

Annex 5 — Hungary country case study

BLOSSOM: Support to analysis for long-term governance and institutional arrangements



Annex 5 — Hungary country case study

BLOSSOM: Support to analysis for long-term governance and institutional arrangements

Cover design: EEA
Layout: Rosendahl-Schultz Grafisk/EEA

Legal notice

The contents of this publication do not necessarily reflect the official opinions of the European Commission or other institutions of the European Union. Neither the European Environment Agency nor any person or company acting on behalf of the Agency is responsible for the use that may be made of the information contained in this report.

Copyright notice

© EEA, Copenhagen, 2011

Reproduction is authorised, provided the source is acknowledged, save where otherwise stated.

Information about the European Union is available on the Internet. It can be accessed through the Europa server (www.europa.eu)

Luxembourg: Publications Office of the European Union, 2011

ISBN 978-92-9213-209-5

ISSN 1725-2237

doi:10.2800/76903

European Environment Agency
Kongens Nytorv 6
1050 Copenhagen K
Denmark
Tel.: +45 33 36 71 00
Fax: +45 33 36 71 99
Web: eea.europa.eu
Enquiries: eea.europa.eu/enquiries

Contents

1	Introduction	6
1.1	Introduction	6
2	The landscape for long-term thinking and governance in Hungary	7
2.1	Responsibilities: the government institutions involved in forward-looking studies	7
2.2	Resource and staff involved.....	15
2.3	Stakeholders and external relationships	16
2.4	The role of the Parliament.....	19
2.5	Relative balance between quantitative and qualitative approaches	19
3	Analysis	22
3.1	Impact of future-oriented approach on policy making	22
3.2	Linkages between future-oriented policy documents	23
4	Conclusions	24
4.1	Success factors	24
4.2	Barriers to success.....	24
5	References.....	26
Appendices		
	Appendix 1 Approaches to futures studies	27
	Appendix 2 Examples of future studies.....	29
Figures		
Figure 1	Schematic presentation of the institutions in Hungary's innovation system	9
Figure 2	Links between the Hungarian Energy Policy and other national strategic documents	13

Acknowledgements

This report was prepared by Collingwood Environmental Planning Ltd (CEP) and Milieu Ltd as part of a study commissioned by the EEA.

The principle authors of this report are **Jasmina Bogdanovic** (Zoï Environment Network), **Zita Elend** (Austrian Environment Agency) and **Katalin Czászár** (Milieu Ltd).

Substantial input and editorial overview was provided by Owen White (CEP).

Project Leader: William Sheate (Collingwood Environmental Planning Ltd)

Project Coordinator: Tony Zamparutti (Milieu Ltd)

The EEA project manager was Axel Volkery.

Substantial input was provided by Tony Zamparutti and William Sheate. Information, guidance and a substantive review of the draft report was provided by Dr Attila Havas, Senior Research Fellow, Institute of Economics, Hungarian Academy of Science: other Hungarian officials and experts also contributed.

This case study report is one of 12 reports completed for the following EU Member States: Germany, Spain, France, Hungary, Netherlands, Austria, Poland, Portugal, Slovenia, Finland, Sweden, United Kingdom.

The opinions and conclusions presented here are the sole responsibility of the consultants and do not necessarily reflect those of EEA.

Acronyms

Blossom	B ridging L ong-term S cenarios and S trategic analysis — O rganisation and M ethods
CSO	Hungarian Central Statistical Office
EEA	European Environment Agency
EDOP	Economic Development Operational Programme
EEOP	Environment and Energy Operational Programme
EU	European Union
EFMN	European Foresight Monitoring Network
FAIR	Sustainable Development Basic Indicator System
HAS	Hungarian Scientific Academy
NAP	National Action Plan
NCCS	National Climate Change Strategy
NCSD	National Council for Sustainable Development
NDA	National Development Agency
NDC	National Development Policy Concept
NHDP	New Hungarian Development Plan
NKTH	National Office for Research and Technology
NSDS	National Sustainable Development Strategy
OMFB	National Committee for Technological Development
PREST	Policy Research in Engineering, Science and Technology
SRC	State Reform Committee
STI	Government's Mid-term Science, Technology and Innovation Policy
TEP	Technology Foresight Programme
VAHAVA	Changing (VÁltozás) Impact (HAtás) Response (VÁlaszadás) Programme

1 Introduction

1.1 Introduction

This report sets out the current status of the main institutional and governance arrangements for futures thinking in Hungary with respect to environmental — and environment-related — policymaking. It is based on a review of documentation and other available resources and a set of interviews with high-level officials and experts in relevant government departments, agencies and institutes. The aim has been to understand better how futures thinking is undertaken in Hungary, the relationships between different futures programmes and how these relate to, and influence, environmental policymaking. The report particularly tries to identify the success factors in ensuring futures thinking is embedded in environmental policymaking; however, barriers to success are also identified. It does not seek to explore the whole range of futures work, only those aspects of most relevance to environmental policymaking, and is focused on the institutional and governance structures, not the details of the futures studies or the quality of those studies. Further detail can be found in the Appendices.

This report, along with similar reports for 11 other EU Member States, forms the basis for a further cross-country analysis to identify common themes and issues in institutional and governance arrangements, as well as distinctive aspects of different cultural and administrative traditions and approaches to futures thinking.

An important caveat needs to be made: governmental futures thinking in its current format has only recently been established and is only starting to form within a clear and organised structure that lends itself to a targeted institutional evaluation perspective.

This study presents the results of a first attempt to synthesise and evaluate current practices within a context of limited time and resources: it is meant to shed light on important developments and to stimulate discussion but it is not meant to be understood as a comprehensive and concluding assessment. The same is true for the analysis of the impacts of futures thinking on decision-making.

2 The landscape for long-term thinking and governance in Hungary

Hungary, as well as other Central European countries, experienced a period of rapid and intensive social and economic transition from 1989 onwards. One-party rule was replaced by a democratic multiparty system and the centrally planned economy with a market-based economy as state-owned enterprises were privatised.

Despite the major political and economic changes, Hungary has retained its 1949 Constitution, though it was fundamentally amended in October 1989. Hungary's Government has separate legislative, executive and judicial powers. Legislative power is exercised by the unicameral National Assembly; executive power by the president and cabinet of ministers; and judicial power by the courts and tribunals.

Hungary is divided into 20 counties, including the capital of Budapest. The counties are further subdivided into 174 districts. Since 1996, for statistical and economic development planning, the counties have been grouped into seven regions.

Following a difficult economic period during this transition, Hungary achieved over a decade of relatively stable economic growth, attracting foreign investment. The global financial and economic crisis that broke out in 2008 has hit Hungary hard, in part due to the country's reliance on foreign borrowing.

The Hungarian Government only started to introduce forward-looking thinking in the mid 1990s, as in the years immediately following 1989 there was an aversion to the long-term planning approach of the former regime. The first forward-looking initiative was the national Technology Foresight Programme (TEP), launched in 1997. More recently, long-term studies have supported the development of government policy strategies in the area of energy and climate

change. However, it appears that forward-looking thinking has not become widely used in Hungary's Government.

2.1 Responsibilities: the government institutions involved in forward-looking studies

This section briefly describes the key organisations involved in the preparation of four major forward-looking initiatives in Hungary:

- the Hungarian Technology Foresight Programme (TEP), launched by the National Committee for Technological Development (OMFB);
- the long-term National Sustainable Development Strategy, launched by the National Development Agency and drafted in close partnership with the former Ministry of Environment and Water;
- studies linked to the National Energy Strategy (drafted by the former Ministry of Economy and Trade);
- studies linked to the *National Climate Change Strategy* (drafted by the former Ministry of Environment and Water).

2.1.1 Hungarian Technology Foresight Programme (TEP) (1997–2003)

The first Hungarian Technology Foresight Programme (TEP) was launched in 1997 by the National Committee for Technological Development (OMFB). The OMFB became part of the Ministry of Education and Culture in 2000 ⁽¹⁾.

The objectives of the TEP were to 'identify new markets and technology opportunities', and to 'make a contribution to improving the long-term competitiveness of the country resulting in a better quality of life'. The TEP also took into account

⁽¹⁾ The Ministry of Education and Culture is now the Ministry of National Resources.

Box 1 The mid-term (2007–2013) science, technology and innovation policy (STI) strategy (2)

The government launched its mid-term science, technology and innovation policy (STI) strategy for the period 2007–2013. One of the main objectives of the strategy is to promote the sustainable development of the country through innovation and R&D. The long-term positive vision of the strategy until 2025 is based on the favourable scenarios outlined by the TEP (Section 2.1.1) (3).

The Strategy highlights the importance of the forward-looking approach in the strategic planning:

Systems of strategic background analysis clearly underline managing the R&D statistical data system and operation of methodology tools which serve the policymaking and implementation (technological foresight, technology watch, technology assessment, etc.) is an important tasks of the state.

Furthermore, the strategy recognises the need to strengthen expert analysis for strategic decisions, highlighting the role of the Hungarian Academy of Science.

The strategy's long-term objectives include the following:

- a culture of exploiting the results of scientific research;
- quality, performance and utilisation driven efficient national innovation system;
- a respected, knowledge-based creative and innovative workforce suited to the demands of society and the economy;
- economic and legal incentives for knowledge creation and utilisation;
- domestic enterprises, products and services being competitive on the global market.

