



United Nations  
Educational, Scientific and  
Cultural Organization



renforus  
Renewable Energy Futures for UNESCO Sites

RENEWABLE ENERGY FOR GLOBAL SUSTAINABILITY





## Renewable Energy for Global Sustainability

Energy is at the heart of human, social, economic, and sustainable development issues. Decisions taken on the use of energy sources and on the technologies to use have a major influence on opportunities for development, as well as on the wellbeing of human beings and ecosystems. Energy and environment issues cannot be dissociated with development concerns and they are linked to other physical resources like forest and agriculture, water, land, air, in fact the entire biosphere.

Energy is also at the core of the climate mitigation agenda. As energy demand continues to grow, the ability to address energy issues, including energy access, efficiency, and renewable energy sources, will be paramount in enabling development and climate change priorities to be met in a mutually reinforcing way. In the phase following the 18th Climate Change Conference - COP18, and as identified by the UN Conference on Sustainable Development - RIO+20, there is a need to address energy as the main and critical driver of sustainable development and the new global Climate Change deal.

In this context, renewable energy has become a cornerstone of the UN strategy. The aim is to anticipate the solutions to avoid events that mortgage our common future over time. Access to basic, clean and affordable energy services is essential for sustainable

development and poverty eradication and can provide major benefits in the areas of health, non-delocalized job creation, socio economic empowerment and equity.

Addressing the challenge of a new sustainable energy system involves an increased use of renewable energy sources. Renewable sources of energy offer win-win solutions by increasing the access to energy while reducing environmental impacts and mitigating climate change. This requires local competencies as well as endogenous scientific capacity as a foundation for an enhanced knowledge of the different related technologies and their adaptation to different contexts and needs.



# RENFORUS objectives

As part of the UNESCO overarching Climate Change Initiative that aims at enhancing and applying the climate change knowledge base for building green societies, the RENFORUS Initiative promotes the use of UNESCO Biosphere Reserves and World Heritage Sites as field observatories on the sustainable use of renewable energy sources.

By drawing on decade-long experiences in World Heritage Sites to promote preservation of environmental and cultural assets, and in Biosphere Reserves to combine nature conservation objectives with sustainable development goals based on local community and private sector participation, the UNESCO Sites constitute a unique asset for exploring the role of renewable energy in reaching and promoting their important objectives.

The large number of UNESCO Sites around the world, in critical ecosystems ranging from small islands to mega cities, makes it possible to build and share a comprehensive knowledge base on good practices and policies on the use of environmentally sound energy technologies and their adaptation to specific contexts and needs. RENFORUS plays therefore a catalytic role in an essential international process to promote comprehensive, holistic approaches to energy, climate change and global sustainability.



© Greenpeace. Solarizing Borobudur World Heritage Site

## UNESCO Sites and Renewable Energies

Biosphere Reserves and World Heritage Sites are globally considered as sites of excellence where new and optimal practices for managing nature, heritage and human activities.

Biosphere reserves are sites established by countries and recognized under UNESCO's Man and the Biosphere (MAB) Programme to promote sustainable development based on local community efforts and sound science. By definition, they are ideal for testing and demonstrating innovative approaches to sustainable development from local to international scale. The World Network of Biosphere Reserves consists of a dynamic and interactive network made up of 610 biosphere reserves in 117 countries, including 12 trans-boundary sites.

The World Heritage List includes 962 properties forming part of the cultural and natural heritage that the World Heritage Committee considers as having outstanding universal value.

