

South-South Cooperation (SSC): Experience from RETT Project

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The Administrative Center for China's Agenda 21

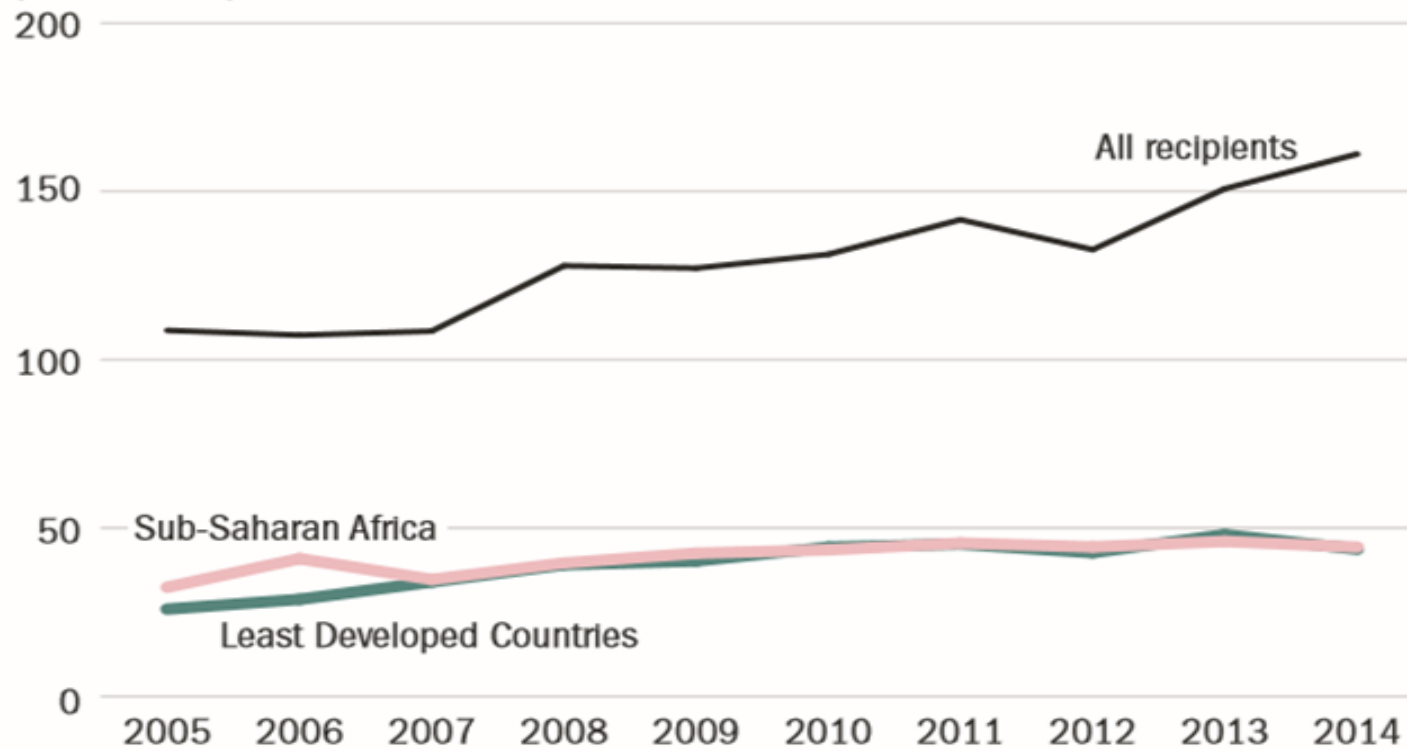
Ministry of Science and Technology

Main Contents

- I. The Practices of South-South Cooperation (SSC)
- II. Challenges and Opportunities of SSC on Renewable Energy Technology Transfer

Total official development assistance has been rising—but not where aid is needed most

10c

Net official development assistance inflows
(\$ billions)

Source: Organisation for Economic Co-operation and Development—Development Assistance Committee; World Development Indicators database (DT.ODA.ODAT.CD).

