

CSIAP enters to Laser levelling process to increase water productivity in Paddy Cultivation

Climate Smart Irrigated Agriculture Project (CSIAP) – MOA

Introduction

The precise land levelling is one of the main CSA strategies in Paddy cultivation which leads to improve water productivity. The lack of smooth land levelling and existence of paddy farms with small allotments (Liyadda) has become one of major challenges in rice production. The significant unlevel ness in Paddy field causes uneven water distribution within the Liyadda and leading to hamper even growth of Paddy plants and eventually directly effect to the Paddy production of the farm. Besides, the existence of the small allotments in farms has become main impediment to utilize the farm machinery and it leads to increase the cost of production in Paddy cultivation.

Since our project implement in the Hotspot areas, the prolonged drought is one of the main climate change impact for farming. Hence, the water resource has become one of the major limiting factors for agriculture. Therefore, project has planned to promote the laser levelling technic with land consolidation as pilot program (within 06 Paddy cultivation fields – 06 yaya) during 2024/25 Maha Season covering all provinces.

Objective of the program

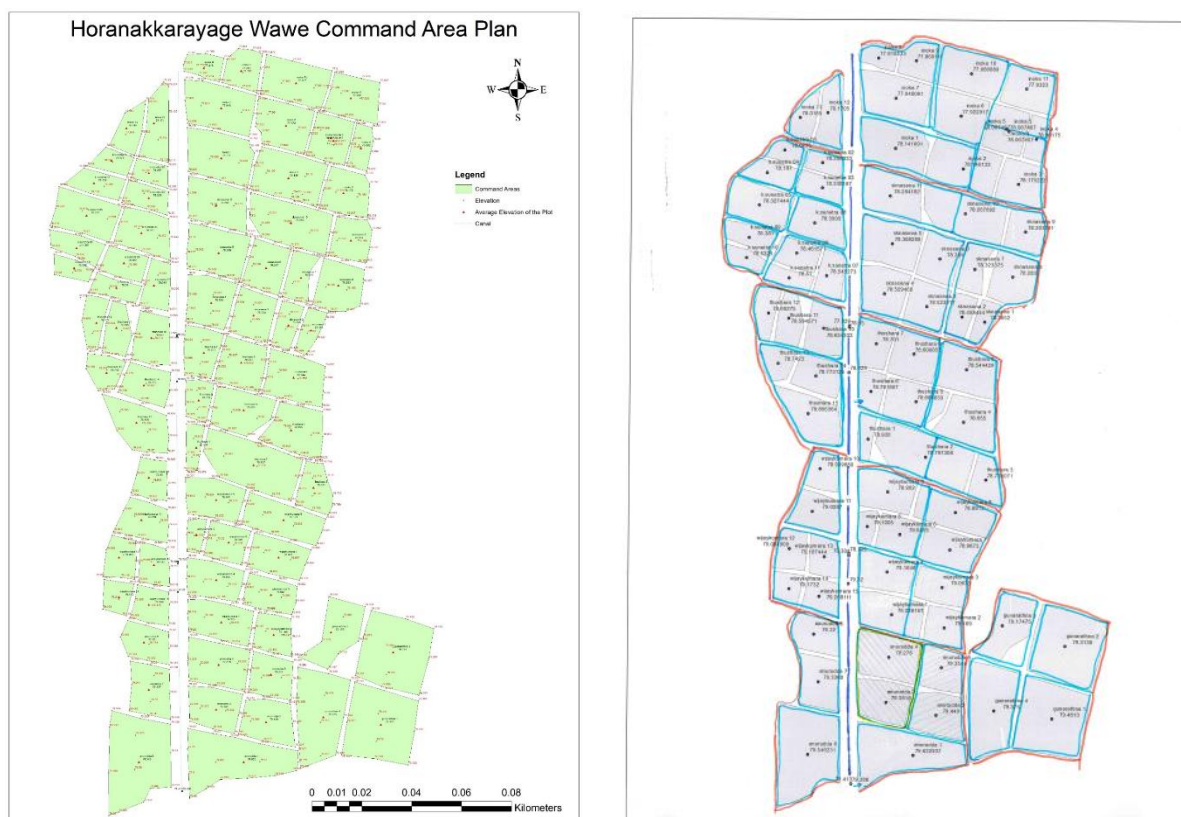
The land levelling means smoothing and flattening the Paddy fields to a uniform elevation. This is one of main CSA strategy, which leads to use minimum water quantity for Paddy cultivation. The main objectives of this program is to carry out precise land levelling in Paddy fields to improve the water productivity and finally reduce water usage for Paddy cultivation from 4.5 ac.ft up to 3.5 ac.ft.

