



Pilot Action Plan

Implementing region:
CLUJ

Executive Summary – March 2008

Main objective	Launching a public-private technology transfer centre in the field of renewable energies (Solar)
Main activities	<ul style="list-style-type: none">• Prototyping• Developing of new technologies• Market analysis• Advanced testing• Technical support, quality evaluation
Expected results and outcomes	Developing a new, hi-tech, competitive solar-thermal product
Direct and indirect beneficiaries	CONTHERM, UTCN-CCSTI
Implementing organisation	CONTHERM
Partner(s)	UTCN Technical University of Cluj Napoca
Duration	24 months
Estimated budget	120,000 EUR

1. Problem identification

1.1. Introduction

Innovation is an important factor in releasing the potential of the Lisbon agenda. The knowledge captured in new technologies and processes can drive growth and competitiveness and create new jobs. But knowledge must be treated as part of a wider framework in which business grow and operate. Developing knowledge-based economy requires adequate levels of investment in R&D, education, and ICT as well as creating a favourable environment for innovation.

1.2. Innovation And Knowledge Performance

The development of the productive sector through support to SMEs aims to increase the number of SMEs, especially those active in manufacturing and high value-added services, and diversify their range of activities. The support for SMEs also addresses the need for job creation, growth and diversification of the SMEs sector. In particular, the number of entrepreneurs is still low and the number of start-ups is significantly lower than in other transition economies. Insufficient access to finance is a problem for the SME sector in general, but is particularly worrying for micro-enterprises (< 10 employees) and the innovative green-field initiatives. On top of that, most SMEs are still severely undercapitalized and would face difficulties in meeting the new environment standards without affecting their competitiveness. The insufficient and poorly diversified entrepreneurial base poses serious problems for the economic development of the country, especially in certain regions and areas that are lagging behind in terms of economic development. The mortality of business start-ups is very high in the first year of their life, mainly because of a shortage of finance, lack of business support services, limited entrepreneurial skills and experience and insufficient knowledge of how to enter markets.

The Cluj County is characterised by an important university pole, Cluj-Napoca. The university provides an important number of highly qualified S&E graduates. Cluj-Napoca is the second largest university centres after Bucharest, in terms of students. There are important links between University and foreign companies (e.g. Alcatel and Technical University in Timisoara or Technical University Cluj-Napoca and Volkswagen). In 2004, the Research activities of Technical University of Cluj amounted to 2 MEUR form contracts with foreign companies. However, the regional R&D public expenditure is lower than in Bucharest, even though the potential for innovation is relatively similar. One of the major difficulties is the lack of visibility of National R&D programmes at the regional level and bureaucracy in terms of funding applications.

Exhibit 1: Summary of weaknesses and key needs

Region	Key factors explaining the weaknesses	Key needs in terms of innovation and the knowledge economy
Cluj	<ul style="list-style-type: none"> • Lack of innovation infrastructures; • Lower public expenditure on R&D • Lack of cooperation between large companies and SME 	<ul style="list-style-type: none"> • Incentives for strengthening the cooperation between businesses and between business sector and research institutions • Improving the knowledge for attracting more public R&D funding • Incentives for creating clusters

Exhibit 2: Key opportunities and constraints

Policy objectives	Opportunities	Constraints
Innovation friendly environment	<ul style="list-style-type: none"> • Development of more market driven funding mechanisms such as venture capital, guarantees or loans. • Improve the awareness for using the Credit Guarantee fund • Increase the efficiency and quality of public services by increased usage of ICT • Build entrepreneurship friendly attitudes in schools and universities 	<ul style="list-style-type: none"> • Regulatory environment still considered insufficient. • Introduction of ICT requires an adjustment reengineering of public services • Low awareness and interest of the banking system in co-financing RDI projects
Knowledge transfer and technology	<ul style="list-style-type: none"> • Enhance technology transfer infrastructure and create mechanisms to commercialise R&D 	<ul style="list-style-type: none"> • Lack of coherent and professional strategy regarding technology transfer mechanisms.

