

USING CLIMATE RELEVANT INNOVATION-SYSTEM BUILDERS TO ENHANCE ACCESS TO CLIMATE FINANCE FOR NDC DELIVERY

INSIGHTS FROM THE CRIBs 2017 EAST AFRICA POLICY MAKERS' WORKSHOP

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Key messages

- 1** Previous international climate finance mechanisms such as the Clean Development Mechanism (CDM) are not helping low and middle income countries due to a failure to address wider innovation system building and related technological capacity building needs.
- 2** Implementing CRIBs (Climate Relevant Innovation-system Builders) can enable East African countries to design and implement competitive climate change projects that attract international climate finance.
- 3** CRIBs will play an intermediary role between all relevant actors within any given country, building innovation systems around appropriate climate technologies by strengthening links between actors and leveraging funding from international climate funds like the Green Climate Fund, as well as increasing private investment.
- 4** Coordinated implementation of CRIBs across East Africa will create opportunities for regional integration and lobbying power for suitable climate technologies and finance.
- 5** By connecting actors and institutions, nationally and regionally, CRIBs create enabling environments for climate investments that are more inclusive, equitable and supportive to poverty reduction and economic development efforts.

INTRODUCTION

International climate finance mechanisms have often failed to deliver against the climate technology needs of low and middle income countries. This has meant that Africa has lost out on the competitive edge as regards gaining from meaningful climate finance, as most of the benefits of instruments such as the Clean Development Mechanism (CDM) have gone to large developing countries like China and India. In this context, concerted efforts to build national [and regional] innovation systems around climate technologies can leverage institutions and actors across diverse fields to begin to address this

issue. Innovation systems have been proven to explain the economic development of a wide range of countries including all of the OECD countries and the so-called "Asian Tiger Economies". Innovation system building approaches have also been demonstrated as underpinning the success of Lighting Africa - which rapidly developed a new market for solar portable lanterns in Kenya - and China's successful use of CDM funding to foster growth in various areas. This example shows that innovation systems can be useful for - among others - leveraging climate finance but also improving the quality of projects, and the development and uptake of climate technologies related to such projects.

Conceptualizing Innovation Systems

Innovation systems are systemic contexts where innovation, coordination, adoption of technology and innovative techniques and economic development takes place. There are 4 key components relevant to innovation systems including:

- Actors of all kinds of relevance to the contexts within which innovation and technology uptake occurs
- The strength and nature of relations and interactions between these actors
- Capabilities and capacities of individuals and firms and the collective skills and knowledge these constitute
- Institutions in terms of policies, regulations, standards, models, practices and norms

Innovation systems involve networks of actors (including firms, universities, research institutes, government departments, NGOs, technology users including poor and marginalised women and men), and the strengths and character of interrelationships between them. They provide the context within which all processes of technology development, transfer and uptake (“innovation” in its broadest sense) occur. Building innovation systems involves interactive, incremental processes which involve a variety of different actors and actor needs, maturing over a long period of time through political systems.

Linking Climate Finance and Innovation Systems Building

Using international climate finance to develop innovation systems around climate technologies and techniques in

low income countries could begin to overcome the failures of hardware financing mechanisms like the CDM. This would provide the basis for more sustained, widespread transfer, and development of climate finance and technologies. This approach can directly respond to poor and marginalised communities’ needs, if executed in the right manner, involving the right actors. As such, this approach presents a compelling new point of convergence for national and regional policy that could benefit East African countries if they align international climate finance towards innovation system building.

In a Post-Paris Climate Agreement world, the opportunity for low income countries to seize upon this innovation systems approach is further informed by:

- 1) The bottom-up nature of the Paris Climate Agreement, giving countries the medium to pursue their own, self-defined pathways to implementing their NDCs (Nationally Determined Contributions). Low income countries can therefore spearhead leveraging international climate finance for innovation system building as the means through which implementation and delivery of their NDCs can be realized.
- 2) The increasing acknowledgement of innovation systems as channels for realizing technology transfer and development within key international climate institutions. This includes the UNFCCC’s Technology Executive Committee (TEC) and funding activities of the Green Climate Fund (GCF). There is increased acceptability towards international climate finance for innovation system building especially concerning low and middle income countries.

