



INCO-CT-2004-510366

NENNET

**High Quality Research Network on Nanosciences, Material and Energy Research in
Lithuania**

Specific Support Action

Integrating and strengthening the ERA

Publishable Final Activity Report

Period covered: from **1st July 2004** to **30th June 2007**

Date of preparation: **14th August 2007**

Start date of project: **1st July 2004**

Duration: **36 months**

Project coordinator name **Stepas Janusonis**

Project coordinator
organisation name **Mokslininku sajungos institutas**

Project execution

The ultimate goal of the project NENNET is development of **sustainable**, application driven high-level research network bundling competences in materials sciences, nano-applications and self formation in Lithuania and contributing effectively to ERA activities.

Lithuanian research is strong in the fields addressed by the proposed network. This has been confirmed by an evaluation of the Research Council of Norway. However, links between research and industry continue to be rather weak and there are continue to be potentials for a further integration of the Lithuanian research sector into the European research community.

The current integration process into the EU constitutes a strong incentive for Lithuanian research centres to engage in networking activities both inside the countries and with European partners. Lithuanian Centres of Excellence understand that they play a key role in making Lithuania an attractive research and development location having its place in the European Research Area.

Through the bundling of competences, the integration of industry and society, and the exchange with European partners, the network contributes to the development of a critical mass able to mobilise the resources needed for outstanding research and development and innovation-based growth in Lithuania. This ensures that Lithuania will become an attractive and highly-performing partner in the European Research Area.

Reaching the 3 % GDP goal is an ambitious task that, as one main precondition, requires high public awareness concerning the role of R&D for competitiveness, growth and development. The proposed NENNET is aimed at increasing this awareness through the initiation and moderation of a societal dialogue, for example within the framework of foresight studies or through a web-based communication platform. Policy makers and public actors will be directly addressed by and involved into the activities of NENNET.

In order to reach its ambitious goals, the concept of NENNET is based upon four pillars:

- (1) bundling and integration of scattered R&D activities in Lithuania,
- (2) development of a cross-disciplinary and application - oriented R&D environment,
- (3) increasing the application-orientation and the links to industry of Lithuanian research and
- (4) stimulating framework conditions conducive to reaching the above-mentioned goals and creating synergies.

The strategic objectives of the project are:

- Integration through networking R&D resources on national level to achieve critical mass for generation of new knowledge and participate in ERA activities.
- Achieving synergy of R&D and industry by focusing on application driven approach for R&D efforts and contributing to 3% GDP target.

The overall actions to undertake are foreseen and results of the project are expected:

- **Evaluation of R&D resources** in Lithuania and development of Work programme for mobilisation of the human and material sources
- Networking through **personnel exchange** between research centres to facilitate cross-disciplinary research that includes visiting Lithuanian R&D institutions by leading researchers and visits of young researchers to EU research centres.

- Creating virtual environment for Exchange and dissemination of research results through **web based communication platform** presenting NENNET research results, market place for technology applications, newsletter for wider social environment and integrated database on research capacities available.
- Transfer of best practices on network management through **coaching** activities: training workshops on network management and intensive coaching course.
- **Dissemination** of results achieved for Industry partners and wider social environment
- Raising awareness of public authorities and policy makers by: 1. Evaluation of impact through foresight study and 2. Presentation of study results for targeted audience.
- **Training** seminars on project preparation and project management for identified partners from R&D community, industry and SMEs.
- Assisting SMEs in proposal preparation
- Developing partner search capacities through **Contact Broker** covering R&D, industry and SME resources capable participate in FP6 projects.

