



Welcome to the sixth and therefore last JELARE newsletter

This is our last edition and it will guide you through the project results achieved by all JELARE partners over the last three years. This newsletter also contains an invitation to the final international seminar, which will take place in Hamburg on 29 September.

Introducing the objectives of the JELARE project

The Joint European-Latin American Universities Renewable Energies Project was launched in November 2008 and will come to an end in November this year. The project was a cooperation scheme involving universities from Germany, Latvia, Bolivia, Brazil, Chile and Guatemala with the aim of fostering innovative labour market-oriented educational and research approaches in the field of renewable energy at Latin American and European higher-education institutes (HEIs).

The project was funded by ALFA III, an EU programme for co-operation between the European Union and Latin America, in the framework of higher education and training.

Four specific objectives were set for the project:

- to develop and implement labour market-oriented research and educational approaches in the field of renewable energy;
- to increase the capacity of university staff to modernise their educational and research programmes and activities;
- to strengthen the link between universities and the labour market, business and the public sector in the field of renewable energy;
- to establish a long-term partnership and network between European and Latin American universities.

This newsletter presents an overview of the results.

Fostering Innovative Labour Market-Oriented Educational and Research Approaches in the Field of Renewable Energy at Latin American and European Institutes of Higher Education: Outcome of the Project JELARE.

JELARE survey results

As part of the JELARE project, a set of three surveys has been carried out in Bolivia, Brazil, Chile and Guatemala as well as in Germany and Latvia. The objectives of these surveys were to identify the needs of the labour market regarding education and research in the renewable energy sector, to identify the training needs of university staff in the renewable energy sector and to benchmark renewable energy activities among HEIs.

It was seen – despite different levels of development in the renewable energy sector in the six JELARE countries – that there are a number of similar problems and perceived needs in the labour market. Enterprises working in the renewable energy sector have difficulties recruiting appropriately qualified staff. Enterprises see universities primarily as providers of education and training rather than as research and development partners. The majority of enterprises believe that universities are behind the market needs.

The surveys conducted among higher education institutions also revealed some results that are common to all countries:

The staff of the universities involved is conscious of the discrepancy between market reality and academia. This awareness comes with actual proposals to reduce the existing gap through substantial investments in human resources and in teaching and research infra-structure in the renew-

able energy field. Furthermore, a need for better integration with industry in different fields and activities related to renewable energy has been identified, for example in applied research sponsored by industry, courses and seminars, as well as offers of internships for university students. The study also revealed that university staff believes that there should be governmental financial support for research in renewable energy, together with a constant monitoring of the professional trends and market needs.



The comprehensive report on the findings of the JELARE labour market survey is now available in form of a book entitled „Renewable energy market needs: a perspective from Europe and Latin America“, edited by the JELARE partners José Baltazar Salgueirinho Osório de Andrade Guerra and Youssef from UNISUL (<http://www.jelare-project.eu/Downloads/JELARE-Renewable-Energies-Market-Needs-Book.pdf>)

Strategic plan for fostering renewable energy topics

On the basis of the survey results, all partners have developed concepts or a strategic plan for the inclusion of renewable energy topics in teaching and research/technology transfer. Each partner has prepared a document that comprises both teaching and research aspects.

Bolivia

At the Bolivian Catholic University (UCB), concept development started in September 2009 with a workshop at which the results of the JELARE survey were presented to authorities and professors from the UCB as well as to key actors from the RE sector. During the workshop, these stakeholders discussed different topics departing from the survey results, which served as a basis for the formulation of a strategy for the introduction of RE in the UCB. The strategy has been continuously reviewed and modified in line with



the advances that have been made in these activities. The UCB authorities, as well as professors from the Faculties of Engineering and Economics, have been involved in the development of the concept and have approved it. Likewise, they are contributing to the implementation of the strategy in the university encompassing renewable energy and climate change.

Brazil

The strategy of UNISUL has been developed on the basis of the existing UNISUL mission. The main focus is on disseminating studies and research linked to the fields of renewable energies field and climate change, in particular regarding Mercosur; qualifying the research and teaching in the areas of renewable energies in UNISUL and creating and maintaining a research network between UNISUL and other universities in the RE area.