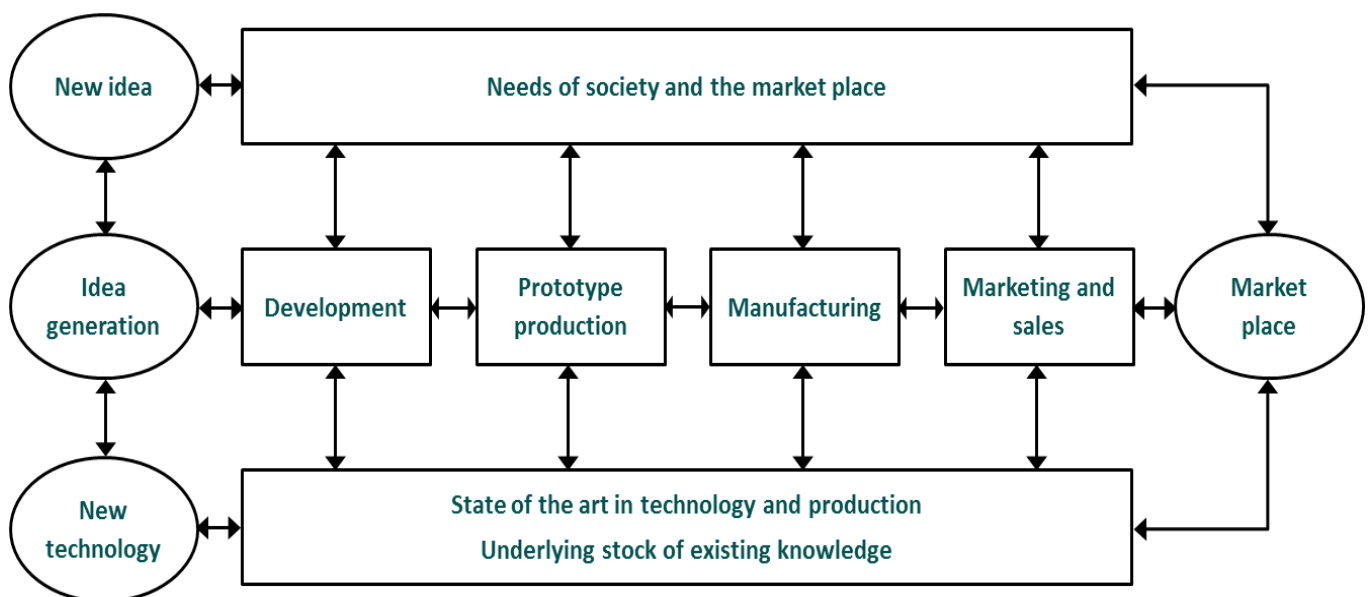


Fig 1: National Systems of Innovation - Innovation as a Process. The “interactive”, “coupling” or “chain-linked” model of innovation

Source: Based on Kline and Rosenberg (1986, p290), Arnold and Bell (2001, p287), and Conway and Steward (2009, p68)

Making CRIBs Work for the East African Region

Empirical work analysing successful innovation system building around climate technologies in, among others, Kenya, Tanzania and China has led to the development of CRIBs. CRIBs have been developed as a potentially key policy vehicle through which innovation system building to deliver countries' NDCs can be achieved, simultaneously enabling countries to leverage climate finance for climate technology transfer and development.

Towards this end, CRIBs have four overarching goals:

- Build networks of diverse stakeholders
- Foster and share learning
- Promote the development of shared visions
- Support diverse experimentation

These are buttressed by five main elements of innovation systems touching upon:

- **Technology:** looking into the nature of technologies, projects and/or programmes already in existence and exploring opportunities to introduce new innovative interventions in terms of projects, technologies, techniques or programmes
- **Actors:** looking at the actors' interactions, finance and technologies, examining their roles in the same and exploring ways of enhancing their contribution
- **Relations:** examining existing networks and the kinds of interactions that take place within these networks. This is in addition to exploring spaces and ways of enhancing these networks.
- **Capabilities:** looking at the state of knowledge, skills and application of specific interventions, technologies, techniques, projects and/or programmes. This also entails exploring opportunities for capacity building, and ways of filling knowledge gaps.
- **Institutions:** examining institutions including policy, regulatory and cultural entities, looking into their roles and effectiveness in so far as innovation system building is concerned.