Contractors involved

	Partner	Main contribution
1	MSI (Coordinator) Mokslininku sąjungos institutas J. Basanavičiaus str. 6 LT-01118 Vilnius, Lithuania Prof. Stepas Janušonis Tel. +370 5 2313762, Fax. +370 5 2789013 E-mail stepas.janusonis@self-formation.lt	RTD partner: PV, Self-Formation of artificial systems, fuel cells, ITS. WP-leader in WP1
2	SPI Semiconductor Physics Institute (Lithuania)	RTD partner: Materials science and nanotechnology. WP-leader in WP2 (months 0-24)
3	LEI Lithuanian Energy Institute	RTD partner: hydrogen energetic technologies.
4	VDU Vytautas Magnus University (Lithuania)	RTD partner: hydrogen/oxygen transport in nanocrystalline materials and other. WP-leader in WP6
5	VDI-TZ VDI Technologiezentrum (Germany)	WP-leader in WP3 and WP4 Provision of communication platform and database, caching of the network, contact brokerage.
6	CIRCA CIRCA Group Europe (Ireland)	Consultancy in science, technology and innovation policy and implementation at various levels.
7	LORD Liaison office for research and technology development (Belgium)	Expertise in EU policy, Moderator between EC and NENNET.
8	EP EUROPARAMA (Managing organization, Lithuania)	Information dissemination, partner search and support for SMEs in proposal preparation, project management.
9	PT Perspektyvinių technologijų taikomojų tyrimų institutas	Evaluation of project results and sustainability of project after the project phase. (months 25-36)

The results of the project were evaluated in terms of achieved main objectives of the project:

- integration of the R&D human and material resources on national level;
- contribution to EU research activities;
- involvement of SMEs and industry partners to R&D intensive activities;
- impact on social environment.

Integration of the R&D human and material resources on national level

The NENNET project built upon the initial success of previous project FirstStep and further explored and promoted the theory of self-formation in the fields of possible technological applications such as nanomaterials and renewable energy technologies (solar cells, hydrogen storage and fuel cells). While FirstStep was integrating and coordinating exchange of research between individual researchers in Lithuania and elsewhere in Europe, NENNET was setting up an institutional framework for building a network of organizations in public and private sector with an interest in applied research and development of self-formation theory based technologies.

To achieve the ultimate goal of the project – sustainable, application driven research network on national level contributing to ERA activities, this project addressed integration through networking of R&D resources on national level. This topic was of primary importance especially in small countries such as Lithuania when high quality research is fragmented among different R&D institutions. The best solution to create critical R&D mass to participate in EU activities is networking and development of virtual environment for common R&D activities. The first step on the way to network organization was evaluation of R&D resources in the areas of nanoscience, material and energy research, RES and Fuel Cells available for networking and indication of the possible collaboration with EU members. As a result the evaluation report on R&D resources in Lithuania and work programme for mobilization of resources was prepared. Materials presented in the report later were integrated into foresight study “Future perspectives of Lithuanian research in sustainable energy and nanotechnologies”.



Figure 1. NENNET web platform: section *Innovations*.

As a result of this project presenting efficiency of measures undertaken by project team on integration of R&D, industry and administrative resources on national level was establishment of three national technology platforms (NTP) in PV, hydrogen and fuel cells and embedded systems in the second half of 2006 and later participation in preparation of SRAs. Five NENNET partners participate in activities of NTPs as partners and administrating partners: Mokslininku sąjungos institutas, Lithuanian Energy Institute, Vytautas Magnus University, Europarama Ltd and Applied Research Institute for Prospective Technologies.

The NENNET web platform (Figure 1) is available for general public at address <http://nennet.cesfa.lt/>. It also hosts a secure document repository accessible for project partners.

The objectives establishing web platform were twofold: (i) to establish virtual environment for communication among research teams and industrial partners in Lithuania, and (ii) to present capacities of Lithuanian RTD&I partners to wider EU community.

The first objective targeting at integration of national research and industry capacities was achieved by means of introduction of sectorial national wide private public partnerships in forms of National Technology Platforms. During the process of NTPs establishment the platform played a role of instrument integrating relevant players.

The second objective is to present NENNET research results, to promote and disseminate competence available in Lithuania, information on innovations and technology applications on relevant topics created by Lithuanian R&Ds and companies to wider EU environment.

