



SCREENING CHAPTER 25 SCIENCE AND RESEARCH

AGENDA ITEM 4: SPECIFIC RESEARCH ACTIONS

Actions Relating to 3% Objective

Country Session: The Republic of TURKEY
14 November 2005



National Science and Technology Strategy 2005-2010

| | | TARGET | |
|---------------|------------------------------|------------------------------|-------------------|
| | GERD as a % of GDP (2002) | GERD as a % of GDP (2010) | Private Sector |
| EU 25 | 1,93 % * | 3 % | 2/3 |
| Turkey | 0,67 % ** | 2 % *** | 1/2 |

* Eurostat

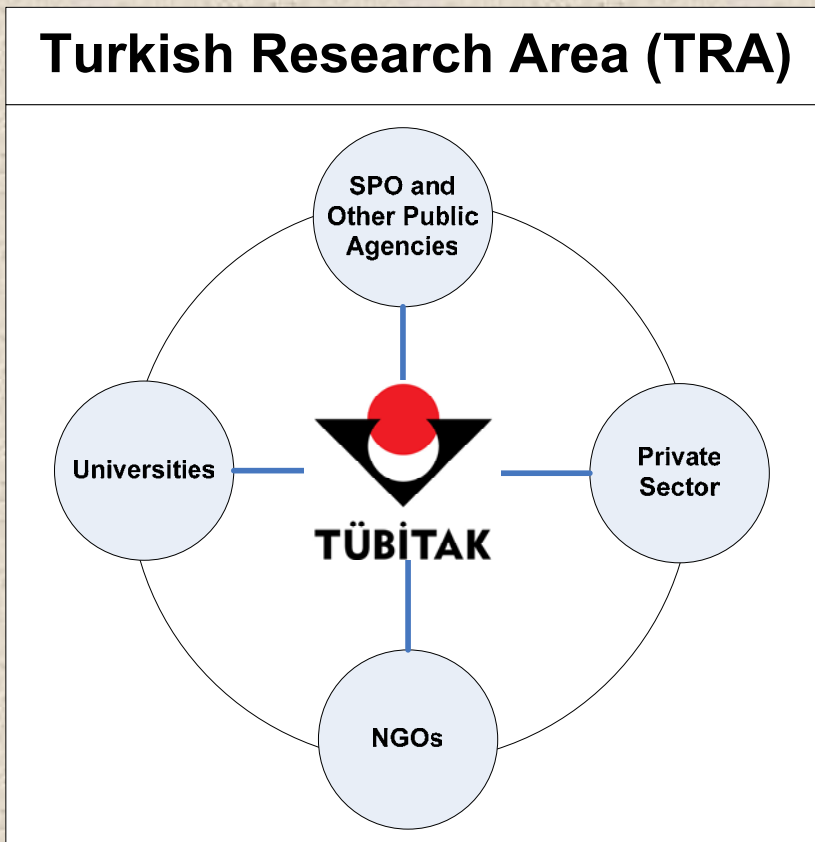
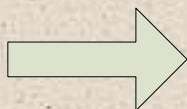
** State Institute of Statistics

*** SCST decision, 8 September 2004



Turkish Research Area (TRA)

- Aims
- Objectives
- Principles
- Priorities



- Solving problems
- Increasing quality of life
- Enhancing welfare
- Improving competitiveness



TRA was adopted at the 10th meeting of the Supreme Council for Science and Technology, dated 8 September 2004



Elements of the Strategy

Strategic Objectives:

- To increase quality of life
- To find solutions to social issues
- To increase competitiveness
- To raise public awareness of S&T



Elements of the Strategy

Main Targets of Turkey's National S&T Strategy:

- To increase the demand for RTD
- To enhance quality and quantity of scientists, professionals and technical personnel
- To increase share of RTD expenditure in GDP



Under the National S&T Strategy, two significant targets have been determined:

- To increase GERD as a percentage of GDP to 2% by 2010
- To raise the number of full-time equivalent scientists up to 40,000 by 2010.

