

## CRIBs (Climate Relevant Innovation–system Builders) A powerful new focus for international climate technology policy

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**One of the most powerful boosts to addressing climate technology transfer and development under the UN Framework Convention on Climate Change (UNFCCC) came in October 2014 at a meeting convened by the Technology Executive Committee (TEC) on strengthening National Systems of Innovation (NSIs) in developing countries.**

This briefing suggests some key ways in which the UNFCCC architecture could be extended in order to strengthen National Systems of Innovation (NISs) to achieve more transformative rates of climate technology transfer and development via the creation of “Climate Relevant Innovation-system Builders” (CRIBs).

### Policy recommendations

- Long term funding to establish and run CRIBs under the UNFCCC as an extension to the Climate Technology Centre and Network (CTCN)
- Support to help countries design and establish CRIBs under the UNFCCC
- CRIBs to be demand-driven by Parties
- CRIBs to be housed within existing institutions in developing countries
- CRIBs to feed requests to the CTCN via National Designated Entities (NDE)

## The problem with hardware financing

Developing countries need the right kind of support to address climate change, and to develop along low carbon, climate resilient trajectories. One of the ways the UNFCCC is supposed to help this to happen is by supporting the transfer and development of climate technologies (technologies for climate change mitigation and adaptation). However activities under the Convention have failed to deliver at anything like the speed or scale needed. So why hasn't it worked?

Research at the ESRC STEPS Centre demonstrates a core reason is the current policy framing of the problem as one requiring 'hardware financing'. Climate technologies are more expensive than conventional technologies, so market mechanisms – e.g. the Clean Development Mechanism (CDM), Global Environment Facility (GEF) funded efforts - help pay for technologies which might not otherwise be affordable.

But these approaches ignore the most important prerequisite for countries to be able to absorb new technologies: technological capabilities.

“ Market mechanisms ignore the important prerequisite for countries to be able to absorb new technologies: technological capabilities ”

## Sowing seeds

Technological capabilities are like soil in a garden. Without initial efforts to nurture the soil's fertility, scattering seeds (bits of technology hardware) is unlikely to lead to a flourishing garden (technological change and development). Moreover, commercial gardening contractors (technology investors) are unlikely to invest effort in sowing seeds in unfertile gardens in the first place.

Hardware financing mechanisms, therefore, serve to reinforce the comparative advantages of different countries. The majority of investment from the CDM, for example, went to countries with comparatively high levels of existing technological capabilities such as China (60%) and India (11%). Africa as a whole only

received 3% and sub-Saharan Africa even less. The CDM also tended to fund established, close-to-market technologies rather than nurturing the development and uptake of new technologies.



## How National Systems of Innovation can help

So how do countries develop the technological capabilities they need to attract technology transfer and development? The key, according to decades of research in the field of Innovation Studies and more recent work on Socio-Technical Transitions, is to focus on nurturing National Systems of Innovation (NSIs).

NSIs can be understood as the gardens within which the fertile soil is to be nurtured. They provide the context within which all processes of technology development, transfer and uptake occur. NSIs encompass the network of actors (firms, universities, research institutes, government departments, NGOs) within which innovation occurs, and the strength and nature of the relationships between them.

The idea of nurturing the NSIs would begin to address the problem that hardware financing can't fix. It could underpin more sustained and widespread transfer and development of climate technologies. As such, it provides a powerful new focus for international policy.

## A change in thinking: from gardens to gardeners

Innovation System Builders, key actors (individuals or institutions) who link actors and institutions up across niches of climate technology activity, are pointed

to in the above literatures. These are the gardeners who, wanting their garden to prosper, prepare fertile ground for leaps ahead in technological capability development (see our research on the off grid solar photovoltaic market in Kenya in resources). Policy efforts could seek to fulfil the role of Innovation System Builders.

By convening the NSIs workshop, the TEC - responsible for overseeing implementation of the UNFCCC’s Technology Mechanism - has signalled its interest in this powerful way forward for UN climate policy.

### What happens now?

The TEC will further consider NSIs in 2015, according to its 2014/15 workplan. Nurturing NSIs will take effort and capacity, more in some countries and regions than others. Looking at the coverage of existing mechanisms under the UNFCCC (mostly via the CTCN) and related initiatives - including the World Bank’s Climate Innovation Centres (CICs) and the various Development Bank initiatives funded by the GEF - we have a clear picture of where the gaps are.