Benefit of land levelling and land consolidation

The smooth land levelling helps to farmers on many ways to increase the farm productivity as well as water productivity.

- (I) Productively use of available limited water for land preparation and crop management.
- (II) Ensure uniform crop growth and maturity as a matter of equal water and input availability for all Paddy plants in the plot.
- (III) Minimize soil & nutrient erosion and reduce the weed problem.

- (IV) Increase cultivable land area by 5 % as a matter of land consolidation by removing existing bunds.
- (V) Eventually increase the agriculture and water productivity of the farm and increase farmer family income.



NCP – Anuradhapura District – Horanakkarayage Wewa Before and After land levelling

Program implementation plan

- A. This pilot program implements in all 06 provinces covering six cascades. Herewith present with the details of proposed program implementation extent and farmer participation for this program as follows.

Implementation Plan – during 2024/25 Maha Season

Province	District	ASC	Proposed cascade	Proposed tank name	Total extent planned for laser levelling (Ac)	No. of farmers involved for this program
NCP	Anuradhapura	Parangiyawadiya	Nabadawewa	Horanakkarayage wewa	10	07

NWP	Puttalam	Thabbowa	Neliwewa	Jayathi wewa	10	12
NP	Kilinochchi	Akkarayan	Mallikaiyaru (upper)	Venneri kulam	05	05
		Poonagary	Pandiveddi	Sinnapallavarayan kadu	03	03
	Mullativu	Thunukkai	Mallikaiyaru upper	Koddaikaddiya kulam	03	01
		Mulliyawalai	Kachcha kodiya	Mulliyawalai (East) Kappapilavu	05	05
EP	Batticaloa	Karadiyanaru	Tharappilaveli kulam	Tharappilaveli kulam	15	15
UP	Monaragala	Wellawaya	Maha ara	Senasuma	14	13
SP						
Total					65 Acres	61

B. Farm fields selection

Project has decided to launch this program within the locations already carry out the water balance studies by Water Resource Management Division. Hence, the water balance studies will be carried out in all land levelling fields, to measure the water productivity. Therefore, all selected fields, should exist with the renovated down stream canal system to ensure the correct water measurements.

Also, at the inception, all relevant farmers are made aware on this program and its benefits, including the land consolidation requirement. Hence, the final farmers selection is made based on their willingness for this program, including the concurrence for land consolidation.

C. Contribution offers by relevant parties for this program

The program implements with the involvement of 03 parties, including CSIAP, Farmer Group, and DOA.

- (1) CSIAP contributes to carry out the land levelling and land consolidation activity. Besides, provides the parachute trays for the needy farmers and AW&D apparatus to practice AW&D technology.
- (2) The farmers contribute to all other cultivation expenses including, land preparation, Agri input and harvesting costs.

- (3) DOA officers contribute to disseminate the knowledge on parachute planting, Paddy crop management and water management including practicing of AW&D technology.

D. Implementation methodology

Implementation methodology involves 03 main activities.

(I) Laser levelling technics

There are two types of laser levelling technics commonly used.

(a) Traditional farming approach

This method involves series of methodical steps. The benefit of this method is, it needs not to depend on the laser-controlled levelling equipment. Farmers can do the smooth land levelling using D4 dozer and Excavator (40 – 60 HP) with Tractor coupled with Disc plough under this method.

(b) Laser land levelling approach

This method is carried out using laser-controlled land levelling equipment. Even though, the precision land levelling could be conducted using this equipment, this equipment is very costly and not freely available for the farmers in our country.

(II) Crop establishment method

Under this program we are planning to promote parachute paddy transplanting or mechanized transplanting methods, which leads to reduce water requirement, control weed growth and increase the paddy production.

(III) Use of AW&D technology

The AW&D technology is a prominent method to productively utilize available water for paddy cultivation, following self-water management system by minimizing water wastages. Project will intervene to promote AW&D technology among beneficiary farmers.



Alternative Wet & Dry Method – AWD tube Colour code apparatus

E. Fund Allocation for the Program

Laser Land Levelling in Maha Season 2024/25 & Yala 2025

Province	Allocations				Total Cost for Land Leveling (LKR)
	Maha 24/25		Yala 2025		
Northern Province	750,000.00	10 Acs.	750,000.00	10 Acs.	1,500,000.00
North Western Province	750,000.00	10 Acs.	750,000.00	10 Acs.	1,500,000.00
North Central Province	750,000.00	10 Acs.	750,000.00	10 Acs.	1,500,000.00
Southern Province	750,000.00	10 Acs.	750,000.00	10 Acs.	1,500,000.00
Eastern Province	750,000.00	10 Acs.	750,000.00	10 Acs.	1,500,000.00
Uva Province	750,000.00	10 Acs.	750,000.00	10 Acs.	1,500,000.00
Total					9,000,000.00

