



## Pre-Announcement of the 1st Global TraPs World Conference

### Learning from Cases – Exploring Policy Options

We are happy to announce that the 1st Global TraPs World Conference will take place in Beijing, China on June 18-21, 2013. The conference will be co-hosted by China Agricultural University, the Ministry of Education, Phosphorus Fertilizer Industry Association of China and the National Natural Science Foundation of China. The project anticipates the Ministry of Agriculture joining as a co-host as well. Dr. Amit Roy (IFDC), Prof. Roland W. Scholz (ETH) and Prof. Fusuo Zhang (CAU) will be the organizers of the conference.

With the exception of the Global TraPs plenary meeting, the conference will be open to all interested practitioners and scientists. The theme of the world conference will be “Learning from Cases – Exploring Policy Options.” One goal of this world conference is to integrate phosphorus experts from various government ministries into the Global TraPs project dialogue.

The conference will be arranged to coincide with the 5th International Nutrient Management Symposium. The tentative schedules include both joint and separate sessions, which will allow organizers and participants to take advantage of existing synergies, while allowing for project-specific discussions and exchanges.

The first day will follow the format of a scientific conference. There will be parallel sessions on insights/results gained from ongoing and planned case studies, as well as research projects

related to the Nodes topics (e.g., exploration, use, etc.) and cross-cutting issues (e.g., trade and finance). Besides transdisciplinary (Td) case studies, related contributions from natural and social science projects are welcomed.

Dialogue Sessions and Mutual Learning Sessions provide the core of the second day. Thus this component of the 1st World Conference follows the format of the 2000 Zurich Transdisciplinarity Conference.<sup>1</sup> Both dialogue sessions and mutual learning sessions are planned for one full day to allow for in-depth discourses of small, selected groups of 20 to 25 participants.

Dialogue Sessions will include panel discussions on (brief) input papers, small group discussions and other forms of intense interaction. Mutual learning sessions will focus on Td case studies or field visits to nearby farms implementing various phosphorus-management strategies. Also, some parallel lecture sessions on selected topics may be held at the conference.

The last day will include panels and wrap-up presentations from representatives of key stakeholder groups.

Additional information on the conference will be provided as plans are developed and finalized.

Together with Amit Roy and Roland Scholz, Professor Fusuo Zhang will be the host of the 1st Global TraPs World Conference in 2013 in Beijing, China. Zhang received his Ph.D. in Plant Nutrition from Hohenheim University (Germany). His past appointments include President of the International Plant Nutrition Council, Vice President of Soil Science Society of China, Vice President of Plant Nutrition and Fertilizer Science Society of China, Vice President of Nature Resource of China, and Chairman of Soil Testing and Fertilization Expert Committee, Department of Agriculture China.



<sup>1</sup> Thompson Klein, J., Grossenbacher-Mansuy, W., Häberli, R., Bill, A., Scholz, R.W. & Welti, M. (Eds.). (2001). *Transdisciplinarity: Joint problem solving among science, technology, and society. An effective way for managing complexity.* Basel: Birkhäuser. (Reviews: [1])

Häberli, R., Scholz, R.W., Bill, A. & Welti, M. (Eds.). (2000). *Transdisciplinarity: Joint problem-solving among science, technology and society. Workbook I: Dialogue Sessions and Idea Market.* (Vol. 1). Zürich: Haffmans Sachbuch Verlag.

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## El-Jadida: a Transdisciplinary Discourse on Many Levels

(For a more comprehensive report see the Special edition of Global TraPs Newsletter 8, [https://edit.ethz.ch/uns/gt/pub/newsletter/edit/nlpdf/GT\\_Newsletter\\_8.pdf](https://edit.ethz.ch/uns/gt/pub/newsletter/edit/nlpdf/GT_Newsletter_8.pdf))

The 4th Global TraPs Workshop in El-Jadida, Morocco, March 16-18, 2012, was a key event for the Global TraPs project. Its importance was initially reflected by the mission of the meeting, which was "Defining Case Studies, Setting Priorities." These two goals set the tone and the focus for the two days of presentations and discussions. First, consideration was given to what case studies were needed to illuminate and provide answers to the critical questions (knowledge gaps) elaborated in the previous workshops. Second, deliberations centered on required priority areas for sustainable transitions, both from an environmental 'material' flow perspective as well as from a social and political perspective.

The El-Jadida workshop was a success. There were a number of thought-provoking interventions from representatives of the various stakeholder groups (e.g., industry, research institutions, universities, environmental agencies, non-governmental agencies and farmer organizations) that resulted in a vivid, deep and open exchange and robust discussions among participants (see photo below). The contributions of the representatives of farmer organizations (first-time participants) were considered a highlight of the workshop. Representatives from India, Kenya and Zambia convincingly explained the importance of sustainable phosphorus use from the farmer perspective and the complexity of a sustainable transition.

The 4th Global TraPs Workshop became a unique event because it was hosted by OCP – the largest phosphate production

company in the world. All participants were impressed by their visit to the Khouribga mining centre. The participants now have a better understanding of the investment required as well as the deep intervention phosphate mining creates to natural systems, including significant changes to the landscape from sedimentary large-scale P mining. This visit also highlighted differences between the impacts of igneous and sedimentary P mining, and helped identify another topic or case study that should be assessed.

