



中华人民共和国科学技术部

Ministry of Science and Technology of the People's Republic of China



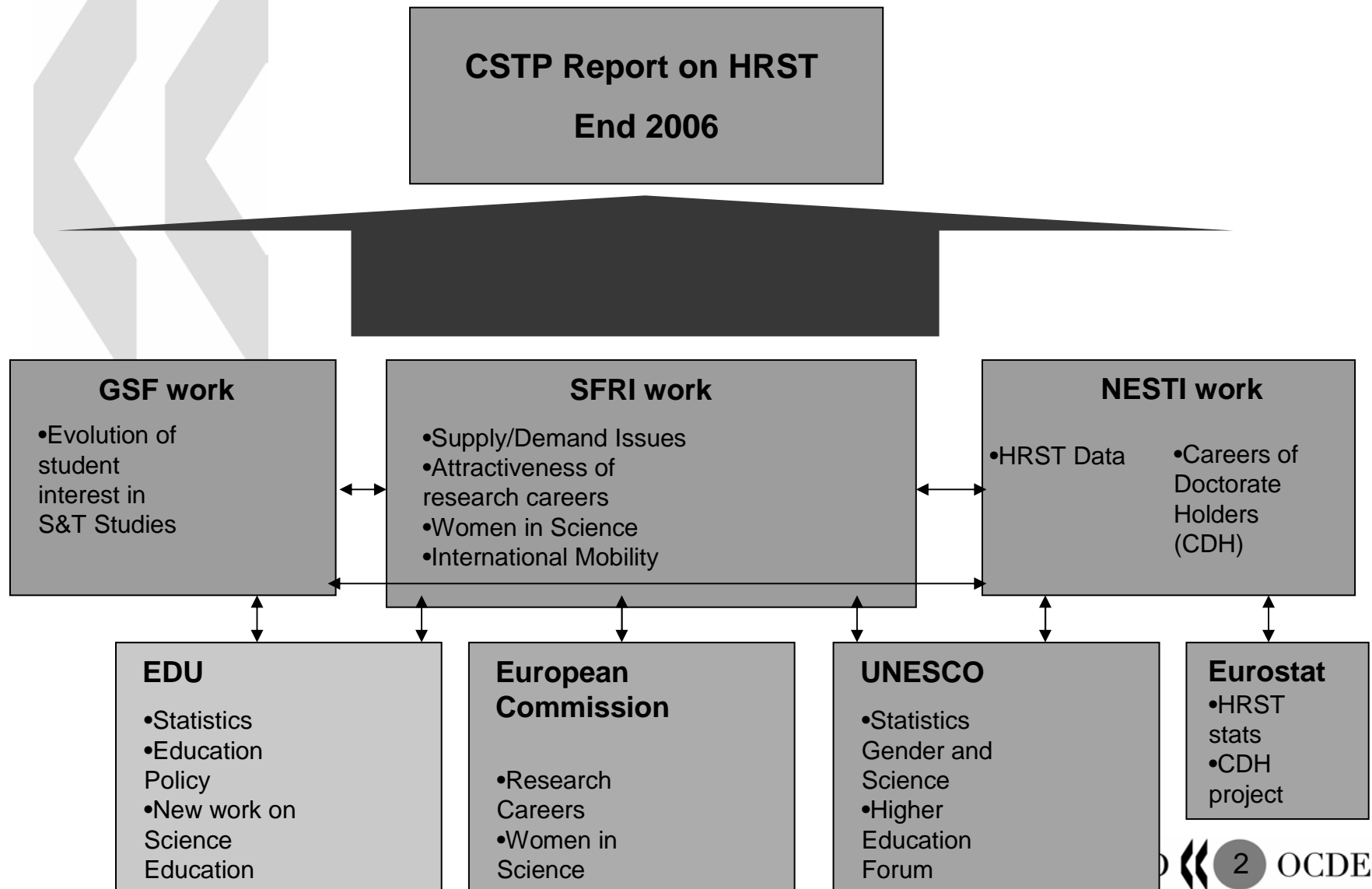
A ROLE FOR CHINA IN THE GLOBAL WORK ON HRST

