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GOVERNANCE OF GLOBAL ENVIRONMENTAL CHANGE

*Towards a multidisciplinary discussion in tertiary
environmental education in the former USSR and
Mongolia*

ReSET Project Report 2011-2014

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All activities of ReSET Project “*Governance of Global Environmental Change: Towards a multidisciplinary discussion in tertiary environmental education in the former USSR and Mongolia*” engaged partner institutions and projects. These included the hosting institutions of the events, international research networks, and the departments at the home institutes of participants, resource faculty, and co-directors. Also included were European Union (EU) funded research projects, in particular the European Commission’s Tempus Joint Project Environmental Governance for Environmental Curricula (511390-TEMPUS-1-2010-1SK-TEMPUS-JPCREC).

We gratefully acknowledge the valuable support and collaboration from these partners, all of whom have been crucial for the overall success and impact of the ReSET project. These successful collaborations have paved the way towards a welcoming institutional landscape for future joint projects by developing a network of colleagues and friends to engage with for follow-up activities to sustain and further strengthen the progress made thus far.

The complex, multi-actor nature of the ReSET project inherently increased the complexity of the coordination, management, and monitoring of the project’s activities. We are therefore grateful to the Open Society Institute’s Higher Education Support Programme (OSI’s HESP) for their understanding and constructive professional support, even if things were “done differently”. However, since the aim of the ReSET Project “*Governance of Global Environmental Change*” was to have things “done differently” in research and teaching, it seems quite appropriate that the project implementation also embraced an innovative approach.

EXECUTIVE SUMMARY

This report describes, evaluates, and reflects upon the activities of the Regional Seminar for Excellence in Teaching (ReSET) Project “*Governance of Global Environmental Change: Towards a multidisciplinary discussion in tertiary environmental education in the former USSR and Mongolia*” which spanned June 2011 – August 2014.

The ReSET project was organized by the Russian State Hydrometeorological University, the Central European University, and the Earth System Governance Project, along with funding and coordination under the auspices of the Open Society Institute's Higher Education Support Programme.

In the former USSR and Mongolia, universities and research centres tend to have a solid base of expertise in research formulated around a single discipline, while inter-, multi- and transdisciplinary studies are not yet well developed. The ReSET Project was designed to address this pedagogical gap. ReSET Project activities were organized in the Ukraine, Russia, and Belarus around annual Summer Schools, complemented by inter-school sessions, pilot-courses, and by online communication amongst the participants and the faculty.

During the three years of its lifespan, the project achieved and partly exceeded its goals. Project participants developed strong, interdisciplinary expertise as they increased the quality of their teaching skills in an effort to move towards current international teaching standards. The project also assisted the participants in becoming aware of, and making contact with, a variety of national, regional, and international networks in the field. Regardless of the on-going structural challenges in the former USSR and Mongolia that continue to limit approaches to and organization of teaching and research in the region, it is likely that most project achievements can be sustained thanks to the committed engagement of those who participated in the project.

INTRODUCTION

The Regional Seminar for Excellence in Teaching (ReSET) Project “*Governance of Global Environmental Change: Towards a multidisciplinary discussion in tertiary environmental education in the former USSR and Mongolia*” was organized by the Russian State Hydrometeorological University, the Central European University, and the Earth System Governance Project. With funding and coordination under the auspices of the Open Society Institute's Higher Education Support Programme (OSI's HESP), the project ran a series of regional seminars between 2011 and 2014 in Russia, Belarus and Ukraine.

The overall ReSET initiative has been the central, long-term thrust of OSI's HESP to assist in building capacity among individual faculty members to improve their teaching skills within the social sciences and humanities in the post-communist countries of Eurasia. Specifically, ReSET addresses the on-going need for Eurasian post-communist countries to promote intellectual autonomy among students and scholars within their systems of higher education. One way that ReSET addresses this barrier to inter-, multi-, and a transdisciplinary study is by combating the isolationism and parochialism often found in formal academic institutions. For example, it has been doing so by building open transnational intellectual networks dedicated to expanding spaces for education. In addition, the topic of the ReSET project “*Governance of Global Environmental Change: Towards a multidisciplinary discussion in tertiary environmental education in the former USSR and Mongolia*” also lends itself to addressing this barrier by being a project within the thematic area of global environmental change.

The main goals of the ReSET project were as follows:

1. Develop expertise in the area of environmental governance.
2. Address the need to move the quality of teaching towards international standards while taking into account the existing content, quality, and teaching methodology.
3. Introduce more interactive and reflective modes of teaching, including those more oriented towards group work, and encouraging inquiries into related subject areas.

The project was implemented in close collaboration with the EC Tempus Joint Project Environmental Governance for Environmental Curricula (EnGo). EnGo aimed to increase the competitiveness of education for environmental professionals and environmental researchers at partner-universities in Belarus, Russia and Ukraine using principles and methods of the Bologna Process.

This report describes the overall project, including the project activities which ran from 2011 to 2014, and the results achieved by the project.

BACKGROUND

Global environmental change is a reality affecting our societies at every level and scale, making it a key challenge for both policymakers and researchers alike. To address this challenge and to move socio-ecological systems at every level and scale towards transformative change, policymakers need, among many other things, to learn how to translate their policy questions into research questions, while the research community needs to translate their research findings into policy options. To support this, the international research community needs multidisciplinary environmental science practitioners who broadly employ the tools and methods of both social and policy sciences.

It is typical for universities and research centres within the former USSR to have good expertise in mono-disciplinary research while inter-, multi-, and transdisciplinary studies are not yet well developed. This holds true even within the environmental sciences – a field that by definition needs an interdisciplinary approach but is still largely perceived by many as an engineering or natural science discipline. To change this perception, strong action needs to be taken to demonstrate both the advantages of applying multidisciplinary methodologies in the environmental sciences, as well as the advantages of identifying, understanding and accounting for the social and political dimensions of environmental problems in addition to the subsequent development of policy solutions.

A commitment to helping universities and research centres within the former USSR and Mongolia overcome these outdated perceptions and approaches to environmental sciences had been the main rationale behind the ReSET project. In line with the overall goals of OSI's HESP ReSET initiative, this ReSET project encouraged collaborative critical rethinking and explored the state-of-the-art in the discipline by drawing on the most current international scholarship. Instead of taking a mono-disciplinary approach typically used within the former USSR and Mongolia, the project introduced participants to interdisciplinary research in the field of environmental governance.

Two additional challenges in both the field and within the region itself motivated the project. The first challenge related to the limited inclusion and participation of local universities and research institutes. The second challenge was based on the lack of support for creative, international learning, particularly in the applied use of collaborative team work. The project helped to explore both of these challenges.

Regarding the first challenge, the limited inclusion and participation in the global change research community by local universities and their teaching programmes as well as by research institutes was found to be of particular interest, given the multitude of bi-lateral international cooperation projects that had already been completed by 2011 in the region. Interaction with the global change research community was very weak not only among universities, but also among regional researchers, as well as among formal and informal academic networks. This weak participation was attributed to a lack of incentives at academic institutes in the region to undertake

innovative research, teaching and collaboration, as well as a lack of structural institutional interest in “unfunded” cooperation and networking. As a result, a general goal of ReSET was the development of competency and an appreciation among regional researchers both inside and outside academia in the value of continuously building linkages among teaching, learning processes, and scholarly activities in order to stay engaged and gain a deeper understanding of environmental governance.

To address the second challenge, regarding the lack of support for creative, international learning, including the applied use of collaborative team work, there was an initial need to first conduct a rigorous review of the regional teaching practice. It was found that the practice of teaching in its initial form neither supported creative, international learning and development, nor the fostering of teamwork. Addressing this challenge connected with the ReSET goal of supporting regional and international collaboration of peers dedicated to creative academic work and professional self-renewal.

In addition to being motivated by these challenges, the ReSET project also embraced the Earth system governance analytical framework to help frame how project participants conceptualize environmental governance, particularly around issues entangled with science, politics, society and culture. As such, the Earth system governance analytical framework recognises that pollution control and nature conservation – issues traditionally understood as the core of environmental governance – are no longer the only domains of global environmental change discourses. Earth system governance is an analytical framework used to cope with the challenges posed by global environmental change by governing social systems in a way that prevents drastic Earth system disruption. This analytical framework also provided project participants with a way to conceptualize challenges operating at the interface between social science field of *environmental governance* research and the natural science dominated field of *earth system analysis*.