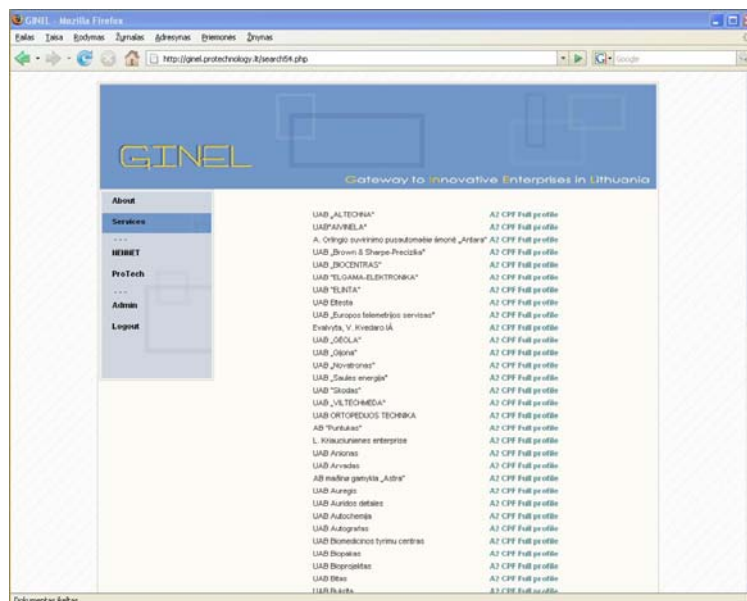


Figure 2. NENNET web platform: contact database GINEL.

Integrated into platform database *Gateway to InNovative Enterprise in Lithuania* (Figure 2) is a tool for promotion of innovation in companies (most of them belonging to the national technology platforms) taking into account R&D priorities.

The NENNET report “Future perspectives of Lithuanian research in sustainable energy and nanotechnologies” (April 2006) showed the potential of Lithuania in the application areas of nanomedicine technologies, photovoltaic technologies and hydrogen technologies. Hard-copy publications of this report (Figure 3) were sent to all major libraries in Lithuania, through project partners distributed EU-wide. The study is published on-line and is accessible to world wide user audience and also was used preparing SRAs for PV and hydrogen and fuel cells NTPs and thus analyses and recommendations presented in the study reached very broad audience.

Resources integration on European level was realised through exchange of personnel between collaborating centers in EU and Lithuania, participation in various international scientific events and international associations thus expanding networking framework.

Personnel exchange performed during the implementation of the project NENNET contribute to the achievement of the ultimate goal of the project – sustainable, application driven research network on national level contributing effectively to ERA activities. The personnel exchange reached two basic goals: (a) transferred knowledge from leading EU research centres to Lithuanian research institutions; and (b) Lithuanian researchers gained experience and transferred existing expertise in Lithuania to the EU research centres.

Twenty nine visits related to the management and science issues were made during the project NENNET. During the visits new contacts were established and new partners for further collaboration and new proposals found.

NENNET partners are active at the international associations and initiatives significant for political decisions making on national level.

NENNET partner Dr. J. Ulbikas representing Europarama Ltd as an official national representative participate in PV TP Member State Mirror Group thus the coordination with national program on PV is assured, providing two-way interface between the activities of the platform and the public authorities responsible for PV research and dissemination program in Lithuania.

The Lithuanian Energy Institute is the coordinating body for research and development activities related to hydrogen energy technologies in Lithuania. Since 2000 it is a member of International Energy Agency Hydrogen Implementation Agreement. Prof. J. Vilemas is active member of Executive Committee and Dr. D. Milcius participated in TASK 17: Solid and Liquid Hydrogen Storage Materials. TASK 17 finished in April, 2006 and similar new TASK 22 was approved by International Energy Agency Hydrogen Implementation Agreement Executive Committee. Dr. D. Milcius will continue activities in development of nanomaterials for hydrogen storage in new TASK 22.