These targets contribute to the objective of integration with ERA.



To increase GERD as a percentage of GDP to 2% by 2010

In the 12th meeting of the SCST in September 2005, a decision was taken as to gradually increase additional annual allocations for R&D activities each year to the TUBITAK budget for the use of the improvement of the TRA with a view to ensure sustainable growth.



Priority Areas Under Vision 2023 Technology Foresight Study

- Information Technologies
- Biotechnology and Gene Technologies
- Materials
- Nanotechnology
- Design Technologies
- Mechatronics
- Production Methods and Machinery
- Energy and Environmental Technologies



Performance Assessment, Follow-up and Evaluation of the Strategy

SCST, at its 12th meeting on September 2005, defined 2010 targets for the National S&T System on the basis of international indicators used in such sources as:

- EU Trendchart in Innovation Indicators
- OECD Main Science and Technology Indicators
- World Development Index
- World Competitiveness Report



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Performance Assessment, Follow-up and Evaluation of the Strategy

| Indicator | Latest Value | Year of Latest Value | 2010 Target |
|---|--------------|----------------------|-------------|
| Gross Expenditure on Research and Development (GERD) as a percentage of GDP | 0.66 | 2002 | 2 |
| GERD per capita population (current PPP dollar) | 43.3 | 2002 | 124 |
| Total researchers (FTE) | 23,995 | 2002 | 40,000 |
| Total researchers per thousand total employment | 1.4 | 2002 | 2.3 |
| Business Expenditure on Research and Development as a percentage of GERD | 28.7 | 2002 | 50 |
| Government Expenditure on Research and Development as a percentage of GERD | 7 | 2002 | 12 |
| Higher Education Expenditure on Research and Development as a percentage of GERD | 64.3 | 2002 | 38 |
| Number of Triadic Patents | 7 | 2001 | 100 |
| Number of Scientific Articles per million population | 200 | 2004 | 400 |
| Number of Scientific citations per million population | 60 | 2004 | 150 |
| SMEs innovating in house (% of all SMEs) | 24.6 | 2003 | 40 |
| SMEs involved in innovation cooperation (% of all SMEs) | 18 | 2003 | 20 |
| Sales of "new to the market" products (% of total turnover) | 9.4 | 2003 | 10 |
| Share of manufacturing value-added in high-tech sectors | 6.6 | 2000 | 10 |
| Labour participation of graduates with tertiary type A and advanced research qualifications (men) | 83 | 2002 | 90 |
| Labour participation of graduates with tertiary type A and advanced research qualifications (women) | 65 | 2002 | 80 |
| Rank in the overall competitiveness | 48 | 2005 | 35 |
| Global competitiveness index: infrastructure | 51 | 2005 | 45 |
| Rank in competitiveness: Legal environment affecting R&D | 41 | 2005 | 35 |



Performance Assessment, Follow-up and Evaluation of the Strategy

- RTD project selection and revision criteria adopted.
- OECD's Frascati, Oslo and Canberra manuals translated into Turkish and disseminated to relevant agencies
- Close collaboration with the State Institute of Statistics (SIS) established on enhancing data collection and analysis
- A national researcher database called ARBIS launched (number of entries has increased from 1,500 in April 2004 to 17,000 in November 2005)
- A national database of research facilities, called TARABIS, established (number of entries has reached 600 in November 2005)



Actions within the scope of Commission Communication:

“More Research and Innovation: A Common Approach”

[COM(2005) 488 final]



Better Regulation for New Technology

- Regular meetings and workshops with the participation of senior executives of major public agencies
- Strengthening civil society dialogue
- All major stakeholders in the industry as well as in the NGOs attend meetings and workshops aiming at designing new policies and instruments for RTD support
- Less bureaucracy for the transfer of research grants
- Permitting employment of project staff in research projects
- Help desk to inform and assist researchers in their grant applications