Chile

The Chile team has focused its strategic-concept efforts on two main education/research elements. The first involves the creation of a Minor in Renewable Energy, considering that there was a rigid curriculum beforehand which made it easy for the engineer profile to disregard market needs, and it was also difficult to provide multidisciplinary profiles. The second involves the creation of the Energy Centre, which focuses on the development of technology at local and regional level.



Germany

The German partner, HAW Hamburg, already has a general university-wide strategy for renewable energy and energy efficiency, which comes to the fore in the CC4E – Competence Centre for renewable energy and energy efficiency. The JELARE project thus focused on developing a specific strategy for the Research and Transfer Centre “Application of Life Sciences” regard-

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Pilot modules

E-learning: sustainability, environment and renewable energy - a transnational training pilot module

A pilot module has been implemented by 4 JELARE project partners in Bolivia, Brazil, Guatemala and Latvia. Research was carried out by them in their own countries, where a scarcity of multidisciplinary programmes was detected at postgraduate level. The common characteristic was the need to modernize the curriculum by introducing a more diverse perspective. The student profile at the end should aim to provide skills to the private, public, non-governmental and academic sectors. The syllabus consists of 13 courses resulting from an analysis of the competencies needed, based on three modules: Sustainability, Environment and Renewable Energy (with courses such as Sociology of Development and Global Challenges, Environment and Sustainable Development, Energy Matrix Planning, Energy Economics, Policies and Regulations on Energy and Environment and other courses devoted primarily to renewable energy and its management). The postgraduate programme is to be implemented over 4 terms. On-line teaching methods have been introduced focussing on self-study, co-operation and tutorial guidelines. The module is now open for activities.

ing international technology transfer in the renewable-energy sector. FTZ-ALS wishes thereby to enhance the diffusion of renewable energy to support sustainable development on a local and global scale. The strategic objectives include increasing networking with international actors in science, R&D and KTT, enhancing science marketing, communication and visibility, organizing events and workshops, stimulating large-scale international applied-research projects, and developing internal competences, skills and capabilities for international technology transfer.

Guatemala

At Galileo University, the Guatemalan JELARE partner, a strategic plan for the period 2010 to 2012 based on survey results gathered in WP1 in 2009 was drawn up (2009-10) and printed in 2010. The strategic plan consists of a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis and three strategic areas that have been defined. In addition, for each strategic objective, logical frameworks have been devised, evaluation indicators formulated and a tentative budget assigned to the overall plan.



Latvia

Rēzekne University aims to become the renewable-energy education specialist in the Latgale region of Latvia. In this context, its mission has been defined as follows: to develop modern methodological and educational principles implemented in study programmes and experimental infrastructure equipment for providing effective renewable energy studies in RU aimed at guaranteeing a national economy with highly qualified specialists for the renewable-energy industry and science. The strategic targets not only include the development of professional bachelor's studies and a master's programme in renewable energies but also the establishment of broad contacts within the industry and the implementation of capacity-building programmes for professionals in enterprises and other universities, aimed at improving the theoretical knowledge and practical skills of graduates in the RE field in Latvia.

