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1. PRESENTATION

The Research Institute for Sustainability Science and Technology of UPC - BarcelonaTech is the responsible unit for promoting, coordinating and carrying out academic activities in the fields of sustainability science and sustainable technologies.

The Institute’s mission is to generate technical and conceptual tools to create a more sustainable production and development model and to collaborate in the UPC’s endeavor to provide scientific and technical support for human, social, cultural and economic progress.

The IS.UPC is active in higher education, research and innovation, technology transfer and promotion of sustainability culture.

Its main objectives are as follows:

- Opening up sustainability research to UPC groups and researchers, by coordinating and promoting multi and trans-disciplinary research projects.
- Organizing and promoting specific postgraduate courses and degrees (Master’s degrees, PhD programmes and other specialized teaching activities) directly linked with the UPC research in the fields of sustainability science and sustainable technologies, as well as embedding sustainability in other UPC educational programmes. In this sense, a new master degree has been developed and implemented for the 2012-2013 period: Technology for Human Development and Cooperation.
- Making the UPC management, in itself, a source for research demands in sustainability and a field of study and experimentation.
- Disseminating the results of the research carried out at the IS.UPC, both to the university community and to the society as a whole, and sparking discussion about it.
- Encouraging the commitment and interaction of the UPC within society, and encouraging UPC’s support of civic demands for promoting progress towards more sustainable development models.
1.1. LETTER FROM THE DIRECTOR

The Research Institute for Sustainability Science and Technology of UPC – BarcelonaTech (IS.UPC) was formally created by the Generalitat de Catalunya, the Catalonian Autonomous Government in November 9th of 2010. During the preceding year however, the UPC consolidated progressive steps that lead to the new Institute.

This second Annual Report covers the activities of IS.UPC during the year 2012. This year is the first one that I am in charge of the Institute since I was elected in December 2011.

During this period, main efforts have focused on consolidating an interdisciplinary academic space within the UPC community to face the challenges of sustainable human development through science progress and technology innovation. The integration of economic, environmental and social aspects of technology, architecture and engineering, as well as the reference points of closing of cycles and systemic thinking, are some of the distinctive characteristics of the Institute research focus. Academic excellence, strategic international and local networking, and a trans-disciplinary approach to knowledge creation and dissemination are other key characteristics the Institute.

The IS.UPC has its own Master's degrees on both Technology for Human Development and Cooperation and Sustainability Science and Technology (2013-2014). Besides the PhD studies in Sustainability, Technology and Humanism, and the support for interdepartmental PhD studies in Environmental Engineering.

Year 2012 was a year of many changes; a new administration unit was created to provide services to our Institute as well as to the Education Science Institute, in this sense I would like to mention the effort of Esperança Portet and Marta Prats to manage our Institute. On the other hand, IS.UPC budget decreased very much due to the crisis; however we could keep several activities in the frame of UPC 2015 Sustainability Plan.

The Institute is fully committed with continuously improving the contribution of UPC to sustainability science and sustainable technologies. As my predecessor Agustí Pérez-Foguet said: Institute staff expects you to enjoy the reading and consultation of this report. We are gladly committed to share with you in following reports our, hopefully, successful evolution.

Joan de Pablo
Director
2. ORGANIZATION STRUCTURE

2.1. ORGANIZATION CHART

2.2. INSTITUTE BODIES

Single-member bodies

- Joan de Pablo Ribas: Director
- Enrique Velo García: Secretary
- Agustí Pérez Foguet: Deputy Director
- Alejandro Josa García-Tornel: Master’s degrees Coordinator
- Esperança Portet Cortes: Head of administration
- Jordi Morató Farreras: Head of the UNESCO Chair of Sustainability

2.3. COLLEGIATE BODIES OF GOVERNMENT AND REPRESENTATION

Institute Council

- Joan de Pablo Ribas: Director
- Enrique Velo García: Secretary
- Agustí Pérez Foguet: PhD studies coordinator
- Alejandro Josa García-Tornel: Masters’ degrees coordinator
- Esperanza Portet Cortes: Head of Administration
- Jordi Morató Farreras: Head of the UNESCO Chair of Sustainability
- Josep Lluís Moner Tomas: Representative of the administrative and service staff
- Óscar Flores Baquero: Representative of the Institute students

Institute Board (See Institute Council)
### 2.4. COLLEGIATE BODIES FOR CONSULTATION

#### Academic Committee of the Master’s in Sustainability
- **Chair and Director**: Agustí Pérez Foguet
- **Secretary**: Marta Prats Beltran
- **Members**: Alberto Cuchi Burgos, Alejandro Josa García-Tornel, Albert Masip Álvarez, Enrique Velo García, Maria Ribera Sancho Samsó, Jordi Segalas Coral

#### Academic Committee of the Master’s in Technology for Human Development and Cooperation
- **Chair and Director**: Enrique Velo García
- **Secretary**: Marta Prats Beltran
- **Members**: Agustí Pérez Foguet, Jose Mª Gil Roig, Eva Vidal López, Miriam Villares Junyent

#### Academic Committee of the PhD programme in Sustainability
- **Chair and Director**: Antoni Roca Rosell
- **Secretary**: José María Gil Roig
- **Members**: Joan de Pablo Ribas, Antonio Aguado de Cea, Enrique Velo García, Miriam Villares Junyent

#### Academic Committee of the PhD programme in Environmental Engineering
- **Chair and Coordinator Dept. of Engineering Projects**: Santiago Gassó Domingo
- **Dept. of Construction Engineering**: Miquel Casals Casanova
- **Institute of Textile Research and Industrial Coop. of Terrassa**: Martí Crespi Rosell
- **Dept. of Chemical Engineering**: Joan de Pablo Ribas
- **Dept. of Agricultural Engineering and Biotechnology**: Xavier Flotats Ripoll
2.5. TEAM

2.5.1. ADMINISTRATIVE AND MANAGEMENT TEAM

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Esperanza Portet Cortes</td>
<td>Head of Administration</td>
</tr>
<tr>
<td>Marta Prats Beltran</td>
<td></td>
</tr>
<tr>
<td>Araceli Adam Salvatierra</td>
<td></td>
</tr>
<tr>
<td>Ofèlia Alba Soca</td>
<td></td>
</tr>
<tr>
<td>Carme Alcalà Val</td>
<td></td>
</tr>
<tr>
<td>Ana Andres Lleo</td>
<td></td>
</tr>
<tr>
<td>Ma. Montserrat Añor Javega</td>
<td></td>
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<tr>
<td>Carme Bernaus Garcia</td>
<td></td>
</tr>
<tr>
<td>Mercé Civit Payan</td>
<td></td>
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<tr>
<td>Clara Cullell Tebe</td>
<td></td>
</tr>
<tr>
<td>Isabel Darnell Martin</td>
<td></td>
</tr>
<tr>
<td>Ma. José Delgado García</td>
<td></td>
</tr>
<tr>
<td>Yolanda Delgado Rodríguez</td>
<td></td>
</tr>
<tr>
<td>Josefina Estepa Maria</td>
<td></td>
</tr>
<tr>
<td>Josep Maria Galabert i Pujol</td>
<td></td>
</tr>
<tr>
<td>Boris Lazzarini</td>
<td></td>
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<tr>
<td>Felisa Lopez Lopez</td>
<td></td>
</tr>
<tr>
<td>Josep Lluís Moner Tomas</td>
<td></td>
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<tr>
<td>Joaquim Morte Aixandi</td>
<td></td>
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<tr>
<td>Montserrat Pla Soler</td>
<td></td>
</tr>
<tr>
<td>Maria José Pérez Cabrera</td>
<td></td>
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<tr>
<td>Maica Sanz Gomez</td>
<td></td>
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<tr>
<td>Sisco Villas Espitia</td>
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</tbody>
</table>
### 2.5.2. Research and Technology Transfer

#### Academic Staff

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Joan de Pablo Ribas</td>
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<tr>
<td>Alejandro Josa García-Tornel</td>
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<tr>
<td>Agustí Pérez Foguet</td>
</tr>
<tr>
<td>Enrique Velo García</td>
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</tbody>
</table>

#### Technical Staff

<table>
<thead>
<tr>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arranz Piera, Pol</td>
</tr>
<tr>
<td>Giné Garriga, Ricard</td>
</tr>
<tr>
<td>Jiménez Fernández de Palencia, Alejandro</td>
</tr>
<tr>
<td>Boris Lazzarini</td>
</tr>
<tr>
<td>Meluni, Alessandro</td>
</tr>
<tr>
<td>Tejedor Papell, Gemma</td>
</tr>
<tr>
<td>Yacoub López, Cristina</td>
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</tbody>
</table>

#### Project Leaders – Research

<table>
<thead>
<tr>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Martínez Farré, Xavier</td>
</tr>
<tr>
<td>Miralles Esteban, Núria</td>
</tr>
<tr>
<td>Perez Foguet, Augustí</td>
</tr>
<tr>
<td>Ribera Sancho Samsò, Maria</td>
</tr>
<tr>
<td>Segalás Coral, Jordi</td>
</tr>
<tr>
<td>Velo García, Enrique</td>
</tr>
</tbody>
</table>

#### Project Leaders – 2012 Seeds of Sustainability

<table>
<thead>
<tr>
<th>Name</th>
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</thead>
<tbody>
<tr>
<td>Fernández Salas, Elena</td>
</tr>
<tr>
<td>Fontseca Casas, Pau</td>
</tr>
<tr>
<td>García Serrano, Joan</td>
</tr>
<tr>
<td>Gomis Bellmunt, Oriol</td>
</tr>
<tr>
<td>Josa García-Tornel, Alejandro</td>
</tr>
<tr>
<td>Mata Perelló, Josep Maria</td>
</tr>
<tr>
<td>Riba Romeva, Carles</td>
</tr>
<tr>
<td>Sabaté Nolla, Jordi</td>
</tr>
<tr>
<td>Sánchez Carracedo, Fermín</td>
</tr>
<tr>
<td>Seguí Santacana, Víctor</td>
</tr>
<tr>
<td>Velo García, Enrique</td>
</tr>
<tr>
<td>Vidal López, Eva</td>
</tr>
<tr>
<td>Zamora Mestre, Joan Lluís</td>
</tr>
</tbody>
</table>
2.5.3. TEACHING

Master’s in Sustainability.
The faculty responsible for the organization and planning of master’s subjects (2011/2012) were:

Barceló, Miquel
Caballero, Antoni
Candela, Lúcia
Cuchi Burgos, Alberto
Etxeberria, Miren
Felipe Blanch, Jose Juan de
Gil, José María
Magrinya Torner, Francesc
Miralles Esteban, Nuria

Morató, Jordi
Perez Foguet, Agustí
Riba, Alexandre
Rosas, Martí
Segalas Coral, Jordi
Velo García, Enrique
Vidal, Eva
Villares, Miriam
Xercavins Valls, Josep

Master’s in Technology for Human Development and Cooperation, THDC.
During 2012 the UPC Governing Council adopted the Master THDC that was started in September 2012. The faculty responsible for the organization and planning of master’s subjects (2012/2013) were:

Candela, Lucía
Cañameras, Nuria
Etxebarria, Miren
Ferrer, Ivet
Gil, Garola, Alvar
Gil, Jose Mª
Izquierdo, Jordi
Josa, Alejandro
Llop, Carles

Magriñà, Francesc
Perez Foguet, Agustí
Reig, Lourdes
Riba, Alexandre
Romero, Roser
V. Wunik, Lucas
Velo García, Enrique
Vidal, Eva
Villares, Míriam

PhD programme in Sustainability.
UPC researchers responsible for the mentoring and/or supervising of doctoral theses (2011/2012) were:

Alvarez Del Castillo, Javier
Barceló Garcia, Miguel
Barrado Muxi, Cristina
Candela Lledó, Lucila
Gil Roig, Jose Maria
Josa Garcia-Tornel, Alejandro
Miralles Esteban, Núria
Pérez Foguet, Agustí
Casas Pons, Ignaci
de Pablo Ribas, Joan
Felipe Blanch, Jose Juan De
Serra Devesa, Teresa
Velo García, Enrique
Xercavins Valls, Josep

PhD programme in environmental engineering.
UPC researchers responsible for the mentoring and/or supervising of the doctoral theses (2011/2012) were:

Alonso Pérez, Silvia
André, Michel
Baldasano Recio, José M.
Barra Bizinotto, Marilda
Bonmatí Blasi, August
Bruno Salgot, Jordi
Cabeza Fabra, Luisa F.
Casals Casanova, Miquel
Casas Pons, Ignasi
Cortina Pallas, José Luis
Crespi Rosell, Martí
Cuevas Aguillo, Emilio
Daragas, Efthymios
De Pablo Ribas, Joan
Escalas Cañellas, Antoni
Farré Urgell, Marinell.La
Ferrer Martí, Ivet
Flotats Ripoll, Xavier
Folch Duran, Arnau
Gangoilells Solanellas, Marta
Garcia Serrano, Joan
Gassó Domingo, Santiago
Giménez Izquierdo, Francisco Javier
Ginebreda Martí, Antoni
Gonçalves Ageitos, María
Grivé Solé, Mireia
Jiménez Guerrero, Pedro
Jorba Casellas, Oriol
Latron, Jérôme
Llorens García, Pilar
Martí Gregorio, Vicenç
Miralles Esteban, Núria
Navarro Flores, Andrés F.
Palatsi Civit, Jordi
Pay Pérez, María Teresa
Pérez Foguet, Agustí
Pérez García-Pando, Carlos
Puigagut Juárez, Jaume
Riva Juan, Maria Carmen
Roca Ramon, Xavier
Romeu Garbí, Jordi
Rovira Boixaderas, Miquel
Sierra Pedrico, Juan Pablo
Valderrama Anglel, César Albert
Vázquez Ramonich, Enric
Viñas I Canals, Marc
### 2.5.4. UNDERGRADUATE TRAINEES

UPC students who received a training undergraduate scholarship were:

<table>
<thead>
<tr>
<th>Berdún Peñato, Jesús</th>
<th>Raigosa, Juliana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salvadó Rius, Judit</td>
<td>Elisa Hurtado, Carmen</td>
</tr>
<tr>
<td>Comes Pon, Joaquim</td>
<td>Castellanos, Carolina</td>
</tr>
<tr>
<td>Esteban Etchamendi, Josep Maria</td>
<td>Muñoz Cervantes, M.Carmen</td>
</tr>
<tr>
<td>Bonet Alomar, Miquel</td>
<td>Olazabal Alberdi, Maria</td>
</tr>
<tr>
<td>Romagosa Rovira, Anna</td>
<td>Vicente Tonico, Marc</td>
</tr>
<tr>
<td>Sanjuan Olleta, Teresa</td>
<td>Sauza Reyes, Catalina</td>
</tr>
</tbody>
</table>
A description of IS.UPC financial accounts for the fiscal year 2012 is summarized in this section.

