varying transport cost to and from urban centers and seaports and world markets. Farm incomes tend to become lower in inland areas as one moves away from the coast and the fertile river plains. Social conditions in the villages reflect this and the largely urban and Eastern-based economic growth creates rising income disparities that are only to a limited extent compensated by rural to urban migration (especially because rural population growth is higher). Regarding the environmental
conditions of rural China, intensities of feed and fertilizer use exhibit a similar pattern, leading to nutrient surpluses close to the cities and deficits on the steppes in the Northwest, while water shortages and associated environmental problems rise as one moves northward. Hence, a geographically explicit approach – especially one that takes China’s transportation infrastructure and its recent changes seriously – is required. Here also quantification is necessary, as a qualitative approach is unlikely to capture completely the diversity across China.

Finally, because of China’s size, any small country assumption becomes invalid, making it necessary for policy makers worldwide to anticipate the effects of all these changes, at a rather detailed commodity level. Because of the thinness of many agricultural commodity markets in the world, small shifts in the imbalance between supply and demand for China can often have major implications for the rest the world. The EU may in particular be interested in finding out how the dynamics inside China will affect the balance of agricultural trade. Is it possible that China could become a major exporter of labor-intensive horticultural products to the EU, while the EU could begin to export livestock products and possibly feed grains to China to help it satisfy its fast-rising demand for meat. Theory suggests that these types of trade shifts would improve overall welfare in both countries, but it also axiomatically means that there will be winners and losers in both sets of nations and that in some cases vulnerable groups in China, the EU and elsewhere will be hurt. Because of this, it is important to understand how changes in trade policies – both multilateral (e.g., the WTO initiatives) and bilateral (direct negotiations between China and the EU) – will affect the flow of commodities between China and the EU and between China and the rest of the world. Trade policy changes will also amplify or attenuate domestic policy changes and shifts in economic forces that affect the supply, demand and trade of agricultural commodities and opportunities to work off the farm. Therefore, the impact of changes in China on the rest of the world, as well as changes in policy regimes elsewhere, in WTO regulations and in bilateral agreements have to be analyzed as well.

The research will be subdivided into five components.

1. **Current state and prospects** for the Chinese agricultural economy will be described at provincial and for some aspects at county level. Prospects will pay ample attention to driving forces, including:
   i. Economic growth (outside of agriculture)
   ii. Demography and migration
   iii. Institutional setting and domestic policy changes
   iv. Technological progress
   v. State of the environment, including water and land resources
   vi. Opening up to trade (WTO and bilateral agreements with EU and others)

2. **Trade**
   The trade component will consider China as an integral part of the world economy and study:
   i. Impacts of shifts in growth, demographic changes, institutions and policy changes, technology on the supply, demand and trade (and prices) of agricultural commodities
   ii. Impacts of developments in Chinese agriculture on international markets under various modalities of bilateral and multilateral (WTO)-agreements and their implementation in China
iii. Impacts of the findings of “i” and “ii” on the EU, at member state level, under various modalities for the implementation of the Common Agricultural policy (e.g., decoupling; accession regimes for new members; etc.)

iv. Commodity-specific aspects of China-EU agricultural trade

(3) Social conditions
Changes in China’s economy as a whole, its policy environment and the state of its natural environment will inevitably affect the conditions within rural areas as well as their position relative to other regions. The component will study these effects and analyze new policy options:

i. Impacts of shifts in growth, demographic changes, institutions and policy changes, technology on rural incomes and other measures of rural welfare, especially on those under, at or near the poverty line

ii. Impacts of trade policy changes (e.g., WTO; Free Trade Agreements) on rural incomes and other measures of rural welfare (through the increased/decreased flow of agricultural commodities across borders and its effect on prices and wages), especially on those under, at or near the poverty line

iii. Impacts of changes in the CAP (and other EU policy initiatives) on agricultural trade and the impact on rural welfare in China

iv. Analysis of different scenarios regarding the policy choices - both domestic and trade policy alternatives - on rural welfare in China

(4) Environment
The fast growth of food consumption in China, meat in particular, triggers demand for feed grains which requires additional irrigation and leads to increased emission of pollutants, both depending on the climate change foreseen. The component will consider:

i. Water shortages

ii. Emissions

iii. Climate change

iv. Non-point pollution, or the impact of agricultural supply, demand and trade changes on the propensity of farmers to use more/less farm chemicals and their impact on water and soil quality

v. Policies to reduce water shortages and emissions under foreseen climate change

(5) Synthesis
This component aims to develop a consistent view of the combined effects of the various trends, challenges and solutions. In this part, we will take seriously the task of assessing the various policy options at the disposal of officials in China and the EU. For example, what are the expected effects of changes of land tenure reform (land titling or even privatization) on supply, demand and trade of agricultural commodities as well as their effect on social welfare and the environment. Similar analysis needs to be done on a number of other important policy options: (a) water pricing and allocation policy schemes; (b) new efforts to reform agricultural research and extension; (c) initiatives to promote farmer associations; (d) different trade policy negotiating packages. All of these will have potential positive and negative impacts on efficiency, equity and the environment; our goal is to lay out the consequences of the different policy options so policy makers can make their decisions on a more informed basis.
The rising demand for meat may further illustrate the connections between these components. This rise could offer Chinese farmers a growing source of revenue, and thus help reducing the mounting rural-urban income gap, currently a top priority of the Chinese government. At the same time, it will lead to additional environmental stress through increased discharge of manure and use of pesticides, confirming the tension between social environmental and objectives. Technically, this could be addressed by relocating these activities away from urban peripheries where pressure is highest to inland regions where feed grains are grown. If subsidies could be invoked to overcome the competitive loss from relocation, the income gaps between regions are likely to fall in the process. Yet, this would conflict with current WTO-commitments. Similarly, taxes on pollution would favor imports from abroad and the imports restrictions needed to counter this effect are not compatible with WTO-regulations.

To conduct the research and to pursue the associated dialogue with policy makers, the CATSEI-project has secured the participation of leading experts on the agricultural policy of China and the EU. Through them, the project also obtains access to state-of-the-art decision support tools and their associated databases, in particular to well-established (and government-recognized) policy simulation models for the agricultural economy of China, the linkages between China and the EU and between China and the rest of the world (through a robust world trade model), and the EU itself; as well as statistical techniques to trace the consequences of institutional shifts and domestic and trade policy changes on households (including those in poor areas), and agro-ecological assessment tools to quantify potentials and to predict impacts of environmental change. Yet, while modeling will play a major role, the composition of the consortium guarantees that there will remain sufficient room for less model-oriented research, to ensure that the assessments keep in touch with reality and to safeguard the communication with policy makers in both China and the EU. Much of the work will be field-based research. There are research team members (and their associates) that spend large amounts of time in the field each year; we will also do so for this project.

Above all, there are members of the team that have long-established and direct links to the top policy makers in China (indeed all the way to the State Council’s advisory group and the premier himself) that will ensure that the findings of the study are more than an academic exercise but can actually become part of the decision making process that will help guide China through the coming years.

In accordance with the list of components specified above, the project consortium aims to produce a series of reports organized in five work packages: WP1, Current situation and baseline prospects; WP2 International trade; WP3, Social conditions; WP4, Environment; WP5, Synthesis. In parallel, under WP6 a policy dialogue and dissemination activity will be conducted, throughout the duration of the project, initially to solicit suggestions and comments from policy makers in China as well as in the EU, later on to present outcomes and interact with some of the top leaders and decision makers in both China and the EU. WP7 deals with consortium management.
State of the art

The methodology of CATSEI is chosen so as to suit the project’s basic aim of doing justice to the size as well as to the spatial and social diversity of China within a highly dynamic setting.1

Current state and prospects

Updates and trends. The first stage of the project needs to analyze the nature of changes occurring in China’s economy as a whole, specifically its agricultural sector, as well as the various institutional shifts and policy changes that are being implemented. In other words, before implementing its state of the art set of analytical methods the project must secure its access to and understanding of the fabric of state of the art data. For example, it is important to understand the reasons and consequences for the shift in importance of agriculture in China; the share of agricultural output in the nation’s GDP has fallen from more than 40 percent in the 1970s to 14 percent recently. Within agriculture, the composition of the sector has shifted, from an agricultural sector that was “taking food grains as its key link” (the mantra of China’s Socialist period) to a dynamic sector in which livestock (and feed grains), aquaculture, high valued fruits and vegetables are increasing their share at a breathtaking pace. The agricultural sector in this new, commercialized, market-oriented setting is a different creature than the one that existed even a decade or two ago which was primarily focused on trying to produce enough rice and wheat so its people could consume enough calories. Consortium members completed such tasks in the past (Huang and Chen, 1999; Huang, Rozelle and Chang, 2004), but because of the fast pace of change in China’s economy, the work needs to be updated and refined.

Drivers. Beyond understanding the direction of these trends, it is even more important to identify the major drivers of the changes and to quantify the relationship between the drivers causing these trends. In the past, members of our team conducted pathbreaking research on the size and change of China’s investment into agricultural R&D and its impact on output in China (Huang and Rozelle, 1996; Jin et al., 2002); the nature — over time and across space — of China’s water crisis and its effect on output (Wang et al., 2006; Huang et al., 1999); recent changes in markets, the forces that integrate regions across China and the effect on trade (Huang et al., 2003) the interaction of trade and the environment (both the effect of the environment on agricultural production (Huang and Rozelle, 1995); effect of migration on demand (Huang and Bouis, 1999); and the effect of agricultural trade on the environment (Sontagg et al., 2005). Each of these relationships are crucial to our understanding of how China’s agricultural supply, demand and trade are going to change in the future, and as such, necessary parts of our analysis to be able to predict how such changes will affect the social welfare and environment in the coming years. The project will draw on this previous work but it also must go beyond this because there is little or not work done on the effects of subsidies on agricultural production; the effect of urbanization on agricultural land use; the consequences of new water management policies on the rural economy; the changes in governance at provincial and at local level, etc. Some work is in progress; other will need to be done in this project to push forward the state of the art.

1 To avoid a fragmented presentation, we deviate from the recommendation on the format made in the Guide to Proposers in that we motivate the research approach in the course of our discussion of the state of the art, rather than separately when describing the contribution to the objectives of the SSP and the work packages. This leads to a longer section B.1, compensated by shorter sections B.2 and B.6.
Spatially explicit simulation. The project intends to quantify the impacts of trends and drivers through spatially explicit assessments, on the basis of the Chinagro-model, for the period 1997-2030, taking international prices as given (see Keyzer and Van Veen, 2005, for a model description). At an early stage of the project a baseline simulation will be established through this model, which should provide basic reference to the further work. The model, of course, we then be revised during the project period on the basis of detailed field information. Work on this model was successfully completed recently in an EU-funded project which was a joint effort between the Chinese-side, CCAP and the Institute of Geography of the Chinese Academy of Sciences, participated and on the European side, IIASA and SOW. This model is to play a central role in the CATSEI-project and will be described in further detail below. Here we only mention that it belongs to the class of applied general equilibrium models in welfare maximizing (Negishi-) format (Gunning and Keyzer, 1995; Ginsburgh and Keyzer, 2002), with a description of price-responsive agricultural supply for a comprehensive set 2433 counties of China. It is to our knowledge the most spatially explicit equilibrium model ever built for any country. The need to conduct the analysis in such spatial detail is obviously related to the large size of the country as a larger country will tend to exhibit more diversity.

In considering where our approach fits into the literature, it is recognized that there is a wide literature on present and future of China’s economic performance but only a small part of it is both comprehensive and spatially detailed. Agronomists and economic geographers figure most prominently in that segment, primarily with research describing the geo-physical and natural resource conditions in each region (Zhou, 1993). Agricultural economists are also involved and often compare production costs across regions. Huang et al. (2001) and Xu et al. (2001) used the Domestic Resource Costs (DRC) methods to analyze each province’s competitive advantage in staple grains, economic crops, and main livestock products. Their approach has the advantage that it takes into account the differences of input prices such as labor and fertilizer in different regions, but these approaches are static and based on past data and are not forward looking. Young (2000) and Hussain (2002) point out that transaction costs play an important role in determining the spatial distribution of China’s regional agriculture production. Huang et al. (2004) used the CAPSiM’s regional model, a partial equilibrium model of the agricultural sector, to reflect these in an analysis of the impacts of WTO accession on agricultural production, consumption, and farmer income in different provinces across China. Their study shows that while trade liberalization will stimulate China’s agricultural structure changes in favor of its more comparative sector (e.g., labor-intensive agricultural products) and the average farming income, it will also enlarge income disparity among regions. However, the CAPSiM model does not fully consider the resource constraints (such as water and land availability) imposed at local level. Xin et al. (2002 and 2003) had made an analysis on China’s domestic grain and meat trade based on a spatial equilibrium model. Their model explicitly accounts for transportation costs, but as grain and meat are modeled and simulated independently not handle the interactions between grain and livestock sectors nor does it consider the local resources constraints in each region. The Chinagro-model overcomes many of these limitations.

Trade

Refining the trade database. Against the background of the macro-drivers, such as demography, migration and economic growth outside agriculture, and given a detailed reference scenario, the major emphasis in the project will be placed on analyzing the impacts of changes in trade and transport infrastructure and trade policy regimes. The impact of trade will be examined on both
China’s domestic economy as well as internationally. Before beginning trade analysis modeling, the key step is building a state of the art database. This is needed because trade models depend on the how policies and trade measures shift distortions that exist between international and domestic prices. Therefore it is critical to start with an accurate estimate of the distortions being faced by each country. For China, past work has been done (Ianchovichina and Martin, 2004; Huang, Rozelle and Chang, 2004) on quantifying the nominal protection rates in China’s agricultural economy. In our project, we will begin refining our database on China, the EU and other countries in order to update these distortions in sufficient detail. For the EU, it is important to account correctly for the recent decoupling of the CAP and the accession regimes for new member states. The OECD (2005) has recently published its PSE-database on the distortions in the agricultural economy for many countries but methodological concerns remain on various points, such as the representation of transport costs and imperfect competition, quotas, crop insurance and decoupling within these measures (Oskam and Meester, 2006; Tangermann, 2006; Keyzer, 2006). Clarifying these aspects is important because different domestic policies and institutional changes can have dramatically different effects on trade if the distortion is a tariff or tax or quantitative restriction.

**Linkage of models.** Once the database has been built and structural parameters estimated, the modeling framework can be constructed. China’s size relative to other countries will be accounted for by showing the impacts of its transition on other countries, the EU in particular. For this, a global trade model will be linked to a more detailed model of China, as in Van Tongeren and Huang (2004); Zhai and Hertel (2005). In addition, connection will be established with a more detailed model of the EU, with 27 members and more commodity detail than is present in the GTAP model, to trace the impacts on different member states, in particular distinguishing between the old EU-15 members and the new ones, and to look into the relationships with recent reforms of the CAP using another general equilibrium model (Folmer et al. 1995, Keyzer et al., 2001, 2003). For over fifteen years, earlier versions of this model were made used by the European Commission, the GATT and The Netherlands’ government to assess implications of past CAP reforms. It is especially topical in this respect that the implementation period of the project will witness the completion of the Doha Round as well as the review of the CAP agreed in 2005 that will undoubtedly trigger new CAP reforms. The linkages of the EU-model to GTAP and of GTAP to Chinagro primarily serve to trace the impact of China on others, but to the extent relevant the effect in opposite direction, of changing world prices on China will be accounted for as well. The experience with this linkage will also be instructive as to the ways the size and diversity of a country affect its response, and how well this response can be approximated by the prevalent formulations of world trade models.

**China-EU.** In addition to information originating from the linkage between a China and an EU-model special attention will be devoted to EU-China trade at detailed commodity level building on the model used in (Keyzer and Merbis, 2003) and a comparison will be made between the Common Agricultural Policy of the EU and the agricultural policy of China, in particular regarding the degree of decoupling of farm support and the nature of market support.

