

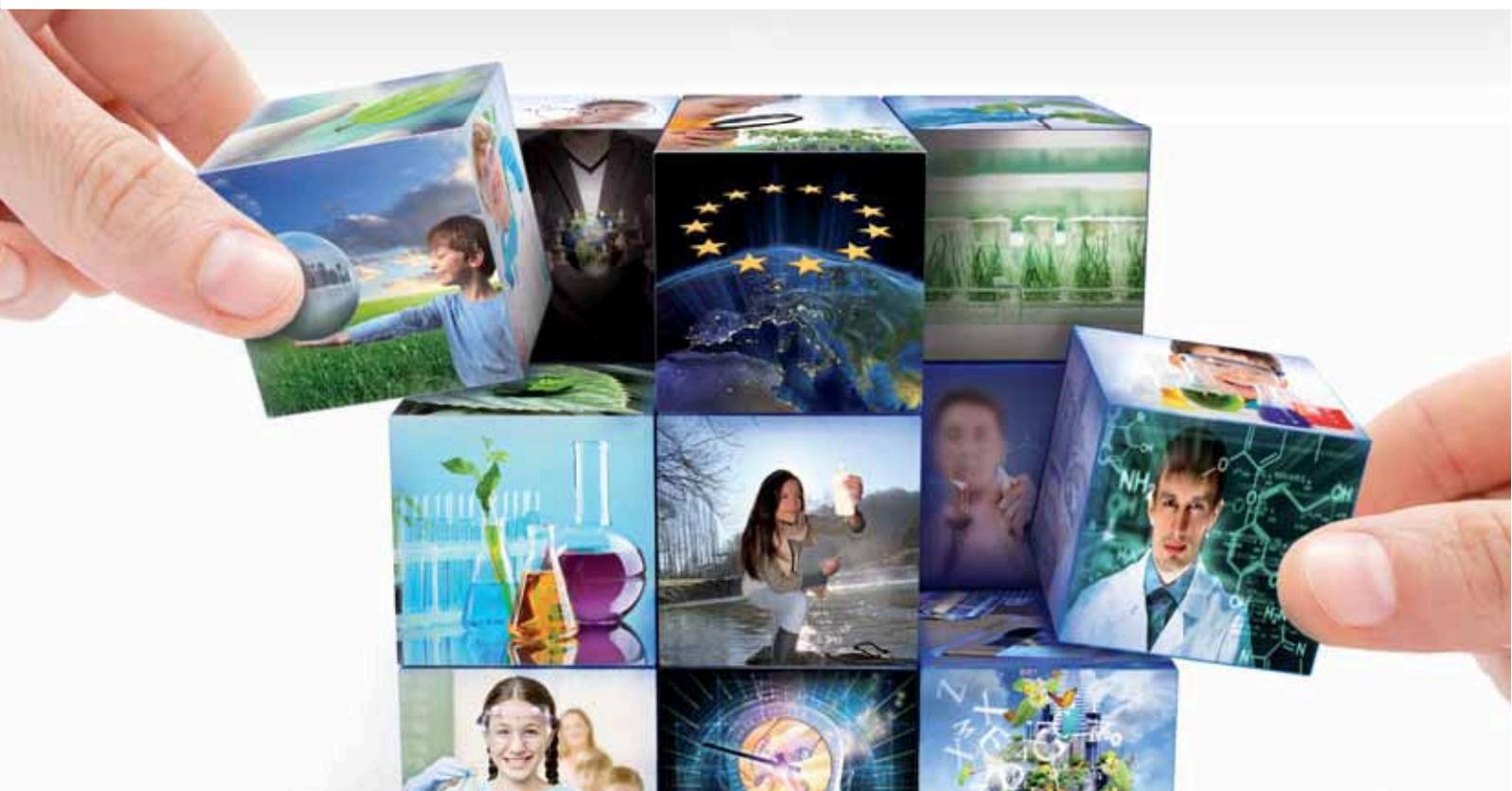


European
Commission

research[★]eu

RESULTS MAGAZINE

No 14 July/August 2012



In this issue:

 Special feature:

Creative and talented: nurturing Europe's next generation of scientists and building an inclusive, innovative society for the future ■

Interview: Dr Davide Iannuzzi on

'Diving into the world of the very small' ■

Other highlights:

Study investigates aquatic parasites on fish, page 6 ■

New motor can cut space exploration costs, page 13 ■

Innovative pellets to benefit organic farmers, page 18 ■

Open access: EU project results go public, page 26 ■

Invisibility field cloak a reality, page 33 ■

research*eu

RESULTS MAGAZINE

Published by

CORDIS Unit
Publications Office of the European Union
2, rue Mercier
2985 Luxembourg
LUXEMBOURG
E-mail: cordis-helpdesk@publications.europa.eu

Editorial coordination

Gyn Nilsson

The *research*eu results magazine* is published by the Publications Office of the European Union, as part of the EU-funded research programmes. Content is prepared using several sources, including the Technology Marketplace on CORDIS, the Research Information Centre, as well as original material collected specifically for this publication.

