



Sustainable Urban Growth and Climate Change – Challenges to the Future Education

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Abstract

A new project called Reform of Education in Sustainability and Climate in Urban Environments (RESCUE) has started in October 2012 in collaboration with Glasgow Caledonian University (GCU, UK), University of Salento (UdS, IT) and Lahti University of Applied Sciences (LUAS, FI) as the coordinator. The rationale of the project was the need for advanced education for a new professional concerning urban issues and climate mitigation and adaptation. Our research reveals no similar programme exists at present in Europe [1]. The strengths of our partners are built up on the different professional viewpoints to the education: climate change research (UdS), urban sustainability and management (GCU) and communicative planning (LUAS).

Rapid urbanization and urban sprawl are causing different scale challenges to climate adaptation and urban quality of life while understanding of these issues demands a new kind of professional education compared with earlier programmes.

The project aims to provide a new model of Master education based on a needs assessment and involving of several stakeholders in partner countries as well as six associate partner universities. It will also create and run a pilot programme of continuous professional education (CPD) and learn lessons from it to shape and mould the eventual Master's programme. The presentation will enumerate the results of a Needs Assessment seminar and several dissemination event to be held in Spring 2013.

It is hoped the action will lead to a joint MSc degree, aiming at creating a new breed of professionals in the highly interdisciplinary field of urban sustainability and climate change. The proposed joint platform will use the latest communication and media technologies to enhance the up-to-date nature of the content and wider cross-border participation of staff and students, leading to a cutting edge, mobile study programme" [3]. The HEIs are integrating and developing their existing Master modules to combine a new set of interdisciplinary course with a strong virtual nature. The validation of the final programme will quaranteed by the Scottish Credit and Qualifications Framework (SCQF) aligned to the Bologna Process.

1. Introduction

Rapid urbanization and urban sprawl are causing different scale challenges to climate adaptation and urban quality of life. Traditional professions in the fields of planning, management and science provide deep understanding on their own fields but the future challenge is to integrate more scientific knowledge into practises of urban planning and design. New demands set by UN's Millennium Development Goals, global and local (Urban Heat Island) warming and GHG/carbon reduction (e.g. the EU 20-20-20 policy and EPBD directive) require more understanding among planning professions to enhance climate sensitive design in urban settings.

The cooperation of the universities working in this project is based on their strengths which together form a multidimensional combination. Glasgow Caledonian University is concentrated in sustainability management and assessment while Lahti University of Applied Sciences stands for knowledge on urban communicative planning and University of Salento represents urban climate change science. Former projects in partner universities support also Rescue project's needs – in terms of scientific climate change research, experiences of different Master programmes and e-learning technologies and project platforms.

Comments for the first project application revealed that a review of the existing Master programmes in Europe was needed to prove the necessity of this kind of combination. The study indicated that



several programmes combine different aspects on environmental issues, like management and technology or environmental science and climate change. Still, no similar combination of science, management and planning was found.

Existing courses offering	Credits	Years	Country	Sust./ecology	Engy/res/carb	Glob.change	Ecol/Ecosys	Env gov/mgmn	Int.dev/Cult	Techn/Engin	Env.prb/prot	Urban Plng	Urban Climate	Legisl/Policy	Geogr/GIS
Sustainable Developm	120	2	NL	✓		✓	✓	✓	✓						
Rsce Recov, Sust Eng	120	2	SE		✓			✓							
Envirnontental Studies	120	2	DE+					✓		✓					
Environmental Eng	120	2	PT					✓			✓				
Env Mgm & Clean Prod	120	2	EE								✓				
Engy Eng, Sust Engy Sys	120	2	SE		✓					✓					
Env Sci, Policy & Mgm	120	2	SE+	✓											
Envir Sciences	120	2	FI	✓		✓	✓	✓							
Envir Sciences	120	2	UK					✓		✓					
Urban Ecol Planning	?	?	NO	✓			✓		✓			✓			
Sust Urb Plng & Design	120	2	SE					✓				✓			
Sust Urban Design	?	2	SE									✓			
Environmental Mgm	?	1	IT						✓					✓	✓
Sust Urb Transitions	120	2	SE+	✓		✓	✓	✓			✓	✓			
Sust Urban Mgm	60	1	SE	✓			✓	✓	✓			✓	✓	✓	
Clim & Envir Change	?	1	UK		✓			✓							✓
RESCUE master	90	1,5	FI+	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Fig. 1: Matrix of the 16 surveyed Master courses most similar to the RESCUE concept.

The ultimate aim of the project is to establish a Master programme which is based on a core module of urban sustainability and climate after which the students can choose one thematic stream of three possibilities (planning, management and science) and then combine it to another cross-thematic module from another stream in their thesis work. This future orientated Master programme could be opened as an international programme also to the students from third countries.

2. The project structure

The project consists of different work packages, which are combined together. *WP1 Management* is coordinating the common working by arranging regular meetings of the steering group and other events and is run by LUAS. Creating public website and collecting mutual materials for working are also essential. Regular virtual meetings are managed by Acrobat Connect software. *WP2 Needs assessment* includes a survey of the stakeholders in partner countries and also in associated partner countries. The aim of the survey is to find out what kind of future education is missing and necessary in the field of environmental science, management and planning. The survey is based on a digital questionnaire sent to chosen key stakeholders in every partner country. The results are expected to present in the needs assessment seminar in University of Salento, Lecce, in May 2013. The aim of this WP is to ensure the syllabus and module development address a real need and produce an innovative programme.