Essentially, using an Earth system governance perspective was an additional tool that helped ReSET project participants tackle the challenge of integrating new perspectives in order to better understand the impact of the internationalization of policy processes, the multi-scale consequences of ecological transformation, as well as develop a better understanding of the complex relationship between global transformations of social and natural systems currently underway. By so doing, the ReSET project introduced the use of innovative teaching and training of researchers to address the need to include criteria such as political effectiveness and efficiency, global and national justice, and equity in different levels of analysis when attempting to bridge different disciplinary assumptions, methods and foci in environmental governance research and teaching.

PROJECT DESCRIPTION

The ReSET Project “*Governance of Global Environmental Change: Towards a multidisciplinary discussion in tertiary environmental education in the former USSR and Mongolia*”, which will be abbreviated in the rest of this report as simply the ReSET Project, involved mainly young researchers and PhD students who had established a strong involvement in teaching at their respective home institutions.

Participants were selected on a competitive basis and committed to contributing to the project for the entire project duration. Project activities were organized around annual Summer Schools, complemented by interschool sessions, by various contact sessions, and by online communications that took place both amongst the participants themselves, as well as between the faculty and the participants. Over the three years of the project, several networking and training meetings were held. While each meeting focused on a specific environmental governance topic, the topics themselves were



chosen for each meeting based on the specific requirements and interests of the participants.

In total, 34 participants took part in the project. The group of participants was quite diverse with 14 people from Ukraine, and then 10 people each from Russia and Belarus. A total of nine participants held a PhD degree, and five more were in the process of obtaining their doctoral degree.

During the first project year (2011-2012), the aims of the project were to introduce the basic principles of environmental governance and global environmental change, and to identify needs and specific 'pressure points' amongst the participants. In the sessions, cooperative work between research faculty and participants served to explore the concepts raised by the project, while also assessing the available capacities and challenges related to the backgrounds, occupations, qualifications and motivations of each of the participants. Participants identified seven course development groups corresponding to their teaching and research profiles. As a result, the topics both fitted the ongoing-teaching practices and reflected the interest of the participants to capitalise on their teaching and research experience, while also enhancing their performance once back at their home institutions. By using this first year to introduce the participants to both the project objectives and methods, it was possible to apply the methods in practical ways by actively encouraging creative and innovative thinking for curriculum development and teaching on an on-going basis.

During the second project year (2012-2013), the participants kept teaching the same courses they did before while using the opportunity to add innovative elements to

their courses developed during the sessions. On-site visits by the project co-directors and resource faculty facilitated the introduction of the new elements to their courses by giving feedback on teaching methods, addressing social and policy science concepts in environmental management courses, and underlining the advantages of different governance approaches. In this period, the sessions served to develop the participants' expertise in specific topics and methodologies for environmental governance through seminars and field research, while also developing their research and teaching skills. Participants had the opportunity to jointly design and improve their course syllabi, while working with a variety of new teaching methods and techniques. Furthermore, the sessions enabled a continuous introduction of the participants to available research and teaching expertise in the region and stimulated inter-regional networking.

The third project year (2013-2014) focused on reflection and application of what had been researched, developed and taught in the first and second years. Participants worked on integrating the results of their field research into course syllabi. Participants also discussed ways to introduce scale issues into how they taught environmental governance and then launched their first pilot-courses at their home institutions.

LIST OF EVENTS

Date	Location	Event
02-16 August 2011	Pskov, Russia	Summer school "Principles and application of environmental governance and governance of global change"
09-13 November 2011	Minsk, Belarus	Autumn workshop "Governance of global environmental change"
21-27 April 2012	Kiev, Ukraine	Spring school "Nuclear governance in a changing world"
22 July-04 August 2012	Lviv, Vorokhta, Ukraine	Summer school "Global change and local challenges of environmental governance"
15-28 September 2012	Odessa, Ukraine	Autumn school "Rural areas: management and governance"
06-10 May 2013	Mahilyow, Belarus	Spring meeting of ReSET project "Governance of global environmental change"
15-29 July 2013	Krasnoyarsk, Russia	Summer school "Scale in Earth System Governance: Local case studies and global sustainability"
2-6 December 2013	St.Petersburg, Russia	Winter school "Sustainability issues summarised, categorised and connected - Transferring research results to learning outcomes"

Date	Location	Event
5-9 May 2014	Minsk, Belarus	Spring School “Governance of global environmental change: Summarising, wrapping up and evaluating“
4-9 August 2014	Budapest, Hungary	Meeting of lead authors and editors of the textbook on case study research and analysis.
Academic year 2012/13	Pskov, Russia; Simferopol, Ukraine; Minsk, Belarus	The first course piloting round: Environmental disasters governance (2ECTS) at Pskov State University, Pskov, Russia; Protected areas governance (2ECTS) at Taurida National V.I. Vernadsky University in Simferopol, Ukraine; Land-use governance (3ECTS) at the Belarusian State Technology University, and the International A. Sakharov Environmental University, Minsk, Belarus.
Academic year 2013/14	Kharkiv, Ukraine; Odessa, Ukraine; Pskov, Russia	The first course piloting round (continued): Protected areas governance (2ECTS) re-piloted at Kharkiv National University of Municipal Economy, Kharkiv, Ukraine; Land-use governance (3ECTS) re-piloted at Odessa State Environmental University, Odessa, Ukraine; Renewable energy governance (2ECTS) at V.N. Karazin Kharkiv National University, Kharkiv, Ukraine; Waste management based on life cycle assessment (2ECTS) at Pskov State University, Pskov, Russia.
Academic year 2013/14	Kharkiv, Ukraine; Pskov, Russia; Krasnoyarsk, Russia; Mahilioŭ, Belarus	The second course piloting round: Governance of ecosystem services (3ECTS) Pskov State University, Pskov, Russia; Communication and information tools for nature resource management (3ECTS) Siberian Federal University, Krasnoyarsk, Russia; Eco-innovation strategies and environmental governance of urban areas (2ECTS) Kharkiv National University of Municipal Economy, and V.N. Karazin Kharkiv National University, Kharkiv, Ukraine; Governance of energy efficiency (2ECTS) Joint University of Belarus and Russia, Mahilioŭ, Belarus.

ACHIEVEMENTS

Tremendous progress was made during the ReSET project by its participants, including many achievements that were particularly impressive when considering that the participants had no previous knowledge of interdisciplinary social science research in general and environmental governance in particular prior to their participation in the ReSET project, and that they have very little institutional support at their home institutions.

While participants were encouraged by their home institutions as early-career teachers and researchers to participate in the ReSET project, there were a variety of obstacles to overcome once participants attempted to implement what they had learned. For example, the home institutions for participants typically lacked the institutional structures, management, and experience in engaging with interdisciplinary research, so participants were not working in fertile ground at their home institutions when they attempted to implement, nurture, and grow innovative teaching approaches while developing meaningful international collaborations. Other challenges that needed to be overcome in the early-stages of the project included the overall poor English language skills of the participants, as well as poor translation of social science terminology into Russian, Belarussian, and Ukrainian.

Despite all these obstacles, the project participants coming from the natural sciences and engineer developed a strong, interdisciplinary expertise in the area of environmental governance, thereby meeting the first overall project goal.

The ReSET project made positive strides towards improving the quality of teaching through the solid performance of project participants in developing not only environmental governance content, but also in developing methodological skills, knowledge and expertise in both interdisciplinary social sciences research and interdisciplinary teaching

methods. Activities to build teaching and research quality enhancement skills took place through both faculty-participant exchanges and through mutual learning exercises among participants. Together with the increased access participants had to international professional networks, the project enabled participants to gain critical teaching experiences required to get onto a level playing field to meet international teaching standards.



Overall, the ReSET Project achieved its second goal, which was to improve the quality of teaching in order to move teaching in the region towards international standards while strengthening the quality of both content and teaching methodologies.

The project has enabled the participants to learn, understand the value of, develop, and independently implement more interactive and reflective modes of teaching that were both more oriented towards group work and also towards exploring a broader range of interdisciplinary subject areas. This was primarily done by using ReSET project meetings to expose participants to alternative teaching format designs. This immersion of participants into alternative teaching formats proved to be extremely useful in encouraging experimentation and innovation in the classroom. For example, in the early stages of the project, participants were struggling to even ask questions during traditional lectures (held in the *frontal classroom lecture* teaching format). However, over the course of the ReSET project, participants gained both the confidence and the skills to actively participate during sessions, while also learning how to themselves implement interactive and innovative teaching.

Overall, the ReSET project achieved and exceeded its third goal, which was to ensure interactive and reflective modes of teaching were introduced and even actively implemented during the ReSET project to maximize the likelihood that those modes of teaching will be sustained beyond the duration of the project itself.

