
## European Neighbourhood Policy

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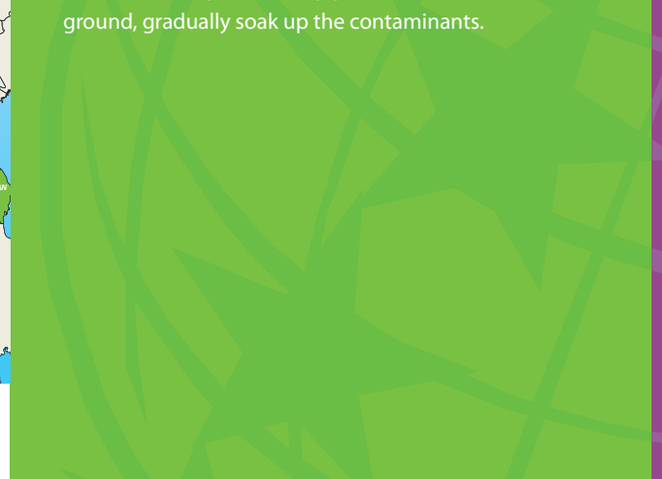
EUROPEAN COMMISSION
External Relations

# Fertile ground for research

Millions of hectares of land in eastern Europe and Central Asia are contaminated with heavy metals, pesticides and petrochemical residues, making it un-farmable. The excavation and removal of the polluted soil is currently the method of choice for cleaning up these sites. But this treatment is incredibly expensive and is not always feasible.




However, with increasing food prices and a growing global population, reclaiming that land would be of immense economic and social value, not to mention good for the environment.

The Institute for Nature Management Problems and Ecology at Ukraine's National Academy of Sciences is one partner in the EU-funded CLEANSOIL project which has developed a method for the regeneration of contaminated soil. The approach was successfully tested on contaminated soil in Ukraine and Russia.

The CLEANSOIL method works on the basis of absorption. Sockets inside perforated pipes, which are laid into the ground, gradually soak up the contaminants.


Dr Rami Arafeh

# Upgrading for the knowledge revolution

Modern biotechnology is revolutionising agriculture, medicine, manufacturing, and even protecting the environment with biodegradable substances and other advances. Two Palestinian academics, Dr Yaqoub Alashhab and Dr Rami Arafeh, are working to make the occupied Palestinian territory a more active participant in the biotech revolution.

"Biotechnology is one of the most important revolutions in science in the last two decades," explains Alashhab, who is a specialist in molecular genetics.

With EU and World Bank assistance, these ambitious young scientists set up the Biotechnology Training and Research Unit at the Palestine Polytechnic University (PPU) in Hebron. The unit not only offers training to graduate students, but also carries out a wide range of relevant research in the local context, such as into the eradication of poultry and plant diseases.

Since its inception, the unit has rapidly grown and a third laboratory was due to open during the summer of 2008. In addition, they have collaborated with Bethlehem University to create a new two-year master's in biotechnology.

## *Helping software engineers make IT*

PPU is also using EU funds to upgrade its status in the global information and communication technologies (ICTs) revolution. It has established a training programme for software engineering graduates and a scheme to incubate ICT start-ups.

In collaboration with an-Najah University in Nablus, a first batch of eight start-up companies has been identified for assistance. "They will get management guidance, technical and sometimes financial support and after that they can spin-out into the real world," said Prof Radwan Taboub, who is in charge of the scheme.

These and other projects are supported by the Tertiary Education Project (TEP) which aims to boost Palestinian higher education policy-making, planning and management capacities. Palestinian academia is also involved in other EU science and education programmes, such as the Tempus programme to modernise higher education.

EUROPEAN NEIGHBOURHOOD POLICY:
RESEARCH AND HIGHER EDUCATION

# THRIVING ON KNOWLEDGE

The majority of European Union citizens, a recent survey found, are in favour of closer co-operation with neighbouring countries. They believe that closer ties could strengthen peace and democracy.

This is precisely what the European Neighbourhood Policy (ENP) is about. Developed in 2003/2004 with the aim of drawing the enlarged EU and our neighbours closer together, the ENP is about taking concrete action to support reforms and to enhance prosperity: to improve the daily lives of people in our neighbourhood.

So how does it work? The EU and each of its neighbours agree on how to build closer relations and support reforms over a three-to-five-year period. The joint commitments are spelled out in so-called Action Plans. Expertise and funding (almost €12 billion from 2007 to 2013) is available under the 'European Neighbourhood and Partnership Instrument' (ENPI) to assist with modernisation and reform.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## Unleashing the power of science

Knowledge is the world's most valuable commodity. Research and development, innovation and higher education are essential for sustainable economic growth and better quality of life.

