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## The continuity and future of joint scientific projects: the Portuguese experience from water resources-related projects


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University of Nis  [www.swarm.ni.ac.rs](http://www.swarm.ni.ac.rs)

Strengthening of master curricula in water resources management for the Western Balkans HEIs and stakeholders  
Project number: 597888-EPP-1-2018-1-RS-EPPKA2-CBHE-JP



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### A joint scientific water-related project:

- ✓ should employ scientists and academics to carry out research in order to provide independent scientific advice and support to water resources policy;
- ✓ is an active player in the global arena, involved in strategic international cooperation gathering partners worldwide, working on a diverse range of scientific fields addressing water-related issues.

**Research synergies:**

- (a) are mostly multi-sectoral with public and private research organisations, industry, universities and national and international bodies;
- (b) allow sharing of infrastructure, laboratory equipment, and data materials as well as transferring knowledge and making agreements.

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2

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## The international relations in the context of research projects:

- ✓ focus on key priority countries (e.g. USA, Brazil, China, India, Mexico), international organisations (e.g. UN, UNESCO, WHO, World Bank) and regional entities where sharing of knowledge bring benefits to the joint scientific water-related project itself and the global scientific community.
- Some of the agreements from a joint scientific water-related project sometimes have a more political profile or facilitate compatible standardisation or joint measurements.

Mutual learning processes also open up avenues for collaboration, as well as new business and investment opportunities. The concept allows tailoring research and innovation policies to national, regional and local contexts and can contribute to achieving the Sustainable Water Goals.

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3
The continuity and future of joint scientific projects: the Portuguese experience from water resources-related projects



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## Some examples of previous “relevant” projects in which the Portuguese team participated

(nº. of partners and of HEIs, budget, long-lasting relationships)

- ✓ **Strategy and methodology for improved integrated water resources management, IWRM, in twinning river basins from Europe and Asia**  
(Sixth Framework Programme, FP6; a few millions of €; 4-year project; 10 countries, from Europe to Asia; 14 HEIs)
- ✓ **Capacity development in water engineering and environmental management in Latin American Countries** (Alfa Programme; a few millions of €; 4-year project; 8 countries, from Europe to Central and South America; 8 HEIs)
- ✓ **Transnational scientific cooperation** (national funding; less than three thousand €; 2-year project; 2 countries; 2 HEIs)

**Comparable projects**  
(the second one had an objective close to the one of SWARM although in a different geographical context)

**Incomparably much smaller project**

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4
The continuity and future of joint scientific projects: the Portuguese experience from water resources-related projects

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### Some examples of previous "relevant" projects in which the Portuguese team participated

(nº. of partners and of HEIs, budget, duration, geographical context)

- ✓ Strategy and management (Strengthening of master curricula in water resources management for the Western Balkans HEIs and stakeholders (www.swarm.nl.ac.rs))
- ✓ Capacity management (of €; 4-year project; 8 HEIs)
- ✓ Transnational scientific cooperation (national funding; less than three thousand €; 2-year project; 2 countries; 2 HEIs)

comparable projects had close to SWARM in a different geographical context)

**The evaluation from the financing agencies (external performance assessment) indicated that the three projects were equally successful**

**They fulfilled the targets within the scheduled time and had exemplary tangible and financial executions**

Incomparably much smaller project

5

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The continuity and future of joint scientific projects: the Portuguese experience from water resources-related projects

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**What is the point???**

Incomparably much smaller project

6

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The continuity and future of joint scientific projects: the Portuguese experience from water resources-related projects

Some examples of previous “*relevant*” projects in which the Portuguese team participated

(nº. of partners and of HEIs, budget, long-lasting relationships)

- ✓ Strategic management of water resources (national funding; less than three thousand €; 4-year project; 2 countries; 2 HEIs)
- ✓ Capacity building for water resources management (national funding; less than three thousand €; 4-year project; 2 countries; 2 HEIs)
- ✓ Transnational cooperation (national funding; less than three thousand €; 4-year project; 2 countries; 2 HEIs)

**What is the point???**



The much smaller project resulted in the most productive relationship from a scientific point of view with really exchange of knowledge and fruitful collaboration. Due to its scientific success, the initial 2-year project was renewed three times (still on going)!!!