### FINANCIAL ACCOUNTS

#### 2012 OPERATIONAL INCOME

<table>
<thead>
<tr>
<th></th>
<th>UPC</th>
<th>EUROPEAN COMISSION</th>
<th>CATALAN GOVERNMENT</th>
<th>SPANISH GOVERNMENT</th>
<th>PRIVATE ENTITIES</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERNAL</td>
<td></td>
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<td></td>
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<td></td>
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<tr>
<td>2015 Sustainable UPC Plan</td>
<td>85.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>85.000</td>
</tr>
<tr>
<td>EXTERNAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competitive Projects</td>
<td></td>
<td>119.549</td>
<td></td>
<td>376.214</td>
<td></td>
<td>495.763</td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td>4.500</td>
<td></td>
<td></td>
<td>22.048</td>
<td>26.548</td>
</tr>
<tr>
<td>TOTAL</td>
<td>85.000</td>
<td>119.549</td>
<td>4.500</td>
<td>376.214</td>
<td>22.048</td>
<td>607.311</td>
</tr>
</tbody>
</table>

**Operational Income**

- **External Income**: 522,311 €; 86%
- **Internal Income (UPC)**: 85,000 €; 14%
EXTERNAL INCOME

€376,214; 72,03%
€119,549; 22,89%
€22,048; 4,22%
€4,500; 0,86%

- EUROPEAN COMMISSION
- CATALAN GOVERNMENT
- SPANISH GOVERNMENT
- PRIVATE ENTITIES
4. UPC 2015 SUSTAINABILITY PLAN

The aim of the UPC 2015 Sustainability Plan was expanding the UPC’s strategic vision to focus on the challenges of sustainable human development. It was institutionally approved in 2006. Then, the strategic insights and tools were defined in the first cycle of the Plan (2006-2010). Further details of the background of the Sustainability plan (mission, vision, structure and developed projects) and also of the second cycle of the plan, can be found in the IS.UPC annual report 2011.

The IS.UPC coordinates and streamlines the second cycle of the UPC 2015 Sustainability Plan by:

- Promoting and coordinating inter and trans-disciplinary research, development and innovation in Sustainability and Environment.
- Designing, implementing and coordinating postgraduate and lifelong-learning studies in Sustainability Science, Sustainable Technologies and Environmental Engineering.
- Promoting the inclusion of skills about sustainability and social commitment in UPC studies.
- Promoting and coordinating the implementation of sustainability principles within the university itself.
- Advising on University management and quality control processes.
- Supporting the UPC Sustainability Committee.
- Engaging in external collaboration, participating in working groups and networks.

The UPC 2015 Sustainability Plan includes two strategic dimensions: Four transverse lines and six thematic lines. Each of these lines includes several objectives and each objective has an associated set of actions.

Transverse lines define transdisciplinarity and respond to the complexity and how we should develop the activities and functions of the university: we talk about governance, values and how the university relates to its environment. Thematic lines define the great challenges of sustainability in which the UPC, as a technological university, can provide different levels of experience and contribute to existing environmental demands. The thematic lines are summarized by:

- Energy and climate change
- Waste and zero emissions
- Health, air quality and food
- Supplies and responsible consumption
- Water cycle
- Territory and mobility
Additionally, the Institute of Sustainability is engaged in the Social Responsibility values committed by the UPC, especially to the Global Compact related activities. The Global Compact is an international initiative of the United Nations that asks organizations to support and enact ten principles derived from key international declarations and conventions. The principles focus on four areas: human rights, labor standards, environment and anti-corruption. The Institute of Sustainability develops three of the ten principles that the UPC was committed by the Global Compact:

- Principle 7: Businesses should support a precautionary approach to environmental challenges.
- Principle 8: Businesses should undertake initiatives to promote greater environmental responsibility.
- Principle 9: Businesses should encourage the development and diffusion of environmentally friendly technologies.

4.1. PROJECTS OF THE PLAN

Actions of teaching initiatives developed by the Institute of Sustainability are particularly significant in terms of their impact. The commitment of the UPC is visualized in the master’s degree courses and doctoral courses developed at the institute among others. Briefly the Institute of Sustainability offers the following courses:

- Master’s degree in Sustainability,
- Master’s degree in Technology for Human Development and Cooperation,
- Doctoral degree in Sustainability and,
- Doctoral degree in Environmental Engineering

Additionally, the Institute realized the following initiatives:

Integration of the competency "sustainability and social commitment" in bachelor’s degree curricula

In line with the institutional policy set out in the Framework for the Design of Bachelor's Degree Curricula, verified curricula for all new EHEA-adapted UPC courses include the transversal competency “sustainability and social commitment”.

As a result, upon completion of their studies UPC graduates will have acquired this competency, which is broadly defined as follows:

"Being aware of and understanding the complexity of the economic and social phenomena characteristic of a welfare society; the ability to relate social welfare to globalization and sustainability; and the ability to use know-how and technology in a way that is balanced and compatible with economic considerations and the goal of sustainability."
Establishment of the STEP 2015 programme

The STEP 2015 programme is one tool for tackling the challenge of incorporating the transversal competency "sustainability and social commitment" in UPC bachelor’s degree curricula. The programme’s main mission is to develop conceptual foundations, identify specific models, and make practical tools available to stakeholders to ensure that students develop this competency.

It is important to stress the active participation of the stakeholders involved: teaching and research staff, administrative and service staff, and students. For instance, participants in the Step Students sub-programme produced a document entitled “The Education We Want: Social Commitment and Responsibility at the UPC”, which sets out the students’ analysis, objectives and proposals concerning social commitment as reflected in UPC curricula.

15th Environmental and Sustainable Ideas Competition UPC – “Rio +20 reinforce commitment to sustainability”

The objective was to seek ideas to promote innovative projects and activities that contribute to the major changes that the world needs this century to transform the current economic model and move towards new models of development in accordance with the objectives of Millennium Development Goals.

The ideas provided should enable a quantum leap in assuming social responsibility in front of the technological environment and sustainable human development and specifically has an impact especially on our university environment and our interaction with society.

This year the calls for projects submitted taken as a reference of the Conference on Sustainable Development of the United Nations took place from 4 to 6 June.

The call for proposals particularly valued questions about how to help raise awareness and evaluate the changes caused in our territories with our actions over the last 15 years, our responsibility in social and environmental terms and what we can contribute strategically to promote this change towards sustainability.

UPC believes that the university community has an important role to play in global sustainability. For example, we want to educate our students and all people from the UPC on the effects of climate change, on the reduction of CO₂ emissions, saving on water and materials, on the prevention of waste on mobility, infrastructure and land or noise levels produced by the activities...
Then ideas, convey information and / or relevant actions that increase public awareness of our commitment to academic institutions towards sustainability were promoted in this competition.
5. RESEARCH AND PROJECTS

This section details Research projects, Agreements and collaborations, and “Seeds of Sustainability” projects undertaken by IS.UPC researchers during 2012.

5.1. RESEARCH AND KNOWLEDGE TRANSFER PROJECTS

STARTED PROJECTS

Building and strengthening ARA-Norte capacities for the planning and management of water resources in the basins of Cabo Delgado, Mozambique

The new Mozambican water policy (2007), is a step forward to improve country’s policy and regulations relating to water, setting as priorities: i) to satisfy basic needs of water for human consumption; ii) to improve sanitation conditions, and iii) to develop an efficient use of water for economic development; iv) to guarantee water for environmental conservation; v) to reduce floods’ and droughts’ vulnerability, and vi) to promote regional integration. Main responsibilities recall on basin authorities. The aim of this project is to improve capacities of ARA-Norte (basin authority for the northern basins of the country) in the management of the internal watersheds of Montepuez Messalo, Megaruma Sea Side and in relation to: (1) Monitoring of resources water, (2) evaluation of water infrastructure, (3) environmental management, planning and control of the water resources, leading the participation and involvement of the involved stakeholders.

Scope: International.

Partners: ARA-Norte (Mozambique), Amphos 21 (Spain), Augas de Galicia (Spain), Universidade da Coruña (Spain) and UPC (Spain). Led by: Augas de Galicia.

Funded by: EuropeAid.

Start Date: 03.01.2012. Estimated date of completion: 09.01.2014.

Principal Researcher: Agustí Pérez Foguet

Andean Network of Graduate Studies in Integrated Water Resources (RAP-GIRH)

This project has identified the growing need for professionals to have an integrated approach to water management, interdisciplinary and regional guidance. The project aims to develop graduate programs with an innovative learning methodology, with a link with the labor, business and public, and methods that promote applied research and a permanent network of exchange and cooperation inter-university. Among others, include the following objectives:
- Strengthen educational programs on sustainability tools and mechanisms that promote active learning based on analysis of current social problems.
- To promote educational programs and research across the UPC considering the mass of water ecosystems as life support, beyond consideration as an economic resource and water planning.
- Promote partnerships with institutions (academic and non academic) working in the field of sustainability and cooperation.

**Scope:** International.

**Partners:** Wageningen University & Research centre (Holland), Universidad Mayor de San Simón (Bolivia), Universidad del Valle (Colombia), Universidad Central del Ecuador (Ecuador), Pontificia Universidad Católica del Perú (Peru), Universidad Nacional Pedro Ruiz Gallo (Peru) and Universitat Politècnica de Catalunya (Spain).

**Led by:** Wageningen University & Research centre.

**Funded by:** EuropeAid.

**Start date:** 01.04.2012. **Estimated date of completion:** 01.04.2015.

**Principal Researcher:** Núria Miralles

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**Collective action, management of water resources and adaptation to climate change in the central region of Nicaragua**

The aim of this study is to improve knowledge about the relations between collective action and water management for domestic and agricultural purposes in Jinotega and Matagalpa Departments. This is a pertinent field in Nicaraguan rural context due to the recent Nicaraguan Water Law (2007) and Water Users Associations Law (2010) which promote collective action formalization through Water Users Association (CAPS) and irrigation districts. Even more, it is especially interesting in a situation of climate variability, climate change and uncertainty, where local institutions performance and their collective action capacity to guarantee access to water resources is an essential but often less considered and analyzed mechanism.

**Scope:** International.

**Partners:** Universidad Nacional Autónoma. Managua –UNAN-Managua- (Nicaragua), Centro Agronómico Tropical de Investigación y Enseñanza –CATIE- (Costa Rica), Colegio de Posgraduados (Mexico), Universidad Politécnica de Madrid (Spain), Universidad Complutense de Madrid (Spain) and Universitat Politècnica de Catalunya (Spain). Led by: Universitat Politècnica de Catalunya.

**Funded by:** AECID. Code: AP/035017/11.

**Start date:** 01.02.2012. **Estimated date of completion:** 01.02.2013.

**Principal Researcher:** Agustí Pérez Foguet
ONGOING PROJECTS

Energy Access for the poor in Sub-Saharan Africa to meet the Millennium development Goals. Energy for All 2030

Access to energy services is essential for achieving the eighth Millennium Development Goal (MDG). In Sub-Saharan Africa, 2 out of 3 families, especially in rural areas, live without electricity or access to modern energy services. Solutions based on decentralized infrastructures and renewable energy sources are often the only feasible option for users with low energy demands in remote areas. The main objectives of this project are i) to contribute to the achievement of the MDGs in marginalised rural and urban areas in the poorest Sub-Saharan Africa countries, through improved energy access at local level; and ii) to raise public and political support across the EU for a the European Union resolution on energy access for the poor and to ensure that support of energy access is turned into action.

