

Technology Fact Sheet for Adaptation

Technology: Demarcation and Protection of Riparian Buffer Zones ⁱ	
Technology characteristics	
Introduction	Human induced activities such as uncontrolled logging and mining activities, human settlements, urbanization, livestock populations, and poor agricultural practices have degraded the vegetative cover at headwaters and along the banks of many river systems and other surface water bodies. These poor and unsustained management practices are jeopardizing the physical quality of the environment, the hydrological and ecological support systems and the livelihoods of local inhabitants around these water bodies. These activities have further exposed most of Ghana's rivers and water bodies to the vagaries of the weather, and may as a result, account for the many streams and rivers, which used to be perennial, but are now experiencing periodic drying up. The creation and protection of Buffer Zones for water bodies are intended to control these human induced activities in the vicinity of the bodies, protect, regenerate and maintain the native/ established vegetation in the zones to improve water quality, maintain the functionality of the water bodies and ensure the sustenance of the ecological and socio-economic functions of the zones. Buffer zones refer to the existence of physical areas that separate either two ecological systems or an ecological system from other land uses or that border a water body. The functional aspect of Riparian Buffer Zones can be categorized into natural (ecological) and human (socio-economic) services.
Institutional and organizational requirements	A decentralized institutional and organizational arrangement, preferably at the river basin level, would be required to design and implement the technology. Such an institutional framework would require the involvement of the various stakeholders who depend one way or the other on the resources of the basin.
Operation and maintenance	While the implementation and management of the technology at the local level would actually be done by the local body of stakeholders, such as the river basin board in Ghana, the whole system must be coordinated by a designated National body such as the Water Resources Commission (WRC).
Endorsement by experts	The technology is endorsed by national experts
Adequacy for current	The technology seeks to improve the functionality of rivers and

climate	other water bodies and maintain ecological support systems and environmental integrity of the bodies. Therefore, it is suitable for current climate.
Size of beneficiaries group	The technology is beneficial to riverine communities and the country as a whole.
Disadvantages	Disadvantages include the high cost of implementing and maintaining the zones, particularly as this technology is implementable nationwide.
Capital costs	
Cost to implement adaptation options	Costs are high and could exceed US \$.
Additional cost to implement adaptation option, compared to “business as usual”	
Development impacts, indirect benefits	
Reduction of vulnerability to climate change, indirect	Contributes to reduction of vulnerability to climate change by ensuring the availability of the hydrological and ecological support systems for the socio-economic well-being of beneficiary communities and the country at large.
Economic benefits Employment	Jobs would be created for the local communities not only in the creation of the buffer zones (growing trees) but also in the policing and protection of the zones.
Investment	Local communities could also invest in growing fruit trees as part of the buffer and harvest the fruits later for extra income.
Public and private expenditures	Reduce public and private expenditures on climate related disaster management such as flooding from rivers overflowing the banks.
Social benefits Income	Buffer zones would maintain the integrity of river systems and their environment and ensure that local communities could continue to depend on the systems for their livelihood support. For example, buffer zones could provide indigenous plants of diverse species that are traditionally harvested for medicine and building materials and also support fish populations traditionally caught as an important food item in many fishing communities.
Learning	Training elements from capacity building in creation and maintenance of the zones at various levels
Health	The technology could help reduce health risks associated riverine floods and water shortage from drying rivers.

Environmental benefits	The technology protects the environment and maintains its integrity.
Local context	
Opportunities and Barriers	A buffer zone policy has already been formulated by the WRC of Ghana and due to be adopted. In addition, the WRC has established River Basin Boards in some river basins of the country for their management including creation of buffer zones. Barriers include the high cost and the reluctance of some communities to give up farming and other detrimental activities such as illegal small scale gold mining in the zones. .
Market potential	
Status	Ghana already has a WRC with River Basin Boards for the integrated water resources management of the basins.
Timeframe	The implementation can start now.
Acceptability to local stakeholders	The technology is acceptable to a wide spectrum of local stakeholders.

ⁱ This fact sheet has been extracted from TNA Report – Technology Needs Assessment Report – Ghana. You can access the complete report from the TNA project website <http://tech-action.org/>