

Request Submission Form for CTCN Technical Assistance (version 1.0 - January 2014)

APPLICANT/CONTACT:

National Designated Entity: Center for Innovation and Technology Cooperation (CITC)

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COUNTRY: Islamic Republic of IRAN

TITLE: *Technology of Photovoltaic Solar Cell Design and manufacturing*

GEOGRAPHICAL FOCUS: *{Select the most relevant geographical level}*

Community-based *Sub-national* *National* *Multi-country*

{If sub-national or multi-country level, please indicate here the concerned areas (provinces, states, countries, regions, etc.)}

SECTOR/THEME *{Select the most relevant sector}*

OTHER RELEVANT SECTORS:

{Indicate relevant sectors, only from those included in the list above}

- | | | |
|--------------------|---|---|
| <i>Mitigation:</i> | <input checked="" type="checkbox"/> <i>Energy</i> | <input type="checkbox"/> <i>Forestry</i> |
| | <input type="checkbox"/> <i>Transport</i> | <input type="checkbox"/> <i>Water Resources</i> |
| | <input type="checkbox"/> <i>Industry</i> | <input type="checkbox"/> <i>Coastal Zones/Oceans</i> |
| | <input type="checkbox"/> <i>Agriculture</i> | <input type="checkbox"/> <i>Terrestrial Ecosystems</i> |
| | <input type="checkbox"/> <i>Forestry</i> | <input type="checkbox"/> <i>Human Health</i> |
| | <input type="checkbox"/> <i>Waste</i> | <input type="checkbox"/> <i>Infrastructure/Human Settlement</i> |
| | <input type="checkbox"/> <i>Cross-sectoral</i> | <input type="checkbox"/> <i>Tourism</i> |
| <i>Adaptation:</i> | <input type="checkbox"/> <i>Early Warning/
Disaster Reduction</i> | <input type="checkbox"/> <i>Businesses</i> |
| | <input type="checkbox"/> <i>Agriculture/Fisheries</i> | <input type="checkbox"/> <i>Education</i> |
| | | <input type="checkbox"/> <i>Cross-sectoral</i> |

PROBLEM STATEMENT (up to half a page)

{Describe the main problems that the CTCN assistance will help address.}

Iran has high potential in solar irradiation and abundant raw material for solar cell production. But in design and manufacturing of advanced solar cell it requires more technical assistant. There are

several companies in Iran that are active in photovoltaic business .Moreover, some of them have production line but they have limited efficiency and capacity levels. So they need the technology to extend their ability for producing better modules both in terms of quality and quantity aspects.

DEVELOPMENT OF THE REQUEST (up to half a page)

{Explain how the request was developed at the national level and the process used by NDE to approve before submitting it (who was the lead organization, who were the stakeholders and what were their roles, and describe any meetings or other consultations that took place to develop and select this request).}

Iran Ministry of Energy is responsible for this project. Stakeholders include governmental and private sectors. Some R&D centers have conducted activities in developing solar cell technology and also they have requested for overcoming their technology needs. Iran has special programs to promote the use of renewable energies including solar energy. As it is clear demands toward photovoltaic is increasing daily because from one side users want to decrease their cost of energy and from the other side business players try to improve themselves for supplying the demands. From the other aspect, governmental sectors that have defined duties such as in the field of energy supply and community health care try to do their best to use technologies that can meet the mentioned aspect. So during the several meetings and evaluation of several development scenarios and according to the potential of country development, photovoltaic has been approved and the Ministry of Energy of the Islamic Republic of Iran has set out this matter as an important mission. Other organizations like the Environment Protection Organization will support them in achieving these goals.

ASSISTANCE REQUESTED (up to one page)

{Describe the purpose of the technical assistance requested from the CTCN and the results expected from the assistance.}

How will the results of the CTCN assistance be used to resolve the problems stated above (list specific actions).}

Islamic Republic of Iran, among absolute leaders in traditional energy resources, has also high ambitious plan in renewable resources. As a first step, we want to construct medium sized (1-5 MW_p) solar photovoltaic plant, serving as a pilot project. In such a project we need to share project designing, using some less complex local components. Train local installers, use project as research facility for operation and maintenance. It would help us gain confidence in promoting our products as well as our executional know-how building a foundation for future steps. After succeeding this level we need to improve our ability in design and production of solar cells which would have acceptable efficiency. During this step we need some special laboratories for testing. At the final stage we should be able to design, produce and quality control of photovoltaic solar modules. For conclusion we need:

- Consulting in field of silicon purification.
- Technology of wafering
- Technical supports for designing cell.
- Technical supports for developing test procedure of cell.
- Technical supports for testing modules output.