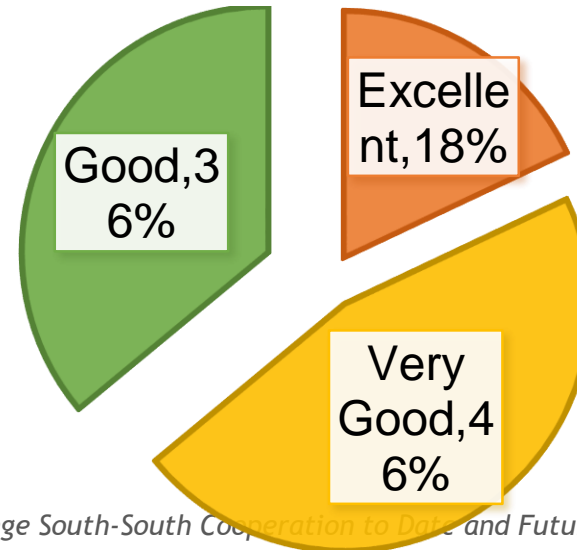
South-South Cooperation projects from 2005 to 2010

Type of Support	Number of Projects	Ave. Number of Projects/yr	Value of Projects (million USD)	Ave. Value of Projects (million USD)	Ave. Value of Projects (Million USD)/yr	Value of Projects in % of Total Value
Provision of goods and equipment	30	6	165	5.5	33	92
Training	85	17	15	0.18	3	8
Total	115	23	180	1.57	36	100

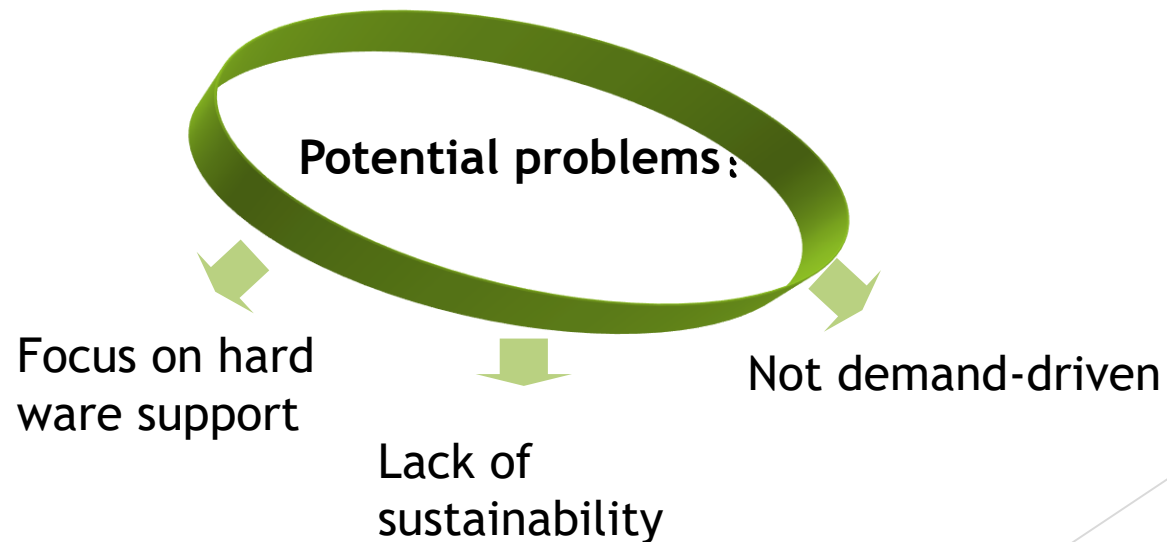
SSC China's Climate Change South-South Cooperation

Feedbacks on China's Delivery of results for CCSSC

(Respondents: UNDP interviewed 31 representatives from developing countries which have cooperated with China on CCSSC)