Contribution to EU research activities and involvement of SMEs and industry partners to R&D intensive activities

Under the activities of NENNET project the integration process into the EU constitutes a strong incentive for Lithuanian research centres to engage in networking activities both inside the countries and with European partners was started. One of the activities used to achieve this ultimate goal of the project was – international cooperation of Lithuanian research teams and industry under FP6 and FP7 projects. Outcome in terms of integration of Lithuanian research teams into ERA activities can be presented through 14 projects submitted and being under implementation.

The careful analysis of calls with relevant thematic took a lot of efforts and time to find the large integrated project relevant to networked highly multidisciplinary Lithuanian R&D teams and also open to participation. Although this task was successfully completed during the FP7: the Collaborative Project/Large scale Integrating Project proposal **NANOXIM** (“Targeting nanosized hybrid organic-inorganic X-ray imaging probes”) was prepared and submitted with the participation of Lithuanian R&D team from Vilnius University. As in FP7 the NMP priority the submission follows the 2 Stage procedure, for this time the proposal is submitted to the 1st stage and already is successfully evaluated (although official Evaluation Summary Report is still unavailable from Coordinator) and under preparation to the second stage.

Taking into account the current state of the art, the project **NANOXIM** will represent a very important step forward in the field of computer assisted tomography applied to coronary artery disease and early detection of tumours, since, taking advantage of the unique properties of polyamidoamine polymers as vehicle for radiopaque particles and moieties, will lead to the preparation of highly innovative X-ray contrast agents with properties never achieved before.

In March 2005 was submitted the Integrated Project **SELFHYDROGEN** („Nanostructured aluminium based hydrogen storage media for transport applications“) with participation of 5 SME and 2 RTD partners (NENNET partner). Project is targeted at development of novel nanocrystalline Al with nanochannel structure by using methods inducing internal formation (self-formation) of nanocrystals and enabling strict control of nanoparticles composition, size, structure and stoichiometry at low temperatures.

In December 2004 was submitted proposal **NANO-PV** („Development of cost-effective manufacturing technology for production of next generation PV cells „) in which participated 3 SME partners and 4 RTD partners (2 of them NENNET partners). The overall objective of the NANO-PV project is to demonstrate possibility of transfer to industrial scale of new generation PV technology by smooth technological shift from first generation silicon based PV cell manufacturing to the next generation silicon based nanostructured PV cell technology.

Co-operative research project **REFLECTS** („Novel bifacial single-substrate solar cell utilising reflected solar radiation“) is already successfully completed. The project aimed to prepare the back end of an c-Si solar cell by applying a recently established Lithuanian technology for producing single-sided solar cells, based on self-formation.

In October 2004 was submitted the co-operative research Project FULSPEC with participation of 8 SMEs. The project aims to develop novel monolithic manufacturing technology for MJSC by employing self-formation concept enabling technological patterning optimization and introducing novel solutions in MJSC manufacturing technology, while keeping high efficiency of produced solar cells.

The Project **SELFLEX** („Demonstration of SELF-formation based FLEXible solar cells manufacturing technology“) with participation of 3 SME and 3 RTD partners (1 NENNET partner) was submitted in December 2005 and currently is in the stage of implementation. The overall objective of the project is to demonstrate at industrial scale cost-effective crystalline Si PV cells manufacturing technology based on highly innovative manufacturing concept – self-formation.

The Project proposal **NEXTSTEP** („Next step in developing a networked centre of excellence in self-formation theory and application,„) was prepared and submitted in spring 2007. The two major strategic objectives for this Project are: 1) to create a NEXTSTEP organizational model for developing EU-wide networked and local industry-linked centres of excellence in the fields relevant to the lead markets (which could be used in other research centres in the EU convergence regions); 2) to develop procedures and best practices for knowledge transfer from networked centres of excellence into the KIBS sector in RTD in the lead markets (with a view of specific needs of science-industry relations in the convergence regions).