The preservation of UNESCO sites remains among the highest development priorities of the Governments concerned. Having been declared UNESCO Sites, they are both places that seek to reconcile the conservation of biological and cultural diversity and economic and social development. Although the socio-economic development within UNESCO Sites is highly vulnerable due to human activities, their careful management remains one of the goals of all countries



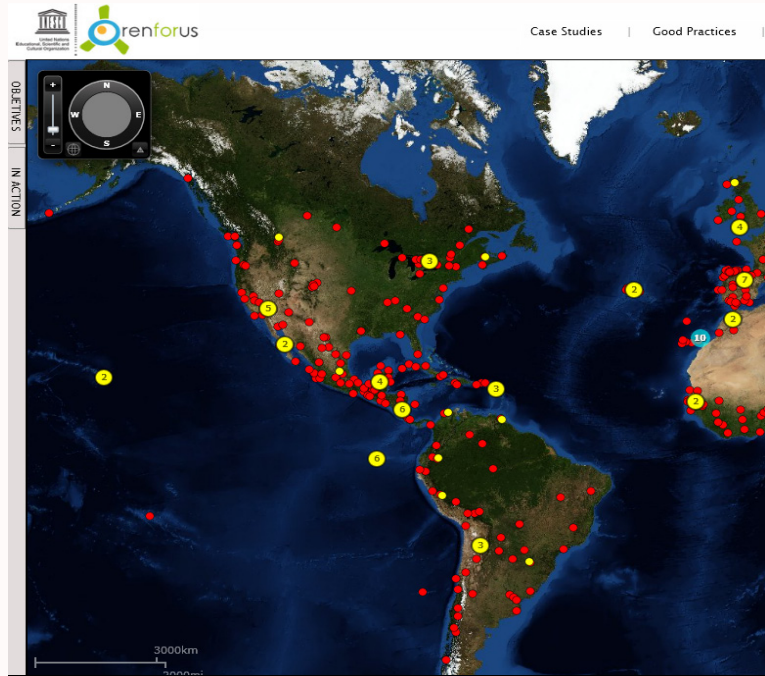
© BRR/Arif Ariadi. Hydropower in Gunung Leuser biosphere

concerned. This calls for urgent and necessary measures to achieve self-sustained socio economic development, involving the sustainable management of natural and locally available resources.

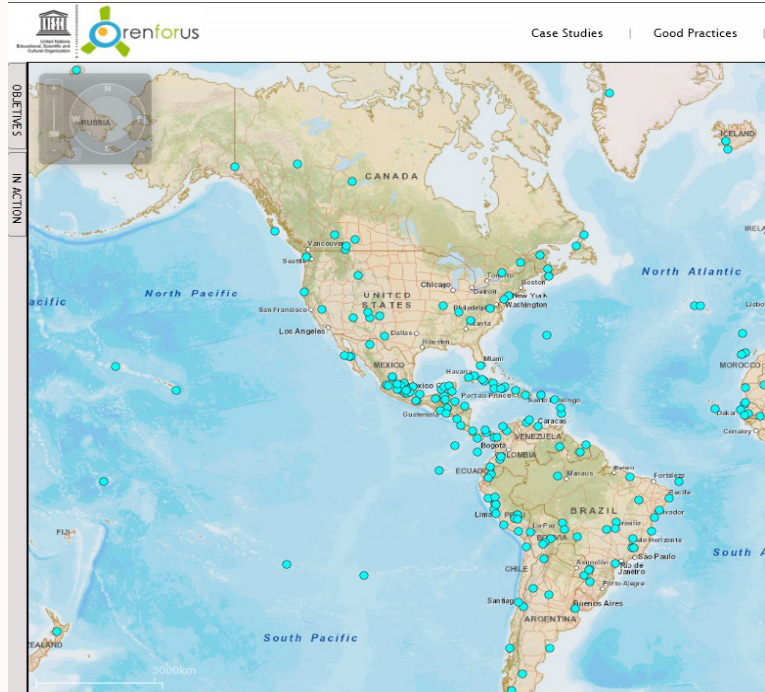
Among other factors, the energy system plays a key role in providing the resident communities and the whole existing infrastructure with basic energy services in UNESCO Sites. Thus, the wide use and application of local renewable energy sources will help to reduce the damage caused to the ecosystem by energy production, while contributing to the sustainable development of local communities through access to energy services.