Policy objectives	Opportunities	Constraints
diffusion to enterprises	<ul style="list-style-type: none"> • Increase funding and staffing in technology transfer institutions and improve quality of provided services. • Promote innovation in processes, services and products through ICT. 	<ul style="list-style-type: none"> • Low R&D demand by firms • Low management capabilities in SMEs • Lack of qualified personnel • Low visibility of the existing technology transfer organisations
Innovation poles and clusters	<ul style="list-style-type: none"> • Develop critical mass in sectors active in the poles (e.g. ICT) • Support the alignment of SMEs in supplier networks of big corporations (including multinational companies). 	<ul style="list-style-type: none"> • Low R&D demand by enterprises • Lack of capability of management structures
Support to creation and growth of innovative enterprises	<ul style="list-style-type: none"> • Facilitate access of newly established firms to business services. • Support organisational and business innovations. • Increasing application of ICT in enterprises. 	<ul style="list-style-type: none"> • Lack of international perspective in SMEs and weak management capabilities. • Due to the transversal nature of most measures they do not sufficiently promote the establishment of new business activities in high value added sectors. • State aid rules are a barrier in providing fiscal incentives to innovative companies
Boosting applied research and product development	<ul style="list-style-type: none"> • Substantial increase of R&D funding; • Increase public research and business collaboration • Increase international collaborations. • Exploitation of opportunities offered by 7th FP 	<ul style="list-style-type: none"> • Low R&D demand by firms • Low visibility of current funding opportunities in the regions and in particular among SMEs

Cluj also has a high potential of becoming innovative and knowledge-based region due to the prestigious university centre. The co-operation between technical universities and business sector functions well, in particular with large foreign companies, but there is still a need for public support of such linkages. The region has an ICT cluster and an incipient cluster in solar energy. The regional economy has a good potential for cluster formation, but the process needs to be accelerated by support from the Structural Funds. Moreover, there is a regional necessity to foster the creation of business infrastructures such as business incubators Science and Technology Parks and increasing the number of technology transfer centres. Moreover, it is suggested that a support for acquiring new equipments and technologies in order not to alter the regional potential.

Exhibit 4: Innovation and Knowledge SWOT

Leading Knowledge Regions (West and North West Region)	Opportunities	Threats
Strengths	High potential of developing ICT and Renewable energy sectors due to highly qualified HR and S&E graduates and very good research institutions.	Still insufficient business infrastructure and services support (S&T and Technology Parks, Business Incubators, Technology Transfer Centre). Obsolete R&D and technologies in most cases
Weaknesses	High potential for developing clusters and innovation poles provided that there is a support through the Structural Funds	Low potential for financing Low potential for elaborating the RIS in the Region

1.2 Pilot Project Focus

Because the key issues taken in consideration by the SUPER-SME project were technology transfer and the needs of implementation of an advanced technologies programme, encouraging research and technology transfer in the respective areas and the increase of international competitiveness, enhance technology transfer infrastructure and create mechanisms to commercialise R&D results, increase funding and staffing in technology transfer institutions and improve quality of provided services and to promote innovation in processes, services and products through ICT, the idea of creating a pilot research center and transfer unit was taken in consideration.

SMEs account for an overwhelming majority in the total firm population in Romania - 95.5%. Most of them have a weak innovative capacity. According to the European Innovation Scoreboard (2005) and the Romanian National Institute of Statistics 2000-2002 Survey, Romanian SMEs' comparative advantage remains today largely based on low wages. Up to now R&D

policy at national level has been mainly focused on the supply side (strengthening R&D infrastructure, centres, etc.) with few links to enterprise/innovation or regional development priorities (where the main issue is upgrading low technology capacities of small firms plus in some areas supporting linkages of local sub-contractors to FDI). This situation is likely to continue during 2007-2013 based on current plans.