ALIGNMENT WITH NATIONAL PRIORITIES (up to half a page)

{Explain how the assistance requested fits with documented national priorities (examples of national priorities are: national development, poverty reduction, climate change and technologies, plans and strategies, LEDS, NAMAs, TAPs, NAPs, etc.).}

- The Future Outlook of the Islamic Republic of Iran in the Horizon of the Next Two Decades
- Iran 5 years development plan
- Iran Renewable Energy Roadmap (2014)
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PAST AND ONGOING EFFORTS (up to half a page)

{Describe past and on-going national processes, projects and initiatives that the assistance could build on, or link to.}

Past:

- Study of layer composition and physical properties of solar cells technology.
- Study of efficiency and performance of solar cells manufactured in Iran under different environmental conditions.

Future:

- Conduct study on other countries' activities in the field of solar radiation assessment
- First phase study on solar irradiation atlas and selecting the methodology of this project
- Installing solar irradiation study stations and data logging

EXPECTED BENEFITS (up to half a page)

{Outline the long-term effects that will result from the CTCN assistance, including how the assistance will help in the transfer of climate technologies to mitigate and/or adapt to climate change, as well as the expected economic, social and environmental benefits.}

Technology transfer and know-how and initiating local module production. Since there are strong indications and reasons why module production is and likely will remain local/regional business to help countries for decreasing production of carbon in the process of electricity power plant that uses fossil fuels. Iranian ambitious medium-term plants about 1 GW_p of solar installation call for local production facilities where it could be shared and high quality, high-technology workplaces should be created. Strong local market for Photovoltaic products would ensure appropriate ground for developing local expertise at local economy scale resulting in high quality and cost efficient product.

EXPECTED TIME FRAME

{Indicate the duration of the proposed request.}

Activities/ months	1-3	4-6	7-9	10-12	13-15	16-18
Literature review, data collection, analysis.						
Identification of stakeholders and assess their capability						
Field level surveys to assess the local manufactures						
Interaction with the stakeholders estimation of market potential for solar panel						
Technology cooperation process						
Draft report submission and Final report submission						

KEY STAKEHOLDERS

{List the main stakeholders who would be involved in the implementation of the requested CTCN assistance, and what would be their role in supporting the assistance (for example, government agencies and ministries, academic institutions and universities, private sector, community organizations, civil society, etc.).}


Stakeholder	Role in the response
Ministry of Energy	Implementing the government of Iran policies and regulations related to the energy sector which encompasses renewable sources of energy
Iran Renewable Energy Organization	To serve as the source or guidance and encouragement in the development of solar energy industry and to build support for the industry throughout the country's legislature, administration and funding agencies, through tax incentives
Manufacturers	To manufacture solar panel locally, to provide after sales services to the end-users and to accelerate deployment
Universities and Research Institutes	Research and development to increase efficiency
Standard Organization	Development of national standards and certify the production

MONITORING AND EVALUATION

By signing this request, I affirm that processes are in place in the country to monitor and evaluate the assistance provided by the CTCN. I understand that these processes will be explicitly identified in the Response Plan in collaboration with the CTC, and that they will be used in the country to monitor the implementation of the CTCN assistance.

I understand that, after the completion of the requested assistance, I shall support CTCN efforts to measure the success and effects of the support provided, including its short, medium and long-term impacts in the country.

DATE AND SIGNATURE

<i>NDE:</i>	<i>Date:</i>
<i>Responsible Person:</i>	<i>Signature:</i> 

****PLEASE LIST ANY RELEVANT BACKGROUND DOCUMENTS AND PROVIDE THEIR WEB LINKS (IF WEB LINKS ARE NOT AVAILABLE PLEASE ATTACH THEM AS PDF FILES TO THE APPLICATION)**

THE COMPLETED FORM SHALL BE SENT TO THE CTCN@UNEP.ORG

Need help? The CTCN team is available to answer questions and guide you through the process of submitting a request. The CTCN team welcomes suggestions to improve this form.

>>> Contact the CTCN team at ctcn@unep.org