The Energy focused research project **LASERP** („Laser and self formation based innovative solar cell manufacturing technology for effective silicon usage „) with participation of 2 SME and 3 RTD partners was submitted in May 2007. The main objective of LASERP project is to demonstrate possibility to adapt combined laser and self-formation based processes to innovative solar cell technology development on ribbon silicon substrates solving this way main problems related to material quality and leading to overall solar cell cost reduction.

The Lithuanian Energy Institute, Vytautas Magnus University with the Join Research Center Institute for Energy of the European Commission and other partners from the European Union participate in the European Research Training Network **Hydrogen Storage Research Training Network**. This project the mainly is dealing with production and characterization of nanocrystalline Mg-Ni-H hydrides by ion beam-plasma based technologies.

Lithuanian Energy Institute together with partners from the European Union participates in SSA project **HYSIC** (“Enhancing International Cooperation in running the FP6 Hydrogen Solid Storage activities”). This project is funded from 6th Framework Programme and national funds. The basic objective and scope of this SSA project is to facilitate and enhance significantly

international cooperation (in the framework of IPHE) on hydrogen solid storage through the running FP6 Integrated Project NESSHY. To achieve this, HySIC aims at supporting and promoting the execution of innovative R&D actions that clearly complement the workplan of NESSHY. These actions refer to sample preparation and characterization (regarding specific novel hydrogen storage materials), benchmarking and standardisation of test protocols and round-robin testing of specific samples. HySIC also foresees a number of joint dissemination actions (workshops) in close interaction to corresponding NESSHY training and dissemination activities.

Lithuanian Energy Institute also participate in Nordic Energy Research Programme *New metal hydrides for hydrogen storage 2000–2006* and submitted a new project proposal **Nordic Center of Excellence on Hydrogen Storage Materials 2007–2010**.

FP7 Proposal **NOVNANODE** (“Modeling and cost-effective processing of solid oxide fuel cells”) is submitted in 2007. One of partners of this project is NENNET partner LEI.

On the basis of SELFHYDROGEN project the proposal **SURFHY** to FP7 IDEAS program was prepared and submitted in 2007.

NENNET partners LEI and VDU participate in the **European Research Training Network (RTN) “Hydrogen Storage Research Training Network” (HyTRAIN)**. HyTRAIN is a Marie Curie Research Training Network, funded under the EC’s 6th Framework Human Resources and Mobility Programme. The network comprises 18 of the leading European research centres, with the primary aim of training researchers in the area of hydrogen storage in solid media.

Significant outcome of NENNET project thinking about sustainability of achieved results so far is ProTech – an interlayer organization between research teams and industry (not only LT but also EU). Working concept of ProTech can be described as virtual research center (T-KIBS) working on industry related tasks organizing mobile temporally research teams and acting as umbrella organization for researchers from different institutions.

NENNET partner PROTECH joined the project in the middle of 2006 and currently participate in the national project **“Promotion of High Surplus Value Business in Lithuania”**. The overall target of the project is to create effective and self-supportive mechanism, made to facilitate the comprehension of production of high and medium-high technologies for business companies, also of new technologies and higher surplus value products.

The study tour to six German RTD and innovative institutions took place from June 11 to June 15 2007. The aim of the study tour was to bring the NENNET delegation in contact with the most relevant German actors in the thematic fields covered by NENNET. Both with respect to the building-up contacts between potential partners in Germany and Lithuania as well as concerning the aim of deepening the network management competences, the study tour can be considered as one of the highlights of the NENNET project. As a result two proposals with participation of German colleagues to FP7 autumn call are under preparation and several ideas for later calls will be realised as well.

Impact on social environment

Dissemination of information about the project activities and raising awareness about impact of knowledge generated to wider social environment and economy in Lithuania was realised through preparation and dissemination of the foresight study on NanoEnergyNET social impact,

trainings on FP projects preparation and management, information dissemination through communication platform.