**Social conditions: poverty, institutional diversity and social safety nets**

**Recent reforms.** The linkage of the Chinagro-model to GTAP and the EU model addresses the size aspect of China (i.e., it is large country by will affect world prices); it should also be
recognized that China is a large country and produces and consumes many different products, many of which are produced and consumed by populations within China that are both rich and poor. Therefore, social diversity needs to be accounted for. We will do so by including a component on social conditions, and do so in the light of recent reforms. Indeed, major policy reforms have been set in already, and the first step to orient the work on this component will be to take stock of the key changes in policies that the government is putting into place with its “New Rural Development Program.” This program is so big and important (billions of Euros are being spent; and even more is planning on being spent); tax reductions, fiscal reform, including abolition of agricultural tax, direct income support, input subsidies; agricultural R&D, infrastructure investments; education and health services that any analysis of social impacts of policies must account for these effects. Since these policies will have large potential impacts on supply and demand, they will affect trade. These changes will define drivers to be run through the Chinagro-model as revisions of the reference scenario.

However, whereas the spatial diversity in rural China that is well represented in the Chinagro-model and database can account for much of the disparity in farming systems and rural incomes, it cannot trace the impacts of these reforms at household level. For this, an additional modeling component is needed. To do so, the project will explicitly address the issues of the impact of domestic and trade policies on poor households by constructing a household-level database that is as spatially explicit as possible, linking it to village-level, county-level, and provincial-level information on policy regimes and social as well as physical infrastructure. This analysis can be used to establish the distributional impacts of reforms. We will meet this goal by starting with and then adapting techniques in the poverty mapping literature.

**Household data.** Although one main of our main data sources is from the annual nationwide rural household survey carried out by the Chinese National Bureau of Statistics (NBS), the NBS household surveys do not contain questions on access to factor markets and environmental conditions. To supplement the NSB data, the project research team will also conduct surveys of its own, relying on the network accessible to CCAP to obtain information on both social and environmental conditions faced by households. To the extent geo-referencing is legally and technically possible, the household data set will be linked through overlays with other geographic variables, for which a detailed database was already compiled as input to the Chinagro-model, while others will be provided from the environmental component of the project.

**District information on factor markets and local governance.** In addition, district wise data sets will be constructed and linked to the household data set, containing information on factor markets and local governance. Regarding factor markets, while recent empirical evidence indicates that agricultural commodity markets in China have become highly integrated in recent years (Park et al., 2002; Huang et al., 2004), labor, land and capital markets still face many institutional obstacles and remain underdeveloped in rural areas (Bowlus and Sicular, 2003; Zhao, 2003; Zhang and Tan, 2004). Regarding labor, regulations such as the residence permit (*hukou*) system that only offers access to public services at one location limits mobility of households, which in itself helps avoiding excessive migration of families to the cities but also limits wage and hence income equalization across the country. For land, lack of farmers rights to use agricultural land as collateral, and the absence of land rental markets in specific regions have important implications for agricultural productivity and rural incomes as resources do not flow to the locations where they would naturally earn the highest rate of return (see e.g. Carter and Yao, 2002). Local governance is also expected to matter. Under the current fiscal decentralization system, the
centralized government has strong top-down mandates, while local governments are responsible for providing most local public goods and services. As a result, tax burdens in poorer regions have been relatively high in the past in order to pay for the excessive local bureaucracy, while provision of public goods and services historically was relatively poor in such regions (Zhang, 2005). Things are changing, however, in light of the new government’s effort to cut taxes, increase investment and improve services. Because these changes are so new and because there often are not nationwide data on these elements of China’s rural society, such institutional aspects can only to a limited extent be accommodated in simulation studies. Rather, they require descriptive case studies by experts as well as analyses of household and multi-level government surveys to compare governance across regions, and to identify the characteristics of failure and success at regional level. Here the project will heavily draw on the knowledge and experience of its senior researchers and their access to data.

**Distributed estimation and prediction.** Given the household data and the information collected on factor markets and local governance, this component will examine the impact of China’s agricultural policy on regional agricultural development and farm income disparities as well as on off-farm employment, migration and rural poverty. To do so, we need to take into account the price transmission mechanisms through the economy as well as regional differences in factor market development and local governance structures. Such an ambitious analysis will be spearheaded using a poverty-mapping approach. The strength of poverty mapping is that it computes responses for every household of a “prototype” census rather than only for the households in the sample. In our study, the prototype census is a multivariate frequency distribution representing the full population of a geographical district (in other words, in includes information on all people—rich/poor; male/female; farming/migrant; educated/not—that live in a given area). The methodology to be applied for this builds on the current econometric techniques of poverty mapping (Deaton, 1997, Elbers et al., 2003, 2005). However, we intend to extend the current economics literature by allowing for census data and district information to be accounted for already at the regression stage (as opposed to only at the prediction stage). We also will provide simultaneous treatment of different survey datasets with (partially) overlapping variables. The GRCP (Gridding, Regression, Classification and Plotting) software package (Keyzer, 2005) will be used for this purpose. In these regressions information from the Chinagro-database will be used as well, and after simulation, scenario simulations will be conducted to obtain frequency distributions over households describing the consequences of the projected development paths at household level, under various policy reform scenarios. We believe that this will be one of the methodological innovations from the project, and will be one with highly policy relevant findings.

**Safety nets.** One of the major elements of domestic reforms will be the replacement of existing social safety nets by new ones, including social security and market insurance (especially health insurance). Since 1986, the Chinese government has implemented a variety of anti-poverty and social assistance programs in an attempt to eradicate the remaining poverty. Under China’s poverty reduction program, counties designated as poor by the central government received special funds for providing subsidized loans to poor farmers or rural enterprises, food for work programs, and budgetary development funds. In recent years, the strategy has shifted in focus towards directly targeting poor villages and towards using participatory and multisector approaches. In addition, the Chinese government has started experimenting with basic health insurance schemes in rural areas and other measures to enhance households’ abilities to cope with risk (Wang et al. 2004). Efforts are also made to strengthen social
assistance programs in rural areas, such as the Five Guarantees Program, which provide special funds and medical aid to disabled persons and other vulnerable groups to guarantee their basic needs. Like many rural social security programs, this program was weakened significantly when the commune system dissolved (ADB, 2004). The development to date of many of these programs has been ad hoc and knowledge of their effectiveness somewhat limited. A major application of the distributed simulation tools will be to assess the suitability of these mechanisms across China, and to look for adequate safety nets (Roy and Chai, 2003; Zhang, 2003). This requires looking into the vulnerability of individual households and their ways to cope with risk, through a variety of actions ranging from irrigation and off farm work to formal insurance.

Environment

The setting. As mentioned earlier, agronomists naturally have paid much attention to the spatial diversity in China. A widely quoted example is the study by Zhou (1993) on the theory and practice of China’s agricultural regional planning. In Zhou’s study, every region was examined according to its climate, temperature, precipitation, soil, landform, and length of crop growing period etc. Based on the assessment of these factors, suggestions were made as to which type of grain and livestock best matches the region’s natural environment were suggested. With the advances in the geographical information system (GIS)-techniques in recent years, geographers have been able to elaborate this technique in a full spatial detail into a comprehensive assessment of the impact of the natural resource constraints on agricultural production. The Agro-ecological Zones (AEZ) methodology originated from FAO and was developed further at IIASA and is now a widely used technique in this field (Fischer et al., 2002) that can be used to identify the geophysical limitations on agricultural production within every region, and formulate options to utilize the local natural resources more efficiently. The Chinagro-model makes use of such an assessment as one of its major inputs, since it obtains from this source the drivers of land utilization by county and the potential output by land use type. Similarly, it uses as drivers on staple-production capacity by county and types of livestock systems. The environmental component of the project will develop these interlinkages further, along three separate lines: water, emissions, and climate change. All three are of critical importance to China’s future and already seriously affect the well-being of the population.

The fact that the environment is mentioned as a component following trade and social conditions is no coincidence. The project resources and time-span do not permit to dealing with environmental aspects at great depth. We do not believe that this does not reflect on its importance; indeed, there are few questions as important to the future of China. However, looking at many of the environmental impacts in depth would require intensive studies at a lower geographic scale and the modeling of interactions beyond trade. Indeed, to deal with water scarcity, the hydrology of river-basins would have to be represented explicitly, whereas for emissions, soil chemistry and groundwater flows would have to be looked into and for climate change linkage to climate models may be needed as the small country assumption is as invalid here as it is for trade. Yet, the issues are too important to be neglected, and rather than aiming at coming up with novel solutions to China’s environmental problems, the environment component primarily serves to describe environmental pressures resulting from the anticipated development paths and to raise flags where vulnerability is highest.
Water. Availability of adequate water resources is among the most critical factors in China’s agricultural and rural development. The uneven spatial distribution of water resources has created a regionally heterogeneous water stress situation with large differences among hydrological regions (Wang et al., 2005). Especially in North China, mainly the middle and lower reaches of the Yellow river and the Huai and Hai watersheds, and the interior watersheds of northwest China, the water resources are very scarce and severely over-exploited, with dire environmental consequences and leaving insufficient water to maintain ecological balances (MWR, 2002). Irrigation water is essential for high output from increasingly limited farmland in China. Projections indicate that by 2010 total water demand will exceed renewable water resources in the Huang He, the Hai He-Luan-He, and Huai He basins and already does in the latter two (Ministry of Water Resources and Electric Power, 1997; Nanjing Institute of Hydrology, 1996; UN, 1997). These regions contain about 40 percent of the population of China and a large fraction of the irrigated farmland. The difference between renewable water supply and demand is being made up by groundwater overpumping, lowering the water table in the North China Plain by 1-2 meters per year and allowing saltwater intrusion in coastal areas. Furthermore, The easy and cheap water storage, where substantial increases in yield are obtained for relatively little increase in storage, has already been fully developed and further increases in water supply within these regions will come at considerable cost, if possible at all (Wiberg and Strzepek, 2005). Industrial and domestic water demands are expected to increase by as much as 100% between 2000 and 2010 (Nanjing Institute of Hydrology, 1996). There is naturally concern about future agricultural water requirements vis-à-vis water availability under the combined effects of climate change, growing population demands and water competition from other economic sectors. The Chinagro-simulation will be linked with the surveys conducted under the Social Conditions component, point to locations and farm-types most where concerns are most pressing. The project will calculate water deficits on the basis of the AEZ-model. This model has been validated for use in agricultural resource assessment and applied in many studies, at (sub)national, regional and global scales (e.g., Fischer et al., 2005, Fischer et al., 2002b); AEZ is one of the main tools used by FAO for analyses of present and future land resources, both regionally and globally (see, e.g., FAO, 2003). The project will use the results of these calculations to suggest possible changes in land utilization across China.

Emissions. One of the main concerns about changes in the structure of China’s agricultural economy is the potential rise in the use of farm chemicals and their effect on water and land resources away from the place that the inputs are being applied (that is, non-point source pollution). The high levels of input use in China are already known (Qiao et al., 2005). There is documented evidence that overuse of pesticides has adverse effects on human health (Hossain et al., 2004). A recent academic task force in China has been charged with trying to quantify its effects and explore new solutions (Zhang et al., 2005). Although this new work is interesting, often the economics are not well integrated into the analysis and there is no direct link to trade. Huang et al. (2005) makes the first attempt at directly linking agricultural trade and the environment. Changes in prices from trade policy shifts are related directly to fertilizer and pesticide use intensity. While this is a start, more effective work needs to be done by understanding and modeling the flow of the pollutant from farmer to field to affected resource. In this project, these calculations will be kept relatively simple, but they will account for soil-types as well as types of livestock system. In addition, the surveys conducted under the Social Conditions component will indicate the extent to which farmers already experience consequences of emissions, and indicate which type of farming needs to mend its ways most urgently.
Climate change. Current research confirms that while crops would respond positively to elevated CO₂ in the absence of climate change (e.g., Ainsworth and Long, 2005; Kimball et al, 2002; Jablonski et al., 2002), the associated impacts of high temperatures, altered patterns of precipitation, and possibly increased frequency of extreme events such as drought and floods, will likely combine to depress yields and increase production risks in many world regions, widening the gap between rich and poor countries (e.g., IPCC, 2001). However, the projections do not agree and are adjusted over time, leading to different scenarios, particularly as to their impacts on farming. Clearly, a study of prospects of agriculture in China needs an assessment of the implications of these differences.

References


B.2 Relevance to the objectives of the SSP Priority

The work schedule is fully organized to ensure that the issues raised in the call will be addressed by the deliverables, and do so in a logical sequence of work packages, that can be summarized as follows.

WP1 Current state and prospects. This package describes prevailing trends in major drivers (economic growth—outside agriculture; demography and migration; institutional shifts and changes to domestic policies; technological change; opening up to trade).

Next, upcoming issues are considered in three work packages that proceed in parallel:

WP2 Trade. Existing agricultural policy models are linked to identify the impact of the developments in China on the rest of the world, in particular the EU and selected developing countries. Off-line commodity-specific exercises will be reported on as well that identify the specific complementarities between China and the EU. Finally, a comparison will be made between the agricultural policies of China and the EU’s Common Agricultural Policy, especially with respect to the degree of decoupling of farm support and to the trade measures, and the outcomes from model simulations will be interpreted against that background. Establishing a good database and linkage methodology between established models are the key scientific challenges here.

WP3 Social conditions. China’s government recently re-affirmed its commitment to contain the widening income gap between rural and urban areas and between the Eastern and Western parts of the country. The impact of these policies also needs to be compared (geographically and by income group) to the effect of trade policy shifts. Input into this activity will be institutional knowledge, combined with an integrated analysis of household surveys. Major challenges are obtaining adequate data sets at household and district level and treating them within a comprehensive framework.

WP4 Environment. The pressures on the environment relate to shortage of water, due to intensified demands as well as to surpluses of nutrients and chemicals. This work-package studies the consequences and the ways to increase resource use efficiency and to reduce pollution (e.g., non-point source pollution) and stress on rural resources (e.g., water). In addition, as the feasible pathways may significantly depend on the prevailing climatic conditions, it also looks into likely consequences of climate change. The ambitions of this package are limited to signaling where pressures might become strongest rather than conducting deeper analysis of bio-physical impacts. This also will be the place where the project can explore the effect the China’s current policies and trade reforms will have on the environment as well as experiment with alternative policies that may be able to reduce the adverse effects of trade on the environment.

WP5 Synthesis: All threads come together in this work package that seeks to find a good policy mix among the solutions proposed in WP2-WP4.

WP6 Policy dialogue and dissemination. This work package is devoted to policy dialogue and dissemination. To guide the research, the policy dialogue will take place throughout the project,
rather than only towards its completion. We also stress the close interaction that we will have with some of China’s top policy makers and government officials as well as with top officials from the EU and from international organizations – from the start of the program in order to build stakeholdership, until the end of the program when we will work closely together to consider policy options for the future in China’s agriculture, China’s co-operation with the EU, and its functioning in the global agricultural economy.

WP7 Coordination. Besides dealing with various administrative tasks in relation to the EC, the coordination work package is mainly devoted to coordination itself: i.e. ensuring that the team participants keep on working together in at least as good a spirit as they did in the past, and that delivery profiles and deadlines are being respected.

Next, we present two tables establishing the correspondence with the objectives and outputs mentioned in the specific SSP Task 2 call – Trade and agricultural policies of China – as well as the required outputs. The synthesis, dissemination and coordination packages WP5 –WP7 can be seen as instrumental to all objectives and are not listed explicitly in Table 1.

