BEYOND THE BLOC

From the 1950s, science has been a priority in the Soviet-controlled Eastern bloc. Space science and nuclear physics, in particular, received generous support, and achievements such as the Soviet space missions served as proof of the alleged superiority of the communist system. Then in the late 1980s, collapse of communist regimes and their replacement by democracy and market economies led to a dramatic drop in science expenditure across the region.

Reliable data for the early 1990s — the period of worst hardship — are unavailable because national statistical services were not yet up and running or had no reported science figures. Between 2003 and 2004 the European Commission included the ten countries in central and eastern Europe that

have since joined the European Union in its regular reports on science and technology indicators. Figures from the 2008–09 report show that research intensity — the percentage of gross domestic product spent on research and development (R&D) — is below the European average of around 1.8% in all ten countries.

But there are strong differences within the region. Although the Czech government has in recent years invested substantially in science, the research bases of countries such as Bulgaria and Romania are still underdeveloped. Notable improvements, mainly driven by the business sector, have been made in Estonia and Hungary — although the recent economic crisis has hit Hungary harder than it has hit others, threatening the upward trend.

Poland, the largest country in the region, has in recent years fallen further behind in reaching EU and national goals for R&D intensity, as have Slovakia and Bulgaria.

There is a general lack of highly qualified scientists and technical workers, whose share of the overall workforce ranges between 9.8% in Romania and 16.8% in Estonia.

The region also still fails to attract much foreign scientific talent. Only 1% or so of participants in the EU's Marie Curie Actions programme — which promotes and facilitates the mobility of young scientists in Europe — choose a university, research institute or industry lab in the new member states as their host institution, possibly due to the resources and reputations of other member states. ■

Quirin Schiermeier

GROWTH IN R&D INTENSITY 2000–06

SCIENTIFIC PUBLICATIONS

HISTORY IN THE MAKING

Key points in eastern European independence and research and development.

October: Launch of Sputnik

June: Poland hosts first free elections in the Eastern bloc
23 October: Hungary's **Mátyás Szűrös** declares a republic

9 November: Fall of the Berlin Wall

10 November: Bulgarian president Todor Zhivkov (BKP — Bulgarian communist party) is deposed

March: Lithuania gains independence from the Soviet Union

June: First free elections in Bulgaria

July: Estonian Science Foundation created — first Western-style funding agency in the region

1945

1957

1961

1980

1989

1990

August: Signing of the Potsdam Agreement dividing Germany and Berlin between Allied forces

August: Completion of the Berlin Wall

September: Formation of the Polish Solidarity movement

17 November: Student demonstration in Prague brutally suppressed, sparking Velvet Revolution
29 December: Václav Havel elected President of Czechoslovakia
25 December: Romanian dictator **Nicolae Ceaușescu** is executed

LIE OF THE LAND

Ten former communist states that have joined the European Union since 2004. United Kingdom and Germany shown for comparison.

UNITED KINGDOM

GDP: **\$2.80 trillion**
Population: **60.9 million**

LATVIA

GDP: **\$28.8 billion**
Population: **2.3 million**

ESTONIA

GDP: **\$20.9 billion**
Population: **1.3 million**

LITHUANIA

GDP: **\$38.9 billion**
Population: **3.4 million**

GERMANY

GDP: **\$3.32 trillion**
Population: **82.2 million**

POLAND

GDP: **\$425 billion**
Population: **38.1 million**

CZECH REPUBLIC

GDP: **\$174 billion**
Population: **10.3 million**

SLOVAKIA

GDP: **\$75.2 billion**
Population: **5.4 million**

SLOVENIA

GDP: **\$47.2 billion**
Population: **2.0 million**

ROMANIA

GDP: **\$169 billion**
Population: **21.6 million**

HUNGARY

GDP: **\$138 billion**
Population: **10.1 million**

BULGARIA

GDP: **\$39.6 billion**
Population: **7.6 million**

SOURCE: INTERNATIONAL MONETARY FUND 2007

AP PHOTO

February: Foundation for Polish Science established (a grant-giving agency along Western lines)

June: Slovenia gains independence from Yugoslavia

August: Estonia and Latvia gain independence

January: International Institute of Molecular and Cell Biology in Warsaw opens with support of UNESCO and the Polish Academy of Sciences

May: Estonia, Latvia, Lithuania, Poland, Czech Republic, Slovakia, Hungary and Slovenia gain European Union membership

1991**1992****1993****1999****2000****2004****2007**

January: Collegium Budapest, Institute for Advanced Study, takes up operation

January: Czech Republic and Slovakia become independent states

March: European Council endorses the creation of the European Research Area, an initiative to bolster European research

January: Romania and Bulgaria join the European Union

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