WP3 Course content development will build the course contents on the findings discovered in WP2. This part concentrates also on the description of the program philosophy which is essential to make public and discuss for the future education. Development of module descriptors and integration module are also tasks for this WP which GCU lead. Integration module will bring together different students with variable backgrounds and examine what environmental knowledge is essential to share together although every students is lead to study from his/ her earlier education and experience. The goal is to produce modules which are either "core" or "elective" ones.

WP4 Course administration development production frame and platform will be developed based on earlier experiences in similar projects like Rebel in LUAS. Blended learning has been chosen as the pedagogical strategy which is adapted in course administration. This work package will provide



technical solutions to share education and work with different tools, e.g. eLearning. Especially CPD (continuous professional education) needs virtual arrangements to work with. A common platform is needed to store and share education material and group working. The practises concerning the use of materials are to be agreed using Creative Commons License to ensure the rules to use the material in the platform. Other agreements needed concerning the use of materials will be provided. Practises and possibilities to arrange a common Master Programme will be surveyed in the WP, too. Other detailed information concerning the differences between universities and their academic schedules are compared.

GCU has extensive experience in validating postgraduate study programme through the national quality assurance agency (QAA Scotland) and the Scottish Credit and Qualifications Framework (SCQF). This benefits *WP5 Quality assurance* in which the experiences from Pilot Course (WP7) are examined and conclusions drawn to create a Program Proposal Proforma (PPP) to ensure the quality of the course contents and administration. PPP will be in relation to European Qualification Framework and national guidelines. The quality managers in the partner universities will be questioned concerning the best practises. Quality assurance is needed to give confidence to the potential students and their employees about the qualified results to expect in the programme.

WP6 Dissemination was the first activities to start by LUAS in the beginning of the project. A public webpage (address) was opened which will be maintained constantly and will provide news concerning actual meetings and seminars. Broschures and newsletters are published in different stages of the project to pass the information to the stakeholders and other interest groups. During Spring 2013 local dissemination events are arranged in partner countries to gather together universities important stakeholders and discuss the topics of the project. The needs assessment analysis (WP2) is expected to be available in the events also.

WP7 Pilot and exploitation of results will first run the pilot course in which the results from needs assessment, course content development and course administration will be implemented. University of Salento is responsible for arranging the pilot course during one academic semester. The course will consist of intensive contact periods and virtual learning by means of eLearning platform. A group of local and international students and professionals will be invited to this condensed course. The ultimate goal will be to transform the curriculum into a new course to acquire an Erasmus Mundus status. The results of the whole RESCUE project will be exploited through the channels created in the project dissemination part. Also conference papers and articles to educational journals will be prepared.

3. Needs assessment and involvement of stakeholders -model

3.1 Needs assessment

- project aims to provide a new model of Master education based on a needs assessment and involving of several stakeholders in partner countries – what kind of questions we are asking
- what kind of stakeholders we are inviting to participate

3.2 Pilot programme

“The RESCUE Project will develop postgraduate level modules and pilot these in a work-based setting on a block-release mode. The pilot test will be open to professional working in climate change (mitigation/adaptation) issues confronting urban areas across Europe, both in the private as well as the public sector.” The pilot course also represents continuous professional education (CPD), (Application, p.21) The pilot course will be evaluated independently to learn lessons from the practical realisation of the education and develop it to meet the needs of the future students. University of Salento is responsible for the pilot course arrangements as a part of *WP7 Pilot and exploitation of results*

4. New technologies in use

- joint platform will use the latest communication and media technologies to enhance the up-to-date nature of the content and wider cross-border participation of staff and students
- experiences from Rebel for example



5. The experiences from existing Master programmes

MSc programmes in Energy and Environmental Management, Sustainable Energy Technologies, Waste Management and International Project Management at the GCU will benefit from the new thinking and urban focus developed within the RESCUE Project. GCU will further open the integration module to its existing Master's students who will benefit from the cross-fertilisation likely to occur within such an environment. Master's programmes on Coastal and Marine Biology and Ecology, entirely taught in English, Evaluation and Certification of Environmental Impacts at the UdS will benefit from the access to modules developed within the RESCUE project. It will open-up to the concrete linkage between environment and smart architecture which is a new emerging subject. The Master Programme in Environmental Technology (Urban Sustainable Planning and Climate Change) at LUAS, integrating urban planning, environmental management and environmental technology will also benefit from the modules developed in RESCUE. (how long history these programmes have?) Scottish Credit and Qualifications Framework (SCQF) and the use of it in the project

6. The challenges of interdisciplinary field

- goal: a joint MSc degree, aiming at creating a new breed of professionals in the highly interdisciplinary field of urban sustainability and climate change
- what kind of professional knowledge and skills we aim to provide
- challenges

References

- [1] Reform of Education in Sustainability & Climate in Urban Environments. LLP application, 2.2.2012.
- [2] RESCUE. / [27.2.2013]
- [3] Reform of Education in Sustainability & Climate in Urban Environments. LLP application, 2.2.2012.