Its mid-term goals include the expansion of enterprise research and development activities; establishment of internationally recognised research and development, innovation centres and research universities; enhancement of research at regional level, and increase annual R&D expenditure.

The strategy's goals are linked to those of Hungary's recent National Development Policy Concept (NDC), National Action Plan (NAP), and the New Hungary Development Plan (NHDP) (Section 2.1.2).

Hungary's ongoing fundamental economic and social change in the transition and those planned for EU accession. The TEP thus took a broad socio-economic approach. In this context, the TEP also aimed at strengthening collaboration between different stakeholders; public and private sector, industry and academia (4) (5).

In general terms, the TEP could be described as an attempt to assist the development of a long-term national strategy by identifying key areas fundamental for Hungary's development in the coming 15 to 20 years. This was assessed against the background of Hungary's move away from a planned economy as well as the effects of a wide range of other identified drivers such as globalisation, rate of technological change and the need to support publicly financed research

and development. The areas identified for specific futures consideration in the TEP included: human resources; health and life sciences; information technology, telecommunications and the media; the protection and development of natural and built environment; manufacturing and business processes; agribusiness and the food industry; transport; and energy.

The TEP was implemented in two phases.

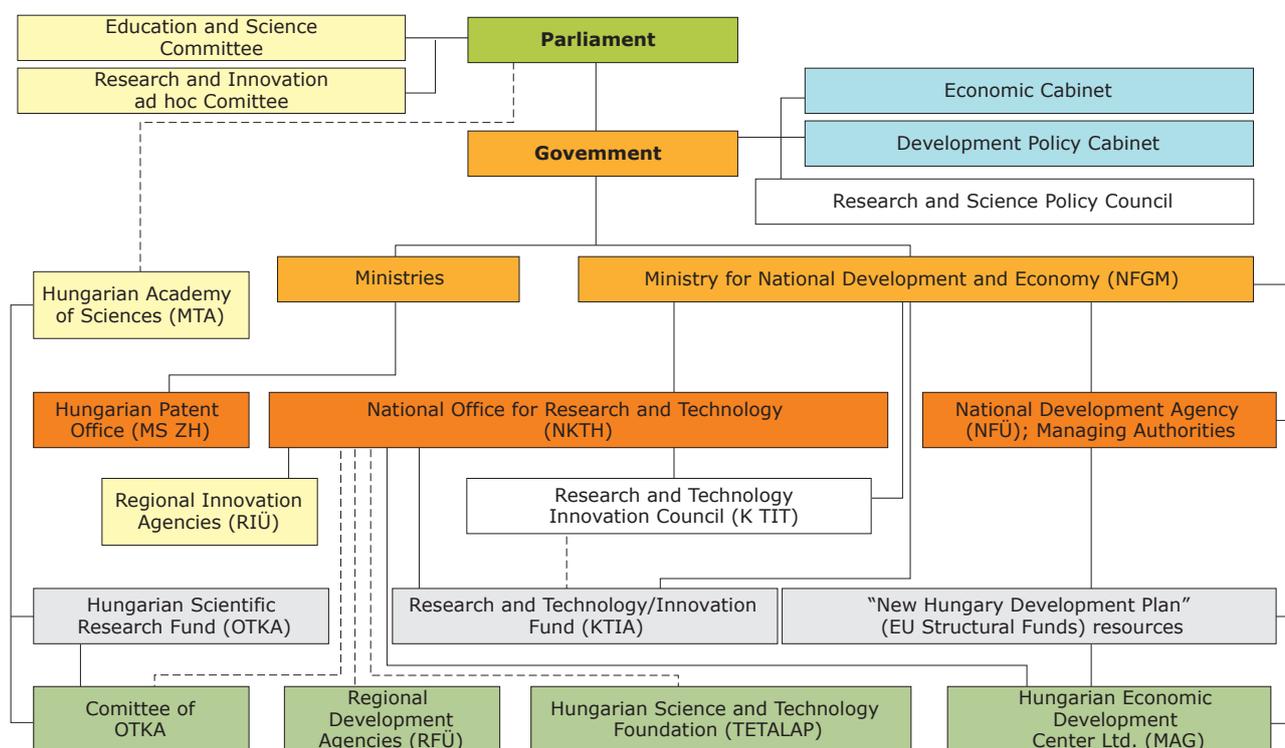
- **Assessment (1997–2000)**
During this phase, a steering group and seven thematic panels analysed the existing situation, outlined scenarios for the future and made recommendations for implementation for the most favourable futures. The assessment phase was concluded with the publication of eight final reports.

(2) The government's *Mid-term Science Technology and Innovation Policy (STI) Strategy (2007-2013)*, National Office for Research and Technology (NKTH) (<http://www.nkth.gov.hu/english/strategic-documents/the-government-mid-term-090619>).

(3) *Member State Report on implementation of renewed EU sustainable development strategy (EU SDS) (Hungary), 2007* (http://www.nfft.hu/dynamic/member_state_report.pdf).

(4) National Office for Research and Technology (NKTH) (<http://www.nkth.gov.hu/english/technology-foresight/hungarian-technology>).

(5) *The Hungarian Technology Foresight programme, Report by the Steering Group, 2000* (<http://www.nkth.gov.hu/english/technology-foresight/reports>).

Figure 1 Schematic presentation of the Hungarian national innovation system (April 2010)


- Implementation phase (2001–2003)
This phase included dissemination of results (to the relevant policymakers, among others) and implementation of the recommendations.

The TEP reports were discussed in meetings with the Prime Minister's Office as well as with officials responsible for strategic planning in several ministries ⁽⁶⁾.

The impacts of the TEP on policymaking in Hungary are briefly described in Section 3.2.1.

In 2004, the Ministry of Education and Culture invited the University of Manchester to evaluate the TEP. The purpose of the evaluation was to analyse the extent to which the TEP achieved its objectives, with the further goal of helping to orient decision-making on future oversight activities ⁽⁷⁾.

Today, the National Office for Research and Technology (NKTH) plays a key role in elaborating and implementing the **government's mid-term science, technology and innovation policy (STI) strategy** (Box 1). The NKTH was founded in 2004, as a public body with full powers and independent budget.

The detailed implementation (operative goals, tasks and schedules) of the STI strategy is carried out through the science, technology and innovation policy action plan 2009–2010, adopted by the government in February 2009. This action plan sets out the most important tasks for the coming years.

In broader terms, the Hungarian innovation system is supported by several organisations as presented in Figure 1 (this figure refers to the situation in April 2010; since the elections held that month, the Ministry for National Development and Economy has been renamed the Ministry of National Economy, along with other changes).

⁽⁶⁾ *Evaluation of the Hungarian Technology Foresight programme (TEP), Report of an International Panel, 2004* (<http://www.nkth.gov.hu/english/technology-foresight/evaluation-of-the>).

⁽⁷⁾ *Evaluation of the Hungarian Technology Foresight programme* (<http://www.nkth.gov.hu/english/technology-foresight/evaluation-of-the-080519>).

Box 2 Overview of the Hungarian Sustainable Development Strategy

The NSDS outlines a positive, sustainable, socially stable future vision, as well as, a corresponding long-term instruments and reform framework for all social, economic and environmental areas.

The priority areas covered by the strategy are:

- creating a sustainable population policy;
- improving health status;
- strengthening social cohesion and improving employment;
- protecting natural values;
- combating climate change;
- improving sustainable water management;
- strengthening competitiveness in a sustainable manner;
- strengthening sustainable production and consumer habits;
- transforming Hungary's energy economy;
- creating sustainable mobility and spatial structure;
- using economic instruments in the interests of sustainable development.

For each of the 11 priority areas, the strategy sets directions and strategic objectives for State bodies and local governments.

The Strategy is to be regularly reviewed and updated.

Environment and Water. Other sectoral ministries and national institutions and organisations have been involved in the elaboration of the strategy (Section 2.2). Following a series of public consultations (April–May 2007), the NSDS was approved by the government in June 2007.

The NSDS was prepared in the framework of the EU renewed Sustainable Development Strategy, which calls for the development of national strategies and action plans. The strategy has an inter-sectoral approach and presents the long-term (20–25 years) strategic framework document. It is coherent with the goals of sectoral strategies and programmes ⁽⁹⁾.

The preparatory process also refer to major global trends and processes, such as Agenda 21, elaborated during the Rio Earth Summit in 1992, as well as the results of the 2000 Millennium Summit and the 2002 World Summit on Sustainable Development.

The NSDS goals are to be achieved through cooperation between the public sector and economic and social partners. Activities aiming to achieve sustainability are focused on the following areas:

- enhancing the knowledge base and sharing knowledge;
- increasing citizens' activities and commitment;
- developing and transforming public policies;
- transforming the institutional system;
- evaluating changes and feedback of results.

2.1.2 Long-term National Sustainable Development Strategy (NSDS) (2007–2030)

The National Sustainable Development Strategy (NSDS) (Box 2), presented in June 2007, is a 'long-term strategy document, helping to lead the development of society on an appropriate track, outlining a system of instruments and a reform framework corresponding to a positive and sustainable future vision with which all members of the society can identify' ⁽⁸⁾.

