



GOVERNMENT OF KERALA

Abstract

Local Self Government Department - Revised Study Report of Work-Time & Motion for Mahatma Gandhi NREGA (Kerala) - Approved - Orders issued.

LOCAL SELF GOVERNMENT (DD) DEPARTMENT

G.O.(Ms)No.92/2020/LSGD Dated,Thiruvananthapuram, 04/06/2020

Read 1 G.O.(MS)No.162/2017/LSGD dated 19.08.2017

2 Letter No.J-11017/36/2017-RE-VII(359092) dated 28.11.2017 of Ministry of Rural Development , Government of India

3 Letter No.44370/EGS A1/14/REGS dated 18.03.2020 from the Mission Director(MGNREGS)

ORDER

The Work, Time & Motion Study Report of Mahatma Gandhi NREGA (Kerala) submitted by KILA was approved by Government as per order read as 1st paper above. Later, the Ministry of Rural Development , Government of India issued a revised template for preparation of Work,Time & Motion study as per letter read as 2nd paper above and instructed to prepare the same in the revised template. Accordingly KILA was entrusted to revise the study report and the report submitted by them was validated and finalized by the Advisory Committee constituted by the Government for the purpose. Subsequently, the Mission Director (MGNREGS) as per the letter read as 3rd paper above requested for Government approval to the finalized report.

2. Government have examined the matter in detail and are pleased to approve the Report of the Work, Time & Motion study for the Mahatma Gandhi NREGA (Kerala) appended with this Order.

(By order of the Governor)

HARILAL.T.N.

UNDER SECRETARY

To: 1.Mission Director(MGNREGS),Thiruvananthapuram

2.Commissioner for Rural Development,Thiruvananthapuram

3.Principal Accountant General (Audit),Kerala, Thiruvananthapuram

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Date: 2020.06.05 11:05:11 IST

Reason: Approved

Section Officer

Work-Time-Motion Study of

Mahatma Gandhi NREGS

Kerala

Report 2020

(Read with report of August 2016)

Kerala Institute of Local Administration

HUDCO

NIT-Calicut

LBC - Thiruvananthapuram

Maithri, Palakkad

ABBREVIATIONS

SoR		Schedule of Rates
NREGA		National Rural Employment Guarantee Act,2005
MGNREGS		Mahatma Gandhi National Rural Employment Guarantee Scheme
PWD		Public Works Department
KILA		Kerala Institute of Local Administration
NGO		Non-Government Organization
ILO		International Labour Organization
HUDCO		Housing and Urban Development Corporation
NIT-C		National Institute of Technology - Calicut
LBC		Laurie Baker Centre for Habitat Studies
LSGD		Local Self Government Department
CRD		Commissioner for Rural Development
CE		Chief Engineer

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1. Introduction

The Time motion study in Kerala is conducted in two phases. The first phase was initiated in 2006 and concluded by the submission of report on 29th November 2011. Kerala Institute of Local Administration organised the study with the technical support of Lal Bahadur Sastri Centre for Science & Technology and Maithri, Palakkad. This study covered the four pilot districts of MGNREGS – Wayanadu, Palakkad, Kasargode and Idukki. PLANET in Wayanadu and Centre for Rural Management in Kottayam facilitated the studies in Wayanadu and Idukki districts respectively. The report of Phase 1 is already submitted.

The Second phase of Work Time motion study was started by signing of an agreement with Kerala Institute of Local Administration (KILA) with four partners - Housing and Urban Development Corporation (HUDCO), National Institute of Technology – Calicut (NIT-C), Laurie Baker Centre for Habitat Studies, Thiruvananthapuram (LBC) and Maithri, Palakkad on 25th September 2010. A report was submitted on 16th August 2016 combining the results of both the phases.

However, the above report was containing the requirements of MGNREGS until 2012, but the scope and potential of the scheme had gone substantial changes since. In 2017-18, Government of India asked all State Governments to conduct Time and Motion study and came up with a template to do that as well.

The items contained in this template is different from that of Phase 2 report. So, the concerned agencies went back to the basic data, reviewed it on the basis of the above template and came up with this report. Meetings and workshops were held at Commissionerate for Rural Development. HUDCO, Thiruvananthapuram and Laurie Baker Centre for Habitat Studies since 19th November 2019 to develop the data for this report

2. Context of present report

a. Items covered

Not all items – 112 – of the new template is not covered in this report, this report provides data for 65 of the items. As explained earlier, data for these items were derived from the studies conducted in earlier phases. It is felt that most of the works envisaged under MGNREGS in state will be covered by this and the shortcomings can be addressed as and when the need emerges.

b. Age, gender, differently abled specific data

In all cases, in studies and actual instances, a predictive mix of women, sprinkled with few elderly men is the usual combination of a labour group involved MGNREGS in the state. There are no labour groups consisting of exclusively women, or elderly or differently abled. So, the data, is for the predictive mix of labours usual in the state.

Another remarkable experience is the warmth and support extended to the elderly or differently abled or disadvantaged persons in a labour group by the majority – consisting of able-bodied persons in MGNREGS works. They were treated with compassion by the majority. This wonderful experience of social justice and camaraderie is the strength of the society. It is felt that the group specific data, artificial in this context, may do more damage than good in the long run.

c. Wisdom of the wise

Another interesting learning came from other studies is about the reasons for this behaviour. It was ascertained that the majority of able-bodied persons is not having sound experience is tackling myriad number of issues and circumstances being encountered in the routine execution of MGNREGS works in all instances. In most of the instances the elderly, even though they are physical less capable, is leading the work site with their experience gathered from the yesteryears and the key to successful execution in many cases, especially when the going is getting difficult. So, separate grouping of the elderly may create more harm than good and hence not attempted here.

d. Seasonality of works

All works, except usual construction activities, are having season specific – Monsoon and Summer data. But for the construction, the output seldom changes with these seasons due to two simple factors. If there is rain, then the work will be suspended automatically, the workers will not turn up for work during rainy days. For the summer, the working hours will be regulated – starting at early morning, longer afternoon break and ending by late evening – mainly to reduce the stress of working during the hottest hours of the day. This generally maintains the output of the workers during summer.

No.	Description of item	Unit of measurement	Rate Per unit	No of unskilled labour per unit
A	Earthwork			
1	Earth work in excavation by manual means exceeding 1.5 m in width, taking out the excavated soil and disposal as directed by Engineer in charge			
1.1	Ordinary Soil			
i	Lead upto 10 m and lift upto 0.75 m	cum	147.97	0.55
ii	Extra for every additional 10m lead or part thereof	cum	37.94	0.14
iii	Extra for every additional 0.75m lift or part thereof	cum	12.52	0.05
1.2	Hard Soil			
i	Lead upto 10 m and lift upto 0.75 m	cum	221.95	0.82
ii	Extra for every additional 10m lead or part thereof	cum	41.73	0.15
iii	Extra for every additional 0.75m lift or part thereof	cum	13.77	0.05
1.3	Soft Disintegrated Rock (SDR)			
i	Lead upto 10 m and lift upto 0.75 m	cum	325.53	1.20
ii	Extra for every additional 10m lead or part thereof	cum	45.53	0.17
iii	Extra for every additional 0.75m lift or part thereof	cum	15.02	0.06
2	Earth work in rough excavation, banking excavated earth in layers not exceeding 20 cm in depth, breaking clods (5 cm to 7 cm size) watering, compacting each layer with wooden or steel rammers and dressing up in embankment for construction of roads, flood banks, marginal banks, h=guide banks or filling up ground depressions including removal of small stones/pebbles, shrubs, watering (rolling with power roller to be done seperately where ever required). (For ponds/dam/roads/canal/channel/water retaining structures/tanks etc)			
2.1	Ordinary Soil			
i	Lead upto 10 m and lift upto 0.75 m	cum	185.91	0.69
ii	Extra for every additional 10m lead or part thereof	cum	27.24	0.10
iii	Extra for every additional 0.75m lift or part thereof	cum	8.99	0.03
2.2	Hard Soil			
i	Lead upto 10 m and lift upto 0.75 m	cum	278.86	1.03
ii	Extra for every additional 10m lead or part thereof	cum	29.96	0.11
iii	Extra for every additional 0.75m lift or part thereof	cum	9.89	0.04
2.3	Soft Disintegrated Rock (SDR)			
i	Lead upto 10 m and lift upto 0.75 m	cum	408.99	1.51
ii	Extra for every additional 10m lead or part thereof	cum	32.69	0.12
iii	Extra for every additional 0.75m lift or part thereof	cum	10.79	0.04
3	Banking available/excavated earth in layers not exceeding 20 cm in depth, breaking clods (5cm to 7 cm), watering, compacting each layer with wooden or steel rammers and dressing up, in embankments for roads, flood banks, marginal banks and guide banks etc as directed by Engineer-in-charge (rolling with power roller to be done separately wherever required).			
3.1	Ordinary Soil			
i	Lead upto 10 m and lift upto 0.75 m	cum	108.13	0.40
ii	Extra for every additional 10m lead or part thereof	cum	27.64	0.10
iii	Extra for every additional 0.75m lift or part thereof	cum	9.12	0.03

