

Energy Access, Security and Efficiency through the L³EAP Project

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L³EAP



Funded by the European Union



Implemented by the ACP Secretariat



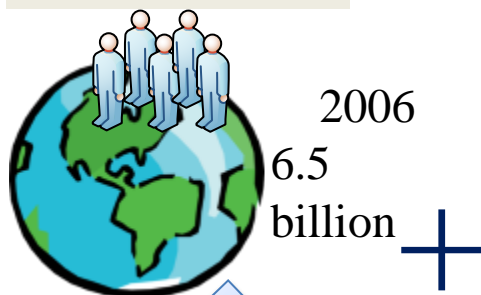
ACP-EU Cooperation Programme in Higher Education (EDULINK).
A programme of the ACP Group of States, with the financial assistance
of the European Union

Overview of Presentation

- Introduction
- What are SIDS?
- Energy Situation in SIDS?
- What is L³EAP?
- Main outputs of the L³EAP Project

Introduction

Population growth



2006
6.5 billion



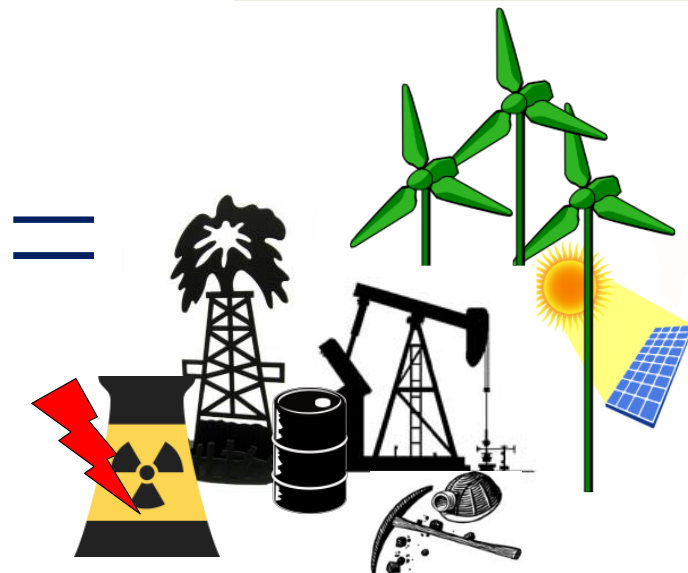
GDP rise



Estimated to
rise by 3.3
% from
2006 – 2030



Increased in energy requirement



Increase by
averagely 1 %
per year



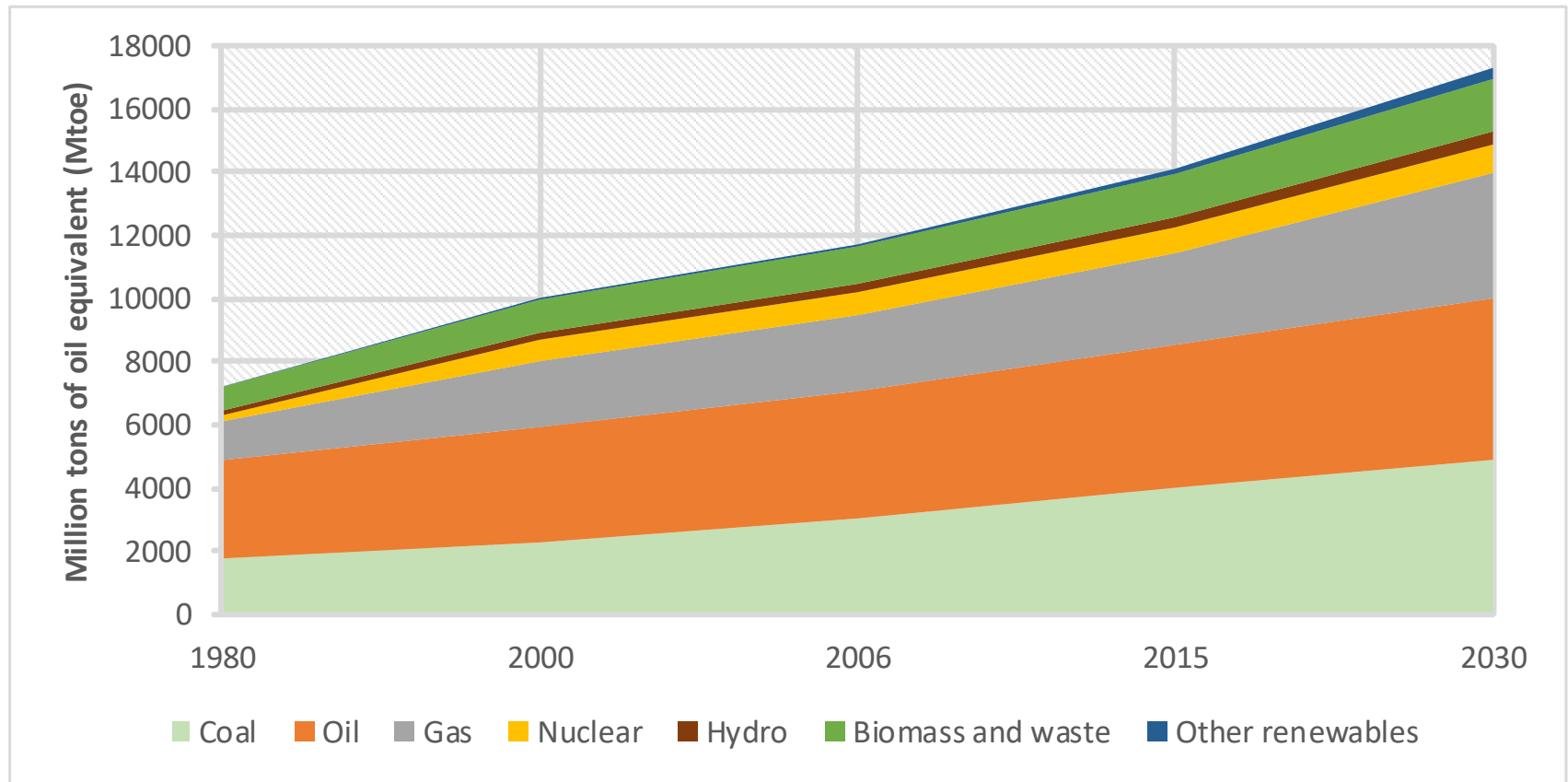
2030
8.2 billion

Source: IEA (2008)



www.Project-L3EAP.eu

World Energy Demand for 2007–2030



Source: IEA
(2009)



www.Project-L3EAP.eu

Small Island Developing States

What are Small Island Developing States (SIDS)?