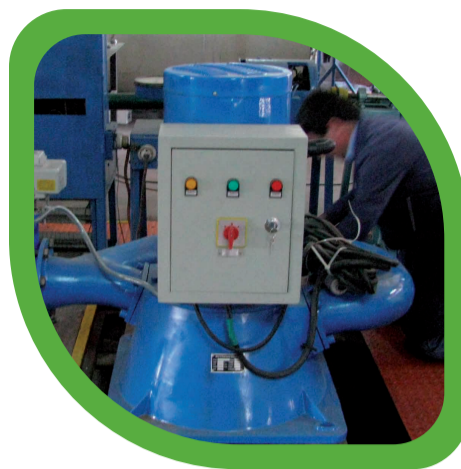


Small stand-alone RE systems - a transnational technology transfer pilot module

Many rural communities in developing countries face problems related to infrastructure and the availability of public services such as power supply, water, heat and communications. In the case of power supply, there are communities which are still not connected to the power network, so that their power comes from small diesel generators or alternatives such as lighting candles, batteries, or other fuels. The arrival of new technology developments related to renewable energy is making it feasible to regard these new technologies (wind, microhydro, solar PV, and others) as a solution for these isolated communities in terms of energy supply. It is also important to note that there is a high potential for renewable energy sources; in the case of Latin American countries, this potential may come from hydro, solar and wind energy. Pilot module 2 is dedicated to the development of stand-alone solutions based on renewable energies for rural electrification, providing training and advice to other partners who do not have the necessary knowledge and background. The JELARE partners in Bolivia, Brazil, Chile and Germany participated in this pilot module and collaborated in developing practical renewable energy systems that are now used for education, research and technology transfer.

Micro hydro systems in Chile

At Universidad de Chile, a plug and play micro hydro unit of 10 KW has been developed on the basis of the experience gained in the development of micro hydro units and the support



provided by the JELARE project. The development of the unit is based on improvements to a standard micro hydro turbine. Improvements include expanding its functions and converting it into a smart unit at a competitive price, simple installation and compatibility with distributed power.

Solar home demonstration system in Germany

In Germany, a solar home demonstration system developed by a small group of students under the guidance of Prof. Kampschulte, has been produced and can now be deployed locally as illustrated by an exercise performed during our university courses and lab exercises in renewable energy at the HAW Hamburg. As the name suggests, the system generates solar energy and stores it in a small battery. Different electrical equipment, such as a small fridge, TV, light bulbs and a laptop, are connected to the battery to simulate a household. The students have not only learned about technical matters but have also improved their soft skills, such as working in a team, meeting deadlines and taking responsibility.



The system will now be used regularly for teaching and undergraduate research projects to acquaint them with the need for engineering solutions in developing countries.

Renewable energy technology demonstration centre at UNISUL

UNISUL has established a demonstration centre on its campus which showcases various renewable energy technologies. The systems will be used in a real-life laboratory for research and teaching in the UNISUL engineering department.

Renewable energy technology demonstration centre in Bolivia

A Renewable Energy Technologies Development Centre has been established in Bolivia. It is based at the Rural Academic Unit in Batallas and aims to educate students at this rural university, which will host a new course of study on renewable energy solutions; it also serves as a centre for providing capacity-building seminars for municipal technicians, rural teachers and other stakeholders from remote areas. Finally, it will be used to introduce people from the surrounding rural communities to these technologies, which can bring electricity, warm water and (bio)gas for cooking into their homes.

Capacity-building seminars

Over the three years, the JELARE project held many capacity-building seminars aimed at raising the capacity of HEI staff (administrative, teaching and research) to develop and deliver high-quality teaching as well as research and technology transfer, both generally and in the particular field of renewable energy. More than 20 seminars with more than 400 participants have been organized in all six partner

countries, of which the following were some of the highlights:

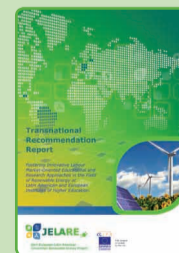
Bolivia: International capacity-building seminar on fundraising

The first international capacity-building seminar was organised at the Bolivian Catholic University on the subject of "Fundraising and Research Management in Renewable Energies". The participants were members of the

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Recommendation Report: a legacy of JELARE!

The final output of the JELARE partnership is a recommendation for improving the quality of education and research activities offered by partners and for strengthening their role in regional socio-economic development. The recommendations are based on the experiences gained by the JELARE partners during the three year project. The report is ad-



dressed to other European and Latin American universities that also plan to increase the attention given to renewable energy in their research and teaching activities. The report contains practical tips as well as a set of good practice examples from the JELARE project. The report is available online at:

www.jelare-project.eu

JELARE partner universities, members of the Fundraising Commission of the Bolivian Catholic University as well as teaching and research staff of the Faculties of Economics and Engineering at the Bolivian Catholic University. The specific objectives of the seminar were to exchange experiences of fundraising and research management at the partner universities and training by experts in fundraising, research management and long-term research strategies in the field of renewable energies. Topics dealt with in the seminar included European and Latin American Funds in the renewable energy sector, success factors for project proposals and the implementation of a long-term research strategy in renewable energies.

