



CARIAA
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Initiative in Africa and Asia*

Regional Economic Communities and Climate Change Adaptation in Africa

***Background Paper on Lessons Learned
from CCAA***

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Titles in this series are intended to share initial findings and lessons from research and background studies commissioned by the program. Papers are intended to foster exchange and dialogue within science and policy circles concerned with climate change adaptation in vulnerability hotspots. As an interim output of the CARIAA program, they have not undergone an external review process. Opinions stated are those of the author(s) and do not necessarily reflect the policies or opinions of IDRC, DFID, or partners. Feedback is welcomed as a means to strengthen these works: some may later be revised for peer-reviewed publication.

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Abstract

Regional institutions have a critical role to play in supporting solutions to trans-boundary issues related to a changing climate, including adaptation. Focusing on the eight Regional Economic Communities (RECs) recognized by the African Union and established under the Abuja Treaty in 1991, this paper demonstrates the ability of regional institutions to pool existing knowledge and resources, leverage local and national policies, and give a voice and robust bargaining position to African countries at international negotiations. Relying on secondary data and case studies drawn from the Climate Change Adaptation in Africa (CCAA) research program, the paper demonstrates the significance of regional approaches to climate change adaptation, and suggests ways in which RECs may be strengthened to effectively exploit their potential and harness opportunities for leadership on climate-compatible development. Four potential institutional models are proposed, and key REC-specific institutional and structural barriers to effective delivery are highlighted. Limited regulatory frameworks, lack of support from member states, and insufficient human and financial capacity are challenges to effectively addressing vulnerability to climate change.

Key words

Climate change, Africa, adaptation, regional cooperation, trans-boundary resources

Résumé

Les institutions régionales ont un rôle de soutien essentiel à jouer dans la recherche de solutions aux problèmes transfrontaliers liés aux changements climatiques, notamment en matière d'adaptation. En examinant les huit communautés économiques régionales (CER) reconnues par l'Union africaine et établies en vertu du Traité d'Abuja en 1991, ce document d'information illustre la capacité des institutions régionales à regrouper les connaissances et les ressources existantes, à tirer parti des politiques locales et nationales, et à fournir une voix et une position fortes aux pays africains en vue des négociations internationales. En s'appuyant sur des données secondaires et des études de cas tirées du programme de recherche Adaptation aux changements climatiques en Afrique (ACCA), le document démontre l'importance des approches régionales à l'adaptation aux changements climatiques, et propose des façons de renforcer les CER afin d'exploiter efficacement leur potentiel et de favoriser le leadership en matière de développement compatible avec la lutte contre les changements climatiques. Quatre modèles institutionnels potentiels sont proposés, et les principaux obstacles institutionnels et structureaux auxquels font face les CER sont soulignés. Des cadres réglementaires déficients, un manque de soutien des États membres et l'insuffisance des ressources humaines et financières nuisent à la gestion efficace des vulnérabilités liées aux changements climatiques.

Mots clés

Changements climatiques, Afrique, adaptation, coopération régionale, ressources transfrontalières

Acronyms

ACPC	Africa Climate Policy Centre
AMCEN	African Ministerial Conference on Environment
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
CCAA	Climate Change Adaptation in Africa
CCU	Climate Change Unit
CGIAR	Consultative Group on International Agricultural Research
COMESA	Common Market for Eastern and Southern Africa
EAC	East African Community
ICPAC	IGAD Climate Prediction and Applications Centre
IGAD	Intergovernmental Authority on Development
NAP	National Adaptation Plan
NAPA	National Adaptation Programme of Action
NBI	Nile Basin Initiative
NGO	Non-governmental organization
OMVS	Organization of the Development of the Senegal River
PM	Prime Minister
REC	Regional Economic Community
RIA	Regional Integration Agreement
SADC	Southern Africa Development Community
SADC-CSC	SADC Climate Services Centre
SADC-DMC	SADC Drought Monitoring Centre
SLR	Sea-level rise
UNECA	United Nations Economic Commission for Africa
UNFCCC	United Nations Framework Convention on Climate Change
WAEMU	West Africa Economic and Monetary Union

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1. Introduction

Although the spotlight on the role of institutions in supporting climate change adaptation has been focused to date on national and sub-national level institutions, regional institutions—be they practice-, knowledge-, or politics-oriented—have a critical role to play. For instance, vulnerable trans-boundary natural resources (such as water bodies and courses, and coasts) demand interventions that exceed the capacities of local and even national institutions. Climate change will also exacerbate existing regional issues such as human migration. Pooling knowledge and resources, leveraging local and national policies, and giving a voice and robust bargaining position to African countries at international negotiations are some of the ways in which regional institutions can support adaptation.

