



Condition of Permanent Weirs Constructed by COBSI Study and T-COBSI was monitored by TSB and CEOs in FU provinces

During the COBSI study and T-COBSI project, permanent-diversion-weir irrigation scheme were introduced in Northern, Luapula and Muchinga provinces. The concept is that weir structure is upgraded/ reinforced to concrete or wet masonry structure where existing simple weir irrigation scheme is well functioning and adequately maintained by the users. By doing so, the upgraded irrigation system will be more sustainable. Under this concept, COBSI study and T-COBSI selected twenty-two (22) sites from the existing simple weir irrigation schemes and constructed the permanent weirs. In the E-COBSI period also upgraded some simple weirs to permanent weirs. The Project has surveyed the current situation of the constructed permanent weirs to grasp challenges and lessons learnt since the beginning of the project. Although the survey data is still being analysed, we would like to share the most up-to-date information about twenty-two permanent weirs.

Implementation of the Survey on the permanent weirs constructed by COBSI study and T-COBSI

While COBSI study constructed 8 permanent weir sites as a pilot project, T-COBSI established 14 sites. Thus 22 permanent weir sites constructed by JICA's projects, and their current condition was surveyed by the DACO's office as of August 2020, using a questionnaire survey form. The following table shows a summary of the survey results.

Although the survey had more questions about the permanent weir, we only show part of them in the table.

The survey mainly included the current situation of O&M of the facilities, water management, farmers organization as water users' group, and actual condition of the permanent weirs.

The table only shows the irrigated area at the end of COBSI study and T-COBSI and August 2020, although the survey was carried out in 2019 as well.

Province	District	Site name	E-COBSI	1. Irrigated Area (ha)		2. O&M (Weeding, desilting, etc.)		3. Water Users' Group	
				2011 & 2016*	August 2020	August 2020	Condition of Weir	By-law (August 2020)	Water User Fee (August 2020)
T-COBSI 14 Permanent Weir Sites									
Northern (6)	Kasama	Musanda	Direct Support, DMS	4.5	5	○	Good	To be checked	x
	Mungwi	Twikatane	Direct Support, DMS	2.5	4	○	Partially Damaged	x	x
	Lupososhi	Chibwale	Direct Support, DMS	5	7	○	Good	○	○
	Mbala	Kawama	Direct Support	10	6.75	○	Good	△	x
	Lunte	Mpela	Direct Support	4	10	○	Good	○	○
	Nsama	Munyele	Indirect Support, DMS	2.25	3	○	Good	○	○
Luapula (5)	Mansa	Kalila	Direct Support, DMS	2.6	2	○	Good	○	○
	Mwense	Buyantanshi	Direct Support, DMS	8	0.75	○	Good	○	△No collection
	Chipili	Fitungulu	Direct Support, DMS	2.5	2.13	○	Good	○	△No collection
	Kawambwa	Chansamalamba	Direct Support, DMS	2.25	1.5	○	Good	○	○
	Nchelenge	Munsa	Indirect Support, DMS	11	30	○	Good	○	○
Muchinga (3)	Mpika	Lubanga	Direct Support, DMS	5	4.5	○	Good	△	x
	Isoka	Lualizi	Direct Support	2.5	5	○	Partially Damaged	○	○
	Nakonde	Musanza	Direct Support, DMS	4	0.81	○	Partially Damaged	○	△No collection
Total Irrigated Area (ha)				66.1	82.4				
Average Irrigated Area (ha)				4.7	5.9				
COBSI 8 Permanent Weir Sites									
Northern (4)	Mungwi	Nseluka	Direct Support	6	2	○	Good	x	○
	Lupososhi	Chaiteka	Direct Support	3	6	○	Partially Damaged	△	x
	Mporokoso	Kasonde	Indirect Support	1.25	N/A	N/A	N/A	N/A	N/A
		Chilala	Direct Support, DMS	3.3	2.5	○	Partially Damaged	○	x
Luapula (3)	Mansa	Kakose	Direct Support	0.85	2.5	○	Partially Damaged	△	x
		Mililiwa lower	Direct Support	2	5	○	Partially Damaged	x	x
	Kawambwa	Chibolya	Direct Support	3.2	0	No Irrigation	Partially Damaged	x	x
Muchinga (1)	Mpika	Malashi	Direct Support	7.9	25	○	Good		
Total Irrigated Area (ha)				27.5	43				
Average Irrigated Area (ha)				3.4	6.1				

Remarks:

Figures from "2011 & 2016" are indicated in the Final Report of COBSI study and T-COBSI

"△No collection" shows the group plans to collect the fee, but not collected it yet.

"DMS" means District Model Site

Some sites increased the irrigated area, but the other sites decreased the size. On average, the irrigated area increased from 4.7 ha to 5.9 ha per site. Especially, that in Munsa site, Nchelenge district is burgeoning, increased from 11 ha to 30 ha, and this lifted the average of all the sites.

There are several factors leading to increased irrigated area; extension of furrows, expanded farmland, increase of market demand, new farmer members. On the other hand, the decrease may be attributed to a shortage of irrigation water, financial difficulty because of inflation of agricultural input prices, etc.



Mpela Irrigation Site in Lunte District, Northern province, constructed by T-COBSI. Maize is always intercropped with all the crop. A picture shows intercropping of maize and onion.

All the surveyed permanent weir sites conduct regular maintenance of irrigation facilities. Farmers practicing irrigated agriculture inevitably conduct operation and maintenance of the weirs and furrows. T-COBSI sites have a better condition of the permanent weirs, but we found partial damages of the weirs on three sites.



Musanda Irrigation Site in Kasama District, Northern Province, constructed by T-COBSI. Condition of the permanent weir is good, and this site is selected as E-COBSI District Model Site.

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On the other hand, most of the COBSI study sites have partially damaged on the weirs and require repairing of the weirs using cement because ten years have passed since they were constructed from 2010.



Chilala Irrigation Site in Mporokoso District, Northern Province constructed by COBSI-study. Although the weir is partially damaged, farmers can still take water from the front site furrow.

Regarding capacity development of farmers' organization (water users' group), most of the sites have written "by-laws" of the group as of August 2020. Group activities gradually become active and many sites have collected water users' fee. As an alternative of collection of water users' fee, the JICA project team also suggests that if the group owns communal farmlands and produces some vegetables, it can spend money from the sale for the O&M of the permanent weirs, such as buying cement.

The CPUs and the JICA project team continues monitoring and analysis of the permanent weir development. As output of this activity, we will propose "O&M and water fee collection model for permanent weirs", hopefully, next year, 2021.



Nseluka Irrigation Site in Mungwi District, Northern Province constructed by COBSI-study. The picture shows main furrow at upper part of the site. Farmers monthly conduct O&M of furrow and the condition is good. Volume of the water is high in the furrow.