Brazil: international JELARE capacity-building seminar on e-learning

The seminar was held in Florianópolis between 6th and 8th July 2010 and was an opportunity within the context of the JELARE project to foster knowledge and technology transfer between UNISUL Brazil and representatives of partners HEIs in Latvia (Rezekne University), Guatemala (Galileo University) and Bolivia (Bolivian Catholic University "San Pablo"). Over three days, the JELARE delegations from these four countries worked together on curricula development and distance-learning



Network

The purpose of the JELARE Network was to promote European and Latin American networking and an exchange of experience in employment, research and education in the field of renewable energy within and also beyond the JELARE project partnership. Other universities may therefore also take part in its activities and benefit from the information and experiences gained from the project.

Network members are EU and Latin American organisations such as enterprises, NGOs, ministries, local authorities, universities and other institutions working in the field of education, research and employment in the renewable energy sector. Network members have received regular updates on JELARE activities, invitations to JELARE events and will be approached for possible cooperation and collaboration within the JELARE project.

The JELARE Network has been divided into one international JELARE Network

technologies and methodologies as applied to the field of renewable energies and sustainable development.

Bolivia: local capacity-building seminar about the modelling programme LEAP

Another capacity-building seminar took place in September 2010, again at the Bolivian Catholic University. The seminar was concerned with the LEAP ("Long-range energy alternatives planning system") Modelling Program, which is a software that allows energy policies, climate change mitigation measures and other energy-related scenarios to be analyzed and evaluated, measuring their scope and impact in the medium and long term. Capacity-building was aimed at the staff of the Institute of Socio-Economic Studies (IISEC), thereby contributing to their research activities in energy economics and energy planning.

Universidad de Chile hosted the International Conference and Fair on Education, Research & Employment in the RE sector

This conference and fair, held in Santiago on 11-12 November 2010, gathered more than 100 participants from Latin America and Europe. It was specifically aimed to cover areas such as funding, initiatives and research projects in renewable energy, as well as work experience and technology transfer in the areas of renewable energy and climate change. It was organised by the Department of Electrical Engineering and the Department of Industrial Engineering at the University of Chile. This conference exposed researchers and renewable energy professionals to the forefront of research in this field. Furthermore, it also allowed researchers to obtain solid feedback while establishing collaborative networks. Last but not least, it allowed professionals to meet local and foreign faculty members, which is very significant when it comes to encountering different approaches.



and six national JELARE Networks in the core partner countries (Germany, Latvia, Bolivia, Brazil, Chile and Guatemala).

During the three years of the project, JELARE had up to 480 members following its activities. After closure of the JELARE project, the project partners will continue to maintain the network and inform their members about other ongoing renewable energy activities.

Interview with Prof. Walter Leal, Hamburg University of Applied Sciences, Coordinator of the JELARE partnership

1. As the JELARE project is coming to a close, what is your overall impression of its achievements?

Answer: We are very pleased with the way the project was undertaken. Over the three years, we have not only been able to meet all the targets we set in respect of the training programmes organised, the number of people trained and the activities organised in our partner countries, but were also fortunate enough to have played a role in the increased recognition of the importance of renewable energy, as a topic, at universities in Europe and in Latin America.



there is a perceived need to support strategic areas such as renewable energy, which are important not only from the point of view of university cooperation, but also because knowledge about them helps to improve quality of life and address poverty. I therefore hope that more support for such strategic themes will be provided in the future.

2. How would you describe the collaboration between the JELARE partners?

Answer: The cooperation has been very positive and rewarding to both sides. The partners have all been very committed and have made their best efforts in delivering the planned outputs on time. The various events we have organized in Bolivia, Brazil, Chile, Guatemala, Latvia and in Germany have attracted many participants other than the project partners, which show that we were spot-on in terms of the topic chosen and the partners with whom we have teamed up. The project team in Hamburg is very grateful to the partners for their commitment and efforts.