The African Ministerial Conference on Environment's (AMCEN) focus on climate change can be traced back to its 12th Session in 2008 in Johannesburg, in which its Secretariat was mandated to help develop a common African position. At its Special Session in 2010, AMCEN also called on the Regional Economic Communities (RECs) to exhibit leadership and develop a Comprehensive Framework Programme on Climate Change in Africa to guide the implementation of climate change interventions. Similarly, the Africa Climate Policy Centre (ACPC) within the United Nations Economic Commission for Africa (UNECA) holds that the impacts of climate change on the African continent are too severe and multi-faceted to be tackled by national institutions alone, and called for a regional strategy that brings together the common efforts and aspirations of the countries in the region.¹ The main focus in this paper will be on the eight RECs recognized by the African Union and established under the Abuja Treaty in 1991.² They hold a political mandate that has been strengthened over the past decades as a result of the intensification of the continent's regional and sub-regional integration and cooperation processes. Furthermore, each of these RECs has established specialized technical bodies to provide support and advice on specific areas.

As currently organized, these regional institutions face some challenges in effectively assuming their envisaged leadership role. Although climate change has recently risen up the political and development agendas of most RECs, this rise has not been accompanied by the structural and programmatic reforms in these institutions that are necessary to operationalize climate change programs of the kind requested by AMCEN. The REC secretariats typically face constraints with respect to programme funding, human resources with sufficient technical capabilities, networks, and linkages to strategic national, regional and international institutions. There are also limited regional-level policy and regulatory

¹ New voices, different perspectives: Proceedings of the AfricaAdapt Climate Change Symposium, 2011 – Published by Institute for Development Studies for AfricaAdapt, www.africa-adapt.net.

² These are: [Arab Maghreb Union](#) (UMA), (ii) [Common Market for Eastern and Southern Africa](#) (COMESA), (iii) [Community of Sahel-Saharan States](#) (CEN-SAD), (iv) [East African Community](#) (EAC), (v) [Economic Community of Central African States](#) (ECCAS), (vi) [Economic Community of West African States](#) (ECOWAS), (vii) [Intergovernmental Authority on Development](#) (IGAD), (viii) [Southern Africa Development Community](#) (SADC).

frameworks for governing the climate-sensitive trans-boundary natural and manmade resources traversing the sub-Saharan African landscape. Attaining consensus on the geopolitical importance of climate change and the most appropriate adaptation strategies is also complicated by the variety of national interests represented within each REC. Reaching an agreement on climate-resilient development for each sub-region is a challenging endeavor.

In this paper, the aim is to demonstrate the significance of regional approaches to climate change adaptation, with a particular focus on how the role of RECs may be strengthened to effectively exploit their potential and harness opportunities for leadership on climate-resilient development. A review of a range of secondary literature sources and selected Climate Change Adaptation in Africa (CCAA) project case studies around strengthening RECs has been undertaken. In section 2, the rationale for a regional approach to climate change adaptation is set out. In section 3, the role of RECs in championing climate change issues beyond national boundaries, thereby bringing coherence to overall regional development aspirations, is explored. In section 4, viable institutional arrangements through which this potential leadership role can bring about more climate-resilient development are proposed. Finally, existing challenges are addressed.

2. Rationale for a regional approach

Regional collaboration is particularly relevant in the context of climate change and variability, as most resources at risk are trans-boundary and thus beyond the sovereignty of individual countries. Water is one such resource. For instance, an estimated 90% of Africa's surface freshwater resources are found in river basins shared by four or more countries (such as the Congo, Zambezi, Nile, Niger, and Senegal). The River Nile alone is shared by ten riparian states. Furthermore, competition over trans-boundary water resources—be they rivers, groundwater or lakes—has led to violent conflicts in the past (Newton 2007). The Senegal–Mauritania conflict over the Senegal River is one such example of a trend in heightened competition within and among modern states for natural resources (Magistro 1993). Consequently, trans-boundary resources call for cooperative management processes.

