



## **Experimental Economics for Effective Management and Sustainable Use of Natural Resources**

Final Report of Veronika Chobotova

### **Background**

I am working as a researcher at the Institute for Forecasting at the Slovak Academy of Sciences (IF-SAS), the Centre for Trans-disciplinary Study of Institutions, Evolutions and Policies (CETIP) in Bratislava, Slovakia. My research interest is in the field of ecological and institutional economics, emphasizing environmental governance with the focus on market-based instruments for biodiversity protection, multi-criteria evaluation and experimental methods. In particular I am interested in economic instruments for ecosystem services and biodiversity protection and their role in environmental governance. More recently I became interested in behavioral experiments as tools to study collective actions for the governance of common pool resources. The cooperation of CETIP with Arizona State University (ASU) and Dr Marco Janssen from ASU Center for the Study of Institutional Diversity started in 2007, due to our interest in experimental economics.

At the beginning of 2010 I agreed with Dr Marco Janssen to spend one semester at ASU. My goal was to enhance the existing cooperation between ASU and CETIP; to learn from the experiences of ASU experimenting with real decision-making subjects in the field; and increase my knowledge of experimental economics. ASU has been able to provide office space and a stimulating intellectual environment, however no financial support. Due to this reason I started to search for possible fellowship programs and financial contribution. Browsing the web, I found the American Fund for Czech and Slovak Leadership Studies.

After submitting all required application documents and materials (CV, application form, proposal, photocopies of all diplomas, transcripts from all universities attended, recommendation letters, etc), I was nominated by the selection committee as one of the candidate for the 2010 round of the Young Leaders Program. The process of issuing grant documents, visas, insurance and other materials took about three months.

### **American Partners**

ASU Centre for the Study of Institutional Diversity, studies how humans are able to change the rules in commons dilemmas, what causes individuals to invest in rule development, and which cognitive processes explain the ability of humans to craft new rules in the areas of management and sustainable use of natural resources. The Centre uses experimental methods (laboratory experiments, experiments in the field, and agent-based models), to test the creation of new rules, decision-making strategies and cooperation in management and sustainable use of natural resources.

### **Brief Evaluation Statement**

In general the program fulfilled all my expectation. ASU offers great opportunity for researches, by providing intellectual environment, numerous interesting presentations, lectures, meetings and conferences. Research stay at ASU, and face-to-face cooperation with Dr Marco Janssen enabled me to compare and discuss the results from ongoing research at CETIP aiming to contribute to the discourses on innovative tools for environmental governance. Moreover, the personal communication helped me to

explore novel and challenging elements of field experiments and other experimental methods and continue with these experiments in Slovakia.

## Detailed Description

After arriving at ASU I attended two courses (September-December 2010): Agent-Based Modeling and Experimental Social Science, led by Dr. Marco A. Janssen. The goal of these courses is to learn the basic principles of social simulation and apply these to questions of the emergence of cooperation and innovation diffusion in the field of sustainable use of natural resources. In the course of Agent-based modeling I learned the basics of agent-based modeling and how this method is used to study social systems. In the course of Experimental Social Science, I learned new social science theories and experimental methods in social sciences. The courses were very challenging (especially the Agent-Based Modeling) and I found them very interesting and useful for my future research.

Once a week I had official meeting with Dr. Marco Janssen where we discussed various questions arising during my research stay. Every Monday the members of the Center for the Study of Institutional Diversity and other scholars from ASU or other universities discuss various research topics. These meetings called 'brown bag' are small informal conferences where researchers during one hour present their research. Brown bags aim to stimulate discussion and brainstorming. <http://csid.asu.edu/node/320>

As part of my work at ASU I was exploring new possibilities of using experimental methods in the field of economic instruments for ecosystem services provision and biodiversity protection. During one 'brown bag' session I performed a pretest of the future experiments related to payment schemes for ecosystem services. <http://csid.asu.edu/node/331> <http://csid.asu.edu/veronikachobotova>

During my stay we also established a Google group, where I became a manager. 'The Virtual Commons Group' is a research initiative devoted to computational experiments, research, and analysis on collective action problems. The group would like to stimulate some collective action among scholars using experimental methods to study the commons. It was set to discuss and share our ideas and experiences. <http://groups.google.com/group/virtualcommons>

Within the proposed program I also participated in the conference IASC North American Regional Meeting - Capturing the Complexity of the Commons (<http://csid.asu.edu/USIASC2010>), which took place at ASU (September 30 – October 2, 2010). I presented the article 'Can Long Lasting Institution Survive Market Economy? Evolution of Forest Common Property Regime in Central Europe'; developed within CETIP and chaired the session 'Forest Governance'.

## Organization and Time Schedule

Arranging accommodation for a long-stay in a hotel took only few days, using online and personal contacts. However after arriving to Arizona I realized that the distance from the hotel and University is too long. Fortunately, with the help of researchers from ASU I managed to rent a room much closer to the University and for better price.

ASU is one of the biggest universities in the United States and offers a great opportunity to meet important researchers. The most interesting was my meeting with Professor Elinor Ostrom, 2009 Nobel Prize laureate in economics.

The overall duration of my stay was three months, to be able to attend training at ASU (Fall 2010) and develop further cooperation with Dr Marco Janssen and the Center for the Study of Institutional Diversity. My training was very intensive and challenging. I feel three months were insufficient and more time would have been beneficial. Six months would have been better.

## Program Cost

The full estimated and actual costs of my program are summarized in the following table:

Item	Cost Estimate US\$	Actual Cost in US\$
Executive training seminars	-	-
Internship	-	-
Administrative fees (visa, registration fees, etc.)	600	1,000
International travel	1,350	1,750
Local transportation	500	400
Medical insurance	522	550
Monthly maintenance	1,800 x 3 = 5,400	1,600 x 3 = 4,800
Contingency	1,000	1,000
<b>Total</b>	<b>9,372</b>	<b>9,500</b>

## Program Benefits

The application of experimental methods in environmental protection or sustainable use of natural resources is rarely used in Slovak training and education schemes. My main reason for attending these courses was to apply the obtained skills to data analysis for ongoing and future experiments within CETIP. Moreover I will use this knowledge for establishing training courses within the undergraduate and graduate university education in Slovakia. Starting February 2011, I will teach a course Multiple Methods in Social Science at the Slovak University of Technology, Bratislava, Slovakia.

The program helped me to develop ideas for future research cooperation. Jointly with the Slovak University of Technology in Bratislava (and help of ASU), the CETIP is planning to establish the first laboratory of experimental economics (VEEL) in Slovakia. Mission of VEEL is to improve economic research and the quality of undergraduate and graduate education in economics. The key purpose of VEEL lab is to create a base for research and teaching of social science in the Slovak academic community. Dr Marco Janssen will work in CETIP and help us to initiate the establishment of the laboratory in September 2011.

Although my cooperation with Dr Marco Janssen and ASU is going to continue, I would like to return to ASU as postdoctoral researcher and continue my research of the effects of economic instruments on ecosystem services provision and biodiversity protection. In March 2011 I am planning to take active part in a conference 'Resilience 2011' at ASU (<http://resilience2011.org/>).

## Risks

Unpredictable risk was a long procedure with acceptance documents from the University. To avoid this problem it would be appropriate to start with the application process much earlier.

Implementation of my research experience will start over the next few months. A set of first lectures is scheduled to start in February 2011. A problem will be to find additional finances to continue my research.