Table 1. Contribution of Work packages to the Objectives

<table>
<thead>
<tr>
<th>No.</th>
<th>Description of objectives</th>
<th>WP1</th>
<th>WP2</th>
<th>WP3</th>
<th>WP4</th>
<th>WP5</th>
<th>WP6</th>
<th>WP7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Systematic analysis of Chinese agriculture and agricultural trade policies and its cost/benefit positions in the context of its evolving agricultural trade relations with third countries. Particular attention should be paid to its relations with the EU and China’s other key trading partners.</td>
<td>X</td>
<td>X</td>
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<tr>
<td>2</td>
<td>China’s agricultural production potential</td>
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<td>X</td>
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<tr>
<td>3</td>
<td>Quantitative and qualitative analysis of the impact of Chinese agricultural trade and market policies on world agricultural markets, particular attention should be paid to China’s agricultural trade relations with the EU, taking into account the Community’s future GSP scheme for 2006 to 2015 and to agricultural commodities significant to world, EU and Chinese agricultural markets</td>
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<tr>
<td>4</td>
<td>Analyse the specific nature of Chinese agricultural production and agricultural trade, paying special attention to agricultural products in which China has a comparative advantage (i.e. fruit and vegetables) or comparative disadvantage (i.e. oilseeds and grains) and to the trade-distorting impacts of product protection policies.</td>
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<tr>
<td>5</td>
<td>Examine the impact of Chinese domestic policies and its growing trade with third countries on the development of the agricultural sector, rural development and the economy of rural areas, the environment etc.</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>6</td>
<td>The possible effects of agricultural trade agreements involving China (i.e. WTO) should also be covered, as should their impact on world markets, domestic development patterns and other developing countries.</td>
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<td></td>
<td>In terms of international developments, the outcome of the WTO Doha Development Round will be a key driver and the research should include an analysis of Chinese agriculture in the context of the three pillars of the WTO negotiations</td>
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<tr>
<td>7</td>
<td>Given the size and diversity of China, regional studies should also be conducted. In particular the agricultural production and trade potential of the different regions should be assessed, bearing in mind economic variables such as production costs, product quality, structural elements (land availability, infrastructure, climate etc), ability to provide services to retailers and domestic/international price gaps.</td>
<td>X</td>
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<td>8</td>
<td>Analysis of the changing demographic situation should be included, in particular the shifting dependency ratio and its impact on Chinese agriculture and agricultural trade.</td>
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<tr>
<td>9</td>
<td>It should evaluate the potential impact of changing rural structures and future developments in Chinese supply, demand and trade patterns for main agricultural commodities.</td>
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<td>10</td>
<td>Examine the impact that increasing export orientation has on China in areas such as the environment and working conditions.</td>
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</tbody>
</table>
Table 2. Output specified per Work package

<table>
<thead>
<tr>
<th>No</th>
<th>Contents of expected outcome</th>
<th>WP1</th>
<th>WP2</th>
<th>WP3</th>
<th>WP4</th>
<th>WP5</th>
<th>WP6</th>
<th>WP7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Key indicators concerning the macroeconomic environment of China and its regions</td>
<td>D1-D3</td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td>Key indicators concerning the importance of agriculture in China (share in GDP, employment etc) and its economic and social context.</td>
<td></td>
<td>D4-D6</td>
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<tr>
<td>3</td>
<td>Assessment of the medium and long-term prospects for Chinese agriculture and its agricultural trade potential with third countries;</td>
<td></td>
<td></td>
<td>D7,D8</td>
<td></td>
<td></td>
<td></td>
<td>D27</td>
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<tr>
<td>4</td>
<td>A comparison between agriculture in the EU and agriculture in China with respect to the following elements: policy, natural endowment (land, climate, water resources etc), farm structures, employment, farm capital and investment, rural infrastructure, transportation and marketing systems, key characteristics of the food processing sector, production and consumption levels and trends, yields and intermediate input use, price levels.</td>
<td></td>
<td></td>
<td></td>
<td>D9,</td>
<td>D10,D11</td>
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<tr>
<td>5</td>
<td>Assessment of the impact of WTO accession on Chinese agriculture and the consequences of greater trade liberalisation. In particular, providing commodity specific analysis that focuses on EU agricultural markets and budget impacts, and takes into account supply dynamics and the production potential of key products. The impact of specific trade agreements between China and third countries should also be accounted for, as should the Community’s GSP scheme for 2006 to 2015.</td>
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<td></td>
<td></td>
<td>D12,</td>
<td>D13</td>
<td></td>
<td>D28-D31</td>
</tr>
<tr>
<td>6</td>
<td>In addition to commodity specific analysis, a general assessment of the potential impact of greater liberalisation and changes in agricultural structures on the environment, rural areas and the rural social fabric should also be made.</td>
<td></td>
<td></td>
<td></td>
<td>D14-D18</td>
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<td></td>
<td>D32-D33</td>
</tr>
<tr>
<td>7</td>
<td>A general assessment of the potential impact of greater liberalisation and changes in agricultural structures on the environment should also be made.</td>
<td></td>
<td></td>
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<td></td>
<td>D19-D23</td>
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<tr>
<td>8</td>
<td>Integrated assessment of the efficiency, equity and sustainability issues of greater trade liberalization between the EU and China</td>
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<td></td>
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<td></td>
<td>D24-D26</td>
<td>D34-D40</td>
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</tbody>
</table>
B.3 Potential impact

If successful, the project may have a real impact on the “real world.” And, we believe, the impact will be in a number of different dimensions: on trade relations between the EU and China; on the orientation of agricultural production in China and the EU and through it on the efficiency of the organization of production (through the shift of the two nations more toward their comparative advantages); on poverty alleviation in China; and on sustainable development. This is the hope of many participants in this project but it should be noted that the CATSEI team primarily consists of researchers. Researchers are not policy makers; and neither should they try to be. Their primary aims are scientific and so our impact will primarily be one of providing new information that is also packaged in a new way.

In this respect, the major potential contribution will be to upgrade the quality of existing knowledge on the agricultural economy of China and its relations with the outside world. We plan on accomplishing this by bringing together modelers with non-modelers in each of these areas. In a nutshell, modelers in this field tend to proceed by defining a problem area, designing a model, constructing a database, running simulations, presenting these results at a seminar, and publish and moving on to the next project. In contrast, non-modelers frequently discuss the problems that exist; carefully follow the earlier work in the literature; collect and compile new empirical evidence; and discuss how this could affect existing views. Non-modelers also focus their attention and open their thoughts at seminars and in streams of publications. The integration of modelers and non-models seeks to capture the strengths of both of these parties. Our effort, we hope, will amount, on the one hand, to incorporating as much as possible of the qualitative and empirical information into the models, and, on the other hand, to conducting the discussion once simulations have been run and findings laid out.

Indeed, the co-operation of internationally oriented European institutes from different backgrounds – SOW, quantitative modeling and EU-policy; IIASA, environmental assessments; SOAS, institutional knowledge of China; LEI, agricultural policy and international trade – jointly with the leading institute on Chinese agricultural policy (CCAP), and in co-operation with a reputed international organization (IFPRI), in itself could offer a contribution to standards for research on China, as opposed to the more common one-to-one collaboration between a research institute from a particular European member state and a particular Chinese partner institute. We believe the whole output of our joint effort will far surpass the sum of the individual parts, if each of us was proceeding alone. The present project also can build on established relationships. It can in addition to its technical contribution, focus on harmonizing and integrating the findings from a wide array of research areas including trade, social aspects and the environment.

Regarding policy, in general, the main role of a researcher is to point to trends and describe problems, and then, through analysis, come up with an array of possible solutions. If done right, the research can offer policymakers a menu of options. Yet, a STREP-program like the present one requires researchers to go further. The individual members of the research team need to be willing to co-operate intensively across national borders and across disciplines. Furthermore, once the team has come to some insights on the nature of the problem and possible solutions, its members need to interact intensively with policy makers. In this respect, the proposed CATSEI-project seems well placed, thanks to its unique access to policy makers in China, the EU and
international organizations. Because of this access, we believe the proposed project is going to be able to improve the dovetailing of agricultural policy research with the actual process of policy formulation.

Most importantly, through the already established mutual trust among team members, we can avoid the divide between China-fans and China-bashers as much as the divide between EU/CAP-fans or EU/CAP-bashers. In other words, while the Chinese counterparts will understandably focus on the importance of improving conditions in China and the position of China in world food and fiber markets, and naturally seek to orient the research to that end, the EU side, which is financing the research, can be trusted to look after its own interests—but only do so through objective research. The interests of the rest of the world, specifically those of the poorest countries – and via the environment – those of the future generations, need to be kept in mind as well. SOW, IIASA and IFPRI, in addition to their immediate task of providing technical input to the research itself, also see it as their duty to maintain appropriate attention for these aspects. The general idea is that good databases and state-of-the-art tools of policy analysis offer the best platform for an open international dialogue.

These points will be substantiated further in the section B.4 when the composition of the consortium is described. We also will raise this issue in the presentation of WP6: Policy Dialogue and Dissemination (in section B.6).

B.3.1 Contributions to standards

As the contribution to the policy formulation process itself has already been discussed, we limit our attention in this section to technical/methodological innovations required for, and expected from this project.

Linkages. We will make important linkages among a number of well-established and sophisticated economic supply, demand and trade models. The innovation will primarily be the hierarchical linkage of existing models, which might seem second tier in terms of innovation, is no easy task. It requires far more than mechanically ensuring that the output from one model is entered as input into the other. To the extent that the linkages are kept recursive – with China affecting the world, and the world affecting the EU – the main issue will be to produce appropriate commodity mappings between the various models that are already operational with a commodity classification of their own. This is not straightforward. However, a number of members of the team have already acquired ample experience with similar exercises. Such linkages, we believe, are important. If feedbacks from the EU and the rest of the world on China are to be accounted for – the ambition is to try this at least – then new algorithms will have to be developed. The current Chingro-model has successfully used new algorithm for this, which currently is also being implemented in the FEA-27 model for the EU. The coordination between the GTAP world model and the two “national” models, however, requires further research and quite some innovative work. The experience with establishing the linkages will also be instructive when we are trying to establish the magnitude and the different ways in which a country affects its response, and how well this response can be approximated by the prevalent formulations of world trade models.
Adapting techniques from poverty mapping. The project also intends to make a contribution to the analysis of effects of trade liberalization on the poor and on the environment. To do so, we need to study the impacts by region or province within China. Moreover, this implies a need to estimate and map out relationships at household level, using both district and census information in conjunction with the household-level information. The need for this was already explained in B.1, where reference was made to techniques of poverty mapping. Here, we re-stress that this type of new methodology requires (explanatory) variables from surveys to be present in population data sets as well (for example, in censuses and/or in geographic maps—such as population density maps). The innovation will be threefold. First, it will be an extension of scope: by georeferencing the set of explanatory variables can be extended with geographic information, including information on market conditions and local government and on the environment. Second it will be the adoption of a new technique. Poverty mapping usually relies on econometric techniques such as maximum likelihood estimation, which require postulating distributions of error terms, and if the statistical performance is too poor, can lead to the rejection of the relationship altogether (which means we cannot estimate the relationship between a certain variable and poverty). By contrast, recently developed techniques from statistical learning, often used with great success by industry, in math and engineering fields that use pattern recognition methods (e.g., the scanning of data, iris scan, voice recognition), are far more flexible in this respect and have stronger convergence properties as means to estimate unknown functions (see e.g. Schölkopf and Smola, 2002). Their application to agricultural economics will be an essential innovative aspect of this project. Finally, their adaptation to ensure that the prediction of the dependent variables in the regression agree with district totals is a third intended contribution to standards.

Scale-related issues. For the environmental aspects the assessment of water shortage at a level higher than that of the watershed commonly studied by hydrologists will specifically require converting basic hydrological knowledge into production relationships at a higher scale. Conversely, household information collected on environmental aspects will provide new insights into the social dimension of the environmental issues.

Reference

B.4 The consortium and project resources

Consortium

The consortium is composed as follows:

SOW (coordinator), Centre for World Food Studies, Vrije Universiteit Amsterdam.
  Leading scientist, Prof. Michiel Keyzer, email: M.A.Keyzer@sow.vu.nl.
CCAP, Centre for Chinese Agricultural Policy, Chinese Academy of Sciences.
  Leading scientist, Prof. Jikun Huang, email: jkhuang.ccap@igsnrr.ac.cn
IIASA, International Institute of Applied Systems Analysis, Austria.
  Leading scientist, Dr. Guenther Fischer, email: fisher@iiasa.ac.at
SOAS, School of Oriental and African Studies, University of London.
  Leading scientist, Prof. Laixiang Sun, email: ls28@soas.ac.uk
LEI, Agricultural Economics Research Institute, The Netherlands,
  Leading scientist, Dr. Hans van Meijl, email: Hans.vanmeijl@wur.nl
IFPRI, International Food Policy Research Institute, Washington DC,
  Leading scientist, Dr. Shenggen Fan, email: S.Fan@cgiar.org

In addition, it is important to mention that Prof. Scott Rozelle, renowned China expert from UC-Davis and Stanford, USA, and close collaborator of CCAP, is participating as a visiting professor on the SOAS-staff.

Hence, the proposed consortium is broad. All participants are committed to involve staff members that have had successful, close and in several instances longstanding collaborations. Before presenting the participant institutes separately, we describe the resources consortium as a whole can mobilize:

(i) A set of individuals who can contact agricultural policy makers in China and the EU directly, within the administration and up to the top levels, in order to check particular facts and to obtain up-to-date feedback, and in order to discuss the nature of their findings.

All participants have been working on Chinese agricultural policy at some point in the past. Two participants have long experience on environmental problems in China (CCAP, IIASA); and three on institutional aspects of Chinese agriculture (CCAP, SOAS, IFPRI). In addition, with respect to the EU-component, two of the participants (SOW, LEI) have a strong record on studying the Agricultural Policy of the EU. Many project team members have had frequent occasions to work for the Commission, as well as for their national governments on these topics. Three participants (CCAP, LEI) have special expertise on China-EU trade.

(ii) A large number of the senior staff members have a record of working together; they also have a strong publication record on the issues under study.

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2 All references to participants follow the numerical order of registration, without implying any ranking.
CCAP, SOAS and IFPRI by themselves produce a major share of the economic literature on Trade and Agricultural Policy in China over the recent years, and the staff participating in the project account for significant fraction in this output. Indeed, in a recent review of the entire agricultural economic literature (that was published in reviewed journals outside of China), it was found that CCAP, a single research center made up of less than senior staff, has more publications than the rest of the agricultural economists in China. In part for this reason, CCAP was named the outstanding social science research unit in China in the 1990s.

Four of the participating institutes (SOW, CCAP, IIASA, SOAS) have already worked on Chinese agricultural policy together in the context of the Chinagro-project. CCAP has worked with LEI in this field; as well as with IFPRI. Last but not least, two of the scientists of SOAS team are among the closest collaborators of CCAP. Indeed, Huang and Rozelle have published over 50 papers together during the past 10 years.

(iii) Access to special databases as needed to evaluate the questions related to EU-China trade on specific commodities.

(iv) A set of well established simulation models on China capable of running scenarios with the regional detail required by the call, even allowing to conduct analysis at provincial and to some extent at county level, capable of dealing with the economic, social, environmental issues; hence, the innovation largely relates to adaptation of existing tools, as opposed to development of new ones from scratch; yet, in every work package new methodologies will be introduced, primarily for the linkage of models, and for the impact assessment at household level.

(v) Access to an established international trade model (GTAP) to be used for the assessment of impacts on the EU and the rest of the world; and further linkage to an EU-model that can show impact on each of the 27 member states (FEA-27).

(vi) most of the participants are engaged in training and graduate education on a regular, and can, therefore, readily incorporate the findings from this research within their teaching; some (CCAP, IFPRI) conduct outreach activities in China at a significant scale.