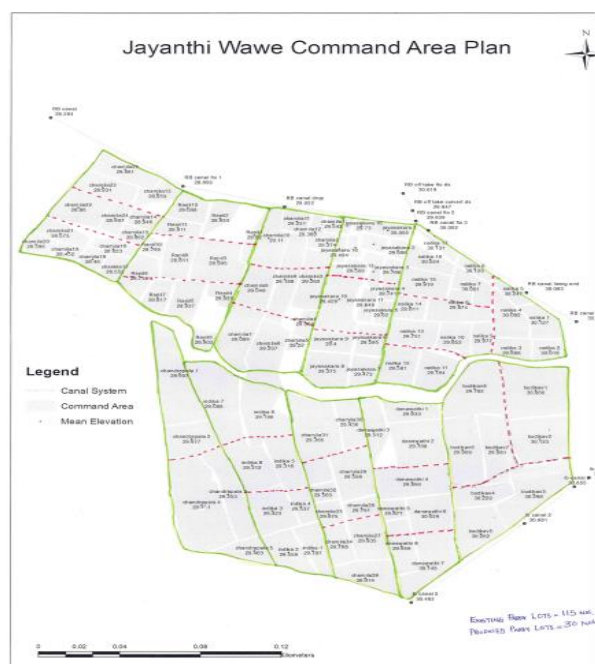
F. Progress of laser levelling program (As at 20th September 2024)

The all provinces have already commenced the activities on this land levelling program as they planned and carrying out levelling programs in different stages. Herewith present the current achievements of those programs as at 2024 September 15th.

Progress of the Program (as at 20th September 2024) – 2024/25 Maha

Province	District	ASC	Selected cascade	Selected tank	Total extent covered (Acres)	No. of farmers involved	Start date	Complete date	Remarks
NCP	Anuradhapura	Parangiyawadiya	Nabadawewa	Horanakarayage wewa	10	07	4 th week Sept	Before 10 th Oct	Laser levelling program is on going
NWP	Puttalam	Thabbowa	Neliwewa	Jayathiwewa	10	12	1 st week Oct	Before 20 th Oct	Land surveying is on going
NP	Mullaithivu	Oddusuddan	Individual	Kuddithankiya Kulam	2	01	Ongoing	Completed - 1ac	Laser levelling program is ongoing and will complete the remaining extend within this week
	Mullaithivu	Oddusuddan	Karuviliyaru B	Kaddaikkadu Kulam	2	01	18/09/2024	20/09/2024	Will be commenced once completed other tank's works

NP	Kilinochchi	Mulankavil	Individual	Pallavarayan kaddu	09	02	N/A	Completed - 02ac	Laser levelling program completed in 02ac due to the limited fund allocation
	Kilinochchi	Poonagary	Pandivedi	Sinnapallavarayankadu	03	02	N/A	Completed - 2.5ac	Laser levelling program completed in 2.5ac due to the limited fund allocation
	Kilinochchi	Akkarayan	Mallikayar upper	Kunchukulam	04	02	N/A	Completed - 4ac	Laser levelling program completed in 04ac due to the limited fund allocation
	Kilinochchi	Akkarayan	Mallikayar upper	Thikkai	2.5	01	N/A	Completed - 2.5ac	Laser levelling program completed in 2.5ac
	Kilinochchi	Akkarayan	Mallikayar upper	Vannerykulam	2.5	01	N/A	Completed - 2.5ac	Laser levelling program completed in 2.5ac
	Mullaithivu	Oddusuddan	individual	Koolamurippu kulam	2	01	18/09/2024	20/09/2024	Will be commenced once completed other tank's works
	Mullaithivu	Oddusuddan	Individual	Vedukkunari kulam	2	01	Ongoing	Completed - 01ac	Laser levelling program is ongoing and will complete the remaining extend within this week
	Mullaithivu	Oddusuddan	Karuviliyaru B	Kaakaipani kan Kulam	2	01	N/A	Completed - 02ac	Laser levelling program completed in 02ac
EP	Batticaloa	Karadiyanaru	Tharapilaveli kulam	Tharappilaveli kulam	12	12			Not yet started
Total					63 Ac	44			



G. Anticipated outcome of this program

1. Increase water productivity and be able to save water in the tank for Yala & Mid-season cultivation.
2. Be able to increase cropping intensity and production capacity of the Paddy farms.
3. Increase cultivable land extent leads to increase the farmer production.
4. Eventually farmer family can get more income than earlier and it leads to enhance the living standard of farming community.

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