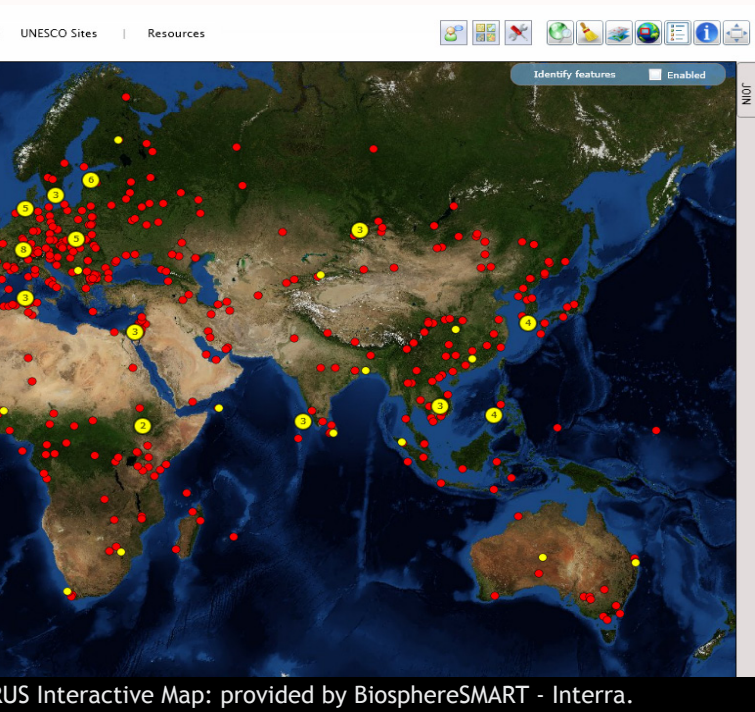
© Soneva Fushi. Baa Atoll biosphere reserve.



There are currently 621 biosphere reserves in 117 countries. RENFOR



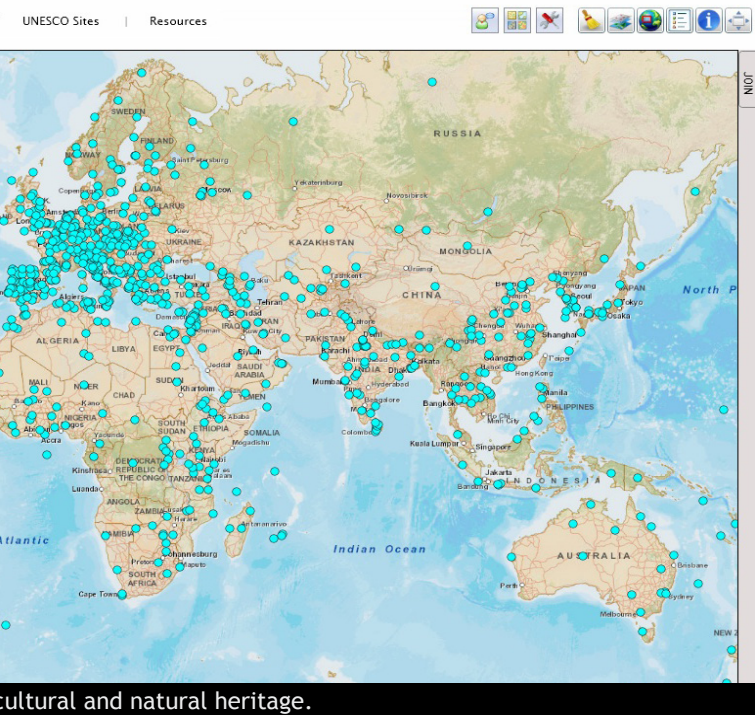
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# RENFORUS in action

The RENFORUS Initiative strives to demonstrate the value added of UNESCO sites as privileged windows for developing sustainable energy projects based on the maximum use of renewable energy sources. This initiative aims to promote energy efficiency and the use of renewable energy in a selected number of UNESCO sites that could serve as global climate change field observatories as well as models of Sustainable Energy Communities.

While addressing climate change mitigation, this initiative aims to demonstrate the benefit of harnessing the locally available renewable energy sources that could replace other energy sources with negative impact on the socio-ecological system of UNESCO sites. At the level of local communities and households, renewable energy can ensure access to basic energy services even in the most remote areas, including lighting and communications, transport, cooking, heating and cooling and pumping water. Thus, besides contributing to climate change mitigation, it will also help address local sustainable development.