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OECD work on HRST and co-ordination with other agencies



OECD work on HRST indicators

- ❑ *Manual on the measurement of human resources devoted to science and technology (Canberra 1995)*
- ❑ *Seminar on international mobility of the highly skilled (2001, OECD publication)*
- ❑ *New indicators in the 2003 and 2005 OECD Science, Technology and Industry Scoreboards*
- ❑ *Project on Careers of Doctorate Holders (CDH) launched in 2004*
- ❑ *Forthcoming roadmap on the measurement of HRST (decided at NESTI 2006)*

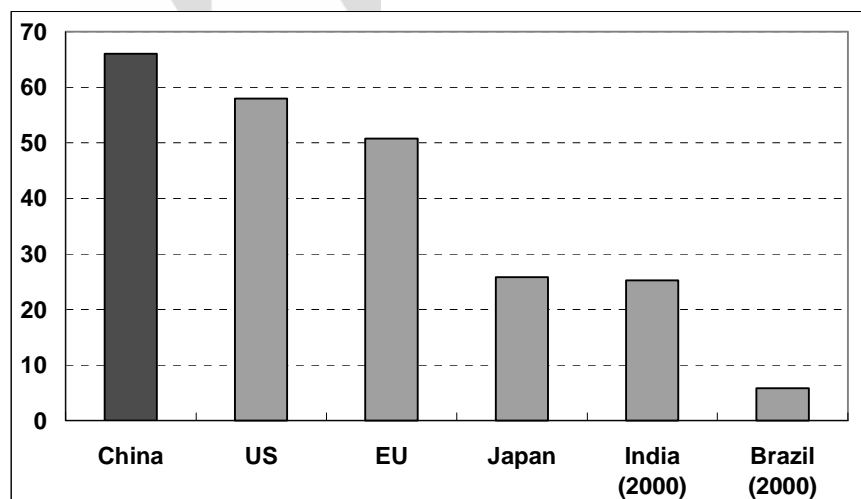
HRST policy challenges for China

- ❑ ***A fast growing economy***
 - ***Need to ensure an adequate supply of graduates and human resources***
- ❑ ***An economy which is still geared to manufacturing, but for how long?***
 - ***Need to ensure the match between supply and demand in terms of qualifications (fields of science)***
- ❑ ***An important actor in the globalisation process***
 - ***Needs in terms of international mobility of HRST and international competences***
- ❑ ***Different speeds of regional development***
 - ***Needs in terms of regional development of the higher education system and intra-/inter- regional mobility***

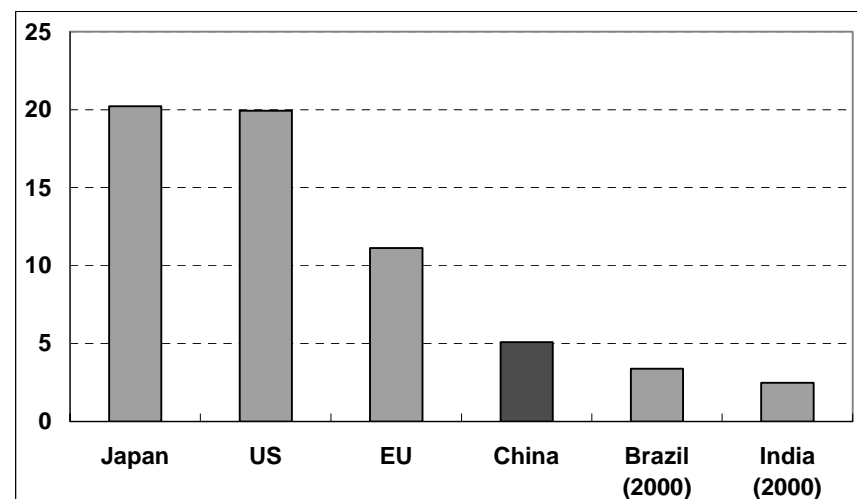
What do the data tell us?

