

Technology Fact Sheet for Adaptation

E Radical terracing ⁱ

Technology: Radical terracing	
Technology characteristics	
Introduction	Radical terracing refers to a technique of landscaping a piece of sloped land into a series of successively receding flat surfaces or platforms, which resemble steps, for the purposes of more effective farming. This type of landscaping, therefore, is called terracing. Graduated terrace steps are commonly used to farm on hilly or mountainous terrain. Terraced fields decrease erosion and surface runoff retaining soil nutrients. According to Mupenzi et al. 2012, radical terraces contributed to increase in the farm productivity, fight against erosion and also contributed to poverty reduction in Rwanda.
Institutional and organizational requirements	The implementation of radical terracing would involve government institutions/agencies such as the Ministry of Local Government-local governance entities, the Ministry of Agriculture and Animal Resources, Rwanda Agriculture Board/ISAR, Training institutions – Gako Organic Farming, NGOs such as, farmers’ associations/cooperatives –Urugero cooperative and local suppliers. Organizational requirements involve knowledge of terraces design, installation and maintenance, including contouring or leveling techniques as well as knowledge of crops suited to radical terraces. Radical terraces can also be implemented at farm-level without specific institutional and organizational arrangements. Notwithstanding, local government agencies can provide assistance in the form of technology transfer and training and subsidies. In terms of social organization, advantage should be taken of communal work ethics and other mutual cooperation systems for faster installing and more efficient maintenance.

Size of beneficiaries	1 000 000 households
Operation and maintenance	Compared to the old landscape, radical terraces are simple and
Advantages	Radical terraces allow for the development of larger areas of
Disadvantages	In terms of limitations, an economic analysis of terrace
Capital costs	
Cost to implement	The average cost to establish on hectare of radical terraces in
Additional cost to	The cost for any additional unit (ha) of radical terraces would
Development impacts, indirect benefits	
Economic benefits	
Employment	The implementation radical terraces are a labor intensive exercise which provides jobs to the local population.
Investment	There are investments opportunities in tools manufacturing. These include picks, shovels, tridents etc
Public and private expenditures	With its potential in soil fertility restoration, the technology would significantly reduce the amount of money spent by the government of Rwanda on subsidized fertilizers.
Social benefits	
Income	By increasing arable surface, soil fertility as well as permanent moisture content, radical terraces contribute to the improvement of yields in both quality and quantity. For example potato yields would increase up to 140% on terraced spaces compared to non terraced ones which generate more income to the farmer.
Learning	Radical terracing technology would add something on the Rwandese farmers' skills and increase family members' opportunities to attend school.
Health	Minimize the number of accidents and casualties as a result of farm operations on steep slopes and landslides.
Environmental benefits	

Well studied and installed radical terraces have several environmental benefits which include;	
-Soil erosion control	
-Soil moisture improvement and maintenance	
-Soil fertility improvement and maintenance	
-Biodiversity conservation	
-Natural hazards (land slide) prevention	
Local context	
Opportunities	-The technology has proven being suitable locally, -Can be implemented by the local population, -It provides an opportunity for improvements in soil, crop and water management practices
Barriers	-Difficult access to credit by local farmers,
	- The technology takes time to give returns which can lead to
Timeframe	There are already some actions to promote and implement the
Acceptability to local	The technology is accepted by Rwandan farmers

ⁱ This fact sheet has been extracted from TNA Report – Technology Needs Assessment and Technology Action Plans For Climate Change Adaptation– Rwanda. You can access the complete report from the TNA project website <http://tech-action.org/>