The preparation of the long-term National Sustainable Development Strategy (NSDS) was coordinated by the National Development Agency (NDA) in partnership with the former Ministry of

While the strategy focuses on issues for the future, its analysis focuses on past developments in Hungary and its objectives are not placed in a context of trends that may shape the future.

Work on the NSDS included the development of a Sustainable Development Basic Indicator system (FAIR), focusing on the priority areas identified in the NSDS; it is intended to be used in reviews of the Strategy.

In 2008, a new advisory body, the National Council for Sustainable Development (NCSD), was established to review and possibly update the NSDS ⁽¹⁰⁾. The NCSD is also responsible for strengthening public participation and facilitating

⁽⁸⁾ National Sustainable Development Strategy (http://www.nfft.hu/dynamic/national_sustainable_development_strategy.pdf).

⁽⁹⁾ National Sustainable Development Strategy (http://www.nfft.hu/dynamic/national_sustainable_development_strategy.pdf).

⁽¹⁰⁾ National Council for Sustainable Development (<http://www.nfft.hu/documents/>).

the identification and elaboration of future tasks and general principles relating to sustainable development ⁽¹¹⁾. In November 2009, the NCSD released the *Report of the NCSD for the Hungarian society* ⁽¹²⁾. This report gives an overview on the current economic, social, environmental situation in Hungary and lists current non-sustainable processes. The document also seeks to predict factors that might influence sustainability in the coming years. These factors are climate change, increasing fossil fuel prices with decreasing oil resources and impacts on agricultural production. The report also provides the following ideas to tackle the previously listed challenges:

- R&D should serve the purpose of using energy resources in a sustainable manner;
- increasing the prestige of politics;
- using a balanced approach among the sectoral policies;
- giving more decision-making competence to local level ;
- providing more possibilities for the active involvement of civil society in handling, for example, environmental and social problems.

Taking into account the main findings of the report, the parliament adopted the decision, 'Sustainability situation in Hungary and the resulting tasks' ⁽¹³⁾. The parliament invited the NCSD to review the national strategy, also through a process of social dialogue, and submit it to the National Assembly for adoption by 1 July 2011.

2.1.3 The Hungarian Development Plan (NHDP)

Through the New Hungarian Development Plan (NHDP), 'the Government intends to put the country onto a new and sustainable course

of development [...]'⁽¹⁴⁾. The plan builds upon several sector and regional strategies, including the Transport Policy Concept, National Tourism Development Strategy or the National Strategy for Sustainable Development ⁽¹⁵⁾.

The NHDP was adopted for the period from 2007 to 2013 with the objectives of expanding employment and creating the conditions for long-term growth. The document was prepared by the National Development Agency (NDA). The key priority areas covered by the document include: economic development; transport development; social renewal; environment and energy development, regional development; and state reform ⁽¹⁶⁾. The NHDP foresees 15 operational programmes supported by EU Cohesion Policy, including, among others, the Environment and Energy Operational Programme (EEOP), and Economic Development Operational Programme (EDOP) ⁽¹⁷⁾. The programmes were approved by the Hungarian Government in May 2010. Under the Plan, sustainability (as well as the equal treatment of women and men) should be integrated into the operational programmes ⁽¹⁸⁾.

The preparation of the NHDP was coordinated by the National Development Agency, which is responsible for overseeing its implementation and for the coordination of EU funds in Hungary. The Agency was created by merging the former National Development Office and other authorities involved in managing the implementation of Hungary's previous National Development Plan ⁽¹⁹⁾.

2.1.4 Hungarian Energy Policy (2007–2020)

Hungary's energy policy is set out in a strategic document, the *Energy Policy Concept*, approved

⁽¹¹⁾ A full list of competences can be found in Decision of the National Parliament No 57/2008 (19 May 2008), point 4 of the competences of the National Council for Sustainable Development.

⁽¹²⁾ Report of the NCSD for the Hungarian society (http://www.nfft.hu/dynamic/Jovokereso_Hosszu_Screen.pdf).

⁽¹³⁾ Decision of the Parliament No 102/2009 (XII. 18.), 'Sustainability situation in Hungary and the resulting tasks'. (<http://www.nfft.hu/dynamic/11211.pdf>).

⁽¹⁴⁾ 'The New Hungary Development Plan' (http://www.nfu.hu/new_hungary_development_plan), p. 9.

⁽¹⁵⁾ It is noted that at that time, the NSDS was under preparation, therefore the draft was used as a conceptual proposal for the development of the New Hungarian Development Plan (http://www.nfu.hu/new_hungary_development_plan).

⁽¹⁶⁾ 'The New Hungary Development Plan' (http://www.nfu.hu/new_hungary_development_plan).

⁽¹⁷⁾ The strategic background of the EDOP is based on the technology and innovation policy strategy (Section 2.1.1).

⁽¹⁸⁾ 'The New Hungary Development Plan' (http://www.nfu.hu/new_hungary_development_plan) p. 81.

⁽¹⁹⁾ 'The National Development Agency' (<http://www.nfu.hu/agency>).

Box 3 Background studies for the Energy Policy Concept ⁽²⁰⁾

- Main Hungarian interests in the energy policy field in the process of European integration
- Legal conditions for energy infrastructure development
- Short and long-term environmental requirements for the national energy supply
- The role of energy savings in the Hungarian Energy Policy
- The role of renewable energy resources in the energy supply chain
- Prognosis of Hungarian energy consumption
- The development needs of the energy sector for joining the European single market and the existing grids of neighbouring countries
- The role of nuclear energy in energy supply, and the role of the Paks nuclear power plant
- The role of R&D in the energy sector
- The perspectives of the Hungarian energy policy in the context of EU market liberalisation rules and strategies
- Fossil fuel resources in Hungary
- Analysis of Hungary's energy resources.

in 2008. A series of background studies, commissioned by the former Ministry of Economy and Transport ⁽²¹⁾, some with a prospective focus, provided expert input for the elaboration of the concept (Box 3).

The study on the role of nuclear energy, for example, identified a potential need for establishing new nuclear energy capacity by 2030.

Based on the main findings of the background studies as well as comments received through a public consultation, the former Ministry of Economy and Transport prepared the Concept of the Hungarian Energy policy for 2007 to 2020 ⁽²²⁾.

It focused on the following major issues:

- diversification of the energy supply;
- role of the state in the energy sector;
- nuclear energy;
- opening of the market;
- energy prices;
- the contradiction between the need to reduce energy dependency and establish new power plants.

The main objectives of the Energy Policy Concept are as follows:

- maintaining and improving the continuity and security of energy supply;
- ensuring the contribution of the energy sector to the economic competitiveness of Hungary
- linking energy, transport and climate policies ⁽²³⁾.

The Energy Policy Concept summarises the main short and medium-term tasks to be carried out during the implementation period. The list includes the following tasks, among others:

- elaborating an energy efficiency strategy and action plan;
- continuing high-level research development and education in the field of energy
- developing a national concept for the sustainable development of transport infrastructure ⁽²⁴⁾.

Following discussions among public administration bodies as well as consultation with the public and with parliamentary groups ⁽²⁵⁾, the document was presented to the National Assembly for adoption ⁽²⁶⁾ through Parliamentary Resolution 40/2008 (IV. 17) ⁽²⁷⁾, which defined the strategic directions of the energy policy.

In line with the main directions of the Energy policy (framework document), the government prepared a

⁽²⁰⁾ A list of studies is available online (<http://www.nfm.gov.hu/feladataink/infrastruktura/energetika/strategia/energiapolitika/energipol.html>).

⁽²¹⁾ Elements of the former Ministry of Economy and Transport are now largely divided between the Ministry of National Economy and the Ministry of National Development.

⁽²²⁾ The current name of the ministry is the Ministry for National Economy (<http://www.ngm.gov.hu/en>).

⁽²³⁾ *National report on the Hungarian Energy regime* (http://www.barenergy.eu/uploads/media/D13_Hungary.pdf).

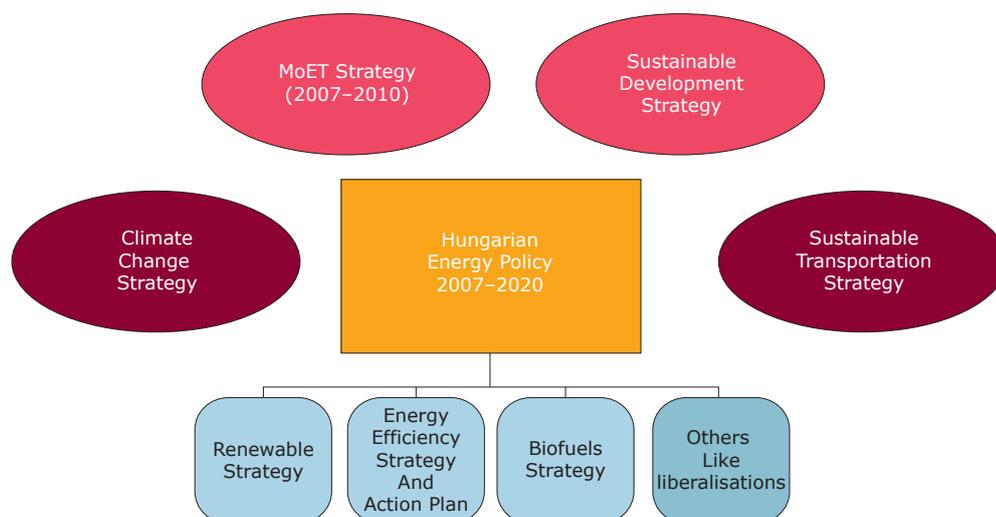
⁽²⁴⁾ Background document for the 'Energy Policy concept' (<http://www.mszt.hu/index.php?mid=54>).

