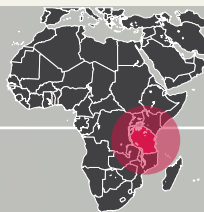


TANZANIA



Population: 40,600,000 (2008)

Source: Demographic Yearbook 2008,
Table 5 Estimates of mid-year population: 1999-2008
<http://unstats.un.org/unsd/demographic/products/dyb/dyb2008.htm>

Carbon emissions per country: 2007: 6,043

Source: (CDIAC) Carbon dioxide emissions (CO₂), thousand metric tons of CO₂
<http://unstats.un.org/unsd/mdg/SeriesDetail.aspx?srid=749&crd=>

Carbon emissions per capita: 2007, Tanzania: 0,1464

Source: (CDIAC) Carbon dioxide emissions (CO₂), metric tons of CO₂ per capita
<http://unstats.un.org/unsd/mdg/SeriesDetail.aspx?srid=751&crd=>

Population below \$1 (PPP) per day, percentage: 2000: 88,5 %

Source: <http://unstats.un.org/unsd/mdg/Data.aspx>

GDP per capita: Tanzania \$ 1,500 (2010 est.)

Source: <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2004rank.html>





TANZANIA

This section on Tanzania constitutes to a large extent an extract and analysis of the WWF-commissioned national review titled “Climate innovation and entrepreneurship in Tanzania”, produced by West Indian Ocean Marine Science Association (WIOMSA) in August 2009. More elaborate description and analysis of Tanzania’s national climate innovation system can be found in the full report at www.climatesolver.org.

The Tanzania study reveals that there are a number of innovative activities in Tanzania directly addressing climate change. There are clear indications of collaborative work involving Government, Entrepreneurs, NGOs and

Academia. Furthermore, there is general awareness especially in the private sector of the potentials and opportunities that climate change poses for innovation and entrepreneurship in Tanzania. However, there is a lack of clear approaches on how to exploit these potentials and opportunities.

The climate innovation system in Tanzania

The role of the Government

While climate change is an area of concern for Tanzania and constitutes a challenge often referred to in many government-led initiatives and fora, there is to date little evidence of comprehensive action to address climate change at policy or project level. No climate change policy exists and neither is climate change particularly mainstreamed into other policy areas. Nevertheless, the government of Tanzania has been well aware of the environmental problems that the country is faced with for many years, and many policies and regulations have been put in place to address environmental conservation. Issues like coastal erosion, forest degradation, destructive fishing, etc. are well covered at policy level, and are very relevant for adaptation and mitigation of climate change. Furthermore, analysis shows that there are government institutions that have taken initiatives to promote issues such as renewable energy, but these are not run systematically. Such positive efforts were identified by the Rural Energy Agency in the Ministry of Energy in mainland Tanzania and Department of Cash Crops, Fruits, and Forestry in Zanzibar.

The government has initiated the development of a National REDD Strategy in response to the global REDD initiative. There are various programs and projects that are currently being implemented as REDD quick-start initiatives. As a concept introduced in climate change policy negotiations, REDD is a crosscutting issue. It involves various sectors and a broad range of stakeholders in order to bring significant attention to the effects of deforestation and the importance of carbon storage as an ecosystem service vital for mitigating climate change.

Non-governmental Organizations

Several local Non-governmental Organizations (NGOs) are actively engaged in programmes promoting climate change mitigation through climate entrepreneurship. These programmes target a number of relevant areas such as the establishment of biogas plants, the manufacture and utilisation of economy stoves, solar energy installations, and tree planting. Furthermore, strong support from international donors including Sida, DANIDA and GTZ, the NGO community, as well as from several government agencies, make it possible to carry out climate

innovation activities through sensitisation of key stakeholders, and training of trainers in renewable energy entrepreneurship.

Knowledge Institutions

There seems to be very limited initiatives and research on climate change in general and climate innovations in particular within knowledge and R&D institutions in Tanzania. The College of Engineering and Technology, under the University of Dar Es Salaam, is however running a program on innovation systems and clusters where two cluster initiatives are preparing to address issues of climate innovation and entrepreneurship. Within the same University, the Institute of Resource Assessment is supporting the government's work in implementing the REDD program.

Another example of an initiative promoting the use of climate innovations is the work carried out by the Centre for Agricultural Mechanisation and Rural Technology (CARMATEC), which is a semi-state organization under the Ministry of Industries, Trade and Marketing. The Centre is engaged in the design, development, and establishment of biogas plants, solar cookers and solar heating systems, which all constitute important technologies for reducing greenhouse gas emissions as well as for adapting to more sustainable use of natural resources.

Entrepreneurs and the private sector

An analysis of the various climate initiatives among the key stakeholder groups in Tanzania reveals that most activities on climate innovation and entrepreneurship are conducted by the private sector, often in collaboration with local and international NGOs. There are a number of business groups and individuals promoting and benefitting from the use of climate innovations, mostly within the energy sector. Such activities include investments in all types of renewable energy sources - bio-energy, solar, wind, and water power.