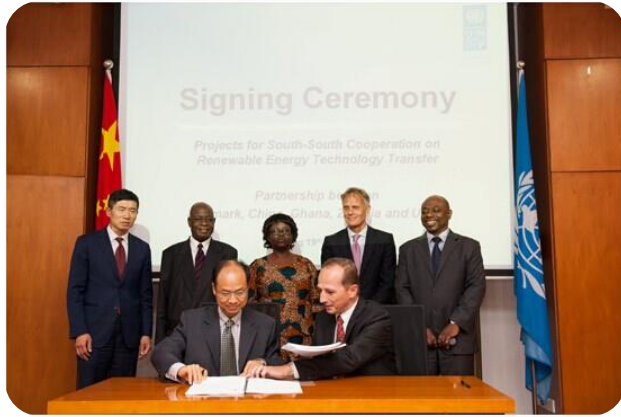


Source: UNDP China, *More Money, More Impact? China's Climate Change South-South Cooperation to Date and Future Trends*, 2016.





China-Africa Technology Transfer South-South Cooperation Program



Project cycle and funding support:

- Duration: 5 years (2015-2019)
- China-Zambia: \$2,680,000
- China-Ghana: \$2,720,000

Specific objectives:

Transferring appropriate renewable energy technologies between China and Zambia/Ghana

Zambia and Ghana:

- Identify appropriate RE technology and demand in Zambia and Ghana, and create an enabling environment for technology transfer
- Select appropriate renewable energy technologies suitable for local use
- Improve the level of local energy supply and access to rural electrification
- Increase adoption of renewable energy technologies in Zambia and Ghana
- Cultivate local market environment for diffusion of renewable energy technologies

China

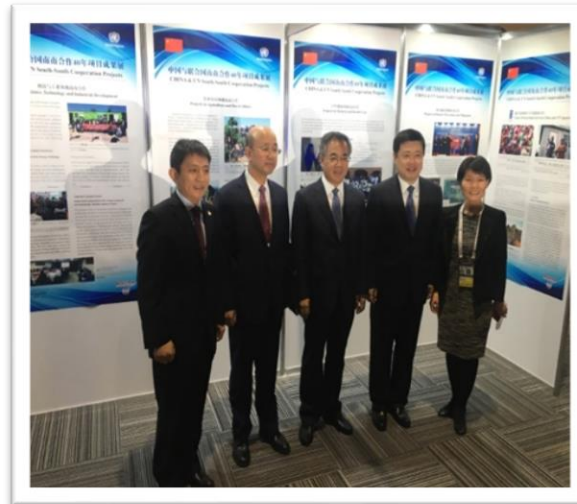
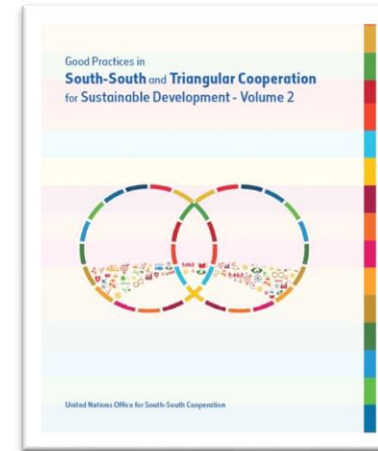
- Strengthening capacity in South-South Cooperation
- Promote the development of renewable energy technologies

SSC Exploring Replicable Model



Exploring various forms of cooperation, e.g. Triangular Cooperation

- **Multi-level mechanism:** make full use of the network of multilateral institutions
- **Resource Integration:** strive for technical and financial support from developed countries
- **Multi-party participation:** government led, expert support and enterprise participation



SSC Exploring Replicable Model



Demand-oriented

- Focusing on the online communication: bilingual website construction for supply and demand matchmaking
- Offline exchange as complements: hold regular China-Africa technology transfer matchmaking events
- Base on the actual needs of typical countries: screen out 100 suitable technologies for transfer

Case study: in the process of clean stove technology transfer, it was found that the specifications of Ghana cooking stove were different from the standards adopted in China. The Chinese experts and enterprises redesigned and manufactured clean stove products for local use in accordance with the local habits and needs



RETTC
可再生能源技术转移中心
Technology Transfer Center for Renewable Energy

Home Update on Projects Cooperation Technology Achievements Professor Conference Community
Chinese

Update on Projects

News More>

- 关于开展南南合作可再生能源...
- Notice on the collection of ...
- Ghana's Renewable Energy ...
- The Administrative Center f...
- The 21st century center org...
- The first session of the "21s...
- Notification on the joint co...
- The delegation of the Unite...