No.	Description of item	Unit of measurement	Rate Per unit	No of unskilled labour per unit
3.2	Hard Soil			
i	Lead upto 10 m and lift upto 0.75 m	cum	162.19	0.60
ii	Extra for every additional 10m lead or part thereof	cum	30.41	0.11
iii	Extra for every additional 0.75m lift or part thereof	cum	10.03	0.04
3.3	Soft Disintegrated Rock (SDR)			
i	Lead upto 10 m and lift upto 0.75 m	cum	237.88	0.88
ii	Extra for every additional 10m lead or part thereof	cum	33.17	0.12
iii	Extra for every additional 0.75m lift or part thereof	cum	10.95	0.04
4	Excavation of work by manual means in foundation trenches or drains (not exceeding 1.5 m in width) including dressing of sides and ramming of bottoms and getting out the excavated soil and disposal of surplus excavated soil as directed			
4.1	Lead upto 50 m and lift upto 1.5 m			
i	Ordinary soil	cum	205.42	0.76
ii	Hard Soil	cum	308.13	1.14
iii	Soft Disintegrated Rock (SDR)	cum	451.92	1.67
4.2	Extra for every additional 0.75m lift or part thereof			
i	Ordinary soil	cum	514.9	1.90
ii	Hard Soil	cum	566.39	2.09
iii	Soft Disintegrated Rock (SDR)	cum	617.88	2.28
5	Earth work in surface excavation not exceeding 30 cm in depth but exceeding 1.5 meter in width as well as 10 Sqm on plan including getting out and disposal of excavated earth as directed by Engineer-in-charge (disposed earth to be neatly dressed and levelled).			
5.1	Ordinary Soil			
i	Lead upto 10 m and lift upto 0.75 m	sqm	93.01	0.34
ii	Extra for every additional 10m lead or part thereof	sqm	24.39	0.09
5.2	Hard Soil			
i	Lead upto 10 m and lift upto 0.75 m	sqm	139.51	0.51
ii	Extra for every additional 10m lead or part thereof	sqm	36.59	0.14
5.3	Soft Disintegrated Rock (SDR)			
i	Lead upto 10 m and lift upto 0.75 m	sqm	204.62	0.76
ii	Extra for every additional 10m lead or part thereof	sqm	53.66	0.20
6	Less output for work executed in or under water or in foul condition (over the main item concerned is allowed on account of slow progress of works)	cum	36.86	0.14
7	Filling excavated earth (excluding rock)/moorum in trenches, plinths, sides of foundations etc, in layers not exceeding 20 cm in depth, consolidating each deposited layer by means of ramming and watering, lead up to 50 m and lift upto 1.5 m	cum	105.69	0.39
8	Surface dressing and land levelling of the ground including removing vegetation and undulations not exceeding 0.15 m deep and disposal of rubbish, lead upto 50 m and lift upto 1.5 m	sqm	159.35	0.59
9	Layout/Dag belling 7.5 to 10 cm deep	metre	2.21	0.01

No.	Description of item	Unit of measurement	Rate Per unit	No of unskilled labour per unit
10	Excavation of puddle trench for earthen embankment to proper side slopes and bed grade including shoring wherever necessary dressing (FOR EARTHEN DAM)			
10.1	Ordinary Soil			
i	Lead upto 10 m and lift upto 0.75 m	cum	372.63	1.38
ii	Extra for every additional 10m lead or part thereof	cum	101.63	0.38
iii	Extra for every additional 0.75m lift or part thereof	cum	33.54	0.12
10.2	Hard Soil			
i	Lead upto 10 m and lift upto 0.75 m	cum	558.94	2.06
ii	Extra for every additional 10m lead or part thereof	cum	111.79	0.41
iii	Extra for every additional 0.75m lift or part thereof	cum	36.89	0.14
10.3	Soft Disintegrated Rock (SDR)			
i	Lead upto 10 m and lift upto 0.75 m	cum	819.78	3.03
ii	Extra for every additional 10m lead or part thereof	cum	121.95	0.45
iii	Extra for every additional 0.75m lift or part thereof	cum	40.24	0.15
11	Puddle filling of good clay (cohesive soil) including lead upto 50 m including mixing watering and kneeding by tamping ramming and laying etc (FOR EARTHEN DAM)	cum	157.45	0.58
12	Earth work for well excavation including disposal of excavated soil, disposed soil to be levelled and neatly dressed as per direction of Engineer-in-charge.			
12.1	Soft Soil			
i	Lead upto 50 m and lift upto 1.5 m	cum	81.3	0.30
ii	Less for every 0.50 m after 1.5 m initial depth upto 6.0 m	cum	18.97	0.07
iii	Less for every 0.50 m after 6.0 m initial depth upto 10.5 m	cum	21.68	0.08
iv	Less for every 0.50 m after 10.5 m initial depth upto 15.0 m	cum	24.39	0.09
12.2	Hard Soil			
i	Lead upto 50 m and lift upto 1.5 m	cum	149.05	0.55
ii	Less for every 0.50 m after 1.5 m initial depth upto 6.0 m	cum	18.97	0.07
iii	Less for every 0.50 m after 6.0 m initial depth upto 10.5 m	cum	21.68	0.08
iv	Less for every 0.50 m after 10.5 m initial depth upto 15.0 m	cum	24.39	0.09
12.3	Soft Disintegrated Rock (SDR)			
i	Lead upto 50 m and lift upto 1.5 m	cum	317.07	1.17
ii	Less for every 0.50 m after 1.5 m initial depth upto 6.0 m	cum	18.97	0.07
iii	Less for every 0.50 m after 6.0 m initial depth upto 10.5 m	cum	21.68	0.08
iv	Less for every 0.50 m after 10.5 m initial depth upto 15.0 m	cum	24.39	0.09
12.4	Hard rock requiring chiselling (where blasting is			
i	Lead upto 50 m and lift upto 1.5 m	cum	149.05	0.55
ii	Less for every 0.50 m after 1.5 m initial depth upto 6.0 m	cum	18.97	0.07
iii	Less for every 0.50 m after 6.0 m initial depth upto 10.5 m	cum	21.68	0.08
iv	Less for every 0.50 m after 10.5 m initial depth upto 15.0 m	cum	24.39	0.09
12.5	Disposal and stacking of blasted material in excavation			
i	Lead upto 50 m and lift upto 1.5 m	cum		Not Applicable
ii	Less for every 0.50 m after 1.5 m initial depth upto 6.0 m	cum		
iii	Less for every 0.50 m after 6.0 m initial depth upto 10.5 m	cum		
iv	Less for every 0.50 m after 10.5 m initial depth upto 15.0 m	cum		