Internal code: IS-P10/01
Scope: European Union
Partners: Practical Action (UK), Stockholm Environment Institute (Sweden), EDUCON (Czech Republic) and Universitat Politècnica de Catalunya (Spain)
Led by: Practical Action
Funded by: EuropeAid
Code: DCI-NSA ED/2009/201-885 (with co-financing of CCD - 0.7% UPC funds)
Start Date: 01.04.2010. Estimated date of completion: 01.04.2013.
Principal Researcher: Enrique Velo
Website: http://grecdh.upc.edu/projectes/altres/e4a-2030

Development of a participative system on the ecological quality of rivers in the region of Cajamarca

Applied research project based on the environmental quality of water in the basin Jequetepeque in northern Peru. In the region of Cajamarca, mining is an activity that can affect large-scale social and environmental terms. Then need to have accurate knowledge about the state of the environment and the possible effect of using a water resource monitoring water, sediments, and macroinvertebrate assessment of sediment toxicity is imperative. Specifically the project aims to develop a complete index to assess the state of water resources and rising easily be used for the affected population, especially the rural population, as a tool for surveillance water in ecological terms.

Scope: International.
Partners: Universidad Nacional de Cajamarca (Peru), Universitat de Barcelona (Spain) and Universitat Politècnica de Catalunya (Spain). Led by: Universitat Politècnica de Catalunya.
Funded by: AECID. Code: AP/036126/11.
Principal Researcher: Núria Miralles
**Improving assessment and planning services of water, sanitation and hygiene in rural and suburban context through the development of management tools based on rights**

Access to water, sanitation and hygiene (WASH) is a priority for the international community because of its clear link to development and poverty reduction. In recent years various strategies have been applied to ensure safe access to these basic services. The aim of this study is to develop specific tools for improving the assessment and planning of WASH services at the local level. The study will be carried out in the town of Manhiça and will consider both the peri-urban area of the municipality and the rural area.

**Lines of action:**
1. To identify reliable and relevant indicators for evaluating the sector.
2. To strengthen the capacity of local public institutions.
3. To develop urban planning projects that integrates the provision of basic services.

**Scope:** International.

**Partners:** UN Habitat (Mozambique), Municipalitat Manhiça (Mozambique), Fundació FCBelcelona (Spain) and Universidad Politécnica de Catalunya (Spain).

**Funded by:** AECID. Code: 11-CAP2-1562. With the co-funding of CCD - fons 0,7% UPC.

**Start date:** 01.11.2011. **Estimated date of completion:** 31.3.2013.

**Principal Researcher:** Agustí Pérez Foguet

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**Establishing Modern Master-level Studies in Industrial Ecology (IEMAST)**

The project aims to create a Master program that prepares engineers able to work on the design of technological systems, industrial and urban, industrial processes and consumer products, taking into account environmental problems and social and economic constraints in Azerbaijan, Belarus, Kazakhstan and Ukraine.

**Scope:** International.

**University-partners:** KTH-Royal Institute of Technology, Universitat Politècnica de Catalunya, TU Delft, Qafqaz University, National Aviation Academy, Belarusian National Technical University, Mogilev State University of Food Technologies, Baranovich State University, Kazakh National Technical University, Caspian State University of Technology and Engineering, Atyrau Institute of Oil and Gas, National Technical University of Ukraine “Kiev Polytechnic Institute”, Chernihiv State Technological University

**Society partners:** National Agency for Higher Education, Sweden, Association of power efficient engineering of Ukraine, Kazphosphate LLC, Baku City Department of Ecology and Natural Resources, Institute for Nature Management, National Academy of Science, Belarus

**Led by:** Universitat Politècnica de Catalunya.

**Funding agency:** EACEA

**Contract number:** 2-517346-TEMPUSIEMAST
Project number: 517346
Start date: 15-10-2011. Estimated date of completion: 14-10-2014
Project responsible: Olga Kordas (KTH), Jordi Segalàs at UPC.

Training Courses for Public Services in Sustainable Infrastructure Development in Western Balkans (SDTRAIN)

The project is designed to establish system for training of public authorities aimed at improving level of environmental expertise, facilitating good governance and sustainable infrastructure development in Western Balkan countries. To meet this overall objective, the project team will develop training programme for capacity building of the staff of public authorities in sustainable infrastructure, energy efficiency and good governance at partner Universities, that will be pilot in cooperation with EU teachers in BiH, Montenegro and Serbia; Key partner Universities teachers capacities in providing training in sustainable public infrastructure, will be improved at EU universities through retraining. A web-based toolkit will be developed as an interactive learning environment for training of public authorities. The project will ensure continuity of the training Programme and the web toolkit beyond Tempus Programme funding.

Scope: International.

University-partners: KTH-Royal Institute of Technology, Universitat Politècnica de Catalunya, TU Delft, Qafqaz University, National Aviation Academy, Belarussian National Technical University, Mogilev State University of Food Technologies, Baranovich State University, Kazakh National Technical University, Caspian State University of Technology and Engineering, Atyrau Institute of Oil and Gas, National Technical University of Ukraine "Kiev Polytechnic Institute", Chernihiv State Technological University


Led by: Universitat Politècnica de Catalunya.

Funding agency: EACEA

Contract number: 2-TEMPUS 530530-SDTRAIN

Project number: 530530

Start date: 15-10-2011. Estimated date of completion: 14-10-2014

Project responsible: Olga Kordas (KTH), Jordi Segalàs at UPC.

Erasmus Intensive Program: International Seminar on Sustainable Technology Development (STD)

The International Seminar on Sustainable Technological Development is a way of exchanging knowledge and information about an annual topic within the field of sustainability. It will be developed during two weeks and conducted by professors from different European universities experts on future studies.
analysis (TUDelft, Chalmers UT, KTH, TUGraz among others). The constructive-learning activities will be focused on the connections between technology development, environmental problems and societal change. The seminar will develop case studies, round tables, practical visits, and others.

**University-partners**: KTH-Royal Institute of Technology, Universitat Politècnica de Catalunya, TU Delft, Chalmers University, Graz TU, Maribor University.

**Funding agency**: OAPEE-Unidad de Educación Superior 2012-1-ES1-ERA10-54367

**Contract number**: 2-ERA10-54367

**Number of Agreement**: 2012-1-ES1-ERA10-54367

**Start date**: 2011. **Estimated date of completion**: 2014

**Contact persons**: Jordi Segalàs, Gemma Tejedor

**Further information**:
- [http://is.upc.edu/seminaris-i-jornades/seminaris/international-seminar-std](http://is.upc.edu/seminaris-i-jornades/seminaris/international-seminar-std)
- [http://is.upc.edu/seminaris-i-jornades/seminaris/std-2013](http://is.upc.edu/seminaris-i-jornades/seminaris/std-2013)

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**Creation of third cycle studies - Doctoral Programme in Renewable Energy and Environmental Technology (CREDO)**

This project is designed to advance capacity in education, research, exploitation of knowledge and innovation in the area of Sustainable Energy and Environmental Technology in Ukraine and Kyrgyzstan through structured and integrated cooperation with European Universities within framework of joint Doctorate Program in this field. To reach this goal Project consortium will introduce advanced Bologna-compliant Doctorate Program in the area of Sustainable Energy and Environmental Technology at seven partner Universities, the project team will pilot joint PhD courses and provide co-supervision of the doctoral thesis as the initial stage on the way to introduction of the Joint Doctorate Program among the project partners.

**Scope**: International.

**University-partners**: KTH-Royal Institute of Technology, University of Sarajevo, University of Banja Luka, KSUCTA, Osh Technological University, Universitat Politècnica de Catalunya, TU Delft, TUT, Technical University of Moldova, State Agrarian University of Moldova, NTUU "KPI", National University of Water Management & Resources Use

**Society partners**: National Agency for Higher Education (Sweden), European Energy Company (Ukraine), National Association for Promotion of Renewable Energy Sources (Moldova), Chamber of Economy of Federation of Bosnia and Herzegovina (Bosnia and Herzegovina), Ministry of Education and Science (Kyrgyzstan), Kyrgyzhouscommunion under Ministry of Energy (Kyrgyzstan), Kyrgyz Scientific-Technical Centre "Energy" (Kyrgyzstan)

**Funding agency**: EACEA
Organic waste valorisation in the Mediterranean Technology Park

This project aims to meet the need for treatment of organic waste generated in the Mediterranean Technology Park (PMT). It is a Seed Project funded by the Sustainability Institute of the Universitat Politècnica de Catalunya • BarcelonaTech (UPC).

The overall objective is to implement a separate collection system for the organic fraction, in addition to raising awareness among the community of the PMT and involving it in the activity. The project has two stages: separate collection of organic waste generated by the campus restaurant and treatment of part of the organic fraction in 330-litre composters.

Quantifying the organic fraction is an important factor for determining the daily and yearly amounts generated. Part of the organic fraction has been composted with plant waste and two batches of compost have been produced since the beginning of the project. The quantification was carried out by ESAB students on grants as part of their bachelor’s theses.

Scope: Regional
Partners: Diputació de Barcelona and Universitat Politècnica de Catalunya
Funded by: Diputació de Barcelona and Universitat Politècnica de Catalunya (Llavors de Sostenibilitat 2010)
Dates: 2012
Principal Researcher: Martínez Farré, Xavier
Website: http://compostpmt.cbl.upc.edu/
**Development of a Demonstration System to Support Water Resources Management in the Pucara Basin, Bolivia (SID-AGUA)**

The SID-AGUA program intends to provide conceptual and methodological basis to the National Watershed Plan (NWP) from the Ministry of Environment and Water. The PNC seeks to develop a number of steps to generate a comprehensive water management in Bolivia, to be complemented by measures to protect and conserve watershed experiences. The objective of the SID-AGUA program is based on the potential impact on water policy through the development of information systems and technical tools to support the planning and management of water resources, material resources being considered the center point of the intervention.

The overall objective of SID-AGUA contribute to the development of technical support tools that facilitate the generation of knowledge about the water cycle and planning and decision-making for participatory watershed management. Then, their results are inputs to consolidate an approach and a strategy for the integrated management of water resources in Bolivia. The specific objectives to be achieved are:

- Generate a process of capacity building at the level of water professionals, local institutions and user organizations ("pedagogical basin"), which sets forth the various actors and constitutes an experience that supports and fed back to the PNC.
- Establish the dynamics and relationships of surface and groundwater, modeling the hydrological cycle in the basin and incorporating tools of information management in support of a knowledge base to facilitate future discussions and decisions.
- Develop and implement a system of information and indicators to collect the information and allow the exploitation of a didactic and accessible to different types of stakeholders in the basin shape, and thus facilitate planning, establishing and making agreements making in a multi-sectorial framework.
- Develop information on the status and quality of surface water and sediments in order to make estimates of toxicity at the basin, allowing the development processes of pedagogical discussion basin.

**Scope:** International.

**Partners:** Universidad Mayor de San Simón (Bolivia) and Universitat Politècnica de Catalunya (Spain).

**Led by:** Universitat Politècnica de Catalunya.

**Funded by:** AECID. Code: A1/036122/11.

**Start Date:** 13.12.2009. **Estimated date of completion:** 12.3.2013.

**Principal Researcher:** Agustí Pérez-Foguet
5.2. AGREEMENTS AND COLLABORATIONS

ONGOING AGREEMENTS AND COLLABORATIONS

**International Master’s in Sustainability, Technology and Innovation**

The Master’s in Sustainability, Technology and Innovation is an international master’s created by a consortium of three universities: Dublin Institute of Technology (DIT); Purdue University (PU) and UPC. In particular, the master’s curriculum is based on the existing Master’s of Sustainability, Technology and Innovation (DIT), Master’s in Technology (PU) and Master’s in Sustainability (UPC). The Master’s STI is a quality program, designed under the framework of the Atlantis project for the development of joint degrees between the European Union and the United States of America in the field of Sustainability, Technology and Innovation.