Project Information

China-Ghana/Zambia Renewable Energy Technology Transfer Project is trilateral cooperation project, which led by UNDP China, implemented by the governments of China, Ghana and Zambia with the financial

Publications

- China
- Ghana
- Zambia
- Details

Cooperation Project

- Invitation for Bids for Consultancy on Summarizing Good Practices in Renewable Energy Technology Tra... Renewable Energy
- Invitation for Bids for Technical Support for the Implementation of the Matchmaking Event in in Zambia Renewable Energy
- Invitation for Bids for Consultancy on Renewable Energy Technologies Selection Renewable Energy
- Invitation for Bids for Research Tasks on Service for Designing, Developing and Maintaining Online Platf... Renewable Energy
- Invitation for Bids for Research Tasks on Roadmap Research on RETT (Renewable Energy Technology Tra... Renewable Energy

1 / 2

Technology Promotion

Authenticated Certificate more>

- Biodiesel
- Solar traffic light

MRRB series DFC (Applied)

Unauthenticated Certificate more>

- Complete set of electric con...
- 100KW bi-directional energ...

CFPB technology for use





Enabling environment and capacity building

- Assisting Ghana in completing the Medium and Long term Renewable Energy Development Master Plan (2018-2030)
- Conducting research on the "China-Ghana Renewable Energy Technology Transfer Road Map", the "Daily Energy Consumption in Developing Countries", etc.
- Arranging on-the-spot investigations and training courses, hand-in guidance in site selection, conducting pre-feasibility and feasibility studies



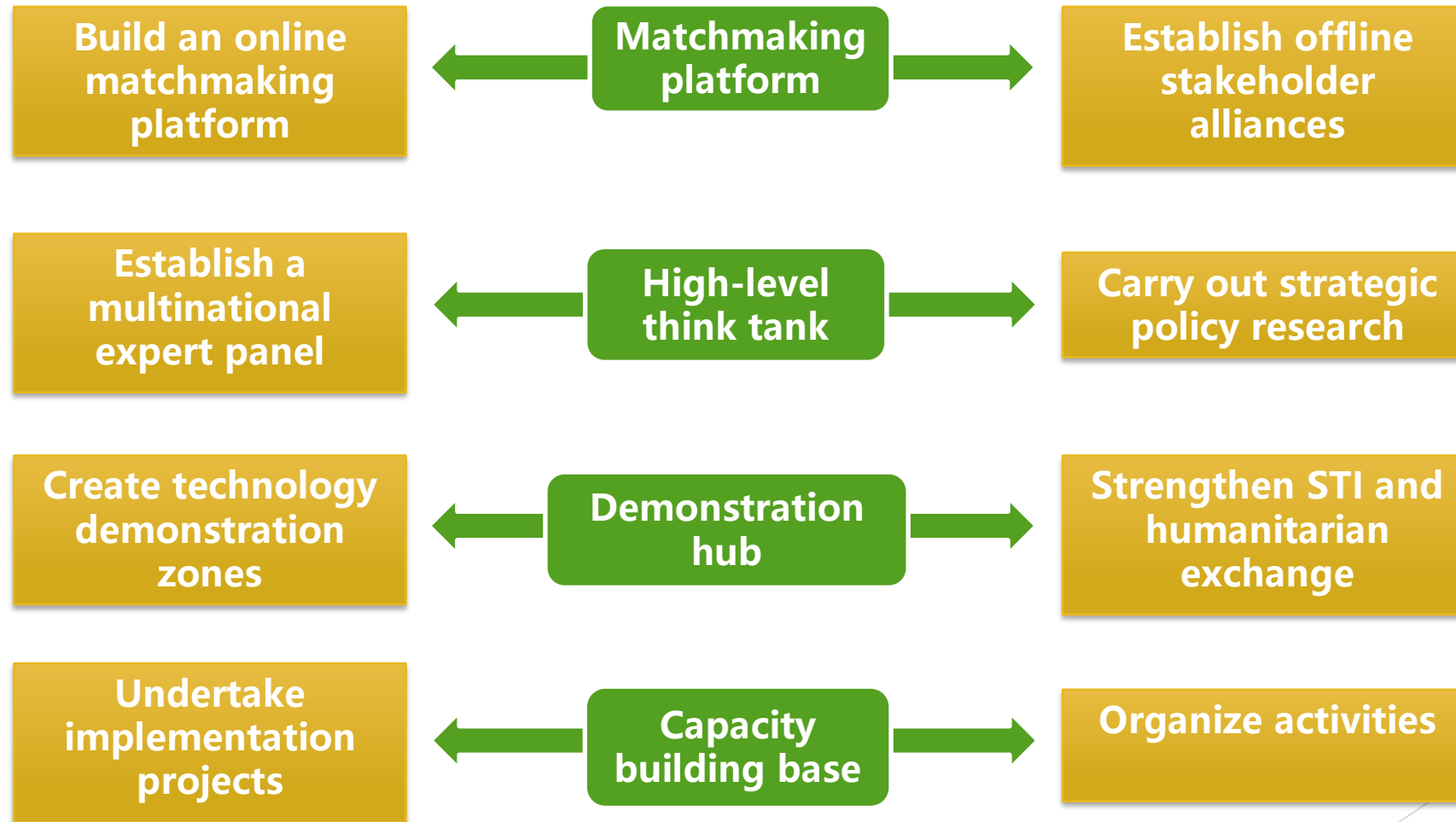
SSC Gaining Attention from Home and Abroad