- Geographically, culturally different
- Similar environmental and economic vulnerabilities and challenges to sustainable development
- Identified in ACP regions

Small Island Developing States

Energy situation in SIDS

- Even though income level is higher than SSA, electrification rate in some SIDS is low
- Highly petroleum intensive (diesel, fuel oil and some coal)
- Little energy efficiency and conservation measures
- Paradoxically, these SIDS have significant indigenous energy potential in the form of renewable energy

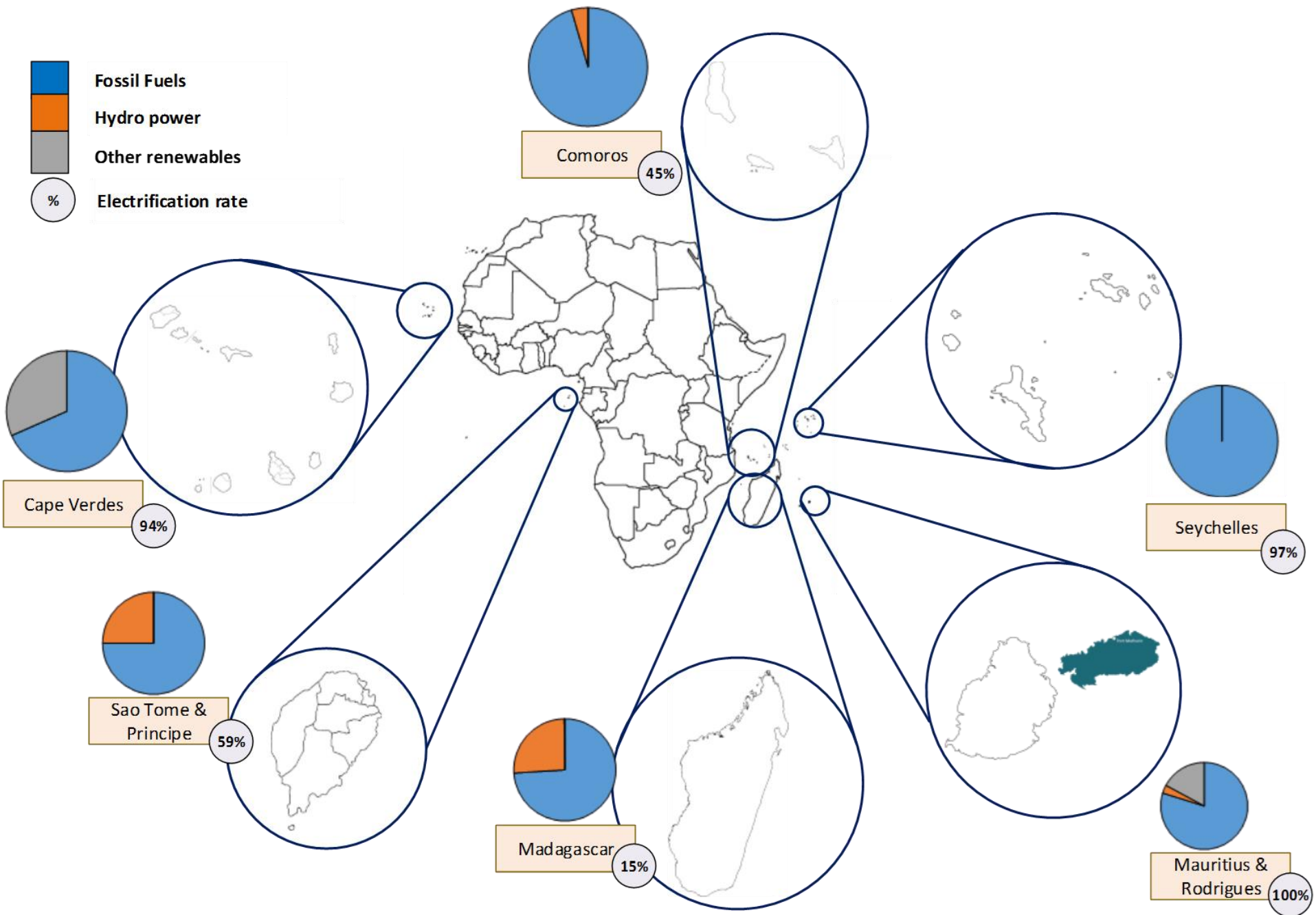


Overview of Energy Situation in SIDS

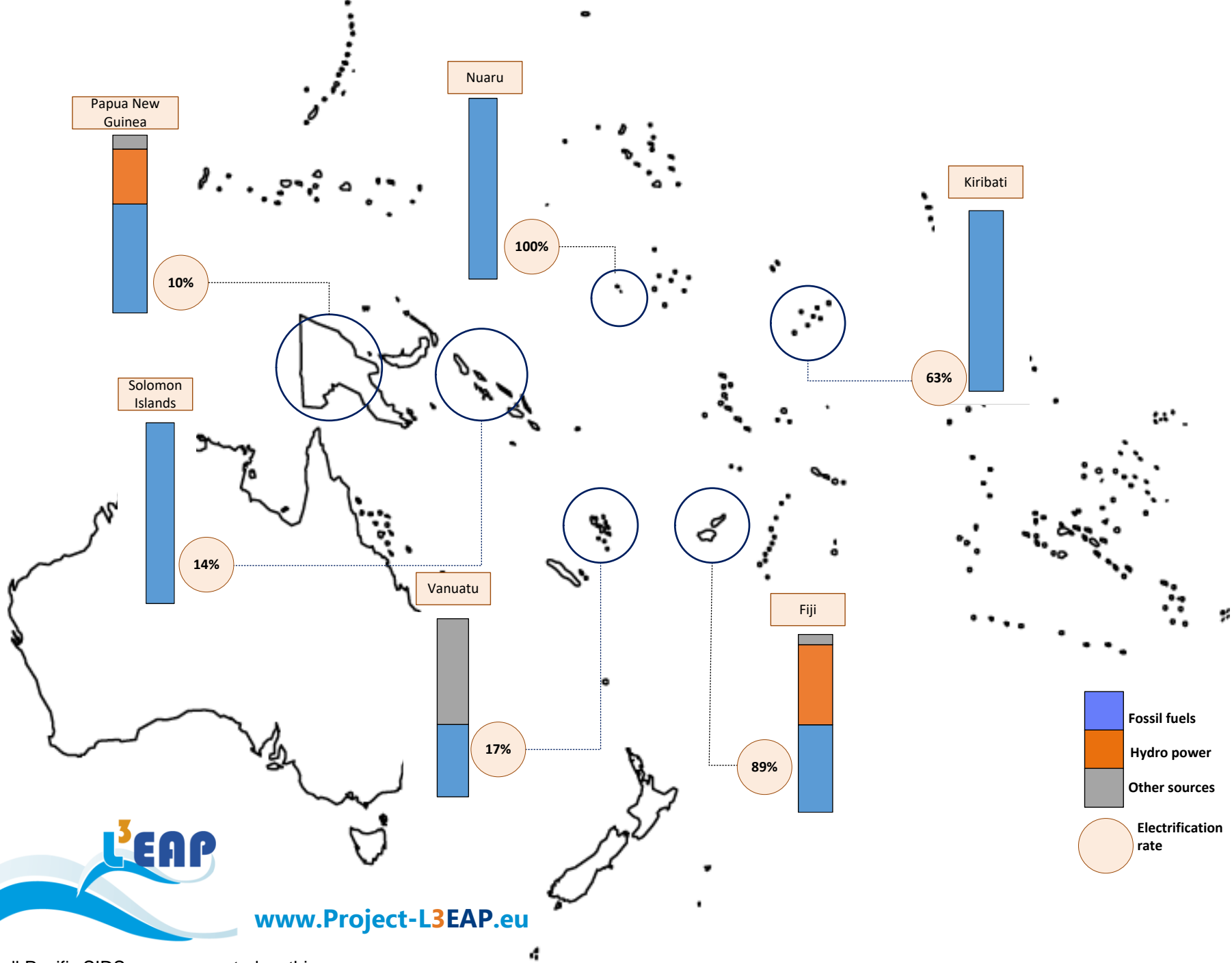


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Energy Mix in African SIDS

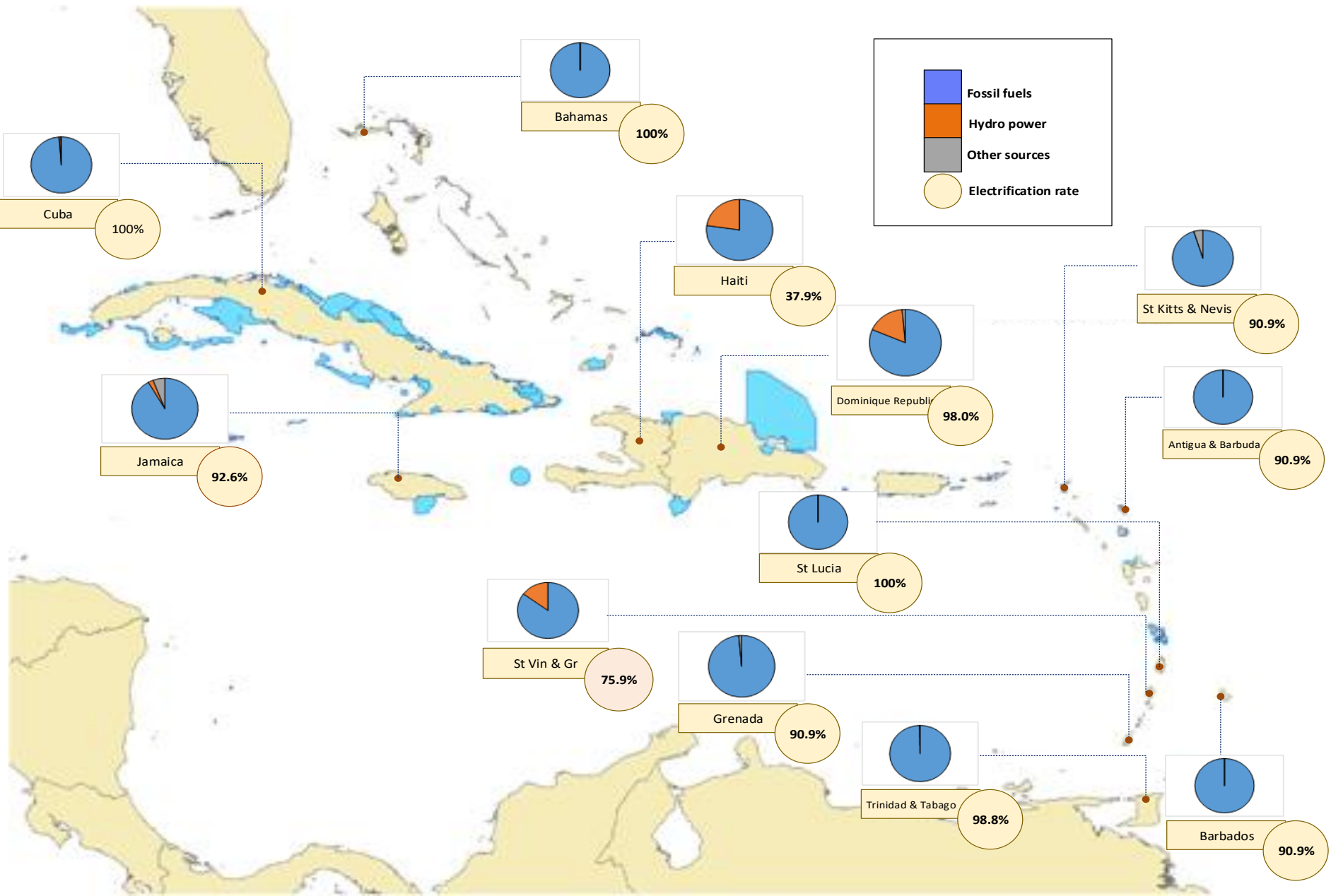


Energy Mix in Pacific SIDS



*Not all Pacific SIDS are represented on this map

Energy Mix in Caribbean SIDS



L³EAP – Lifelong Learning for Energy Access, Security and Efficiency in African and Pacific Small Island Developing States