**Internal code**: IS-P09/01  
**Scope**: International  
**Agreement signed with**: EU-US Transatlantic Degree Program (Atlantis)  
**Partners**: Dublin Institute of Technology (Ireland), Purdue University (USA), and Universitat Politècnica de Catalunya (Spain)  
**Funded by**: Fund for the Improvement in Post-Secondary Education - FIPSE (USA), Education, Audovisual and Culture Executive Agency - EACEA (EU)  
**Dates**: 02.2010. **Estimated date of completion**: 08.2013  
**Agreement manager**: Ribera Sancho, María

**Develop a SIS (Support Information System) for GVC WASH activities in occupied Palestinian territories**

The aim of the agreement is to set up a Support Information System that should respond to (i) monitoring of GVC activities on the field, (ii) measurement of impact of GVC activities; and (iii) Communication of GVC activities. The system developed should be integrated in GVC daily activities and should present the following characteristics:

- The forms for data collection should be adapted with database fields (and a GPS point will be added for the community)
- Easy data entering (decentralized – every field worker could insert his data coming back from the field)
- Possibility to have an upgradable database:
- Capability of having some automatic analysis of data already inserted (and other analysis that could be added in future)
- Capability to have community profiles for monitoring of indicators per project, per sector and per geographic area.
**Study for development of an environmental monitoring system for the Titicaca Lake (Peru)**

This study falls within the framework of the Programme of Support to Artisanal Fisheries, Aquaculture and Sustainable Management of the Environment (PROPESCA), whose management unit has identified the need to establish a cross-cutting environmental management system based on the ecosystem, fisheries and aquaculture. The aim is to design and implement an environmental monitoring system with a dual approach: i) to determine the current ecological quality of the study area (the baseline) in order to establish policies and standards for protecting and conserving environmental quality and natural resources; and ii) to determine whether trace metals have caused alterations in the region that may affect the sustainable use of water resources. This study was conducted in the northern part of the Titicaca basin in November 2011. Sediments and macroinvertebrates were monitored and studied using indices developed for assessing the ecological quality of the Puno region. The study is currently in the sediment analysis stage, which is expected to conclude by the end of May.

**Internal code:** IS-P11/08

**Scope:** International

**Agreement signed with:** Fondo de Cooperación Hispano Peruano (Peru)

**Options:** Unidad de Gestión de PROPESCA (Peru), Ministerio de la Producción (Peru), and Universitat Politècnica de Catalunya (Spain)

**Led by:** Universitat Politècnica de Catalunya

**Funded by:** AECID (with co-financing of CCD - 0.7% UPC funds)

**Dates:** 10.2011 - 6.2012

**Principal researcher:** Miralles, Núria
Technical assistance: Prototype design of a biomass gasifier

This study provided a technical assistance for modeling a biomass gasifier and provided the reference specifications.

**Internal code:** C-08762  
**Scope:** National  
**Agreement signed with:** Centre Tecnològic de Manresa, CTM  
**Partners:** AlGUASOL Cooperation  
**Led by:** Universitat Politècnica de Catalunya  
**Dates:** 6.2012-12.2012  
**Principal researcher:** Velo, Enric

### 5.3. “SEEDS OF SUSTAINABILITY” PROJECTS 2011-2012

**Energy resources and crisis. The end of an unrepeatable period of 200 years**

**Internal code:** PLL11/19  
**Project leader:** Riba Romeva, Carles  
**School/department:** ETSEIB / DEM  
**Other:** Elena Blanco (PAS)  
**Dates:** 01.2011-12.2012

**Support for teaching the subject iCT4d**

**Internal code:** PLL11/04  
**Project leader:** Vidal Lopez, Eva  
**School/department:** ETSETB / DEE  
**Other:** Jordi García Almiñana (PDI)  
**Dates:** 09.2011-07.2012

**Sustainable lifestyle in the LOw3 solar house at Sant Cugat Campus**

**Internal code:** PLL11/17  
**Project leader:** Seguí Santana, Víctor  
**School/department:** ETSAB / DCAI  
**Other:** Cesc Viñas (student), Andreu Carpi (student)  
**Dates:** 09.2011-07.2012

**Getting material for the conference Recycle**

**Internal code:** PLL11-02  
**Project leader:** Sánchez Carracedo, Fermín  
**School/department:** FIB / DAC  
**Other:** Marcos Etevez (student), Xavier Pegenaute (PAS)  
**Dates:** 11.2011-07.2012
Upcycling 50/50. Developing sustainability projects by students at UPC

- **Internal code**: PLL11/05
- **Project leader**: Sabaté Nolla, Jordi
- **School/department**: ETSAV / DEGA
- **Other**: Jordi Ibars (student), Carla Mas (student), Johathan Navarro (student)
- **Dates**: 11.2011-06.2012

System for simulating an integrated energy and environmental analysis for new and rebuilt buildings

- **Internal code**: PLL11/06
- **Project leader**: Fonseca I Casas, Pau
- **School/department**: FIB / DEIO
- **Other**: Antoni Fonseca i Casas (student)
- **Dates**: 11.2011-06.2012

Zero energy Building Lab. Small-scale experimental platform physically emulating electric power system of buildings

- **Internal code**: PLL11/13
- **Project leader**: Gomis Bellmunt, Oriol
- **School/department**: ETSEIB / DEE
- **Other**: Roberto Villafáfila (PDI), Eduard Prieto (student).

Solar Flare Map. Reconciliation of energy

- **Internal code**: PLL11/15
- **Project leader**: Zamora Mestre, Joan Lluis
- **School/department**: ETSAB / DCAI
- **Other**: Rodrigo A Vásquez (student)

Innovation site on water & energy efficiency

- **Internal code**: PLL11/12
- **Project leader**: García Serrano, Joan
- **School/department**: ETSECCPB / DEHMA
- **Other**: Ivet Ferrer (PDI), Jaume Puigagut (PDI), Marianna Garfí (PDI), Manuel Espino (PDI), Agustín Sánchez-Arcilla (PDI), Xavier Sanchez Vila (PDI)
**Getting material for the conference "Recycle"**

- **Internal code:** PLL11-02.
- **Project leader:** SÁNCHEZ CARRACEDO, Fermín.
- **School/Department:** FIB / DAC
- **Other:** Marcos Etevez (student), Xavier Pegenaute (PAS).
- **Dates:** 11.2011-07.2012.

**Program for collaboration with the Advanced Power and Energy Program (APEP) (UC-Irvine, CA)**

- **Internal code:** PLL11/07.
- **Project leader:** VELO GARCIA, Enrique.
- **School/Department:** ETSEIB / DMMT.
- **Other:** Pol Arranz Piera (PAS), Bryani Escoria Robles (student).
- **Dates:** 02.2012-02.2012.

**Mining and sustainable environment**

- **Internal code:** PLL11/10.
- **Project leader:** MATA PERELLÓ, Josep Maria.
- **School/Department:** EPEM / DEMRN.
- **Other:** David Parcerisa (PDI), Pura Alfonso (PDI), Ferran Climent (student).
- **Dates:** 01.2012-06.2012.

**Analysis of the environmental quality of the project for the construction for a building for the new school of industrial engineering at the "Diagonal Besòs" university campus**

- **Internal code:** PLL11/18.
- **Project leader:** JOSA GARCIA-TORNEL, Alejandro.
- **School/Department:** ETSECCPB / DETCG.
- **Other:** Ivan Puig Damians (student), Albert Marqués Marqués (PAS).
- **Dates:** 01.2012- 06.2012.
6. TEACHING

6.1 MASTER’S DEGREE IN SUSTAINABILITY

The aim of the Master's degree in Sustainability is to provide advanced training in sustainable human development that enables students to understand the complex interaction between society, technology, the economy and the environment, so that they can tackle the social and environmental challenges inherent to sustainability: climate change, the depletion of natural resources, North-South imbalances, environmental justice, etc. This master's degree prepares students to become entrepreneurial professionals and agents of change for sustainability who will, depending on their specialization, design and assess global, sustainable solutions for the uncertain, complex scenario we are living in. They will take an interdisciplinary approach and ensure scientific and technical rigor in the diverse cultural and professional contexts they work in.

The main profile of the applicant corresponds to a candidate with a degree in Engineering or Architecture, or a Bachelor in Natural Sciences or Environmental Science, Geography or Mathematics, who wants to develop an academic or professional activity oriented to sustainability. In addition, other specific skills include amongst others:

- A global vision of the limits, problems, conflicts and challenges associated with the management of fresh water on the planet, energy production and consumption, the evaluation and resources and the sustainable management of energy and food, in addition to food security.
- Knowledge of the basic principles of the sustainability paradigm, its debates and its environmental, socio-cultural and economic implications.
- In-depth knowledge of the concept of human development and other alternative theories, such as development on a human scale and the debates surrounding this theme.
- Understanding of the dynamics and problems that have emerged within the globalisation phenomenon and their relationship with global sustainability.
- Knowledge of international organisations and their decision-making mechanisms on a global level, analysing their theoretical bases and their proposals for the future that are coherent with the notion of sustainable development.
- Knowledge of the impact that the use of technology has on the society that adopts it and the basic principles for sustainable technology.
- Knowledge of the principles of ecology as a basic discipline for guiding relations between society and nature and progressing towards the sustainable management of natural resources.
In addition to these general specific skills, see the website of the Master’s Degree to find out those skills that correspond to the five specialist areas: Industrial Ecology and Technological Innovation; Sustainable Education; Infrastructures, City and Region; International Cooperation for Development; Evaluation and Policies of Sustainability.

Additionally, there are cross-disciplinary skills emphasized. Then, among others the students will be able to:

- Consider the global problem, beyond the specific situation and time, and develop a transversal vision and treatment of problems.
- Think critically based on the analysis, synthesis and evaluation of the different alternatives.
- Move within a world of increasing complexity and make decisions based on diverse criteria.
- Be sensitive to socio-environmental questions based on concern for the environmental impact of solutions and an understanding of the social dimension of problems.
- Look for information, select it, reflect on it, discern its content and create their opinions based on this.
- Show knowledge of the field of study and of the profession
- Understand the points of view of others and adapt to new situations.
- Show social sensitivity and solidarity between and among generations.
- Be aware of professional ethical responsibilities.

Master in Sustainability was offered the following courses during 2011-2012:

**Compulsory courses:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Professor</th>
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<tbody>
<tr>
<td>32500</td>
<td>Environmental Economics and Ecological Economics</td>
<td>José Mª Gil</td>
</tr>
<tr>
<td>31106</td>
<td>Sustainable human development</td>
<td>Agustí Pérez Foguet</td>
</tr>
<tr>
<td>32501</td>
<td>Ecology and natural resources management</td>
<td>Jordi Morató</td>
</tr>
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<td>32502</td>
<td>Systemic and complexity</td>
<td>Martí Rosas</td>
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<td>32504</td>
<td>Urban ecology and territory</td>
<td>Francesc Magrinà</td>
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<td>32505</td>
<td>Culture, Technology and Innovation</td>
<td>Miquel Barceló</td>
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<td>32570</td>
<td>Introduction to master’s thesis</td>
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Elective courses:

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<td>Eva Vidal</td>
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<tr>
<td>32515</td>
<td>Interdisciplinary workshop</td>
<td>Alberto Cuchí</td>
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<tr>
<td>32530</td>
<td>International cooperation and social responsibility of organizations</td>
<td>Miriam Villares</td>
</tr>
<tr>
<td>32532</td>
<td>International cooperation projects for development</td>
<td>Agustí Pérez Foguet</td>
</tr>
<tr>
<td>32535</td>
<td>Housing construction and social infrastructure in cooperation</td>
<td>Miren Etxebarria</td>
</tr>
<tr>
<td>32536</td>
<td>Basic services and local development in cooperation contexts</td>
<td>Enrique Velo</td>
</tr>
<tr>
<td>32539</td>
<td>Measurement of Sustainability</td>
<td>Jose Juan de Felipe</td>
</tr>
<tr>
<td>32543</td>
<td>modelling Sustainability</td>
<td>Jose Juan de Felipe</td>
</tr>
<tr>
<td>32544</td>
<td>Governance, sovereignty and participation</td>
<td>Josep Xercavins</td>
</tr>
<tr>
<td>32549</td>
<td>International seminar on sustainable innovation</td>
<td>Jordi Segalàs</td>
</tr>
<tr>
<td>32551</td>
<td>Sustainable urbanism</td>
<td>Francesc Magrinà</td>
</tr>
<tr>
<td>31555</td>
<td>Water resources in developing countries</td>
<td>Lucila Candela</td>
</tr>
<tr>
<td>32559</td>
<td>Sustainable building</td>
<td>Alberto Cuchí</td>
</tr>
<tr>
<td>32560</td>
<td>Water cycle and building</td>
<td>Alberto Cuchí</td>
</tr>
<tr>
<td>32561</td>
<td>The Life cycle of building materials</td>
<td>Antoni Caballero</td>
</tr>
<tr>
<td>32562</td>
<td>Energy efficiency in building</td>
<td>Alberto Caballero</td>
</tr>
<tr>
<td>32569</td>
<td>Sustainable technologies for water management</td>
<td>Núria Miralles</td>
</tr>
</tbody>
</table>

Graduated Students 2011-2012

| Arango Nader, Natalia          | Peterson, Benjamin David                             |
| Castelltort Mascó, Adrià      | Pretel Wilson, Manuel                                 |
| Clavera Ibáñez, Glòria        | Pujol Rodon, Roger                                    |
| Del Chicca Romano, Paola      | Raigosa Montoya, Juliana                              |
| Duque Dehesa, Amaia           | Rosabal Lopes Da Silva, Damaris                       |
| Fuentes Ruano, Nayara         | Ruiz Almeida, Adriana                                 |
| García Lozada, Tatiana        | Saborío Víquez, María Del Mar                         |
| Godoy Muñoz, Alfonso De Jesús | Sánchez Sumelzo, Natalia                              |
| Hurtado Figueroa, Carmen Elisa| Serrano Vásquez, Hernán Alonso                        |
| Maldonado Bueno, Claudia Daniela | Sola Hurtado, Ana Ángeles                             |
| Marion Moron, Gonçal Oriol    | Travesset Baró, Oriol                                 |
| Papachristou, Ioanna Anna     | Velázquez López, Martín                               |
| Pedraza Isaza, Daniel         | "                                             |
6.2. MASTER’S DEGREE IN TECHNOLOGY FOR HUMAN DEVELOPMENT AND COOPERATION

The first edition of the Master’s in Technology for Human Development and Cooperation started in September 2012. The Master is oriented to applied research and innovation in the areas of intersection between technology, sustainable development and cooperation for development. The master’s degree in Sustainability Science and Technology aims to provide students with advanced interdisciplinary training to facilitate understanding of interactions between society, the economy and the environment. Graduates will also have a sound understanding of scientific and technical options and trends for tackling key challenges for the sustainable development of current socio-environmental systems.