No.	Description of item	Unit of measurement	Rate Per unit	No of unskilled labour per unit
	Watercourses/channels			
13	Earthwork in embankment in dry or moist soil including laying in layers of 15 cm, breaking of clods, dressing to required profile with manual compaction to attain a minimum of 85% of proctor density with lead upto 50 m and lift upto 1.5 m including watering and compaction with rammers. (by shifting soil manually from reverse grade, higher patches etc)	cum	105.69	0.39
14	Excavation in loose soil/silt/pebbles and river boulders etc. dry or moist including dressing and disposal of excavated material with lead upto 50 m and lift upto 1.5 m and putting it in the banks of the watercourse including compaction.	cum	94.85	0.35
15	Dressing of uneven ebankments in required profile of the water courses.	sqm	84.31	0.31
16	Laying sand in required profile for lead upto 50 m and lift upto 1.5 m	cum	119.24	0.44
17	Cutting and clearance of bushes, shrubs ankara/ipomoea, julie flora typha etc on canals, water courses, bunds in dry/moist/slushy conditions including disposal			
i	Less than 50% coverage area	sqm	9.84	0.04
ii	More than 50% coverage area	sqm	19.67	0.07
18	Re-handling of excavated material including loading, unloading, dressing and watering for work in watercourses, channels etc.			
i	Lead upto 10 m and lift upto 0.75 m	cum	63.69	0.24
ii	Extra for every additional 10m lead or part thereof	cum	70.05	0.26
iii	Extra for every additional 0.75m lift or part thereof	cum	70.05	0.26

No.	Description of item	Unit of measure	Rate Per unit	No of unskilled
B	Desilting/cleaning works			
1	Desilting of small earthen channels, water bodies, ponds, canals, check dams, MI tanks etc by removal of dry silt and disposal-			
i	Lead upto 10 m and lift upto 0.75 m	cum	94.85	0.35
ii	Extra for every additional 10m lead or part thereof	cum	24.39	0.09
iii	Extra for every additional 0.75m lift or part thereof	cum	8.13	0.03
2	Desilting of small earthen channels, water bodies, ponds, canals, check dams, MI tanks etc by removal of saturated silt (not under water) and disposal-			
i	Lead upto 10 m and lift upto 0.75 m	cum	138.21	0.51
ii	Extra for every additional 10m lead or part thereof	cum	35.23	0.13
iii	Extra for every additional 0.75m lift or part thereof	cum	10.84	0.04
C	Road Work			
1	Felling trees of the girth (measured at a height of 1 m above ground level), including cutting of trunks and branches, removing the roots and stacking of serviceable material and disposal of unserviceable material	each		Not Applicable
i	Girth above 150 mm to 300 mm	each		
ii	Girth above 301 mm to 600 mm	each		
iii	Girth above 601 mm to 900 mm	each		
iv	Girth above 901 mm to 1500 mm	each		
v	Girth above 1501 mm to 2100 mm	each		
vi	Girth above 2101 mm to 2700 mm	each		
2	Clearing jungle including uprooting rank vegetation, grass, brush wood, bushes, shrubs, saplings and trees of girth upto 30 cm measured at a height of 1 m above ground level and removal of stumps of such trees cut earlier, removal of rubbish upto a distance of 50 m outside the periphery of the area cleared and stacking of serviceable material to be used or auctioned.	sqm	13.55	0.05
3	Clearing of grass and removal of the rubbish upto a distance of 50 m outside the periphery of the area cleared	sqm	5.42	0.02
4	Earthwork in filling for construction of road embankment from borrow pits with a lead upto 50 m and lift upto 1.5 m, spreading, grading, laying in 20 m layers to required slope and camber, compacting with hand rammer complete as directed (rolling with road roller to be done where ever required)			
i	Ordinary soil	cum	105.69	0.39
ii	Hard soil	cum	159.89	0.59
iii	Soft disintegrated Rock (SDR)	cum	233.06	0.86
5	Spreading of moorum/kankar/shingle/gravel/ red bajri and levelling to gradient and required camber including dressing	sqm	29.81	0.11
6	Compacting each layer of 15 cm thickness in GSB/WBM/earth/moorum/kankar/ shingle/gravel/red bajri	sqm		
i	With hand stone, wooden or steel rammers and dressing up for construction of earthen roads/pathways as directed	sqm	16.26	0.06
ii	Rolling with power roller where ever required	sqm	10.84	0.04

No.	Description of item	Unit of measure	Rate Per unit	No of unskilled
7	Earthwork in rough excavation involving an average horizontal throw of 2 m and average lift upto 0.5 m, banking excavated earth in layers not exceeding 20 cm in depth, breaking clods (5 cm to 7 cm) watering, compacting each layer with hand stone, wooden or steel rammers and dressing up for construction of earthen roads/pathways as directed (rolling with power roller to be done separately where ever required)	cum	476.96	1.76
8	Earth cutting (box cutting) in road embankment, removing the spoils, spreading over the shoulder, watering, compaction and dressing sub-grade to correct camber and grade (for widening/extension/upgradation of roads)			
i	Depth of cutting upto 15 cm	sqm	113.82	0.42
ii	Depth of cutting beyond 15 cm upto 25 cm	sqm	113.82	0.42
iii	Depth of cutting beyond 25 cm upto 30 cm	sqm	113.82	0.42
9	Earth work in excavation (hill side cutting) by manual means and disposal of excavated earth upto lead of 50 m			
i	Ordinary soil	cum	197.83	0.73
ii	Hard soil	cum	298.10	1.10
iii	Soft Disintegrated Rock (SDR)	cum	436.31	1.61
iv	Hard rock (requiring chiselling where blasting is prohibited)	cum		
10	Construction of gravel/soil aggregate sub-base/base by providing well graded material of nominal size grading 80 mm as per Table 2.3 of IRC SP 77-2008, spreading in uniform layers appropriate grading arrangements on prepared surface, watering and compaction with 8-10 ton power roller to achieve the desired density and camber complete as per specifications contained in Para 2.2, 3.6 and 3.7 of IRC SP 77-2008 (Only unskilled labour component to be measured, materials and machinery will be supplied separately)	cum	476.96	1.76
11	Laying precast cement concrete interlocking paver block/tiles of approved size, design & shape, laid in required colour and pattern over and including 50 mm thick compacted bed of coarse sand, filling the joints with fine sand etc all complete as per the direction of Engineer-in-charge	sqm	10.84	0.04
12	Cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 40 mm nominal size) in pavements, laid to required slope and camber in panels as required including consolidation finishing and tamping complete	cum	1666.65	6.15
13	Laying kharanja in pathways, roads			
i	Laying brick on edge kharanja in desired camber and slope and in any bond, spreading and consolidation of binding materials moorum or earth etc. as per directions of Engineer-in-charge.	sqm		5.36
ii	Laying hard stone kharanja of thickness not less than 22.5 cm in desired camber and slope with cement mortar of specified grade as per directions of Engineer-in-charge	sqm		18.42