Improved Efficiency and Use of Intellectual Property

- IPR Department established within TUBITAK to handle all IPR related issues
- Help desk services for patent and trade-mark applications, utility models
- In cooperation with the Turkish Patent Institute, it organises in-house patent related trainings for researchers, (so far 560 researchers have been trained)



Using Public Procurement to Foster Research and Innovation

- TUBITAK began supporting research programmes of public agencies (*)
- Public agencies that have so far submitted:
 - Ministry of Agriculture and Rural Affairs
 - Ministry of Health
 - Ministry of Energy and Natural Resources
 - Ministry of Public Works and Settlement (National Earthquake Programme)
- All the ministries, administrations, general directorates and municipalities are expected to complete their arrangements by the end of 2005 (*)

(*) Under the decisions taken at the 11th meeting SCST



Using Public Procurement to Foster Research and Innovation

- Public agencies were called to submit their R&D proposals
- The project may be carried out within their own departments or in collaboration with universities, other research institutions, and the private sector or in the form of consortia
- More than 200 proposals were received
- Over 100 have been evaluated
- More than 30 have been awarded



Better and Wider Use of Tax Incentives

Tax exemption for R&D expenses

- 40% of annual R&D expenses can be deducted from the declared income of taxpayers
- Under implementation since July 2004
- TUBITAK submits an assessment / evaluation report regarding tax incentives to Ministry of Finance



Intensified University-Industry Partnership

Technology Development Zones (TDZ) (Ministry of Industry and Trade)

- 20 TDZs in Turkey
- 395 firms in TDZs
- 3458 R&D staff and 1426 support personnel in TDZs
- Financial support provided by the Ministry of Industry and Trade for land procurement, infrastructure and construction of management building.



Intensified University-Industry Partnership

Technology Development Zones (Ministry of Industry and Trade)

Tax Incentives for Technology Development Zones (until 2013)

- Tax exemptions for managing company of TDZ,
- Income obtained from the production activities based on the software and R&D by the tax payers of the zone is exempt from all kinds of income and corporate tax,
- Income tax exemptions for the salaries of the researchers, software engineers, and R&D personnel working in the zone,
- Value added tax (VAT) exemptions based on the software activities and R&D.



Intensified University-Industry Partnership

Technology Development Zones (Ministry of Industry and Trade)

TGZ Law provides incentives for mobility of researchers to work with private companies located in technoparks. Those incentives include;

- Retaining the earnings from part-time employment in firms within TGZ,
- Permitting the full-time recruitment of researchers without losing their cadres at the university/research institute,
- Allowing the academics to complete their studies abroad without losing their cadres at the university/research institute,
- Retaining the earnings by academics generated from such studies as described above,
- Allowing academics to start up their company to commercialize research results in the technoparks and/or to become a shareholder in companies located in technoparks and/or to take part in the management of such companies.



Intensified University-Industry Partnership

Technology Development Centres-TEKMER (Ministry of Industry and Trade, KOSGEB)

- First initiative for supporting the start-up of technology-based companies
- Located in technical universities
- As from 1991, KOSGEB established 14 TEKMERs jointly with the technical universities.
- In the provinces in which TEKMERs are not established yet, the same services and support programs are provided to SMEs through “Technology Incubators without Walls Programme”
- There are 19 Technology Incubators without Walls.
- There are also three private incubators established by Ericsson, Koc Holding and Siemens.



Intensified University-Industry Partnership

SAN-TEZ

A new project called “SAN-TEZ” has been launched for developing the university-industry collaboration. The aim of this project is to;

- commercialize the academic knowledge,
- transfer the academic knowledge into high added value technological products
- solve the problems of industry during production process in cooperation with the universities,
- provide R&D and technological culture for SMEs

With this concept, 104 projects have been taken into consideration by Ministry of Industry and Trade in 2005.