The following description of the six participants may substantiate these assertions:

1. SOW
   Centre for World Food Studies (SOW-VU),
   Vrije Universiteit, Amsterdam, The Netherlands.

   **Contribution**
   SOW will act as the overall Coordinator. Currently it operates the Chinagro-model needed in WP1-WP5 as well the FEA-27 model for EU agriculture (needed in WP2). It also provides methodological input for WP2, trade on linkages and WP3, Social Conditions, on the household survey analysis, to obtain inference at provincial level needed. It will coordinate the WP5, Synthesis.
**Credentials**

SOW was established in 1977 as a non-profit research institute which provides support, at both national and international level, to the formulation of food and agricultural policies and policies aiming at poverty reduction. The Centre is primarily engaged in applied and often quantitative research, and also contributes to debates and policy dialogues on food related issues.

Research at SOW ranges from economic modeling within a general equilibrium framework to microanalysis on human resource development and rural poverty assessment at household level. Applied research is supported by efforts to develop tractable tools to solve integrated models and toolkits with appropriate statistical techniques.

SOW has a long-standing involvement in development planning strategies in Bangladesh, Ethiopia, India, Indonesia, Nigeria, and Thailand and in West Africa, Eastern Europe, the Middle East. SOW also for over 15 years assisted the European Commission in the analysis of reform scenarios of the Common Agricultural Policy.

**Principal investigators**

Prof. Michiel A. Keyzer is professor of mathematical economics and Director of SOW. He is also Extraordinary Professor and Member of the Academic Advisory board of CCAP and Member of the Royal Holland Society of Sciences. His main activities are in research and research coordination in the areas of mathematical economics and economic model building applied in SOW-VU projects. Professor Keyzer has led or cooperated in various EU-funded research projects, including the Chinagro-project on modeling China’s agricultural production systems, in co-operation with IIASA, CCAP and other Chinese research institutes. He has been involved in various studies on reform of the Common Agricultural Policy at the request of the European Commission. He will also be advising the Indian Planning Commission on the upcoming 11th Five Year Plan 2007-2011.

Wim van Veen (MSc.) is senior researcher at SOW-VU and has vast experience in country projects for national planning (such as Indonesia and Nigeria) and coordinated most of the database construction and social accounting work in the Chinagro-project.

Dr. Max Merbis is senior researcher and deputy director of SOW-VU and worked on various country projects. He specializes in studying the impact of the WTO on developing countries and of reforms of the Common Agricultural Policy of the EU internally as well as on other countries.

**Selected publications:**


2. CCAP  
The Center for Chinese Agricultural Policy, Beijing

**Contribution**
CCAP is the central Chinese counterpart on all issues in WP1-WP5. It is also the contact point with Chinese authorities, and coordinates both WP1, Current state and prospects, and WP6, Policy Dialogue and Dissemination. It also ensures access to data and oversees the household survey of WP3, Social conditions.

**Credentials**
This center was established in December 1995 and since 2000, CCAP has been a research entity under the Chinese Academy of Sciences (CAS). The Center’s research agenda is now included as one of the six main research areas in the Institute of Geographical Sciences and Natural Resources Research of CAS.

The core research divisions of CCAP include four major program areas, on: (1) Agricultural R&D Policy and Production Policy; (2) Natural Resources and Environmental Policy; (3) Integrated Rural and Urban Development and Poverty Alleviation; and (4) Decision Support Systems. CCAP works on three models: CAPSiM (domestic policy simulation model), Chinagro (spatial equilibrium model), and GTAP (world trade model).

**Principal investigators**
Prof. Jikun Huang is the founder and director of CCAP. He is professor and chief scientist at the Institute of Geographical Science and Natural Resources (IGSNRR) of the Chinese Academy of Sciences (CAS). He also is a agricultural policy advisor to the State Council. His research covers China’s agricultural and agricultural R&D policy, resource and environmental economics, poverty and trade liberalization and publishes widely in top international journals.

Dr. Jinxia Wang is a senior research fellow at CCAP and associate professor in IGSNRR-CAS. She has been CCAP’s water policy program leader since 2000 and now is one of the leading
water resource economists in China. She has led several large water management and water policy research projects funded by the Chinese government and by international organizations, such as the World Bank, ADB, ACIAR and IWMI.

**Dr. Xiangzheng Deng** is a senior research fellow at CCAP and associate professor at IGSNRR-CAS. His main fields of research are cartography, GIS, land use changes and economic geography. He was the head project coordinator for the China-Japan Land Use Change project and a project on Environmental Monitoring in East Asia. Recently, he has been working on the dynamics of urban land use in China.

**Dr. Huanguang Qiu** is a research fellow at CCAP and currently is a post-doctor research fellow working on Chinagro modeling at SOW. He will return to CCAP at the end of 2006. His major fields are agricultural economics and biotechnology policy. He was one of the key members of CCAP that participated in EU-sponsored Chinagro project.

**Dr. Jun Yang** is a research fellow at CCAP and currently a post-doctoral research fellow at Australia National University. He will return to CCAP at the end of 2006. His major field of research is trade policy. In recent years, he has been working on the impact of China’s WTO accession on rural poverty and is part of a project examining the implications of rapid growth of China’s economy on food security in both China and the rest of the world. Currently he is the head modeler in a project that is studying the impacts of the proposed China-Australian FTA as well as the effect of China’s new program on biotechnology R&D on China and world trade.

**Selected publications:**


3. IIASA  

**International Institute for Applied Systems Analysis, Laxenburg, Austria**

**Contribution**  
IIASA oversees the environmental input into the project. It is the expert on agro-ecological potentials, environmental pressures and climate change.

**Credentials**  
The International Institute for Applied Systems Analysis (IIASA) is a nongovernmental research organization. It conducts inter-disciplinary scientific studies on environmental, economic, technological and social issues in the context of human dimensions of global change and acted as coordinator of the Chinagro-project.

Sustainability and the human dimensions of global change are the key issues in IIASA's investigations. These driving forces are studied as individual topics and in the wider context of their relevance to changes in the global system. Systems methods for the analysis of global issues provide the mathematical and methodological backbone to the work of the applied projects at IIASA.

The Land Use Change and Agriculture (LUC) Program’s strategic goal is to support policy-makers in developing rational, science-based and realistic national, regional and global strategies that achieve long-term sustainability and environmental stewardship of land and water resource management for the production and distribution of food, fiber and bio-energy, while promoting rural development.

**Principal investigators**

**DI Günther Fischer** is leader of the Land Use Change and Agriculture (LUC) Program at IIASA. He was a member of the core group responsible for developing and applying IIASA’s simulation model of the world food systems and a major contributor to IIASA’s studies on welfare implications of trade liberalization in agriculture, on poverty and hunger, and on impacts of climate change on food production, consumption and trade. He has been collaborating with the FAO on the development, implementation and application of agro-ecological modeling to national and regional resource appraisals. Recently, he contributed to the UN Millennium Ecosystem Assessment (MA) as a Lead Author on food systems responses.

**Harrij van Velthuizen (MSc)** is a senior scientist in the Land Use Change and Agriculture Program at IIASA. He has over twenty years experience in applied land resources ecology. He was intensively involved in the development of FAO's Agro-Ecological Zones Methodology (AEZ) and its applications at country and regional levels in the fields of agriculture, forestry and livestock development planning.

**Dr. David Wiberg** is a research scholar in the Land Use Change and Agriculture Program at IIASA, where he has been developing methodologies to assess the impact of land use and climate changes on water resource availability, demand, required storage capacity, development costs and management options. Dr Wiberg has consulted for the Dialogue for Water and Climate and UNESCO’s World Water Assessment Program.
Dr. Tatiana Ermolieva is research scholar in the Land Use Change and Agriculture Program. She obtained a PhD in applied mathematics from the Glushkov Institute of Cybernetics, Kiev, Ukraine. Her main fields of research are mathematical modeling, iterative rebalancing methods for spatial downscaling, systems modeling under uncertainty, decision analysis under uncertainty, and stochastic optimization.

Selected publications


4. SOAS
School of Oriental and African Studies, London, UK

Contribution
SOAS provides senior resource persons to all work packages especially on WP2, Trade and WP3, Social conditions.

Credentials
The School of Oriental and African Studies of the University of London (SOAS) focuses on interdisciplinary research, teaching, and outreach activities relating to China. It employs the largest body of China-experts in Europe. There are about thirty members of staff whose interests span both historical and contemporary Chinese studies across the fields of economics, business management, politics, law, development studies, humanity, and culture.

Principal investigators

Prof. Laixiang Sun, leading scientist on behalf of SOAS, is Chair Professor of Chinese Business and Management at SOAS. His publications cover a wide range of topics relating to the institutional transition and economic development of China. In 2000-2002 he led a research project on “Property Rights Regimes, Microeconomic Incentives, and Development” at United Nations University. In 2002-2005, he was an active member of Chinagro-Project
team. He holds a position of Visiting Research Professor at Institute of Geographic Sciences in the Chinese Academy of Sciences for the period of Dec 2005 to Dec 2008.

Prof. Robert Ash is Professor of Economics (with reference to China and Taiwan) at SOAS. He has been engaged in research on China’s agricultural and rural development for more than 30 years. During the period 1997-2001 he was Director of the EU-China Academic Network. He has written or edited 12 books on China, and over 30 articles and book chapters, as well as some 150 other reports and shorter papers. His current work is driven by an interest in China’s recent shift towards a strategy of sustainable and “harmonious” development - a change in emphasis that promises prioritization of the economic development of agriculture and improvements in income and welfare of Chinese farmers.

Prof. Scott Rozelle is currently a professor in the Department of Agricultural and Resource Economics and Chancellor’s Fellow in the University of California, Davis. His research focuses mostly on China and is concerned with three general themes: (a) agricultural policy, including the supply, demand and trade in relation to the agricultural sector; (b) the emergence and evolution of markets and other economic institutions in the transition process and their implications for equity and efficiency; and (c) the economics of poverty and inequality. He has close working ties with several Chinese collaborators, in particular with CCAP, holding the chair of the Board of Academic Advisors. He is going to take a visiting professorship position at SOAS soon during which he would devote most of his research time to the project, in case this application is successful. His involvement will cover the full range of work packages, as an advisor and a contributor.

Selected publications:


Change: Incorporating Biophysical Information into Input-Output Modeling,’ *Structural
Rozelle, S. and J. Swinnen, ‘Success and Failure of Reform: Insights from the Transition of
Agriculture,’ *Journal of Economic Literature* XLII, June 2004: 404-456.

5. LEI

The Agricultural Economics Research Institute, The Hague

*Contribution*

LEI operate the GTAP model of international trade. It provides expertise in WP2, Trade, on
world trade, including WTO, and on bilateral China-EU trade commodity level. It also brings
experience to the collection and analysis of farm surveys.

*Credentials*

The Agricultural Economics Research Institute (LEI) is the central institute on economic and
related social scientific research in the field of food and green space for the Netherlands. It
provides expertise and information to improve decision making for the government, businesses
and civil-society organizations. Its research covers the whole of agriculture and agribusiness,
whose development is closely intertwined with changes in the international environment. LEI are
part of Wageningen University and Research Centre and its head offices are situated in The
Hague.

LEI’s engagement in research co-operation with China started in 1996, and, jointly with CCAP,
the institute carried out the research project ‘China’s Food Economy in the Early 21st Century’,
with studies on China’s food economy with special attention to the Doha Round and
biotechnology development in China.

LEI are an active consortium member of the GTAP-network, coordinated by Purdue University in
the USA, which operates the international trade model to be used in this project. LEI contributed
by providing Input-Output data for all EU member states, provided methodological
improvements to model the agricultural sector, heterogeneous land demand, a land supply curve,
the Common Agricultural Policy and international knowledge spillovers.
Principal investigators

Hans van Meijl (PhD, Maastricht University) is head of the Research Unit on Agricultural and Food Policy at LEI. He has been working on trade liberalization (WTO, accession of China to WTO, impact on developing countries), EU agricultural policy (Mid-term review, Agenda 2000) and, on technology transfer at macro-level (international knowledge spillovers between countries, (productivity) impact of GMOs) as well as micro-level (innovation at farm level). He is an active member of the International Agricultural Trade Research Consortium (IATRC), a research fellow of the Global Trade Analyses Project (GTAP) and Senior Research Fellow at the Mansholt Graduate School.

Xiaoyong Zhang (PhD, Wageningen University) is with the Division International Trade and Development at LEI. Her research interests are in marketing research, consumer behavior and supply chain management. Her main research experience is in Chinese and Southeast Asian agribusiness and sector studies, with particular attention to food safety issues.

Marijke Kuiper (PhD, Wageningen University) is an economist with the Division International Trade and Development at LEI. She works as an economist in international trade and development policy with a focus on general equilibrium and household modeling. She studied the impact of rural-urban migration on a village economy in Jiangxi Province, China. She recently did her PhD on a model of the village economy that captures rural household decisions and interactions among households in village markets.

Selected publications:


6. IFPRI
The International Food Policy Research Institute, Washington DC

Contribution. IFPRI adds to the team its expertise on institutional structures and farm household studies in rural China for realizing the objectives of work package 3, as well as on outreach activities worldwide.

Credentials
IFPRI is a leading international organization in carrying out research on rural poverty and income disparities in China. IFPRI researchers participating in this project have published extensively in international journals on regional rural inequality and the growing rural-urban income gap in China, and on the impact of globalization, public investments, local governance and factor market imperfections on rural inequality and poverty.

Over the last decade, IFPRI has implemented research projects in China on rural public investment, rural non-farm employment, regional inequality, impact of WTO on agriculture and rural areas, rural credit and finance, agricultural R&D policy. These studies have contributed to policy dialogues and debates within the Chinese policymaking, advisory and research circles. Within IFPRI, the research will be carried out by the Development Strategies and Government Division (DSGD). It will be coordinated by the IFPRI Office in Beijing.

Principal investigators

Shenggen Fan (PhD, University of Minnesota) is the director of the Development Strategy and Governance Division (DSGD). His major work includes technical change, institutional reforms, productivity measurement, and the effects of public investment on growth and poverty reduction in developing countries.

Nico Heerink (PhD, European University Institute, Florence) is Beijing Office Coordinator and Research Fellow. His major research activities include economic policy reform and sustainable agricultural development, income inequality and economic development, international trade and the environment, rural public investment, and the economics of low-external-input agriculture.

Xiaobo Zhang (PhD, Cornell) is research fellow and conducts research on development strategies, governance, and public investment in developing countries. He is the current president-elect of the Chinese Economist Society and is a member of the editorial board of the International Journal of Applied Economics.

Selected publications:

### B.4.1 Other countries

#### CCAP

Realization of the proposed project could hardly be envisaged without the Center for Chinese Agricultural Policy (CCAP). CCAP is one of the first research centers to be awarded the distinction of “Innovative Research Group” by China’s National Natural Science Foundation. CCAP aims to analyze policies related to food, agriculture, natural resource and environmental issues in China, and helping formulate practical and feasible policies for the development and modernization of rural China.

The core research divisions of CCAP include four major program areas. These are: (1) the Agricultural R&D Policy and Production Policy Research Program; (2) the Natural Resources and Environmental Policy Research Program; (3) the Integrated Rural and Urban Development and Poverty Alleviation Policy Research Program; and (4) the Decision Support System Research Program (a division dedicated to studying policies that promote agricultural and rural development). The proposed research project will draw on personnel from all of the divisions, because it considers the impact of changes in technology; institutions, policy on efficiency, equity (poverty) and the environment. Input from the technology, resource and poverty divisions will form the heart the databases and the parameters describing the links between things such as investment in R&D, water shortages, new poverty programs on supply, demand, trade, household welfare and the environment. The Decision Support System Research Program, which is to perform the main work for this project, is an integrated division that is dedicated specifically to synthesizing of the work of the other programs.

#### IFPRI

The International Food Policy Research Institute (IFPRI) brings to the table: (i) about 30 years of rigorous and innovative policy research, capacity strengthening, and communications on food and nutrition security, poverty reduction, and agricultural development issues; (ii) a large global network of partners and interested parties spanning disciplinary, policymaking, policy influencing; and (iii) ability to achieve impact with its conferences.