No.	Description of item	Unit of measure	Rate Per unit	No of unskilled
iii	Laying 40 mm thick rubbed stone flooring (stone tile kharanja) over 20 mm (average) thick base of cement mortar 1:5 (1 cement : 5 coarse sand), including pointing with cement mortar 1:2) 1 cement : 2 stone dust) admixed with pigment of match the shade of stone (stone tiles of desired specifications)	sqm		0.81
14	Making V shaped drain in hill roads or in cutting with dry boulders including placing powdered earth in the surface and inside the drain properly graded	metre		
D Social Forestry and Horticulture Works				
1	Survey, alignment and demarcation of plantation area and pits including inspection strips as per directions of Engineer-in-charge	hactare		
2	Survey, alignment and demarcation of road side/avenue plantation and pits as per directions	kilometre		
3	Cleaning & cutting bushes in plantation area/sites just before start of plantation	hactare	65582	242
4	Grass sodding/furfing on both sides of drains, embankment slope and shoulder including collection of sods			
i	Sods obtained within a lead of 30m	sqm	2260.14	8.34
ii	Sods obtained within a lead beyond 30m	sqm	2512.17	9.27
5	Construction of safely trench			
i	1.2 m wide in upper side, 0.8 m wide in bottom and 1.0 m depth	metre	205.96	0.76
ii	1.5 m wide in upper side, 0.7 m wide in bottom and 0.9 m depth	metre	203.25	0.75
6	Digging of ditch cum bund 1.5 m X 0.9 m X 1.2 m dimension and making hump by using excavated soil (cattle proof trench (CPT))-			
i	Ordinary soil	cum	333.33	1.23
ii	Hard soil	cum	501.35	1.85
iii	Soft Disintegrated Rock (SDR)	cum	734.41	2.71
7	Digging of pits for plants in all types of soils including removal of stones etc-			
7.1	Ordinary soil			
i	0.3 m X 0.3 m X 0.3 m	each	67.75	0.25
ii	0.45 m X 0.45 m X 0.45 m	each	224.93	0.83
iii	0.6 m X 0.6 m X 0.6 m	each	531.16	1.96
iv	0.9 m X 0.9 m X 0.9 m	each	1796.73	6.63
7.2	Hard soil			
i	0.3 m X 0.3 m X 0.3 m	each	78.59	0.29
ii	0.45 m X 0.45 m X 0.45 m	each	262.87	0.97
iii	0.6 m X 0.6 m X 0.6 m	each	620.59	2.29
iv	0.9 m X 0.9 m X 0.9 m	each	2097.54	7.74
7.3	Soft disintegrated rock (SDR)			
i	0.3 m X 0.3 m X 0.3 m	each	111.11	0.41
ii	0.45 m X 0.45 m X 0.45 m	each	373.98	1.38
iii	0.6 m X 0.6 m X 0.6 m	each	886.17	3.27
iv	0.9 m X 0.9 m X 0.9 m	each	2994.55	11.05

No.	Description of item	Unit of measure	Rate Per unit	No of unskilled
8	Planting, manuring, earth filling, application of insecticides, preparation of thawla i.e. suacer pit/ring basin, sticking for support of plant where ever required and watering at least 15 litre of water per plant after plantation			
i	0.3 m X 0.3 m X 0.3 m	each	32.52	0.12
ii	0.45 m X 0.45 m X 0.45 m	each	46.07	0.17
iii	0.6 m X 0.6 m X 0.6 m	each	70.46	0.26
iv	0.9 m X 0.9 m X 0.9 m	each	176.15	0.65
9	Bio fencing by preparation of plant cuttings of length 1.5 m, planting in pits of 0.3 m depth and upto 0.075 m diameter at a spacing of 0.3 m, forming of bund of 0.3 m base width and 0.2 m height, bracing and horizontal ties at two levels using plant cuttings, tied with coir	metre	46.07	0.17
10	Fixing tree guard of size of 1 m dia and 1.5 m height for plantation including collection/transportation and fixing at site with locally available wood/materials	each	48.78	0.18
11	Fixing of pre-fabricated tree guard for plantation at site	each	48.78	0.18
12	Erection of live hedge/brush wood fencing around plantation site including collection & carriage of fencing materials upto site	metre	51.49	0.19
13	Gap filling/vacancy filling/casualties replacement including excavation, refilling soil, application of 15 litre water, farm yard manure and insecticides	100 nos.		
i	0.3 m X 0.3 m X 0.3 m	each	5.42	0.02
ii	0.45 m X 0.45 m X 0.45 m	each	18.97	0.07
iii	0.6 m X 0.6 m X 0.6 m	each	43.36	0.16
iv	0.9 m X 0.9 m X 0.9 m	each	149.05	0.55
14	Watering to the plants in block plantation by bringing water from available water source located-			
i	Within a distance of 25 m	100 nos.		
ii	Beyond a distance of 25 m	100 nos.		
15	Watering to the plants in linear plantation by bringing water from available water source located -			
i	Within a distance of 25 m	100 nos.		
ii	Beyond a distance of 25 m	100 nos.		
16	Weeding, cleaning and mulching with application of fertilizer			
i	1st time	100 nos.		
ii	2nd time	100 nos.		
iii	3rd time	100 nos.		
17	Loading and unloading poly bags container plants in private vehicles/departmental vehicles (excluding hire charges vehicles)	100 nos.		
18	Transportating of polythene container seedings by head loads to the places where the approach roads are not available to take vehicle to plantation area	100 nos.		
19	Internal distribution of seedlings in the plantation area	100 nos.		
20	Planting grass roots (i.e. vetiver grass etc) under trenches at a distance of 40 cm vertically and 1/0 to 2.5 m horizontally as per directions of the Engineer-in-charge	100 nos.		

No.	Description of item	Unit of measure	Rate Per unit	No of unskilled
21	Filling with bio-manure/fertilizer in roots of grass roots (i.e. vetiver grass etc) in layers not exceeding 15 cm including watering and ramming etc.	100 nos.		
22	Ring cutting, mixing of soil, cutting of polythene bag, layering, detaching layered portion, filling and mixing of soil, filling pot and planting for vegetal propagation like lemon, guava, bay leaf etc.	1000 nos.		
E Nursery raising				
1	Preparation of nursery by clearing and levelling the site (including space between beds) for forming 10 standard beds of 10 m X 1.2 m size	each		
2	Formation of 10 nos. of germination/nursery beds including digging of soil 30 cm deep, cleaning of debris of dug out soil, allowing the soil for weathering, breaking of clods, mixing sand/good earth and bio-manure in 1:3 proportion (1 bio-manure : 3 sand/soil) of size 10 m X 1.2 m and raising the bunds as per direction.	each		
3	Re-formation of 10 nos. of old germination/nursery beds including digging of soil 30 cm deep, cleaning of debris of dug out soil, allowing the soil for weathering, breaking of clods, mixing sand/good earth and supplementing bio-manure as per direction in the bed of size 10 m X 1.2 m and mending the raised bunds	each		
4	Sowing of treated seeds in mother beds of size 10 m X 1.2 m as per directions	10 nos.		
5	Watering the germination beds twice daily with the rose can/sprinkler	10 nos.		
6	Watering the germination beds once daily with the rose can/sprinkler	10 nos.		
7	Preparation of soil mixture by breaking clods, sieving and mixing with fertile earth (including red soil, silt and sand etc according to requirements) and bio-manure at the ratio 3:1 heaping at the filling site and filling in polythene bags and arranging bags in beds (excluding the cost of earth, farmyard manure)	100 nos.		
8	Pricking out seedlings from mother bed and transplanting them in poly bags	100 nos.		
9	Dibbling/sowing of seeds in polybags	100 nos.		
10	Watering the seedlings in poly bags once daily with the rose can/sprinkler	100 nos.		
11	Watering the seedlings in poly bags on alternate days with the rose can/sprinkler	100 nos.		
12	Forming of brush wood/appropriate fencing around nursery	metre		0.17
13	Shifting the poly bags containing seedlings, weeding, grading etc and replacement of casualties within nursery	100 nos.		