During the three years of its life-span, the ReSET Project also resulted in other outcomes. Some of the other outcomes were explicitly intended, but other outcomes came as unexpected, beneficial spill-over effects that enhanced the take-away co-benefits for the participants, their home institutions, and the network alike. There are four such other outcomes worthy of mentioning herein.

The first of these other outcomes was the way the project succeeded in increasing the knowledge and skills of the individual participants, which supported their growth as university teachers and scholars. This was achieved through broadening the overall academic and scholarly orientation, and teaching philosophies

Secondly, ReSET project participants had the experience of actually developing and piloting several courses and course modules in close collaboration with and under the critical scrutiny of the Resource Faculty. This live teaching experience of the pilot courses enabled all participants to be able to actively practice how to develop and revise teaching and curricula within the actual, real-life, challenging environments that exist at their home institutions. During these pilot courses, participants also practiced team teaching skills by working alongside ReSET participants from other institutions as co-teachers. The success of the co-teaching experience was particularly remarkable given the on-going tensions between Russia and the Ukraine, which were the two countries with the largest number of ReSET Project participants. The end result was that participants were able to both successfully enrich their teaching portfolios, while also demonstrating to their home institutions the potential benefits of having cross-institutional teaching collaboration, in spite of current institutional structures.

Thirdly, the ReSET project was used to challenge participants to formulate, address and debate some of the most current discourses in global environmental governance. The project contributed to the development of a stronger sense competence, intellectual rigor and resourcefulness among the participants when it came to their scholarship and teaching competency on dealing with environmental governance. However, it remains to be seen to what extent participants will be able to continue to engage in current developments in environmental governance research, both beyond their own geographical region and beyond the scope of follow-up projects, now that the ReSET project has concluded. Given the struggles that the participants had with understanding basic social science concepts, it may be that expecting participants to engage with state-of-the-art social science academic discourses was not realistic.

Finally, the fourth outcome was that the project enabled the participants to become aware of, and establish contacts with national, regional, and international networks in the global environmental governance field and the global change research community, not the least of which were their new connections with the Earth System Governance Project. The ability of the participants to tap into these networks to gain new contacts in the field will be of great value for their post-project work on environmental governance. Together with early-career scholars from the Asia-Pacific region through collaboration with the Asia-Pacific Network on Global Change (APN) in the 2013 Summer School, the ReSET project participants, Resource Faculty and many others involved in the project have formed among themselves a dense network of contacts and collaborations. The new early-career network led *inter alia* to the development of successful funding proposals to sustain the networks, the research, and the academic debate.



There are two tangible outcomes of the project. One outcome was the design of joint courses on environmental governance at both the Bachelors and Masters levels. The second tangible outcome of the project was the development of a textbook on environmental governance case studies within in the former USSR and Mongolia.

JOINT COURSES

The courses developed jointly by the project participants were introduced to the tertiary educational system through a number of pilot teaching sessions at the partner universities for the ReSET project. The courses piloted in 2012-2014 were:

- Land-use governance (3ECTS) at Belarusian State Technology University, and the International A. Sakharov Environmental University, Minsk, Belarus

- (2012/13), and the Odessa State Environmental University, Odessa, Ukraine (2013/14);
- Environmental disasters governance (2ECTS) at Pskov State University, Pskov, Russia (2012/2013);
 - Protected areas governance (2ECTS) at Taurida National V.I. Vernadsky University in Simferopol, Ukraine (2012/13), and Kharkiv National University of Municipal Economy, Kharkiv, Ukraine (2013/14);
 - Renewable energy governance (2ECTS) at V.N. Karazin Kharkiv National University, and Kharkiv National University of Municipal Economy, Kharkiv, Ukraine (2013/14);
 - Governance of ecosystem services (3ECTS) at Pskov State University, Pskov, Russia (2013/14);
 - Communication and information tools for nature resource management (3ECTS) at Siberian Federal University, Krasnoyarsk, Russia (2013/14);
 - Eco-innovation strategies and Environmental Governance of Urban Areas (2ECTS) at Kharkiv National University of Municipal Economy, and V.N. Karazin Kharkiv National University, Kharkiv, Ukraine (2013/14);
 - Waste management based on life cycle assessment (2ECTS) at Pskov State University, Pskov, Russia (2013/14); and
 - Governance of Energy Efficiency (2ECTS) at Joint University of Belarus and Russia, Mahilioŭ, Belarus (2013/14).

Most of the course learning materials, including syllabi, presentations, descriptions of course assignments and readings, are available to ReSET Project participants from the e-learning site hosted by the Odessa State Environmental University (<http://envgov.osenu.org.ua/course/index.php>). Selected syllabi are accessible from the web-pages of some of the partner institutions (e.g. http://bio.sfu-kras.ru/files/3518_Communication_2014.docx).

IMPACTS

The ReSET Project made a significant, direct impact upon developing the competencies and knowledge of the individual participants themselves. However, its impact on the departments at the home institutions for the participants has been considered generally weak and indirect, with the exception of the home institutions where course pilots took place. At departments where course pilots were launched, there was a more direct positive impact that could be linked back to the ReSET project. In the following section, the impact on individual participants and on their department at their home institutions will be discussed.

INDIVIDUAL IMPACT

Most ReSET project participants had backgrounds grounded within either the natural sciences or in engineering. Participants made enormous progress in learning the value of interdisciplinary research and teaching approaches that take into account social science perspectives on environmental change in general, and environmental governance in particular. However, in spite of their progress, it is acknowledged that by the end of the ReSET project, their new understanding of social science perspectives and interdisciplinary approaches had not yet enabled the participants to reach the point where they could easily translate new knowledge into new practical applications.

Additionally, the participants engaged in many group and independent exercises during ReSET project events. While these live events enabled participants to gain competence in contributing independently and collegially to scholarly works such as research and resulting publications, this too had limitations.

For example, it was found that participating at various scholarly assemblies on an individual level, participants built capacity and gained insights into how to take critical and creative approaches to scholarship and teaching. These gains are due in no small part to the efforts of the Resource Faculty and the Project Directors working in lectures and tutoring sessions to create an open, constructive atmosphere which encouraged comments, criticism, co-design and the ability for participants to launch their own initiatives during events. Whether or not participants will use this capacity at their home institutions depends on many factors, including their role in their departments. As early-career researchers, their influence may be somewhat limited in traditionally structured departments.

While their ability to engage in the international discourse in-depth is still limited, the competency of participants in applying new teaching methodologies for teaching environmental governance was significantly improved through the ReSET project, including their awareness of and ability to engage in regional and national discourses. But once again, as early-career researchers, their influence may be somewhat limited in traditionally structured departments, so their ability to apply their new skills back at

their home institutions is conditional on the limitations and opportunities found in their specific institutional settings, including the potential for institutional reform.

Regarding the thematic groups that formed during the ReSET Project, participants had the benefit of having groups that all had a very diverse regional composition. This was particularly beneficial during the development and piloting of the courses. Taken altogether, these experiences contributed to the promising outlook for both improvements in the level of motivation, teaching performance and proficiency in applying innovative methods to facilitate the learning and development of critical thinking of students within and beyond the classroom, even within narrow spaces allowed and available in their regular teaching work. The thematic groups also contributed to the positive outlook on prospects for future regional collaboration.



The project had a significant impact on the internationalization of the teaching experience of participants in terms of their academic activity thanks to the international activities that were initiated by being engaged with other ReSET project participants from different countries. For example, the courses that were developed by international teams and the course pilots that were co-

taught provide evidence of how this internationalization became visible and manifested for many participants during the project, but it did not necessarily impact all participants to the same extent. Some participants still, unfortunately, perceived this step to be too big, while others were simply not interested in internationalization, and yet others lacked either the academic or personal capacity to move ahead with internationalization.

Regarding the push for internationalization, significant progress was made by most participants in communicating and using the English language during the ReSET project. The initial level of the English language ability of the participants was significantly lower than expected based on what participants had indicated on their application forms. At the onset of the project, all but two participants were lacking in sufficient English language skills, which meant that most participants were struggling to follow the programme. However, over the life span of the project, most participants made tremendous progress in improving their English language skills, which in turn also strengthened their confidence in their own presentation and teaching abilities.

The ReSET Project had a profound impact on many of its participants. It helped to open doors to new opportunities, and provided a space in which participants could develop their confidence by practicing new, innovative teaching methodologies. Participants also gained new insights into how to both teach and research in interdisciplinary ways within the environmental governance field. Participants are also introduced to new international research nodes and communities of practice.