- *Mr. Nicholas Rosellini, UN Resident Coordinator and UNDP Resident Representative in China*, expressed his ardent expectation for the Technology Transfer South-South Cooperation Center in sharing China's experiences and helping other developing countries achieve the 2030 Sustainable Development Goals.
- *Mr. Ban Ki Moon, the eighth Secretary General of the United Nations*, expressed his congratulations on the establishment of the Technology Transfer South-South Cooperation Center and his confidence for the center as a new platform for promoting South-South cooperation in technology transfer and achieving the SDGs.
- *Ms. Helle Meinertz, the deputy head of mission from the Royal Danish Embassy in Beijing, Mr. Edward Boateng, ambassador of the Embassy of Ghana in China, Mr. Sauka Chinji, the counselor of the Embassy of Zambia in China*, congratulated the establishment of the Technology Transfer South-South Cooperation Center.

*The second batch of projects of the Technology Transfer South-South Cooperation Center has launched to boost the successful experience and mode tested in phase one, and to promote the renewable energy technology transfer through projects in **Sri Lanka and Ethiopia**.*



SSC Functions of the Technology Transfer SSC Center



Main Contents

- I. The Practices of South-South Cooperation (SSC)
- II. Challenges and Opportunities of SSC on Renewable Energy Technology Transfer

SSC 1. National policy asymmetry among partner countries

National policy asymmetry is mainly reflected in the difference of government system, laws and regulations.

Case: A story of electricity meter

In Ghana, the Zhongdi Group(a Chinese company) helps nearby community residents to install photovoltaics equipment with agricultural irrigation, which benefits agricultural cultivation. Due to the restrictions of Ghana's current regulatory framework, photovoltaic irrigation systems are unable to calculate electricity, so the sustainability is a problem.

Floating arrays: can these increase output?

The ideal operating conditions for a solar array are high levels of solar radiation and cool temperatures. Days with high solar radiation are usually hot which inevitably means will heat up.