⁽²⁵⁾ An overview of the preparation of the Energy Concept is available online (<http://www.nfm.gov.hu/feladataink/infrastruktura/energetika/strategia/energiapolitika>).

⁽²⁶⁾ 'Energy Policy in Hungary' (<http://www.mszt.hu/index.php?mid=54>).

⁽²⁷⁾ National Assembly Resolution 40/2008 (IV. 17) on energy policy for 2008–2020 (<http://www.nfm.gov.hu/feladataink/infrastruktura/energetika/strategia/energiapolitika>).

Figure 2 Links between the Hungarian Energy Policy and other national strategic documents



Source: (former) Ministry of Economy and Trade.

strategy for increasing the use of renewable energy resources in form of a government resolution in 2008 (Renewable Energy Strategy) ⁽²⁸⁾. The Energy policy concept is also connected to the Energy efficiency strategy and action plan (Figure 2).

2.1.5 National Climate Change Strategy (2008–2025)

In 2003, the then Ministry of Environment and Water in cooperation with the National Academy of Science launched the so-called VAHAVA project ⁽²⁹⁾, with the objective of preparing the scientific and

conceptual basis for the National Climate Change Strategy (NCCS). The most important policy recommendation of the VAHAVA project was that the National Assembly should enact a resolution on long-term greenhouse gas emission reduction and adaptation in the frame of a National Climate Change Strategy ⁽³⁰⁾.

The National Climate Change Strategy (NCCS) was prepared by the former Ministry of the Environment and Water ⁽³¹⁾ reflecting the global and EU concerns on climate change.

⁽²⁸⁾ *Strategy on the increasing use of renewable energy resources for 2008–2020* (<http://www.kozlonyok.hu/kozlonyok/Kozlonyok/10/PDF/2008/50.pdf>).

⁽²⁹⁾ 'Summary of the Changing (Változás) Impact (Hatás) Response (Válaszadás) programme' (in English) (http://ec.europa.eu/environment/climat/adaptation/workshops/pdf/budapest/pres_istvan_lang.pdf).

⁽³⁰⁾ *Fourth National Communication on Climate Change, 2005* (<http://klima.kvvm.hu/documents/36/nc4HUNC.pdf>).

⁽³¹⁾ Current name: Ministry of Agriculture and Rural Development (<http://www.vm.gov.hu/main.php?folderID=945>).

Box 4 Background studies for the National Climate Change Strategy (32)

- Climate Change Scenarios for the National Climate Change Strategy (33)
- Greenhouse gas emission reduction and energy (34)
- Future of biomass and actual problems related to the use of biomass (35)
- Integration of wind-energy to the national energy grid (36)
- Climate change and biodiversity: scientific analysis for the elaboration of the National Climate Change Strategy (37)
- Civil society study for the National Climate Change Strategy (38)
- Recommendations of the Forum of Climate Change Researchers (39)
- Summary of the main finding of the VAHAVA project (40).

In the preparation phase, a series of studies were conducted in 2006: these analysed current national and international trends, drew up scenarios for the future and made recommendations for decision-makers (Box 4).

The NCCS was developed in accordance with the provisions of Legal Act No 2007 LX on the implementation of the UN Framework Convention on Climate Change and its Kyoto Protocol.

The strategy covers the period 2008–2025; however, it presents ideas for the longer term (to 2050). The strategy covers the following key priority areas (41).

Greenhouse gas emissions reduction: the strategy describes current emissions of several sectors, including energy, industry, transport, agriculture and forestry. It forecasts expected changes, analyses trends and emissions reductions potentials and discusses possible policy tools (incentives and regulations) for mitigation.

Adaptation to climate change: the strategy evaluates the current situation, sets goals and prescribes measures for water management, agriculture, forestry, health, natural habitat protection, the built environment and infrastructure.

According to the long-term vision of the NSCS, the domestic energy consumption is to be reduced by 70 %, with 40 % of the homes having zero carbon emissions. With refurbishment, the emissions of existing homes are expected to be reduced by 75 %. In agriculture, organic farming and low pesticides consumptions are to expand greatly (42).

The strategy also acknowledges the importance of awareness-raising activities.

The NCCS is implemented through the national climate change programmes, with a duration of three to five years. In addition, the the NCSD (43) prepared the draft text for a new climate protection law (44), which was submitted to the parliament in January 2010.

Several studies relating to the proposed climate protection law have been recently published on the website of NCSD (45) (Box 5). For example, the study *Long-term (by 2050) emission reduction goals for Hungary* aims to explore the opportunities and constraints for reducing greenhouse gases by 80 % by 2050 (46). The study examines three scenarios with different climate change budgets, emission reduction targets and economic growth assumptions. The main conclusion of the analysis is

(32) 'Climate Change' (<http://klima.kvvm.hu/index.php?id=14>).

(33) http://klima.kvvm.hu/documents/14/klima_meteoroljes.pdf

(34) http://klima.kvvm.hu/documents/14/NES_energetika.pdf

(35) http://klima.kvvm.hu/documents/14/NES_biomassza.pdf

(36) http://klima.kvvm.hu/documents/14/KvVM_Szel_final_web.pdf

(37) http://klima.kvvm.hu/documents/14/NS_termvd_vgleges_web.pdf

(38) http://klima.kvvm.hu/documents/14/nes_epiteszet.pdf

(39) http://klima.kvvm.hu/documents/14/OMSZ_KlimkutF_rum_Aj_nl_s_061220.pdf

(40) <http://klima.kvvm.hu/documents/14/VAHAVAosszefoglalas.pdf>

(41) 'National Climate Change Strategy (2008–2025)' (<http://www.kvvm.hu/cimg/documents/nes080214.pdf>) (in Hungarian).

(42) A full list of long-term objectives can be found in the National Climate Change Strategy (http://www.nfft.hu/dynamic/Hosszu_tavu_kibocsatas_csokkentesi_celok_Magyarország_vonatkozásában.pdf).

(43) It should be noted that the team which was responsible for the preparation of the draft legal act was composed of members delegated by the different parliamentary fractions (http://www.nfft.hu/eghajlatvedelmi_torveny/).

(44) Text of the draft Climate Protection Law (<http://www.nfft.hu/dynamic/11716.pdf>).

(45) A list of studies is available on the website of the NCSD (http://www.nfft.hu/eghajlatvedelmi_torveny/).

(46) The study is available online (http://www.nfft.hu/dynamic/Hosszu_tavu_kibocsatas_csokkentesi_celok_Magyarország_vonatkozásában.pdf).

Box 5 Background studies for the 2010 draft climate law ⁽⁴⁷⁾

- Challenges and tools for climate adaptation
- Social and spatial effects of climate change, climate awareness, vulnerability and adaptation of the
- The coherence and environmental analysis of the climate act
- The conditions for the implementation of the Climate Protection Law
- The role of local authorities in the light of the new legal act
- Long-term (by 2050) emission reduction goals for Hungary
- Hungary's surface potential in the light of the global climate change
- Hungary surface potential of climate ground cover
- The domestic support fossil fuels.

that ongoing growth in greenhouse gas emissions will make reductions after 2020 significantly higher than expected (over 3 % per annum), which will create a significant burden for the economy: thus, the study recommends that greenhouse gas emission reduction activities start as soon as possible ⁽⁴⁸⁾.

2.2 Resource and staff involved

The preparation of the **Hungarian Technology Foresight Programme (TEP)** was coordinated and monitored by a steering group consisting of 19 high-level officials from industry, universities, research institutes, and the then Ministry of Economic Affairs. The programme was funded through the Central Technological Development Fund, which was managed by the OMF Council.

The work on the **National Sustainable Development Strategy** was coordinated by the National Development Agency (NDA) in partnership with the former Ministry of Environment and Water. The work has been carried out by ⁽⁴⁹⁾:

- a planner's working group consisting of staff from both institutions;
- experts from other national institutions such as other ministries, the State Reform Committee (SRC), the Hungarian Central Statistical Office (CSO) and the Hungarian Scientific Academy (HAS).

The Energy Policy Concept was developed by the former Ministry of Economy and Transport (Energy Department). A series of background studies supported its development; their preparation was financed by the ministry. Within the ministry, preparatory works were coordinated by the Energy Department of the State Secretariat of Infrastructure. Methodological assistance was provided by the Strategy Department of the Ministry and by KPMG Consulting Group ⁽⁵⁰⁾.

To support the **National Climate Change Strategy**, the former Ministry of Environment and Water in cooperation with the National Academy of Science launched a research programme in 2003 on the impacts of global climate change. The so-called VAHAVA research project was completed in 2006. Its work contributed to the development of the National Climate Change Strategy ⁽⁵¹⁾.

⁽⁴⁷⁾ Access to background documents (http://www.nfft.hu/eghajlatvedelmi_torveny/).