IFPRI researchers participating in this project are leading international experts in research on rural poverty and income disparities in China. They have published extensively in international journals on regional rural inequality and the growing rural-urban income gap in China, and on the impact of globalization, public investments, local governance and factor market imperfections on rural inequality and poverty. Their input into the project is therefore of crucial importance for realizing the objectives of work package 3 ‘Social Conditions.’
FPRI has much experience in promoting policy dialogues among researchers and policymakers from developing countries. It has organized conferences and international workshops to share Chinese experiences in food and agricultural policy with other developing countries, such as India and Ethiopia. IFPRI will also be responsible within the project for disseminating results to policy makers and other stakeholders outside China and the EU. Instruments used consist of policy briefs, workshops and conferences, and stakeholder platforms that IFPRI’s Development Strategies and Governance Division (DSGD) has established in several developing countries. Late 2007, IFPRI will organize an international conference on poverty and food security in Beijing, focusing in particular on comparing policy experiences and possibilities for exploiting linkages between developing countries. The conference is a follow-up to two very successful international conferences on achieving food security in 2020 held in Bonn, Germany in 2001 (http://www.ifpri.org/2020Conference/index.htm) and in Kampala, Uganda in 2004 (http://www.ifpri.org/2020AfricaConference/index.htm). The Beijing conference will provide a unique opportunity for communicating preliminary project results, discussing their policy implications for other developing countries, and for obtaining feedback from stakeholders inside and outside China. IFPRI will also organize events for dissemination of results later on in the project.
## B.4.2 Project Effort Form and Details of the Budget

### Full duration of project
(in person-months per activity)

Project acronym: CATSEI

<table>
<thead>
<tr>
<th>Short Names</th>
<th>SOW</th>
<th>CCAP</th>
<th>IIASA</th>
<th>SOAS</th>
<th>LEI</th>
<th>IFPRI</th>
<th>TOTAL PARTNERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>WP-1: Current state</td>
<td>3.7</td>
<td>11.5</td>
<td>4.3</td>
<td>2.3</td>
<td>2.5</td>
<td>1.7</td>
<td>25.8</td>
</tr>
<tr>
<td>WP-2: Trade</td>
<td>14.8</td>
<td>15.3</td>
<td>-</td>
<td>3.8</td>
<td>12.3</td>
<td>-</td>
<td>46.1</td>
</tr>
<tr>
<td>WP-3: Social conditions</td>
<td>7.4</td>
<td>65.3</td>
<td>2.9</td>
<td>3.0</td>
<td>3.7</td>
<td>16.5</td>
<td>98.7</td>
</tr>
<tr>
<td>WP-4: Environment</td>
<td>1.9</td>
<td>7.7</td>
<td>17.1</td>
<td>-</td>
<td>-</td>
<td>1.7</td>
<td>28.3</td>
</tr>
<tr>
<td>WP-5: Synthesis</td>
<td>7.4</td>
<td>15.3</td>
<td>2.9</td>
<td>3.8</td>
<td>4.9</td>
<td>6.6</td>
<td>40.8</td>
</tr>
<tr>
<td>WP-6: Dialogue</td>
<td>1.9</td>
<td>11.5</td>
<td>1.4</td>
<td>2.3</td>
<td>1.2</td>
<td>6.6</td>
<td>24.8</td>
</tr>
<tr>
<td>Total research/innovation</td>
<td>37.0</td>
<td>126.5</td>
<td>28.5</td>
<td>15.0</td>
<td>24.5</td>
<td>33.0</td>
<td>264.5</td>
</tr>
</tbody>
</table>

| Consortium management activities | | | | | | | |
| WP-7: Coordination           | 3.0 | -  | -   | -   | -  | -    | 3.0           |
| Total management             | 3.0 | -  | -   | -   | -  | -    | 3.0           |

**TOTAL ACTIVITIES**  | 40.0 | 126.5 | 28.5 | 15.0 | 24.5 | 33.0 | 267.5 |
Details of the budget

**Project acronym:** CATSEI

<table>
<thead>
<tr>
<th>SOW Coordination</th>
<th>SOW Research</th>
<th>CCAP</th>
<th>IIASA</th>
<th>SOAS</th>
<th>LEI</th>
<th>IFPRI</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC months</td>
<td>FC months</td>
<td>FCF</td>
<td>months</td>
<td>euro</td>
<td>months</td>
<td>euro</td>
<td>months</td>
</tr>
<tr>
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<td>4.3</td>
<td>21,601</td>
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<td>WP-3: Social conditions</td>
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<td>59,988</td>
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<td>3.0</td>
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<td>7.7</td>
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<td>17.1</td>
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<tr>
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<td>38,684</td>
<td>15.3</td>
<td>31,188</td>
<td>2.9</td>
<td>14,401</td>
<td>3.8</td>
</tr>
<tr>
<td>WP-6: Dialogue</td>
<td>1.9</td>
<td>9,671</td>
<td>11.5</td>
<td>23,391</td>
<td>1.4</td>
<td>7,200</td>
<td>2.3</td>
</tr>
<tr>
<td>WP-7: Coordination</td>
<td>3</td>
<td>18,828</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>3</td>
<td>18,828</td>
<td>37</td>
<td>193,418</td>
<td>126.5</td>
<td>184,742</td>
<td>28.5</td>
</tr>
</tbody>
</table>

| Travel: |
|------------------|--------------|------|-------|------|-----|-------|--------|
| Tickets | 12,300 | 9,250 | 11,200 | 13,000 | 6,900 | 12,000 | 14,682 | 79,332 |
| DSA | 6,000 | 5,400 | 8,960 | 10,000 | 7,840 | 13,000 | 10,320 | 61,520 |

| Material costs: |
|------------------|--------------|------|-------|------|-----|-------|--------|
| Publication | | | 10,000 | | | 8,000 | | 18,000 |
| Audit (100%) | 2,000 | 1,000 | 1,500 | 1,500 | 1,500 | 1,500 | 1,500 | 9,000 |
| Seminar/workshop | 4,000 | 27,900 | | | 10,000 | | | 41,900 |
| Data collection | 81,000 | | | | | | | 118,000 |
| General Expenditures | | | | | | | | 5,358 |
| **Overhead:** | 14,874 | 152,800 | 36,948 | 94,800 | 74,054 | 0 | 35,983 | 409,385 |

| Total | 52,002 | 366,868 | 361,750 | 268,664 | 182,861 | 271,867 | 275,296 | 1,779,308 |
| Total eligible for 50% EU Funding | 364,868 | 360,750 | 267,164 | 181,364 | 270,367 | 273,796 | 1,718,306 |
| Total eligible for 100% EU Funding | 52,002 | 2,000 | 1,000 | 1,500 | 1,500 | 1,500 | 1,500 | 61,002 |
| Total EU Funding | 52,002 | 184,434 | 181,375 | 135,082 | 92,180 | 136,683 | 138,398 | 920,155 |

*NB. All institutes apply their own overhead rules*
B.5 Project management

Management committee. The project will be led by a management committee operating as steering and coordination committee, consisting of the principal researchers of each participant institute, and chaired by the coordinator. There will be an annual committee meeting to be held in China and Europe during alternating years. In Europe, the location of the meeting will rotate between participating institutes. All leading researchers are to attend this meeting or to designate a replacement. The meeting serves to review progress in the execution of work packages, to decide on the publication plan and on pending issues regarding authorship and to settle disagreements on any issue. Urgent matters requiring attention of the management committee are to be settled by email or by conference call. With respect to the procedures that will be taken to make major decisions, the aim is to reach decisions by consensus. Yet, the management committee may decide by two-third majority to reallocate tasks and associated funds in case of non-delivery of outputs by some participant for whatever cause if the non-performance is significantly hampering the progress of the project. Such a decision requires the vote of all participants represented at the meeting. All other decisions are by simple majority vote of participants represented at the meeting.

Coordinator. The coordinator will be the contact point for the Commission and oversee the submission of all financial reports and deliverables. The coordinator will also monitor the implementation of the decisions taken by the management committee, report to this committee if necessary, and take action when mandated. The administrator of SOW (the coordinator) will oversee the administrative implementation of the project on a day-to-day basis.

Leading researcher of participant institute. The leading researcher of each participating institute is responsible for the progress of the activities to be undertaken by that institute, including the timely delivery of inputs to work packages led by other participants. The leading researcher has to take appropriate action in case of non-availability of staff members assigned to a particular task or of unforeseen delays. If this occurs, the delay must be reported to the leader of the work package concerned.

Coordinator of work package. The work packages are defined around explicit deliverables and have already been subdivided along a set of logical lines that are described in detail in section B.6 below. Every work package has a coordinating institute associated with it that must coordinate the activities that defined within the package (all, of course, notwithstanding the project coordinator’s overall responsibilities):

- WP2. Trade: LEI
- WP3. Social conditions: IFPRI
- WP4. Environment: IIASA
- WP5. Synthesis: SOW
- WP6. Policy Dialogue and Dissemination: CCAP
- WP7. Coordination: SOW

The work package coordinator is the institute assigned with the task of day-to-day coordination of a work package. This coordinator maintains contacts with the staff assigned to the work package. When necessary, this coordinator contacts the leading scientist of the participant institutes delivering their services to the work package. The work package coordinator is expected to report all major problems
within the shortest delays to the overall coordinator of the project and to discuss actions to be taken. The work package coordinator is also expected to report on a regular basis about the progress of work to the project coordinator. Hence, the project management reflects the matrix structure of the project itself, with the work package requiring inputs from the various participants.

*Communication and meetings.* Within the year, day-to-day communication will be by email or phone, but there will also be meetings by subgroups to coordinate activities as and when required. Furthermore, provision is made for staff exchanges to conduct joint research including the writing of papers.

As all participants have been fruitfully working with one another before, many even in an EU-funded project, they can build on experience in this respect, and it is expected that the collective can develop sufficient momentum to let this relatively light management structure function smoothly.

Further details of these arrangements will be specified in the Consortium Agreement, if required by the EC, or otherwise in an internal agreement.

*Management of knowledge*

Reports are the main deliverables from this project. All reports will be delivered in hardcopy, and made available as working papers on a project website, to be managed by CCAP. In addition, an extended atlas will be made available on the project website, from where detailed maps and tabulations can be extracted. Participants will, from their own websites, provide links to that site. All final reports are public.

Intellectual property rights over simulation models and other decision support tools used in this project remain with the institutions possessing them prior to the project. Intellectual property rights over new tools developed within this project and over publications from this project remain with their authors.

All researchers that contribute significantly to a particular paper will be considered co-author of that paper, except if the contribution has already been or is expected to be published separately. The leader of a work package proposes a settlement in case of disagreement on authorship, and if disagreement persists, the management committee has the final say.

There are no patents expected from this project. Possible royalties from publications will only accrue to the participant institutes after project completion but are expected to be minor.
B.6 Detailed Implementation plan

B.6.1 Introduction

The work schedule is such that all work packages start simultaneously. WP1 sets the stage by establishing the reference time path for the major drivers, in qualitative as well as in quantitative sense, and by making this information available to WP2-WP4. In parallel, the survey work starts, so that after the first year of the project, the models are up and linked, and the surveys ready for analysis. A little more than the second year is devoted to thematic research in WP2-WP4, after which WP5 the synthesis is done leading to the final dialogue and dissemination of WP6. These packages will proceed relatively independently, producing their own specialized reports. Eventually, integration is realized in WP5, where lessons are drawn on the combined effect of various policies. This integration will only in part be based on model results and on outcomes from survey analysis. Qualitative aspects will have to be reported on at this point as well.

Dialogue with policy makers (WP6) will take place throughout and culminate in workshops and sessions at conferences.

Note 1. The work package description below keeps all the communication with policy makers and all dissemination activities under WP6, even though in actual practice various consultations and workshops are to be held in the context of a specialized work package, with support from WP6.

Note 2. The work planning presented below is less detailed than the actual work schedule to be established at the beginning of the project. In particular, the milestones only refer to the delivery of the final report, which should be timely for the other elements of the work packages to be successful. Clearly, in the actual internal work planning many more control points will be required, including consultations on the setup of these reports. The milestones included here define end-points for each package, from which these detailed plans of operations inside the package should proceed backwards so as to define the actions needed to reach them in time.

Note 3. All work packages, except WP5, Synthesis, start in month 1. It is assumed that the communications prior to the beginning of the project make this possible.

B.6.2 Description of work packages

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<th>Work Package 1</th>
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<td>Work package title: Current state and prospects</td>
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Background

The first stage of the project is devoted to the updating the databases available with the most recent information with respect to their (i) initial conditions; (ii) baseline trends, and to (iii) the preparation of background papers on major drivers underlying these trends. This information will be presented at provincial level, cover the period 1997-2030, and lead to a series of working papers on:
Economic growth (outside of agriculture)  
Demography and migration  
Institutional setting and domestic policy changes  
Technological progress  
State of the environment, including water and land resources  
Opening up to trade (WTO and bilateral agreements with EU and others)

On each of these subjects Data files and notes of varying length were already delivered in the course of the Chinagro-project. This essential requirement is not to incur any delays in this process, so as to launch the project with sufficient momentum.

**Chinagro-model.** The updated information is used to define the scenario for baseline simulation with the Chinagro-model (see Keyzer and Van Veen, 2005, for a description of the model’s structure) developed that describes agricultural supply for each county of China, in response to the market prices faced by various farm types in these counties, including rainfed as well as irrigated cropping, and traditional as well as intensified livestock production, separately for ruminants and non-ruminants. The total area for cultivation and the maximal yield potential on each area type is determined on the basis of an Agro-Ecological Zone assessment. Labor, fertilizer and animal feed requirements per unit of output are also derived on the basis of agronomic information (Albersen et al., 2002). On the basis of the simulated decisions by all farmers, discharges of manure and fertilizer can be evaluated at county level as well. Consumers of agricultural products exercise increased demand for luxury foods such as meat as they migrate to the cities and as their income rises. Intra-regional, inter-regional and international trade achieve, jointly with price adjustment, balance between supply and demand of every commodity, subject to various policy interventions such as tariffs and quotas on international trade, and for all commodities simultaneously (Ginsburgh and Keyzer, 2002). Indeed, once market distortions have been eliminated the model in every particular year generates an optimal allocation of agricultural production among regions, based on comparative advantage while accounting for transportation costs. The model operates on an annual basis, evaluating a solution under given scenario-conditions with respect to land availability, demography, economic growth, technological progress, international prices and government policies for selected years over the period 2000-2030. With respect to validation, the Chinagro-model fully replicates for every county and region of China in the 1997 base-year conditions, adequately mimics changes over the period 1997-2003 and provides interpretable results until 2030. It has fully integrated software that efficiently runs from basic data, via solution algorithms and simulation, to automatic production of detailed county-level maps and tabulation of results. The Chinagro-model is programmed in GAMS. Maps and other tabulations are controlled in GAMS or in user-friendly menus, even though they actually run in DOS, Fortran and SAS,

**References** (see SOW-VU website at www.sow.vu.nl)


Fischer, G., F. Chen and X. Li (2005), ‘Sustainable agricultural development’. Chinagro policy seminar paper. Beijing, 6 pp.


**Abstract WP1, Current state and prospects**

This work package provides the starting point of the project. It focuses on China and starts by updating the data-base for the initial period (1997-2006), by specifying major trends for a specified set of drivers, at provincial level, so as to lead to a new baseline scenario run of the Chinagro-model.