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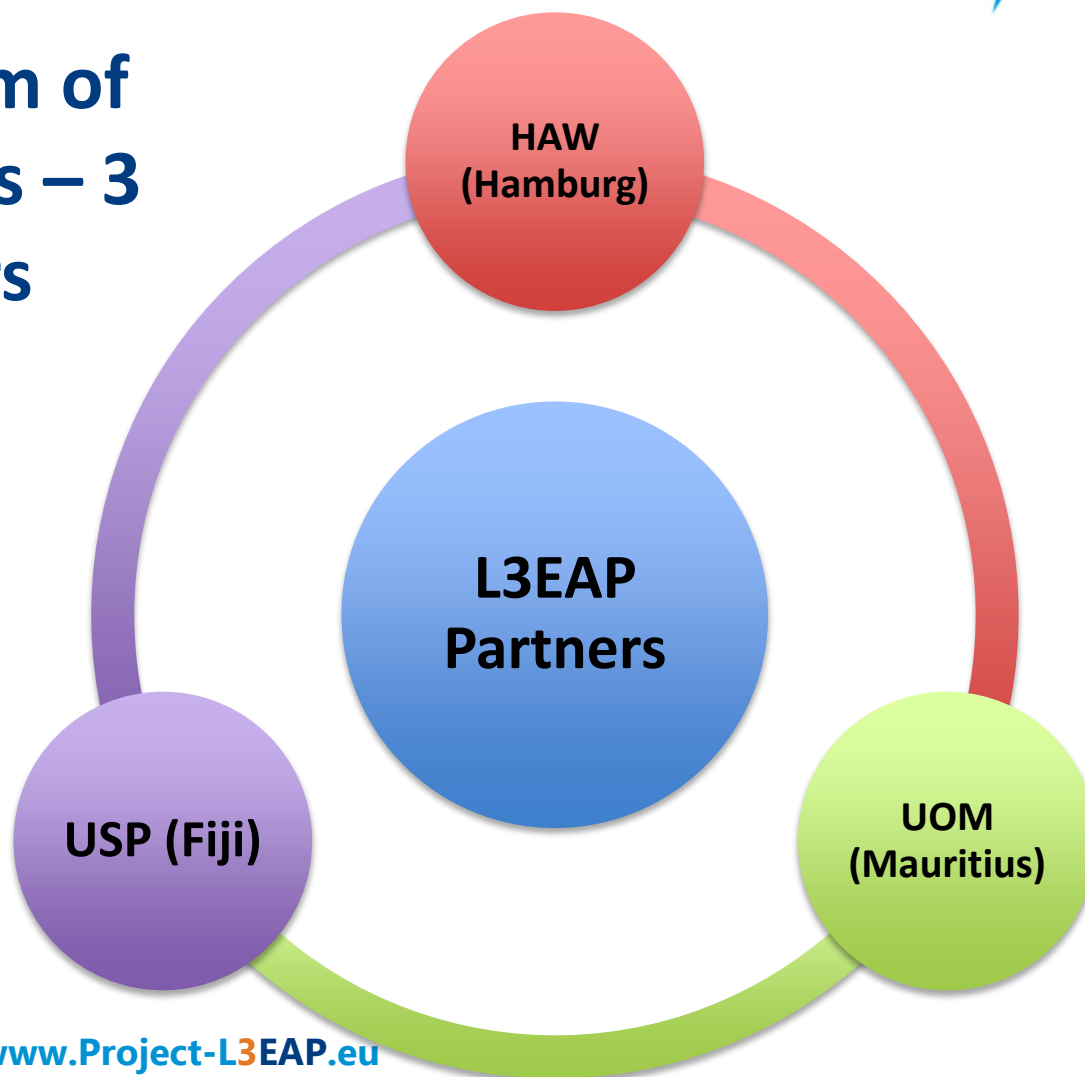
- Funded under ACP-EU Cooperation Programme on Higher Education (EDULINK)
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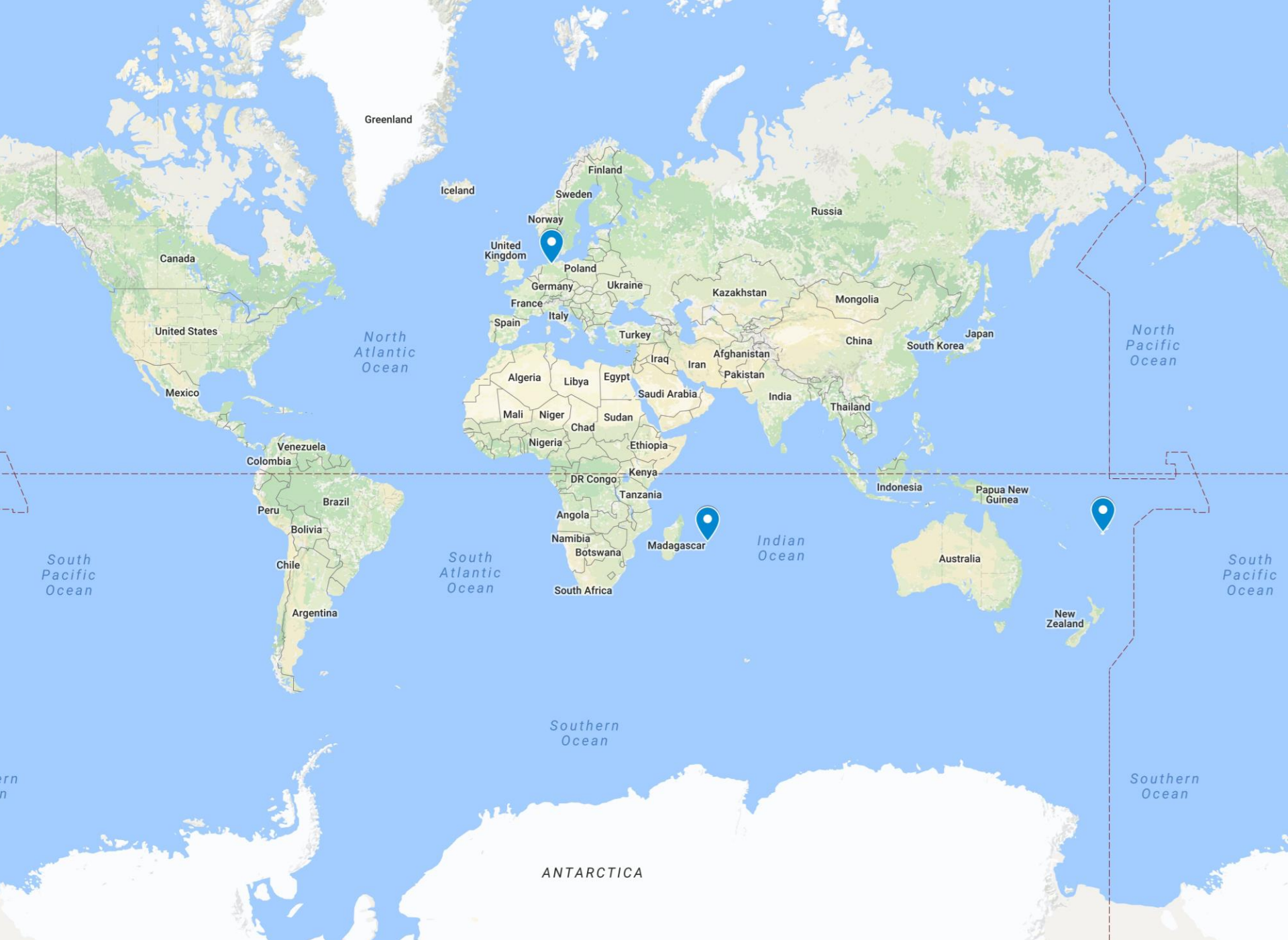
*LifeLong Learning for Energy security, access and efficiency
in African and Pacific Small Island Developing States*



Consortium of universities – 3 partners



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Aims and Objectives

- To develop labour market oriented lifelong learning concepts for the education to meet the challenges of energy supply
- To increase the academic and management capacity of university staff to modernize their educational and research programmes and activities so as to build capacity to foster energy security and enhance energy efficiency
- To establish a long-term partnership and network between European and ACP universities





- **Work Packages**

- WP1: Management & Monitoring of the project
- WP2: Baseline Study - Needs for Life Long Learning in the energy sector
- WP3: Life Long Learning (LLL) Course Development
- WP4: International Pilot Teaching Modules
- WP5: University Staff Capacity Building
- WP6: Dissemination, Networking and Technology Transfer

*LifeLong Learning for Energy security, access and efficiency
in African and Pacific Small Island Developing States*



Main outputs of the L³EAP Project



www.Project-L3EAP.eu

*LifeLong Learning for Energy security, access and efficiency
in African and Pacific Small Island Developing States*



10 locals workshops in all – 3 in Fiji



www.f

10 locals workshops – 4 in Mauritius



10 locals workshops in all – 3 in Germany



Hochschule für Angewandte Wissenschaften Hamburg
Hamburg University of Applied Sciences

„EU Calls – lesen und verstehen“

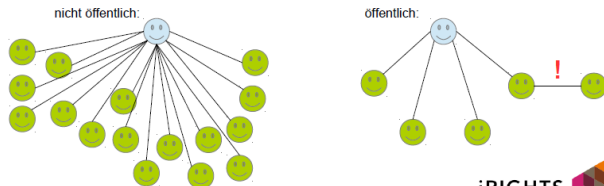
Julia Gottwald & Kathrin Rath

Forschungs- und Transferzentrum „Applications of Life Sciences“ (FTZ-ALS)

Informationsveranstaltung – 27. Mai 2014
HAW Hamburg - Campus Bergedorf – Raum 1.08

Bei Wiedergabe wichtig: Was ist öffentlich?

- Öffentlichkeit (im immaterialgüterrechtlichen Sinne) liegt vor, wenn nicht alle Teilnehmenden der Wiedergabe untereinander oder mit der / dem Vorführenden „persönlich verbunden“ = befreundet, persönlich bekannt oder verwandt sind



10 locals workshops in all

The background of the slide is a collage of four photographs showing workshop activities. Top left: A presentation slide titled 'Gas Piped Resources' with the LEAP logo. Top right: A man in a purple shirt smiling. Middle: A large group of people, mostly students, sitting in rows of chairs. Bottom: A man in a dark shirt standing next to a red chair, with other people and tables in the background.

Over 450 participants

**Including students,
academic staff, engineers,
policymakers**

4 International Conferences and Workshops

– Mauritius – July 2015



- **4 International Conferences and Workshops**
 - Hamburg – Dec 2015



- **4 International Conferences and Workshops**
 - Lausanne, Switzerland – May 2016



- **4 International Conferences and Workshops**
 - Lautoka, Fiji – July 2016



- **4 International Conferences and Workshops**

The background of the slide is a collage of four photographs showing various scenes from international conferences and workshops. Top left: A woman in a black blazer and skirt stands at a podium. Top right: A large, modern conference hall with a stage and audience. Bottom left: A group of people in formal attire standing together for a photo. Bottom right: A close-up of a table with a blue cloth, a laptop, and other items.