The foresight study on NanoEnergyNET social impact (Figure 3) has been prepared and presented to the representatives of state institutions (President Office, Parliament, Government and other), academy, research community and industry at the public event in Vilnius in March 2006. This report briefly examines world trends in each field of science and draws implications for Lithuanian research. It proceeds to focus on the Fifth and Sixth EU Framework Programmes (FP5 and FP6), before examining Lithuanian expertise in Nanosciences, Material and Energy research and identifying areas of FP7 where Lithuanian partners with identified expertise could participate.

The Study is published on-line on communication platform. A hard-copy publication is distributed among the major libraries: National Library, Library of The Academy of Science, Lithuanian Technical Library, Vilnius University Library and others. In turn these libraries distributed the Study to branch libraries.

At January 18 2007 new national energy strategy is announced by the parliament. Main objectives: security of energy supply, diversification of primary energy suppliers, sustainable development, speeded utilisation of nuclear and local energy recourses, competition in all liberalised markets, cooperation and coordination of energy policies of three Baltic countries.

Some major goals: construction of 450 MW CCGT unit at existing thermal plant before 2011, not later than 2015 ÷ 2017 commissioning of new nuclear power plant, before 2012 to construct power networks interconnection Lithuania – Poland and Lithuania – Sweden (capacity about 1000 MW each), the share of electricity produced in modern CHP plants in 2025 should reach 35 %, share of biofuels in transport sector should reach 20 % in 2025. The nuclear power plant will be owned by three Baltic countries and Poland.

In the strategy clearly indented the main research priorities. Between them are hydrogen energy (as a result of submission of NENNET Foresight study to national energy politics preparation team), nuclear safety, participation in international programs of fusion research and renewable energy technologies.

Trainings on FP projects preparation and management have been organized in Vilnius for broad range of potential RTD and industry partners. Training materials are available for general public on-line on communication platform.

Information on NENNET related topics was collected and disseminated through multiple channels: conferences, workshops, meetings, participation in activities of various networks and international organisations committed to R&D Policy. Information on NENNET targets and activities has been disseminated through national and international press, at various international events and meetings. Meetings and workshops materials have been published on-line on communication platform and are available for general public.



Figure 3. The cover of NENNET foresight study.

Conclusions

The project was implemented successfully and all major goals are reached. The project overall success leads to a number of results that might be further exploited:

- Research outcomes will stimulate further research as well as potential industrial application including the development of new processes and products.
- All actors will benefit from and further be able to use the contacts they could establish in the course of the project.
- Developed environment for integrated research activities in interdisciplinary areas already create and will continue create possibilities for generation of new knowledge and research results.
- R&D Institutions will benefit from established links with EU partners through exchange of personnel and generating new projects for FP and other programmes.
- Industry partners will benefit through established links with R&D community shifting their business to more R&D intensive activities and getting access to new technologies and know how.
- Technology platforms on national level as platform for communicating with government about sectoral development strategy will further contribute to integration research and industry players through joint activities.
- Policy makers have up to date knowledge on sector development and possible impact to wider social perspective.
- Impact on framing priorities in the new national energy strategy will lead to further practical steps leading to strategy implementation.

Dissemination and use

Availability of unrestricted information and its easiness of communication are the main objectives for the high quality research network. The main users of the network are as follow: universities and other training and education facilities; research centres; regional information and consulting centres; national governmental organizations and decision-makers; end-users in industry and commercial structures; public domain.

Development of the network is based on the integration into the unified web-based informational environment of the existing infrastructures of all actors in the high quality research network. Every organization integrated within it provides the network with information for the public domain. On the other hand research network infrastructure is additionally used as communication system for decision-makers and research and industrial professionals, also for the professional know-how and technology transfer with regard to renewable energy technologies and systems.

The results achieved by project NENNET are continuously documented in project deliverables. This project generated a number of deliverables having dissemination level “Public”. All those documents and objects are accessible publicly on web-based information and communication platform and through workshop and training materials, publications, reports and other remedy of information and knowledge dissemination.