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**Work Package 2**

**Work package title: Trade**

**Background**

The trade component will consider China as an integral part of the world economy and study:

i. Impacts of shifts in growth, demographic changes, institutions and policy changes, technology on the supply, demand and trade (and prices) of agricultural commodities;

ii. Impacts of developments in Chinese agriculture on international markets under various modalities of bilateral and multilateral (WTO)-agreements and their implementation in China

iii. Impacts of the findings of “i” and “ii” on the EU, at member state level, under various modalities for the implementation of the Common Agricultural policy (e.g., decoupling; accession regimes for new members; etc.)

iv. Commodity-specific aspects of China-EU agricultural trade

To evaluate these impacts a model of the rest of the world is needed:
**GTAP.** Developments within China are affected by and will affect the EU and other countries. We will quantitatively analyze these interactions by combining the Chinagro model, and a modified version of the Global Trade Analysis Project (GTAP) model. GTAP is a general equilibrium model designed to analyze international trade, while accounting for domestic production and consumption of agricultural, manufacturing and services sectors. It is often used in WTO analyses (see, e.g. François et al. 2005), CAP analyses (Van Meijl and Van Tongeren, 2002), China related analyses (see, Huang et al. 2004) and long term projections on a global scale (see, Meijl et al. 2006). In the modified model, agricultural policies are treated explicitly (e.g. production quotas, intervention prices, tariff rate quotas, (de) coupled payments). Information is used from the OECD's Policy Evaluation Model (PEM) to improve the production structure and a new land allocation method, that takes into account the variation of substitutability between different types of land and a new land supply curve are introduced.

By inserting the outcomes of the Chinagro model into the GTAP-model, thus replacing the available China-model, we can analyze in the third step of the analysis how the diversity within China affects its trade with other countries and the subsequent effects on domestic production and consumption in the EU and developing countries. However, to represent the EU with adequate detail we replace the EU model within GTAP, by FEA-27.

**FEA27.** For many years, SOW has been engaged jointly with the Netherlands Bureau for Economic Policy Analysis in project on the “Future of European Agriculture” (FEA). Within this project a model for the Common Agricultural Policy is being maintained and developed further. It operates at member state level (EU-27) and follows methodologically the same approach as the Chinagro-model, but the representation stops at the national level. The model has a detailed representation of the policies measures as established in the common market organizations of the EU. New policy issues such as the design and financing of green services under decoupling and the accession regimes for new member states also receive attention. Currently, a detailed description of import protection is under construction, where it is envisaged to use tariff line information to assess the impact at the level of model classification. This would enable to trace down the consequences of tariff reform between China and EU even at the level at which actual trade negotiations take place. Earlier versions of the model (Keyzer and Merbis, 2001; Keyzer et al. 2003) were used for impact analyses of CAP reform at the request of the European Commission. The model also played a role in a large number of policy briefs to policy makers in The Netherlands, e.g. on rice and sugar.

The work package has three types of output, described earlier in B.1.

**Refining the trade database.** Starting point will be the refining of the database to represent the trade distortions adequately. The modified version of GTAP referred to earlier incorporates the latest OECD information but for China and the EU, the adequacy of this database will be reviewed, for the EU with special attention for decoupling of support, intermediate regimes for acceding member states, preferential trade, for China specific tariffs and subsidies and for both the more generic issues such as the treatment of trade and transport margins and quotas in these measures. Furthermore, apart from the domestic drivers of China’s agriculture and its implications for international trade the current WTO negotiations are likely to affect agricultural trade and thus production both in the EU and China. The ambition level of a WTO agreement also has important implications for the erosion of preferences of developing countries granted in the recent GSP scheme. Furthermore, China may engage in regional trade agreements with third countries that could affect trade with the EU. Current agreements will be recorded and future agreements assumed on the basis of dialogue with policy makers. Finally, the analysis should reflect further anticipated reforms of the Common Agricultural Policy until 2030.

**Linkage of models.** The technical issues related to the linkage of models were already reviewed in B.1 and B.4. Basically four difficulties have to be dealt with:
(a) Establishing appropriate commodity mappings to accommodate the differences in classification between Chinagro, GTAP and FEA-27;
(b) Ensuring that all models run over the same time-period under consistent scenarios, say, with respect to climate change and WTO-agreements;
(c) Replacing the EU and China-models in GTAP by exogenous net imports for each.
(d) Designing an efficient and reliable algorithm to bring about equilibrium between the three models.

Conduct simulations. Once these tasks have been completed, a new baseline scenario will be run using the linked models. Next, the linked models will be used to simulate the impact of a WTO agreement and possible regional trade agreements, comparing outcomes with the baseline scenario. Particular attention will be paid to the likely effects on the poorest developing countries.

Relate China and EU

Somewhat in parallel with the modeling work, a systematic comparison will be made between China’s agriculture and EU agriculture, in two respects:

Comparison of policies. A comparison of current policies will be made, specifically for the EU referring to the (i) current decoupling of the Common Agricultural Policy of the EU, including payments for green services and product labeling; (ii) the existing preferential arrangements with developing countries, and (iii) the special regimes for acceding member states, and for China to the various aspects of the country’s new orientation regarding agricultural policy. The question will be to which extent both China and the EU can find non-distortive measures and arrangements that help safeguarding cultural and natural heritage, and reducing the rural-urban income gap. The reporting on this will proceed in two steps, one descriptive, based on the current situation, the other prospective in part based on literature review and in on outcomes from other work-packages, in particular WP3, social conditions, and WP4, environment.

Commodity-specific assessments. This task seeks to identify commodities in which China and EU compete and complement each other. These comparative advantages are assessed on the basis of natural endowments (like land, climate and water resource), institutions (like marketing system, producers’ organizations), farm structure (like type and scale of farms, production costs and productivities, etc), and policies (like fiscal policies and protection measures, etc.). For the most important, especially for fruits and vegetables, in which China competes with EU agricultural producers and those in which it complements the EU (offering potential for EU exports), presumably feed grains.

References


**Abstract WP2, Trade**

This work package considers China as an integral part of the world economy. First, it reviews the existing database on distortions used in the modified version of the GTAP-model, paying specific attention to the policies of the China and the EU and their representation in the OECD database. Second, it deals with the linkage of Chinagro, GTAP and FEA-27. Third, it runs simulation with the linked models. Finally, it considers specific aspects of China-EU trade, by comparing policies and by conducting commodity-specific assessments, in particular for horticultural products and feed grains.

**Work Package 3**

**Work Package Title: Social conditions**

**Background**

Changes in China’s economy as a whole, its policy environment and the state of its natural environment will inevitably affect the conditions within rural areas as well as their position relative to other regions. The component will study these effects and examine current policy impacts as well as analyzing new policy options:

i. Impacts of shifts in growth, demographic changes, institutions and policy changes, technology on rural incomes and other measures of rural welfare, especially on those under, at or near the poverty line;

ii. Impacts of trade policy changes (e.g., WTO; Free Trade Agreements) on rural incomes and other measures of rural welfare (through the increased/decreased flow of agricultural commodities across borders and its effect on prices and wages), especially on those under, at or near the poverty line;

iii. Impacts of changes in the CAP (and other EU policy initiatives) on agricultural trade and the impact on rural welfare in China.

iv. Analysis of different scenarios regarding the policy choices – both domestic and trade policy alternatives – on rural welfare in China.

**Recent reforms.** The new focus in China’s policy making on rural development and reducing rural-urban income disparities imply dramatic changes in China’s farm policies. These changes have to be taken stock of, and expressed as drivers to be run through the Chinagro-model as revisions of the reference scenario. This will provide information on supply, demand, and farm prices at county level, while accounting for trade and transport margins as well as tariffs and subsidies.

Next, to quantify the impacts at household level, the project will construct a household-level database that is as spatially explicit as possible, link it to village level, county, and provincial information on policy regimes and social as well as physical infrastructure, so as to establish the distributed impact of reforms by appropriate adaptation of existing techniques in the poverty mapping literature.
**Household data.** (i) Access will be secured to the nationwide rural household survey carried out by the Chinese National Bureau of Statistics (NBS); (ii) However, as the NBS household surveys do not contain questions on access to factor markets and environmental conditions, the project will also conduct surveys of its own, relying on the network accessible to CCAP, to obtain information on both social and environmental conditions faced by households. To the extent geo-referencing is legally and technically possible, the household data set will be linked by overlays with other geographic variables, for which an detailed database was already compiled as input to the Chinagro-model.

**District information on factor markets and local governance.** In addition, districtwise data sets will be constructed and linked to the household data set, containing information on factor markets and local governance.

i. For factor markets it will not be easy to assess the impact of reforms on factor markets, since the policies are relatively uniformly implemented within the country. Yet, the experts in the team who have specialized on these aspects will expectedly be able to point to villages where the situation is different.

ii. With respect to local governance similar differences can be identified. Moreover, the statistical analysis to be outlined below can further help identifying these effects by cross-sectional comparison between villages with a different access to off-farm employment (mimicking freer migration) and with a different degree of tenant security, say, in view of urban development (mimicking better titling and more secure property rights), while obviously controlling for other factors. For credit similar exercises can be conducted.

**Geographic information.** Based on Chinagro simulation at county level as well as more detailed geographic information to be described in WP4 below.

**Distributed estimation and prediction.** Given the household data and the information collected on factor markets and local governance, this component will apply an extension of the poverty-mapping approach, described earlier in sections B.1 and B.4, which amounts to computing responses for every household of a “prototype”-census rather than for the households in the sample only. A prototype census is a multivariate frequency distribution representing the full population of a geographical unit. The proposed technique will use recent results from artificial intelligence (kernel learning methods), extended it by allowing for census data and district information to be accounted for already at the regression (as opposed to the prediction) stage, as well as for the simultaneous treatment of different survey data sets with (partially) overlapping variables. The GRCP (Gridding, Regression, Classification and Plotting) software package (Keyzer, 2005) will be used for this purpose. In these regressions information from the Chinagro-database will be used as well, and after simulation, scenario simulations will be conducted to obtain frequency distributions over households describing the consequences of the projected development paths at household level, under various policy reform scenarios.

**Safety nets.** One of the major elements of domestic reform will be the replacement of existing social safety nets by new ones, including social security and market insurance. A major application of the distributed simulation tools will be to assess the suitability of these mechanisms across China, and to look for adequate safety nets (Roy and Chai, 2003; Zhang, 2003). This requires looking into the vulnerability of individual households and their ways to cope with risk, through a variety of actions ranging from irrigation and off farm work to formal insurance.

**References**


**Abstract WP3, Social Conditions**

This package describes the effect on households of the changes in drivers and policy regimes and seeks to identify social security arrangements that best fit the needs of the population. For this regression functions are estimated that can link the household data to the Chinagro-variables, as well as to district data on the properties of factor market and local governance.

**Work package number**  4  
**Work package title:** Environment

**Background**

As already explained in B.1, it is no coincidence that environment is mentioned as a work package following trade and social conditions. The project resources and time-span do not permit to deal with environmental aspects at great depth. This would require studies at a lower geographic scale and the modeling of interactions beyond trade. Indeed, to deal with water scarcity, the hydrology of river-basins would have to be represented explicitly, whereas for emissions, soil chemistry and groundwater flows would have to be looked into and for climate change linkage to climate models may be needed as the small country assumption is as invalid here as it is for trade. Yet, the issues are too important to be neglected, and rather than aiming at coming up with novel solutions to China’s environmental problems, the present work package primarily serves to describe environmental pressures resulting from the various development paths foreseen and to signal where environmental vulnerability is highest. The work package consists of three relatively separate parts: water, emissions, and climate change, with tentative suggestions for policies to address the problems, so as to serve as an input into WP5, Synthesis.

**Water.** The agro-ecological zones (AEZ) model, developed by FAO and IIASA uses detailed agronomic-based knowledge to simulate land resources availability and use, farm-level management options, and crop production potentials as a function of climate, soil and terrain conditions. At the same time, it employs detailed spatial biophysical and socio-economic datasets to distribute its computations at fine gridded intervals. To assess the water scarcity the county-level results from Chinagro-simulations will be used and projected on a finer grid spatial so as to estimate net crop irrigation water requirements (as the amount of water that specific crop varieties require, in addition to soil moisture from precipitation, to grow without water stress, assuming a certain irrigation efficiency. Computations will use an available gridded climate database, consisting of historical monthly mean data for the period 1958-2000 (mean monthly minimum temperature, mean monthly maximum temperature, precipitation, cloudiness, vapor pressure deficit, wind speed, wet-day frequency). The calculation of irrigation water requirements will be carried out by grid cell in four consecutive steps, in the following manner. First, a map of irrigated areas, developed from detailed land cover information and consistent with year 2000 statistics of rain-fed and irrigated cultivated land, will be used to define irrigated shares of cultivated land in 5km x 5km grid cells in the base year. Second, on the basis of irrigated shares of
cultivated land in each grid cell, agro-ecological suitability for distinct crop groups in terms of water requirements will be estimated with AEZ by determining water deficits under rain-fed conditions. Crop calendars typical for defined cropping system zones, compared and validated vis-à-vis province and county statistics, will be applied to determine irrigation use intensity, i.e., the fraction of time in a year when irrigated crops are actually grown. Irrigation water requirements will be equated to a crop’s water deficit, computed in daily time-steps and summed over the length of each crop growth cycle. Third, total requirements of each county will be computed by determining the respective contributions of different crops, using Chinagro-baseline data, under assumed changes in irrigation efficiency, in irrigated areas etc. This will make it possible to obtain an estimate of water deficits, and hence to suggest changes in irrigation policies, including adjustments in the irrigated area, to policy makers, and as input to the WP5, Synthesis.

Emissions. The analysis relies on a dynamic livestock and crop production simulation model developed at IIASA. Given the Chinagro-scenario outcomes, the model evaluates environmental pressures from livestock manure and waste management in combination with projected fertilizer consumption. It estimates environmental loads caused by nutrients losses in livestock housing and manure handling facilities, and from excessive or non-effective fertilization, i.e. availability of nutrients from fertilizer and livestock manure in excess of crop uptake capacities. Based on these pressures, the model can be used to suggest changes in cropping practices, and associated yield adaptations, as well as changes in land use, livestock systems and patterns across China.

Climate change. Various scenarios of climate change were developed in order to estimate their effects on crop yields, extents of land with cultivation potential, and the number and type of crop combinations that can be cultivated. A climate change scenario is defined as a physically consistent set of changes in meteorological variables, based on generally accepted projections of \( \text{CO}_2 \) (and other trace gases) levels. As mentioned earlier, the Chinagro-model relies on AEZ-methodology to estimate crop potentials as well as to predict feasible changes in land utilization given the prevailing policies on land conversion. Hence, anticipated effects climate change on the crop potentials can be accommodated in the Chinagro-model as well. Moreover, climate change may affect the availability of irrigated land. In order to provide a steady supply of water and reduce the negative impacts of high variability, China has invested heavily in harnessing and developing its rivers. Currently, there are more than 84,000 reservoirs in China, 22,000 of them large reservoirs, 31,742 sluice works, 260,000 kilometers of levees, 7,900 kilometers of tide dikes, and 34,500 square kilometers of flood detention area. Because of the spatial variability of water resources in China, plans have also been laid and construction begun, for three large diversions to bring nearly 50 billion cubic meters of water per year from the Yangtze River in the relatively wet south to the Huai He, Huang He, and Hai He – Luan He basins in the dry north. With all of this investment and planning on long-term water supply, it is important to consider the impacts that climate change may have on water resources in the future. The hydrologic model CHARM, developed and calibrated to China conditions by the IIASA team, will be applied to investigate the changes in water resources availability in response to global warming postulated by recent scenarios of climate change developed for the Intergovernmental Panel on Climate Change (IPCC). Analysis will be completed and summarized for nine standard water regions covering China (and some 50 hydro-economic sub-regions), and for a number of GCM climate projections. The results will suggest changes in land utilization patterns to policy makers and as input to the synthesis part of the project.

Abstract WP4, Environment

This package describes the effect of the agricultural transition on the environment, distinguishing between water scarcity and emission of pollutants by crops as well as livestock. It also looks into the
likely implications of climate change. The primary aim is to come up with indicators of environmental pressure but possibilities for adjustment, primarily expressed through changes in land use and livestock systems will also be looked into.