- ***Chinese HRST are important in volume but not as much in relative terms***

HRSTE 2003 (millions)



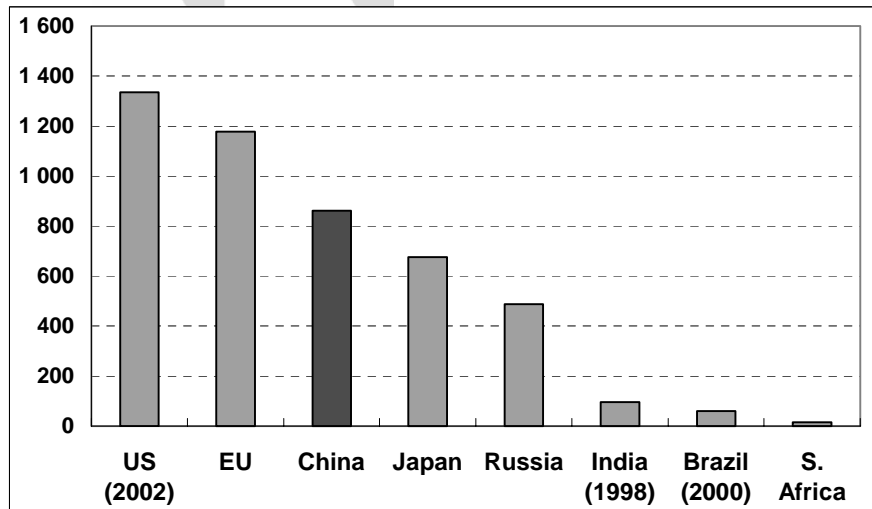
HRSTE 2003 as a percentage of total population



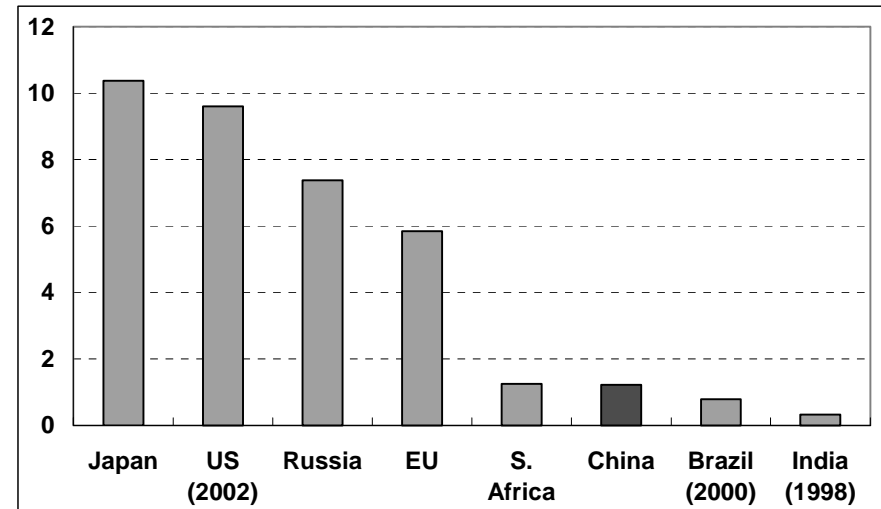
What do the data tell us?

- ***The Chinese number of researchers is important in volume but not as much in relative terms***