Scientific collaboration between the EU and its ENP partners goes back a long way. For more than two decades, the Union's research Framework Programmes have invited organisations from neighbouring countries and other parts of the world to take part in European collaborative research projects.

Scientists, researchers, postgraduate students and universities benefit from exchange programmes, such as Marie Curie Fellowships and the Erasmus Mundus programme for postgraduates and the Tempus programme for modernising higher education.

Omar Hamarrieh

## Incubating fresh talent

Where can you find a technology park with a start-up chip designer, a company offering innovative security solutions, a creator of strategy games for history buffs, and more? No, this is not Silicon Valley, but Amman, Jordan.

iPark is a Jordanian technology incubator which aims to be a catalyst to fuel the entrepreneurial process that is pivotal to Jordan's economic development.

"We seek to incubate viable companies that will create jobs," explains Omar Hamarrieh, the technology park's manager. Firms that have graduated from this five-year-old incubator now employ over 300 people.

Kindisoft is one iPark success story. It is the only company in the world offering an effective security system for Flash media developers that prevents the theft of their code. "I created this software when Flash was still not seen as a serious development platform," recalls Eyad, the young founder of the company. "Now that it is popular, we have a large client base."

### *Innovation on the policy radar*

iPark, which is hosted by the Jordanian Higher Council for Science and Technology (HCST), belongs to a network of half a dozen such incubators operating in Jordan under the auspices of the Jordan Enterprise Development Corporation.

To help take these efforts a step further, an EU-funded programme kicked off in 2008. It seeks to increase the commercial potential of Jordanian R&D activities and brings together key players in Jordan and beyond.

"Our job is to create better networks between business and academia nationally, and also to build links between the Jordanian and European research communities," says Majeda al-Assaf of the HCST. "We are negotiating a science and technology agreement with the EU."

"In the past, the private sector was never really involved in innovation," continues Enzo Sciolla, a technical consultant on the EU-funded project. "Identifying existing research that can be commercialised is a good starting point for attracting private enterprise."


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## Israel's special R&D status

Israel has a similar R&D culture and practices to those of Europe, which is why it is fully associated with the Seventh Framework Programme for Research (FP7) and contributes significantly to its budget. In fact, Israel is one of the most important investors in research and development in the world, setting aside nearly 5% of its gross domestic product for the purpose.

Under FP7, Israel is involved in a wide range of projects, including the generation of quantum 'super currents' and designs for the future internet. During FP6 (2002-2006), Israel was involved in over 500 projects.

### *Ageing with healthy RESOLVE*

The human body is a beautiful piece of natural engineering. Even when damaged, it often has the ability to self-diagnose and repair itself. However, certain defensive mechanisms in the body can begin to malfunction, and what started off as a healing process may then become destructive.

Fibro-proliferative wound healing is a case in point. "As some people get older, the wound-healing processes in the body start to misbehave. A regular scar will close a wound with non-functional tissue. But in fibro-proliferative repair, the scar continues to grow until it takes over the entire organ, such as the lung, the liver, the kidneys, or even the skin, leading to the complete loss of organ function," explains Professor Rolf Ziesche of the Medical University of Vienna.

He is working with an Israeli partner, the Ben Gurion University of the Negev, on a research project to better understand the genetics of this condition which affects around 680 million people worldwide, and to develop treatments.

## Marking sleeper cells

Cancer occurs when cells in our bodies start misbehaving, and copying themselves incorrectly. While we all carry defective, or cancerous cells, our immune system usually keeps them under control. For any of a number of genetic, environmental and lifestyle reasons, this process can go wrong, triggering cancer.

In Europe, an estimated 3.2 million new cases of cancer are diagnosed each year and around 1.7 million Europeans die of the disease, with the most common form being breast cancer.

Given the fact that cancers can be hereditary and interfere with the normal genetic functioning of the body, the field of genetics and gene therapy holds a great deal of promise by helping to locate cancerous genes and the means of fighting them.


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### *In search of mutants!*

In the popular imagination, mutants are creatures which change into monsters. In cancers, much the same occurs with genes. An Israeli-led EU collaborative research project has identified one such genetic mutant: SF2/ASF.

"When slightly over-expressed, SF2/ASF is capable of transforming cells, which can then form tumours," explains Dr Rotem Karni of the Hebrew University Medical School's Department of Biochemistry which is coordinating the project. "Turning off the expression of SF2/ASF can reverse the malignancy of cancer cells."

The scientists involved believe that this gene can be used to provide early warning of some cancers, and to help develop new therapies. "We believe our research will identify a new biomarker for early detection of lung and breast cancer and will facilitate the development of new anti-cancer drugs."