Over 200 participants

From 25 different nations

- **Online LLL course – Sustainable Energy for SIDS**

[Home](#) | [Register](#) | [FAQ](#)

You are not logged in. ([Log in](#))

*LifeLong Learning for Energy security, access and efficiency
in African and Pacific Small Island Developing States*



Sustainable Energy for Small Island Developing States

This course will increase your awareness and knowledge how sustainable energy production and use can help Small Island Developing States on their way to becoming more sustainable islands.



Short profile

This online course...

- offers an interdisciplinary perspective on sustainable energy production and use in Small Island Developing State
- introduces you to a broad spectrum of energy- but also policy-related topics, e.g. sustainable energy production, energy access and energy security, energy efficiency and energy management, appropriate renewable energy technologies as well as policies, initiatives and programs
- invites you to discuss and share ideas, opinions and knowledge with learners from all over the world
- seeks to inspire you to self-develop a small solution for promoting sustainable energy in SIDS

Navigation



Home

▶ **Courses**

COURSE IS BROKEN OF 6 CHAPTERS

Introductory Week 1: Energy

Forum: 1 Pages: 6 Book: 1 Quiz: 1 Choice: 1

Progress: 0 / 2

Week 2: Sustainable Energy Production

Feedback: 2 Forum: 1 Pages: 8 Books: 2 Quizzes: 2 Workshop: 1 Survey: 1

Progress: 0 / 4

Week 3: Energy Access and Security

Forum: 1 Pages: 4 Books: 2 Quizzes: 2

Progress: 0 / 2

Week 4: Energy Efficiency and Management

Forum: 1 Pages: 6 Books: 2 Quizzes: 2

Progress: 0 / 2

Week 5: Renewable Energy

Forum: 1 Pages: 7 Books: 2 Quizzes: 2

Progress: 0 / 2

Week 6: Policies, Initiatives and Programs

Forum: 1 Pages: 4 Books: 2 Quizzes: 2

Progress: 0 / 2



EACH CHAPTER IS COMPOSED OF LEARNING MATERIALS AND OTHER PEDAGOGICAL TOOLS

Week 5: Renewable Energy

Your progress ?

Dear Learner,

Welcome to this fifth week of our online course. In this module "Renewable energy technologies" you will:

- be introduced to the concept of appropriate, sustainable technologies
- learn how to identify appropriate renewable technologies in a given (SIDS) context
- explore different types of renewable systems and their application in SIDS
- understand that technical solutions alone do not guarantee success unless they are designed for markets

Enjoy this fifth learning week - and let's share with us in this week's discussion forum what kinds of appropriate technologies and/or proofs of concepts you might have identified for your SIDS.

1. DISCUSSIONS AND VIEWS OF PARTICIPANTS ON DIFFERENT SUBJECTS



Discussion: Week 5

This is the place to post the results of **case study** I and to discuss everything that is essential for the topics covered in week 3.

2. VIDEOS FROM EXPERTS FROM SMALL ISLAND DEVELOPING STATES



Video #5.1.b: Renewable Energy

Prof Bernd Delakowitz, University of Zittau/Görlitz, Germany, presents inspiring examples of appropriate renewable energy projects from SIDS, highlighting how distinctive opportunities were seized. By contrasting SIDS-specific constraints with examples from other regions, it is suggested that only micro-scale solutions can tackle micro-scale problems.



Video #5.2.a: Renewable Energy

The design of a renewable energy solutions depends heavily on the local context. Prof Delakowitz argues for decentralized systems to address energy access needs and highlights the benefits and opportunities of combined small-scale systems for energy security and stable grids.



Video #5.2.b: Renewable Energy

Prof Delakowitz explains the relevance of business plans and collaboration for the implementation of renewable energy technologies or renewable energy programmes. A point is made to pay attention to sustainability aspects which – if not considered from the beginning on - can lead to undesirable outcomes.

3. TRAINING BOOKLETS



Renewable Energy - training booklet Part 1

Part 1 of this week's booklet reviews the main perspectives that matter when we seek to identify appropriate sustainable technologies.



Renewable Energy - training booklet Part 2

Part 2 of this week's booklet illustrates the core questions that need to be answered to identify the appropriate technology in a given context. Moreover, a set of large-scale renewable energy projects are showcased, illustrating the interplay of assessing local needs, assessing the local context and the prevailing potential for renewable energy to determine and implement the most appropriate technology.

made to pay attention to sustainability aspects which – if not considered from the beginning on - can lead to undesirable outcomes.

4. QUIZES TO TEST PARTICIPANTS' UNDERSTANDING



Quiz 5.1



Here, you can find a set of quiz questions that allow you to test what you learned so far in this module.



Quiz 5.2



Here, you can find a set of quiz questions that allow you to test what you learned so far in this module.

most appropriate technology

made to pay attention to sustainability aspects which – if not considered from the beginning on - can lead to undesirable outcomes.

5. WEEKLY ASSIGNMENTS ON A PARTICULAR TOPIC



Deliverable Week 5



Choose suitable sources of renewable energy and corresponding technologies appropriate in your SIDS context (use the SIDS you chose in Module 1).

The **UNEP** report you researched in Task 10 this module.

most appropriate technology.

made to pay attention to sustainability aspects which – if not considered from the beginning on - can lead to undesirable outcomes.

„Sustainable Energy in SIDS“, from 26 July to 11 September 2016

- 2 coordinators, 4 teachers, 9 tutors
- 1.008 course participants
- 20 videos
- training booklets
- case studies
- quizzes + assignments
- interaction
- collaboration
- discussions
- peer review



Completion of online course - learners' voices

PACIFIC / PNG: "(....) The course was very helpful. I just started a mini hydropower scheme proposal for my village! Hope I secure funding. "

AFRICA / Madagascar: "The course helped me a lot both on energy but also on the method of teaching. Thank you to all the team who organized this course and I would like to thank those who have corrected me."

PACIFIC / Sri Lanka: "Thank you very much to the course coordinating team for their great support throughout this period. I could get a sound idea about SIDS with their energy issues and renewable developments. Also it improved my knowledge in RE technologies. The e-learning platform is well organized and convenient for learning."

EUROPE / Germany: "Before I attended to this course I never thought about the energy situations of SIDS. Now I am more aware of what is connected to a affordable and stable energy supply for Islands and what are their risks and chances in developing RE. "

AFRICA / Mauritius: "I have been able to apply the knowledge obtained during these weeks in my day to day activities. (...) The endeavor to make our island a sustainable one has always been here but with the help of you and your team, we have already started the journey.