By creating a small research center and technology transfer unit in the field of solar technology, both the SMEs and the University can take advantage. The goal of this association is to:

- Match the technology offer and the product needs.
- Produce a technology that has a strong value within the product.
- Convince the customer to accept product price with the added features enabled by the technology.

The main domains of application of technologies developed would be the Solar-Thermal Industry.

Technology Transfer is an integral part of TUCN-CCSTII's principal mission of fundamental research.

2. Pilot action specification

2.1. Objective and purpose

The main goal is to create a functional, sustainable research and technology transfer unit in the field of Solar-Thermal Technology.

Specific objectives:

- Enhance technology transfer infrastructure and create a mechanism to commercialise R&D results
- Increase funding and staffing in this technology transfer institution and improve quality of provided services
- Promote innovation in processes, services and products
- Facilitate the mobility of skilled researchers and technicians between science and industry

The purpose of this pilot action is to develop an innovative and cost effective solar thermal installation adapted to the solar irradiation of the Regions of Cluj and Hunedoara.

2.2. Approach: tools and methods

During the implementation of the suggested pilot action, the following activities will be undertaken:

- Analysing the current technologies
- Contacting with other Research Institutes in Europe (in particular ITW Stuttgart)
- R&D of the product
- Testing for obtaining the Solar KeyMark
- Launching the product
- Dissemination of results

2.3. Target groups and beneficiaries

The target groups of the deliver of the pilot action are:

- households in the Regions of Cluj and Hunedoara and will be extended at the country level - household installations (installation for houses)
- Buildings in the Regions of Cluj and Hunedoara and will be extended at the country level – buildings up to 10 level.
- Industries in the Regions of Cluj and Hunedoara and will be extended at the country level factories with a high need in hot water and
- public buildings (schools, hospitals etc) in the Regions of Cluj and Hunedoara and will be extended at the country level

The Beneficiaries of this pilot action will be a large number of individuals as well as private and public organisations for both the Regions of Cluj and Hunedoara and at the Country level as well.

2.4. Implementing body and partnership

The implementing body will be CONTHERM (Private company founded in 1992, activity began in the field of thermal controllers both production and Research and development, in 2004, Contherm entered the Renewable Energy Market (Selling and Installing Solar Systems), several locations in Romania (Resita, Cluj-Napoca, Baia-Mare, Eforie-Sud) and one in Bruxelles) as the SME involved in the action and of course TUCN.

Technical University of Cluj-Napoca trains specialists in the technical field through long and short term education programmes, postgraduate and PhD studies. It has over 12,000 students.

The most important projects regarding scientific research are those with CNCSS, ANSTI, and PNCDI as well as those financed by the European Union Commission: EUREKA, COPERNICUS, COST, FP5 and FP6.

The University's correlation to European standards is reflected by the international conventions it is part of and by its participation in a wide range of European education programs: TEMPUS-PHARE, SOCRATES, ERASMUS, LEONARDO, CEEPUS

Since 2003 TUCN has been a member of the European Association of Universities.

2.5. Policy context

Policy context is structured below:

Policy objectives	Opportunities	Constraints
Innovation friendly environment	<ul style="list-style-type: none"> • Development of more market driven funding mechanisms such as venture capital, guarantees or loans. • Improve the awareness for using the Credit Guarantee fund • Increase the efficiency and quality of public services by increased usage of ICT • Build entrepreneurship friendly attitudes in schools and universities 	<ul style="list-style-type: none"> • Regulatory environment still considered insufficient. • Introduction of ICT requires an adjustment reengineering of public services • Low awareness and interest of the banking system in co-financing RDI projects
Knowledge transfer and technology diffusion to enterprises	<ul style="list-style-type: none"> • Enhance technology transfer infrastructure and create mechanisms to commercialise R&D results • Increase funding and staffing in technology transfer institutions and improve quality of provided services. • Promote innovation in processes, services and products through ICT. 	<ul style="list-style-type: none"> • Lack of coherent and professional strategy regarding technology transfer mechanisms. • Low R&D demand by firms • Low management capabilities in SMEs • Lack of qualified personnel • Low visibility of the existing technology transfer organisations

2.6. Monitoring and evaluation system

The monitoring system will be implemented from the first stage of the project.