DEPARTMENTAL IMPACT

In general, the departments where participants were based at their home institutions were positive about their participation in the ReSET project. Their departments were particularly enthusiastic about the involvement of participants in developing scholarly works during the ReSET project, both as a way to enhance their study experience, and also to build their writing portfolios as early-career teachers and researchers.

Departments were generally appreciative of the skills, knowledge, connections and collaborations gained by their early-career teachers and researchers throughout the project. However, as described in the previous sections, the participants continued to face obstacles embedded in institutional structures and prevailing mentalities within their home institutions that often meant that participants did not have fertile ground in their departments in which they could grow their newly learned collaborative, interdisciplinary teaching and research skills. These same structural and perceptual obstacles also raised concerns given their potential to also inhibit prospects for meaningful international collaborations and interdisciplinary research.

It is worth noting that the ReSET project was neither designed nor mandated to implement structural institutional reforms in the respective departments at the home institutions of the participants. While most institutions the project participants interacted with were found to be open to considering changes, it became clear to participants that the inherent slowness, inertia, and entrenchment of “vested interests” meant that it will take time and special efforts to make progress on the departmental front. For example, there was relatively low, indirect progress when it came to attempts to build, and promote new curricula that were focused on using experimenting with new teaching methods, materials and technologies.

However, even given the relative structural constraints within the home institutions, participants were still able to make some space to experiment with innovative teaching during the course pilots. Participants were also still able to continue working towards strengthening their interdisciplinary research. As a result, the impact of the project was found to have been quite satisfactory.

The project made a good impact on many departments though their exposure to critical discussions on environmental governance curriculum development, as well as on innovative teaching methodologies. This success was due in no small part to engaging a combination of both our ReSET partners and our non-ReSET colleagues in ReSET activities not only within the former USSR and Mongolia, but also between these areas and other regions in Western and Central Europe. All events were organized in collaboration with local ReSET partners, often alongside many non-ReSET partner institutions, faculty and students as listed in the event summaries that can be found in attached Annexes. Both ReSET partners and non-ReSET colleagues enjoyed the direct and indirect benefits that arose from being exposed to one another, while departments benefited from having access to ReSET resources ranging from networking at faculty visits with both ReSET partners and non-ReSET colleagues, as well from having their own departmental curriculum enhanced through access to ReSET materials.

CONCLUSIONS AND FUTURE WORK

The Regional Seminar for Excellence in Teaching (ReSET) Project “*Governance of Global Environmental Change: Towards a multidisciplinary discussion in tertiary environmental education in the former USSR and Mongolia*” was done in close collaboration with the EC Tempus Joint Project Environmental Governance for Environmental Curricula (EnGo). The ReSET Project hosted over 20 joint events. It also developed and piloted several joint courses.

Following the research training schools that were held in Vorokhta/Lviv and Krasnoyarsk, ReSET project participants took part in a variety of joint research projects, as well as joint publications between universities in Russia, Ukraine and Belarus and much more. The ReSET project, in conjunction with EnGO, has created strong ties between the project participants and introduced novel methodologies to early-career faculty.



Most participants in the ReSET project had either the natural sciences or engineering backgrounds. In spite of their strict mono-disciplinary focus, participants made enormous progress in learning the value of inter- and multidisciplinary research and teaching approaches that take into account social science perspectives on environmental

change in general, and environmental governance in particular. Thanks to being actively engaged in learning and applying inter- and multidisciplinary perspectives on environmental governance through the development and piloting of new courses, ReSET project participants were able to set the stage for deploying the new courses on environmental governance at their home institutions. The expectation is that these early-career scholars would be able to build on these initial pilot courses in order to apply innovative new approaches to teaching and research in classrooms at their home institutions, thus enhancing the potential for their students at the Bachelors and Masters levels to gain competency and build experience in practical research and independent group work.

In order to sustain the achieved goals by reinforcing the positive outcomes, while also following-up with the group of participants to keep track of their progress in making changes at their departments within their home institutions, it would be beneficial to support further work beyond the term of the project. This optimally would include a teaching and curriculum support, as well as provide support for the further development and fine-tuning of both the evaluation component, for both the institutional adjustment and institutional capacity building components. Optimally,

the delivery of these fine-tuning activities would be done within small groups or one-on-one as short-term consulting services in the form of short term activities such as site visits and site evaluations. Using this consulting-style in combination with a communication platform to share information could be highly beneficial for both delivering the information while also fostering and retaining some of the group identity and spirit that was evident among ReSET project participants by the end of the project.

At the date of publication of this report, there are three follow-up or spin-off projects that have already been awarded, which are as follows:

- A Visegrad VUSG Project on environmental governance in countries under transition, which includes both the development and teaching in 2014/15-16 of a module (3 ECTS) at the Kharkiv National University of Municipal Economy, Kharkiv, Ukraine; and
- Two European Commission Jean-Monnet projects on biodiversity and water governance, which includes both the development and teaching of three modules (3 ECTS) at Pskov State University in Pskov, Russia, as well as in forestry and land-use governance (3 ECTS) modules at Belarusian State Technological University, Minsk, Belarus.

All of these spin-off projects involve the ReSET project's academic co-directors in order to better sustain results, foster continuity with the ReSET project, and to further strengthen the ties between individuals and institutions who were engaged in the ReSET project. These new spin-off projects are also organised using some of the same ideas about curriculum development and research activities found in the ReSET project. They are also organised in a way that promotes the outcomes of the ReSET project (such as the pilot course curricula, teaching materials, case study descriptions, and expertise acquired by the participants), while maintaining the visibility of the ReSET project participants at their departments at their home institutions. At the time of the writing of this report, at least three additional project applications are also being prepared for submission to a forthcoming Erasmus+ external dimension call by partner departments in Belarus, Russia and the Ukraine in cooperation with the EU-based Resource Faculty.

One further tangible outcome of the ReSET project is the development of a textbook on case study research and analysis in environmental governance in the region. The textbook will be based on the case studies and research experiences from sessions in Lviv/Vorokhta, Krasnoyarsk, and some research done in Belarus. It will provide a multidisciplinary governance perspective on some challenges to local sustainability in Belarus, Russia and Ukraine, and explain related governance concepts and methodological tools.

In conclusion, the ReSET project achieved its stated goals. The progress by participants, their enthusiasm and the continuous commitment of the Resource Faculty were the main drivers behind this success.

ANNEX 1:

Events



2011 SUMMER SCHOOL IN PSKOV

August 2, 2011 to August 16, 2011: Summer School - *Principles and application of environmental governance and governance of global change*, Pskov, Russia

<i>Location</i>	Pskov State Pedagogical University (Pskov, Russia)
<i>Organisers</i>	Organised jointly by the OSI ReSET Project - <i>Governance of Global Environmental Change</i> , and Pskov State Pedagogical University (Pskov, Russia), with endorsement by the Earth System Governance Project.
<i>Faculty</i>	Eduard Podgaysky, Anton Shkaruba, Ruben Zondervan, Felix Stolberg, Rem Khlebopros, Hans-Peter Nachtnebel, Matthijs Hisschemöller, Katharine Farrell, Marc Metzger

This was the inaugurating event of the Regional Seminar for Excellence in Teaching (ReSET) Project “*Governance of Global Environmental Change: Towards a multidisciplinary discussion in tertiary environmental education in the former USSR and Mongolia*” organized by the Russian State Hydrometeorological University, the Central European University, and the Earth System Governance Project, along with funding and coordination under the auspices of the Open Society Institute’s (OSI’s) Higher Education Support Programme. The purpose of the training event was to present Environmental Governance for Environmental Curricula (EnGo EC) early-career teachers and researchers (15 EnGo EC partner representatives participated) with a wide range of methods and approaches under the umbrella of environmental change governance studies. For this we assembled faculty both from EnGo EU EC partners and external participants arranged by ReSET. The Summer School, as well as the whole network, was organised in cooperation with the Earth System Governance Project global research alliance. The participating young teachers were assembled by an open call with a quota for EnGo representatives and Tempus project 144746. All the participants received certificates of professional re-training issued by the Pskov State University.

The Summer School revolved around the three main objectives:

- (1) assessment of needs specifically related to the project objectives, such as identifying specific “pressure points”, operationalising and down-scaling the project concept, and supporting project planning for the next years;
- (2) bringing together the ReSET participants and the Resource Faculty as a group, and assessing the available capacity, threats, opportunities and specific challenges related to the respective backgrounds, current occupations, qualifications and level of motivation among the participants; and
- (3) introducing the participants to the project objectives and methods, and encouraging creative and innovative thinking for curriculum development and teaching.