CRIBs can be crucial platforms for cultivating innovation systems around nationally appropriate climate technologies. Using existing national institutions that have the capacity, or potential capacity, to take on this networked, national climate technology platform intermediary role would be essential towards embedding CRIBs in the region, taking advantage of the approach's ability to be in sync with the current UNFCCC structure.

In this sense, it is critical that CRIBs are nationally nested thus enhancing comprehension of existing local capacities and capacity gaps. This has a further effect of max-

imising opportunities to connect actors across projects, programmes, and sectors, linking up with and understanding technology users. Additionally the approach synchronises funding mechanisms within the various institutions nurturing climate technology transfer and development. CRIBs thus become the crucial link both horizontally and vertically to existing regional and international networking efforts.

CRIBs were identified as having the ability to address key concerns raised by East African stakeholders at the 2016 *African Policy Makers/Implementers Workshop on Climate Change Innovation Systems for Technology Transfer* held in Nairobi. These included:

- Underpinning green growth
- De-risking innovation
- Availing a national knowledge platform on climate finance and technology needs and opportunities
- Providing a medium for comprehensively engaging national stakeholders
- Proving a platform for regional and inter-regional knowledge sharing and collaboration
- Creating space for pursuing a needs based focus to international climate technology initiatives, including mainstreaming women, youth and other marginalised groups

It is in this context that harmonizing CRIBs' implementation and activities across national, regional and inter-regional spaces is critical to maximizing countries' potential for leveraging international climate finance. This is in addition to facilitating national, regional and inter-regional coordination of actions. The approach potentially augments climate adaptation and mitigation impacts as a consequence. In return East African countries can leverage this approach, showing international leadership, via implementation of CRIBs for delivering their NDCs under the Paris Agreement. Key to operationalizing CRIBs is maximising the diversity brought forth by different country policy priorities and experiences. This has the effect of opening up regional level opportunities or synergies that may be useful to stakeholder and country projects, programmes or interventions.

Enhancing the capacity of national and regional policy-makers and other key stakeholders becomes important to embedding innovation systems and enhancing the uptake of climate finance and technologies. This informed the *Africa Policy Makers/Implementers Workshop on Climate Change Innovation Systems for Technology Transfer*, held in March 2016, convened by the African Centre for Technology Studies (ACTS), the Africa Sustainability Hub and the University of Sussex, drawing key stakeholders and policy makers from across the region. As an initial step, the workshop focused on looking into ways that innovation

systems could support East African countries' response to climate change through leveraging financial and technological opportunities. This engagement was designed to enable policy makers to understand the importance of building innovation systems in adopting and sustainably implementing climate change mitigation and adaptation technologies. On this premise, enhancing capacity for implementing innovation systems to leverage climate finance for NDC delivery in order to increase the flows of climate technologies was a key focus of the April 2017 CRIBs *Making Climate Finance Work For Africa* workshop.

The CRIBs approach, however, is not yet widely diffused amongst East African policy makers. In this regard, it is essential that the approach fits into the context of climate and development governance in the region. The approach's feasibility, and its novelty, is hinged on its incorporation of multiple stakeholders towards broader perspectives of climate finance and technology interventions. Critically, reconciling policy makers' different priority targets and resource constraints is central to operationalization of CRIBs as an approach for implementation of NDCs.

In addition, with different countries having diverse perspectives and approaches to innovation systems, there is, at present, inadequate cross-interaction, information sharing and partnership with regard to innovative actions taking place in different places by various actors. Towards this end, strong national innovation systems, coordinated by intermediary organisations like CRIBs with designated regional linkages, could go a long way to building more integrated innovation systems that motivate cross-sectorial learning and actions.