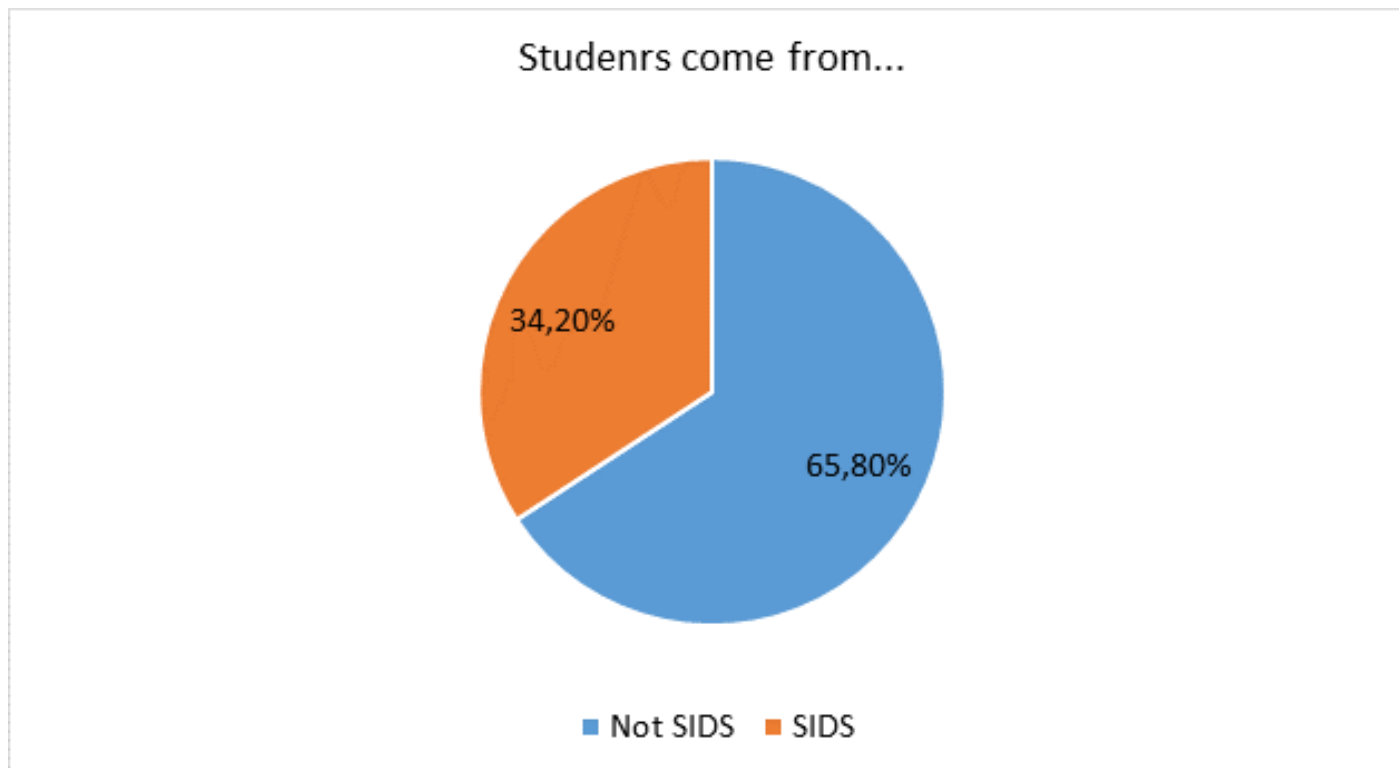
AFRICA/ Mauritius: "My knowledge on energy and SIDS have for sure been increased. I really liked the way the course was modeled (videos, training booklets, DISCUSSION *the real deal; where better understanding and more information were found*, assignments). I've learnt a lot.."

AFRICA / Tansania: I learnt a lot beyond the course objective, and one of the best knowledge which i received and put into use is the energy auditing which i applied it in my house by identifying all the electronic appliances including electric bulbs, tv set, refrigerator, electric cookers and kettles etc. Then i tried to apply the concept of energy efficiency and energy conservation (...).

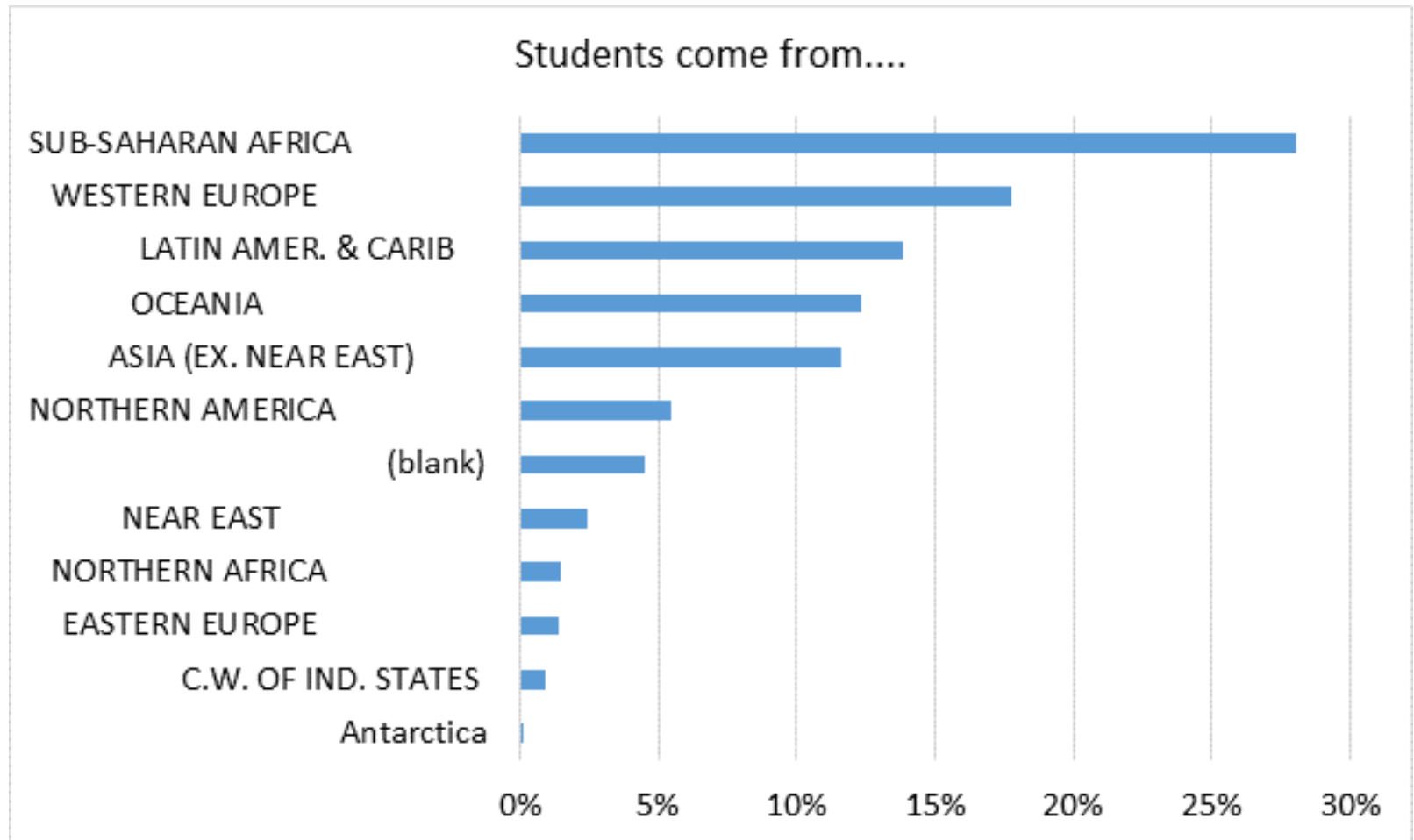
CARIBBEAN / Belize: "I will definitely use the knowledge gleaned from the course to assist in moving the energy sector in Belize and the region forward."