Focusing on the concept of environmental governance in general and specific practical applications of environmental governance taken from a multidisciplinary perspective, the Summer School provided the participants with a comprehensive overview of the scope of the project, including expected deliverables. The Summer School took place over a fifteen day period, during which the



participants were introduced to each other and to the faculty and developed a more structured understanding of problems, solutions and cooperation opportunities for teaching and curriculum development. The wide assortment of seminar sessions, moderated discussions and group work used at the Summer School also enabled the faculty to gain a clear overview of the capacity of the group for subsequent training and networking meetings. The time was also used to appoint supervisors from the faculty for the participants to work with going forward. Additionally, some of the time was used to help participants to formulate and distribute individual and group assignments which gave participants the opportunity to sum up the state of the art in specific fields close to each of the participants’ own teaching expertise and course proposals.

More specifically, the Pskov Summer School included presentations in plenary sessions and in break-out groups. It also featured small-group discussions, working sessions, experimental forms of working, and a variety of social activities. Emphasis was placed on creating an atmosphere to stimulate open discussions and mutual learning between the participants. Social events such as joint lunches, dinners, field trips and coffee-breaks were included as important elements to facilitate inter-personal exchange.

The first part of the Summer School focused on identifying general needs, challenges and opportunities for curriculum development in the target region. From Day 2 through Day 6, the research faculty and co-directors gave presentations on the basic

concepts and themes around environmental governance and governance of global change, structured along the three thematic blocks that guided the overall implementation of the project. Participants then briefly presented their own work and intended contributions to the project in the form of a plenary session. They then worked in smaller working groups divided along thematic lines in order to revise and draft a more detailed version of their intended contributions.



The second part of the Summer School was dedicated to the identification and development of more specified subject areas. Starting on Day 8 and running through until Day 11, participants worked in smaller, more dynamic groups with a relatively flexible time-schedule. These groups included tutorial sessions by the Resource Faculty and Co-directors designed to specifically

address needs and challenges, while further elaborating on basic concepts and themes as provided by the research faculty beforehand. This also included an introduction to relevant regional and global scientific networks and projects, as well as training in management skills, organisational skills, research funding acquisition skills and research dissemination techniques. Day 12 was dedicated to methods and theories of teaching, while Days 13-14 were used to fine-tune the overview of needs and challenges and discuss next steps.



2011 AUTUMN WORKSHOP IN MINSK

November 10, 2011 to November 12, 2011: Autumn workshop - *Actual environmental problems*, Minsk, Belarus

<i>Location</i>	Campus of the Belarusian Olympic team (Stayki near Minsk, Belarus)
<i>Organisers</i>	Organised jointly by the OSI ReSET Project - <i>Governance of Global Environmental Change</i> , and the International Sakharov Environmental University (Minsk, Belarus), with endorsement by the Earth System Governance Project.
<i>Faculty</i>	Felix Stolberg, Matthijs Hisschemöller, Ruben Mnatsakanian, Katarina Pavlickova, Józef Mosiej

The seminar focused on presenting work undertaken by the participants individually and in their respective working groups on the development of courses and curricula since the Summer School in Pskov, complemented by lectures with focus on energy and environmental policy.

In addition to the seminar, the academic Co-Director Ruben Zondervan and Resource Faculty member Felix Stolberg gave lectures and speeches at the International Sakharov Environmental University (ISEU) and the Belarusian Technical University, respectively, on related topics.

This autumn training and networking event was designed to cover some of the seven thematic lines identified on the Pskov Summer School and further motivate the young teachers to work on joint courses. The training event gathered 11 young teachers. It focused on taking stock of the progress the participants had achieved up since the Pskov Summer School, while also identifying what additional support they required. In addition, it provided an opportunity to do planning for the next few months, and also was a venue for introducing ReSET participants and Resource Faculty who had been absent in Pskov, which helped introduce the expertise of the new faculty. Theme group leaders also presented the joint work accomplished up to that point.

During the workshop, the theme group leaders, together with their other group members, made short presentations outlining the joint work that had been completed since the Pskov School. These presentations were intended to reflect on both challenges and successes, including whether or not expectations for the joint work had been realistic. Presentations also gave the groups an opportunity to reflect on any communication problems and successes, on preliminary outcomes, on any corrections to the original plan that had to be made, and on expectations the group members had for further support. In addition to the participants' presentations, members of the Research Faculty organised sessions on water engineering issues in water governance and energy policies. Both the members of the Research Faculty as well as guest researchers were available for group and individual consultations. Between and after the sessions and consultations, participants had time to interact with other project participants and prepare the "Next Steps" presentations for the end of the workshop.



2012 SPRING SCHOOL IN KIEV

April 21, 2012 to April 27, 2012: Spring School - *Nuclear governance in a changing world*, Kiev, Ukraine

<i>Location</i>	Kyiv Polytechnic Institute (Kiev, Ukraine), Chernobyl (Pripyat, Ukraine)
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<i>Organisers</i>	Organised jointly by the OSI ReSET Project - <i>Governance of Global Environmental Change</i> , The National Technical University of Ukraine 'Kyiv Polytechnic Institute' (Kiev, Ukraine), Central European University (Budapest, Hungary), VU University (Amsterdam, The Netherlands), in cooperation with the European Commission Tempus Project - <i>Environmental Governance for Environmental Curricula</i> , and DEVAST Project - <i>Disaster Evacuation and Risk Perception in Democracies</i> , with endorsement by the Earth System Governance Project.
<i>Faculty</i>	Agnieszka Karczmarczyk, Alexander Slinchak, Andrey Timoshchenko, Anton Shkaruba, Eduard Podgaysky, Estelle Balian, Felix Stolberg, Hans-Peter Nachtnebel, Iryna Usava, Jan Milicka, Katarina Pavlickova, Marc Le Menestrel, Matthijs Hisschemöller, Matyas Szabo, Rem Khlebopros, Reiko Hasegawa, Ruben Mnatsakanian, Ruben Zondervan, Siamion Kundas, Sybille van den Hove, Tamara Dudar, Tatiana Kuchinskaya

The central theme of the Spring School in Kiev was civil nuclear governance, and allowed for a joint reflection on both the Chernobyl and Fukushima accidents. It explored, amongst other things, the differences and similarities in information and communication flows, as well as the kind of crisis management deployed in nuclear accidents in such distinctively different societies as the USSR of the 1980's and more recently in Japan. Both the participants and the faculty placed their focus on issues of nuclear energy in society, and on teaching them at the tertiary level. As a central component of the event, a field trip to Chernobyl was organised. Participants jointly reflected on risks and options for the future governance of nuclear energy and of its legacy. The Spring School provided a unique training opportunity to explore issues related to nuclear governance and more broadly environmental governance from multiple perspectives, including scientific, political, economic, technical, social and individual viewpoints.

The key purpose of the Spring School was not only to provide quality research training on governance of nuclear issues, discussing the actors and networks involved in the issue, their interactions, their rationalities and their stakes. There was a second key purpose, and that was simply to create a discussion space for various topics. The discussion of topics covered such areas as communication, ethics, economics, politics of the nuclear energy sector, as well as essential technological and social considerations. The event also gave participants space to reflect on possible strategies for rehabilitation of contaminated areas and ways to stimulate adaptation within local communities. Where possible, the controversies raised by these issues were identified and put forward. Speakers and participants were invited to give their honest and straightforward comments, while a range of opinions were offered by the faculty.

Participants and faculty reflected on the decision-making processes and impasses around nuclear choices by scrutinizing the decision process operating under uncertainty and ignorance, irreversibility, the precautionary principle, technological and institutional lock-ins, adaptive governance, transparency and confidentiality, etc.

They also examined the available alternatives and on how these are communicated and presented in the political process. Scenario development and scenarios for the energy sector and strategies for rehabilitation and adaptation of contaminated areas were discussed as an area of a particular interest using specific examples from Belarus and Ukraine.

The Spring School lasted four and a half days in total starting with a two-day session in Kiev, followed by the field trip, and then ending with a day and a half session in Kiev after the field trip. On April 23rd and 24th, presentations, moderated discussion and group work covered both technological issues and governance aspects of the Chernobyl and Fukushima accidents. Also included in the discussions was a global overview of nuclear energy development strategies ranging from issues around risk, precaution and technology, to topics around environmental assessment, strategies and techniques for rehabilitating contaminated areas, communication and science-policy interfaces, ethical issues, and finally stakeholder identification and policy deliberation.

