

For a joint Sino-Dutch research project on '*Sustainable Natural Resource Management for Adequate and Safe Food Provision*', Wageningen University (The Netherlands), Nanjing Agricultural University, Tsinghua University, Beijing, China Agricultural University, Beijing and Hebei Academy of Sciences, Shijiazhuang are looking for

8 PhD researchers and 4 POSTDOC researchers

The aim of the project is to form a strategic scientific alliance that carries out interdisciplinary research on the land, water and food nexus in China, to formulate coherent recommendations for adequate and safe food provision based on sustainable resource management, and to develop innovative methodologies that can be applied for examining similar problems in other parts of the world. The project builds on existing long-term relationships of the participating partner institutes. A major expected output of the alliance is the creation of a Virtual Centre of Excellence of international reputation which will further the cooperation between social and natural scientists and other stakeholders in the governance of natural resources and environmental management of food systems in China and elsewhere in the world.

Funding for the project is provided by the Royal Netherland Academy of Arts and Sciences (KNAW) and the Ministry of Science and Technology (MOST) in China. Four PhD researchers and two postdoc researchers will be based at Wageningen University, The Netherlands, while another four PhD researchers and two postdoc researchers will be based at one of the participating institutes in China. The project consists of six different sub-projects, and currently has the following vacancies.

1. Sub-project on '*Farm scale enlargement, efficiency gains and environmental spill-overs*'

The Development Economics Group at Wageningen University and the College of Land Management, Nanjing Agricultural University, P.R. China are searching

A PhD Researcher

For the sub-project on '*Farm scale enlargement, efficiency gains and environmental spill-overs*'. Funding is provided by the Royal Netherlands Academy of Arts and Sciences (KNAW).

The development of so-called "family farms", which engage most members of a family in agricultural production and makes farming their main source of income, has become a major goal of Chinese agricultural policy. Prevailing empirical literature on farm size and productivity in Asian countries provides convincing evidence of the superior efficiency of small-scale, family-operated farms. With increasing wage rates, however, the production efficiency of small, labour-intensive farms is expected to decline relative to large-scale, machine-intensive farms. This raises the question whether, and for how long, family farms will be the optimum farm size. Moreover, if efficiency is highest on family-operated farms, does it also imply that environmental spill-overs resulting from the use of agrochemicals is lowest at such farms? Little is known about the impact of farm size on agrochemicals use and environmental spillovers in Chinese agriculture.

The objective of this sub-project is to provide more insights into the driving factors of scale enlargement in arable farming in China and the effect of scale enlargement on efficiency and environmental spillovers. To this end, state-of-the-art econometric methods will be applied to household panel data collected among small-scale, family and large-scale Chinese farms in different regions (Jiangxi, Gansu, Jiangsu, Liaoning) and to results of experimental (trust) field games.

Candidates are expected to complete a PhD dissertation within four years.

We ask

- MSc degree or equivalent in economics
- Preferred mother tongue: Mandarin Chinese
- Fluency in written and spoken English
- Strong econometric skills
- Strong scientific writing skills
- Proven affinity with rural development issues in China
- Motivated to work in a team
- Preferably: Experience with experimental (trust) field games

The project will start on July 1st, 2017 for a period of 4 years. The PhD researcher is based in The Netherlands.

We offer a full-time position (38 hours), initially for 18 months after which a go/no go decision will be taken on extension with another 30 months. Gross salary per month € 2042, -- in the first year rising to € 2612, -- per month in the fourth year, for a full-time appointment. Hay-profile: Promovendus.

The PhD will be offered a course program, which can be tailored to the desires of the candidate and the research team.

For more information on the research contact: Dr. Nico Heerink (nico.heerink@wur.nl)

The College of Land Management, Nanjing Agricultural University, P.R. China and the Development Economics Group at Wageningen University, The Netherlands are searching

A PhD Researcher

For the sub-project on ‘*Farm scale enlargement, efficiency gains and environmental spillovers*’. Funding is provided by the Chinese Ministry of Science and Technology (MOST).

The PhD will be based at the College of Land Management, Nanjing Agricultural University (China) and work closely together with the PhD researcher based in Wageningen, The Netherlands. Activities and requirements are similar to those of the PhD researcher based in Wageningen who will work on the same sub-project (see above).