All issues of the *research*eu results magazine* are available online at:
<http://cordis.europa.eu/research-eu>

The *research*eu magazines* are free of charge.

To **subscribe** to either *research*eu results magazine* or *research*eu focus*, please go to:
http://surveys.publications.europa.eu/formserver/po_cordis_publications_subscription

To **order a single issue** of *research*eu results magazine* or *research*eu focus*, please go to:
EU-bookshop
<http://bookshop.europa.eu/en/home/>

The technologies presented in this magazine may be covered by intellectual property rights.

Submitting project results to CORDIS

The European Commission is interested in receiving information on research results and the projects which have produced them. For more information, please visit:
http://cordis.europa.eu/results/submitting_en.html

ISSN 1831-9947 (printed version)
ISSN 1977-4028 (e-book)

© European Union, 2012

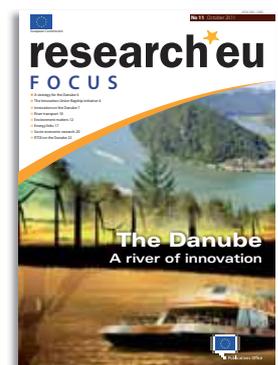
Reproduction permitted, provided the source is acknowledged. Neither the Publications Office nor any person acting on its behalf is responsible for the use that may be made of the information contained in this publication or for any errors that may remain in the texts, despite the care taken in preparing them. For reproduction or use of photos and any other artistic material, permission must be sought directly from the copyright holder. Excluded from this constraint are the photos and artistic material owned by the European Union.

'Specials' icon: ©iStockphoto.com/Tom Nulens
Cover photo:
© Shutterstock

You can still order previous issues of *research*eu results magazine* at the EU Bookshop:
<http://bookshop.europa.eu/en/home/>



Do you know *research*eu focus magazine*?
You can order them at the EU Bookshop:
<http://bookshop.europa.eu/en/home/>





A new reality for Europe's youth, by Europe's youth

An EU-funded initiative delved into the changing reality of how youth affect social change. It also studied how changes in forms of expression should be reflected in policies for integration.

The Up2Youth¹ project sought to gain a better understanding of the factors at play in young people's role in social change. A network of project partners in various countries worked to integrate existing research and document young people's choices for actions or non-actions in the social realm. The intention was to arrive at a new understanding of youth as social actors and, based on this, to offer relevant policy recommendations.

Up2Youth developed their approach based on two objectives. The first was to improve on the theoretical understanding of young people's agency, and the second to explore policies aimed at empowering their actions in the social context. Critical questions included 'How do young people's decisions and coping strategies relate to changing social structures?' and 'What policies enable young people to actively influence social change?'

Such questions were examined across three thematic areas chosen as crucial and representative of the status of youth in European societies. These were young parenthood, transitions to work, and civic participation. Working groups collected studies and empirical findings from countries across Europe, drafted a thematic report and, based on that, chose a series of key issues for more in-depth analysis.

The project analysis uncovered plenty of evidence for the contributions of young people's agency to social change. Coping strategies change the meanings of key assets of social integration — family, work, citizenship — as youth strive to overcome the growing distance from societal institutions. The project found that in interpreting young people's choices, it is necessary to recognise the changing meaning of citizenship and participation with



© iStockphoto

respect to content and manner of expression.

Another point of focus was how work as a central mode of social integration has changed considerably. There is the new reality against which protracted transitions to adulthood and ethnic social integration need to be viewed and approached in terms of policy.

Up2Youth highlighted the mismatch between how institutions expect young people to participate, and young people's actual priorities and activities. This indicates a need to design relevant policies that recognise a new set of subjective interests, needs and priorities.

Project findings thus offered a new approach for old institutions: to be flexible and responsive to new forms of social action and the processes of integration.

The project was coordinated by the Institut für Regionale Innovation und Sozialforschung (IRIS) in Germany.

1 'Youth — actor of social change'.

Funded under the FP6 programme 'Citizens and governance in a knowledge-based society'.
<http://cordis.europa.eu/marketplace/search/offers/8330>



Biodiversity to minimise the effects of climate change in global drylands

Both tropical forests and areas with extensive forest coverage are fundamental in tackling the effects of climate change on Earth. However, the environmental importance of arid, semi-arid and dry-sub-humid ecosystems — called drylands — is less well known.