Floating solar arrays are gaining popularityThe array can float above or sit just below the surface of the water. The water underneath helps cool the modules, resulting in higher power output. This particular example shown below showed a 40% improvement in efficiency and reduced evaporation by 1-3m pa.The additional advantage of reducing evaporation is especially useful.



Solution: Establish demonstration project or demonstration zone in terms of South-South Cooperation, and government offer preferable policy, for example, tax reduction related policy.


SSC 2. Greatest Concern - Stability of Partner Countries' Environment

Concerns of Chinese stakeholders about RETT

Macro Policy	1	How is the political stability of partner countries?
	2	What are the related supporting policies and plans in partner countries and China?
	3	What are the supporting modes of cooperation?
	4	What are the specific processes and requirements for each mode?
	5	What are the channels for cooperation?
Industry Sector	6	What is the basic development situation in renewable energy sector in partner countries? (Scientific Research and Industrial Development)
	7	Cost issues (natural resource, HR, and matching resource, etc.)
	8	Situation in Power Grid Construction and On-Grid Requirements
	9	Construction and Development of Local Technical Staff
	10	Status of Upstream and Downstream Industries
	11	What problems do the existing collaborative projects have?
	12	What are the financing channels such as insurance, trust, credit, etc.?
	13	Other Risks

Solution: Knowledge sharing trainings and meetings could be regularly held under RETT project, inviting government officials and experts from both sides, to explain policy, market and cultural face to face, and sharing the key contents on the internet.

3. Partner's projects are too small to effectively attract Chinese Partners



We are very willing to join RETT, but we are only doing 20MW+ projects

Case: As the project funds are limited, Partner countries are planning a hydropower station on KW level (30KW and 200KW), but a number of Chinese manufacturers expressed no interest. Because small projects may representative **run behind expenses**.

In fact, lots of larger hydropower projects are planned in Partner Countries, but they have not been included in RETT projects yet.

Solution: *demonstration project + commercial projects* mode, partner countries prepare a list of hydropower project proposals, in which small projects as demonstration projects. These demo projects could receive financial, technical and policy supports, and large projects as commercial projects will follow the successful operation of demo projects, replicate the model and give priority to the demo project contractors.

SSC 4. Cost Effectiveness - the Biggest Problem

There are 3 power generation projects are due to income less than operating costs, 1 product production project is due to products not accepted by market



Effectiveness statistics of Ghana's RE assistance projects in 2008-2015

	Equip. Donation	Built factories locally	Training	Equip. Donation + training	Total
Total	7	2	2	1	12
Successful	1	1	2		4
Failed	6			1	7
In process		1			1

Survey of sustainability perceptions of partner projects by UNDP

Whether the project have the ability to run for long periods	%	Cause
Sustainable	36	There is a sustainable business base or support from the government and community
Not sustainable	64	Some people thinks it is because the cooperation just begun

Solution:

- Considering the business model and cost-benefit from the beginning of the project design;
- Combine RE and other industries, such as biogas and agricultural products processing, photovoltaic and agri. irrigation;
- investigate the consumption preferences of local residents. Eg. in Zambia, the residents need PV fans because of the unstable power supply.

5. Lack of Local Technical Staff – Equipment Could not be Used Properly after Transferred

Case 1: Britain has donated 20 wind irrigation equipment to Ghana, but now only 1 can be used.

Case 2: In 2006, UNIDO provided Ghana with hydropower equipment. The equipment shipped to local but can not be activated.

Survey of knowledge and tech. transfer effectiveness by UNDP

Effectiveness of knowledge and technology transfer %

Transferred, but no access	59%
Trainings continuing	25%
No transferred	16%

There are 2 public equipment projects failed because of lack of maintenance personnel, resulting in no follow-up operations



Effectiveness statistics of Ghana's RE assistance projects in 2008-2015

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Solution: During demo project building period, Chinese experts may teach and show local technical staff hand by hand, from design, construction, cost calculation to equipment installation and maintenance.

6. Compared with Aid and Trade, Partner Countries Prefer Foreign Investment

Both Zambia and Ghana partners clearly raised that, comparing receiving aids and imports, they prefer to make use of foreign investments to bring in advanced technique, promote local employment, and to impulse social-economic development.