⁽⁴⁸⁾ *Long-term (by 2050) emission reduction goals for Hungary* (http://www.nfft.hu/dynamic/Hosszu_tavu_kibocsatas_csokkentesi_celok_Magyarorszag_vonatkozasaban.pdf).

⁽⁴⁹⁾ *National Sustainable Development Strategy* (http://www.nfft.hu/dynamic/national_sustainable_development_strategy.pdf).

⁽⁵⁰⁾ *Strategy for the increasing use of renewable energy resources for 2008–2020*, p. 4 (<http://www.mszt.hu/index.php?p=downloads&parent=12>).

⁽⁵¹⁾ 'Hungarian Climate Change Strategy' (<http://zoldebb.hg.hu/cikk/kornyeztespolitika/6035-magyar-nemzeti-eghajlatvaltozasi-strategia>).

Box 6 TEP thematic panels

The panels covered following interrelated areas:

- human resources (education and employment);
- health and life sciences;
- information technology, telecommunications and the media;
- the protection and development of the natural and built environment;
- manufacturing and business processes;
- agribusiness and the food industry;
- transport;
- energy — the eighth thematic panel on energy was analysed by a smaller panel and discussed with a larger group of external experts without using the Delphi survey.

The VAHAVA project was a nationwide project, involving hundreds of scientists, researchers and professionals. The budget for climate research activities within the VAHAVA project was up to HUF 30 million (about EUR 120 000) per annum ⁽⁵²⁾.

The Ministry of Environment and Water funded additional research and analytic studies to prepare for the National Climate Change Strategy. These studies were prepared by Hungarian Meteorological Service, the Hungarian National Academy of Science, Hungarian universities, consultancies (e.g. Power Consult), and government bodies in other EU countries (e.g. the Finnish Environmental Institute) and civil society organisations (e.g. E-mission Association).

2.3 Stakeholders and external relationships

Three rather different approaches have been seen for public and stakeholder participation in the initiatives reviewed here. Thus, each of the three initiatives is described separately.

The work for the Hungarian Technology Foresight programme brought together experts from the scientific community, industry, public administration and to a lesser extent, NGOs.

In contrast, the sustainable development strategy, as well as several other policies, was developed by the competent organisations and drafts were then presented for the public comments.

In contrast, for the Energy Policy, an alternative viewpoint emerged, presented by NGOs and other independent organisations in the document *Sustainable Energy Strategy for Hungary: in relation to the long-term energy strategy under development by the government* prepared by the independent organisation

2.3.1 Participatory approaches for the Hungarian Technology Foresight Programme

The work on the Hungarian Technology Foresight Programme (TEP) was supported by researchers, and experts from industry, academia, and government bodies. These experts were involved in the preparation of programme reports through more than 100 workshops organised across the country; in addition, about 1 400 researchers and other experts participated in a two-round Delphi survey. In involving such a large number of experts, the programme sought to establish a large network of experts who would provide feedback on the TEP work and participate in the implementation of its recommendations ⁽⁵³⁾.

⁽⁵²⁾ *Fourth National Communication on Climate Change 2005* (<http://klima.kvvm.hu/documents/36/nc4HUNc.pdf>).

⁽⁵³⁾ *The Hungarian Technology Foresight programme*, Report by the Steering Group, 2000 (<http://www.nkth.gov.hu/english/technology-foresight/reports>).

The TEP focused on eight priority areas (Box 6) considered to be the most important for improving the quality of life and enhancing economic competitiveness in Hungary. These areas were analysed by the thematic panels, while overall coordination of the TEP and macro-level futures were responsibilities of the steering group. The steering group and thematic panels analysed the existing situation and, via a series of workshops and the two-round Delphi survey, outlined different futures, and formulated recommendations. The programme published eight reports.

Panel chairs and secretaries were appointed by the steering group and, subsequently, panel members were invited by the relevant chairs and secretaries, relying on their own suggestions and the nominations collected through a process of consultation with attendees of awareness-raising seminars. These nominations were informed by guidance to ensure a balance of opinion and experience.

2.3.2 *Public participation in the development of the long-term National Sustainable Development Strategy (NSDS)*

The draft version of this strategy was published on the websites of the National Development Agency and the former Ministry of Environment and Water. These two institutions sent requests for comment to several hundred organisations and experts via e-mail. The respondents could submit opinions via e-mail or directly through the websites. In addition, a four-round panel discussion was organised and panel outcomes were published at the websites: almost 100 organisations were invited to participate at the panel discussions. The draft of the NSDS was also discussed with bodies including the Nationwide Regional Development Civil Interest Reconciliation

Forum, the Nationwide Regional Development Council, the Hungarian Academy of Science, and the Economic and Social Council⁽⁵⁴⁾ ⁽⁵⁵⁾.

Based on the collected inputs, a revised version of the strategy was submitted to the government, which adopted the document.

2.3.3 *Public debate on the Hungarian Energy Policy*

The concept of the Hungarian Energy policy (2007–2020) was elaborated by the former Ministry of Economy and Transport. Public discussions were held on the following topics:

- security of supply chain, nuclear security;
- renewable energy resource;
- energy efficiency and energy savings;
- regulatory framework and the role of the State⁽⁵⁶⁾.

In 2007, Energia Klub developed an alternative viewpoint, the Hungarian Sustainable Energy Strategy (Box 7). The document covers the period to 2050. It considers challenges that energy sector is facing in this period and integrates sustainability criteria⁽⁵⁷⁾, focusing on greenhouse gas emissions.

2.3.4 *Public participation in the development of the National Climate Change Strategy*

In July 2007, the then Ministry of Environment and Water published the draft version of the NCCS with the supporting background documents and studies on its website. The text of the draft version was finalised in August and then introduced for a public consultation. The deadline for submitting opinions was the end of August. The consultation was open to NGOs, scientific bodies and economic bodies. The results of the consultation were presented and summarised in a conference at the end of September.

⁽⁵⁴⁾ 'European Sustainable Development Network (ESDN), country profile — Hungary' (<http://www.sd-network.eu/?k=country%20profiles&s=single%20country%20profile&country=Hungary#top>).

⁽⁵⁵⁾ *National Sustainable Development Strategy* (http://www.nfft.hu/dynamic/national_sustainable_development_strategy.pdf).

⁽⁵⁶⁾ More information of the public debate can be found on the website of the Ministry of National Development (http://www.nfm.gov.hu/feladataink/infrastruktura/energetika/strategia/energiapolitika/enkon_konf.html).

⁽⁵⁷⁾ *Sustainable energy strategy for Hungary, in relation to the long-term energy strategy under development by the government* (summary), Energia Klub, 2007 (<http://www.energiaklub.hu/dl/kiadvanyok/Sustainable%20Energy%20Strategy%20for%20Hungary.pdf>).

Box 7 The Hungarian Sustainable Energy Strategy (2050)

The strategy notes that Hungary depends heavily on the Russian market for fossil fuel supplies. It makes the following assumptions for the coming years:

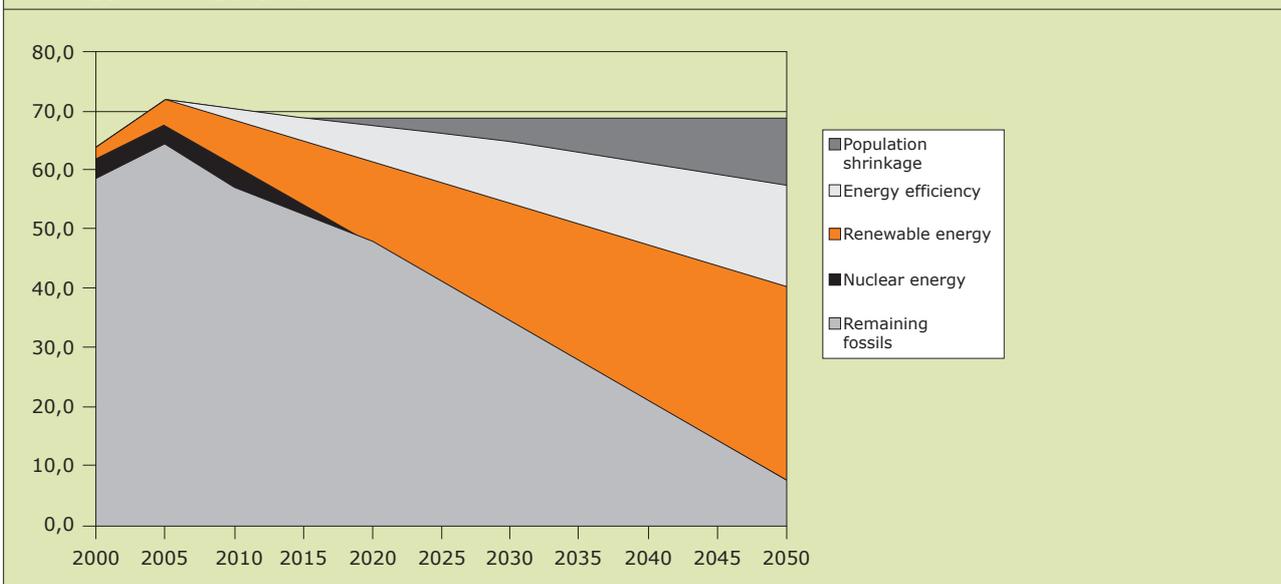
- fuel prices will soar due to high demand and exploitation of resources;
- the expansion of the Park Nuclear Power Plan will not occur due to the high cost, liability questions and problems associated with the nuclear waste disposal;
- there will not be any major changes in the industry sector;
- a 30 % reduction in energy demand is possible through efficiency measures;
- long-term renewable potential (biomass, wind, solar and geothermal) might reach 10–25 % of the current Hungarian energy consumption;
- national production of renewable energy offers an opportunity for employment;
- possible decentralisation of the electricity system and source diversification.

