

Exemplary Transdisciplinary Projects – *swiss-academies award for transdisciplinary research 2015*

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Members of the Jury of the Swiss td-award

The Network for Transdisciplinary Research (td-net) of the Swiss Academies of Arts and Sciences seeks to foster transdisciplinary research and showcase new approaches addressing topics of societal relevance and impact. The Jury honours the awardees and encourages them to go on contributing to the maturation of their fields.

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During the most recent *International Transdisciplinary Conference*, from 8 to 10 September 2015 in Basel, Switzerland, the *swiss-academies award for transdisciplinary research* was presented to innovative projects in Switzerland (see figure 1). Included were the **main research award**, **young career awards** and an **award for life-time achievement**. Mercator Foundation Switzerland supports the Swiss Academies of Arts and Sciences to promote transdisciplinary research. In total, 75,000 Swiss francs were awarded to the 2015 winners.

Intense Competition for the Main Prize

The 2015 **transdisciplinary award** was won by architect **Emmanuel Rey** and his team from the Federal Institute of Technology in Lausanne (EPFL). Architecture is not often considered as a science per se. However, with its foundation in geometry, mathematics, physics, chemistry, social science and philosophy being well established, architecture can be considered as a meta-science which reaches beyond pure knowledge to connect with esthetics and the prevailing “Zeitgeist”. As one of the most ancient cultural expressions of humanity, architecture implies a societal engagement of architects, engineers and builders. In current times, there

is more than ever a need for innovative, sustainable urban planning. In this sense, architecture is a key field of transdisciplinarity, engaging academic and nonacademic actors as part of the research process for societal problem solving.

You will read in this issue of GAIA how the team of Emmanuel Rey engaged in a scenario process with sixty students and integrated authorities and other stakeholders in order to explore urban densification issues. They elaborated six urban and architectural visions, using a multi-criteria catalogue of social, ecological and economic criteria, in order to optimise all of these barely comparable dimensions.

This project shows the strength of transdisciplinarity because it ultimately relates interdisciplinary science with a societal perspective, extending a purely academic point of view. The developed method was applied to other community projects, and the Jury expects that building projects and urban planning will enter a new era of integrated transdisciplinary development aimed at an optimal technical and societal consensus. To cite Emmanuel Rey: “Ultimately, synthesising multiple constraints into a unifying spatial concept has always been an essential element of an architectural or urban project. Therefore, from our viewpoint, transdisciplinarity is by no means revolutionising the foundation of architecture or urbanism. Rather, it makes it possible to enrich

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practices and research in these two fields with new inputs, on the environmental, sociocultural or economic levels. In order to tackle the complexity and the multiplicity of these parameters, architects are definitely expected to master transdisciplinarity if they are to assume their role of central coordinator of the project”.

Future generations of architects and urban planners should profit from this new approach of “jointly designing for urban sustainability”. *td-net* expects strong leadership in training and education in the sense of a transdisciplinary perspective.

Two additional research teams were nominated for **outstanding achievements in transdisciplinary practice**.

In the framework of the *National Research Programme Sustainable Water Management (NRP 61)*, **Rolf Weingartner** and the team from the University of Bern investigated the options for sustainable water management strategies to cope with future possibility of water scarcity in the region Crans-Montana-Sierre, Canton of Valais, Switzerland (see box 1, p. 184).

This team, uniting members from the universities of Bern, Fribourg, and Lausanne, engaged stakeholders from communities, local authorities and scientists, in an exemplary way. Weingartner explained in the application the “co-production of knowledge as a process in which scientists, experts and other nonacademic actors co-construct systems, target and transformation knowledge with a view to finding solutions to concrete lifeworld problems related to sustainable development”. Moreover, he emphasised that “non-academic knowledge is systematically integrated by continuously encouraging dialogue between different actors”.

Certainly the inclusion of nonacademic knowledge is critical for finding acceptable solutions within a given context. This remains true even when communities insist on autonomy and the solutions which are acceptable from a societal perspective are not those which seem optimal from an academic point of view.

The Jury also recognised **Kai M. Udert** from the Swiss Federal Institute of Aquatic Science and Technology (eawag) with a **token**

of appreciation. He led a research partnership between South African and Swiss teams on the recycling of human urine as crop fertilizer. The work was composed of a technical and a societal component showing that technological development in recycling of nutrients alone is not sufficient but needs to be embedded into a societal process of socially and culturally acceptable practices. Their transdisciplinary approach and project guidelines are also described in this issue of GAIA.

Promising Young Academics

Over the years, *td-net* became more and more aware that distinguished achievements were generally awarded to senior researchers. Most of the awards were granted to quite encompassing research programmes, which spanned several years to include a large number of subprojects from different disciplines. It is understandable that excelling in such programmes necessitates considerable experience and seniority.