The course will train students to become entrepreneurs and agents of change in the field of sustainable development. Based on their specialization in areas related to biodiversity, the environment, the built environment, services, the production system and information management, graduates will be able to design, implement and evaluate sustainable solutions in different fields of engineering and technology. Graduates will work in various cultural and professional contexts, applying a transdisciplinary approach based on scientific and technical rigor.

The overall objective is to train experts able to provide innovative responses to problems in the field of Sustainable Human Development and International Cooperation. On the basis of a solid education that allows them to understand the complex causes (technical, economic, social and/or environmental) that hinder the progress of disadvantaged populations, graduates will be able to provide solutions in a rigorous relevant and creative way.

This area includes also the capacity for analysis, evaluation and improvement of policies, programs, or human development projects, with special focus on the technological options. It also includes the design adaptation and improvement of the analytical tools necessary to achieve a more efficient decision-making processes.

Researchers trained in the Master’s degree must also be able to establish specifications and technological innovation objectives in accordance with the embedding, assimilation and dissemination conditions of the most disadvantaged sectors, with a special focus on the strengthening and extension of local capacities.

Graduated students will achieve the ability to collaborate in all the tasks described above with specialists from different areas in multidisciplinary contexts.
The Master will offer the following courses during 2012-2013:

**Compulsory courses:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Professor</th>
</tr>
</thead>
<tbody>
<tr>
<td>480521</td>
<td>International Cooperation and Development</td>
<td>Míriam Villares- Alvar Garola</td>
</tr>
<tr>
<td>480501</td>
<td>Measuring Development and Sustainability</td>
<td>Alexandre Riba</td>
</tr>
<tr>
<td>480522</td>
<td>Development Cooperation Projects</td>
<td>Enrique Velo</td>
</tr>
<tr>
<td>480502</td>
<td>Development Economics</td>
<td>José Mª Gil</td>
</tr>
<tr>
<td>480531</td>
<td>Technology For Sustainable Human Development</td>
<td>Agustí Pérez Foguet</td>
</tr>
<tr>
<td>480511</td>
<td>Urban And Land Development</td>
<td>Francesc Magrinyà</td>
</tr>
<tr>
<td>480532</td>
<td>Research Workshop: Development Cooperation Action</td>
<td>Lucas V. Wunnik</td>
</tr>
<tr>
<td>480512</td>
<td>Rural Development</td>
<td>José Mª Gil</td>
</tr>
<tr>
<td>480700</td>
<td>Master’s Thesis</td>
<td>Alejandro Josa</td>
</tr>
</tbody>
</table>

**Elective courses:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Professor</th>
</tr>
</thead>
<tbody>
<tr>
<td>480600</td>
<td>Engineering of Ict</td>
<td>Eva Vidal</td>
</tr>
<tr>
<td>480601</td>
<td>Water, Sanitation and Hygiene</td>
<td>Agustí Pérez Foguet</td>
</tr>
<tr>
<td>480602</td>
<td>Construction and Building Construction Engineering and Technologies</td>
<td>Miren Etxebarria</td>
</tr>
<tr>
<td>480603</td>
<td>Water Resources and Infrastructure</td>
<td>Lucila Candela</td>
</tr>
<tr>
<td>480604</td>
<td>Energy Engineering and Technologies</td>
<td>Enrique Velo</td>
</tr>
<tr>
<td>480605</td>
<td>Environmental Engineering and Technologies</td>
<td>Ivet Ferrer</td>
</tr>
<tr>
<td>480606</td>
<td>Architecture, Urbanism and Habitability</td>
<td>Carles Llop</td>
</tr>
<tr>
<td>480607</td>
<td>Food Processing and Preservation</td>
<td>Roser Romero</td>
</tr>
<tr>
<td>480608</td>
<td>Agroecosystems, Agriculture and Food</td>
<td>Nuria Cañameras</td>
</tr>
<tr>
<td>480609</td>
<td>Animal Production</td>
<td>Lourdes Reig</td>
</tr>
<tr>
<td>480610</td>
<td>Vegetable Production</td>
<td>Jordi Izquierdo</td>
</tr>
</tbody>
</table>

### 6.3. DOCTORAL PROGRAMME IN SUSTAINABILITY

Sustainability research involves specialists from different origins and backgrounds with a variety of disciplinary perspectives but with the common desire to contribute to the development of society by providing future generations with the options and skills required to forge their own path.

The doctoral programme in Sustainability encompasses the research and courses that deal with the current challenges to sustainability: exhaustion, distribution and management of natural resources, including energy and water; climate change impacts and adaptation and mitigation mechanisms; modelling of socio-environmental systems and assessment of their evolution and development; poverty and imbalances in urban and rural environments; technological innovation and integrated concepts in construction, architecture and management of public services and the environment; and preservation and promotion of environmental and cultural heritage.
Sustainability science and technology is a highly interdisciplinary field of research that offers the opportunity to make original contributions in understanding and solving problems that affect the welfare and development of peoples and societies, and in shaping a new perspective from which to analyze our reality, integrating approaches from different disciplines and embracing the very agents of change.

This doctoral programme opens the door to professionals and researchers with the determination and abilities to meet these challenges and provide solutions through academic contributions with an international impact.

PhD in Sustainability – enrolled 2011-2012

Research (Rd 1393/2007)

Agredo Cardona, Gustavo Adolfo
Ahmed Nasreldin, Osama
Arellano Escudero, Nelson Alejandro
Arrache Santibañez, Lizbette
Arranz Piera, Pol
Avitia Rodríguez, Jessica Alejandra
Avolio, Ciro
Baba El Mokhtari, Yasmina
Bosch Gonzalez, Montserrat
Cañadó Expósito, Marta
Carres Gonzalez, Jordi
Cerda Díaz, Francisca
Clavera Ibáñez, Glòria
Cubi Montanyà, Eduard
De Balanzo Joue, Rafael
Enguita Rovira, Oscar
Escobar Gonzalez, Cristina
Escorcia Robles, Bryani Jenice
Fonseca Casas, Antonio
Guesmi, Bouali
Jimenez Redal, Ruben
Lomeña Gelis, Monica
M. I. K. Hassounneh, Islam
Martinez Magaña, Juan
Masseck, Torsten
Mattos De Andrade, Christiano
Molins Duran, Gemma
Ortega Espes, Delphine Jacqueline Yvonne
Ortiz Balderas, María De Los Angeles
Pérez Vázquez, Cristina
Pinzón Botero, María Victoria
Poli, Elena
Pons Pons, Marc
Proano, Liliana
Resano Moreno, Alfredo
Ridaura Aldana, Gregorio
Sánchez Balvás, Lizeth Artemisa
Torres Acosta, Leonel Stevens
Vallejo Rojas, Virginia Beatriz
Vilar Ferrenbach, David
Yangui, Ahmed
6.4. DOCTORAL PROGRAMME IN ENVIRONMENTAL ENGINEERING

The doctoral programme in Environmental Engineering provides doctoral students with advanced training and a high capacity for research in the field of environmental engineering, that is, having a knowledge and understanding of the impacts on the environment, both derived from human activities and natural processes, with the ability to evaluate the interactions between them, and the ability to propose and define possible actions to protect and recover the environment.

This programme is a multidisciplinary training framework in an international context that allows doctoral students to obtain the scientific, methodological and technical skills to address the challenges of innovation and research that society demands in the field of environmental engineering.

It can be considered the first doctoral programme in Environmental Engineering imparted in Spain. Additionally, it has the purpose of increasing internationalization and quality requirements defined by the “mention to excellence” of the PhD program in Environmental Engineering.

Phd environmental engineering enrolled 2011-2012

Research (Rd 1393/1998)

- Affes, Rim
- Ávila Martín, Cristina
- Badea, Cristian Adrian
- Badia Moragas, Alba
- Lopes Del Rei Passos, Fabiana
- López Roldán, Ramon Manuel
- Lopez Xarbau, Josep
- Monforte Vila, Lluís

Research (Rd 778/2007)

- Adrados Ruiz, Bárbara
- Alvarez Del Castillo, M. Dolores
- Antequera Baiget, Jose
- Bernal Pérez, Rolando Javier
- Bofill Abello, Jordi
- Busquets Rubio, Pere
- Casañ Guerrero, María José
- Cifuentes Ruiz, Paula Andrea
- Cortés Cardona, Adriana Carolina
- Cucina, Manuela
- Estrada Asito, Lena Yanina
- Fittipaldi Gustavino, Mariana
- Gallón Londoño, Luciano
- Horta Bernus, Ricard
- Landeros Suárez, Arturo
- Llistar Bosch, David
- Londoño Linares, Juan Pablo
- Lopez Lopez, Maria Jose
- López Villegas, Luis Ignacio
- Michelutti, Enrico
- Paolini Ruiz, Jorge Iván
- Pires Carneiro, Alex
- Salas Prat, Josep Maria
- Salas Zapata, Walter Alfredo
- Sanjuanero Caballero, Luis Ramon
- Tollin, Nicola
- Vargas Collazos, Monica
| Bori Dols, Jaume                  | Pedrosa Portugal, Rubén                  |
| Borkel, Christoph                | Pizarro Loaiza, Carlos Alexander         |
| Calvo Iranzo, Miriam             | Rodríguez Abalde, Ángela                |
| Camino González, Carlos          | Roig Planasdemunt, Maria               |
| Flores Baquero, Óscar            | Samsó Campà, Roger                     |
| Galvañ Salazar, Carmen           | Scaini, Chiara                         |
| Gasparini, Andrea                | Soret Miravet, Albert                  |
| Giannakis, Stefanos              | Sotres Fernández, Ana                  |
| Guevara Vilardell, Marc          | Spada, Michele                         |
| Illa Alibés, Josep               | Suárez Silgado, Sindy Sofía            |
| Juznic Zonta, Zivko              | Witlox, Katarzyna Jolanta              |
| Laureni, Michele                 |                                        |

**Research (Rd 778/1998)**

| Basart Alpuente, Sara            | Marras, Simone                       |
| Casas Garriga, Sandra           | Pay Pérez, María Teresa              |
| Chaperón Cordero, Wilson Braulio| Pinto Varela Alberte, Elaine         |
| Domenech Rubio, Luis Miguel     | Rincón Rodríguez, Ángel Alberto      |
| Garcia Almiñana, Daniel         | Silvestre Tormo, Gracia Maria        |
| Granados Granados, Ricardo Jose  | Solé Carbonell, Marta                |
| Haustein, Karsten               | Yacoub López, Cristina               |
7. DISSERTATIONS

This list includes Ph.D. theses defended during 2012 that were supervised by the academic staff of IS.UPC.

Antequera Baiget, Jose

*Methodology for the analysis of regional sustainability*

Department: Institute of Sustainability

**Supervisors**: Xercavins Valls, Josep

**Date**: 10.12. 2012

**Qualifications**: Cum Laude

Avitia Rodríguez, Jessica Alejandra -

*Consumer preferences for organic food: Behavior building-up, importance of pricing, information and sensory issues*

Department: Institute of Sustainability

**Supervisors**: Gil Roig, Jose Maria and Costa Font, Montserrat

**Date**: 4.7.2012

**Qualifications**: Cum Laude

Bofill Abello, Jordi

*Integration of tools and methods for measuring the sustainability of a region in an information system*

Department: Institute of Sustainability

**Supervisors**: Barrado Muxi, Cristina and Felipe Blanch, Jose Juan De

**Date**: 5.6.2012

**Qualifications**: Cum Laude

Gallón Londoño, Luciano

*Regional Sustainability Model. System Dynamics for addressing poverty in South America.*

Department: Institute of Sustainability

**Supervisors**: Barceló Garcia, Miguel and Gómez Sánchez, Diego Fernando

**Date**: 7.2.2012

**Qualifications**: Cum Laude
M. I. K. Hassouneh, Islam

*An assessment of the impacts of recent food market shocks on food prices using price transmission analysis*

Department: Institute of Sustainability

**Supervisors:** Serra Devesa, Teresa

**Date:** 29.2.2012

**Qualifications:** Cum Laude

Salas Zapata, Walter Alfredo

*Design of a Model of Sustainability Analysis Public Health Policy*

Department: Institute of Sustainability

**Supervisors:** Alvarez Del Castillo, Javier and Rios Osorio, Leonardo Alberto

**Date:** 17.7.2012

**Qualifications:** Cum Laude
8. PUBLICATIONS

8.1. SCIENTIFIC PRODUCTION

This list includes papers from IS.UPC researchers published in 2012 in Journal Citation Report indexed journals.