Further, linking CRIBs with local indigenous knowledge on the one hand, and interacting with policy and framework processes on the other, is critical. This serves to maximise climate and development interventions, enabling countries to access best practices and adapt them to local contexts. Additionally, linking innovation clusters/hubs and fitting them into the CRIB framework at different levels, from the regional to the sub-national levels is an important component in maximising the approach's utility. This is via linking existing institutions and facilitating linkages with other institutions hence optimising the effectiveness of these systems. These linkages are essential in enhancing social and political acceptance especially regarding implementation of NDC related project interventions at different levels.

CRIBs proffer an avenue for meaningfully engaging critical stakeholders at a broader scale, at different levels.. As was noted in the 2017 CRIBs workshop, the absence of political capital to catalyse integration of the approach would make it difficult to implement. The 2017 CRIBs workshop achieved some key learning outputs in line with the set objectives including:

- i. Learning the relevance of innovation systems to the implementation of NDCs and in a broader context sustainable economic development in East Africa
- ii. Learning about nesting of innovation systems within the UNFCCC technology and finance frameworks and the relevance of enhancing these systems in implementation and delivery of NDCs.
- iii. Deepening contact with the CRIBs approach to building innovation systems and relating it to various country experiences.
- iv. Gaining insights on the approach's utility in increasing competitiveness by leveraging climate finance for implementation of NDCs.
- v. Gaining insights on the need and opportunities for cross-sectorial learning/integration in climate change technology design and implementation
- vi. Networking opportunities for regional networks that can move the deliberations forward and contribute to fostering learning on building innovation systems.

Key actions towards integrating CRIBs

Continuous engagement, elaboration and interrogation of innovation systems including CRIBs is essential to enhancing follow-up actions. These actions are designed to integrate innovation systems in East African countries' NDC actions, leveraging climate finance for them. Towards this end, some key actions that might enhance nesting innovation systems in leveraging climate finance for NDC delivery include:

- i. Enhancing continuous engagement around exploring the CRIBs approach and its applicability. This is key to mainstreaming CRIBs in national and regional action plans
- ii. Fostering indigenous innovation and embedding it in national and regional NDC interventions.
- iii. Enhancing policy innovation with a focus towards dynamic and responsive policy outcomes. This would enhance their ability to be responsive to emerging challenges and opportunities. It was noted that CRIBs could be a useful approach to realizing this goal.
- iv. Creating platforms to foster knowledge exchange and collaboration among players is also crucial. This would increase collaboration between different actors to share best practices via sub-national, national and regional consortiums and networks.
- v. De-risking innovation via deploying innovation system approaches such as CRIBs would change per-

ceptions of innovation systems. This would help mainstream innovation systems in national priority actions in order to facilitate effective and efficient implementation of NDCs, national and regional development goals.

Further Reading

- D. Ockwell and R. Byrne (2015) Improving technology transfer through national systems of innovation: Climate Relevant Innovation-system Builders. (CRIBs) Climate Policy 16 (7): 836-854 OPEN ACCESS: <http://www.tandfonline.com/doi/full/10.1080/14693062.2015.1052958>)
- D. Ockwell and R. Byrne (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 http://steps-centre.org/publication/cribs_policy/
- D. Ockwell and R. Byrne (2015) CRIBs (Climate Relevant Innovation-system Builders): An Effective Way Forward for International Climate Technology Policy STEPS Working Paper 77, Brighton: STEPS Centre <http://steps-centre.org/publication/cribs-climate-ockwell-byrne/>
- D. Ockwell and R. Byrne (2016) Sustainable Energy for All: Technology, Innovation and Pro-Poor Green Transformations, Routledge, Abingdon <http://steps-centre.org/publication/sustainable-energy-for-all-innovation-technology-and-pro-poor-green-transformations>
- D. Ockwell, R. Byrne, J. Atela, R. Makomere K. Mbeva (2017) Making Climate Finance Work for Africa: Using NDCs to Leverage Climate Relevant Innovation System Builders (CRIBS), Climate Resilient Economies Programme Workshop Training Brief 1 <http://www.acts-net.org/cribs>
- D. Ockwell, R. Byrne, J. Atela, R. Makomere K. Mbeva (2017) Making Climate Finance Work for Africa: Using NDCs to Leverage Climate Relevant Innovation System Builders (CRIBS), Climate Resilient Economies Programme Workshop Training Brief 2 <http://www.acts-net.org/cribs>

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