Further information can be obtained from Prof. Xiaoping Shi (Nanjing Agricultural University), serena2@njau.edu.cn.

2. Sub-project on '*Modelling water pollution and water use in agriculture*'

The Water Systems and Global Change Group at Wageningen University and the Institute of Genetic and Developmental Biology, Chinese Academy of Sciences in Shijiazhuang, P.R. China are searching

A PhD Researcher

For the sub-project on '*Modelling water pollution and water use in agriculture*'. Funding is provided by the Royal Netherlands Academy of Arts and Sciences (KNAW).

Low nutrient use efficiency in agricultural production is a major cause of water pollution in large parts of China. Nutrient losses to the environment lead to aquatic eutrophication and harmful algal blooms that may be toxic and cause problems for ecosystems. Pesticides use poses another threat to the environment and may affect the suitability of water as a resource for irrigation, aquaculture and drinking water. These water pollution problems are expected to intensify in the future when demands for food and for clean water, for human consumption, irrigation and industry, increase.

This sub-project will pay detailed attention to the interactions between agricultural production as a source of water pollution and water as a resource for agricultural production. The main objective is to contribute to securing future agricultural production while maintaining the availability and quality of water in China. A Chinese version of the Global NEWS (Nutrient Export from Water Sheds) model for nitrogen (N), phosphorus (P) will be used as a starting point and modified to include pesticides and removal of water for human consumption and irrigation. This model will be linked to the NUFER model calculating nutrient use efficiencies in agricultural production to calculate nutrient losses from agricultural production for scenarios reflecting (1) current trends and (2) more sustainable agricultural production. The effects of 'double high' agriculture and policies aimed at reducing synthetic fertilizer and pesticides will be analysed, as well as the effects of increased recycling of animal manure. Sustainable pathways will be identified to illustrate how agricultural production could develop without increasing pollution levels, while ensuring sufficient clean water for human consumption and irrigation.

Candidates are expected to complete a PhD dissertation within four years.

We ask

- MSc degree or equivalent in environmental sciences
- Preferred mother tongue: Mandarin Chinese
- Fluency in written and spoken English
- Strong quantitative skills
- Strong scientific writing skills
- Proven affinity with rural development issues in China
- Experience with modelling of nutrient flows in agriculture, and nutrient flows from land to sea
- Motivated to work in a team

The project will start on July 1st, 2017 for a period of 4 years. The PhD researcher is based in The Netherlands.

We offer a full-time position (38 hours), initially for 18 months after which a go/no go decision will be taken on extension with another 30 months. Gross salary per month € 2042, -- in the first year rising to € 2612, -- per month in the fourth year, for a full-time appointment. Hay-profile: Promovendus.

The PhD will be offered a course program, which can be tailored to the desires of the candidate and the research team.

For more information on the research contact: Prof. & Dr. Carolien Kroeze (carolien.kroeze@wur.nl)

The Institute of Genetic and Developmental Biology, Chinese Academy of Sciences in Shijiazhuang, P.R. China and the Water Systems and Global Change Group at Wageningen University, The Netherlands are searching

A PhD Researcher

For the sub-project on '*Modelling water pollution and water use in agriculture*'. Funding is provided by the Chinese Ministry of Science and Technology (MOST).

The PhD will be based at the Institute of Genetic and Developmental Biology, Chinese Academy of Sciences in Shijiazhuang (China) and work closely together with the PhD researcher based in Wageningen, The Netherlands. Activities and requirements are similar to those of the PhD researcher based in Wageningen who will work on the same sub-project (see above).

Further information can be obtained from Prof. Zhaohai Bai (Chinese Academy of Sciences in Shijiazhuang), baizh1986@126.com.

3. Sub-project on *'Manure management for diminishing environmental pollution and improving soil quality'*

The Department of Soil Quality of Wageningen University and the College of Resources and Environmental Sciences, China Agricultural University, Beijing are searching

A PhD Researcher

For the sub-project on *'Manure management for diminishing environmental pollution and improving soil quality'*. Funding is provided by the Royal Netherlands Academy of Arts and Sciences (KNAW).