In particular, climate change is likely to present additional challenges for cooperation on river basin management between governing institutions (Goulden et al. 2009). This is because water availability will affect related sectors, such as food security. With changing rainfall patterns, farmers will turn to freshwater resources to secure their livelihoods, further increasing the pressure on water resources (Goulden et al. 2009).

On the flip side, the strong mutual dependence between neighboring countries sharing a water resource also creates opportunities for cooperation that have been harnessed in many sub-regions. One of the best examples of cooperation on shared water resources is the protocol signed in 2000 by 14 member states of the Southern Africa Development Community (SADC). According to this protocol, commissions for all trans-boundary rivers

basins will be set up to ensure coordination and enable joint development and management of water resources infrastructure between two or more countries. Other examples include the Nile Basin Initiative (NBI), created by nine countries sharing the Nile River, and the Organization of the Development of the Senegal River (OMVS), created in the 1970s in West Africa—one of the oldest organizations of its kind. These cooperation commitments set a precedent for risk sharing between countries belonging to regional integration entities in the implementation of adaptation measures (i.e. the sharing of the burden of the development and implementation of response measures that help avoid or attenuate the impacts of climate change).³

Another climate change-related impact that is threatening human security and economies in Africa is sea-level rise (SLR). SLR is expected to exacerbate inundation, storm surges, erosion and other coastal hazards, thus threatening vital infrastructure (e.g. harbours, urban infrastructure, and industrial units), settlements and facilities in overcrowded and vulnerable coastal cities, as well as small islands. In many countries impacted by SLR, especially those experiencing coastal erosion, national governments have initiated a wide range of interventions to stabilize affected areas and protect infrastructure, resources and people. However, as Nicholls and Mimura (1998) have shown, the commonality of the problems to be solved, as well as the substantial amount of resources needed to solve them, make the regional approach much more efficient. This is the case in West Africa, for instance, where the West Africa Economic and Monetary Union (WAEMU) is leading a five-year regional programme on coastal erosion.⁴

Through its effects on natural resources, climate change is also likely to exacerbate other existing trans-boundary issues, such as human migration. According to McLeman (2011), the makings of a perfect storm are in place: human population numbers are growing fastest in the very regions where the physical risks of climate change are most likely to undermine livelihoods and stimulate migration. In Nigeria alone, it is estimated that 3.2 million people could be displaced from their homes (Nicholls and Mimura 1998). Warner et al. (2009) note that while most people will seek shelter in their own countries, others will cross borders in search of better chances. This puts regional institutions in a unique position to anticipate roles in organizing mobility, resettlement and integration of migrants, as well as in preventing conflicts that may arise.

3. Improving the effectiveness of regional institutions in adaptation

³ See CCAA Final report on Elements of a Regional Climate Change Adaptation Strategy based on the risk-sharing approach – West Africa, June 2007. Available online at: http://web.idrc.ca/en/ev-142270-201-1-DO_TOPIC.html.

⁴ The programme involved WAEMU members Benin, Guinea-Bissau, Ivory Coast, Senegal and Togo, but also covers the Gambia, Guinea, Liberia, Mauritania and Sierra Leone, which are not part of the organization, because "it serves no purpose to look after some coasts and leave others untreated", as the head of the union's water and environment commission stated.

Agrawal et al. (2011) stress the urgent need to understand national policies on adaptation not only through a local lens but also through an analysis of the relationship between different levels (local, sub-national, national, regional) of implementation in order to ensure effective adaptation to climate risks. In the same way that precedents exist for regional-level management of natural resources, the existence of the Regional Integration Agreements (RIAs) provides scope for the RECs to play various roles with regard to climate change that build on their comparative advantages. Consideration of climate uncertainty today and in the future is paramount (African Development Forum 2010). The CCAA program supported a number of research institutions that have generated a significant body of evidence outlining successful examples of adaptations in agriculture and food security, pastoralism, biodiversity and conservation, and water and urban management, from across the African continent. This body of evidence constitutes a very large resource on adaptation options, including opportunities for policy mainstreaming and a suite of best practices, available to RECs. Although adaptation measures should be implemented at the local level, regional institutions have a key role to play in sharing this information, and in fostering the scaling-up and scaling-out of these practices throughout the region. RECs are also well positioned to support local and national institutions in identifying policy, capacity and other knowledge gaps (particularly those of a trans-boundary nature)—especially during the design of National Adaptation Plans (NAPs)—and building capacity to fill these gaps.