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**Background**

The questions studied in this project should not be answered in isolation. The issues related to Trade, Social Impacts and Environment stand in an almost one-to-one connection to the classic economic policy aims of jointly achieving efficiency, equity and sustainability. Yet, like in the economy itself, decentralization also is needed in a large research project: it is not effective to expect researchers from different backgrounds to coordinate their actions permanently. Hence, the opting for a project setup in which key aspects of coordination are concentrated at the beginning (WP1), to ensure that all start within a common frame of reference, and the end, to avoid idiosyncrasies and in this particular case, to come up with a synthesis that takes a balanced view at efficiency, equity and sustainability.

In a nutshell, the enormous successes achieved by China in the past decades can be seen as based on unleashing of human energies through improved efficiency. Growth was seen as a cure to China’s ailments, and in so many respects it has been, because, rather than inequity, overall poverty was its major problem at the time, and by all records the poverty reduction achieved was fantastic. However, there is decreasing marginal productivity in almost everything and getting rid of the remaining poverty in an economically and environmentally sustainable way will prove difficult, essentially because the most talented and well-endowed have already escaped it earlier, so that trickle down effects from continued growth might be limited. For the environment, the situation is even more troublesome, since until recently it received even less attention. Finally, growth was also achieved thanks to the opportunities for exports that enabled China to satisfy its raw material needs through imports, and, perhaps even more importantly, thanks to the free flow of knowledge that made it possible for the country to gain access to modern technology, by sending its people abroad, by internet and by foreign investments. For this harmonious relationship to last, China will have to invest, now in relationships rather than in plants, and conversely, the EU will have to view China as more than a threat for its home industry and an emerging market.

The Synthesis will seek to come up with reports that address these issues, with due recognition of the intangibles. It will conduct scenario simulations that integrate the findings but also offer room for other inputs.

As this work package requires significant coordination, it is closely connected to WP7, Coordination. As mentioned earlier a detailed set of milestones, including a schedule for communicating on intermediary outputs will be set up at the beginning of the project.

Unlike the other work package, the Synthesis only starts in Month 24.
Abstract WP5, Synthesis

The package integrates the findings of WP2-WP4 to come up with a scenario that seeks to achieve efficiency, equity and sustainability in China, while fostering a harmonious co-operation with its trade partners, particularly the EU and developing countries.

Work package number 6
Work package title: Policy dialogue and dissemination of results

Background

Dissemination of results critically depends on producing papers and policy briefs and try to get them read by academics and policy officials to as great an extent as possible. We believe we can go one step further in four ways.

First, regarding China, one of the strengths of our proposal will be the manner in which we are able to involve key policy makers and policy advisors into the research process (discussed below) and to make sure that the results of our findings are communicated to the very top official. The key is the participation of CCAP. Over the past two years, CCAP staff members wrote more than 20 policy briefs to the State Council that went the ranks of the leadership in two ways. One is that CCAP sends some through the office for policy advising of the Chinese Academy of Sciences and these go directly to the office of the State Council; the other is that CCAP’s senior staff are asked directly to send policy briefs to the national policy makers. When policy briefs arrive at either of these two places, there are three actions taken: one, no action is taken; two, it is put on the reading list of the Premier and Vice-Premier and their staffs and they indirectly may become reflected in policy; three, action is taken and directives are sent to the various ministries and commission to begin to take action or incorporate the information into future policies. We are very proud to report that out of the 23 briefing documents that CCAP sent to these two bodies since 2004, 21 of them went on the reading lists of China’s top leaders and action was taken on 16 of them. Because of its effectiveness, CCAP is increasingly being asked for increased information on trade policy related issues addressed in the current research project. We propose to use these channels to disseminate the findings of the proposed research project. This will ensure that our message gets to the very top leaders of China and increases the probability that good, science-based research becomes a basis of future policy action.

Second, policy makers, advisors, and other stakeholders worldwide will be reached through policy briefs, workshops and conferences, and stakeholder platforms. Use will be made of available tools, expertise and contacts at IFPRI’s Communication Division (CD) and of stakeholder platforms established by IFPRI’s Development Strategies and Governance Division (DSGD) in several developing countries. A unique opportunity in this respect will be the international conference on poverty and food security that IFPRI will organize in Beijing in late 2007. The conference is a follow-up to two international conferences on achieving food security in 2020 held in Bonn, Germany in 2001 and in Kampala, Uganda in 2004. A major objective of the Beijing conference is to examine the lessons that can be learned from (policy) experiences across countries, including from China’s success in significantly reducing rural poverty, and how South-South linkages between Asia, Africa, and Latin America can be exploited. The conference will be used for communicating preliminary project results, discussing their policy implications for other developing countries, and for obtaining feedback from stakeholders inside and outside China.
Third, regarding international organizations other than IFPRI and IIASA themselves, through SOW and LEI findings will be communicated through existing contacts to the Directorate Agriculture of OECD, which is specially interested in trade aspects, and via IIASA and SOW to FAO, a longstanding partner of both, which would particularly be interested in the trade and environmental aspects of the project.

Fourth, involvement of the EU will be secured not only through the regular reporting as specified by the procedures of the STREP but also, via LEI, through communications within the network of European Agricultural Economics Research Institutes, through direct communications with the Directorate Agriculture of the Commission, for which SOW and LEI work on regular occasions in connection with reforms of the Common Agricultural Policy. To emphasize the importance of trading relations between China and the EU, a mid-term policy scenario will be held in Brussels, to show the progress of the project, and present first findings from the comparison studies. Furthermore, also via SOW and LEI dissemination will be done to the Netherlands Ministry of Agriculture, Nature Management and Food Safety, and of Foreign Affairs, major sponsors of LEI and SOW, respectively, with direct contacts throughout the ranks and reaching up to cabinet level.

Finally, we propose to create a project website for the dissemination of findings during and after the project. The use of web-technology will increase the speed and spread of our findings. This is discussed more below.

**Abstract WP6, Policy Dialogue and Dissemination Plan**

While the heart of the proposal is on our research effort (defined in WP’s 1 to 5) – to understand and define systematically the issues regarding EU-China agricultural trade and impact of trade liberalization and policy change; collect high quality data; create a modeling/methodological framework for the analysis; produce a set of believable and insightful results – the payoff of the project will only be realized in full if the findings and the approach in generating the findings are disseminated widely and to the appropriate persons and organizations. The overall goal of WP6 is to ensure on the one hand that the project receives sufficient input from policy makers in China and the EU to orient the policies considered in the study, and on the other hand that the results of the project are put into a format and into words for the target audiences in the scientific as well as in the policy domain. The format for reaching scientific audiences is clear: presentations at conferences, publications, and nowadays also accessible websites are the available channels. Reaching policy makers is more or less straightforward, especially for a team that is determined to maintain its scientific independence, and remain more a group of policy analysts than of policy advisors. To meet this goal we have three specific objectives: (a) create a “feeling” of stakeholding from policy makers and policy advisors in China and the EU; (b) produce a set of rigorous research results that can push forward the academic frontiers and make them accessible to policy makers; (c) educate other scholars through publication of journal articles, books, and a website. To meet the overall goal and specific objective, we plan to hold high-level meetings with key policy makers and policy advisors in China and the EU during several phases of the project. We will meet with these key project affiliates in the initial and intermediate phases of the project as well as during a final conference. We will have an ongoing project website that will be publicly accessible – during and after the project. At the end of the project, we publish a number of papers and will put together the papers into an accessible and readable project-supported volume of all of the work.
Work package number 7  
Work package title: Coordination

Background

As mentioned in the call, over and above the technical management of individual work packages, an appropriate management framework linking together all the project components and maintaining communications with the Commission will be needed.

The major elements were already indicated in B.5, that described the management structure. Regarding the coordinator, SOW, the coordinator has over 30 years experience with management of international projects, and also sufficiently skilled administrative staff for that purpose, and the coordinating person has similarly long experience in scientific leadership of such projects. The fact that SOW has been approached by its partners in the present project to take the lead in this proposal should be sufficient guarantee for an adequate reputation.

- coordination of the technical activities of the project;
- the overall legal, contractual, ethical, financial and administrative management;
- coordination of knowledge management;
- overseeing the promotion of gender equality in the project;
- overseeing science and society issues related to the research activities conducted within the project;
- obtaining audit certificates by each of the participants;
- maintenance of any consortium agreement;
- obtaining any financial security such as bank guarantees when requested by the Commission.

B.6.3 Risks

Innovative research always has risks. We mention the major risks for each work package.

WP1: Poor updates. The Chinagro-model is available and functions well. Hence, the only risks are that the updating of the scenarios could be inadequate or delayed. This is to be dealt with through appropriate quality control and monitoring.

WP2: Problems with linkage. The major difficulty is the linkage between models that were developed by different groups, obey different classifications and have been validated in different ways. However, two assets can be mobilized in this connection. One is that the staff operating these models has worked together before and is well aware of the properties of the model to be connected to. The other is that in the unlikely case that insurmountable difficulties emerge, less tight (essentially scenario-based) coupling methods can be invoked.

WP3: Problems in data collection. The statistical component of the household survey work and its linkage to the Chinagro-model is not very risky because it relies on techniques and software that, though recently developed, have already been tested in other projects. Indeed, the success of the approach proposed for WP3, of combining household information with information by district as well as geographic information on the grid critically depends on obtaining data with adequate spatial coverage of the sample as well as adequate geo-referencing. It will not be possible to obtain sufficient household
information from own surveys only. Hence, it will be needed not only to gain access to data already collected but also to obtain permission to obtain these in a sufficiently geo-referenced form. If this fails the project can proceed in a less geo-referenced mode of analysis but the results of WP3 will be far less interesting.

**WP4: Weak linkage AEZ-Chinagro; poor agro-ecological measurements.** The linkage of the AEZ-components with Chinagro needs to be realized. The difficulties and the ways to cope with these are similar to what was mentioned under WP2. Furthermore, the household analysis of WP3 also requires conducting agro-ecological measurements at the farms of the household survey. Though the staff involved in household surveys, often graduate students, may not have much experience in this domain, the team is confident that sufficient training can be provided.

**WP5: Lacking inputs for synthesis.** The synthesis depends on the inputs it will receive from the other work packages. Failure in any of these packages does not stop the operation but makes the outcomes less useful. The overall coordination (WP7) will mainly be oriented to prevent this from happening.

**WP6: Political problems.** It might happen that in the course of the project the EU-China relations become strained by some event or some dispute, say, over trade policies. This could make the holding of joint seminars attended by high officials from both sides more difficult. Otherwise, the team’s cohesion and its dedication to scientific endeavor would seem to offer sufficient guarantee that the research itself and the dissemination of research findings can proceed without any serious perturbation.

**WP7: Management of consortium.** The consortium is relatively large, the number of tasks diverse and the project resources made available for coordination by the regulations of the Call rather modest, hence the management of the consortium is not without risk. That the consortium remains confident about its ability to deliver, nonetheless, can be attributed to the fact that (i) participants, rather than the coordinator only, are responsible for the coordination of work packages; (ii) many of the modeling tools are available and currently used, as opposed to being available in a pilot version only or to having last been used several years ago; (iii) many of the team members are experienced researchers who have successfully worked together before and find the proposal quite interesting.
### B.6.4 Work planning in Gantt chart and Pert diagram

#### Gantt chart of activities by work package

| Month | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |
|-------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| WP1   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| WP2   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| WP3   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| WP4   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| WP5   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| WP6   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| WP7   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
Pert diagram of connections between work packages
## B.6.5 Detailed work description

### Work package list

<table>
<thead>
<tr>
<th>Work-package</th>
<th>Work package title</th>
<th>Lead contractor</th>
<th>Person-months</th>
<th>Start month</th>
<th>End month</th>
<th>Deliverable</th>
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<tbody>
<tr>
<td>WP1</td>
<td>Current situation and prospects on China’s agricultural economy</td>
<td>CCAP</td>
<td>25.8</td>
<td>Month 0</td>
<td>Month 12</td>
<td>D1-D8</td>
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<tr>
<td>WP2</td>
<td>Trade: China and EU commitments under WTO and their effects on EU, China and others</td>
<td>LEI</td>
<td>46.1</td>
<td>Month 0</td>
<td>Month 32</td>
<td>D9-D13</td>
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<tr>
<td>WP3</td>
<td>Social conditions: impacts of trade, agricultural policy and secular changes on rural China</td>
<td>IFPRI</td>
<td>98.7</td>
<td>Month 0</td>
<td>Month 32</td>
<td>D14-D18</td>
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<tr>
<td>WP4</td>
<td>Environment: Impact of China’s agricultural development on environment</td>
<td>IIASA</td>
<td>28.3</td>
<td>Month 0</td>
<td>Month 32</td>
<td>D19-D23</td>
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<td>WP5</td>
<td>Synthesis of results</td>
<td>SOW</td>
<td>40.8</td>
<td>Month 28</td>
<td>Month 36</td>
<td>D24-D26</td>
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<tr>
<td>WP6</td>
<td>Policy dialogue and dissemination of results</td>
<td>CCAP</td>
<td>24.8</td>
<td>Month 0</td>
<td>Month 36</td>
<td>D27-D40</td>
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<td>WP7</td>
<td>Consortium management</td>
<td>SOW</td>
<td>3</td>
<td>Month 0</td>
<td>Month 36</td>
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<td>TOTAL</td>
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<td>267.5</td>
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# Deliverables list (full duration of project)

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<tbody>
<tr>
<td>D1</td>
<td>GAMS-senario files specifying the time path of every driver</td>
<td>Month 9</td>
<td>R</td>
<td>PU</td>
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<tr>
<td>D2</td>
<td>Working papers on: Economic growth (outside of agriculture)</td>
<td>Month 14</td>
<td>R</td>
<td>PU</td>
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<tr>
<td>D3</td>
<td>Working papers on: Demography and migration</td>
<td>Month 14</td>
<td>R</td>
<td>PU</td>
</tr>
<tr>
<td>D4</td>
<td>Working papers on: Institutional setting and domestic policy changes</td>
<td>Month 14</td>
<td>R</td>
<td>PU</td>
</tr>
<tr>
<td>D5</td>
<td>Working papers on: Technological progress</td>
<td>Month 14</td>
<td>R</td>
<td>PU</td>
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<tr>
<td>D6</td>
<td>Working papers on: State of the environment, including water and land resources</td>
<td>Month 14</td>
<td>R</td>
<td>PU</td>
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<tr>
<td>D7</td>
<td>Working papers on: Opening up to trade (WTO and bilateral agreements with EU and others)</td>
<td>Month 14</td>
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<tr>
<td>D8</td>
<td>A new baseline run from the Chinagro model</td>
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<tr>
<td>D9</td>
<td>A trade database, and a report indicating how it deviates from the OECD-version.</td>
<td>Month 12</td>
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<tr>
<td>D10</td>
<td>A linked system of models and a report describing (a)-(d) of this process</td>
<td>Month 24</td>
<td>R</td>
<td>PU</td>
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<tr>
<td>D11</td>
<td>A report with result from simulations with the linked system</td>
<td>Month 28</td>
<td>R</td>
<td>PU</td>
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<tr>
<td>D12</td>
<td>A report comparing the policies of China and the EU</td>
<td>Month 32</td>
<td>R</td>
<td>PU</td>
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<tr>
<td>D13</td>
<td>A report with commodity specific assessments</td>
<td>Month 32</td>
<td>R</td>
<td>PU</td>
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<tr>
<td>D14</td>
<td>Report describing the distribution of household features, by province, for each.</td>
<td>Month 18</td>
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<td>PU</td>
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<tr>
<td>D15</td>
<td>Report describing the distribution of village features, by province, for each.</td>
<td>Month 18</td>
<td>R</td>
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<tr>
<td>D16</td>
<td>Report on results from household-level regression and prediction</td>
<td>Month 26</td>
<td>R</td>
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<tr>
<td>D17</td>
<td>Report on safety nets</td>
<td>Month 32</td>
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<tr>
<td>D18</td>
<td>Input file for Chinagro-simulations under WP5</td>
<td>Month 32</td>
<td>R</td>
<td>PU</td>
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<tr>
<td>D19</td>
<td>Report on water scarcity</td>
<td>Month 32</td>
<td>R</td>
<td>PU</td>
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<tr>
<td>D20</td>
<td>Report on environmental pressure from pollution</td>
<td>Month 32</td>
<td>R</td>
<td>PU</td>
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<td>D21</td>
<td>Report on effects of climate change</td>
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<td>PU</td>
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<td>Input file for household level simulation in WP3</td>
<td>Month 20</td>
<td>R</td>
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<tr>
<td>D23</td>
<td>Input file for Chinagro-simulations under WP5</td>
<td>Month 32</td>
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<td>PU</td>
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<tr>
<td>D24</td>
<td>Report on prospects for China’s agricultural economy and its role on world markets</td>
<td>Month 28</td>
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<tr>
<td>D25</td>
<td>Report on prospects for trade and co-operation of China with the EU in the field of agriculture</td>
<td>Month 34</td>
<td>R</td>
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</tbody>
</table>