The strategy scenarios are based on availability and utilisation of domestic resources and broad cooperation at national and international level.

In the 'optimistic' scenario of the strategy, GHG emissions can be cut 81 % by 2050 (Figure 3). The population is expected to shrink to 8.5 million ⁽⁵⁸⁾ (from 10 million in 2010).

In the 'pessimistic' scenarios (including 'business as usual'), by 2018, Hungary's GHG emissions will exceed limits for climate change.

The composition of CO₂ emission reduction in the optimistic scenario of the Sustainable Energy Strategy (Mt)



Source: Sustainable Energy Strategy for Hungary, Energia Klub, 2007.

⁽⁵⁸⁾ Population projection for 2050 made by the Central Statistical Office of Hungary based on the Population Science Research Institute (http://portal.ksh.hu/portal/page?_pageid=38,387421&_dad=portal&_schema=PORTAL).

In order to raise public awareness about the programme, the Ministry organised a countrywide 'roadshow' ⁽⁵⁹⁾.

Civil society organisations participated in the strategic environmental assessment of the strategy. The ministry charged two civil society organisations with preparing the assessment *Friends of Earth Hungary* alongside the Ecological Institute for Sustainable Development: the latter was responsible for the assessment, whereas *Friends of Earth Hungary* organised the public consultation. Opinions were received through a dedicated website and during a so-called partnership forum which took place in October 2007 ⁽⁶⁰⁾.

2.4 The role of the parliament

The Hungarian Parliament has, by and large, played a small role so far in terms of forward-looking work. The TEP reports and recommendations, for example, were discussed in parliamentary committees.

The National Council for Sustainable Development was created by the Hungarian Parliament as a conciliatory, consultative and advisory organ for issues in the field of sustainable development. The body is responsible for:

- reconsidering dominant relationships in society;
- rising above individual, short-term interests, to focus on basic values arising from human dignity and community, longer-term interests extending over several generations;

- thinking based on a systems approach, according to which the problems occurring in our lives are intertwined, and that is exactly why they cannot be resolved by today's methods, in a separate system of institutions, because man is also part of the global system;
- establishing a national consensus regarding the necessity to adjust our consumption needs to the extent of possibilities provided by the environment, because society may only take as much from its environment as natural processes are able to compensate ⁽⁶¹⁾.

2.5 Relative balance between quantitative and qualitative approaches

Both quantitative and qualitative methods have been used in forward-looking studies. In the government studies reviewed here, however, either one or the other approach was used: none sought to integrate quantitative and participatory methods.

The **Hungarian Technology Foresight Programme (TEP)** used a predominantly qualitative approach. The work integrated several methods, including: brainstorming, Delphi survey, SWOT, cross-impact analysis, and scenarios development. Macro-visions of the future (Box 8) were also used. The thematic analyses were extended to establishing the cross-sectoral links (integrating relevant global principles and concerns significant for the cross-panel analysis), which are visible through the overlapping influences between information technology, human resources and environmental protection ⁽⁶²⁾.

⁽⁵⁹⁾ 'Press Office of the Ministry of Environment and Water — the National Climate Change Strategy' (<https://hirkozpont.magyarorszag.hu/sajtokozlemenyek/nes20070706.html>).

⁽⁶⁰⁾ 'Public consultation on the strategic environmental assessment of the National Climate Change Strategy' (http://www.mtvsh.hu/hirek_sublist.php?which=11).

⁽⁶¹⁾ National Council for Sustainable Development (http://www.eeac-net.org/bodies/hungary/hu_nfft.htm).

⁽⁶²⁾ *The Hungarian Technology Foresight Programme*, Report by the Steering Group, 2000 (<http://www.nkth.gov.hu/english/technology-foresight/reports>).

The TEP produced a series of products, including the following:

- three macro-visions of the future for Hungary (Box 8);
- 22 scenarios by the thematic panels (Box 9);
- priorities for scientific and technological development;
- a total of 100 recommendations.

The Delphi survey offered major inputs for the Hungarian TEP. Here, the approach was based on experience in other countries, including Austria, Germany, Japan and the United Kingdom.

The background studies that supported both the Energy Concept and the National Climate Change Strategy mainly used quantitative approaches looking, for example, at future emission reduction levels. For example, the study 'Climate Change

Scenarios for the National Climate Change Strategy' used computer modelling to project future changes in Hungary's climate. The modelling was based on the main findings of the PRUDENCE European project.

Other relevant studies, such as 'Future of biomass and actual problems related to its use' used other methods, in this case a life-cycle assessment of biomass.

Studies such as 'Integration of wind-energy to the national energy grids' used both quantitative and qualitative approaches in forms of:

- scenario analysis
- consultations
- exchange of experience with industry
- benchmarking.

Box 8 Three scenarios (macro-visions) prepared by the TEP

Based on an analysis of world economic trends and socio-economic development in Hungary together with the findings from the thematic panels, the TEP outlined three macro-scenarios for Hungary. These scenarios are presented in the format of matrix, where columns represent Hungary's choice of strategy (active, well-designed strategy, or no strategy at all), and rows indicate any fundamental structural changes at global level.

The use of macro-scenarios were not part of the original tool kit for the TEP: rather, these were produced on the suggestion of the thematic panels to develop consistent socio-economic framework conditions as a point of reference, in response to the high degree of change occurring at the time, both in Hungary and the European Union.

The scenarios were created by experts at workshops. Initial outlines were produced and the key factors of strategy, integration and knowledge intensity considered. Eight scenarios based on these major variables were produced and three of these were taken forward for further analysis and discussion before being finalised.

	Active strategy	Drifting (no strategy)
No major changes at global scale (with regard to values, norms, and the operation on large corporations and major international organisations)	Cooperative partnerships Hungary implements an active strategy characterised by a high degree of integration and based on mutual benefits and a high level of knowledge	Drifting Hungary, having no strategy, is forced by the current system of international division of labour along a low-skill and low-wage path
Fundamental, structural changes occur at global scale	Alternative development Hungary is integrated into a new, 'green' world pursuing an active strategy along a knowledge-intensive route	Scenario was not prepared

All three macro-visions consider 'full integration of Hungary into the future international division of labour as a part of the global and European economic and political system'; thus, the case of national isolation is excluded from the analysis.

Source: The Hungarian Technology Foresight Programme, Report by the Steering Group, 2000.

Box 9 Scenarios prepared by the TEP Thematic Panel on Protection and Development of the Natural and Built Environment (63)

The scenarios have been defined taking into account two variables:

- the impact of global economic changes and their environment-related tendencies on Hungarian society, economy and environmental protection;
- the position of environmental protection in the domestic value system, actions and trends: success or failure depends on whether Hungary chooses the principles of sustainable development (in the next 20–25 years) as high or low priority.

The panel identified eight possible scenarios but elaborated only three. A theoretical fourth scenario would require that the environmental programmes of the EU are unsuccessful, but sustainable development is a high priority in Hungary. The scenario was classified as possible but not likely, and was not described in detail.

Scenarios	Environmental programme(s) of the EU	Sustainable development in Hungary
A Chance for Sustainability	Successful	a priority
East of Eden	Successful	not priority
Weed and concrete	Not successful	not priority

In the first scenario, 'A Chance for Sustainability':

- EU economic growth continues; Hungary becomes a member of the EU by 2005 and enjoys the advantages of technology developments;
- a growing number of domestic companies adopt environmentally friendly and clean technologies;
- Hungary progresses in the implementation of environmental policy, approaching the 'forefront' of countries in the EU;
- environmental pressures decrease and public participation in sustainable development rises;
- the share of energy from renewable sources increases, in parallel with the introduction of energy and material saving technologies and measures;
- environmental pollution decreases with positive effects on health.

Scenario 2, 'East of Eden':

- EU economic growth continues, but its relative position in the world economy deteriorates; Hungary becomes a member of the EU after 2005, but sustainable development is not a high priority;
- there is a slow shift to cleaner production in industry, triggered by the rising prices of raw materials and energy resources as Hungary comes closer to European price levels;
- air pollution from transport, industrial and energy generation sectors falls slowly;
- the living standards and housing conditions of the population improve.
- organisations responsible for environment policy operate with limited efficiency due to their fragmented structure and inadequate cooperation;
- the state of the environment remains the same or improves only slightly; environmental pollution affecting health does not decrease or increases slightly.

Scenario 3, 'Weed and concrete' (lasting crisis):

- in terms of economic performance and competitiveness, the EU lags behind other economic regions in the world;
- global and environmental conflicts intensify and use considerable natural resources;
- Hungary becomes a member of the EU in 2010 or beyond; environmental considerations have a low political priority and are hardly addressed in decision-making; heavy industry is revived;
- increasing environmental stress from the industry and transport sectors, due to inadequate development of infrastructure;
- lack of public participation on environmental issues, despite alarming state of the environment;
- poor enforcement of environmental regulations; lack of support for green movements.