Institutions promoting climate innovations in the private sector are the Tanzania Private Sector Foundation (TPSF) and the Tanzania Chamber of Commerce Industry and Agriculture. These institutions are mainstreaming climate innovation and entrepreneurship into their institutional programmes to promote and support climate innovation and entrepreneurship in Tanzania. Such support is channelled as grants, technical assistance, and training in various aspects of climate change and innovative solutions.

Challenges and Recommended strategies

Strengthening systems for knowledge development and information-sharing

Public awareness of climate change in Tanzania is quite high. Wide dissemination of climate information as well as personal observations of changes in climatic conditions affecting lives and livelihoods are believed to be among the

reasons for such high general awareness. However, this positive trend among the public has not succeeded in raising awareness for the great potential of innovation opportunities and entrepreneurship for climate change mitigation and adaptation. Knowledge institutions can play an important role in developing and transferring research and innovation to entrepreneurs for commercial application. However they are faced with a number of challenges. One such challenge is their limited outreach to communities and markets, which hinders commercial application of existing innovations and new research findings.



PHOTO: © WWF-CANON / JASON RUBENS

Awareness raising and knowledge sharing is important to strengthen the innovation system.

In order to strengthen the important role of knowledge institutions in Tanzania and promote increased sharing of information among key stakeholder groups, there is a demand for the establishment of climate innovation centres (“one-stop centres”). Such centres could play a vital role in the compilation, analysis, and dissemination of knowledge and best practices on climate change and innovations.

Building capacities and increasing resources

Limited access to funding sources, technology, and know-how are deemed to be the most significant obstacles for enhancing climate innovations in Tanzania. Lack of finance is a situation faced by all key stakeholder groups - the private sector, entrepreneurs and research institutions - involved in the climate innovation system, National and local NGOs who are active in the field of climate and entrepreneurship in Tanzania also find themselves dependent on attracting international funding. Though there is no easy solution to this challenge, there is a clear need for government and private sector engagements to establish instruments for targeted funding support to entrepreneurs and other stakeholders in the national climate innovation system. For example, District and Regional Business Councils should promote investments at local levels, while at the national level private sector organizations, NGOs, and support institutions should assist entrepreneurs by providing them with market information and by promoting linkages to potential markets. Considering the possible international support, more needs to be done in order to explore how entrepreneurs in Tanzania can benefit from and capitalize on international financial facilities for climate change mitigation and adaptation.

As mentioned above, it is not only financial constraints that hamper the development of climate innovations in Tanzania. Low access to both technology and explicit skills in key areas are also of great concern. In order to enhance technology transfer from abroad, collaboration between local enterprises and foreign firms and organizations involved in climate innovation should be promoted. Entrepreneurs need to improve their business skills and recognise opportunities that emerge in the effort to manage climate change. Institutions involved in entrepreneur development should become more proactive in disseminating information about best practices in climate innovations while enhancing the competitiveness of enterprises engaged in businesses relating to climate change.

Establishing an enabling institutional framework

The government obviously has an important role to play in terms of providing policies and incentives to facilitate climate innovation and entrepreneurship. However, neither climate innovation nor entrepreneurship seem to be a particular policy priority in Tanzania, and the few initiatives that are in place suffer from weak implementation and enforcement structures.

The Government of Tanzania would benefit from first harmonizing existing policies to ensure appropriate integration of climate change measures, including entrepreneurship,

in the most relevant sectors. Furthermore, many national stakeholder groups are requesting that the government establish consolidated standards, legislation, and a policy on climate change mitigation and adaptation. Finally, while analysis shows that there is currently little dialogue between government and other key stakeholders within the national climate innovation system, such stakeholders should be consulted and engaged in the development of such policy and legislation.



PHOTO: © WWF-CANON / MICHEL TERRETTAZ

Small-scale off-grid energy technologies are part of the solution to address energy poverty.



Preparing biochar in a village near Udzungwa Mountains National Park, Tanzania

Coupled with targeted efforts to enhance the currently poor business enabling and regulatory environment, the government would with the above-mentioned policy efforts be able to stimulate organizations, businesses, and entrepreneurs to invest more in effective climate innovations.

Establishing a national platform for coordination and information exchange

Studies show that a number of institutions and actors from all key stakeholder groups are engaged in the area of renewable energy and climate-change related work. Unfortunately though there is a perceived distance between many of these actors and no apparent national mechanism that promotes cooperation and coordination. Although most ministries, departments and agencies at government level have sections dealing with environmental issues, there is very little coordination and interaction between these institutions.

Harmonization of policies on climate change, climate innovation, and entrepreneurship needs an environment that promotes the inclusion of the government, private sector, and civil society in the policy revision/formulation processes. Such involvement of key actors would be a significant step towards policy frameworks that provide a favourable environment for climate innovation and entrepreneurship.

The key institutions and components comprising the national climate innovations system exist in Tanzania, but they do not reap the benefit of operating as a coherent system with formalised institutional collaboration frameworks. For this reason there is a need to develop a platform that enables better linkages and collaboration among key actors with a particular view to ensure that non-governmental stakeholders can engage in policy development, regulations and the establishment of incentives.