Online LL course Jan 9 – Feb 26



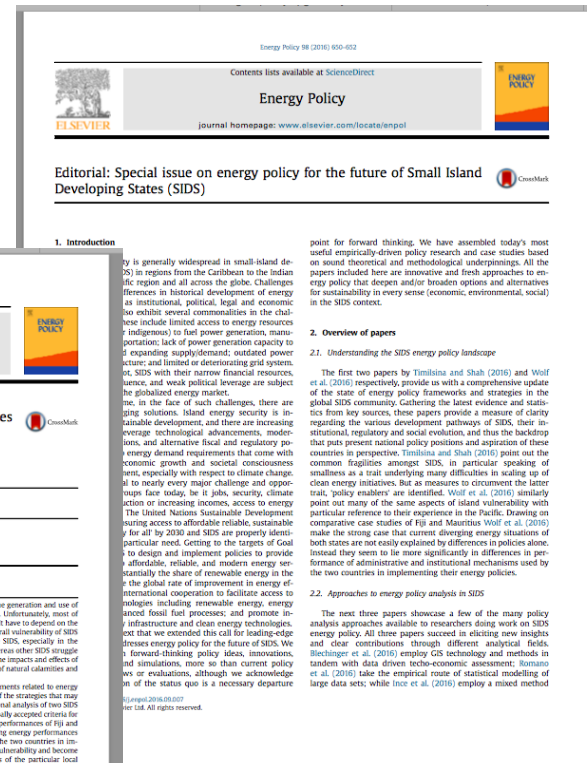
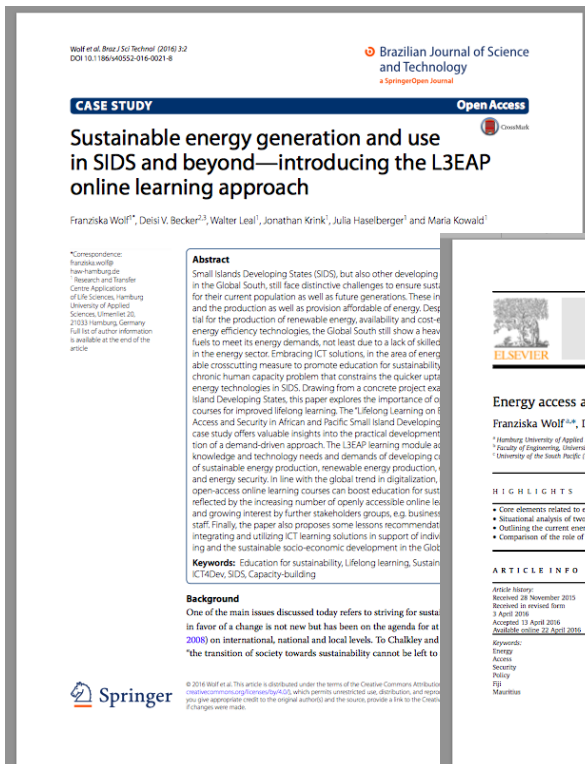
Online LL course Jan 9 – Feb 26



LifeLong Learning for Energy security, access and efficiency in African and Pacific Small Island Developing States



• Publications – 3 journal papers



Abstract

Small Islands Developing States (SIDS), but also other developing in the Global South, still face distinctive challenges to ensure sust for their current population as well as future generations. These in and the production as well as provision affordable of energy. Desal for the production of renewable energy, availability and cost- energy efficiency technologies, the Global South still show a head- fuels to meet its energy demands, not least due to a lack of skilled in the energy sector. Embracing ICT solutions, in the area of energy able crosscutting measure to promote education for sustainability chronic human capacity problem that constrains the quicker up- energy technologies in SIDS. Drawing from a concrete project ex- Island Developing States, this paper explores the importance of courses for improved lifelong learning. The 'L3EAP learning module on Access and Security in African and Pacific Small Island Developing case study offers valuable insights into the practical development of a demand-driven approach. The L3EAP learning module as knowledge and technology needs and demands of developing c of sustainable energy production, renewable energy production, and energy security. In line with the global trend in digitalization, open-access online learning courses can boost education for sust- reflected by the increasing number of openly accessible online le- and growing interest by further stakeholders groups, e.g. business staff. Finally, the paper also proposes some lessons recommend integrating and utilizing ICT learning solutions in support of ind- ing and the sustainable socio-economic development in the Glo- **Keywords:** Education for sustainability, Lifelong learning, Sustain ICT4Dev, SIDS, Capacity-building

Background

One of the main issues discussed today refers to striving for susta in favor of a change is not new but has been on the agenda for at 2000) on international, national and local levels. To Chalkley and "the transition of society towards sustainability cannot be left to

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Energy access and security strategies in Small Island Developing States

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HIGHLIGHTS

- Core elements related to energy access/security in SIDS, barriers and strategies.
- Situational analysis of two SIDS: Fiji and Mauritius.
- Outlining the current energy situation in Fiji and Mauritius.
- Comparison of the role of their energy policies to fostering energy security/sust.

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Keywords:

Energy Access Security Policy Fiji Mauritius

Abstract

Small Islands Developing States (SIDS) are isolated and surrounded by ocean. The generation and use of energy resources are very important aspects for the development of SIDS. Unfortunately, most of SIDS do not use their potential in respect of energy resources, and they as a result have to depend on the import of fossil fuels in order to meet their energy needs. This increases the overall vulnerability of SIDS as they have to depend on the rising or fluctuating fossil fuel prices. Some SIDS, especially in the geographically dispersed Pacific region, do not have proper access to energy whereas other SIDS struggle more with energy security issue. At the same time, SIDS are most vulnerable to the impacts and effects of climate change, as they are among the ones to be most severely affected in case of natural calamities and sea-level rise.

Drawing on experiences from Fiji and Mauritius, this paper explains core elements related to energy access and security in SIDS, contextualizes and discusses barriers and list some of the strategies that may be used to ensure access to and a continuous supply of energy in SIDS. A situational analysis of two SIDS outlines their current energy situation and compares their energy policies to globally accepted criteria for SIDS policies as well as with each other. It is claimed that the diverging energy performances of Fiji and Mauritius cannot be explained by policies differences. The reasons for the varying energy performances may therefore lie in the administrative and institutional mechanisms used by the two countries in implementing their energy policies. Finally, to enable SIDS to reduce their overall vulnerability and become truly sustainable islands, it is recommended to undertake careful assessments of the particular local contexts under which island energy regimes operate.

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1. Introduction

Succeeding and expanding the Millennium Development goals (MDG), a set of 17 Sustainable Development Goals (SDG) provides UN member states since September 2015 with a new set of goals, targets and indicators which will frame policy agendas and influence policies over the next decade (UNDESA, 2015). SDG 7 (SDG 7:

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ty is generally widespread in small-island de- (S) in regions from the Caribbean to the Indian ific region and all across the globe. Challenges differences in historical development of energy as institutional, political, legal and economic so exhibit several commonalities in the chal- these include limited access to energy resources (indigenous) to fuel power generation, manu- portation; lack of power generation capacity to d expanding supply/demand; outdated power stur; and limited or deteriorating grid system. or, SIDS with their narrow financial resources, scarce, and weak political leverage are subject he globalized energy market. ne, in the face of such challenges, there are everage solutions. Island energy security is in- sustainable development, and there are increasing everage technological advancements, mod- ers, and alternative fiscal and regulatory po- energy demand requirements that come with ecoming growth and societal consciousness sent, especially with respect to climate change. d to nearly every major challenge and oppor- nities face today, be it jobs, security, climate action or increasing incomes, access to energy The United Nations Sustainable Development suring access to affordable reliable, sustainable r for all by 2030 and SIDS are properly iden- particular need. Getting to the targets of Goal d to design and implement policies to provide affordable, reliable, and modern energy esultantly the share of renewable energy in the e the global rate of improvement in energy of- international cooperation to facilitate access to nologies including renewable energy, nanced fossil fuel processes; and promote in- infrastructure and clean energy technologies. e text that extended this call for leading edge, fuses energy policy for the future of SIDS. We forward-thinking policy ideas, innovations, nd simulations, more so than current policy ws or evaluations, although we acknowledge of the status quo is a necessary departure