No.	Description of item	Unit of measure	Rate Per unit	No of unskilled
14	Spraying of insecticides on plants when required	20,000 nos.		
15	Grading and shifting of seedlings (3 times)	100 nos.		
16	Preparing root/shoot cuttings of teak, semal, sheesham etc. including of plants, making and ball plants (complete work)	100 nos.		
17	Shifting of ball plants			
i	After 6 months	100 nos.		
ii	After 12 months	100 nos.		
18	Preparing branch cuttings of poplar, mulberry, pipal, bargad, gular, salix etc. and planting in beds	100 nos.		
19	Making thatch covers for protection of plants from heat/frost excluding cost and cartage of thatch grass for bed of size 10 m X 1.2 m	each		

No.	Description of item	Unit of measurement	Rate Per unit	No of unskilled labour per unit
F	Masonry, concrete and miscellaneous items			
1	Filling in plinth with sand under floors, including watering, ramming, consolidating and dressing complete	cum	105.69	0.39
2	Extraction and stacking of construction materials from nallah/river beds			
i	Bajri/coarse aggregate	cum	785.9	2.90
ii	Fine sand/coarse sand	cum	785.9	2.90
iii	Stones/boulders	cum	785.9	2.90
3	Breaking of stone materials including stacking (measurement of stacks should give due allowance for sinkage or shrinkage)			
3.1	Brick/Jhama 80-100 mm size	cum		
3.2	Boulder and local stone			
i	80-100 mm size	cum		
iii	25 mm and less size	cum		
4	Collecting local stones/boulders from surface or digging into ground at quarry and breaking upto 80-100 mm size and stacking upto			
i	Lead upto 50 m and lift upto 1.5m	cum		
iii	Less output for every additional 25 m lead or part	cum		
5	Rock cutting by hammer and chisel in hilly areas of size not less than 30 to 50 cm and weight 30-40 kg and stacking to a distance			
i	Lead upto 50 m and lift upto 1.5m	cum	2002.69	7.39
iii	Less output for every additional 25 m lead or part	cum	300.81	1.11
6	Carriage of construction materials from a nearby quarry/road point/riverbed on head load upto 50 m lead			
a	Stones, stone chips, sand			
i	Lead upto 50 m	cum	195.12	0.72
ii	Additional lead of 50 m beyond initial lead of 50 m	cum	43.36	0.16
b	Bricks			
i	Lead upto 50 m	1000 nos.	365.85	1.35
ii	Additional lead of 50 m beyond initial lead of 50 m	1000 nos.	78.59	0.29
c	Cement			
i	Lead upto 50 m	20 bags/tonne	113.82	0.42
ii	Additional lead of 50 m beyond initial lead of 50 m	20 bags/tonne	16.26	0.06
d	Reinforcement steel bars/structural steel			
i	Lead upto 50 m	quintal/100 kg	24.39	0.09
ii	Additional lead of 50 m beyond initial lead of 50 m	quintal/100 kg	2.71	0.01
7	Loading of stone, gravel, sand, limestone, murrum, debris or wood in a vehicle	cum		
8	Unloading of stone, gravel, sand, limestone, murrum, debris or wood from a vehicle	cum		
9	Providing and laying soling by bricks/brick bats/stones including watering, ramming and compaction including compaction of bottom surface	sqm	1452.56	5.36

No.	Description of item	Unit of measurement	Rate Per unit	No of unskilled labour per unit
10	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering but including compaction - All work up to plinth level			
i	By concrete mixer	cum	1666.65	6.15
ii	By manual mixing	cum	2750.65	10.15
11	Random rubble masonry with hard stone in foundation and plinth upto plinth level including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) upto plinth level with : Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	1531.15	5.65
12	Random rubble masonry with hard stone in superstructure (upto 4 m height) above plinth, including levelling with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) with : Cement mortar 1:6 (1 cement : 6 coarse sand)	cum	2612.44	9.64
13	Dry random rubble stone masonry/uncoursed rubble stone masonry laid in breast walls, gabions, retaining walls well bonded faced with selected stones and built with through/bond stones evenly placed at the rate of minimum two per sqm			
i	Lead upto 50 m and lift upto 1.5 m	cum	1609.74	5.94
ii	Less output for every additional 25 m lead or part thereof	cum	241.19	0.89
iii	Less output for every additional 1.5 m lift or part thereof	cum	10.84	0.04
14	Hand packed dry stone filling in the back of walls	cum		
15	Laying of dry stone pitching of average 22.5 cm thickness including dressing on the slope of embankments of farm ponds, MI tanks etc and as per directions	sqm		
16	Laying and fixing of geotextiles for grassing on cleaned and even slopes for planting grass using metal nails or wooden/bamboo pegs at an interval of 0.3 m to 0.75 m	100 sqm		
17	Brick work with common burnt clay F.P.S. (non modular) bricks of specified class designation in foundation and plinth in specified grade (all grades) of cement mortar.	cum	1270.99	4.69
18	Brick work with common burnt clay F.P.S. (non modular) bricks of specified class designation in superstructure in specified grade (all grades) of cement mortar	cum	2384.8	8.8

No.	Description of item	Unit of measurement	Rate Per unit	No of unskilled labour per unit
19	Brick work 7.5 cm thick (brick on edge) with common burnt clay F.P.S. (non modular) brick of specified class designation in specified cement mortar in superstructure (upto 4 m height) above plinth level	cum	2544.69	9.39
20	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of specified class designation in superstructure (upto 4 m height) in specified cement mortar	sqm	300.81	1.11
21	Honey-comb brick work 10/11.4 cm thick with common burnt clay bricks of specified class designation in super structure above plinth level (upto 4 m height) with specified cement mortar	sqm	333.33	1.23
22	Brick on edge flooring with bricks of class designation 7.5 on a bed of 12 mm cement mortar, including filling the joints with same mortar, with common burnt clay non modular bricks: (pathways etc)	sqm	178.86	0.66
23	Preparation of cement mortar of any specified grade for miscellaneous works as directed at site	cum	585.36	2.16
24	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level (RCC)	cum	1666.65	6.15
25	Laying cement concrete in retaining walls, return walls, walls (any thickness) including attached pilasters, columns, piers, abutments, pillars, posts, struts, buttresses, string or lacing courses, parapets, coping, bed blocks, anchor blocks, plain window sills, fillets, sunken floor etc., (upto 4 m height) excluding the cost of centering, shuttering and finishing : (RCC)	cum	2059.6	7.6
26	Boulder filling in plum cement concrete work	cum		
27	Construction of gabion (including retaining walls/aprons) with woven wire mesh of dia 2.7 mm/3 mm/3.7 mm and mesh type 10 cm X 12 cm or specified including collection of stones/rock and placing in the gabion box after filling the stones/rock and lacing with adjacent boxes with lacing wire of dia 2.2 mm/3.2 mm. The complete work shall be executed as per detailed specifications, dimensions and lines shown on the plans as per directions of the Engineer-in-charge)	cum		
28	Cement plaster of specified mix			
i	6 mm to 8 mm	sqm	124.66	0.46
ii	8 mm to 12 mm	sqm	127.37	0.47
iii	12 mm to 15 mm on the rough side of single or half brick wall	sqm	143.63	0.53
iv	20 mm	sqm	165.31	0.61
29	Small stone (size more than 40 mm) bunding including collection from the local site and placing in the bunds only	cum		

