

KTH-dESA is a part of the Swedish Royal Institute of Technology - a leading technical university and government agency. As such our research income is not for profit and the work is openly accessible.

Our division's work is made possible through grants, scholarships and project funding. In order to grow and harness new talent we channel work output into post graduate degrees and academic publications. We then go further and ensure that outreach to build human capacity in partner organisations and governments.

Should you wish to partner with us by providing scholarships, grants or projects please don't hesitate!

Our alumni work in international organisations, governments and industry.



IMPACT



United Nations head quarters: An expert group meeting to define sustainability goals. Mr's Howells, Taliotis, Wierich and Rogner with senior UN, SEI and SRC staff.

KTH-dESA has MoU's with and/or contributed to key outputs or activities of: UNDESA, IRENA, JISEA, IEA, FAO, IAEA, UNEP, EC, SIDA, ICTP NASA, IPCC, World Bank, African Development Bank, RAND, UNECE, SEI and others.

We currently coordinate the EU's Energy Think Tank, our work has featured in leading journals, flagship publications, won prizes at international events, broken records, featured in global webcasts and national television - all this, and we are less than three years old.

KTH-dESA

division of Energy Systems Analysis
Royal Institute of Technology, Sweden

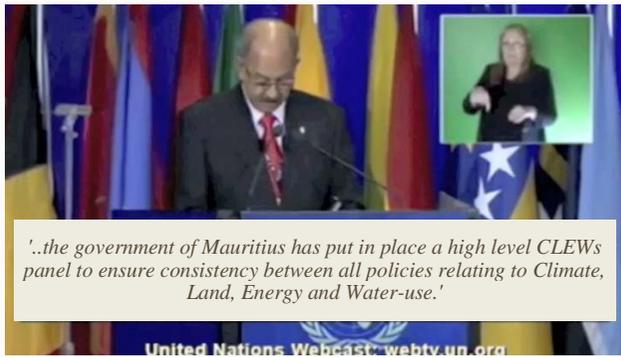


We are committed to high impact, frontier, open science that analyses, assesses and charts out the economic, social and environmental performance of energy and related resource systems.

Professors: H H Rogner, M Bazilian and M Howells.

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'...the government of Mauritius has put in place a high level CLEWs panel to ensure consistency between all policies relating to Climate, Land, Energy and Water-use.'

THE CLEW* DEVELOPMENT NEXUS

* Climate Land-use Energy and Water

The use of resources are interrelated. Managing one, while ignoring others can lead to unintended consequences and powerful synergies. Our CLEWs work focuses on developing quantitative methodologies for simultaneous integrated resource management.

The research has changed national policy and featured in Nature, UN and other publications. KTH-dESA actively supports national analysts developing nexus analysis across the world in partnership with the ICTP.

Current work includes the development of toolkits. For the UN as a direct output of Rio+20 a global integrated resource projections to test if development can indeed be sustained. For the UNECE and FAO we are developing a methodology to assess the nexus in transboundary river systems.



EDUCATION underpins all of our activities. Apart from postgraduate paper and thesis based research we run several courses that cover energy systems analysis, energy economics, demand projections, integrated resource management, financing and others. Please consult www.desa.kth.se for more.

RESEARCH AREAS

Without appropriate affordable energy, economies and society cannot function properly. In order to support sustainable investment decisions, policy development and build human capacity our work focuses on four key themes: OSeMOSYS, CLEWs, SEAP and SPI. Our work is technology neutral allowing us to assess the role of all energy options: from renewables to nuclear to energy efficiency.



ENERGY SYSTEMS MODELLING & OSEMOYS

The energy system is complex and requires flexible software and skilled application to analyse it. The Open Source energy Modelling System (OSeMOSYS) is the first fully transparent open and free energy systems optimisation tool. Apart from leading OSeMOSYS development, our team applies tools (such as MESSAGE, LEAP, MARKAL), develops new functionality to assess new issues (such as finding the limits of renewable energy integration into energy systems.)



The need for a transparent alternative



An OSeMOSYS class Shanghai Jiao Tong University.

SUSTAINABLE ENERGY FOR ALL PROGRAM (SEAP)

Over a million people die every year from smoke burned indoors to cook and heat their homes. Sustainable energy for all (SE4A) is a UN SG initiative to provide access to affordable and cleaner energy. To help support these efforts, KTH-dESA is developing national and power pool electricity models for all of Africa. Work includes the development of syllabi, tools and teaching material for quantitative policy support and human capacity building. We consider grid expansion, off grid solutions to quantify the investments to move through different tiers of electrification.



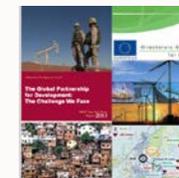
Developing an actionable body of knowledge.



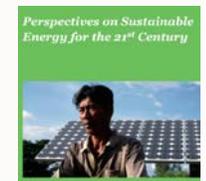
National and regional investment profiles.

STRATEGIC POLICIES AND INVESTMENTS (SPI)

Investments either by private industry or public sector need to be economically, socially and environmentally sustainable. Geopolitically secure energy and enhanced trade help underpin cooperative development. In order to identify investment and policy opportunities, the role of specific technologies and policy, we develop detailed cost benefit analysis, scenarios and investment portfolios. Activities vary from developing detailed GIS mapping of renewable energy potentials, energy trade models to developing national investment profiles.



Secure, profitable markets for development



Reconciling views to find common ground ..