There is evidence that substantial gains for sustainable food security and national development adaptation strategies in Africa can be achieved through the provision of improved climate information and prediction products and their integration into decision-making systems (Kadi et al. 2011). However, it is acknowledged that institutions in most African countries have, in general, limited numbers of scientists, research facilities, networks for collaboration and financial resources (African Development Forum 2010). Knowledge generation and management is one of the main mandates of the technical institutions established by RECs, such as the Lake Victoria Basin Commission established by the EAC, etc. These institutions can play a critical role in enhancing African research capacity and creating an adequate shared knowledge base.

To successfully fulfill this mandate, RECs can take advantage of the work that is being done, for example, by the AGRHYMET Regional Centre, Intergovernmental Authority on Development (IGAD) Climate Prediction and Applications Centre (ICPAC) in the Horn of Africa region, and SADC Climate Services Centre (SADC-CSC) (formerly known as the Drought Monitoring Centre, or SADC-DMC), in their regions of jurisdiction.⁵ These regional

⁵ AGRHYMET Regional Centre is one of the specialized agencies within the Permanent Interstate Committee for Drought Control in the Sahel (CILSS) responsible for contributing to food security and natural resource management through information and training in areas such as agro-climatology and hydrology. It now has a clear mandate in relation to climate change. ICPAC is part of the Intergovernmental Authority on Development (IGAD) in Eastern Africa. Its mission is to foster, through a set of programs, sub-regional and national capacity for climate information, prediction products and services, and early warnings and related applications, as a contribution to sustainable development in the IGAD sub-region. SADC-CSC is playing the same role as ICPAC in the Southern Africa Region.

technical bodies have also been instrumental in developing capacity to manage climate uncertainty and its impact on various development sectors through training and special skill building initiatives in modeling seasonal forecasts, regional climate scenarios and other climate information products. Many other research initiatives exist in different fields of climate change adaptation and mitigation. For instance, the results generated by the CCAA program on the synergy between the seasonal climate forecasts produced by the National Meteorological Services and indigenous knowledge-based forecasts (for example the Nganyi Project) is one example of knowledge that can help vulnerable groups and their institutions to overcome the inaccessibility of climate information and to enhance their adaptive capacity.

As well as generating their own region-specific knowledge, RECs can also play a role in supporting adaptation through the strengthening of existing technical bodies and the creation of dynamic links with regional as well as national research and development institutions. RECs should not limit their role to identifying and using research results produced elsewhere but, by harnessing the capacity of existing research and development institutions, develop a research agenda that addresses specific regional concerns. The Climate Change Units (CCUs), which are in the process of being established within RECs (see Figure 1), will be assigned the role of the overall coordination of such a research program.

The knowledge and resources needed for responding successfully to climate change are, in most cases, far beyond the capacity of individual countries and thus better addressed through regional cooperation. For example, in trans-boundary river basin management, the costs of flood protection, hydropower infrastructure, etc. could be shared between riparian states. Other benefits of such collaboration include minimizing the duplication of actions and potential conflicts that individual actions could trigger. Examples of such cooperation include the Zambezi Watercourse Commission, the NBI, and the OMVS. Indeed, RIAs offer a broader context for the development of public goods (knowledge, infrastructure, markets, regional power pools and food security responses)—based on common-pool resource management principles—that can provide substantial benefits in building regional and local resilience to climate change (Wade 1987).

3.1 RECs as mechanisms to leverage local and national policies

Because climate change is a global problem with local effects, decision-making regarding adaptation and mitigation strategies must be built into and coordinated over multiple levels of governance. Knowledge sharing and building a sound empirical evidence base on effective adaptations and the institutional frameworks they require are important strategies for informing policies in key development sectors that intersect with climate change adaptation.