In terms of universities, the sort of co-operation we practised within JELARE shows how much universities can achieve by engaging in international collaboration. It is not only about accessing and transferring knowledge, but also about making universities more international, about strengthening their profile and about accessing funds and support they would not otherwise obtain. In summary, it is a win-win situation for everyone.

3. What experiences did you gain from the project that you can also apply in the future?

Answer: Perhaps the main experience we gained is in terms of a better understanding of the complexity of academic systems, and the key role that cross sectoral themes such as renewable energy, can play in linking departments and faculties which would not normally cooperate. The JELARE project is not only about engineering, but also about economics, innovation and knowledge transfer. A further experience is related to the usefulness of small but focused local pilot projects, which allow local capacity to be built in a sustainable way. The JELARE pilot projects were all very concrete, and this lesson will be applied to our future projects.

5. What is the legacy of the JELARE project?

Answer: The project has three main elements which can be regarded as its long-term legacy. The first is that it has, for the first time, undertaken an analysis of the provisions and needs in respect of the inclusion of renewable energy themes in the context of university teaching in the participant countries. This is an important step in allowing these countries to systematically include renewable energy issues in their teaching and research programmes. We hope this process will continue well beyond the completion of the project. The second element of the JELARE legacy is the fact that we produced various teaching and information materials which can directly support teaching on, about and for renewable energy. Finally, the pilot projects, which are concrete and tangible schemes, have established infrastructures which are and will continue to be available for many years to come. Whoever visits the JELARE centres in Brazil or Bolivia on the one hand, but also in Germany on the other, can see the JELARE centres still running the infrastructures set up as part of the project. One thing we shall not forget: JELARE has brought the academic community in Latin America and Europe much closer by means of the various events it has organised, which were attended by hundreds of people in the partner countries.

4. What is your message for other EU and LA universities?

Answer: As far as the EU is concerned, perhaps the main message is that

Acknowledgements

The JELARE partner consortium would first like to thank the EU programme ALFA III for the funding and positive collaboration with their committed programme managers. Moreover, we are grateful for the continuous support that the JELARE team received from their own universities over the last three years, from their presidents and deans, administrative departments as well as professors and research fellows of other faculties.

And, finally, we would like to express our gratitude to all the people from other universities, ministries, NGOs and companies who provided valuable input to the JELARE project as survey respondents, speakers for workshops and seminars, advisors and collaborators of the pilot modules as well as participants in the various JELARE seminars and conferences.



Local impacts



Germany

For the HAW Hamburg, the JELARE project was a timely opportunity to position and expand its already ongoing renewable energy activities on an international level. The Research and Transfer Centre 'Application of Life Sciences', led by Prof. Walter Leal, developed a strategy for promoting international technology transfer activities in the RE sector, which is gradually being implemented by exploiting synergies with other international cooperation projects.

Moreover, collaboration with other HAW university staff working in the field of renewable energy was deepened. In particular, cooperation with in the JELARE pilot module on rural electrification with Prof. Timon Kampshulte has given rise to interesting new opportunities for the inclusion of issues of developing countries in research and education at the HAW.

The fruitful cooperation with the JELARE partners also offered the HAW the opportunity to launch EU-LA cooperation beyond the scope of the JELARE project. The signing of cooperation agreements between HAW and UNISUL, Brazil, and the negotiations between Universidad Católica Boliviana and HAW on student exchanges will be especially beneficial to the students of the universities.

Julia Gottwald, JELARE Project Manager, HAW Hamburg



Bolivia

In spite of the great potential of renewable energy in Bolivia, education and research in this area is quite incipient in the country's universities, including the Bolivian Catholic University, the biggest and most renowned private university in Bolivia. The JELARE project has therefore had a more difficult task than in the other partner universities with much more progress in the field, but even greater is the impact which it has had.

The JELARE project has fostered the introduction of innovative educational and research approaches in several ways. Awareness of the importance of renewable energy has been raised within the university and in the country through numerous networking and dissemination events. Internal capacities have been built through continuous capacity-building seminars and workshops, regarding general skills such as curriculum design and development of e-learning courses as well as specific knowledge in the energy field. The JELARE pilot modules have also contributed to the implementation of new educational concepts regarding the training of engineers, technicians and multidisciplinary experts in the field of renewable energy.