© Vicente Polo

Drylands cover about 40% of the Earth's land surface and support 38% of the human population. With his BIOCOM¹ project, Dr Fernando T. Maestre, an ERC Starting Grantee 2009 from the Universidad Rey Juan Carlos in Madrid (Spain), is investigating the role of biodiversity in enhancing the ability of drylands to maintain essential functions. These processes have the capacity to combat the consequences of climate change and desertification in drylands worldwide. Some significant research results were published in the journal *Science* on 13 January 2012.

Experiments suggest that biodiversity is essential in enhancing the ability of ecosystems to

maintain multiple functions simultaneously — such as carbon storage, productivity, litter decomposition, water infiltration and the build-up of nutrient pools. This is known as 'multi-functionality'. These functions can help, for instance, in controlling soil erosion or regulating CO₂ exchanges between the soil and the atmosphere.

Until now, most of the work on the relationship between the diversity of plants and multi-functionality has been carried out in highly controlled laboratory conditions or small-scale field experiments. By conducting their study in 224 dryland ecosystems from 17 countries across all continents (except Antarctica), Dr Maestre and



ENVIRONMENT AND SOCIETY

his team assessed this relationship at the global level for the first time. He emphasised that: 'The financial support provided by my ERC grant has been essential in allowing me to successfully carry out the field surveys and conduct the laboratory analysis of more than 2600 soil samples gathered during the global survey. Without funding of this magnitude, it would have been very difficult, if not impossible, to conduct this large-scale research.'

Some past research had revealed that the loss of biodiversity may impair the functioning of natural ecosystems, and thus diminish both the number and the quality of services they provide to the environment. This new study reveals

that drylands, which host many endemic plants and animal species and include about 20% of the major centres of global plant diversity and over 30% of the birds native to dryland areas, are not an exception to the rule. The research also indicates that in drylands worldwide, multi-functionality is enhanced by an increased number of plant species and is reduced by a rise in the average annual temperature.

Dr Maestre explained that 'The results of this extensive fieldwork provide empirical evidence of the importance of biodiversity in maintaining and improving ecosystem multifunctionality in drylands. Our findings also suggest that plant species' richness may be particularly

important for maintaining ecosystem functions linked to carbon and nitrogen cycling, which sustain carbon sequestration and soil fertility.'

An important result of this research is that the increase in average annual temperatures predicted by climate change models will reduce the ability of dryland ecosystems to perform multiple functions related to carbon, nitrogen and phosphorous cycling, which are crucial to supporting life on Earth. Commenting on these findings, Dr Maestre said: 'Although it is sometimes difficult to agree on limiting the emission of greenhouse gases responsible for global warming, we can contribute to minimising their negative consequences if we

take clear actions to both preserve and restore plant biodiversity.' This would not only preserve the wealth of species but, as land degradation is often accompanied by the loss of soil fertility, also limit the number of areas affected by desertification.

This Starting Grant project was hosted by the Universidad Rey Juan Carlos, Spain.

1 'Biotic community attributes and ecosystem functioning: Implications for predicting and mitigating global change impacts'.

Funded by the European Research Council (ERC) under the FP7 specific programme Ideas.
<http://erc.europa.eu/success-stories> > search > 'biodiversity'



Marie Curie fellowships to boost research in Ireland

In collaboration with the Irish Health Research Board (HRB), the EU is recruiting Irish scientists in a three-year research scheme. The EU-funded HRBCOFUND2008¹ project is expected to improve the competitiveness of the Irish scientific community and research potential on a global scale.

The 'Marie-Curie actions' have long been among the most popular funding schemes for research and technological development (RTD), meeting the needs of Europe's scientific community in terms of training, mobility and career development. They were originally designed as pure mobility fellowships but have now progressed

to early-career support grants tailored for scientists wishing to become independent researchers.

Falling under the Seventh Framework Programme (FP7), the Irish HRB and the EU are offering a Marie-Curie postdoctoral mobility fellowship scheme of three year-long fellowships. They are

applicable for postdoctoral research training in a leading research institute abroad for two years followed by a one-year reintegration phase in Ireland.

Fellowships are open through international peer review, on the basis of the scientific merit of the research proposal. In addition, an

applicant's research background, commitment to research and potential to develop as an independent researcher are also being considered. Furthermore, priority will be given to scientists who will benefit from such a transnational mobility fellowship.

Upon completion of the fellowship, the fellow will be expected to have successfully completed the research project and to be able to present evidence of independent research, publications, improved research and management skills, and potential for establishing collaborations.

So far, eight researchers have been recruited as Marie-Curie fellows and their progress will be monitored by annual reports.

The project was coordinated by the Health Research Board of Ireland.

1 'HRB/Marie Curie post-doctoral mobility fellowship scheme'.

Funded under the FP7 specific programme People (Marie-Curie actions).
<http://cordis.europa.eu/marketplace> > search > offers > 8480