Incomparably much smaller project

7

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The continuity and future of joint scientific projects: the Portuguese experience from water resources-related projects

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- ✓ The evaluation of the project from the financing agency (*external performance assessment*) may not portrait the capability of the project to engage the partners towards long-lasting scientific relationships (*internal performance assessment*); however, it is a key issue to ensure success in news calls
- ✓ Main role of the project leader: to conduct the project aiming at ensuring a good evaluation from the financial agency is a utmost demanding issue. It requires to comply with lots of milestones, reports, tangible and intangible issues, time, leadership, persistence, organization .... (the real *booster* and *commander* of the team!)
- ✓ However, as important as the *external performance* is the *internal performance* of a project ➡ the latter is a responsibility of both the project leader and the partners

8

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The continuity and future of joint scientific projects: the Portuguese experience from water resources-related projects



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✓ **As partner, what do I expect from a project (*internal performance*)?**

- to bring some prestige, dynamism and funding to my university/HEI;
- to make the acquaintance of new colleagues, their research environments, knowledge and challenges
- to feel that, also from a scientific point of view, I will learn something from the project
- to identify common or complementary research issues
- to become part of wider research networks
- to “grow up” as teacher and/or researcher
- to .....
- to .....

A project must always have some “added value”

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9
The continuity and future of joint scientific projects: the Portuguese experience from water resources-related projects



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## Some examples of previous “*relevant*” projects in which the Portuguese team participated


(nº. of partners and of HEIs, budget, long-lasting relationships)

... going back to the **small transnational scientific cooperation project** (national funding; less than three thousand €; 2-year project; 2 countries; 2 HEIs)

✓ **Key characteristics of the project:** (1) it was definitely a **scientific project**, although only between two countries; (2) it was mandatory to include in the teams from both countries **young researchers** (MSc and PhD students), generally with huge energy and “thirsty” for networking and for new challenges; (3) the stimulus was not financial (because the budget was so small) but to prove the capability of motivating and leading young researchers to contribute to the **development of new scientific contributions** and to the establishment of **scientific networks**

✓ Based on the identification of **common and/or complementary research issues**, the teams made of the **partner’s country** the case study area of application of their own knowledge!

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10
The continuity and future of joint scientific projects: the Portuguese experience from water resources-related projects



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11

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12

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2 book chapters

15 papers in international journals

30 international/national conferences

ELIURA European Water 51: 15-31, 2015.  
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**A comprehensive drought analysis in Slovakia using SPI**

M.M. Poľovinský  
T. Kollárová  
J. Štefáček  
J. Štefáček  
J. Štefáček

**Trends in Precipitation and Temperatures in East Slovakia (1962-2010)**

**Abstract:**  
The paper presents the results of a comprehensive drought analysis in Slovakia using the Standardized Precipitation Index (SPI). The analysis is based on monthly precipitation and temperature data for the period 1962-2010. The results show a significant decrease in precipitation and an increase in temperature over the study period. The SPI values indicate that the country experienced a shift from a predominantly wet to a predominantly dry state during the study period.

**Keywords:**  
precipitation, temperature, SPI, drought, Slovakia

**Desalination and Water Treatment**  
www.deswater.com  
DOI: 10.1080/15467181.2017.1388181

**Trends of rainfall as a support for integrated water**

Martina Zecháková\*, Ibrahim Alkhalaf\*, Pavol Purcz

**Bivariate Modelling of a Teleconnection Index and Extreme Rainfall in a Small North Atlantic Island**

Luís Ángel Espinosa\*, María Manuela Pórcel\*, João Carlos Frazão Filho\* and Martina Zecháková\*

**Abstract:**  
This paper explores practical applications of bivariate modelling in the analysis of two highly dependent variables, i.e., the North Atlantic Oscillation (NAO) index and extreme rainfall in the small island of Madeira, Portugal. The results show a significant positive correlation between the NAO index and extreme rainfall, indicating that the NAO index can be used as a predictor of extreme rainfall events in the region.