The livestock sector in China is rapidly increasing and dominated by agglomerations of large specialized farms for cows, pigs and other animals. These 'industrialized' animal farms are efficient in terms of the conversion of feed to milk, meat and eggs, but have poor manure management. As a consequence, these farms have become major sources of pollution. The poor manure management is thought to be related to a lack of (i) proper regulations and enforcement, (ii) suitable technology, (iii) a functioning market and distribution system for manure, and (iv) to lack of information about the fertilizer effectiveness value of animal manures. The PhD researcher will examine these factors to further increase the understanding of bottlenecks and possible options for improved manure management and their impacts.

Research methods include farm surveys and field experiments in about 10 Science & Technology Backyard villages across China, experimentation with novel spectrometric techniques, statistical analyses and modelling. The candidate is expected to cooperate in a group of about 10 PhD students, working on related topics.

Candidates are expected to complete a PhD dissertation at Wageningen University within four years. They are expected to work 1.5-2.5 years in China during this period.

We require

- MSc degree in agriculture / biology / resources use
- Mother tongue: Mandarin Chinese
- Fluency in written and spoken English (TOEFL internet-based 90 with minimum 23 for speaking, or IELTS (academic version) 6.5, with minimum 6.0 for speaking).
- Strong quantitative skills
- Strong scientific writing skills
- Proven affinity with rural development issues in China
- Preferably, experience with carrying out rural household surveys and/or using experimental methods
- Motivated to work in a team

The project will start on July 1st, 2017 for a period of 4 years. The PhD researcher is based in The Netherlands.

We offer a full-time position (38 hours), initially for 18 months after which a go/no go decision will be taken on extension with another 30 months. Gross salary per month € 2042, -- in the first year rising to € 2612, -- per month in the fourth year, for a full-time appointment.

The PhD will be offered a course program, which can be tailored to the desires of the candidate and the research team.

For more information on the research contact: Prof. & Dr. Oene Oenema,
oene.oenema@wur.nl

The College of Resources and Environmental Sciences, China Agricultural University, Beijing, P.R. China and the Department of Soil Quality of Wageningen University at Wageningen University, The Netherlands are searching

A PhD Researcher

For the sub-project on ‘*Manure management for diminishing environmental pollution and improving soil quality*’. Funding is provided by the Chinese Ministry of Science and Technology (MOST).

The PhD will be based at the College of Resources and Environmental Sciences, China Agricultural University, Beijing (China) and work closely together with the PhD researcher based in Wageningen, The Netherlands. Activities and requirements are similar to those of the PhD researcher based in Wageningen who will work on the same sub-project (see above).

Further information can be obtained from Prof. Fusuo Zhang (China Agricultural University),
zhangfs@cau.edu.cn.

4. Sub-project '*Designing effective institutional frameworks for supplying sufficient and safe food to all consumers*'

The Environmental Policy Group at Wageningen University and the School of Environment, Division of Environmental System Analysis, Tsinghua University in Beijing are searching

A PhD Researcher

For the sub-project on '*Designing effective institutional frameworks for supplying sufficient and safe food to all consumers*'. Funding is provided by the Royal Netherlands Academy of Arts and Sciences (KNAW).

Securing access to sufficient and safe food for the growing, increasingly urban, population in China requires closer collaboration between food producers and food consumers. However, previous research showed the existence of a mismatch between the present institutional structure and the challenge of securing access to sustainable food. To address this effectively, the following research questions need to be answered: (1) what are the main dominant and alternative supply systems for milk, pork, vegetables and other food items in China; (2) what are the roles of key actors and the institutional arrangements within the main supply systems with regard to food safety and sustainability and how does this compare to international experience; (3) which institutional frameworks at the local, ecosystem and national levels can effectively contribute to safe and sustainable food supply for the growing, urban population in China? The PhD researcher will examine these questions to identify effective institutional frameworks and supply chain organizations that contribute to securing access to sufficient, sustainable and safe food for all Chinese.

Research methods include the analysis of the main existing food supply schemes through quantitative (processing statistics) and qualitative (expert and stakeholder interviews) methods. In the design phase a reactive innovative design method will be further developed and applied through focus group meetings and expert interviews.

Candidates are expected to complete a PhD dissertation within four years. During this period, they are expected to work 1.5-2.5 years in China.