No.	Description of item	Unit of measure ment	Rate Per unit	No of unskilled labour per unit
30	Reinforcement for reinforced concrete work in all sorts of structure including distribution bars, stirrups, binders etc. including initial straightening and removal of loose rust cutting to requisite length, hooking and binding to correct shape, placing in proper position and binding with 16 gauge black annealed wire at every intersection complete.	quintal/ 100 kg	715.44	2.64
31	Labour for shuttering and centering and necessary staging up to 4 m using appropriate stout prop and thick hard wood plants of approved thickness with required bracing including fitting, fixing and striking out after completion of works (up to roof of ground floor) - For Roof Slab and cantilever	sqm	317.07	1.17
32	Production of mud blocks, fly-ash bricks, CSEB, reinforced mud blocks, clay bricks, hollow bricks, CC interlocking tiles with locally available materials. (TMS may be done for specified material as per requirement)	1000 nos.		
33	Random rubble masonry with mud blocks in foundation and plinth including levelling up with mud mortar (For J&K [Ladakh area]/other hilly states)	cum		
34	Random rubble masonry with mud blocks in superstructure (upto 4 m above plinth level) including levelling up with mud mortar (for J&K [Ladakh area]/other hilly states)	cum		
35	Applying 20 mm thick mud mortar plaster (mixing with local admixtures like local dry grass/husk as required) on external/internal walls (For J&K [Ladakh area]/other hilly states)	sqm		
36	Placing of wooden ballies, planking with local materials and laying of poethylene sheet (supplied by the department) and placing mud layer of specified thickness for roofing (J&K [Ladakh area]/other hilly states)	sqm		
37	Construction coolie-walling with dry stone with locally available stone within 50 m lead for fencing of plantation works and roadside safely purpose (Uttarakhand/other hilly states)	cum		

Item Code	Central Midland		Chittoor Black soil		Coastal sandy		High ranges		Kuttanad		Malappuram type	
	M	S	M	S	M	S	M	S	M	S	M	S
A1	0.82	1.47	0.92	1.38	0.75	1.23	0.76	1.01	0.79	0.87	0.89	1.6
A2	1.3	1.4	1.34	1.67	1.66	1.74	0.57	0.6	0.49	0.52	0.83	1.05
A3	1.18	1.29	0.96	1.06	0.77	0.85	0.96	1.06	1.11	1.22	1.03	1.13
A4	1.28	1.5	0.88	1.07	0.73	0.9	1.04	1.14	1.26	1.38	1.27	1.54
A5	1.02	1.1	0.82	1.18	1.01	1.1	0.93	1.23	0.8	1.06	0.95	1.37
A6	1.02	1.1	0.82	1.18	1.01	1.1	0.93	1.23	0.8	1.06	0.95	1.37
A7	1.18	1.29	0.96	1.06	0.77	0.85	0.96	1.06	1.11	1.22	1.03	1.13
A2	1.3	1.4	1.34	1.67	1.66	1.74	0.57	0.6	0.49	0.52	0.83	1.05
A9	1.02	1.10	0.82	1.18	1.01	1.10	0.93	1.23	0.80	1.06	0.95	1.37
A10	1.09	1.24	1.02	1.16	0.91	1.04	0.85	1.19	0.73	1.18	1.18	1.35
A11	0.98	1.13	1.12	1.25	1.75	1.85	0.41	0.95	0.35	0.81	0.8	1.1
A12	1.05	1.13	0.94	1.17	0.86	1.19	0.92	0.95	0.79	0.82	0.88	1.21
A13	0.8	1.19	0.92	1.37	0.81	1.2	0.96	1.42	0.91	1.34	0.84	1.25
A14	0.8	1.19	0.92	1.37	0.81	1.2	0.96	1.42	0.91	1.34	0.84	1.25
A15	1.00	1.33	0.82	1.09	0.76	1.01	1.10	1.45	1.03	1.36	1.05	1.39
A16	0.87	1.42	1.05	1.29	0.87	1.14	1.19	1.49	1.03	1.28	0.93	1.09
A17	0.92	1.02	1.01	1.09	0.9	0.93	0.96	1.13	0.91	0.98	0.85	1.09
A18	1.18	1.29	0.96	1.06	0.77	0.85	0.96	1.06	1.11	1.22	1.03	1.13
B1	0.80	1.19	0.92	1.37	0.81	1.20	0.96	1.42	0.91	1.34	0.84	1.25
B2	0.80	1.19	0.92	1.37	0.81	1.20	0.96	1.42	0.91	1.34	0.84	1.25
C2	0.96	1.07	1.06	1.14	0.86	0.89	1.00	1.19	0.86	1.02	0.89	1.14
C3	1.17	1.26	0.97	1.45	1.15	1.18	0.96	1.17	0.83	1.01	0.78	0.9
C4	1.18	1.29	0.96	1.06	0.77	0.85	0.96	1.06	1.11	1.22	1.03	1.13
C5	0.87	1.42	1.05	1.29	0.87	1.14	1.19	1.49	1.03	1.28	0.93	1.09
C6	0.87	1.42	1.05	1.29	0.87	1.14	1.19	1.49	1.03	1.28	0.93	1.09
C7	0.87	1.42	1.05	1.29	0.87	1.14	1.19	1.49	1.03	1.28	0.93	1.09
C8	0.87	1.42	1.05	1.29	0.87	1.14	1.19	1.49	1.03	1.28	0.93	1.09
C9	0.98	1.13	1.12	1.25	1.75	1.85	0.41	0.95	0.35	0.81	0.8	1.1
C10	0.87	1.42	1.05	1.29	0.87	1.14	1.19	1.49	1.03	1.28	0.93	1.09
C11	1.00	1.27	0.99	1.25	0.98	1.17	0.94	1.20	0.88	1.12	0.93	1.20
C12	1.01	1.26	1.00	1.25	0.98	1.17	0.94	1.21	0.88	1.13	0.93	1.18
C13	1.00	1.26	0.98	1.24	0.96	1.15	0.96	1.23	0.90	1.15	0.93	1.19
D3	0.92	1.02	1.01	1.09	0.9	0.93	0.96	1.13	0.91	0.98	0.85	1.09
D4	0.80	1.19	0.92	1.37	0.81	1.20	0.96	1.42	0.91	1.34	0.84	1.25
D5	1.28	1.5	0.88	1.07	0.73	0.9	1.04	1.14	1.26	1.38	1.27	1.54
D6	1.28	1.5	0.88	1.07	0.73	0.9	1.04	1.14	1.26	1.38	1.27	1.54
D7	1.28	1.5	0.88	1.07	0.73	0.9	1.04	1.14	1.26	1.38	1.27	1.54
D8	1.28	1.5	0.88	1.07	0.73	0.9	1.04	1.14	1.26	1.38	1.27	1.54
D9	0.80	1.19	0.92	1.37	0.81	1.20	0.96	1.42	0.91	1.34	0.84	1.25
D10	1.02	1.28	0.98	1.24	0.94	1.14	0.95	1.21	0.92	1.15	0.96	1.23
D11	1.02	1.28	0.98	1.23	0.95	1.13	0.95	1.21	0.93	1.16	0.96	1.22
D12	0.8	1.19	0.92	1.37	0.81	1.2	0.96	1.42	0.91	1.34	0.84	1.25
D13	1.28	1.50	0.88	1.07	0.73	0.90	1.04	1.14	1.26	1.38	1.27	1.54
E12	0.8	1.19	0.92	1.37	0.81	1.2	0.96	1.42	0.91	1.34	0.84	1.25