**Keywords:**  
NAO, extreme rainfall, bivariate modelling, Madeira Island

climate

**Long-Term Rainfall Trends and Their Variability in Mainland Portugal in the Last 106 Years**

Maria Manuela Pórcel\*, Luís Ángel Espinosa\* and Martina Zecháková\*

**Monthly Trends of Precipitation in Gauging Stations in Slovakia**


Martina Zecháková\*, Pavol Purcz\*, Zuzana Povášková\*, Ibrahim Alkhalaf\*, Helena Hlaváčková\*, Maria Manuela Pórcel\*

**Abstract:**  
This study addresses the long-term rainfall trends, their temporal variability and uncertainty over mainland Portugal, a small country on the most southern European coast. The study was based on monthly, seasonal and annual rainfall series spanning for a period of 106 years, between October 1813 and September 2019 (herein after referred to as global period), at 332 rain gauges evenly distributed over the country (i.e., 6 rain gauges per 1000 km<sup>2</sup>). To understand the rainfall behavior over time, an initial sub-period with 35 years and a final sub-period with 33 years were analyzed.


**Keywords:**  
rainfall trends, temporal variability, uncertainty, Portugal

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The continuity and future of joint scientific projects: the Portuguese experience from water resources-related projects



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## Some examples of previous “relevant” projects from the Portuguese team participants

(nº. of partners and of HEIs)

KEY RECEIPT FOR A LONG LASTING PROJECT

To identify scientific synergies and to ensure the capability (i.e., human resources ...) and motivation to develop them

ELURIA European Water 51: 15-31, 2015.  
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A comprehensive de...

Keywords

ScienceDirect

Procedia Engineering

International Conference on Efficient & Sustainable Water Systems Management toward Worth Living Development, 2nd EWSD 2018


Monthly Trends of Precipitation in Gauging Stations in Slovakia

Martina Zechniková<sup>1</sup>, Pavol Paveš<sup>2</sup>, Zuzana Pavešová<sup>3</sup>, Beáta Akhala<sup>4</sup>, Beáta Hlaváčiková<sup>5</sup>, Mária Manáková<sup>6</sup>


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13

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## Young researchers supported by joint water-related scientific projects as future outputs

- ✓ Over the last twenty years there has been considerable interest in teaching young people to become water science researchers to empower their voices and give them an opportunity to develop new skills.
- ✓ Interdisciplinary orientation.
- ✓ Joint scientific projects should promote research beyond the state-of-the-art in both fundamental and applied aspects of water sciences to ensure the continuity and future of the projects themselves.
- ✓ Expanding efforts to attract the best of young researchers, while promoting diversity on the scientific workforce, should be a priority.

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14

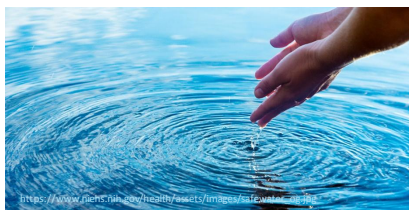
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## Final comments

- ✓ In the increasingly competitive and globalising world of higher education, the future of universities relies on how successfully they interact with their environment.
- ✓ The development of joint scientific cooperation is an integral part of the activities of universities and an important channel for knowledge transfer.
- ✓ This interaction can be translated into Joint research publications.
- ✓ Collaborative linkages with research partners, including industry, can prove vital for water research-intensive universities.

→ Safe Water and Health



<https://www.who.int/health/assets/images/icon-images>

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# Thank you for your attention!

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