The need to avoid the severe effects of flooding, droughts, and other climate-related events on trans-boundary water resources (as for other shared resources) compels countries

sharing a resource to reach agreement on common rules and procedures of cooperation in jointly managing these resources (Nilsson 2006). Nevertheless, the management of such resources depends heavily upon circumstances at the national level, particularly legal frameworks and governance culture, and legislation and other policy instruments can differ substantially from one country to another. In recognition of the need for agreement across boundaries, the SADC member states are called upon by SADC leadership to harmonize their water policies and adapt them to the principles of the revised Protocol on Shared Watercourses (Pegram et al. 2011).⁶ SADC has received support from donors such as GIZ to train secretariat staff in integrated water resources management, which is critical to making trade-offs and other decisions that are consistent with adaptive water management. These arrangements between countries with competing interests in trans-boundary waters offer a good opportunity at the basin level, as well as the national level, for joint planning for a water- and energy-secure future (Pegram et al. 2011).

These regional initiatives can also significantly improve national processes and policies. For instance, in 2007, as a result of the increasing frequency and intensity of climate-related hazards in West Africa, the ECOWAS Commission developed a policy and programme of action for Disaster Risk Reduction that is currently being converted into strategies at both national and community levels in countries like Senegal and Benin.⁷

3.2 RECs to strengthen the power of member countries at international negotiations

In terms of climate change negotiations, there have been various sticking points over time, but a major issue of ongoing concern for Africa is the negotiation of the 2015 climate agreement, and the likely requirement for certain developing countries to take on emissions reduction commitments. Reminding other parties of the key pillars of the UNFCCC (e.g. common but differentiated responsibilities and capacities), and of the importance of technology transfer and finance, is crucial for the African continent. Building the capacity of African negotiators and equipping them with strong arguments to achieve consolidated positions and improved outcomes at climate negotiations is one of the main challenges in which regional institutions should be playing a leading role, along with pooling resources for capacity building and mitigation actions. An example of where RECs have played a key role in the UNFCCC is at COP 17 in Durban in 2011, when the Common Market for Eastern and Southern Africa (COMESA) was the leading voice lobbying for the inclusion of agricultural issues in the negotiating text.

⁶ The 14 states that have signed this protocol are: Angola, Botswana, Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.

⁷ Programme of action for the implementation of the ECOWAS policy for disaster risk reduction (2010-2014).

RECs are presently playing the role outlined above in many sectors, such as agriculture, finance and trade. They convene meetings of political leaders at the highest level, and these leaders take decisions that are binding for the member states. The member states then regularly report on their performance with respect to these decisions. Such meetings usually provide good platforms for sharing information and good practices with these sectors, in turn leading to coherent policy frameworks and strategies within member countries. However, resource constraints can increase dependence on donors to fund the preparatory meetings required for ministers and top-level negotiators to come together and develop consolidated positions.

4. Institutional arrangements within RECs for addressing climate change

While procedures for addressing trans-boundary issues already exist within RECs, the particular nature and importance of climate change is leading many RECs to consider revising their internal institutional structures in order to effectively address the opportunities and challenges that come with it. Many environment-related institutions in Africa were created some forty years ago with specific stand-alone mandates—e.g. food security and desertification, or water resources—and tend to be poorly equipped for cross-cutting issues such as climate change. Improving institutional capacity will not only improve the potential of RECs to play the roles outlined in section 3, but may also position them better to benefit from climate finance opportunities, such as the new Green Climate Fund. Any new arrangements should be flexible enough to evolve with changes in regional political integration processes, strategic national geopolitical interests, and the climate change negotiation process. This section presents three strategic options for institutional arrangements that will maximize the leadership potential of RECs with regards to climate change issues, and concludes with a summary of the prerequisites for each model.

4.1 Establishing and strengthening Climate Change Units

The framework in figure 1 below has been proposed as a viable institutional arrangement that could enable RECs to assume a leadership role in climate change management in Africa, in keeping with AMCEN's call. The strategy proposes the establishment and strengthening of CCUs within each of the REC secretariats. The proposed CCUs would take the form of an institutionalized department—with a stronger mandate than a cross-sectoral working group—that would interact with all existing directorates on climate change issues. Ideally, these units would report directly to the Executive Secretary or to a person chosen by the REC's governing body. It is important not to anchor the CCUs in any one sectoral department, where they would receive less cooperation from other units that would feel alienated. This framework also takes into consideration the qualities expected of an appropriate institutional framework discussed in previous sections of this chapter. In this framework, the Member States are the key beneficiaries of the inter-relationships between

a given REC and its stakeholders. These would include key regional policy institutions (e.g. ACPC, AMCEN), research and development actors (e.g. CGIAR centres, policy think tanks), climate finance (e.g. the Green Climate Fund) and technical bodies established by the REC (e.g. ICPAC, established by IGAD).