Number of researchers in thousands FTE, 2003



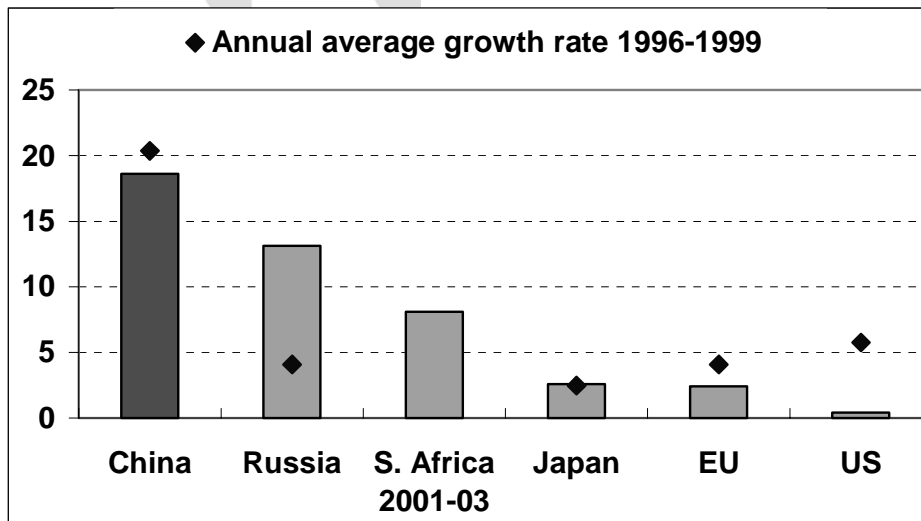
Number of researchers (FTE) per 1 000 employment, 2003



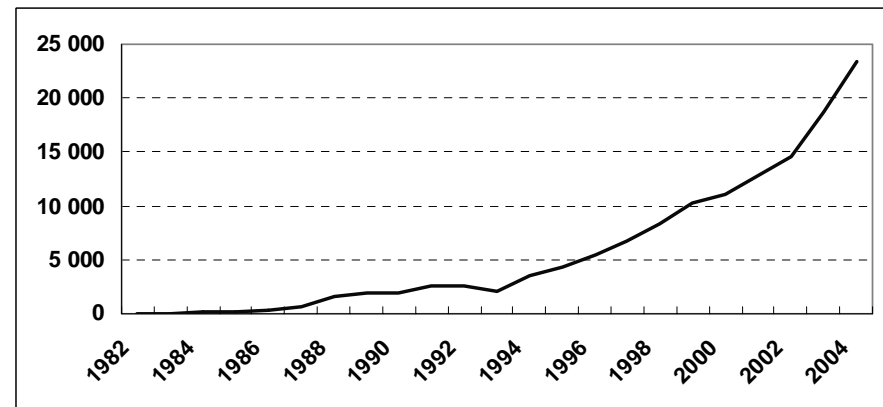
What do the data tell us?

- ***Fast growing expenditures on R&D, education and fast growing number of HR and graduates***