Source: The Hungarian Technology Foresight Programme, Panel Report on Protection and Development of the Natural and Built Environment, 2000.

(63) 'The Hungarian Technology Foresight Programme, Report by the Thematic Panel on Protection and Development of the Natural and Built Environment', 2000 (<http://www.nkth.gov.hu/english/technology-foresight/reports>).

3 Analysis

Section 2 has shown that different approaches to futures analysis have been used by the government in Hungary. Overall, however, long-term thinking is still not a common practice in Hungary across the majority of the sectors including the environment.

3.1 Impact of futures-oriented approaches to policymaking

In two areas, technology foresight and energy/climate, futures-oriented thinking in Hungary has been closely linked to policymaking.

3.1.1 Hungarian Technology Foresight Programme (TEP)

For the TEP, an evaluation carried out in 2004 provides key information on the programme's links to policy. An international panel led by PREST (Policy Research in Engineering, Science and Technology) at the University of Manchester undertook this evaluation on the invitation by the Research and Development Division of the former Ministry of Education and Culture. The panel concluded that the results had 'an impact both on the climate in many policy areas and a series of indirect, but significant, effects on policy in several domains. It seems that the TEP created a reservoir of knowledge that entered the policy system in a non-linear fashion, either through personal networks of participants or simply by having cogent text available when policies were being drafted'.

The main conclusion of the evaluation was that the programme achieved the objectives set to a high degree. The macro-scenarios as well as the thematic scenarios have turned about to be a particularly useful tool and, at the time of the evaluation, continued to be used for long-term planning

(though, in some cases, the scenarios were criticised as being too extreme or idealistic). These scenarios were used for drafting several strategic documents. The effects on policy were in some cases greater than expected, though they varied considerably from one policy domain to another. The largest impacts were identified in three fields: health and life sciences; transport; and information technology, telecommunications and the media.

In the health sector, the TEP recommended expanding the governmental 'Programme for a Healthy Hungary'.

Based on the recommendations of the panel on human resources, the provision to allow a sabbatical year for scientists and engineers to work in companies was launched in 2002 by the Ministry of Education.

In contrast, the weakest impact was identified in the areas of manufacturing and business processes, and agribusiness and the food industry. It has been suggested that the implementation of the TEP's work could have been faster, more extensive and better coordinated with stronger political support⁽⁶⁴⁾.

As for environmental policy, direct impact of the TEP was not immediately visible according to the evaluation. However, parts of the TEP findings have been included in some specific areas of environmental policies, notably in the introduction of new environment taxes on emissions and energy. Its results appear to have influenced two recent strategic documents:

- the *National Climate Change Strategy* (2008–2025).
- the *National Environmental Programme* (2009–2014); recently adopted by the Parliament⁽⁶⁵⁾.

⁽⁶⁴⁾ Havas, A., 2003, 'Evolving foresight in a small transition economy', *Journal of Forecasting*, 22, pp. 179–201.

⁽⁶⁵⁾ 'Ministry of Environment and Water, National Climate Change Strategy and National Environmental Programme' (<http://www.kvvm.hu/index.php?pid=136>) (only in Hungarian).

In addition, the former Ministry of Environment and Water and the Hungarian Academy of Science launched joint projects to elaborate the national climate change adaptation policy.

The TEP also triggered the use of foresight to articulate strategies for EU Cohesion Policy funds.

3.1.2 Hungary's energy and climate change policies

In both of these fields, studies were commissioned specifically to support the development of new

policy documents and, thus, analytical work appears to have directly supported policymaking.

3.2 Linkages between futures-oriented programmes

It appears (Section 3.1) that the TEP influenced work related to climate policy in Hungary. However, information has not been found on the specific links among these two futures-oriented initiatives in Hungary.

4 Conclusions

Futures-oriented analysis and studies have influenced the sphere of policymaking in Hungary, in particular in the areas of technology foresight and energy and climate. Notably, the results of Hungary's first full-scale national foresight programme have been used in a number of strategic documents.

Despite progress in these areas, government initiatives for futures-oriented analysis have not been seen in other policy fields. Moreover, it is not clear what analysis underpinned Hungary's Sustainable Development Strategy.

4.1 Success factors

Several major factors can be identified for the success of technology foresight in Hungary. First, the TEP was quite successful in involving a large number of experts from science, industry and the public administration.

Related to this is the fact that, as the TEP's steering group and thematic panels were not directly influenced by any government agency, the TEP was more robust to any changes in the country's political situation: this allowed a great degree of autonomy of decisions.

This steering group was able to adapt to changes over the course of the programme, such as the need for major new methodological inputs in particular macro-scenarios that could be applied to policy analysis. Moreover, the steering group was able to adjust international methodologies to the Hungarian context.

A further factor appears important, although it was not specifically identified in the documents reviewed or the expert inputs received: Hungary's TEP follows similar technology foresight initiatives in other European countries, and foresight activities have been supported by EU institutions and networks such as EFMN (European Foresight Monitoring Network). It can also be noted that futures-oriented analysis on energy and climate

in Hungary may be driven in part by long-term EU policy work and objectives in this field. Thus, European initiatives and policy drivers appear to have been among the drivers in the two areas where futures-oriented analysis has been seen to influence policymaking in Hungary.

4.2 Barriers to success

One barrier to the greater use of longer-term thinking in Hungary has been the legacy of the former central planning regime, which left an aversion to futures-oriented approaches.

Another problem has arisen from the restructuring of government bodies. For example, the TEP was initiated by an independent office, the OMF; the integration of this office into the ministry reportedly hindered efforts to implement the TEP results.

A further problem for the TEP was that its results lacked clear ownership and a structured implementation strategy from the beginning.

Yet another problem for the TEP was the poor involvement and participation of the industrial sector, which was reluctant to consider change and to communicate its perspectives. The broad approach of the TEP exercise might also have hindered industry interest. A further possible reason is that much of Hungary's industrial sector is foreign-owned and thus research strategy is not set in the country. SMEs in Hungary were, on the other hand, preoccupied with short-term issues, and faced a shortage of capacity to dedicate to the foresight initiative.

On a more general level, it appears that cooperation between government bodies in Hungary is limited, and this 'silo mentality' may have hindered the development and uptake of futures-oriented initiatives.

The April 2010 elections in Hungary have led to a wide-ranging reorganisation of government bodies. While it is not yet clear what influence this will have

on futures-oriented thinking, the reorganisation hindered information gathering for this country case study, in particular in the field of environmental policy, where the Ministry of Environment and Water became part of the new Ministry of

Rural Development. This change suggests that environment has fallen low on the current policy agenda, a factor that could hinder futures-oriented analysis.

5 References

Hungarian Technology Foresight Programme (TEP)

Reports by the Steering Group and thematic panels (<http://www.nkth.gov.hu/english/technology-foresight/reports>).

Evaluation of the Hungarian Technology Foresight Programme (TEP), Report of an International Panel, 2004 (<http://www.nkth.gov.hu/english/technology-foresight/evaluation-of-the>).

The government's mid-term science, technology and innovation policy (STI) strategy

The government's mid-term (2007–2013) science, technology and innovation policy (STI) strategy (<http://www.nkth.gov.hu/english/strategic-documents/the-government-mid-term-090619>).

National Sustainable Development Strategy

National Sustainable Development Strategy (http://www.nfft.hu/dynamic/national_sustainable_development_strategy.pdf).

Member State Report on the implementation of renewed EU sustainable development strategy (EU SDS) (Hungary), 2007 (http://www.nfft.hu/dynamic/member_state_report.pdf).

'The New Hungary Development Plan' (http://www.nfu.hu/new_hungary_development_plan).

'European Sustainable Development Network (ESDN): country profile — Hungary' (<http://www.sd-network.eu/?k=country%20profiles&s=single%20country%20profile&country=Hungary#top>).

National Climate Change Strategy

National Climate Change Strategy (2008–2025) (<http://www.kvvm.hu/cimg/documents/nes080214.pdf>) (in Hungarian only).

Sustainable Energy Strategy for Hungary

'Sustainable Energy Strategy for Hungary' (<http://www.energiaklub.hu/dl/kiadvanyok/Sustainable%20Energy%20Strategy%20for%20Hungary.pdf>) (summary in English).

'Sustainable Energy Strategy for Hungary' (<http://www.energiaklub.hu/dl/kiadvanyok/fes.pdf>) (full version in Hungarian only).

National Environmental Programme

National Environmental Programme' (<http://www.kvvm.hu/index.php?pid=136>) (in Hungarian only).

Competent authorities

Hungarian Patent Office (<http://www.mszh.hu/English/innovacio/>).

Energia Klub (<http://www.energiaklub.hu/en/>).

Ministry of Environment and Water Management (<http://www.kvvm.hu/index.php?pid=136>).

Ministry of Education and Culture (<http://www.okm.gov.hu/english>).

Ministry of Economy and Trade, Energy Department (<http://www.gkm.gov.hu>).

National Office for Research and Technology (NKTH) (<http://www.nkth.gov.hu/english/technology-foresight/hungarian-technology>).

National Development Agency (NDA) (<http://www.nfu.hu/?lang=en>).