Figure 1 – Proposed institutional arrangement for strengthening the role of RECs

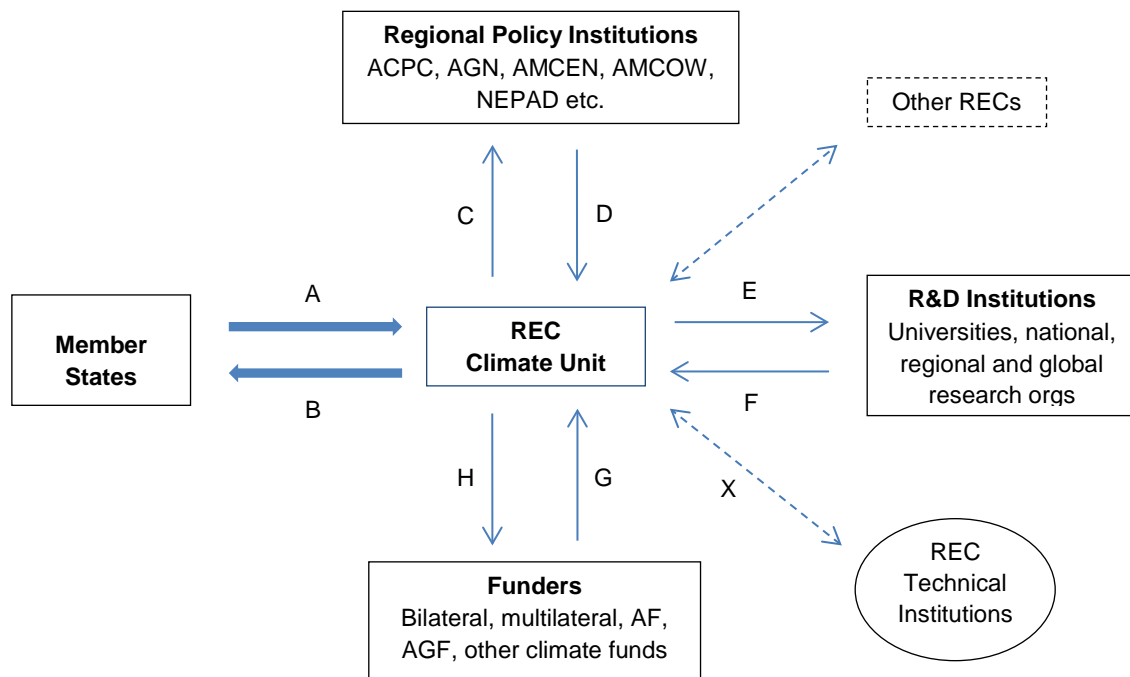


Table 1 lists the value-added elements and feedbacks underpinning each of the envisaged inter-relationships between the RECs and strategic stakeholders.

Table 1 — An elaboration of the innovative institutional arrangement proposed for RECs		
Arrow	Elaboration	Assumption

X	CU and the out-posted technical arm of the REC interact and exchange knowledge	Both institutions appreciate the need and facilitate such interaction
A	Country office (relevant one) sends new data, emerging information or requests specific advice or assistance	National focal point dealing with CC issues exists
B	CU co-ordinates regional CC initiative at country level, provides strategic advice for local-national level action.	National focal point dealing with CC issues exists
C	REC feeds African Negotiators, ACPC or regional level expert groups with its positions on a common issue	CU officer up to date with calendar of events and processes
D	Strategic information requests, sharing down strategies for subregional intervention, etc.	The continental bodies and processes recognize the CU
E	CU requests for data, new findings or contracts strategic studies	CU has database of R&D institutions, their expertise and lead researchers
F	R&D institutions submit research results, new findings for consideration at sub-regional or regional policy level	Sub-regional research agenda and priorities for CC are well known
G	Donors, grant makers provide finance for CC projects	CU meets all requirements for funding
H	CU advises donors on priority areas of investment, submit funding requests	That donors accept and have confidence in advisory from REC