Yacoub, C.; Pérez-Foguet, A.; Miralles, N. (2012) "Trace metal content of sediments close to mine sites in the Andean region," TheScientificWorldJOURNAL.
9. ACTIVITIES

9.1. RESEARCH SEMINARS AND WORKSHOPS

Regeneration and reuse of water in the Mediterranean
Speaker: Miquel Rovira i Boixaderas, Researcher at the Manresa Technologic Center and Associate Professor at the Department of Chemical Engineering, UPC.
Date: 16 January 2012

Climate and infectious disease: the case of Meningoccal Meningitis in sub-Saharan Africa
Date: 1 February 2012

Scientific and technical support to the implementation of sustainable policies in developing countries
Speaker: César Carmona Moreno, JRC project manager for the implementation of the NEPAD-African Centres of Excellence in Water (NEPAD ACE-Water).
Date: 17 February 2012

Computational epidemics: models for malaria control and elimination strategy design
Speaker: Dr. Jordi Ferrer Savall, forthcoming associate researcher at the Ecole Pasteur - CNAM de Sante Publique and a former researcher of the group MOSIMBIO from UPC).
Date: 19 March 2012

Energy Sustainability. A critical Quest
Speaker: Dr. Marc A. Rosen, professor of Mechanical Engineering at the University of Ontario Institute of Technology in Oshawa.
Date: 14 May 2012

5th UPC International Seminar on Sustainable Technology Development. Towards sustainable nourishing systems and agroecology
Date: 4-15 June 2012
Place: Vilanova i la Geltrú
The International Seminar on Sustainable Technology Development was developed in the framework of the Master for Sustainability during two weeks. It was conducted by professors from different European universities experts on future studies analysis (TUDelft, Chalmers UT, KTH, TUGraz and others). The
constructive-learning activities were focused on the connections between technology development, environmental problems and societal change. This edition was focused on agroecology and alimentary model in order to analyze:

- The implications of the implementation of a technological system (biotechnology, agribusiness, etc) based on ecological, agronomic and social processes, versus one that promotes consumption and production at cost price, which could move away the production of these processes and territory.
- The attitudes and habits related to alimentation needs of citizens: “when we buy food, we are deciding the society in which we live”.
- The ecological footprint (EF) derived from a global model of food production and consumption without consumption and production strategies that account for territory, generating social and environmental externalities.

**Water management experiences in the area of savannah (Sahel) West Africa: a case study in Senegal, Burkina Faso, Ghana and Nigeria**

**Speaker:** Dr. David Casanova, expert sènior del Banc Mundial en gestió de recursos hídrics, basat a Ghana.

**Date:** 13 July 2012

**Eco-design and innovation = eco-innovation**

**Speaker:** Dr. Joan Rieradevall, Associate profesor at the Department of Chemical Engineering, UPC and Researcher at the Institut de Ciència i Tecnologia Ambientals(ICTA), UAB.

**Date:** 20 September 2012

**BIKE PAL European competition, pedalling towards safety**

**Speaker:** Mr. Ilyas Daoud, Project Officer at the European Transport Safety Council (ETSC)

**Date:** 26 October 2012
9.2. PRESENTATIONS

Opening the academic year 2012/2013. Masters in Sustainability and Technology for Human Development and Cooperation

Presentation:
On Friday 7 September the opening ceremony of the academic year 2012-2013 was held at the IS- UPC. The event began with a welcome and opening of the course by the Institute director, Dr. Juan Pablo.

Lectures:
Featured lecture by Dr. Jeremie Fosse, an Executive MBA ESADE Business School, co-founder and Director of the Eco-Union Global Eco Forum. He presented the paper “Rio +20: an opportunity for change towards sustainability” which reviewed the challenges, prospects and results of the recent meeting in Rio. Then Dr. George Bruno, CEO and director of the Amphos 21 Enresa AMPHOS - 21 Sustainability and Waste Management – UPC, provided under the suggestive title “We can afford to be sustainable?” an overview about the evolution of ideas the sustainability paradigm and finite resources. Finally, the event was closed by Dr. Juan Pablo, director of the Institute for Sustainability, Dr. Agustí Perez, director of the Master of Sustainability and Dr. Enric Velo, director of the Master in Technology for Human Development and Cooperation.

15th Environmental and Sustainable Ideas Competition UPC – “Rio +20 reinforces commitment to sustainability”

Awards Ceremony

Presentation of the winning projects:
At the awards ceremony held on 13 July 2012 were made public the winners of the fifteenth edition of the Environmental and Sustainable Ideas UPC. The jury decided to declare void the open call, given the very limited presentation of projects and inadequate assessment according to the criteria of the rules. Regarding the call, the jury decided to award a first prize and two second prizes ex aequo the following projects:

- 1st prize – "UPCup". It was conducted by Judith Salvadó, Jose Miguel Esteban and Joaquim Comes.
- 2nd prize – “Sightseeing invisible”. It was performed by Mariana Palumbo, David López and Marta Domenech.
- 2nd prize – “MIRROR. Re-roofing of cities: prevent climate change re-building”. It was conducted by Oriol Muntané.
**Participation at the “II Catalan Strategic Forum: Zero Waste”**

On Friday May the II Zero Waste Forum was held at the Casa del Mar in Barcelona. The IS director, Dr. Joan de Pablo, presented the UPC commitment and strategy of waste with zero emissions within the “Universities commitment with zero waste emissions and green economy” panel. In this forum, “reuse program”, “Sirena program”, vending machine facilities with sustainable criteria set up and activities on urban solid wastes were explained as initiatives developed by the UPC.

Additionally, the IS.UPC future actions within the commitment where presented as:

- Continue with active support in the Zero Waste Universities Network.
- Promote final master and grade theses and PhD theses linked with social demands expressed by municipalities, social organizations and enterprises.
- Encourage the involvement of research groups to the “zero waste” objectives.
- Support the implementation of waste prevention plans campus in accordance with the overall strategy proposed by the Zero Waste Universities Network.
10. ANNEX

In this section a brief CVs of permanent academics of UPC with formal adscription to IS.UPC in 2012 are presented in alphabetical order.

- Alejandro Josa
- Joan de Pablo
- Agustí Pérez
- Jordi Segalas
- Enric Velo
Alejandro Josa finished his Master Degree in Civil Engineering in 1981. He obtained the PhD from UPC with honours with a thesis in the field of Geotechnics (elastoplastic modelling of partially saturated soils) in 1988. This work got the "Extraordinary Award" for 1988 UPC thesis.

In the 80s and early 90s his research was mainly focused on the experimental analysis and modelling of partially saturated soils, the behaviour of foundations and the application of different types of concretes in low-volume road pavements. In the late 80s and 90s he joined different European groups working in the field of the environmental impact and LCA of cement-based products. Since then his research was mainly focused first on the environmental impact of cement and its applications through the LCA methodology and later, since the beginning of this century, on the assessment of sustainability through the application of the multi-attribute utility theory and the value analysis. His research in recent years has been focused on the LCA of different construction applications (different types of urban pavements, rainwater harvesting infrastructures, electrical mobility), the quantitative assessment of sustainability (theoretical models and application to different infrastructures) and the behaviour of geotechnical structures. The current academic activity is also developed in such fields (soil mechanics and geotechnical engineering, LCA in construction and assessment of sustainability).

He is author or coauthor of 14 books, 20 book chapters, 50 articles in journals (20 in indexed journals), over 100 congress communications and numerous research reports. He has participated in 22 research projects funded by open calls (3 EU) (5 national projects as project director). He has participated in 21 contracts with administrations and companies (9 as principal researcher). He has co-directed 8 PhD theses.

He is responsible for a postgraduate course on LCA and sustainability assessment of infrastructures; co-director of the UPC University Master program on Environmental Engineering; member of the board of the UPC Research Institute for Sustainability Science and Technology IS.UPC, as responsible for University Masters; member of the academic board of the UPC University Master in Sustainable Development; and deputy director of the UPC Department of Geotechnical Engineering and Geosciences.

**WORK EXPERIENCE**

<table>
<thead>
<tr>
<th>Dates (from – to)</th>
<th>Position held</th>
<th>Employer</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 2012 to date</td>
<td>Responsible for a postgraduate course on LCA and sustainability assessment of infrastructures (Universitat Politècnica de Catalunya)</td>
<td></td>
</tr>
<tr>
<td>April 2011 to date</td>
<td>Co-director of the UPC University Master program on Environmental Engineering (Universitat Politècnica de Catalunya)</td>
<td></td>
</tr>
<tr>
<td>September 2010 to date</td>
<td>Member of the board of the UPC Research Institute for Sustainability Science and Technology IS.UPC, as responsible for University Masters (Universitat Politècnica de Catalunya)</td>
<td></td>
</tr>
<tr>
<td>September 2010 to date</td>
<td>Member of the academic board of the UPC University Master in Sustainable Development (Universitat Politècnica de Catalunya)</td>
<td></td>
</tr>
<tr>
<td>March 2006 to date</td>
<td>Deputy director of the UPC Department of Geotechnical Engineering and Geosciences (Universitat Politècnica de Catalunya)</td>
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<tr>
<td>RESEARCH PROJECTS &amp; CONTRACTS (SELECTED)</td>
<td></td>
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</tr>
<tr>
<td>----------------------------------------</td>
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</tr>
<tr>
<td><strong>Title</strong></td>
<td>Cuantificación de la sostenibilidad en ingeniería de la construcción con y sin incertidumbre</td>
<td></td>
</tr>
<tr>
<td><strong>Dates (from – to)</strong></td>
<td>January 2011 – January 2014</td>
<td></td>
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<tr>
<td><strong>Country</strong></td>
<td>MCINN Spanish Government (ref. BIA2010-20789-C04-01)</td>
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<tr>
<td><strong>Role and Main activities</strong></td>
<td>Principal Researcher</td>
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</tr>
<tr>
<td><strong>Title</strong></td>
<td>Hacia la sostenibilidad en construcción a través del análisis de valor con enfoques determinista y probabilista</td>
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<td><strong>Dates (from – to)</strong></td>
<td>January 2010 – January 2011</td>
<td></td>
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<td><strong>Country</strong></td>
<td>MCINN Spanish Government (ref. BIA2009-14171-C04-01)</td>
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<tr>
<td><strong>Role and Main activities</strong></td>
<td>Principal Researcher</td>
<td></td>
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<tr>
<td><strong>Title</strong></td>
<td>Movilidad y distribución de metales en la zona no saturada y sus efectos sobre cambios de calidad de aguas subterráneas. MAROMA</td>
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<tr>
<td><strong>Dates (from – to)</strong></td>
<td>2007 – 2010</td>
<td></td>
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<td><strong>Role and Main activities</strong></td>
<td>Researcher</td>
<td></td>
</tr>
<tr>
<td><strong>Title</strong></td>
<td>TRAGA-CONSOLIDER</td>
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<tr>
<td><strong>Dates (from – to)</strong></td>
<td>January 2006 – December 2010</td>
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<tr>
<td><strong>Country</strong></td>
<td>CICYT Spanish Government (ref. Consolider CSD2006-0004)</td>
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<tr>
<td><strong>Role and Main activities</strong></td>
<td>Researcher</td>
<td></td>
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<tr>
<td><strong>Title</strong></td>
<td>Proyecto Cemento. Desarrollo técnico, medioambiental, de sostenibilidad e institucional de cementos y sus derivados</td>
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<tr>
<td><strong>Dates (from – to)</strong></td>
<td>2003 – 2012</td>
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<td><strong>Country</strong></td>
<td>Ciment Català</td>
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</tr>
<tr>
<td><strong>Role and Main activities</strong></td>
<td>Principal Researcher</td>
<td></td>
</tr>
</tbody>
</table>

**PUBLICATIONS (SELECTED)**

**PEER-REVIEW JOURNALS**


Prof. Joan de Pablo, Professor at the Chemical Engineering Department of UPC-Barcelona Tech (Spain). He is the Director of the University Research Institute for Sustainability Science and Technology (IS.UPC) since 2012. He develops part of his research as Scientific Director of Fundació CTM Centre Tecnològic.