Participants in the Spring School were encouraged to attend the field trip to Chernobyl on April 25th in order to enrich their learning experiences and learning outcomes since being on-site would engage all of their full sensory experience, from the physical landscape to their own emotional response, which was in turn expected to make future dialogues more vivid and discussion points sharper. It is worth noting that during the excursion, the highest radiation safety standards were ensured in order to protect project participants and faculty alike.

On April 26th, the day after the field trip, the Spring School sessions focused on problems of teaching social science concepts to those students of environmental sciences who are firmly grounded in the natural sciences or engineering. Discussions also touched on the development of mainstream concepts of environmental sciences in general, particularly when examples come mostly from the energy sector. The utility of technology assessments (including uncertainty evaluations) was also touched on. The half-day session on April 27th was used by participants to present their personal work and conclusions.

The Spring School and field trip served as platforms for genuine exchanges among participants from different cultural and institutional backgrounds. The field trip enabled participants to experience a direct, personal, and emotional journey into the reality of a post-nuclear accident site. This provided participants not only with original insights on nuclear governance, but also with a genuine emotional experience and a great networking opportunity. Participants enriched their knowledge about the key challenges of nuclear energy governance and reinforced both in themselves and in other participants a sense of what critical and transformative capabilities would be needed to address these challenges. The Spring School strengthened the participants' capacity to formulate and to support their opinions with arguments, and to participate in both scholarly and professional discussions on the issue.



2012 SUMMER SCHOOL IN LVIV

July 22, 2012 to August 4, 2012: Summer School - *Global Change and Local Challenges of Environmental Governance*, Lviv/Vorokhta, Ukraine

<i>Location</i>	Carpathian Field Station of the Lviv National University (Vorokhta, Ukraine), Olympic Campus “Zaroslyak” (Carpathian National Park, Ukraine), Institute of Ecology of the Carpathians at the National Academy of Sciences of Ukraine (Lviv, Ukraine)
<i>Organisers</i>	Organised jointly by the OSI ReSET Project - <i>Governance of Global Environmental Change</i> ; VU University, Amsterdam, The Netherlands; Comenius University, Bratislava, Slovakia; National Academy of Science, Ukraine; Warsaw University of Life Sciences - SGGW, Warsaw, Poland; in cooperation with the European Commission Tempus Project EnGo EC - <i>Environmental Governance for Environmental Curricula</i> , with endorsement by the Earth System Governance Project.
<i>Faculty</i>	Matthijs Hisschemöller, Jirina Jilkova, Agnieszka Karczmarczyk, Mykola Kozlovskyy, Maria Kozova, Semjon Kundas, Galina Martsinkevich, Józef Mosiej, Ruben Mnatsakanian, Hans-Peter Nachtnebel, Eduard Podgayskiy, Anton Shkaruba, Iryna Shpakivska, Ruben Zondervan

The ReSET Summer School 2012 - *Local Challenges of the Global Environmental Change* capitalised on the experience of the first year of the ReSET project and prepared the groundwork for the development of course contents (including lecture notes and descriptions of case studies) leading up to the launch of the new pilot courses at the participants’ home institutions. The Summer School did this by helping ReSET participants to focus specifically on environmental governance practice-relevant issues and research methodologies. Classroom work pivoted on case studies in order to help participants focus on practical applications of environmental governance issues embedded in pre-selected case studies. In addition, key figures working in higher education in the region also presented at the Summer School sessions. Participants were also given the opportunity to engage with each other and with the Resource Faculty through both group work and individual sessions dedicated to developing course syllabi and course materials.

The main goal of the Summer School was to build both the teaching and curriculum development competencies of the ReSET project participants. The School was divided

into three (sometimes overlapping) blocks of time. The introductory phase (July 23-25) focused on reviewing, discussing and wrapping up the results of the first year. Introductory sessions were given by the ReSET core Resource Faculty. The Resource Faculty also presented an introduction to research methodologies, concepts, and approaches that would be explored during the second year. Representatives of the Institute of Ecology of the Carpathians at the National Academy of Sciences of Ukraine provided background information on the area and the case studies.

The second block (July 26-August 3) focused on case study research and reporting. The participants were subdivided in three thematic groups, each addressing a local sustainability issue. Group 1 could explore either local energy OR local sanitation, waste management and water supply. Group 2 could dig into either land-use conflicts OR multilevel forest governance in the Carpathian National Park and neighbouring areas. Group 3 had the opportunity to explore either sustainable tourism OR sustainable agriculture. The projects were supervised by ReSET core faculty. Both ReSET faculty and invited EnGo faculty were also available for consultations. In a final step, the projects' outputs were presented at the Institute of Ecology of the Carpathians at the National Academy of Sciences of Ukraine.

In the third block (August 3-4), the focus was placed on course development and refinement. This included basic tasks such as placing the materials on standardized syllabi templates. However, it also encompassed more detailed instructional design and content development tasks such as the development of descriptions of case studies. It also provided an opportunity for the senior faculty from the region's universities present at the Summer School to discuss course dissemination opportunities.

The Summer School introduced methods for researching local governance systems. It also presented tangible teaching and research skills. Participants were able to get input on how to develop course materials both for the future pilot courses under development, as well for immediate use in their immediate teaching activities at their home institutions. Simultaneously, the value of multidisciplinary enquiry was demonstrated, as was the value of taking both a problem- and policy-oriented approach to the course development. Furthermore, bringing together the ReSET participants and the Resource Faculty as a group provided an opportunity for assessing the available capacity, threats, opportunities and specific challenges related to the respective backgrounds, current occupations, qualifications and level of motivation among the participants.



2012 AUTUMN SCHOOL IN ODESSA

September 24, 2012 to September 28, 2012: Autumn School - *Rural areas: management and governance*, Odessa, Ukraine

<i>Location</i>	Odessa State Environmental University (Odessa, Ukraine)
<i>Organisers</i>	Organised jointly by the OSI ReSET Project - <i>Governance of Global Environmental Change</i> , Odessa State Environmental University (Odessa, Ukraine), VU University (Amsterdam, The Netherlands), National Academy of Science (Kiev, Ukraine), Warsaw University of Life Sciences – SGGW (Warsaw, Poland), with endorsement by the Earth System Governance Project.
<i>Faculty</i>	Brandon Anthony, Matthijs Hisschemöller, Agnieszka Karczmarczyk, Mykola Kozlovskyy, Jozef Mosiej, Ckees van Oijen, Ivan Pirozhnik, Anton Shkaruba, Iryna Shpakivska, Felix Stolberg, Ruben Zondervan

The focus of the 2012 Autumn School was rural sustainability, with an emphasis on applying case study approaches, scenario integration and scenario building in research and teaching. In this respect the School was a logical continuation of the 2012 Summer School in Lviv. The Carpathian case studies used at the 2012 Summer School in Lviv were also used for scenario development exercises during the 2012 Autumn School.

The four-day programme included sessions by the Resource Faculty on sustainable agriculture, wildlife-human conflicts, as well as an introduction to scenario integration which included a scenario integration exercise, and a backcasting exercise. The backcasting exercise addressed the development of indicators describing what a possible future could be for the Vorokhta area in 2022. It covered scenarios for energy, water resources, waste management, tourism, land use sectors. Using the backcasting methodology, participants were challenged to envision what 2022 could be like, and then to work the scenario for getting there using milestones that took participants back to the present. The results of the backcasting exercise were discussed with local stakeholders as well as with regional authorities who were about to launch a large investment programme for tourism development in the mountain areas.



To enhance the sense of continuity, all sessions in the Autumn School related to the case studies analysed during the previous Summer School. ReSET project participants were given time to work on further developing course syllabi for their pilot courses. Space was also provided for the presentation of 'progress check' presentations at both the beginning and end of the Autumn School.

In addition to having an excursion to a site of environmental degradation near Odessa, the Autumn School programme also included various topics and issues for both individual reflection and group work sessions. Topics explored some of the complexities found in environmental governance and management issues occurring in rural areas, including issues related to sustainable agriculture, local energy production, physical planning, cultural landscapes, depopulation, land abandonment, and nutrient governance.

Building on the local case studies from the 2012 Summer School gave participants at the Autumn School the opportunity to further explore the case study materials, and develop a structure to reframe the materials according to the needs of participants when they are teaching students at both the graduate and postgraduate levels. The longer term ambition is to develop a textbook covering integrated environmental governance issues for a specific locality (such as Vorokhta in Ukrainian Carpathians). There was also a desire to summarize the experience from the case study integration and backcasting exercises, and also to formulate a methodology for using both case studies and scenarios for teaching at both the graduate and postgraduate levels.