Some RECs, such as COMESA, have already created CCUs, while others, such as SADC, are in the process of doing so (there is currently a cross-sector working group which will likely be institutionalized as an autonomous CCU shortly). Delays have been caused by the absence of agreement on this among the member states: some think a broader Environment Unit would be appropriate while others feel that the current Directorate of Food Agriculture and Natural Resources should play the role. While waiting for bureaucracy to take its course, the Directorate has assigned an officer the duty of coordinating climate-related tasks. The situation is the same in the East African Community (EAC) and its technical arm, the Lake Victoria Basin Commission, both of which are currently developing internal structures to accommodate their climate change initiatives.⁸

Perhaps the most promising institutional attempt to address climate change has been the creation of a combined regional program—the Tripartite Climate Change Programme—by COMESA, EAC and SADC, which was announced in Durban during the COP17. This initiative,

⁸ The CCAA has granted SADC and LVBC Secretariats support to establish institutional and organizational frameworks for a CCU. CCU Furthermore, the CCAA recently gave grants to LVBC and EAC Secretariats to develop climate change communication strategies for their respective institutions.

funded by the European Union, the Government of Norway and UKAid, aims at up-scaling climate-smart agriculture initiatives among small-holders in the member states. Part of the fund will also support capacity building for African negotiators. Similarly, ECOWAS designed a Sub-Regional Programme of Actions against climate change in 2009 which will be supported by Sweden for the implementation phase.

A consultative strategy development process for the CCU would also be useful to ensure relevant areas of programming. Water, food security, energy, and forestry or trade, are recommended areas of focus. Attention should also be given to National Adaptation Programmes of Action (NAPAs) and the new NAPAs, the identification of collaborating partners, and communication plans (and audiences). It would also help to clearly identify not only the capacity needs for the CCU to effectively carry out its role but also the obstacles to surmount internally within the secretariat and externally. The strategies would have to undergo the typical approval process established by each REC and would have to be budgeted for. Each REC would then hire additional human resources for its CCU and facilitate the CCU's coordination and operationalization of the strategy. A key element of this facilitation would be helping to sustain strong communication and networking, mainly with national- and regional-level policy and technical institutions. CCU staff would also participate in wide-ranging workshops and conferences in the region and abroad, and maintain links with CCUs in other REC secretariats.

4.2 Establishing a Climate Policy Advisory in the Executive Secretary's Office

Facilitating regional cooperation is emerging as a basis for diversifying economic activities in general, and leveraging international partnerships in particular. Juma (2011) gives examples of emerging trends in regional research cooperation which demonstrate that RECs can be organized to deliver innovations for sustainable climate change adaptation and mitigation. Such programs would have to be developed bottom-up by scientists from the region and would need to capture the interests of member states' governments and local industry sufficiently to leverage investment. According to Juma (2011), issues related to science, technology and innovation need to be addressed at the highest possible level in government. This is because the intensity and scope of coordination needed to advance innovation exceed the mandate of any one ministry or department and require a level of political capital most effectively marshalled by the chief executive of the country. The chief executive can, for instance, assume the position of minister or head a body charged with climate change activity coordination. In Kenya for example, a Climate Change Policy Advisory has been established in the Prime Minister's (PM) Office and the PM regularly attends COPs and addresses other international and local climate change fora. Other countries, such as Pakistan, have ministries of climate change. The same concept should apply to RECs, where the heads of RECs—the executive secretaries—could create appropriate institutions for policy advice on climate change within their secretariats.

4.3 Building institutional capacities to attract climate change investments

Successful implementation of the climate change strategy of a country or region requires civil servants with the capacity for policy analysis—a capacity which most current civil servants lack (Juma 2011). Training them in technology management, science policy and forecasting should lead to better decision-making. Similarly, training diplomats and negotiators both at regional and national levels on these issues is critical to strengthening their negotiations in the UNFCCC and Kyoto processes. The RECs have yet to deliver on this, a function which non-governmental organizations (NGOs) have attempted to fill to a significant extent. Leveraging the capacity in NGOs—both local and international (e.g. the International Institute for Environment and Development in the UK, which has wide experience in this area)—would go a long way in assisting RECs and their respective member states to build their capacities.

RECs are more likely to attract investment in their flagship climate change programs if their secretariats are functional: trained officers and negotiators, innovative adaptation programs and effective advisory/engagement with member states. However, providing the capacity building necessary to achieve this functionality requires resources in the first place. Obtaining these resources may require an increase in budgets or stronger collaboration and linkages with other institutions. A proper strategy may be required to attract funds from climate finance sources, such as the Green Climate Fund and other bilateral arrangements.

