



Guidelines for Land Development



Odisha PVTG Empowerment and Livelihoods Improvement Programme

Guidelines for Land Levelling/ Land Development Under OPELIP Funding

Types of Activities:

1. **Land Development:** Land development will comprise of various land treatment activities that reduce soil erosion, conserve rainwater *in-situ*, enhance the overall availability of water in wells and springs, intensify cropping and make farming productive and sustainable. Land development would *inter alia* include the following:

- i. **Land levelling / Field Bunding :** Land levelling combined with construction of **field bunds** may be taken up on land used for settled cultivation with up to 5% slopes and adequate soil depths so that the upstream of the field would retain adequate soil depth for crop cultivation. Land levelling combined with bunds would reduce loss of soil and nutrients during rains and enhance retention of rainwater in the fields, thereby enhancing crop productivity and cropping intensity. Land levelling and bund making also facilitates better use of irrigation where it is available.

Design: Top width of Bund: 1 feet, Height of Bund: 2 feet, Side slope: 1: 1, Bottom width: 5

ft, **Cross Sectional Area : 6 sft.** When bund is laid, proper base stripping and compaction should be done by the beneficiary. Min **30 % extra height** and earth works should be done for bund settlement after rain. The spacing of bund should be laid as per slope, soil type and field size as per convenient of the farmer.

- ii. **Terracing:** Terracing and bund making may be taken up on lands with deeper soils and slopes up to 7%. The considerations in determining sites for terracing (the same applies to land levelling) are that the areas that get excavated (the 'borrow areas') and eventually form the upstream of a terrace should be left with adequate soil depth (which will depend on soil depth of the terrain) so that crops can be grown and the overall cost per ha. Terrains with shallow soil depths underlain with hard rock and those with steep slopes are unsuited for terracing. The presence of boulders in the substrate itself is not a problem as long as there is adequate soil depth. Terraces have effects similar to land levelling by way of conserving soil and nutrients, retaining more of the rainwater and better use of

irrigation where available. The cost of land levelling and terracing depends on the slope as well as the width of fields being levelled or the width of terraces being made for a given earthwork rate. For a given slope and earthwork rate the cost per hectare is directly proportional to the width chosen. It is recommended to make terraces no wider than about 5 to 7 meters as is the practice in hilly and mountainous terrains, such as Uttarakhand and Nepal with a long history of terrace farming.

- iii. **'Five percent' model** : This is a technique of conservation of rainwater in terraced paddy fields to protect paddy against the risk of long breaks in the monsoons and to enable cultivation of a second crop after paddy, particularly a 'catch crop' of oilseeds and pulses like mung beans and lentils. It comprises of digging a 2 m deep pit over 5% area of each paddy terrace (divide the length in five parts and the width in four and mark a grid at the upper corner of the terrace in a terraced landscape and using the dug-out soil to strengthen the bunds on the terrace. Ideally, the pits are staggered across the landscape and the entire landscape is covered. Though harvesting of rainwater would be useful even if done in isolated pits, the technique is effective only when carried out on a 4 to 5 ha contiguous area. As rainwater is harvested in the fields, it in many cases obviates the need to divert run-off from nearby catchments, allowing for better control over water in paddy fields. To locate 5% area, mark a grid on each terrace or bunded plot of land by marking both the long sides (lengths) into five equal parts and both the short sides (widths) into four equal parts and joining the markings. Each of the rectangles represents 5% area.
- iv. **'Thirty-forty' model**: This technique is suitable on terrains too steep or with shallow soils, therefore unsuitable for terracing. A landscape is divided into parcels of 30ftx40ft with a pit at the lowest corner, deep enough to store the run-off of an average storm from the parcel, using the soil from the pit to make shallow bunds along the boundary of each parcel. The presence of pits and shallow bunds (meant primarily to guide rainwater runoff into the storage pit) traps rainwater locally, enhancing local soil moisture regime for better production of crops, fodder grasses and trees and enhances recharging of wells

- and springs. Typically, fruit trees and vegetables can be cultivated around the pits and millets, pulses and oilseeds can be grown in the bunded parcels of land.
- v. **Contour trenches:** On land that is too steep for thirty-forty model (slopes > 7°), staggered contour trenches or continuous contour may be constructed. The dimensions of the trenches would be determined on the basis of site conditions, such as slope, soil depth, rainfall and soil porosity. Contour trenches facilitate percolation of rainwater into the ground so that soil retains moisture for longer periods after the rains, recharge springs and wells and reduce soil erosion by trapping soil from upstream and moderating runoff.
2. The field bunding / land levelling will be taken on priority basis in individual patta lands/FRA lands/occupied land and where they are cultivating and applied for FRA/other agricultural patta.
 3. During selection of beneficiary 1st preference will be the **very poor categories of PVTG** and second is the STs and then SCs, OBC, General caste
 4. The cost norms of Land Development is Rs. 20,000.00 per ha of land. {IFAD (75%), BEN 10%, GoO (15 %)}. Beneficiary contribution should be minimum 10 %. Steps should be taken for more contribution from the beneficiary.
 5. The funds for the same will be transferred from the MPA to VDC. VDC will collect the applications of the eligible farmers and prioritise them for execution.
 6. **Rs. 7200.00 will be the maximum** amount that can be given to one farmer for one acre of land development,
 7. The funds will be transferred to the account of the farmer. VDC may take a decision for utilising machines for the same. It can also be done through the labourer.
 8. The hourly charges of machine should not be more than the scheduled of Rates (SR) of Works Dept, GoO. However, it is a community driven partipatory project; the hourly charges of machines should be decided in the MPA/VDC level procurement committee. **Local quotations should be called for fixing of hourly charges of machinery.** The hourly charges of machine may be much less than the scheduled of rates. The work done in the field on hourly basis should be

more than mentioned in the SR. The appropriate machinery as per need of work should be used as per hourly volume of works.

9. Estimates for the same should be done for Rs. 8000.00 but farmer has to give Rs. 800.00/ labour equivalent for top dressing/finishing/base stripping/stump removal etc, as beneficiary share.
10. The check measurements and all other processes should be maintained as per engineering guidelines circulated earlier.
11. Land development should not only include field bunding or land levelling, it should be diversified with other soil and moisture conservation activities mentioned above.
12. Where necessary, land development activities to reduce soil erosion will also be integrated with horticulture.
13. The land Development in remoter villages should be taken up early so that people begin to earn wages/profits for the same.
14. Case records for the each of individual land treatment should be maintained with proper photographs.
15. Preference should also be given for Land development if required in the clusters for permanent basis. The individual beneficiary allocation should not be more than 1 acre.
16. The benefit of land allocation should be distributed in all the needy villages and should not be concentrated in one/few village.
17. Before implementation of works GIS coordinates of the area should be taken. It should be kept in the case record as well as uploaded in GIS platform.
18. The total no of farmers benefitted from land development should be wall painted as per the formats below in a prominent location of the village.

Sl. No.	Name of Farmer	Area of Land Development (Acre)	No of hour of Machine	Hourly charges of machine	Total Expenditure (Rs.)

			used		