[^4] Dissemination level using one of the following codes:

- **PU** = Public
- **PP** = Restricted to other programme participants (including the Commission Services).
- **RE** = Restricted to a group specified by the consortium (including the Commission Services).
- **CO** = Confidential, only for members of the consortium (including the Commission Services).
<table>
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<tr>
<th>D26</th>
<th>Report on social and environmental sustainability of rural China</th>
<th>Month 36</th>
<th>R</th>
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<tbody>
<tr>
<td>D27</td>
<td>Project inception workshop</td>
<td>Month 1</td>
<td>O</td>
<td>PU</td>
</tr>
<tr>
<td>D28</td>
<td>Policy interviews in Beijing</td>
<td>Month 7</td>
<td>O</td>
<td>PU</td>
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<tr>
<td>D29</td>
<td>Policy interviews in EU</td>
<td>Month 7</td>
<td>O</td>
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<td>D30</td>
<td>Policy dialogue workshop in Beijing – prospects of China’s policy</td>
<td>Month 9</td>
<td>O</td>
<td>PU</td>
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<tr>
<td>D31</td>
<td>Policy dialogue workshop in EU – prospects of EU’s policy</td>
<td>Month 9</td>
<td>O</td>
<td>PU</td>
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<tr>
<td>D32</td>
<td>Prospect of China’ macro and agricultural policies</td>
<td>Month 12</td>
<td>R</td>
<td>PU</td>
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<tr>
<td>D33</td>
<td>Prospect of EU’ macro and agricultural policies</td>
<td>Month 12</td>
<td>R</td>
<td>PU</td>
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<tr>
<td>D34</td>
<td>Mid-term policy evaluation seminar</td>
<td>Month 24</td>
<td>O</td>
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<tr>
<td>D35</td>
<td>Final project policy forum (held in Beijing)</td>
<td>Month 36</td>
<td>O</td>
<td>PU</td>
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<tr>
<td>D36</td>
<td>Policy briefs to EU commission</td>
<td>Month 35</td>
<td>R</td>
<td>PU</td>
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<tr>
<td>D37</td>
<td>Project report to EU commission</td>
<td>Month 36</td>
<td>R</td>
<td>PU</td>
</tr>
<tr>
<td>D38</td>
<td>Policy briefs to Chinese government</td>
<td>Month 35</td>
<td>R</td>
<td>PU</td>
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<tr>
<td>D39</td>
<td>Project report to Chinese government</td>
<td>Month 36</td>
<td>R</td>
<td>PU</td>
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<tr>
<td>D40</td>
<td>Publications in journals</td>
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<td>R</td>
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### Work package description

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<th>Work package number</th>
<th>WP1</th>
<th>Start date or starting event:</th>
<th>Month 0</th>
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<tr>
<td><strong>Work package title: Current state and prospects</strong></td>
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<tr>
<td>Participant ID</td>
<td>SOW</td>
<td>CCAP</td>
<td>IIASA</td>
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<tr>
<td>Person-months per participant:</td>
<td>3.7</td>
<td>11.5</td>
<td>4.3</td>
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</tbody>
</table>

**Objectives**

The aim of the work package is to provide the basic reference on China’s agricultural economy, through an updated database with a description of drivers as well as an adjusted reference run of the Chinagro-model.

**Description of work**

The updating requires revisiting the basic data sources used, studying new policy documents and producing data files in the appropriate commodity classification, by province to generate a new reference run.

**Deliverables**

1. GAMS-scenario files specifying the time path of every driver
2. Working papers on
   a. Economic growth (outside of agriculture)
   b. Demography and migration
   c. Institutional setting and domestic policy changes
   d. Technological progress
   e. State of the environment, including water and land resources
   f. Opening up to trade (WTO and bilateral agreements with EU and others)
3. A new baseline run from the Chinagro model

**Milestones and expected result**

1. Month 9
2. Month 14
3. Month 12
Work package number | WP2 | Start date or starting event: | Month 0
--- | --- | --- | ---
Work package title: Trade

Participant ID | SOW | CCAP | IIASA | SOAS | LEI | IFPRI | Total
--- | --- | --- | --- | --- | --- | --- | ---
Person-months per participant: | 14.8 | 15.3 | 0 | 3.8 | 12.3 | 0 | 46.1

Objectives

The aim of this work package is to highlight the role of China in the world trade of agricultural commodities, with special reference to its impact on developing countries and to the relations between EU and China.

Description of work

1. Establishing appropriate commodity mappings to accommodate the differences in classification between Chinagro, GTAP and FEA-27;
2. Ensuring that all models runs over the same time-period under consistent scenarios, say, with respect to climate change and WTO-agreements;
3. Replacing the EU and China-models in GTAP by exogenous net imports for each.
4. Designing an efficient and reliable algorithm to bring about equilibrium between the three models.

Deliverables

1. A trade database, and a report indicating how it deviates from the OECD-version.
2. A linked system of models and a report describing (a)-(d) of this process
3. A report with result from simulations with the linked system
4a. A report comparing the policies of China and the EU
4b. A report with commodity-specific assessments

Milestones and expected result

1. Month 12
2. Month 24
3. Month 28
4a. Month 32
4b. Month 32
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<th>Work package number</th>
<th>WP3</th>
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<tr>
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<td>CCAP</td>
<td>IIASA</td>
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<tr>
<td>Person-months per participant</td>
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<td>65.3</td>
<td>2.9</td>
</tr>
</tbody>
</table>

**Objectives**

This work package aims to highlight the individual households' effect of changes in agricultural drivers and in agricultural policy regimes nationally as well as locally, and to find out how which combinations of safety net structures and other policies could help reducing vulnerability of the poor.

**Description of work**

The work consists of the compilation of an adequate household, village, and district (county or province) level database, followed by the estimation of household level response functions that take household conditions, as well as village and district information, by relying on an adaptation of existing poverty-mapping methodology. The regression functions will be used for predicting, by geographic unit, the distributed effect of policy changes, and to design safety net arrangements.

1. Obtain household data. (i). NBS-data, (ii). own collected data, and write a report describing the distribution of features, by province, for each.
2. Compile database on district information: (i). factor markets, (ii). local governance and write a report describing the distribution of district features, by province, for each.
3. Distributed estimation and prediction: (i). conduct estimation, and report on results; (ii) perform distributed predictions on the basis of Chinagro-simulation, and report.

**Deliverables**

1. Report describing the distribution of household features, by province, for each.
2. Report describing the distribution of village features, by province, for each.
3. Report on results from household-level regression and prediction
4. Report on safety nets
5. Input file for Chinagro-simulations under WP5

**Milestones and expected result**

1. Month 18
2. Month 18
3. Month 26
4. Month 32
5. Month 32
**Work package number** | WP4 | **Start date or starting event:** | Month 0
---|---|---|---
**Work package title: Environment**

<table>
<thead>
<tr>
<th>Participant ID</th>
<th>SOW</th>
<th>CCAP</th>
<th>IIASA</th>
<th>SOAS</th>
<th>LEI</th>
<th>IFPRI</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person-months per participant:</td>
<td>1.9</td>
<td>7.7</td>
<td>17.1</td>
<td>0</td>
<td>0</td>
<td>1.7</td>
<td>28.3</td>
</tr>
</tbody>
</table>

**Objectives**
The aim is to monitor likely water scarcity and environmental pressure, as emanating from China’s transition and from climate change.

**Description of work**
1. On the basis of county and regional level information from Chinagro-model, apply downscaling to obtain estimates of water demand for agriculture at a lower scale and confront this with availability to arrive at estimates of water scarcity and suggestions for policy changes, using AEZ-methodology.
2. Similarly, for environmental pressure from pollution.
3. Assess likely implications of climate change, in particular on water scarcity, using AEZ-methodology and the CHARM-water model.
4. Provide necessary input on environmental conditions to the household analysis in WP3.
5. Consolidate the outcomes to provide inputs for the synthesis in WP5.

**Deliverables**
2. Report on environmental pressure from pollution.
4. Input file for household level simulations in WP3.
5. Input file for Chinagro-simulations under WP5.

**Milestones and expected result**
1. Month 32
2. Month 32
3. Month 32
4. Month 20
5. Month 32
Objectives
The aim is to arrive at an integrated assessment of the efficiency, equity and sustainability issues under study, with particular reference to the relationships of China with the EU, developing countries, and the rest of the world.

Description of work
1. Write background notes independently from the model simulations, in consultation with policymakers.
2. Use the inputs from WP2, WP3 and WP4 to define a unified scenario.
3. Write issue oriented-reports that account for 1. and 2.

Deliverables
1. Report on prospects for China’s agricultural economy and its role on world markets
2. Report on prospects for trade and co-operation of China with the EU in the field of agriculture
3. Report on social and environmental sustainability of rural China

Milestones and expected result
1. Month 28: draft background notes
2. Month 34: simulations
3. Month 36: Final report
Objectives

The overall goal of WP 6 is to create a plan for ensuring that we gain insights of future policy prospects and the results of the project are put into a format and into words for the target audiences. To meet this goal we have three specific objectives for this part of the project: (a) from the very start of the project (and at various phases) solicit the input of key policy makers and policy analysts so they can help focus the work onto issues in which they are interested in order to make them a stakeholder in the project; (b) produce a set of results and put them into a format that can allow key policy makers to understand what are the important issues facing China and EU in their bilateral and multilateral agricultural commodity trade relations, including the current areas of success; the places in which mutual gains are possible; constraints that are keeping these from being realized; potential points for conflict and the distributional and environmental impacts of different scenarios; (c) educate other scholars – inside China; inside the EU; and in the rest of world about the issues involved with and the potential impacts of agricultural trade policy shifts in China, the EU and between the China and the EU. The discussions and papers will be a mix of reports/briefs that will be published in academic journals and a set that will be written in lay terms that, while not trying to oversimplify the issues and challenges, do attempt to put them in words that can let non-economists understand the nature of the problems, the trade-offs of different policy options, an accounting of cost and benefits – broadly defined to include environmental and poverty issues – and finally, a menu of policy alternatives with a summary of the distributional and environmental effects.

Description of work

To meet the overall goal and specific objective, we plan to hold high-level meetings with key policy makers and policy advisors in China as well as in international organizations (such as OECD and WB) and the EU, during several phases of the project.

In China, these include (a) the head of China’s agricultural WTO office; (b) the head of the agricultural trade program in the Development Research Council (the State Council Main advisory board); (c) the head of the Ministry of Agriculture’s main policy advisory research center; (d) the vice-minister of National Development and Reform Commission in charge of agriculture and his staff; (e) the main agricultural policy advisors; and others in the ministries, bureaus and agencies that will be affected by trade policy changes. We will meet with these key project affiliates in the initial and intermediate phases of the project through formal and informal consultative dialogue forums, workshops and at the end of the project there will be a major conference. We will write policy briefs that will be targeted at China’s policy making bodies—the State Council; the Ministry of Commerce and Foreign Trade; the Ministry of Agriculture; State Environmental Protection Agency; Ministry of Water Resources; National Forestry Agencies, and the National Poverty Alleviation Office. At international organizations, in addition to the obvious contacts within IFPRI and IIASA, we will meet with the Director Agriculture at OECD, the Deputy-Director General at FAO and within the EU meetings will be held with the various groups mentioned earlier, in the beginning of the project to sound out their views, and towards the end to report findings.
We will have an ongoing project website that will be publicly accessible and will contain: a
description of the project; our progress; drafts of policy briefs; working papers. We will also be
writing a series of academic papers that will be publishable quality in some of the world’s top
academic journals. At the end of the project, we will put together the papers into a project-
supported volume of all of our work in an attempt to summarize and reap the synergies of
having such a strong research team work on such a focused set of topics.

### Deliverables

- Project inception workshop in Amsterdam
- Policy interviews in Beijing
- Policy interviews in EU
- Policy dialogue workshop in Beijing – prospects of China’s policy
- Policy dialogue workshop in EU – prospects of EU’s policy
- Prospect of China’ macro and agricultural policies and first findings
- Prospect of EU’ macro and agricultural policies and first findings
- Mid-term international policy evaluation seminar (held in Brussels)
- Final project policy forum (held in Beijing)
- Policy briefs to EU commission
- Project report to EU commission
- Policy briefs to Chinese government
- Project report to Chinese government
- Publications in journals

### Milestones and expected result

- **Month 1:** Inception workshop
- **Month 7:** Policy interviews in Beijing; Policy interviews in EU
- **Month 9:** Policy dialogue workshops– prospects of China’s policy and prospects of EU’s policy
- **Month 24:** Mid-term international policy evaluation seminar (held in Brussels)
- **Month 36:** Final project policy forum (held in Beijing)
Objectives

To create an environment that is conducive for the effective and successful execution of the project.

Description of work

The final work package (WP7) concerns the management and coordination of the project. The management of CATSEI will be based upon good partnership in accordance with the EU-China bilateral agreements. The project will have a Management Committee consisting of the six team leaders responsible for all activities and deliverables of the respective partners. The Management Committee will meet at each of annual workshops and the Coordinator will chair these meetings. The agenda of the Management Committee meetings will be prepared by the leaders of the respective work packages in consultation with members of the Management Committee, the Coordinator in particular. The meetings will be used to take stock of the progress of the various work packages and all major management decisions will be taken during these meetings. The management and coordination of CATSEI will focus on the creation of a motivating research environment. It will conclude with an international conference that presents the findings to a broad audience of stakeholders in EU-China trade and agricultural relations.

Deliverables

Communications with the European Commission, inclusive of audit reports

Milestones and expected result
B.7 Other issues

B.7.1 Ethical issues checklist

<table>
<thead>
<tr>
<th>Does your proposed research raise sensitive ethical questions related to:</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human beings</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Human biological samples</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Personal data (whether identified by name or not)</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Genetic information</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Animals</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Confirmation that the proposed research involves none of the issues listed below</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research activity aimed at human cloning for reproductive purposes.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Research activity intended to modify the genetic heritage of human beings which could make such changes heritable</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Research activity intended to create human embryos solely for the purpose of research or for the purpose of stem cell procurement, including by means of somatic cell nuclear transfer.</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

B.7.2 Gender issues
There are no gender issues explicitly mentioned in the proposal but two points may be mentioned here. First, the research itself under WP3, impact on the social fabric, will consider the impact of the transition on the activities and workload of rural women. Second, the participants are committed to offering fair opportunities to research staff, irrespective of gender; the staff composition illustrates this.

B.7.3 Policy issues
Obviously, given the subject of the proposal, there are many EC-policy issues embedded within this project. The policy dialogue and dissemination component shows ample readiness to help spread awareness and knowledge. The societal implications are explored in the work packages
themselves. The access to policy makers has also been substantiated in the proposal itself. Most of the participants have regular outreach programs as part and parcel of their regular activities, CCAP and IFPRI in particular. Finally, all are engaged in teaching in graduate and post-graduate programs, some on a regular basis, others occasionally.