Zambia:

International cooperation policy support for the renewable energy field

- | | |
|---|---|
| 1 | Free import tax for electronic-related and renewable energy products |
| 2 | Free tax for foreign investment for the first 5 years |
| 3 | Free tax for rural machinery and equipment import |
| 4 | Government established special fund to assist domestic electronical projects of the private sector in the field of renewable energy |
-

Solutions: classify projects according to different technique types that appropriate to aid, investment, product trading, and knowledge sharing etc. Design different project implementation plans.

SSC 7. Insufficient Information Communication

Partner Countries: The actual needs of RET are not expressed clear enough and not in detail. Eg. Zambia's proposed demand for solar technology and products but the specific technology product types are not clear .

China: Have not sorted out specific technical types appropriate for transferring. The current popular communication channel are Canton Fairs and other exhibitions. But both sides are facing high cost and low efficiency. An effective, long-term and systematic communication channel is urgently needed to understand the overall circumstances and latest info.

Exhibition	
1	High cost of participation
2	Short exhibition Time
3	Understanding is not comprehensive
4	Exhibitors to trade-oriented
5	Held at a specific time



Solutions: build on-line information platform -RETT Center website, through the web to demonstrate both demand and supply through the Web, Reduce information costs for technology transfer

SSC 8. Quality Problems –Affecting "Chinese Image"

Govt shuts down 4 stores over sale of fake solar batteries

By Correspondent Felix Andrew

THE government has closed down four stores at Kariakoo area in Dar es Salaam that have been found selling solar batteries that have failed to meet the required standards.

Quality assurance officer at Tanzania Bureau of Standards (TBS) Henry Massawe said in Dar es Salaam yesterday that the solar batteries were tested last year, but the findings showed that the gadgets failed to meet the required standards.

The official said: "Most of the batteries' samples did not show country of origin or serial number and some failed to meet the needed maximum system voltage."

He said the bureau had now embarked on a crackdown to nab all businessmen who would be found still selling solar batteries that failed to meet test requirements.

Massawe said most of the solar batteries which failed the required test did not have a long life and cost consumers a lot of money.

He called on the public to purchase electronic appliances, especially solar power gadgets only in certified and legally recognised outlets.

"There are many people in the country who are victims of substandard goods...we must take action to protect the public," he said.

He urged security agencies to step efforts to beat the challenge which he said poses a negative impact on the country's economy.

Speaking on the matter, a solar



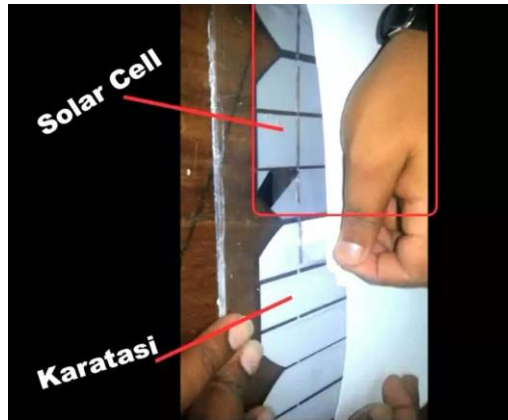
equipment vendor along Lindi street who did not want to reveal his name called for increased cooperation with TBS to develop practical measures to curb market influx of substandard goods.

He said most of the substandard solar equipment were easily making their way into the country through border points or ports and called on the government to enhance security checks.

For her part, TBS Public Relations officer Rhoida Andusamile said the standard watchdog would continue to arrest people who engaged in importation and sale of substandard goods countrywide.

Case 1:

The mixed quality of PV Module Export products. The batteries exported to Tanzania were mixed with glass, the solar panels were mixed with cardboards, exposed by the local government. Such behaviors has had serious negative influence to "the Chinese quality creates", which has awoken partner country's deep concerns.