We ask

- MSc degree or equivalent in sociology/ anthropology /political science/ environmental science
- Mother tongue: Mandarin Chinese
- Fluency in written and spoken English (TOEFL internet-based 90 with a minimum of 23 for speaking, or IELTS (academic version) 6.5, with a minimum of 6.0 for speaking).
- Strong quantitative and qualitative research skills
- Strong scientific writing skills
- Proven affinity with food and sustainability issues in China
- Preferably, experience with institutional and network analysis and with organizing focus groups
- Motivated to work in a team

We offer a full-time position (38 hours), initially for 18 months after which a go/no go decision will be taken on extension with another 30 months. Gross salary per month € 2042, -- in the first year rising to € 2612, -- per month in the fourth year, for a full-time appointment.

The PhD will be offered a course program, which can be tailored to the desires of the candidate and the research team.

For more information on the research contact: Prof. & Dr. Peter Oosterveer,
peter.oosterveer@wur.nl

The School of Environment, Division of Environmental System Analysis, Tsinghua University, Beijing and the Environmental Policy Group at Wageningen University, The Netherlands are searching

A PhD Researcher

For the sub-project on '*Designing effective institutional frameworks for supplying sufficient and safe food to all consumers*'. Funding is provided by the Chinese Ministry of Science and Technology (MOST).

The PhD will be based at the School of Environment, Division of Environmental System Analysis, Tsinghua University, Beijing (China) and work closely together with the PhD researcher based in Wageningen, The Netherlands. Activities and requirements are similar to those of the PhD researcher based in Wageningen who will work on the same sub-project (see above).

Further information can be obtained from Prof. Pengfei Du (Tsinghua University),
dupf@tsinghua.edu.cn.

5. Sub-project '*Impact assessment of land, water and manure management interventions*'

The Development Economics Group (Wageningen University) and the College of Land Management, Nanjing Agricultural University, P.R. China are searching

A POSTDOC Researcher

For the execution of the sub-project '*Impact assessment of land, water and manure management interventions*'. Funding is provided by the Royal Netherlands Academy of Arts and Sciences (KNAW).

Sustainable resource management and food production critically depend on knowing what works and why. Using both available theory and evidence, successful policy making, identifies the most binding constraints and test out locally suited solutions. Over the past decade, development policy making is increasingly looking to impact assessment to help test interventions. China has a strong tradition of careful and pragmatic experimentation with heterodox policy solutions. This sub-project focusses on interventions in land, water and manure management and seeks out to develop, implement and analyze the success of various interventions to improve resource management. Improved and tested practices could form the basis for better policy scale up that are both environmentally and economically sustainable.

This will be done by developing the following activities within this postdoc project:

- Implementing diagnostics workshops with relevant stakeholders (academics, policy makers and firms) to identify critical constraints, policy needs, knowledge gaps and possible interventions.
- Designing and implementing a set of coordinated field experiments for research projects evaluating the impact of interventions promoting tenure security, agricultural technology (reducing dependence on agrochemicals) and integrated manure management for animal and crop farms.
- Organizing stakeholder and policy outreach workshops to discuss intermediary and final results from the projects
- Writing overarching publication on results from cross cutting interventions.

The post-doc will in addition have a coordinating role in the project:

- Support of PhD students
- Organization of a summer school for PhD researchers, and contribute to the teaching at the summer school
- Coordination of overarching activities
- Coordination of interactions and collaboration with relevant policy institutions, also in terms of data exchange, site selection, research coordination.
- Integration of the results of various PhD studies, generalization of the finding and drawing program-wide conclusions

The post-doc will work closely together with a postdoc researcher stationed at Nanjing Agricultural University, who works on the same sub-project.

Suitable candidates possess the following qualifications:

- Doctoral degree in (development) economics or related field
- Publication record of articles in internationally recognized journals
- Strong quantitative / econometric skills

- Experience in running and analyzing field experiments
- Experience with multi-disciplinary co-operation and working in a team
- Staff supervision and management experience
- Knowledge of (rural) China and Chinese language is an advantage

The project will start on 1 July 2017 for a period of 4 years. The postdoc is based in The Netherlands. Candidates can also apply for part-time appointments.

Further information can be obtained from Prof. Erwin Bulte (Development Economics Group), erwin.bulte@wur.nl or from Dr. N. Heerink (Development Economics Group), Tel. +31-(0)317-485117, E-mail: nico.heerink@wur.nl.