Growth of GERD



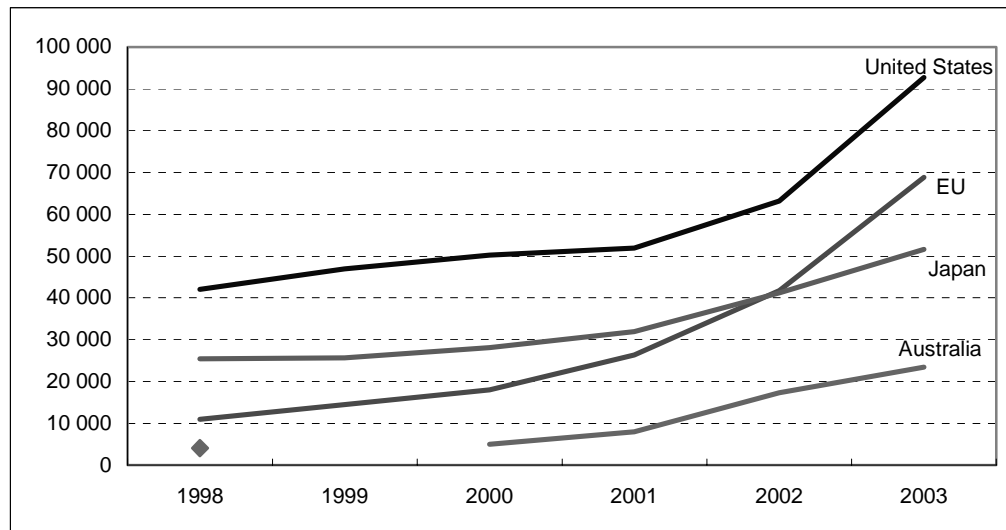
Growth of earned doctorates in China



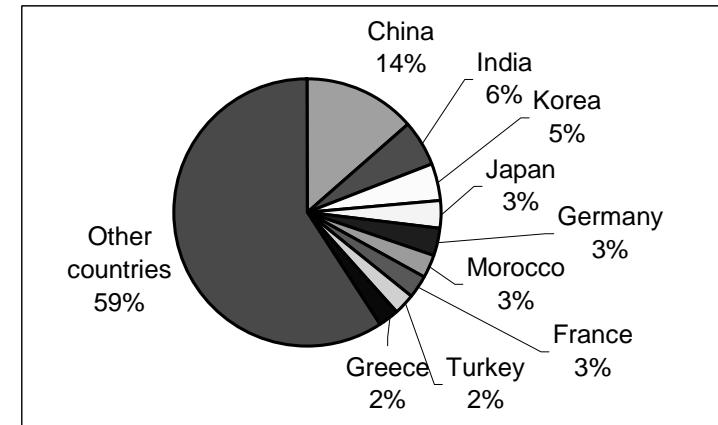
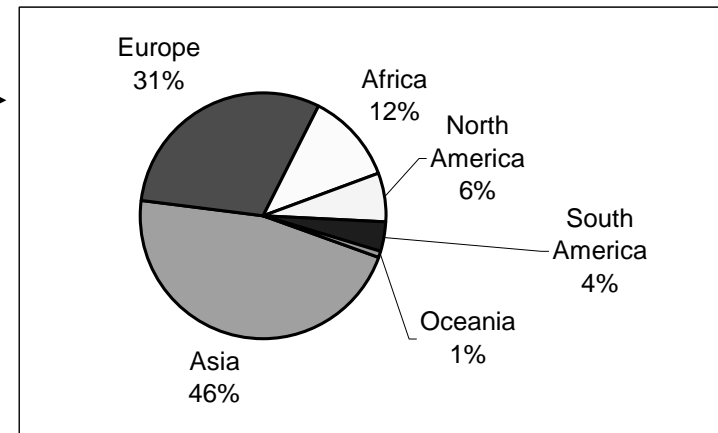
What do the data tell us?

➤ ***Chinese students lead international mobility of students in OECD countries***

Growth of Chinese students overseas



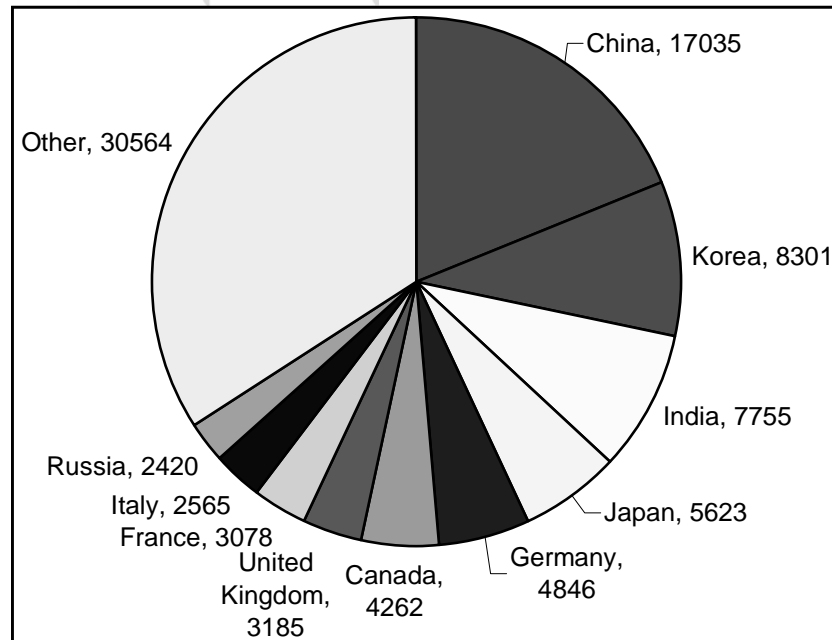
Share of foreign students in OECD countries