Generally, the Autumn School contributed to helping the participants increase their understanding of principles and application of environmental governance and governance of global change, in particular as it relates to rural areas and specific rural problems. Participants also gained first-hand experience of creative and innovative thinking for curriculum development and teaching, including new ways to perform needs assessments.



2013 SPRING SCHOOL AND WORKSHOP IN MAHILYOW

May 6, 2013 to May 10, 2013: Spring School and workshop - *Governance of Global Environmental Change: From planning and discussing to researching and teaching*, Mahilyow, Belarus

<i>Location</i>	Joint University of Belarus and Russia (Mahilyow, Belarus)
<i>Organisers</i>	Organised by the OSI ReSET Project - <i>Governance of Global Environmental Change</i> , and the Joint University of Belarus and Russia (Mahilyow, Belarus).

<i>Faculty</i>	Natalia Alekseeva, Maria Falaleeva, Matthijs Hisschemöller, Ruben Mnatsakanian, Eduard Podgayskiy, Anton Shkaruba, Gijs van der Poel
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The ReSET project participants had accomplished many things leading up to the Spring School and Workshop on *Governance of Global Environmental Change* in May 2013. The participating early-career teachers had become a socialized group who found they were sharing a lot of common interests, along with their joint plans, courses and research. Many of the previous sessions that had been held on environmental governance theory, methodology and application had been translated into pilot course syllabi and research plans. The case study research that took place in the Carpathians at the 2012 Summer School, along with scenario building exercises at the 2012 Autumn School in Odessa, had both been instrumental in helping ReSET participants to build a better understanding of what environmental governance is all about. Even more impressively, the joint pilot-courses developed by ReSET project participants had been introduced at partner universities.

The 2013 Spring School also marked the completion of the second year of the ReSET/EnGo joint initiative that had brought together early-career university teachers from Belarus, Russia and the Ukraine, aiming to introduce governance issues in teaching environmental sciences at their home universities. It served as a space for reflection, evaluation and perspective planning. With support from the research faculty, focus group discussions were dedicated to helping participants apply multidisciplinary methodologies in their research and teaching by using such tools as scenario building, case study research, stakeholder process management, and post-project evaluations.



The 4-5 day programme included a combination of sessions by the Resource Faculty alongside sessions that provided space for independent work, group work and group discussions. The Spring School also provided a space for progress ‘check-up’ presentations at both the beginning and at the end of the School.

2013 SUMMER SCHOOL IN KRASNOYARSK

July 15, 2013 to July 29, 2013: Summer School - *Scale in Earth System*

Governance: Local case studies and global sustainability, Krasnoyarsk, Russia

<i>Location</i>	Siberian Federal University in Krasnoyarsk and National Park "Stolby" (Krasnoyarsk, Russia), and parts of Eastern Siberia.
<i>Organisers</i>	Organised jointly by the Siberian Federal University (Krasnoyarsk, Russia), Central European University (Budapest, Hungary), Russian State Hydrometeorological University (St. Petersburg, Russia), and the Earth System Governance Project. Supported by the Tempus EnGo EC - <i>Environmental Governance for Environmental Curricula</i> , the OSI ReSET Project - <i>Governance of Global Environmental Change</i> , and the Asia-Pacific Network on Global Environmental Change (APN).
<i>Faculty</i>	Katharine Farrell, Sybille van den Hove, Ruben Mnatsakanian, Hans-Peter Nachtnebel, Ckees van Oijen, László Pintér, Eduard Podgaisky, Egor Zadereev

In order to address the challenge of how to deal with issues around scale in environmental governance research, the 2013 Summer School was designed to provide training to early-career researchers and teachers from both the ReSET project, and the Asia-Pacific Network on Global Environmental Change (APN) while strengthening and expanding their network with both early-career researchers and established experts in the Asia-Pacific region and beyond, including expanding networking ties with Russia and other countries of the former USSR. As a result, this Summer School provided a unique forum for interactions not only among ReSET participants from the former USSR, Mongolia, Central and Eastern Europe, but also between ReSET participants and APN participants from the Asia-Pacific region. Thus, the School served as an important networking opportunity and platform to initiate and catalyse momentum for new research.

The School was innovative in design and unprecedented in geographical scope. Its programme included talks, seminars, moderated discussions and both supervised instruction and independent group work. The main goal of the 2013 Summer School was to help early-career researchers increase their understanding of the implications of analytical and normative uncertainties associated with the problem of scale in environmental governance, particularly how these uncertainties manifest at the local level. During the School, participants discussed how issues of scale manifest in environmental governance, particularly related to research challenges and analytical problems at the local level. Local case studies were then used to provide students with

additional context and insights by viewing the challenges through a multidisciplinary lens as it related to each case.

The School also provided the participants with opportunities through hands-on training to practice with collecting comparative data from the Siberian context for research papers and curricula so they could build capacity in how to conduct case study research.



The School included three core components. The first component was an introduction to the issue of scale, including conceptual approaches and tools for its interpretation and analysis as well as sessions on the local issues of sustainability. The second component immersed participants in six days of field research. Participants worked in groups, but all groups consisted

of at least one fluent Russian-speaking participant who also could share their understanding of the local context. This group design was done intentionally to ensure that non-Russian speakers would be more fully able to learn, participate and contribute to the case study research. Finally, the third component was a discussion of case study materials based on scale-related perspectives, including reflections on how to best work through their integration and their presentation to students at both the Bachelors and Graduate level.



2013 WINTER SCHOOL IN ST. PETERSBURG

December 2, 2013 to December 6, 2013: Winter School - *Sustainability Issues Summarised, Categorized and Connected: Transferring research results to learning outcomes*, St. Petersburg, Russia

<i>Location</i>	St. Petersburg State University (St. Petersburg, Russia)
<i>Organisers</i>	Organised by the OSI ReSET Project - <i>Governance of Global Environmental Change</i> .

<i>Faculty</i>	Katharine N. Farrell, Matthijs Hisschemöller, Sybille van den Hove, Ruben Mnatsakanian, Hans-Peter Nachtnebel, Ckees van Oijen, László Pintér, Eduard Podgaisky, Anton Shkaruba, Ruben Zondervan
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The 2013 Winter School was designed to provide training to early-career researchers and teachers from the ReSET project on sustainability issues, as well as to help participants learn how to translate research results into learning outcomes for classroom use. Both the Summer School in the Carpathians in 2012 and the one in Krasnoyarsk in 2013 had focused on case studies, and had helped the participants to gather a lot of information they had used for reflecting on various issues of local sustainability, which had led to a variety of insights about how local issues connect to global environmental change. By December 2013, the course development groups had also prepared first drafts of their syllabi for the new pilot courses. Thus, even though the School included a few seminars on specific issues of environmental governance, research methods, curriculum development and teaching methodology, the main goal of this School was to ensure that the courses were based on first-hand research experience, not on literature reviews alone. In other words, this School was to ensure that concepts, methods and tools were used in the context of real life case studies.

Another objective of this School was to plan for the piloting of new courses in the winter and spring semesters of 2014, including the possibility of aligning the case studies along the same storyline to make it easier for the early-career teachers to have a basis for comparison and integration of the case studies. The final objective was to discuss the overall template, content and



distribution of writing tasks for the book planned on case study research and analysis. This was done through group presentations, plenary and small-group discussions, case study workshops, and book chapter workshops. There were also both group discussions and individual consultations with the Resource Faculty.

Other outputs from the School were also discussed, including the potential for outputs of the case study research being published as an Earth System Governance Project report. Additionally, the participants were encouraged to publish their case study findings in international, peer-reviewed journals. In the end, it was decided that the case-study research experience would be published in Russian as a textbook.

2014 SPRING SCHOOL IN MINSK

May 5 to May 9, 2014: Spring School - *Governance of global environmental change: Summarising, wrapping up and evaluating*, Minsk, Belarus

<i>Location</i>	Belarusian State Technological University (Neharelaje near Minsk, Belarus)
<i>Organisers</i>	Organised by the OSI ReSET Project - <i>Governance of Global Environmental Change</i> .
<i>Faculty</i>	Alexander Niaverau, Eduard Podgaisky, Anton Shkaruba, Maria Zhevlakova, Ruben Zondervan

The final Spring School in Neharelaje served as an opportunity to wrap-up, evaluate, and plan follow-up activities of the ReSET Project. In addition, the Spring School placed a thematic focus on understanding the concept of the ‘green economy’ when discussing environmental governance in Belarus. The School began in Minsk. Professor Ihar Darmeshkin, the University Pro-Rector for Research, opened the School. The first day of the School continued with a lecture by Professor Aliaksandar Niaverau on the ‘green economy’ in Belarus, which was followed by a short discussion. After lunch, the participants visited Mirski Castle, before the School moved to the Neharelaje Campus of the Belarusian State Technological University located 50 km outside of Minsk.