Item Code	Malayoram		Northern midland		Onattu kara		Palakkad plains		Red loam		Southern mid land	
	M	S	M	S	M	S	M	S	M	S	M	S
A1	0.81	1.33	0.87	1.18	0.91	0.98	0.8	1.44	0.89	1.61	0.84	1.52
A2	0.86	1.11	0.79	1.59	1.1	1.15	1.52	1.9	1.52	1.9	0.78	0.99
A3	1.08	1.19	0.82	0.9	0.67	0.73	1.2	1.32	1.2	1.32	0.86	0.94
A4	0.85	1.01	0.76	1.13	0.63	0.82	0.95	1.18	0.96	1.2	0.81	0.98
A5	0.67	0.87	0.84	1.68	1.14	1.18	0.86	1.23	0.89	1.15	0.75	1.25
A6	0.67	0.87	0.84	1.68	1.14	1.18	0.86	1.23	0.89	1.15	0.75	1.25
A7	1.08	1.19	0.82	0.9	0.67	0.73	1.2	1.32	1.2	1.32	0.86	0.94
A2	0.86	1.11	0.79	1.59	1.1	1.15	1.52	1.9	1.52	1.9	0.78	0.99
A9	0.67	0.87	0.84	1.68	1.14	1.18	0.86	1.23	0.89	1.15	0.75	1.25
A10	0.98	1.12	0.65	0.79	0.63	0.82	1.06	1.21	1.19	1.35	1.12	1.28
A11	0.87	1.12	3.04	3.22	1.16	1.23	1.33	1.41	1.33	1.41	0.76	1.04
A12	0.69	0.86	1.25	1.55	0.86	1.18	0.98	1.35	0.99	1.36	0.84	1.15
A13	0.74	1.09	0.79	1.16	0.81	1.2	0.82	1.21	0.82	1.22	0.88	1.31
A14	0.74	1.09	0.79	1.16	0.81	1.2	0.82	1.21	0.82	1.22	0.88	1.31
A15	0.92	1.22	0.70	0.93	0.67	0.89	1.02	1.36	1.03	1.36	0.73	0.97
A16	1.04	1.29	0.83	1.13	0.58	0.75	0.80	1.02	0.78	0.97	0.91	1.61
A17	0.89	1.15	1.15	1.28	0.93	0.96	0.96	1.34	0.91	1.06	0.88	1.03
A18	1.08	1.19	0.82	0.9	0.67	0.73	1.2	1.32	1.2	1.32	0.86	0.94
B1	0.74	1.09	0.79	1.16	0.81	1.20	0.82	1.21	0.82	1.22	0.88	1.31
B2	0.74	1.09	0.79	1.16	0.81	1.20	0.82	1.21	0.82	1.22	0.88	1.31
C2	0.94	1.20	2.30	3.22	0.57	0.59	1.01	1.40	0.87	1.12	0.84	1.08
C3	0.99	1.28	1.99	2.06	0.76	0.78	0.87	0.9	0.87	0.9	0.74	0.85
C4	1.08	1.19	0.82	0.9	0.67	0.73	1.2	1.32	1.2	1.32	0.86	0.94
C5	1.04	1.29	0.83	1.13	0.58	0.75	0.8	1.02	0.78	0.97	0.91	1.61
C6	1.04	1.29	0.83	1.13	0.58	0.75	0.8	1.02	0.78	0.97	0.91	1.61
C7	1.04	1.29	0.83	1.13	0.58	0.75	0.8	1.02	0.78	0.97	0.91	1.61
C8	1.04	1.29	0.83	1.13	0.58	0.75	0.8	1.02	0.78	0.97	0.91	1.61
C9	0.87	1.12	3.04	3.22	1.16	1.23	1.33	1.41	1.33	1.41	0.76	1.04
C10	1.04	1.29	0.83	1.13	0.58	0.75	0.8	1.02	0.78	0.97	0.91	1.61
C11	0.90	1.14	1.08	1.44	0.80	0.95	0.99	1.27	0.99	1.24	0.85	1.22
C12	0.90	1.13	1.09	1.45	0.80	0.95	1.00	1.26	1.00	1.23	0.85	1.21
C13	0.90	1.14	1.10	1.45	0.79	0.94	0.98	1.24	0.98	1.21	0.85	1.22
D3	0.89	1.15	1.15	1.28	0.93	0.96	0.96	1.34	0.91	1.06	0.88	1.03
D4	0.74	1.09	0.79	1.16	0.81	1.20	0.82	1.21	0.82	1.22	0.88	1.31
D5	0.85	1.01	0.76	1.13	0.63	0.82	0.95	1.18	0.96	1.2	0.81	0.98
D6	0.85	1.01	0.76	1.13	0.63	0.82	0.95	1.18	0.96	1.2	0.81	0.98
D7	0.85	1.01	0.76	1.13	0.63	0.82	0.95	1.18	0.96	1.2	0.81	0.98
D8	0.85	1.01	0.76	1.13	0.63	0.82	0.95	1.18	0.96	1.2	0.81	0.98
D9	0.74	1.09	0.79	1.16	0.81	1.20	0.82	1.21	0.82	1.22	0.88	1.31
D10	0.89	1.13	1.03	1.39	0.79	0.95	0.98	1.26	0.98	1.23	0.85	1.19
D11	0.89	1.12	1.04	1.40	0.79	0.95	0.98	1.25	0.98	1.22	0.85	1.19
D12	0.74	1.09	0.79	1.16	0.81	1.2	0.82	1.21	0.82	1.22	0.88	1.31
D13	0.85	1.01	0.76	1.13	0.63	0.82	0.95	1.18	0.96	1.20	0.81	0.98
E12	0.74	1.09	0.79	1.16	0.81	1.2	0.82	1.21	0.82	1.22	0.88	1.31

Work-Time-Motion Study of

Mahatma Gandhi NREGS

Kerala

Report 2016

Kerala Institute of Local Administration

HUDCO

NIT-Calicut

LBC - Thiruvananthapuram

Maithri, Palakkad

ABBREVIATIONS

SoR	Schedule of Rates
NREGA	National Rural Employment Guarantee Act,2005
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
PWD	Public Works Department
KILA	Kerala Institute of Local Administration
NGO	Non-Government Organization
ILO	International Labour Organization
HUDCO	Housing and Urban Development Corporation
NIT-C	National Institute of Technology - Calicut
LBC	Laurie Baker Centre for Habitat Studies
LSGD	Local Self Government Department
CRD	Commissioner for Rural Development
CE	Chief Engineer

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1. Introduction

The Time motion study in Kerala is conducted in two phases. The first phase was initiated in 2006 and concluded by the submission of report on 29th November 2011. Kerala Institute of Local Administration organised the study with the technical support of Lal Bahadur Sastri Centre for Science & Technology and Maithri, Palakkad. This study covered the four pilot districts of MGNREGS – Wayanadu, Palakkad, Kasargode and Idukki. PLANET in Wayanadu and Centre for Rural Management in Kottayam facilitated the studies in Wayanadu and Idukki districts respectively. The report of Phase 1 is attached as Annexure 11.f

The current phase of Work Time motion study was started by signing of an agreement with Kerala Institute of Local Administration (KILA) with four partners - Housing and Urban Development Corporation (HUDCO), National Institute of Technology – Calicut (NIT-C) , Laurie Baker Centre for Habitat Studies, Thiruvananthapuram (LBC) and Maithri, Palakkad on 25th September 2010. The MoU has detailed the roles and responsibilities of each partner. The Memorandum of Understanding is provided as annexure 11.c.

There was hectic activity related to the study in those days. The finalisation of Phase -1 was going on simultaneously. A workshop held at NIT-C on 19th and 20th of August 2010 thoroughly wetted the data and methodology of Phase 1 study and provided critical inputs to the methodology of the current phase. This experience was later published as a paper in the Tenth International Conference organised by Association of Indian Management Scholars (AIMS) during 9th – 12th January 2013. The paper is provided as annexure 11.d.