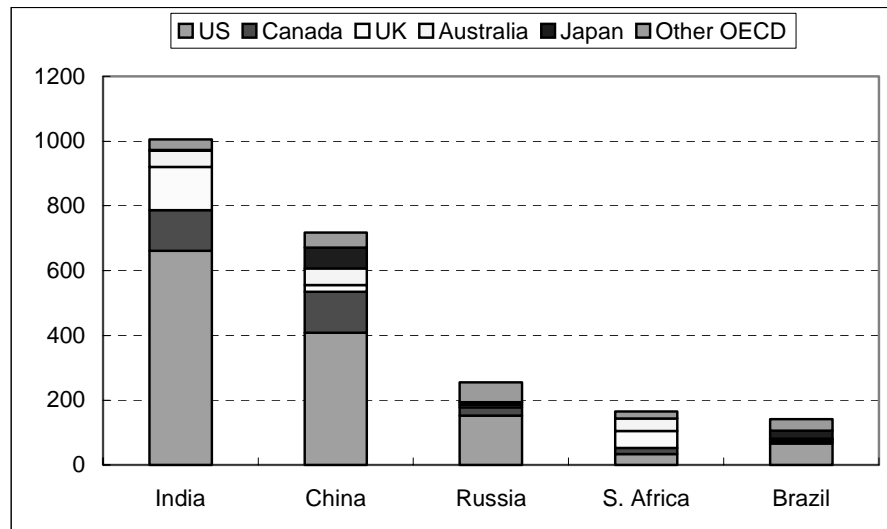
What do the data tell us?

- ***High numbers of Chinese and Indian highly skilled professionals in the United States***

Number of foreign scholars in the United States, 2004-05



Number of highly skilled expatriates in OECD countries (thousands of foreign born)



Participation of China in OECD work

- ❑ ***Observer at CSTP and its Working Parties (notably NESTI)***
- ❑ ***No active participation in SFRI work on human resources***
 - ❑ ***Policy report to be discussed at the forthcoming meeting of CSTP in Seoul (26-27 October 2006)***
 - ❑ ***Forthcoming activity on international mobility***
- ❑ ***Active participation in NESTI activity and expert group on Careers of Doctorate Holders (CDH)***

The project on Careers of Doctorate Holders (CDH)

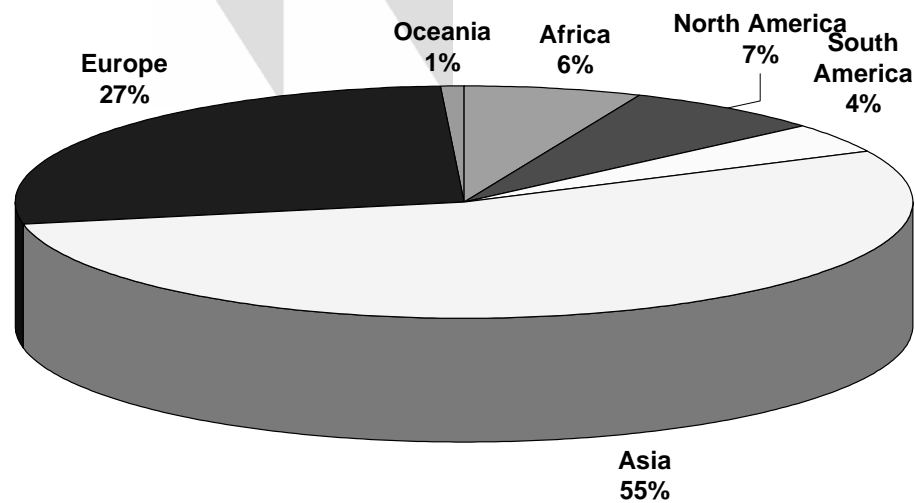
- ❑ *A joint OECD/Eurostat/UNESCO project launched by the OECD Secretariat in 2004*
- ❑ *An expert group of 30 member countries among which the United States, Japan, China, India, Argentina, Uganda and many European countries*
- ❑ *A three-component package developed by the expert group: output tabulations, methodological guidelines and a survey questionnaire*
- ❑ *A first data collection in september 2005 → data for Australia, Canada, Germany, Switzerland, United States and provisional data for Portugal*