Project results are evaluated in terms of achieved main objectives of the project: integration of the R&D human and material resources on national level; contribution to EU research activities; involvement of SMEs and industry partners to R&D intensive activities; and impact on social environment. The following results and activities should be stressed as having strongest impact on overall success of the project: establishment of three National Technology Platforms, preparation of the foresight study on “Future perspectives of Lithuanian research in sustainable energy and nanotechnologies”, establishment of web platform for information dissemination and key players integration, knowledge and personnel exchange and dissemination activities.

NENNET logo and web platform



Fig. 1. NENNET logo.

In order to immediately improve the Project visibility, a logo (Fig. 1) was designed and is used in all the dissemination tools,

ranking from the web site to fact sheet and brochures.

The NENNET web platform is available for general public at address <http://nennet.cesfa.lt/>. It also hosts a secure document repository accessible for project

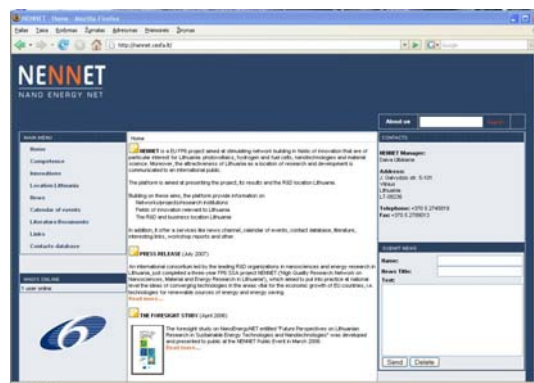


Fig. 2. Fron page of web platform.



Fig. 3. Secure intranet area.

partners only.

The objectives establishing web platform were twofold: (i) to establish virtual environment for communication among research teams and industrial partners in Lithuania, and (ii) to present capacities of Lithuanian RTD&I partners to wider EU community.

The first objective targeting at integration of national research and industry capacities was achieved by means of introduction of sectorial national wide private public partnerships in forms of National Technology Platforms. The platform played an important role as communication and information dissemination tool integrating potential key actors during the period of establishment of National Technology Platforms.

The second objective is to present NENNET research results, to promote and disseminate competence available in Lithuania, information on innovations and technology applications on relevant topics created by Lithuanian R&Ds and companies to wider EU environment.

Integrated into platform database *Gateway to Innovative Enterprise in Lithuania* is a tool for promotion of innovation in companies (most of them belonging to the national technology platforms) taking into account R&D priorities.

Foresight study

To achieve the ultimate goal of the project – sustainable, application driven research network on national level contributing to ERA activities, this project addressed integration through networking of R&D resources on national level. This topic was of primary importance especially in small countries such as Lithuania when high quality research is fragmented among different R&D institutions.

The best solution to create critical R&D mass to participate in EU activities is networking and development of virtual environment for common R&D activities. The first step on the way to network organization was evaluation of R&D resources in the areas of nanoscience, material and energy research, RES and Fuel Cells available for networking and indication of the possible collaboration with EU members. As a result the evaluation report on R&D resources in Lithuania and work programme for mobilization of resources was prepared. Materials presented in the report later were integrated into foresight study “Future perspectives of Lithuanian research in sustainable energy and nanotechnologies”.

The NENNET report “Future perspectives of Lithuanian research in sustainable energy and nanotechnologies” (April 2006) showed the potential of Lithuania in the application areas of nanomedicine technologies, photovoltaic technologies and hydrogen technologies. Hard-copy publications of this report were sent to all major libraries in Lithuania and through project partners distributed EU-wide.

The study is published on-line and is accessible to world wide user audience and also was used preparing SRAs for PV and hydrogen and fuel cells NTPs and thus analyses and recommendations presented in this report reached very broad audience.



Fig. 4. The cover page of printed Foresight study.

Training seminars and materials

Two seminars - on project management and afterwards on project preparation – were organised. Participants were invited according to the Lithuanian partners' recommendations from different research institutions and target SMEs.

