# Building the workforce of the

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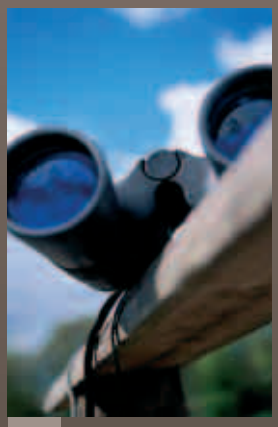
The decrease of interest in science and technology careers threatens to slow down the social and economic growth of Europe. This article explains how a European Space Education Policy can help reverse the trend.



## Towards a knowledge-based society. The Lisbon objectives.

According to the Lisbon EU Summit declaration of March 2000, by the year 2010 Europe should become the most competitive and dynamic knowledge-based economy in the world. The 2002 European Summit in Barcelona called for an increase in the proportion of European GDP invested in research from 1.9% to 3% by the same deadline, with a third of the investment coming from the private sector.

The European Commission has organised a series of conferences[i] dealing with this topic, the first of which presented the results of the High Level Group on Human Resources for Science and Technology. Following the issues raised by the Commission's communication published in February 2003 on "The role of universities in the Europe of knowledge", this independent group of experts indentified a need for a strong growth of human resources in science and technology in Europe, and called for higher-quality training. The European Research Area (ERA) project is one of the responses to the Lisbon objectives as it aims to overcome the weaknesses of research in Europe. But higher-quality training for future researchers should start well before they enter university. Should the Barcelona objectives be met, 700,000 new researchers would be active by 2010. Is it possible to train a future generation of scientists and engineers within 5 years?

The interest of pupils in Science, Engineering and Technology (SET) studies starts in primary and secondary school, long before they choose their career path. The scientists of the future need to develop core competencies from an early age. That is why all European institutions, academies and international organisations should work together to encourage young students and provide a good training system for graduates and post-graduates.

## What can space do for the scientists of the future?

The decrease of interest in SET studies, the shortage of science teachers, the ageing population, the low proportion of women in SET careers and the risk of brain drain are widely known threats to a knowledge-based society in Europe.

Although space education cannot solve these major problems it can contribute effectively to combat the decrease of interest and promote excellence in SET at all study levels.

ESA Education programme targets students from the early stage of their studies (6 years) to postgraduate level (28 years) and includes programmes for teachers (at a primary and secondary level) and activities with university students.

Tools like EDUSPACE, website on Earth Observation for teachers in secondary school, now available in six languages) can transform lessons. Projects like the Student Parabolic Flights Campaign allow university students to work in a team and see their own experiments flying in weightlessness.

ESA selects and finances students' participation to events like the International Astronautical Federation Congress where they can meet experts and receive feedback on their projects and ideas.

The International Space Station (ISS) Education Programme focuses on a range of activities for primary and secondary schools and university students and develops teaching materials. Its activities are supported both by ESA and the ISS Education Fund.

ESA's education programme is evolving: an Education Department has recently been created and the overall re-organisation is close to being finalised. The coordination of all education activities within ESA will be strengthened and a closer alliance with Member State institutions and the EU will be reinforced.

## The need for a common European policy in human resources

With its White Paper on Space the European Commission acknowledges the contribution of Space Policy to the promotion of SET careers and calls for ESA's support offering tools like the Marie Curie programme[ii] in the framework of the European Research Area .

The implementation of a common SET education policy becomes urgent as the Lisbon target approaches, and the White Paper represents the starting point of a fruitful co-operation.

# future

It is now the time to see what has been done so far and what there is still to be done.It will not only be important to encourage young people to choose SET careers but also to train a generation of graduates ready to respond to a changing research and industry context. It is therefore necessary to work on a common framework for quality education in Europe where mobility is facilitated at all levels: from university to industry and vice versa. ESA is in the position to improve the communication between the stakeholders.

The ESA/EC Framework agreement for a European Space Policy has now entered into force and a "High-Level Space Policy Group" will define the next steps for common activities. One of its tasks will be the organisation of a Space Council that will bring together ESA and EU Council for the first time. The time has come to build a coherent long-term education policy.


Sources:

- European Commission: Towards a European Research Area - Science, Technology and Innovation - Key figures 2003-2004
- Communication from the Commission: "Education and Training 2010" The Success of the Lisbon Strategy hinges on Urgent Reforms (11.11.2003)
- Communication from the Commission: The Role of the Universities in the Europe of Knowledge (05.02.2003)
- Increasing Human Resources for Science and Technology in Europe. Report to be presented at the EC conference EUROPE NEEDS MORE SCIENTISTS Brussels, 2 April 2004.
- European Commission – ESA White Paper on Space


Useful links:
www.europa.eu.int/comm/research

[i] Conferences: "Increasing Human Resources for Science and Technology in Europe", 2 April 2004, Brussels (Belgium). "The Europe of Knowledge 2020. A vision for University-based Research and Innovation", 25-28 April 2004, Liege (Belgium).

[ii] The Marie Curie Actions are financed by the Framework Programme's Human Resources and Mobility (HRM). They aim at the development and transfer of research competencies, the consolidation and widening of researchers' career prospects, and the promotion of excellence in European research.