On the other hand, transdisciplinarity is still a young field, which needs innovative ideas and fresh perspectives. Young people should gain visibility, as they develop new ideas that may not immediately result in expansive, integrated programmes. With the **award for early career achieve-**

Emmanuel Rey, Sophie Lufkin: **GREEN DENSITY. A Transdisciplinary Research and Teaching Project for the Design of Sustainable Neighbourhoods**
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Flurina Schneider, Mariano Bonripoli, Olivier Graefe, Karl Herweg, Christine Homewood, Matthias Huss, Martina Kauzlaric, Hanspeter Liniger, Emmanuel Rey, Emmanuel Reynard, Stephan Rist, Bruno Schädler, Rolf Weingartner: **MontanAqua: Tackling Water Stress in the Alps. Water Management Options in the Crans-Montana-Sierre Region (Valais)**
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Kai M. Udert, Bastian Etter, Teddy Gounden: **Promoting Sanitation in South Africa through Nutrient Recovery from Urine**
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FIGURE 1: *td-award* 2015 award ceremony in Basel (from left to right): Theres Paulsen, Bernhard Truffer, Jakob Zinsstag (jury members), Sabine Hoffmann (awardee), Guy Morin (laudation, President of the Executive Council of the Canton of Basel-Stadt), Marcel Tanner (awardee), Pasqualina Perrig-Chiello (jury), Emmanuel Rey, Kaspar Burger (awardees), Kai M. Udert, Flurina Schneider for Rolf Weingartner (shortlisted projects).

BOX 1: The “Holy Waters” in the Canton of Valais

The Canton of Valais is situated between two alpine mountain chains which divert rain so that irrigation is required for agricultural production. Dealing with water resources is a century-old community-based activity because the water has to be collected from glacier sources into canals, made from dug-out logs set along steep cliffs, to provide it to meadows and grain fields in the mountain villages. Many men died during these building operations; therefore, the irrigation system is also called the “Holy Waters”. Not surprisingly, **Elinor Ostrom** started her research work in Valais, specifically in Törbel, studying the community dynamics and economics of decentralised natural resource management for which she later won the *Nobel Prize in Economics*.

Kaspar Burger:
**A Transdisciplinary
Approach to Research
on Early Childhood
Education**
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Marcel Tanner:
**A Harmonic Way to
Transdisciplinarity.
Experience from Global
Health Development**
► p. 204

Sabine Hoffmann:
**Transdisciplinary
Knowledge Integration
within Large Research
Programs**
► p. 201

ments, we seek to identify exemplary scholars who fulfill these conditions.

This year two researchers were encouraged to continue contributions towards the maturation of their fields, and it is intended that this will inspire their academic careers and the institutes where they will work in the coming years. **Kaspar Burger** from the University of Geneva is honoured for his doctoral thesis on *Early Childhood Care, Education and Equality of Opportunity*. In this work, he assembled an impressive range of insights from different social science disciplines in order to analyse the challenges of early childhood education in an integrative way. He focused on conditions for the well-being and development of children in educational institutions and also derived implications of early childhood care on broader societal domains. For this, he leveraged theories and methods from educational sciences, psychology and sociology as well as linguistics and literature studies. The Jury viewed this study as an exemplary way for conducting transdisciplinary research in the realm of social sciences.

Sabine Hoffmann is awarded for her project *Knowledge Integration for Sustainable Urban Water Management*. She analysed the five overarching synthesis processes in the context of the *National Research Programme Sustainable Water Management (NRP 61)*. She identified the different methods for knowledge integration in transdisciplinary research in these various processes and assessed their strengths and weaknesses. In addition, she provided a useful entry point for young scholars entering the transdisciplinary field and, therefore, contributes to further professionalise the management of td projects. The award committee con-

sidered this to be one of the key challenges for building up transdisciplinary competence in the Swiss academic field.

Honouring Personal Commitment

Personalities who have dedicated their professional career to establish interdisciplinary and transdisciplinary research are important role models in the scientific community. The *td-net life-time award* recognises long-lasting personal commitment to transdisciplinary research. It honours outstanding scientists who step out of the laboratory, engage perspectives of various disciplines and include nonacademic players in the research process.

“We need to have dirt on our shoes”. This is the motto of **Marcel Tanner**, former director of the Swiss Tropical and Public Health Institute (Swiss TPH). It is difficult to summarise the very rich vitae and his outstanding achievements in a few lines. He is a personality who has always been committed to reform of the academic system. As head of the Swiss TPH, he helped the institution to gain international acclaim. He not only promoted a culture of interdisciplinarity at his institute, but was also one of the first to combine cutting-edge disciplinary research with inter- and transdisciplinary approaches and initiate new research projects in various regions of the world in close contact with the local populations. With his international engagement in global research partnerships, he gave transdisciplinary research a new dimension of “mutual learning for change”. He promoted intercultural exchange among experts in various, equally valuable knowledge systems, helping to create great added value through mutual learning, in order to better meet the challenges associated with global change.

A Glance into the Future

The strengthening of transdisciplinary research approaches will continue to require commitment in funding, and *td-net* contributes by promoting appropriate funding policies. This is well documented by the *Swiss National Science Foundation's National Research Programmes* and *research for development (r4d)* funding lines.

Switzerland, although a small country with a limited research community, is active in transdisciplinary research at an internationally outstanding level. To avoid repetition and loss of excellence, the *td-net* of the Swiss Academies are considering development of the award into a new motivation for scientists to perform transdisciplinary research with methodological excellence. *td-net* continues to seek solutions to close gaps in academic careers. Our explicit aim is to further develop new theoretical foundations and methods and to promote transdisciplinary research in various fields. This will strengthen the scientific base and the excellence of future approaches of research for societal problem solving.

td-net aims to strengthen the position and expertise of the transdisciplinary community – in one way or another, we will find new ways to showcase innovative projects, thoughts and approaches and provide the community with trend setting role models.