He works in the scientific basis of the nuclear waste management from 1989 mainly in spent fuel behavior in repository conditions, and on the reactive transport of pollutants in geological systems. The understanding of the mineral-water interface is the main objective in this study. Experimental techniques such as X-Ray Photoelectron Spectroscopy, Atomic Force Microscope, X-Ray Absorption Spectroscopies (EXAFS, XANES), Scanning Electron Microscope as well as powerful reactive transport models are used to characterize and understand the interaction between mineral surfaces and pollutants.

He is also working on groundwater remediation by means of Reactive Permeable Barriers. The development and combination of different materials to be used in such systems are of special interest. He has participated in several European Projects. He is author of more than 100 papers in the Environmental field.

**WORK EXPERIENCE**

- **Dates (from – to):** January 2012 to date
  - **Position held:** Director of the UPC University Research Institute for Sustainability Science and Technology
  - **Name of employer:** IS.UPC (Universitat Politècnica de Catalunya)

- **Dates (from – to):** July 2005 – July 2011
  - **Position held:** Head of the Chemical Engineering Department (Universitat Politècnica de Catalunya)

- **Dates (from – to):** 2001 to date
  - **Position held:** Scientific Director of the Fundació CTM Centre Tecnològic

- **Dates (from – to):** February 2002 to date
  - **Position held:** Full Professor at the Chemical Engineering Dept. (Universitat Politècnica de Catalunya)

- **Dates (from – to):** July 1986- February 2002
  - **Position held:** Assistant Professor at the Chemical Engineering Dept. (Universitat Politècnica de Catalunya)

**RESEARCH PROJECTS & CONTRACTS (SELECTED)**

- **Title:** Behavior of Actinides and Fission Products in the Environment
  - **Dates (from – to):** January 2012 - December 2014
  - **Country:** MCINN Spanish Government (ref CTM2011-27680-C02-01)
  - **Role and Main activities:** Principal Researcher

- **Title:** Fast / Instant Release of Safety Relevant Radionuclides from Spent Nuclear Fuel (FIRST-Nuclides)
  - **Dates (from – to):** January 2012 – December 2014
  - **Country:** European Commission (Grant Agreement Number 295722)
  - **Role and Main activities:** Workpackage Leader
• Title: Ground Water Pollution from Agricultural and Industrial Sources: Contaminant Fate, Natural and Induced Attenuation, and Vulnerability
• Name of employer: MICINN Spanish Government (ref CGL2008-06373-C03-02)
• Role and Main activities: Researcher

• Title: Natural attenuation processes and passive remediation of groundwater contamination
• Dates (from – to) / Country: December 2005 - December 2008
• Name of employer: MEC Spanish Government – CAP (ref. CGL2005-08019-C04-03/HID)
• Role and Main activities: Principal Researcher

• Title: ECOSIND Etablissement de bases scientifc-techniques et de stratégies pour la recherche de nouvelles voies de valorisation régionales de résidus industriels
• Dates (from – to) / Country: 2004 – 2006
• Name of employer: European Comission (MESVAL. Interrreg III)
• Role and Main activities: Principal Researcher and Project Coordinator

• Dates (from – to) / Country: MICALDO: Model uncertainty for the mechanism of dissolution of spent fuel in a nuclear waste repository (F16W036366)
• Dates (from – to) / Country: FIRST-Nuclides (Fast / Instant Release of Safety Relevant Radionuclides from Spent Nuclear Fuel) (Grant Agreement Number 295722)
• Dates (from – to) / Country: Ground Water Pollution from Agricultural and Industrial Sources: Contaminant Fate, Natural and Induced Attenuation, and Vulnerability (MICINN Spanish Minister CGL2008-06373-C03-02)
• Dates (from – to) / Country: Behavior of Actinides and Fission Products in the Environment (MICINN Spanish Minister CTM2011-27680-C02-01)

PUBLICATIONS (SELECTED) PEER-REVIEW JOURNALS

M. Rovira, J. Giménez, M. Martínez, X. Martínez-Lladó, J. de Pablo, V. Martí, L. Duro
Sorption of selenium (IV) and selenium(VI) onto natural iron oxides: Goethite and hematite

O. Gibert, J. de Pablo, J. L. Cortina, C Ayora
Evaluation of a Sheep Manure/Limestone Mixture for In Situ Acid Mine Drainage Treatment

I. Casas, M. Borrell, L. Sánchez, J. de Pablo, J. Giménez, F. Clarens
Determination of UO2(s) dissolution rates in a hydrogen peroxide medium as a function of pressure and temperature

S. Meca, V. Martí, J. de Pablo, J. Giménez, I. Casas
UO2 Dissolution in the presence of hydrogen peroxide at pH> 11

A. Rey, S. Utsunomiya, J. Giménez, I. Casas, J. de Pablo, R. Ewing
Stability of uranium (VI) peroxide hydrates under ionizing radiation
American Mineralogist 94 (2009) 229–235

I. Rojo, F. Seco, M. Rovira, J. Giménez, G. Cervantes, V. Martí, J. de Pablo
Thorium sorption onto magnetite and ferrhydrite in acidic conditions
A. Rey, I. Casas, J. Giménez, J. Quiñones, J. de Pablo
Effect of temperature on studtite stability: Thermogravimetry and differential scanning calorimetry investigations

F. Seco, C. Hennig, J. de Pablo, M. Rovira, I. Rojo, V. Martí, J. Giménez, L. Duro, M. Grivé, J. Bruno
Sorption of Th(IV) onto Iron Corrosion Products: EXAFS Study

O. Gibert, X. Martínez-Lladó, V. Martí, S. Díez, J. Romo, J.M. Bayona, J. de Pablo
Changes of Heavy Metal and PCB Contents in Surficial Sediments of the Barcelona Harbour after the Opening of a New Entrance
Water Air Soil Pollution 204 (2009) 271-284

I. Buj, J. Torras, D. Casellas, M. Rovira, J. de Pablo
Effect of heavy metals and water content on the strength of magnesium phosphate cements.

I. Casas, J. de Pablo, F. Clarens, J. Giménez, J. Merino, J. Bruno, A. Martínez-Esparza
Combined effect of H2O2 and HCO3- on UO2(s) dissolution rates under anoxic conditions

D. Serrano-Purroy, F. Clarens, J.-P. Glatz, B. Christiansen, J. de Pablo, J. Giménez, I. Casas, A. Martínez-Esparza
Leaching of 53 MWd/kgU spent nuclear fuel in a flow-through reactor
Radiochim. Acta 97 (2009) 491-496

I. Buj, J. Torras, M. Rovira, J. de Pablo
Leaching behaviour of magnesium phosphate cements containing high quantities of heavy metals J. Hazard. Mater. 175 (2010) 789-794

A. Yaroshchuk, X. Martínez-Lladó, L. Llenas, M. Rovira, J. de Pablo, J. Flores, P. Rubio
Mechanisms of transfer of ionic solutes through composite polymer nano-filtration membranes in view of their high sulfate/chloride selectivities
Desalination and Water Treatment 6 (2009) 48–53

E. K. Zholkovskij, A. E. Yaroshchuk, J. H. Masliyah, J. de Pablo Ribas
Broadening of neutral solute band in electroosmotic flow through submicron channel with longitudinal non-uniformity of zeta potential

J. Giménez, X. Martínez-Lladó, M. Rovira, J. de Pablo, I. Casas, R. Sureda, A. Martínez-Esparza
Cesium sorption on studtite (UO2O2 •4H2O)

M. Calderer, O. Gibert, V. Martí, M. Rovira, J. de Pablo, S. Jordana, L. Duro, J. Guimerà, J. Bruno
Denitrification in presence of acetate and glucose for bioremediation of nitrate-contaminated groundwater
Environmental Technology 31 (2010) 799-814

J. Giménez, J. de Pablo, M. Martinez, M. Rovira, C. Valderrama
Reactive transport of arsenic(III) and arsenic(V) on natural hematite: Experimental and modeling
O. Gibert, J. de Pablo, J.L. Cortina, C. Ayora
In situ removal of arsenic from groundwater by using permeable reactive barriers of organic matter/limestone/zero-valent iron mixtures.
Environmental Geochemistry and Health 32 (2010)373-378. DOI: 10.1007/s10653-010-9290-1

R. Sureda, X. Martínez-Lladó, M. Rovira, J. de Pablo, I. Casas, J. Giménez
Sorption of strontium on uranyl peroxide: Implications for a high-level nuclear waste repository

M. Calderer, I. Jubany, R. Pérez, J. de Pablo, V. Martí
Modelling Enhanced Groundwater Denitrification in Batch Microcosms Tests
Chemical Engineering Journal 165 (2010) 2-9

J. Oliva, J. de Pablo, J.L. Cortina, J. Cama, C. Ayora
The use of Apatite II (TM) to remove divalent metal ions zinc(II), lead(II), manganese(II) and iron(II) from water in passive treatment systems: Column experiments

X. Martínez-Lladó, C. Valderrama, M. Rovira, V. Martí, J. Giménez, J. de Pablo
Sorption and mobility of Sb(V) in calcareous soils of Catalonia (NE Spain): Batch and column experiments
Geoderma 160 (2011) 468-476

C. Valderrama, J. Giménez, J. de Pablo, M. Martínez
Transport of Strontium Through a Ca-bentonite (Almería, Spain) and Comparison with MX-80 Na-bentonite: Experimental and Modelling
Water Air Soil Pollution 218 (2011) 471-478

J. Torras, I. Buj, M. Rovira, J. de Pablo
Semi-dynamic leaching tests of nickel containing wastes stabilized/solidified with magnesium potassium phosphate cements

A. Yaroshchuk, X. Martínez-Lladó, L. Llenas, M. Rovira, J. de Pablo
Solution-diffusion-film model for the description of pressure-driven trans-membrane transfer of electrolyte mixtures: One dominant salt and trace ions
Journal of Membrane Science 368 (2011) 192-201

R. Sureda, I. Casas, J. Giménez, J. de Pablo, J. Quiñones, J. Zhang, R.C. Ewing
The effects of ionizing radiation and temperature on uranyl silicates: soddyite (UO2)2(SiO4)(H2O)2 and uranophane Ca(UO2)2(SiO3OH)2•5H2O

O. Gibert, T. Rötting, J.L. Cortina, J. de Pablo, C. Ayora, J. Carrera, J. Bolzicco
In-situ remediation of acid mine drainage using a permeable reactive barrier in Aznalcóllar (SwSpain)

S. Meca, A. Martínez-Torrents, V. Martí, J. Giménez, I. Casas, J. de Pablo
Determination of the equilibrium formation constants of two U(VI)–peroxide complexes at alkaline pH
Dalton Trans. 40 (2011) 7976-7982

S. Meca, J. Giménez, I. Casas, V. Martí, J. de Pablo
Uranium speciation in river sediments contaminated by phosphate ores
Llenas L, Martínez-Lladó X, Yaroshchuk A, Rovira M, J. de Pablo
Nanofiltration as pretreatment for scale prevention in seawater reverse osmosis desalination.
Desalination and Water Treatment 2011;36:310-318.

J. Torras, I. Buj, J. de Pablo, M. Rovira
Chromium recovery from exhausted baths generated in plating processes and its reuse in the tanning industry.

D. Serrano-Purroy, F. Clarens, E. González-Robles, J.P. Glatz, D.H. Wegen, J. de Pablo, I. Casas, J. Giménez, A. Martínez-Esparza
Instant release fraction and matrix release of high burn-up UO2 spent nuclear fuel: Effect of high burn-up structure and leaching solution composition

J. Oliva, J. Cama, J.L. Cortina, C. Ayora, J. de Pablo
Biogenic hydroxyapatite (Apatite II™) dissolution kinetics and metal removal from acid mine drainage

J. Giménez, I. Casas, R. Sureda, J. de Pablo
Kinetics of hydrogen peroxide consumption in aqueous phase at different hydrogen partial pressures
Radiochim. Acta 100 (2012) 1-4
Academic Career

Agustí Pérez Foguet obtained the PhD from UPC with honours with a thesis in the field of nonlinear computational solid mechanics. His doctoral studies included a half-year stay at UC Berkeley. In 2002, he was recognized with the award "Premio Juan Carlos Simó para Jóvenes Investigadores" given by the Spanish Society for Numerical Methods in Engineering (SEMNI).

After some years actively involved in the development cooperation sector, in 2006, he was awarded with the "Premio a la Calidad en la Docencia Universitaria" by the UPC Board of trustees for his continuous work in promoting sustainable human development in engineering studies. The Catalan government with the award "Menció Jaume Vicens Vives" also recognized his work. From year 2006 to present, he has focused his academic activities in applied math on environmental engineering and sustainable development by two research lines; Management of water resources and Water, Sanitation and Hygiene services in developing contexts, and Numerical modelling and simulation of environmental flows and air quality forecasting at local scale.

He is responsible for postgraduate courses on Technology and Engineering for Sustainable Human Development and teaches Environmental Modelling; he is director of the MSc in Sustainable Development, and member of the PhD academic boards for Environmental Engineering and Sustainability programs. During years 2010 and 2011, he has been actively involved in the consolidation of the UPC Research Institute for Sustainability Science and Technology IS.UPC, in which now has the role of deputy director.