© Feynan Ecolodge. Dana biosphere reserve.

### The Initiative will include the following main actions:

- Mobilize UNESCO sites for practical learning on renewable energy solutions and commitment to the efficient use of energy;
- Offer a platform for interaction between multiple stakeholder working in the renewable energy field, identifying barriers and working to bridge existing gaps to increase the maximum deployment of renewable energy;
- Disseminate opportunities, advantages, and practical applications of renewable energy technologies in UNESCO sites: photovoltaic, solar thermal, geothermal, biomass, windpower and small hydropower;
- Develop a system of consultations with authorities and managers of each site to identify opportunities, barriers and challenges related to renewable energy uses/policies;
- Identify good practice as projects that demonstrate a positive contribution to energy efficiency and the use of renewable and are suitable for replication by energy actors at local and regional level;
- Promote capacity building and awareness-raising on the use and application of renewable energy systems targeting local communities, including an advanced web platform focusing on renewable resource potential in UNESCO sites;
- Promote the use of renewable energy systems for the electrification of public and local community facilities in the selected sites;

- Draw up a status report of renewable energies in UNESCO sites, which would include identifying good practices, the selection of priority-sites and the opportunities to replicate successful experiences;
- Promote partnerships with leading public and private stakeholders, including international organizations, networks, renewable energy industry, NGOs and governments interested in supporting the Initiative.



## Looking ahead what outcomes can we expect?

RENFORUS is designed as an initiative that will consolidate a lasting commitment to renewable energies. UNESCO sites face the combined challenge and opportunity of transforming existing energy services, and they have the opportunity to adopt energy efficiency practices and renewable energy solutions from local decisions. These three objectives reinforce each other in many instances, and achieving the three together will power opportunity, maximize development benefits and help stabilize climate change.

### The following represents the main expected outcome:

- Demonstrate a positive contribution to energy efficiency and the use of renewable energy in UNESCO sites.
- Facilitate knowledge exchange, policy development and joint action for a rapid transition to renewable energy.
- Reduction of environmental and ecological degradation produced by the use of conventional energy sources in UNESCO sites through the use of renewable energy sources.
- Promotion of the use of environmentally sound renewable energy sources in UNESCO sites to serve as observatories for climate change mitigation and models to be replicated.
- Empowerment of local communities through renewable energy development and capacity building.
- Identification of suitable good practices for the use of renewable energy solutions in UNESCO sites.
- Promotion of co-operation among UNESCO sites at international level, particularly in the areas of education and training, information and exchange of knowledge and best-practices.
- Effective use of the World Network of Biosphere Reserves as demonstration sites for the potential of renewable energies, exploiting their capacity for network cooperation.
- Broadest possible dissemination of renewable energy applications in UNESCO sites by taking advantage of their implementation in the selected sites.
- Establishment of priorities in renewable energy matters for UNESCO sites.
- Consolidation of a partnership for renewable energy futures in UNESCO Sites.
- Involvement of local and regional authorities voluntarily committing to increasing energy efficiency and the use of renewable energy sources on their UNESCO sites.
- Improvement of energy efficiency at all levels with a view to doubling the rate of improvement by 2030 and by at least doubling the share of renewable energy in the mix by 2030 in UNESCO sites by promoting the development and use of renewable energy sources and technologies.



## Why join?

By joining RENFORUS, partners will have access to a tool for promoting networking and exchange of knowledge, information and best practices related to renewable energy and energy efficiency. A selected number of these practices will benefit from enhanced visibility through RENFORUS and will be promoted as models for replication nationally and internationally.

RENFORUS will also serve as a platform to consolidate partnership among its partners as well as with leading public and private stakeholders for renewable energy applications in UNESCO Sites.

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# Biosphere Reserves World Heritage Sites

**Models of excellence  
to foster the integration of  
renewable energy  
for global sustainability**

RENEWABLE ENERGY FUTURES  
FOR UNESCO SITES

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