The monitoring indicators which will be used in order to track the advancement of the pilot action are presented below:

Activities	Indicators
<ul style="list-style-type: none"> ■ Analysing the current technologies 	Number of technical articles, books and specialised materials studied and reviewed.
<ul style="list-style-type: none"> ■ Contacting with other Research Institutes in Europe (in particular ITW Stuttgart) 	Number of visits and communication with specialised institutions. Number of visits of pilot installations Minutes of meetings
<ul style="list-style-type: none"> ■ R&D of the product 	Testing results Research Notes
<ul style="list-style-type: none"> ■ Testing for obtaining the Solar KeyMark 	ITW Solar KeyMark test result
<ul style="list-style-type: none"> ■ Launching the product 	Test results obtained in Cluj and Hunedoara and other locations in Romania Installations in use
<ul style="list-style-type: none"> ■ Dissemination of results 	Number of publications in journals, newspaper. Meetings with constructions firms, individuals, seminars, architects, politicians and public buildings administrators.

3. Duration and detailed action plan

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Table 1. Pilot action “*Network of intermediaries*” organisation

Year 1	Month												
Activity	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	21-22	23-24	Implementing body
Analysing the current technologies													TUCN
Contacting with other Research Institutes in Europe (in particular ITW Stuttgart)													TUCN and CONTHERM
R&D of the product													TUCN
Testing for obtaining the Solar KeyMark													CONTHERM
Launching the product													CONTHERM
Dissemination of results													TUCN and CONTHERM

4. Management and human resources

The pilot action will be coordinated by a steering committee formed by one person from each institution. Their role will be to monitor the advancement of the project and the achievement of results. Moreover, adapt the planning based on unforeseen situations which they may encounter.

The management team will be coordinated by Contherm. The technical Team will be coordinated by TUCN senior researcher.

The staff required for the implementation of the project is composed of one project director and one project officer from CONTHERM and 1 senior researcher and 2 junior researchers from TUCN.

The team will be based in TUCN and use the technical equipment for research.

5. Budget and sustainability

5.1. Budget¹ (in EUR)

Total 120,000 EUR

Activities	Human Resources	Equipment & Supplies	Subcontract	Travel	Other (office etc.)	Overhead
Activity 1: Analysing the current technologies	5	10		2	1	1
Activity 2: Contacting with other Research Institutes in Europe (in particular ITW Stuttgart)	5			2		1
Activity 3: R&D of the product	35	20			2	4
Activity 4: Testing for obtaining the Solar KeyMark	5					1
Activity 5: Launching the product	5			4		
Activity 6: Dissemination of results	5			2	10	
SUB-TOTAL	65	30		10	13	7
					TOTAL	120,000

¹ Note: The cost estimations cover only a part of expenditures related to individual activities; the rest of project expenditures will be financed from other sources (institutional resources of partners, contracts with SMEs, revenues from services etc.).

5.2. Sources of funding

Possible sources of funding:

- Own funds
- Structural Funds
- Other sources (loans, equity capital)

6. Dissemination

The dissemination of the project will be achieved through the following means:

- A dedicated website will be developed and it will be advertised on the university's and Contherm's official websites.
- Articles will be produced for specialised journals, the local papers and regional and national radio or TV stations
- Setting up of the research activities will also be presented in technical magazines
- Workshops and presentations within the TUCN

7. Sustainability and follow on

The sustainability of the project is ensured by the capacity of both institutions to continue the research in the field and commercialise it. The sustainability is also strengthened by the EU objectives in boosting the use of renewable technologies and by the cost effectiveness of solar thermal technologies (increased demand in the market).