

Solar and Wind Energy Resource Assessment in 13 Countries: emerging experiences

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The Global Environment Facility has supported assessments as a way of assisting developing countries and the GEF in targeting their investments and understanding the potential for impact. The Solar and Wind Energy Resource Assessment has engaged 13 countries ranging from least developed economies and island states to large and more advanced economies. From this variety of conditions and also from similar work done in other countries, we are trying to judge the potential for wind and solar and the value of doing map assessments. As the assessments are completed and the national reports produced, we are beginning to see some trends.

Resource maps have policy impact.

Wind being a highly variable resource carries with it uncertainties that simply prevent firm planning processes. Even where some local measurements have been made, policy may not move forward until it is known from independent sources that there is a resource and that it is broad enough to warrant a general policy thrust such as the Wind Energy Law passed in Nicaragua based on the SWERA map.

Solar maps – especially in countries where conditions are right for concentrating solar power or large scale solar PV installation could also be influenced by resource mapping. This is not evident yet but we anticipate that in El Salvador, building integrated PV potential may be of interest and that in China, Brazil and Kenya, Concentrating Solar Power would also be interesting.

Resource Assessments identify new resources

In several cases, including Cuba, El Salvador, and Bangladesh, wind sites that were not previously recognised have been identified through the mapping process. In Cuba an interior plateau was identified as possibly effected by a low level jet and is under investigation. In El Salvador there was not previously thought to be significant wind potential, but several strong wind potential sites were identified and a measurement program initiated by UNEP/ Netherlands Partnership, UCA and the local utility.

Improved quality of resource information.

Validation efforts are still under way but depending on the assessment product, uncertainties of ten percent are achievable for solar products whereas for wind 20% is more likely. IN any case, the pattern of the resource is the important aspect of the maps and site measurements are required for any significant solar or wind energy investments. For small investments like PV or wind battery charging, the maps provide information on systems sizing and performance. Solar system sizing is seen to vary by 20% within 10 km distances due to local cloud effects. Problems remaining with the resource information developed under SWERA is that the solar assessment information is presented in high resolution, medium resolution and low resolution as well as ground measurements. The values do not agree, in part because they are of different