The table below illustrates the coverage of key existing international policy mechanisms against the policy goals necessary for innovation system building. The mechanisms include the CTCN under the UNFCCC, infoDev’s Climate Innovation Centres and the various GEF funded centres being coordinated by the regional development banks (see our working paper on CRIBs in resources for more detail). The table disaggregates between national and

Goal	CTCN	CIC	ADB	EBRD	AfDB	IADB
Explicit Innovation System Building focus?	P	P	P	P	P	P
Build networks (intl.)	Y	Y	Y	N	Y	Y
Build networks (national)	P	Y	Y	N	P	Y
Share learning	P	N	P	N	P	P
Shared visions	P	N	P	N	P	P
Support experiments	P	N	P	P	P	P
Key						
Y	Yes - within existing remit					
P	Potential - within, or with incremental changes to, existing remit and institutional structure					
N	No - outside remit					

CTCN - Climate Centre Technology and Network; CIC – Climate Innovation Centres; ADB – Asian Development Bank; EBRD – European Bank for Reconstruction and Development; AfDB – African Development Bank Group; IADB – Inter-American Development Bank.

international networking efforts and adds an additional row to signify whether NSI building is an explicit part of any of the mechanisms’ remits at present. From the swathe of yellow we can see that it would be possible, with incremental revisions to the existing remit of most of these initiatives, to integrate NSI building across their activities.

### How does it work?

What needs to change in order to make this work? Under the UNFCCC, the key delivery mechanism is the Climate Technology Centre and Network (CTCN). The TEC could make a recommendation to the UNFCCC Conference of the Parties (COP) for a new approach here. But the CTCN lacks capacity on the ground in developing countries. Its National Designated Entities (NDEs) are generally staffed by civil servants with only a small proportion of their time allocated to the NDE role.

“CRIBs...dedicated institutions on the ground in developing countries focusing explicitly in building National Systems of Innovation”

The creation of CRIBs (Climate Related Innovation-system Builders) is needed. These would be dedicated institutions on the ground in developing countries focusing explicitly on building NSIs, understanding local capacities, identifying opportunities to connect actors up across projects and programmes and sectors, linking up with and understanding technology users, and so on. (Note, this is likely closer to Professor Ambuj Sagar’s original vision for what became the CICs and was exactly what was intended in the Sussex Energy Group’s proposal for Copenhagen – see resources).

Each CRIB would feed in requests to the CTCN via the NDE in their country. It would also link to, and learn from, CRIBs in other countries and regions via the CTCN. It is a demand-driven model, with countries expressing their desire to establish a CRIB which would then be facilitated via support under the UNFCCC.

What is required under the UNFCCC is that long term funding be made available to establish and run CRIBs. Support could also be made available to help countries to design and initially establish them. They would also benefit from their direct link into the CTCN, providing for further, in-country demand driven support. Ideally, CRIBs would not be new institutions, but would be run through existing institutions with appropriate expertise (e.g. universities, research organisations or NGOs).

### New opportunity and approach

There is an opportunity here for a new framing of international climate technology policy around nurturing NSIs. Decades of empirical research support the idea that this policy framing would have significantly more impact than one built around hardware financing approaches.

We look forward to positive steps forward from the TEC in the months to come, to the creation of Innovation-System Builders, via the establishment of CRIBs in developing countries, and to a new turn in international policy efforts.

### Resources

- **Working paper** Innovation Systems: Ockwell, D. and Byrne, R. (2014) CRIBs (Climate Relevant Innovation-system Builders): Policy Recommendations on Fostering National Systems of Innovation under the UNFCCC, STEPS Working Paper 76, Brighton: STEPS Centre 978-1-78118-210-9
- **Working paper** Climate Technology: Ockwell, D. and Byrne, R. (2014) CRIBs (Climate Relevant Innovation-system Builders): An Effective Way Forward for International Climate Technology Policy, STEPS Working Paper 77, Brighton: STEPS Centre 978-1-78118-211-6
- **Research project** Off grid solar photovoltaic market in Kenya: [www.steps-centre.org/project/low\\_carbon\\_development/](http://www.steps-centre.org/project/low_carbon_development/)
- **Policy brief** Low Carbon Energy and development in low income countries: <http://steps-centre.org/publication/low-carbon-energy-development-low-income-countries/>
- **Policy brief** A blueprint for post-2012 technology transfer to developing countries, Sussex Energy Group: <https://www.sussex.ac.uk/webteam/gateway/file.php?name=techo-briefingweb1.pdf&site=264>

### Find out more

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