The seminar on projects' management covered following topics: project preparation phases, roles of project partners in each of them; project implementation – what to start from; project reporting; financial reporting according EC requirements; accounting of project finance. Interactive discussions on raised questions were performed during the seminar time and quite a few real issues of ongoing projects were solved. The seminar was organised in proper time for research managers and SMEs that had already faced many problems in negotiation, management and administration of EU R&D contracts.

The second training was performed in the joint workshop on FP7 presentation and participation opportunities for SMEs and R&Ds. The main topics of workshop covered results of FP6 and presentation of FP7, FP6 Success stories and opportunities of participation in FP7. A round-table discussion on effective exploitation of the granted projects and capabilities of the national relevant coordinating institutions for successful participation in FP7 finalized the meeting. This training course (under NENNET project presentation) was designed to assist research managers, advisors to researchers and different level managers to evaluate project ideas and prepare competitive proposals for FP6 (with the overview of FP7).

One of activities important for project success was organization of the workshops contributing to the transfer of the German experience with Networks of Competence to the Lithuanian context. Specific attention on workshops was laid upon the experiences in East Germany and the transferability of these experiences to the Lithuanian context.

The Workshops were organized around topics that were of high importance for the members of NENNET: management of Networks of Innovation and management of an interactive website.

The aim of the workshops was not only presenting the German Experiences but also discussing their transferability to the Lithuanian context. Thus, discussions and drawing conclusions were core elements of the workshop context.

Materials of workshops and training courses are available on-line from NENNET web platform.

Resources integration

As a result of this project presenting efficiency of measures undertaken by project team on integration of R&D, industry and administrative resources on national level was establishment of three National Technology Platforms (NTP) in PV, hydrogen and fuel cells and embedded systems in the second half of 2006 and later participation in preparation of SRAs.

An information and communication platform (<http://nennet.cesfa.lt>) developed for providing information on competence of Lithuanian RTD and industry in selected fields of innovation, competence networks and centres available, projects, innovative research and industry institutions, scientific events and other during the process of NTPs establishment played a role of instrument integrating relevant players.

Resources integration on European level was realised through exchange of personnel between collaborating centers in EU and Lithuania, participation in various international scientific events and international associations thus expanding networking framework.

The personnel exchange performed during the implementation of the project NENNET contribute to the achievement of the ultimate goal of the project – sustainable, application driven research network on national level contributing effectively to ERA activities. The personnel exchange reached two basic goals: (a) transferred knowledge from leading EU research centres to Lithuanian research institutions; and (b) Lithuanian researchers gained experience and transferred existing expertise in Lithuania to the EU research centres.

Twenty nine visits related to the management and science issues were made during the project NENNET. During the visits new contacts were established and new partners for further collaboration and new project proposals found.

NENNET partners are active at the international associations and initiatives like European Technology Platforms or International Energy Agency Hydrogen Implementation Agreement significant for political decisions making on national level.

Under the activities of NENNET project the integration process into the EU constitutes a strong incentive for Lithuanian research centres to engage in networking activities both inside the countries and with European partners was started. One of the activities used to achieve this ultimate goal of the project was – international cooperation of Lithuanian research teams and industry under FP6 and FP7 projects. Outcome in terms of integration of Lithuanian research teams into ERA activities can be presented through 14 FP6, FP7 and other projects submitted or being currently under implementation.

Other dissemination activities

To increase awareness of high quality research network issues, information was collected and disseminated through multiple channels: conferences, workshops, meetings, participation in activities of various networks and international organisations committed to R&D policy.

Information on NENNET targets and activities has been disseminated through national and international press including CORDIS news service, at various international events and meetings, research results published in relevant scientific journals (International Journal of Hydrogen Energy, proceedings of conferences, etc.) and thus reached a broad audience representing research, academy and administrative bodies.

Project results were presented and evaluated on the network level at the seminars for network participants and decision makers, and on international level at international events (EuroNanoForum 2007 and other).