The College of Land Management, Nanjing Agricultural University, P.R. China and the Development Economics Group (Wageningen University) are searching

A POSTDOC Researcher

For the execution of the sub-project 'Impact assessment of land, water and manure management interventions'. Funding is provided by the Chinese Ministry of Science and Technology (MOST).

The postdoc researcher will be based at Nanjing Agricultural University (China) and work closely together with the postdoc researcher based in Wageningen, the Netherlands. Activities and requirements are similar to those of the postdoc researcher based in Wageningen who will work on the same sub-project (see above).

Further information can be obtained from Prof. Shuyi Feng (Nanjing Agricultural University), shuyi.feng@wur.nl.

6. Sub-project '*Design and assessment of integrated management interventions in food systems*'

The Water Systems and Global Change Group (Wageningen University) and the School of Environment, Tsinghua University (China) are searching

A POSTDOC Researcher

For the execution of the sub-project 'Design and assessment of integrated management interventions in food systems'. Funding is provided by the Royal Netherlands Academy of Arts and Sciences (KNAW).

Sustainable food supply systems, recycling waste products, closing nutrient cycles and promoting closer links between food production and consumption are needed in urban and rural China. A coordinated and harmonized rural-urban nexus could form the basis for institutional transformation and policy-making for adequate and safe food provision. The nexus approach, which was initially developed as a tool for metropolitan environmental management (the urban nexus), is expanded in this sub-project by connecting the urban with rural dynamics. The expanded approach can be applied at metropolitan, watershed and national level. This sub-project combines models and data from existing sources and from the sub-projects on water, land and manure management with the analysis of the relevant institutional arrangements to develop scenarios for integrated management of natural resources for adequate and safe food supply.

This will be done by developing the following activities within this postdoc project:

- Combining selected modelling tools in an integrated assessment of water and nutrients flows and land management for food production in China at different scale levels. The NUFER-Global NEWS model will be applied at the county, river basin and national level. Results of other relevant models, such the Urban Harvest model and the farm-level agent-based Nutrient Emission Model (ANEM) developed in the SURE project, will be included in the assessment.
- Identifying the gaps in the available data for integration and upscaling of model results.
- Combining model results with institutional analysis of key (formal and informal) institutions in supply of milk, pork, vegetables and other food items, at metropolitan, river basin and national level, to identify potential synergies and trade-offs and arrangements to overcome institutional disconnects.
- Designing scenarios to analyze future trends in policies, institutions and natural resource management aimed at adequate and safe food supply.

The post-doc will in addition have a coordinating role in the project:

- Support of PhD students
- Organization of a summer school for PhD researchers, and contribute to the teaching at the summer school
- Coordination of overarching activities
- Coordination of interactions and collaboration with relevant policy institutions, also in terms of data exchange, site selection, research coordination.
- Integration of the results of various PhD studies, generalization of the finding and drawing program-wide conclusions

The post-doc will work closely together with a postdoc researcher stationed at Tsinghua University, Beijing who works on the same sub-project.

Suitable candidates possess the following qualifications:

- Doctoral degree in environmental sciences
- Publication record of articles in internationally recognized journals
- Experience in environmental modeling (preferably related to nutrient flows in China)
- Experience with multi-disciplinary co-operation and working in a team
- Staff supervision and management experience
- Knowledge of (rural) China and Chinese language is an advantage

The project will start on July 1st, 2017 for a period of 4 years. The postdoc is based in The Netherlands. Candidates can also apply for part-time appointments.

Further information can be obtained from Prof. Carolien Kroeze (Water Systems and Global Change Group), carolien.kroeze@wur.nl.

The School of Environment, Tsinghua University (China) and the Water Systems and Global Change Group (Wageningen University) are searching

A POSTDOC Researcher

For the execution of the sub-project 'Design and assessment of integrated management interventions in food systems'. Funding is provided by the Chinese Ministry of Science and Technology (MOST).

The postdoc researcher will be based at Tsinghua University, Beijing (China) and work closely together with the postdoc researcher based in Wageningen, The Netherlands. Activities and requirements are similar to those of the postdoc researcher based in Wageningen who will work on the same sub-project (see above).

Further information can be obtained from Prof. Pengfei Du (Tsinghua University), dupf@tsinghua.edu.cn.