Franziska Buch, JELARE Project Manager, Universidad Católica Boliviana



Brazil

Renewable energies is one of the three most important domains defined as critical for the Unisul's future. In this sense, the JELARE project has allowed the university to improve its capabilities in terms of renewable energies teaching and research throughout an existing collective learning process and knowledge, sharing with the other partners from Germany, Chile, Bolivia, Latvia and Guatemala. This remarkable experience has boosted our knowledge of the subject and added value to our graduate and undergraduate programmes. The JELARE project has also helped to raise awareness in the university of market needs and highlighted the need for more internal capacity-building in order to meet market expectations in both teaching and research domains. It is also important to note that JELARE has raised the level of debate about renewable energies with local and national stakeholders concerning the role each one will play in supplying emerging needs in terms of training professionals, creating adequate regulations and developing new clean and viable technologies. On the other hand, the JELARE project has helped to create an international research network binding researchers from Unisul and the five other universities together, which has made it possible to share knowledge about best practices in terms of teaching and research in the field of renewable energies. This intensive knowledge exchange has paved the way within Unisul to the launch of innovative undergraduate and graduate programmes, such as a new concentration on renewable energies in the School of Engineering.

Prof. Dr. Youssef Ahmad Youssef, JELARE Project Coordinator, Universidade do Sul de Santa Catarina



Latvia

The JELARE project has motivated several important initiatives in Rēzeknes Augstskola. Rēzeknes Augstskola has prepared a "Biomass" module for the international "Renewable Energy" e-learning course in cooperation with Latvia University of Agriculture and Riga Technical University. The "Biomass" course will also be published as a paper both in English and Latvian. In the academic field, a one-year study module in the framework of the existing professional Bachelor's course in "Environmental Engineering" has been prepared and is currently being submitted for accreditation to the Ministry of Education and Science in Latvia. Additionally, with regard to scientific research, the construction of a map of Latgale reed resources and the analysis of the reed database in terms of its physical, chemical, energetic parameters are over 50% complete.

Aleksejs Zorins, JELARE Project Manager, Rēzeknes Augstskola



Chile

For the University of Chile, the JELARE project has opened up new trends in terms of education and professional curriculum in areas related to renewable energy. At the engineering faculty, the project introduced new courses related to electrical and biotechnology applications and is fostering a minor in renewable energies, which can be selected by third and fourth-year students.

Additionally, a successful diploma programme in renewable energies has been in place since 2011. This programme is offered to professionals from the public and private sector interested in renewable energy projects, regulation and the effects of technology on climate change. Overall, the JELARE project has promoted a timely response from the University of Chile to the needs of the local labour market with an interest in renewable energies and their impact on society as a whole.

In the area of technical development, the Chilean JELARE team developed a renewable generation unit for applications in rural electrification. This unit consists of a micro hydro plug-and-play generator with automation, grid connection and simple, standardised installation. Lab tests have shown that this unit is competitive in the small-size generation market.

Prof. Dr. Luis S. Vargas, JELARE Project Coordinator, Universidad de Chile



Guatemala

An examination of the accomplishments of JELARE gives an overview of what has taken root in the daily activities of the Galileo University. A book on the survey results is already part of the bibliography in many courses. The 2010-2012 Strategic Plan based on these findings is addressed to all faculties and departments. The Institute of Energy Resources has incorporated these objectives in its management beyond the project's life. Professors have undergone training with multidisciplinary content for the first time. Finally, grassroots have been established beyond the Galileo University through the so-called Environmental Capacity-building and Research Network, whereby entrepreneurs, public institutions and the university meet monthly to coordinate their efforts. An example of the above is the pilot module. The Institute of Energy Resources will start a postgraduate programme on Sustainability, Environment and Renewable Energy on 20 September 2011. This effort is the culmination of coordination with the Galileo Educational System, which manages the electronic platform from which the programme will be launched. Students are coming to this alternative approach from more traditional face-to-face methodologies. The aim for the next three months is to formulate a term test.

Dr. Nelson Amaro, JELARE Project Manager, Universidad Galileo

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