Case 2:

"Light up Africa" is a project designed by IFC and WB to promote the development of energy service economic markets, aiming at providing clean, affordable and reliable energy service for 600 million people in the electricity-free areas of sub-Saharan Africa. The project has enabled more than 35 million people in Africa to get access to clean, affordable and safe lighting services. Poor-quality lighting products were found in the early stage of the project. In order to resolve the problem, "light Africa" developed a set of stringent standards to select qualified projects. The attainment of this standard has gradually become one of the most important thresholds to apply financial support from international finance companies, the World Bank and African local banks.

Solutions: Through the development of a unified technology transfer standards, strict control of technology and product quality, with "good money in bad currency", improve the "Chinese quality" brand and influence .

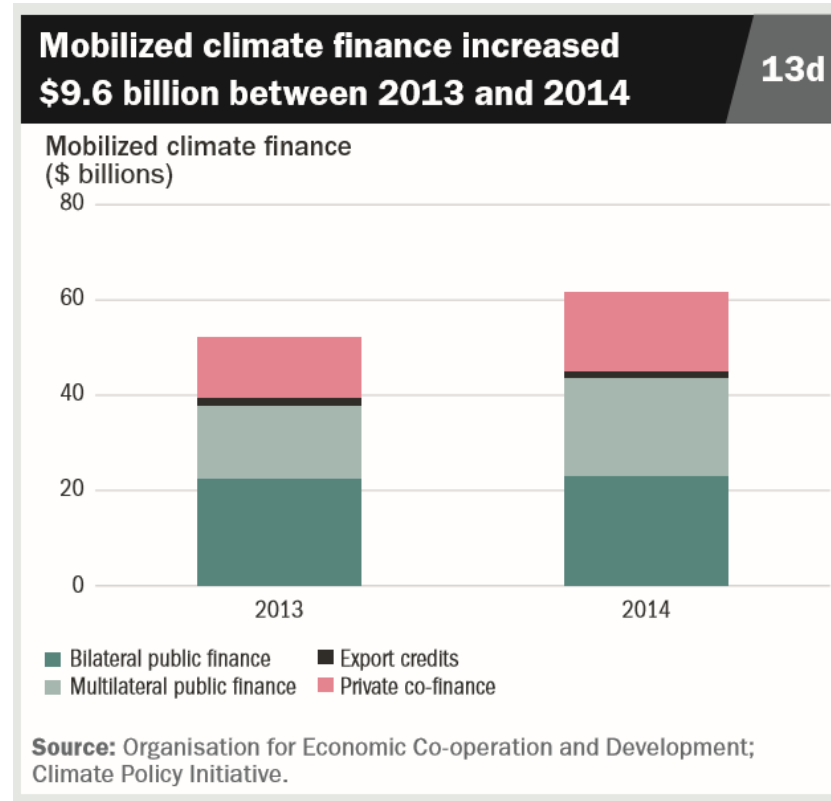
9. SSC - Opportunities for Both Companies and Investment Institutions

Case: The rate of return is an important concern for the investment of enterprises and social funds. Eg., the China-Africa fund has shown more interests in large projects such as grid construction, but the thresholds for large projects was higher.

Solutions:

Leveraging social capital with aid funds

1. Set up pilot project plan;
2. Use project assistance funds to support the pre-and feasibility study of pilot projects;
3. Based on the research results, screening the feasible projects, attracting social financial support.



Challenges and Opportunities for RETT South-South Cooperation

- Bottleneck of the Political Regulations and Policy Framework
- High Enthusiasm whereas Insufficient Information Communication
- Greatest Concern - Stability of Partner Countries' Environment
- Quality Problems –Affecting "Chinese Image"
- Lack of Local Technical Staff – Equipment Could not be Used Properly after Transferred

Construction
of soft
environment

Sustainable
model
development

- Cost Effectiveness - the Biggest Problem after the Handover of Results
- Partner's projects are too small to effectively attract Chinese Partners
- Compared with Aid and Trade, Partner Countries Prefer Foreign Investment
- SSC - Opportunities for Both Sides Companies and Investment Institutions

Thank you!