2. Overview of papers

2.1. Understanding the SIDS energy policy landscape

The first two papers by Timilsina and Shah (2016) and Wolf et al. (2016) respectively, provide us with a comprehensive update of the state of energy policy frameworks and strategies in the global SIDS community. Gathering the latest evidence and statistics from key sources, these papers provide a measure of clarity regarding the various development pathways of SIDS, their institutional, regulatory and social evolution, and thus the backdrop that puts present national policy positions and aspirations of these countries in perspective. Timilsina and Shah (2016) point out the common fragilities amongst SIDS, in particular speaking of vulnerability as a trait underlying many difficulties in scaling up of clean energy initiatives. But as measures to circumvent the latter trait, 'policy enablers' are identified. Wolf et al. (2016) similarly point out many of the same aspects of island vulnerability with particular reference to their experience in the Pacific. Drawing on comparative case studies of Fiji and Mauritius Wolf et al. (2016) make the strong case that current diverging energy situations of both states are not easily explained by differences in policies alone. Instead they seem to be more significantly in differences in performance of administrative and institutional mechanisms used by the two countries in implementing their energy policies.

2.2. Approaches to energy policy analysis in SIDS

The next three papers showcase a few of the many policy analysis approaches available to researchers doing work on SIDS energy policy. All three papers succeed in eliciting new insights and clear contributions through different analytical fields. Blechinger et al. (2016) employ GIS technology and methods in tandem with data driven techno-economic assessment; Romani et al. (2016) take the empirical route of statistical modelling of large data sets; while Ince et al. (2016) employ a mixed method

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Publications – book chapters

LLL for energy practitioners in SIDS: The pivotal role of education in energy efficiency and demand side management

- **Raghoo P, Jeetah P, Surroop D,
2017. In: Filho WL (Ed). Climate
Change Adaptation in Pacific
Countries. Berlin, Springer**

**Lifelong learning (LLL) for energy practitioners in Small Island Developing States (SIDS):
The pivotal role of education in energy efficiency and demand side management**

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ABSTRACT

Climate change issue in SIDS is real and alarming. While shifting to more sustainable energy resources is a feasible option to curb down climate change impacts, there are still some barriers to overcome to do so. Energy efficiency is another option to mitigate climate change impacts. Past studies showed that energy efficiency is more effective through education and awareness. In the context of SIDS, their energy sector is characterised by poor electrification rates, high dependence on oil and less ability to cope with volatile oil prices and ironically, past studies showed that energy practitioners in SIDS, some if not most, have a lack of knowledge on energy issues in small island communities. Therefore, there is a need to train energy practitioners in SIDS who can hopefully contribute to transform SIDS energy sector into a sustainable and dynamic one. The aim of this study is to highlight the importance and barriers of educating energy practitioners on energy efficiency. In this study, in the foremost energy issues in SIDS are highlighted. The study is focussed on the need to achieve an energy efficient culture in a workplace and how it can be achieved through education. A proposed content on an energy efficiency programme is outlined. Issues and challenges for energy efficiency education is included and an opportunity to address these issues through global corporation is included. This study can help to refocus attention on energy efficiency in SIDS, and motivate energy practitioners to come up with energy efficiency practices at their workplaces.

Keywords: climate change, energy efficiency, education, SIDS

Publications – 4 conference presentations



International Conference on Energy, Environment and Climate Change

Improving access to energy, energy security and energy efficiency in Small Island Developing States – How HEI may facilitate lifelong learning and local capacity-building

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Abstract:

Compared to non-island p distinctive challenges to ensu well as future generations. De exploiting available energy el on fossil fuels to meet their er resources in the energy sector

This paper addresses the op energy security and energy e



International Conference on Energy, Environment and Climate Change

Trade policy tools to promote and improve African and EU energy security

Rafael Leal-Arcas

Centre for Commercial Law Studies, Queen Mary University of London, United Kingdom

E-mail: r.leal-arcas@qmul.ac.uk, Tel: +442078828071

Abstract

This article argues that the Kyoto Protocol to the 1992 Framework Convention on Climate Change was doomed to face difficulties *ab initio* and tries to draw lessons from the international trading system's architecture for climate change negotiations. Moving the climate change agenda forward multilaterally among the 195 parties to the United Nations Framework Convention on Climate Change (UNFCCC) is proving to be a serious challenge. The lack of progress in UNFCCC negotiations in recent years, especially the failure to obtain an international agreement on emissions limitations targets and timetables by all major developed and developing country emitters, has led many to question whether the UNFCCC is, in fact, the best and most effective forum for mobilizing a global response to climate change. The current approach to negotiating a comprehensive, universal, and legally binding global



International Conference on Energy, Environment and Climate Change

The training needs of energy practitioners in the African and Pacific SIDS-outcomes of Project L'EAP

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Abstract:

urement for devel and Pacific regio ort for their gene ho work with the ent to ensure that enous energy pra ect L'EAP was to levels of need.



International Conference on Energy, Environment and Climate Change

An Energy Consumption and conservation study of Low Carbon Hotels in the Pacific Islands – A Fijian Case study

Krishneel Prasad^{*1}, Anirudh Singh¹

¹ School of Engineering and Physics, University of the South Pacific, Laucala Campus, Suva, Fiji.

^{*} Corresponding Author. E-mail: krishneel.prasad23@gmail.com, Tel: +679 933 0832

Abstract

While providing the backbone of the economies of many PICs, the hotel and tourism industry needs to consume large amounts of energy to provide the required accommodation, recreation and services to their guests. This paper looks at the end use energy consumed by the hotels and tries to identify the possible energy efficiency measures specific to these countries that could be implemented to bring about energy savings and reduce the carbon footprint of the tourism industry in the region. While many studies of hotel energy consumption have been carried out in European and Asian countries, none have been reported for the Pacific. Hotels and resorts have over the past two decades increasingly adopted the 'sustainable tourism' philosophy which tries to simultaneously incorporate the economic, environmental and socio-cultural aspirations of the tourism industry by meeting the needs of the tourists/guests while protecting and preserving opportunities for the future. Through this scheme, a balance between the interest of tourists, the hosting community and the

Sustainability

- The 1st International Conference on Energy, Environment and Climate Change (ICEECC 2015) was organized under L3EAP project
- 2nd International Conference on Energy, Environment and Climate Change (ICEECC 2017) 5-7 July 2017



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**Mauritius
5 – 7th
July 2017**

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Coming soon](#)

BACKGROUND AND AIMS

The **International Conference on Energy, Environment and Climate Change (ICEECC 2017)** is a multi-disciplinary, peer-reviewed international conference on sustainable energy and environment. The conference will focus on energy production and management, green energy, environmental engineering, environmental management, climate change and sustainable development. The conference will provide a forum to:

- Exchange of latest technical information
- Disseminate of the high-quality research results
- Present of the new developments in the area
- Discuss the future global development on energy access, energy security together with the associated environmental impacts.

PROFILE OF PARTICIPANTS

Participants/delegates attending ICEECC 2017 will come from a cross-sectoral range of areas. They are:



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Acknowledgements

- Ms Franziska Wolf
- Dr Pratima Jeetah
- Mr Pravesh Raghoo



**Thank you
for
your attention**



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