Intensified University-Industry Partnership

University-Industry Joint Research Centres Programme (USAMP)

- USAMP implemented by TUBITAK since 1996, aims at creating an environment favorable to joint R&D activities of universities and industrial companies.
- The Centers are established within the university or any other place acceptable to the university with participation of the university, the TUBITAK and minimum 3 industrial establishments or an umbrella organization.
- These centers target a technological area jointly funded by the TUBITAK and the industrial participants.
- There are six (6) joint centers in operation currently.



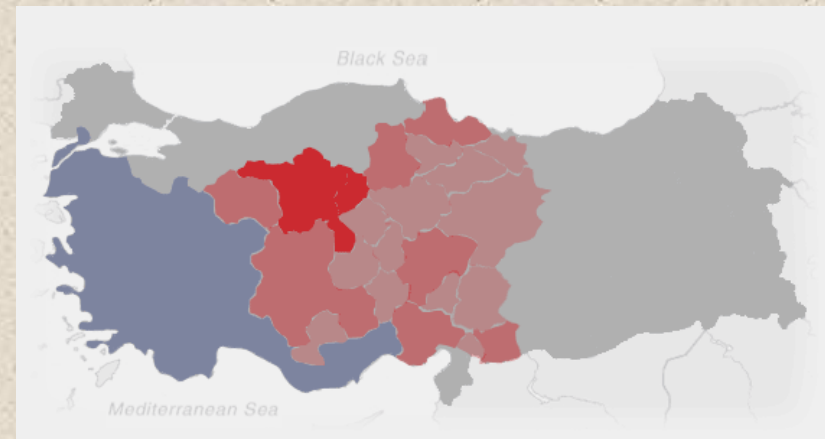
USAMP

- Ceramic Research Center
- Textile Research Center
- Automobile Technology Research Center
- Biotechnology Research Center
- Future Manufacturing Technologies Research Center

Business Support Services to Stimulate Research and Innovation

Innovation Relay Centers

- As of April 2004, IRC-Anatolia and IRC-Ege are the two newly joined members of that large network, providing services for the SMEs, universities, research centres and organisations in Turkey.





Improving SME Access to Finance

Venture Capital

There are seven venture capital companies and there are also some private incubators and/or investors such as Ericsson Crea-World, Siemens Business Accelerator and Koc Holding's IT Group. Venture capital companies are:

- VakifRisk
- IsRisk
- iLab
- KOBI AS
- Turkven
- Ladybird
- TTGV Girişim Fund



Start-up Support Programme

Ministry of Industry and Trade, Small and Medium Industry Development

Organisation (KOSGEB)

Creation of new technology-based firms and entrepreneurship are promoted under this programme. Programme includes both infrastructural and administrative support. Infrastructural support is limited to €8.000 loan and administrative support is limited with €2.000-€10.000 per a start-up.

Technology Development Foundation of Turkey (TTGV)

TGV is aiming to support newly established high-tech firms, which need to overcome the initial financial burden during the setup phase, through start-up funding. There are more than 50 firms having applied for start-up funding up to now.



Techno - Entrepreneurship Competition Programme

- TUBITAK initiated a new programme in order to promote entrepreneurship especially for young entrepreneurs in high-tech industry.
- A contest was announced in 2005.
- The applicants either individually or as a team will develop technology based innovative ideas and write a comprehensive business plan.
- The programme will also include periodic courses on business plan preparation.
- For the successful applicants some seed funding for a limited time will be awarded.



Technology Awards

- Since 1997, Technology Awards Execution Council has given awards with a view to promote the target of "conversion of creative ideas into economic and social benefits" in order to support Turkey's efforts to secure a place among countries generating technology.
- Technology awards programmes is in two categories: Grand Technology Prize and Technology Recognition Prize.



CREST

- Turkey is currently an observer in CREST (Scientific and Technical Research Committee).
- Turkish research organisations are interested in recent RTD OMC-NET call for proposal. They would like take part in consortia which will be structured under the call and contributing to OMC.