4.4 Optimizing institutional potential for supporting climate-resilient development

Regardless of the model selected, barriers that impede the efficacy of the RECs in supporting climate-resilient development do exist. These barriers include limited regulatory frameworks, lack of legitimacy and support from member states, and lack of human and financial capacity. All of these barriers must be clearly identified and systematically eliminated.

There are limited regional-level policy and regulatory frameworks for governing the climate-sensitive trans-boundary natural resources traversing the sub-Saharan African landscape to begin with. Lack of coordination between the countries is one of the more tangible reasons for this limitation. Governments and civil society in different countries in the region have diverse operating approaches and procedures. National legislative frameworks (laws and standards) are generally different from one country to another. This undermines collaboration, precludes synergies, and leads to substantial inefficiencies in actions at the regional level. It also undermines regional initiatives addressing common and multi-layer challenges like climate change. This problem is exacerbated by the issue of sovereignty, which can dilute initiatives when an individual country or organisation's desire for power or need to fulfill specific responsibilities clashes with the collective good. This is

illustrated, for example, by typical relationships with external donors. For example, in the River Basin Authorities like OMVS, while the principle of solidarity and mutual responsibility between countries receiving funds is stated, the reality is that each country is accountable for the loans it receives to build infrastructure (dams, power infrastructure, etc.).

RECs have also been criticized for their lack of appropriate networks and linkages to national, subnational and international initiatives. RECs will need to increase their legitimacy through the provision of better information and engagement with key stakeholders in the member states. This should, in turn, increase their legitimacy to speak on member states' behalf. One recurrent criticism has been that regional institutions are mainly political and their objectives and programs are developed with a top-down approach, without adequate participation from the local and national levels. This communication and participation gap needs to be filled in order to gain full buy-in, as well as legitimacy to optimize regional development potential and aspirations.

An inadequate level of qualified human resources contributes to this challenge of building legitimacy and linkages with other governance levels. Climate change is a specialist issue; understanding climate science and climate change processes, and their implications for a region, requires a specific knowledge base. Topics include, *inter alia*, vulnerability and risks; the economics of adaptation and particularly the costs of inaction; and social and cultural dimensions, including the contribution of indigenous knowledge to adaptation and mitigation options. To address this limitation, RECs will need to not only develop strategic linkages with the regional research and development communities, but also strengthen and guide established regional centres of excellence in climate change. The new knowledge gained should lead to more integrated programmes that address the need to enhance economic and social resilience, and take into account the additional burden that climate change represents. Such linkages can only be driven by qualified personnel who themselves understand the rapidly-evolving aspects of climate change debates.

5. Conclusion

This analysis supports the theory that regardless of level of preparedness, no country can respond to climate change alone. There is a clear need for a regional response to climate change issues, and RECs have the potential to enable adaptation by fulfilling several important roles: supporting the transfer of good practices, leveraging policies, and supporting negotiators in major climate negotiations. AMCEN has mandated their involvement in the response to climate change, and the African Union has mandated them to implement of the regional integration agenda on economic development. To fill these mandates, RECs can capitalize on their vast experience in negotiations in areas such as trade and agriculture, as well as their experience in making trade-offs between different policy areas to support development. However, despite their potential to play a key role in climate change adaptation, various challenges have impeded their success to date.

The political recognition of climate change as a key item on each of the RECs' development agendas is an important first step that has already been achieved with little effort. The next step is for RECs to put in place new institutional arrangements for climate change leadership. Through consultative processes, these frameworks should not only facilitate the design and implementation of context-specific strategies and innovative adaptation programmes, but also attract resources available locally and abroad, foster knowledge, and engage member states and other stakeholders, including research and policy networks. This paper has outlined three potential institutional models (which are not mutually exclusive): establishing and strengthening CCUs (currently being pursued by COMESA, EAC and SADC); establishing a climate policy advisory in the Executive Secretary's Office; designating additional centres of excellence in climate change, developing human resources and attracting investment. Essential for the success of all of these models is the removal of institutional and structural barriers, such as limited qualified human resources and lack of legitimacy. These can be addressed by, for instance, building human and financial capacity and ensuring legitimacy by encouraging active buy-in from member states.

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