On the second and the third days of the School, Maria Zhevlakova gave presentations on the potential role of the ‘circular economy’ and its potential implications for local sustainability. The project participants also taught classes to students working towards their Masters degrees. These classes were an opportunity for ReSET project participants to demonstrate their newly acquired teaching and curriculum development competencies. Finally, on the fourth day, participants discussed their lessons learnt from the pilot courses they had run in 2014. The School ended with a feedback session on the entire ReSET project and discussions on how to continue with writing and publishing the Russian-language textbook on the completed case-study research.

ANNEX 2:

Summer School - Scale in Earth System Governance: Local Case Studies and Global Sustainability Krasnoyarsk, Russia

The Summer School was organized jointly by the Siberian Federal University, the Central European University, the Russian State Hydrometeorological University, and the Earth System Governance Project, and was supported by the Tempus EC Project - *Environmental Governance for Environmental Curricula*, the Open Society Institute's ReSET Project - *Governance of Global Environmental Change*, and the Asia-Pacific Network for Global Change Research (APN).

THEMATIC BACKGROUND

Earth system governance is more than a problem of the regulation of the 'global commons' through global agreements and conventions. It is happening not only at the global level but in a variety of places and at all levels where humans shape their interaction with nature. For research, it is important to identify whether certain findings or hypotheses apply on all scales, or are valid merely for one scale and to what extent scale influences finding. In sustainable development research, there is a strong emphasis on local level studies but often these studies insufficiently address the interactions and cross-scale dynamics, as well as the 'fit' of social (governance) to natural scales. Also, valuable approaches like 'resilience' and 'social ecological systems' recognize a hierarchical spatial organization of governance at a local scale, but they struggle with multi-level governance and favour polycentric governance to explain questions of scale. In addition to such analytical issues of scale, there is also an important additional area for research and capacity building, specifically the *politics of scale*. Actors, such as individual politicians, agencies, institutions and mechanisms, are contesting and framing scales and levels by shifting issues to between scales and levels to positions in which they themselves are most influential or powerful. Such contests can be relatively direct, as in debate or argument, or through the use of technologies, controlling resource access and other ways of shaping the arenas of interaction. The *Scale in Earth System Governance: Local Case Studies and Global Sustainability* workshop addressed these challenges of scale and served as means for discussing the issue of scale in earth system governance, and building the capacity of early-career researchers from the Asia-Pacific region, Central Europe and Eastern Europe to engage in these discussions.

In terms of geographical scale, the Summer School was unprecedented. Although the school looked at local issues, the geographical scope was far beyond what is usually called "local" given that the case studies were spread all over the Krasnoyarsk region

with its impressive 3000 km stretch from the Arctic Ocean to the Central Asian deserts. Covering a total area of over 2 300 000 km² made for more a geographic area of study that was more than a half of the size of the EU. Although the furthest locations were accessed using phones and social networks, there were still some research groups who had to travel up to 650 km to reach their case study locations, followed by significant mountain hiking in order to meet interviewees to get first hand insights into local problems. The thematic scope was also quite large. The case study topics encompassed a whole range of local sustainability issues. Topics included looking at renewable energy options for remote settlements, sustainable urban planning in the city of Krasnoyarsk, waste management for sustainable tourism, and also wildlife-human conflicts in Siberian nature reserves. All of the case study research teams explored tools and techniques borrowed from the broad range of disciplines related to environmental studies, in particular social and policy sciences. Taking this approach remains uncommon for environmental science research in general and environmental governance problem solving in particular within Russia and elsewhere in former USSR.

The event was held at the Siberian Federal University in Krasnoyarsk, Russian Federation from July 15th until July 29th 2013. It consisted of the following four periods:

- Introductory period: Introduction to the school, sessions on theories and research methodology, presentations of case study projects (July 15-19)
- Field trip period: Field research in nature reserve Stolby and nature park Ergaki, and also in the city of Krasnoyarsk and its nearby neighbourhoods. Extensive field research including interviews and archive search (July 20-25)
- Consultation and analysis period: Consultation with faculty, lectures, and independent work to prepare research reports and presentations (July 26-27)
- Graduation: Presentations by the case study groups at a seminar arranged at the Siberian Federal University, followed by formal closure and farewell dinner

The workshop helped to build upon case studies developed at the Summer School that was held in July 2012 in Lviv and Vorokhta, Ukraine. It also followed-up on the 2012 Autumn School and workshop in that was held in September 2012 in Odessa, Ukraine. Both these events were organized under the umbrella of two projects, namely the European Commission Tempus Project - *Environmental Governance for Environmental Curricula (EnGo)*, and the ReSET project.

The case study materials collected in the Carpathians during the 2012 Summer School, and discussed at the 2012 Autumn School and Workshop in Odessa were used for comparisons and discussions of scale issues. These common case studies helped participants to draw a more comprehensive picture of the problem of scale when taken from the local level across to global locations. In addition, participants brought case studies and experiences from their own localities and context. One of the objectives of the School was to strengthen cooperation across Eastern Europe and Asia. It was tremendously successful in meeting this objective since the participants came from India, Japan, Nepal, Thailand, Russia, Belarus and Ukraine, and even South Africa.

CASE STUDIES

The core idea of case study research in the Summer School was to co-design research projects in collaboration with stakeholders involved in particular environmental issues. Thus, the themes of each of the case studies reflected the interests of a combination of the participants, the host institution, other organisers, and the local stakeholders.

Representatives of key stakeholder groups were consulted during early stages of the case study development process, long before the actual start of the Summer School. They were then consulted once again when it was time to identify specific research questions to connect with participants. This study methodology was used in order to ensure that only the issues recognised by local communities as “hot” were selected for further research. The following issues were addressed in the case studies:

Sustainable urban planning in Krasnoyarsk

Through most of its history, the city has been developed according to master plans prepared and implemented in a very top-down manner. However, this did not prevent the city from being trapped in endless transport issues, and from the evil question facing many cities – “where to grow?” Large spaces in the city, including the areas near the downtown core, are often occupied by industrial facilities, and many of those facilities are either extremely difficult to move, or will require large investments to undergo ecological remediation. Other options for development exist, but those come with many social and economic problems that could involve large infrastructure costs, and even compromise both local and national nature conservation objectives.

Mini hydropower facilities in the Krasnoyarsk Region

Some attempts have been made to develop mini hydropower facilities in Siberia but they did not work. This has raised questions about the role of and challenges to innovation in the energy sector and about whether the local hydropower solutions are competitive to traditional ways of energy production in remote areas. Technological path dependency, and other more social barriers seem to hamper the economically much needed and technologically feasible mini hydropower deployment. However, issues around environmental and social costs, as well as the governance of such decentralized energy sources, are still debated.

Sustainable tourism and waste management in nature preserves in the region

While geographically a very remote area, even by Russian standards, the Krasnoyarsk region is no longer as closed and isolated as it was in Soviet times. The region is even seeing a growth in tourism. Case studies in Stolby and Ergaki nature parks addressed issues of how this could be governed toward sustainability, what the lessons learned and possible solutions are of the growing number of visitors, and also cross-sectoral issues and interactions related to the emergence of multiple governance layers.

Human-wildlife conflicts in Southern Siberia

This case looked at issues of poaching, attacks or dangerous presence of predatory species, conflicts over crops and livestock, as well as intersectional issues using the case study areas established in the nature parks of Stolby and Ergaki. Particular attention was paid to the stakes of local communities, regional agencies, and federal authorities alongside the public interests expressed by locals. Lessons learned were gathered in order to propose better management of the human-wildlife and related conservation-development conflicts in the Krasnoyarsk region.

Energy efficiency in the housing sector in Krasnoyarsk

Continental climate brings to Krasnoyarsk hot summers and extremely cold winters. This creates challenges to energy efficiency in cooling and heating, and enormous energy and resource saving potentials. However, new technologies and initiatives are slow to develop. This case looked at the options for speeding up the process in the city, including the identification of the barriers, constraints and the opportunities, along with an analysis of how the issue is seen and governed at different levels.

ANNEX 3:

Participants and faculty

PARTICIPANTS

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ANNEX 4:

Map

Participants



Events



Pilot Courses