Work Experience

- Dates (from – to) April 2010 to September 2012
  - Position held Vice-rector for Sustainability and Social Responsibility (Universitat Politècnica de Catalunya)
  - Name of employer

- Dates (from – to) April 2010 – December 2011
  - Position held Director of the UPC University Research Institute for Sustainability Science and Technology IS.UPC (Universitat Politècnica de Catalunya)
  - Name of employer

- Dates (from – to) October 2007 – March 2010
  - Position held Assistant to the Vice-rector of Academic Affairs (Universitat Politècnica de Catalunya)
  - Name of employer

- Dates (from – to) January 2007 – August 2010
  - Position held Academic director Cooperation for Development Centre (Universitat Politècnica de Catalunya)
  - Name of employer

- Dates (from – to) February 2006 to date
  - Position held Co-funder and member of the Research Group on Cooperation and Human Development GRECDH.UPC (Universitat Politècnica de Catalunya)
  - Name of employer

- Dates (from – to) March 2003 – March 2007
  - Position held Vice-dean of Civil engineering studies, Civil Engineering School (Universitat Politècnica de Catalunya)
  - Name of employer

- Dates (from – to) July 2002 to date
  - Position held Associate Professor at the Applied Math III Dept. (Universitat Politècnica de Catalunya)
  - Name of employer

- Dates (from – to) October 2001 – February 2004
  - Position held President (Spanish federation of Engineering without Borders)
  - Name of employer
<table>
<thead>
<tr>
<th>Dates (from – to) / Country</th>
<th>Main activities and responsibilities</th>
</tr>
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<tbody>
<tr>
<td><strong>July 1999 – December 1999</strong> / <strong>Spain</strong></td>
<td>Visiting scholar (University of California at Berkeley)</td>
</tr>
<tr>
<td><strong>September 1996 to date</strong> / <strong>Spain</strong></td>
<td>Member of the Research Group Laboratory of Computational Methods and Numerical Analysis – LaCàN (Universitat Politècnica de Catalunya)</td>
</tr>
<tr>
<td><strong>September 1996 – July 2002</strong> / <strong>Spain</strong></td>
<td>Lecturer at the Applied Math III Dept. (Universitat Politècnica de Catalunya)</td>
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**RESEARCH PROJECTS (SELECTED)**

<table>
<thead>
<tr>
<th>Dates (from – to) / Country</th>
<th>Partners / Donor</th>
<th>Main activities and responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>February 2013 – February 2015</strong> / <strong>Spain, UK, Italy</strong></td>
<td>UPC (coordinator), Universidad Politécnica de Madrid, Universidad Politécnica de Valencia, Università degli Studi di Trento, Loughborough University, ONGAWA, Training Centre for International Cooperation, Practical Action, and Engineers without Borders / UE EuropeAid - 2011 call for Non State Actors (ref DCI-NSAED/2012/280/929)</td>
<td>Development education, principal researcher</td>
</tr>
<tr>
<td><strong>December 2012 – December 2015</strong> / <strong>Mozambique</strong></td>
<td>ARA-Norte (Mozambique), Amphas 21 (Spain), Augas de Galicia (Spain), Universidad da Coruña (Spain) / UE EuropeAid – 10th European Development Fund</td>
<td>Capacity development for Integrated Water Resources Management, principal researcher (UPC team)</td>
</tr>
<tr>
<td><strong>July 2012 – December 2012 / Palestine</strong></td>
<td>GVC-Italia</td>
<td>Support information system for monitoring water, sanitation and hygiene programs in Palestine, research director</td>
</tr>
<tr>
<td><strong>January 2012 – December 2014 / Spain</strong></td>
<td>ULPCG, U Salamanca / Spanish minister of Science (CGL2011-06003-C03-02)</td>
<td>Predictive numerical models for environmental management / researcher</td>
</tr>
<tr>
<td><strong>December 2011 – March 2013 / Nicaragua</strong></td>
<td>UNAN de Managua (Nicaragua), Colegio Postgrados de Méjico COLPOS, CATIE (Costa Rica), UCM, UPM / AECID Spanish Goverment – PCI</td>
<td>Collective action and local governance for Integrated Water Resources Management, principal researcher (Spanish team)</td>
</tr>
<tr>
<td><strong>November 2011 – June 2013 / Mozambique</strong></td>
<td>UN Habitat / AECID Spanish Government – CAP (ref 11-CAP2-1562)</td>
<td>Water, sanitation and hygiene data collection, analysis and planning tools to support local decision-making in public services and infrastructures, principal researcher</td>
</tr>
<tr>
<td>Dates (from – to) / Country</td>
<td>Name of employer</td>
<td>Main activities and responsibilities</td>
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<tr>
<td>January 2010 – February 2014 / Nicaragua</td>
<td>ONGAWA</td>
<td>Technical assistance for monitoring rural development programs and introducing Human right to water perspective in rural water and sanitation governance, principal researcher</td>
</tr>
<tr>
<td>July 2008 – March 2013 / Bolivia</td>
<td>Centro AGUA (Universidad Mayor de San Simón) / AECID Spanish Goverment</td>
<td>Capacity development, institutional support and local action – research for Integrated Water Resources Management / principal researcher (Spanish team)</td>
</tr>
<tr>
<td>March 2008 – December 2008 / Kenya</td>
<td>Universidad Politécnica de Madrid – Universidad Complutense de Madrid</td>
<td>Assessment of water resources management context of Turkana District, principal researcher (UPC Team)</td>
</tr>
</tbody>
</table>

PUBLICATIONS (SELECTED)

**Peer-review Journals**


Giné, R., Pérez-Foguet, A., "Sample size determination for local household-based surveys in water, sanitation and hygiene sector", *Ecological Indicators*, under revision.


Yacoub, C., Pérez-Foguet, A., Miralles, N., "Spatial and temporal trace metal distribution of a Peruvian basin: recognizing trace metal sources and assessing the potential risk", *Environmental Monitoring and Assessment*, accepted.


Monforte, L., Pérez-Foguet, A., “Esquema adaptativo para problemas tridimensionales...”


http://www.scopus.com/authid/detail.url?authorId=6603267822
Jordi Segalàs (1967) works as associate professor at the Research Institute of Sustainability Science and Technology in the Universitat Politècnica de Catalunya UPC-Barcelona Tech. He is the head of the Research Group on Sustainability Education and Technology in Higher Education. He has been the Director of the Catalan Network of Education for Sustainability.

He obtained his PhD in Sustainability Education in Engineering from Barcelona Tech University. He has been working in curriculum greening policies and actions plans at the Barcelona Tech University since 2000. He is also working in TEMPUS (trans-European cooperation scheme for higher education) projects related to sustainable development in higher education. He has published more than 60 articles on higher education and sustainability.

**ACADEMIC CAREER**

**WORK EXPERIENCE**

- Dates (from – to): September 2010 to date
  - Position held: Member of the academic board of the UPC University Master in Sustainability
    (Universitat Politècnica de catalunya)

- Dates (from – to): September 2010 to date
  - Position held: Associate professor at the Research Institute of Sustainability Science and Technology
    IS.UPC (Universitat Politècnica de Catalunya)

- Dates (from – to): From 2009 to date
  - Position held: Head of the Research Group on Sustainability Education and Technology within the Group Sustainability, Technology and Humanism STH-GR7 (Universitat Politècnica de Catalunya)

- Dates (from – to): From 2006 to 2011
  - Position held: Director of the Catalan Research Network of Education for Sustainability (Generalitat de Catalunya)

- Dates (from – to): From 1991 to 2010
  - Position held: Lecturer at the de Fluid Mechanics Dpt. (Universitat Politècnica de Catalunya)

- Dates (from – to): From July 2006 to July 2012
  - Position held: Vice-Dean for International relations and Sustainability at the School of Engineering of Vilanova i la Geltrú EPSEVG (Universitat Politècnica de Catalunya)

**RESEARCH PROJECTS (SELECTED)**

- Title: TEMPUS – 530530-TEMPUS-1-2012-1-SE-TEMPUS-JPHES: Training courses for public services in sustainable infrastructure development in Western Balkans.
  - Dates (from – to): 2012 – 2014
  - Country: Country

- Title: TEMPUS – Joint European Project JEP-517346: Establishing Modern Master-level Studies in Industrial Ecology
  - Country: Country

- Title: TEMPUS – Joint European Project JEP-510952: Creation of the third cycle studies – Doctoral Programme in Renewable Energy and Environmental Technology
  - Dates (from – to): 2010-2013
  - Country: Country

- Title: Erasmus Mundus Action III: SDPromo I Promoting European Education in Sustainable Development (Regions: China, Former Soviet Union Countries, South America)
  - Dates (from – to): 2006-2008
  - Country: Country
### Books and Monographics


http://tecnologiaisostenibilitat.cus.upc.edu


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### International Scientific Publications


ACADEMIC CAREER

**Enrique Velo** graduated on Chemical Engineering at UPC in 1986. He obtained his PhD with honours with a thesis in the field of antiknock additive for unleaded gasoline in 1992 at the UPC Department of Chemical Engineering. His doctoral studies included two summer internships at UC Davis (CA, USA).

Since 1993, his research is focused on the utilization of biomass and waste as energy resource, specifically through gasification and pyrolysis processes within CEPIMA (Center for Process Engineering and Environment, UPC). Since 2006, his research activity also includes the implementation of renewable energy projects in rural areas of developing countries within the GRECDH (Research group on Cooperation and Human Development).

He is author or co-author of 4 books, 30 book chapters, 50 articles in journals (30 in indexed journals), over 100 congress communications and numerous research reports. He has participated in 18 research projects funded by open calls (7 EU) (5 national projects as project director). He has participated in 18 contracts with administrations and companies (2 as principal researcher). He has co-directed six PhD theses.

He is responsible for postgraduate courses on renewable energy applied to human development projects. He has been the programme director for the MSc in Renewable Energy (an EIT labelled KIC Innoenergy Programme) and the MSc in Technology for Human Development and Cooperation (a UPC official degree) since 2012. He is the UPC programme coordinator for the MSc Environomical Pathways for Sustainable Energy Systems – SELECT (an Erasmus Mundus – KIC Innoenergy programme). Additionally, he is member of the academic boards of the MSc in Sustainable Development (UPC), the PhD programme in Sustainable Development (UPC), and the PhD programme in Thermal Engineering (UPC).

He is co-founder of the UPC Research Institute for Sustainability Science and Technology IS.UPC, acting as the Institute’s Secretary from its creation to present day.

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**WORK EXPERIENCE**

- **Dates (from – to)** September 2009 to date
  - **Position held (Name of employer)** Secretary of UPC University Research Institute in Sustainability Science and Technology (IS.UPC)

- **Dates (from – to)** February 2006 to date
  - **Position held (Name of employer)** Co-founder and member of the Research Group on Cooperation and Human Development GRECDH.UPC (Universitat Politècnica de Catalunya)

- **Dates (from – to)** December 1998 to date
  - **Position held (Name of employer)** Associate Professor at the Department of Heat Engines (Universitat Politècnica de Catalunya)

- **Dates (from – to)** December 2002-June 2009
  - **Position held (Name of employer)** Secretary of the Department of Heat Engines (Universitat Politècnica de Catalunya)

- **Dates (from – to)** May 1991- December 1998
  - **Position held (Name of employer)** Lecturer at the Heat Engines Dept. (Universitat Politècnica de Catalunya)
<table>
<thead>
<tr>
<th>Title</th>
<th>Dates (from – to) / Country</th>
<th>Name of employer</th>
<th>Role and Main activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy access for the poor in sub-Saharan Africa to meet the millennium development goals (Energy for All 2030)</td>
<td>January 2010 – January 2013</td>
<td>EuropeAid (ref code DCI-NSA ED/2009/201-885)</td>
<td>Principal Researcher (UPC Team)</td>
</tr>
<tr>
<td>Power generation with modular gasifiers</td>
<td>October 2008 – October 2011</td>
<td>ACC1Ó (CIDEM COPCA) Catalan Government (Project ref VALTEC08-2-0020)</td>
<td>Principal Researcher</td>
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<tr>
<td>Expanding horizons production from the paradox of integration (EHMAN)</td>
<td>January 2010 – December 2012</td>
<td>Spanish Ministry of Science and Technology (Project ref DPI2009-09386)</td>
<td>Researcher</td>
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<tr>
<td>Research on the characterization of biomass resources and energy consumption in the Amazon jungle areas of Peru</td>
<td>January 2011 – January 2012 / Peru</td>
<td>AECID Spanish Government PCII programme. C-032223-10</td>
<td>Principal Researcher</td>
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<tr>
<td>Promoting agricultural development in areas not connected to the grid using bio energy technologies and other renewable energy sources</td>
<td>January 2011 – January 2012 / Mozambique</td>
<td>AECID Spanish Government PCII programme. C-032141-10</td>
<td>Principal Researcher</td>
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