National Council for Sustainable Development (<http://www.nfft.hu/documents/>).

National Council on the Environment (http://www.eeac-net.org/bodies/hungary/hu_frame.htm).

Appendix 1

Approaches to futures studies

Country: Hungary		
	Date programme(s) introduced	The Hungarian TEP was launched in 1997. Duration: Until 2003
	Responsibility	The first Hungarian Technology Foresight Programme (TEP) was initiated by the National Committee for Technological Development (OMFB). The OMFB became part of the Ministry of Education and Culture in 2000.
	Resources	The preparation of the Hungarian Technology Foresight Programme (TEP) was coordinated and monitored by the steering group consisting of 19 high-level officials from industry, universities, research institutes, and the Ministry of Economic Affairs. Analytical work was carried out by seven thematic panels that included 152 experts from different sectors. In addition, the work on TEP was supported by approximately 1 400 researchers and experts from industry, academia, and the government.
	Tradition	The TEP is the first national foresight exercise carried out in Hungary The TEP recommended expanding the governmental 'Programme for a Healthy Hungary'.
	Parliament	None identified
	Advisory councils	<i>Stakeholders — in particular researchers — participated via a steering group and thematic panels.</i>
	Legal framework	None identified
	Political framework	The government launched its 'mid-term science, technology and innovation policy (STI) strategy' for the period 2007–2013. One of the main objectives of the strategy is to promote the sustainable development of the country through innovation and R&D. The long-term positive vision of the strategy until 2025 is based on the favourable macro-scenario outlined by the TEP.
	Role of environmental research/ foresight programmes in providing futures thinking	Environment/environment protection was one of the eight research topics covered by the Hungarian Technology Foresight Programme under the Protection and Development of the Natural and Built Environment Panel.
	Actors	Researchers from academic institutions and (to a lesser extent) industry.
	Perceived institutional need	Not applicable
2. Institutional structure for environmental policymaking	Relevant government departments, ministers, agencies, etc.	As for environmental policy, direct impact of the TEP was not immediately visible according to the evaluation. However, parts of the TEP findings have been included in some specific areas of environmental policies, notably in the introduction of new environment taxes on emissions and energy. Its results can be seen in two recent strategic documents: <ul style="list-style-type: none"> • the <i>National Climate Change Strategy (2008–2025)</i>, • the <i>National Environmental Programme (2009–2014)</i>, recently adopted by the Parliament.
3. Foresight/ scenario culture traditions	Approach to futures thinking	Technology foresight

Country: Hungary

	<i>Thematic or issue</i>	Sectoral: technology foresight with a broad-based approach
4. Summary of programme(s) as a whole, including within agencies	<p>The first Hungarian Technology Foresight Programme (TEP) was launched in 1997 by the National Committee for Technological Development (OMFB). The OMFB became part of the Ministry of Education and Culture in 2000. The key objective of the TEP was to 'make a contribution to improving the long-term competitiveness of the country resulting in a better quality of life'. The TEP also took into account Hungary's ongoing fundamental economic and social changes. In this context, the TEP also aimed at strengthening collaboration between different stakeholders; public and private sector, industry and academia. In general terms, the TEP could be described as an attempt to assist the development of a long-term national strategy by identifying key areas fundamental for Hungary's development in the coming 15 to 20 years. The areas identified included human resources; health and life sciences; information technology, telecommunications and the media; the protection and development of natural and built environment; manufacturing and business processes; agribusiness and the food industry; transport; and energy. The TEP produced a series of products, including three macro-visions of the future for Hungary, 22 panel scenarios, priorities for scientific and technological development and, in total, 100 recommendations.</p>	

Appendix 2

Examples of futures studies

Country: Hungary

Futures programme(s): Hungarian Technology Foresight Programme (TEP)

1. Description/ characteristics of future study	Examples of specific studies	Three macro-visions of the future for Hungary 22 scenarios by the TEP thematic panels
	Exploratory/ normative?	Alternative futures and backcasting
	Qualitative/ quantitative?	Qualitative (narrative)
	Thematic focus?	The Hungarian Foresight Programme focuses on eight sectoral issues: <ul style="list-style-type: none"> • human resources (education and employment); • health and life sciences; • information technology, telecommunications and the media; • the protection and development of the natural and built environment; • manufacturing and business processes; • agribusiness and the food industry; • transport. <p>The eighth theme, that is, energy was analysed by a smaller panel and discussed with a larger group of external experts without using the Delphi survey.</p>
	Specific issue focus?	
	Spatial/ temporal scale	Hungary (national scale), duration 1998–2001, scenarios for next 20–25 years
	Ad hoc/ongoing established futures process	
	Sector/cross-sector-based?	Cross-sector
	Science-based/ multiple stakeholders?	<i>Multiple stakeholders: Multiple 'internal' experts were involved in work of thematic panels, and 'external' experts were involved in a two-round Delphi survey</i>
	2. Original purpose and application	For what purpose?
Requested by a specific entity?		The Technology Foresight Programme was initiated by the National Committee for Technological Development (OMFB) that became part of the Ministry of Education and Culture in 2000.
How used?		To help shape research funding priorities, as well as other policy areas.
By whom?		Mainly by the former Ministry of Education and Culture

Country: Hungary

3. Outcomes (immediate and long term)	Where and how used in policy (if at all)	<p>The main conclusion of the evaluation was that the programme achieved its objectives to a high degree. The macro-scenarios as well as the thematic scenarios have turned about to be a particularly useful tool and, at the time of the evaluation, continued to be used for long-term planning (though, in some cases, the scenarios were criticised as being too extreme or idealistic). These scenarios were used for drafting several strategic documents. The effects on policy were in some cases greater than expected, though they varied considerably from one policy domain to another. The largest impacts were identified in three fields: health and life sciences; transport; and information technology, telecommunications and the media.</p> <p>The TEP recommended expanding the governmental 'Programme for a Healthy Hungary'.</p> <p>As for environmental policies, direct impact of the TEP was not immediately visible according to the evaluation. However, parts of the TEP findings have been included in some specific areas of environmental policies, notably in the introduction of new environment taxes on emissions and energy. Its results can be seen in two recent strategic documents:</p> <ul style="list-style-type: none"> • the National Climate Change Strategy (2008–2025); • The National Environmental Programme (2009–2014), recently adopted by the Parliament. <p>In addition, the Ministry of Environment and Water and the Hungarian Academy of Science have launched joint projects to elaborate the national climate change adaptation policy.</p> <p>The TEP also triggered the use of foresight to articulate strategies for the EU Cohesion Policy funds.</p>
4. Evaluation	Any formal evaluation of effectiveness or updates?	<p>The TEP was evaluated in 2004 by an international panel led by PREST at the University of Manchester on the invitation by the Research and Development Division of the Ministry of Education.</p>
	Success factors/drivers	<p>The TEP provided a useful foundation for forward-looking thinking in several areas, in particular by developing scenarios that could be adapted for policy analysis.</p> <p>The TEP was also quite successful in involving a large number of experts from science, industry and the public administration.</p>
	Barriers to success	<p>One barrier to the greater use of longer-term thinking in Hungary has been the legacy of the former central planning system, which left an aversion to forward-looking approaches.</p> <p>Another problem has arisen from the restructuring of government bodies. For example, the TEP was initiated by an independent office, the OMF; the integration of this office into the ministry hindered efforts to implement the TEP results.</p> <p>A further problem for the TEP was that its results lacked clear ownership and a structured implementation strategy.</p> <p>Yet another problem for the TEP was the poor involvement and participation of the industrial sector, which was reluctant to consider change and to communicate its perspectives. Another possible reason is that much of Hungary's industrial sector is foreign-owned and, thus, research strategy is not set in the country. SMEs in Hungary were, on the other hand, preoccupied with short-term issues, and faced a shortage of capacity to dedicate to the foresight initiative.</p>
5. References	<p>Reports by the steering group and thematic panels (http://www.nkth.gov.hu/english/technology-foresight/reports).</p> <p>Evaluation of the Hungarian Technology Foresight Programme (TEP), Report of an International Panel, 2004 (http://www.nkth.gov.hu/english/technology-foresight/evaluation-of-the)</p>	

European Environment Agency

Annex 5 – Hungary country case study
BLOSSOM: Support to analysis for long-term
governance and institutional arrangements

2011 — 30 pp. — 21 x 29.7 cm

ISBN 978-92-9213-209-5

ISSN 1725-2237

doi:10.2800/76903

How to obtain EU publications

Publications for sale:

- via EU Bookshop (<http://bookshop.europa.eu>);
- from your bookseller by quoting the title, the publisher and/or ISBN number;
- by contacting one of our sales agents directly. You can obtain their contact details on the Internet (<http://bookshop.europa.eu>) or by sending a fax to +352 2929-42758.

Free publications:

- via EU Bookshop (<http://bookshop.europa.eu>);
- at the European Commission's representations or delegations. You can obtain their contact details on the Internet (<http://ec.europa.eu>) or by sending a fax to +352 2929-42758.

European Environment Agency
Kongens Nytorv 6
1050 Copenhagen K
Denmark

Tel.: +45 33 36 71 00
Fax: +45 33 36 71 99

Web: eea.europa.eu
Enquiries: eea.europa.eu/enquiries