The audience was impressed by the contribution of OCP's Vice President, Dr. Mohamed Ibnabdeljalil, who provided the keynote lecture on behalf of Dr. Mostafa Terrab. The lecture provided a comprehensive multi-scale analysis of the challenges and barriers of sustainable management and provided a definitive commitment by OCP to sustainable transitions of phosphorus management. The panel discussion led by Dr. Ibnabdeljalil, Dr. Amit Roy and Prof. Dr. Scholz may be taken as a commendable discourse among stakeholders from different perspectives on sustainable phosphorus use.

Since the last meeting in Zurich (March 2011), there has been successful and productive work in each of the six nodes along the phosphorus supply chain. All nodes have thoroughly discussed the node chapters for the forthcoming Springer Briefs book on the Global TraPs project. Based on this, ideas for case studies have been suggested and elaborated.

The 4th Global TraPs Workshop closed with overviews provided by Christian Nolte, Reyes Tirado, Luc Maene and Ajay Vashee. Their remarks revealed severe knowledge gaps about the phosphorus cycle – e.g. how big is a nutrient efficiency on a world-scale level? (a question posed by Dr. Nolte, FAO), and revealed perspectives

on political management (Dr. Ajay Vashee, IFAP/SACAU) and environmental management (Reyes Tirado, Greenpeace) which have to be deepened in follow-up discourses and learning processes of the Global TraPs project.

### Swiss Student Serves Internship at Foskor

Since the beginning of March 2012, Lucas Baumann, a master's student in Environmental Science has worked as intern at the Foskor phosphate rock mining site in Phalaborwa, in northeastern South Africa. Annually, Foskor beneficiates over 35 million metric tons of phosphate rock to produce about 2.6 million metric tons of phosphate concentrate with a grade of approximately 38% P<sub>2</sub>O<sub>5</sub>. Ultimately, most of the concentrated material is processed to produce granular phosphate fertilizers such as diammonium phosphate (DAP) and monoammonium phosphate (MAP) for use by farmers in South Africa.

The current mining operation covers an area of more than 3,000 hectares and provides jobs to more than 1,200 full-time employees. At Foskor, Lucas was introduced to the problems associated with 'tailings,' or the component of the slurry that contain the waste products generated during the beneficiation of phosphate rock. As the phosphate concentrate slurry undergoes additional treatment,



Lucas in a Foskor pick-up truck at the tailings.

the tailings are pumped into one of two massive tailings dams where the by-product minerals are disposed. The tailings slurry contains a tremendous amount of water that is captured in the decant tower and various weirs surrounding the dam for reuse in the plant.

However, there is concern that some 'contaminated' water might be seeping through the unlined dam wall or weirs towards the river system. In response to the concern, Foskor's water management team is targeting the interception of possible subsurface and groundwater releases from the dams before they enter the Ga-Selati River. Trenches are being excavated and constructed at indicated locations around the dams to capture and channel any 'contaminated' water so



The sump area of a cut-off trench that collects the sub-surface seepage water.

that it can be reused in the production system. This environmental component of phosphate rock processing was an ideal opportunity for Lucas to experience first-hand some areas described in his formal studies.

In April, Lucas became fully engaged in the project after spending several weeks studying numerous documents that provided an overview of the project. He was assigned the responsibility of supporting the communications between his department (Foskor Projects) and the external contractor who developed the environmental design of the aforementioned project. His duties included compiling progress reports of the actual site situation, attending progress meetings, joining site visits and documenting progress (via site photography) on virtually a daily basis. Lucas gave presentations on the scope and state of the project to Foskor's upper management and to the contractors on site. In addition to supporting the exchange of information, he also provided technical assistance by collecting and analyzing water samples, observing and recording observations on test pits, measuring groundwater tables in boreholes and illustrating flow paths of storm water in the plant area.

In return, Lucas received significant exposure to other parts of the mining operation and now has a practical and more in-depth understanding of the phosphate rock mining process. He found the Foskor employees to be very friendly and willing to answer all his questions. Coming from university without any mining experience he had an unbiased, sometimes critical perspective on what he saw, but found his interest in water management increased. Now, he is very interested in the broader perspective of wastewater recycling, recognizing that there are a variety of different aspects that must be considered including soil and water chemistry, ecological effects of contaminated water on the entire river eco-system, etc. to develop a sound scientific groundwater model. In turn, these models can assist Foskor in increasing the efficiencies along its entire phosphate production chain. Lucas' education has promoted a holistic approach, and by putting this into practice, he received many insights into the



Approximately 100 participants took part in the 4th Global TraPs Workshop, including guests from OCP.

challenges faced in running a profitable business that recognizes the need for an environmentally friendly and sustainable approach.

This internship turned out to be a fruitful win-win situation for both parties. Lucas experienced a unique practical exposure to operating a mine and Foskor benefited from his theoretical thinking and his motivation to make a difference. This five-month internship produced many positive memories and Lucas is very grateful for the experience.

### Organizational Change

Dr. Frido Brand, who has been Global TraPs science manager, is leaving the inner science arena. He will work at Südzucker AG, Mannheim, Germany, the biggest sugar company in Europe, to build up, coordinate and establish the sustainability management in the company.



# GLOBAL TraPs

TRANSDISCIPLINARY PROCESSES FOR SUSTAINABLE PHOSPHORUS MANAGEMENT

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For updates about the Global TraPs effort, visit our website:

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