Measures of international mobility

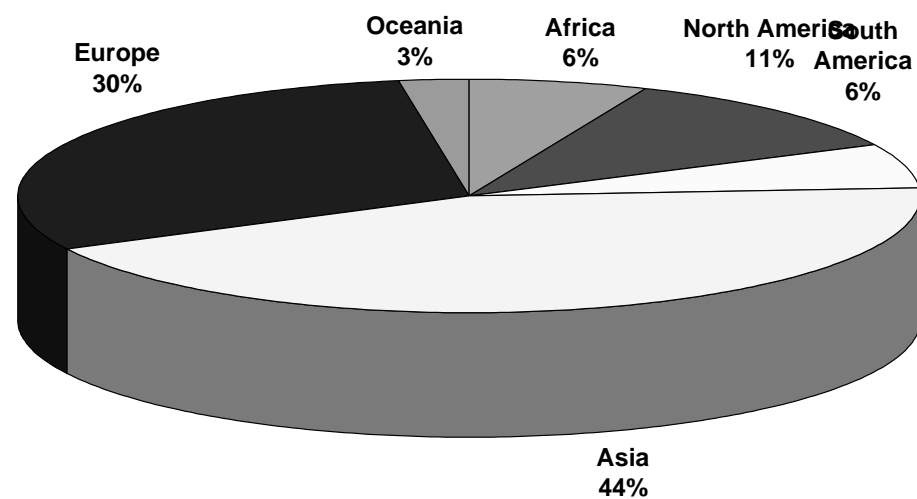
- ❑ *Data collected by place of birth and citizenship (and type of citizenship, i.e. by birth or naturalisation)*
- ❑ *Cross-classified with data on residential status,*
- ❑ *Length of stay in the country*
- ❑ *And previous country of residence (no data for the moment)*
- ❑ *And diverse criteria such as sex, age and field of doctoral degree*
- ❑ *Data on place of degree award (doctorate and previous degree)*

Differences in measures of international mobility

Foreign born doctorate holders in the United States by region of birth -- 2003



Foreign doctorate holders in the United States by region of citizenship -- 2003



The pilot survey of doctorates in Shaanxi province, China

- ❑ *A co-operation project between the National Research Center for Science and Technology for Development (NRCSTD), the NSF and the OECD*
 - ❑ *project sponsored by the NSF and guided by the OECD.*
 - ❑ *survey designed by the NRCSTD and conducted jointly by the Department of Science and Technology of Shaanxi province, Xi'an University of Architecture and Technology and the NRCSTD, together with some other domestic organizations and scholars in China.*
- ❑ *The survey covers both candidates and holders of master and doctor degrees*

The pilot survey of doctorates in Shaanxi province, China

- ❑ *Very low response rate*
- ❑ *Some results on the doctorate holders:*
 - ❑ *78% are male and 22% female;*
 - ❑ *20% have some educational background abroad;*
 - ❑ *91% work in natural science, engineering or life science*
 - ❑ *58% work in higher education institutions; 21% in research institutes; 13% in enterprises; 2% in government; 4% in medical organizations and 2% in other fields*
 - ❑ *Salaries are low (higher in research institutes and enterprises, lower for women)*
 - ❑ *Economic situation and housing problem as a factor of brain drain*
- ❑ *Plans for another experimental survey in Tianjin*

Conclusions

- ❑ *The question of human resources in S&T is crucial for sustaining the development of China*
- ❑ *A good body of indicators already exists but more detailed data as well as methodological information are needed to monitor the situation on the demand side (data by qualification, occupation, industry, unemployment rates)*
- ❑ *A better integration with the OECD work, both on the policy and statistical sides, can help in this respect*
- ❑ *Such work has to also accommodate national needs, which are very specific in the case of China, considering the size of the country*