State Employment Guarantee Council approved the data on 27th August 2010, Chief Engineer, LSGD, recommended it on 18th December 2010 and the Govt. of Kerala issued a GO approving the rates on 17th January 2011. A circular on rolling out the data was issued by Additional Chief Secretary, LSGD on 23rd February 2011. A review was conducted by Mission Director, MGNREGS on 20th July 2011. But from there the progress was almost nil. The above mentioned Government orders are provided as annexure 11.b

2. Context of present study

A review conducted by Mission Director, MGNREGS on 25th February 2013 decided to stop the field studies and to start data analysis. Hence any change in MGNREGS works after that was not captured by the study.

A workshop held at KILA on 17th June 2013, reviews by Secretary LSGD on 11th August 2014 and Mission Director, MGNREGS on 16th September 2014 brought out clarities on several outstanding issues like the final format of data based on agro ecological zones, listing of Grama Panchayats as per the zoning etc.

The process was kick started by a meeting chaired by Secretary, LSGD on 30th June 2016, followed by workshops held at HUDCO, LBC and KILA on 14th, 15th and 22nd July respectively. Draft data was submitted for field verification on 2nd August. About a dozen engineers from each agro ecological zone gave their comments and a meeting chaired by Commissioner for Rural Development on 5th August discussed the inputs and gave the final directions on report. This report dated on 16th August 2016 is the culmination of this process.

As explained the phase 1 study covered the four pilot districts of MGNREGS whereas the present study covered the entire state. Both the phases covered works proposed and organised under MGNREGS during the respective periods.

In Phase 1, the data was organised as per districts and phase 2 it is as per agro ecological zones. In Phase 2 average values for each item is given and appropriate ratios have to be applied for each zone and season. In Phase 1 the data was given separately for each district.

3. Methodology of the study

This is explained at various documents – Phase 1 report and the research paper published – attached as annexure. To avoid repetition a brief is attempted here.

Mission Director, MGNREGS had given directions to block level officers to intimate LBC and Maithri about the issue of muster rolls in their respective areas by e mail. Both of the agencies had trained a number of field staff across the state. They were equipped with digital cameras, weighing scales, measuring tapes, humidity meters etc. As per the intimation from the agency the field supervisor will go the work site without intimating the concerned MGNREGS officials and workers. S/he will arrive at the site before the arrival of the workers and will leave only after the completion of the day's work. The field supervisor will take a pre and post measurement of the work to quantify the day's work by the MGNREGS team. S/he will also monitor the climatic features – temperature, humidity – during the day, will number the tools, collect the details of workers and document these aspects.

In addition to the above s/he will select a typical person from the group for studying the motions. The digital camera will help in this regard. Each movement of the typical person is listed with initial and final timings to give the duration. This is further classified in to active time – where physical work is taking place, passive time – inherent rest time for active physical work, idle time – where the typical person is taking an unscheduled stoppage and rest time – statutory time for lunch, tea break etc. From these time measurements actual time spent by the person is calculated which will give the per person output. The data collection format is given as annexure 11.a

There are few shortcomings in this methodology. The typical person selected may not be typical, the group may be highly heterogeneous, the tools may not be adequate and sufficient, the work may be of undefined nature etc. In order to overcome this the studies with these shortcomings were not used for arriving at the final data.

4. Findings of present study

a. Items studied.

Watershed and water conservation works were the predominant works during the field study. There was gap of 3 years between the study and the final report. During this period the type of work under MGNREGS changed a lot. The present study covers the various kinds of clearings, cleanings, silt removal, earth work, horticulture works etc. associated with water conservation. It is not covering any skilled work. These items were developed by studying and defining the works undertaken by MGNREGS during 2006-13.

b. Agro climatic zones

Indian Council of Agricultural Research (ICAR) sub divided the state in to 12 zones depending on the climate, soil, flora and other agriculture related practices. Naturally the work outturn will differ as per this. Most of the Grama Panchayats will fall in to one zone. But few are having two or three zones and the predominant zone is treated as the zone of the Panchayat. Separate data is available for each zone. The map of the agro ecological zones is given as annexure 11.e. The list of Grama Panchayats along with zone is given as table in Chapter 10.

c. Monsoon and summer

Monsoon season is defined as the days from 1st June to 31st December of every year. Summer season is defined from 1st January to 31st May of every year. Separate data is available for both the seasons for each zone. This can be arrived by multiplying the rate given by the appropriate ratio. These ratios are given as table in Chapter 9.

d. Male participation

The male participation among the workers were less than ten percent. Even if when men were present they were not from the prime of health or seasoned workers. It is observed that the lack of quality male participation is severely affecting the outturn of the group. An adult male with expertise and health to handle a heavy crow bar or pick axe is dramatically improving the outturn since very few women are able to use these earth breaking tools effectively.

e. Group organization

The group organisation of workers were not the best. Every worker's team in the rural area is having a natural organisation with the most skilled person is lead with deputies in an informal manner. This organisation gives the team the desired

output. Sadly such an organisation is absent among the MGNREGS workers in general. If an effective leadership is provided there will be substantial improvement in the outturn.

f. Appropriate tools.

During the phase 1 study, workers were using the implements provided by Grama Panchayats. These tools were selected and bought on the consideration of durability. As far as individual tools – knives, spades, pick axes etc. – are concerned the priorities should be different. Each hand tool has to be selected on the basis of the person's height, weight, length of the arm etc. so that the tool is in harmony with body. Then only it can deliver the best. More over the power from human muscles is transferred through the palm to the handle of the tool. Here the contact area and the friction are of paramount importance. A rough wooden handle nicely fitting in to one's palm will transfer the maximum power from muscles to the cutting edge. It was very difficult to find out appropriate women friendly tools among the MGNREGS work. The predominant were ones were having GI or steel handles and often borrowed from the male folk in the family.

g. Lift

The lift in the prevailing schedule of rates are 1.5 m. But the women labourers in rural areas seldom lift a weight above their head, the construction workers being an exception. Their preferred lift is up to the level of breast. The women are wearing long sleeved shirts to protect the body from excess sunshine, insects and bushes. This also hampers the lift. The observed lift in the field is 0.75 m and it is taken as the standard for this data. Extras are provided at the increments of 0.75 m.

h. Lead

Similar to the earlier instance the usual lead is 50m. Here in the field the majority of the outturn was studied for a lead up to 10m. Hence it is taken as a standard. An extra person can be added for each increment of 10 m lead for a group of 20 workers.

i. Labour Banks

It is high time that the workers under MGNREGS are organised under a labour bank, given works on a piece rate under MGNREGS. They should be encouraged to execute soil conservation works under various watershed programmes like IWMP, WGDP etc. This will remedy most of the shortcomings mentioned earlier.

5. Using the data from study

Various software is being developed and in use by engineers employed by MGNREGS engineers at Grama Panchayat and Block Panchayat levels. The present data has to be integrated to an appropriate software.

By selecting the data appropriate season can be selected by the software. Similarly by selecting the Grama Panchayat the relevant agro ecological zone can be selected. The present data of Grama Panchayats with respective agro ecological zones, items of work, definitions, rates and ratios for each zone has to be integrated with the software.

Alternately this can be worked manually by an Engineer in any Grama Panchayat for a given season.

6. Events connected to present study

<u>No</u>	<u>Date</u>	<u>Event/order/paper</u>
1	19-Aug-10	Methodology workshop at NIT-K
2	20-Aug-10	Methodology workshop at NIT-K
3	27-Aug-10	SEGC approved the Phase 1 data
4	25-Sep-10	Signing of five party MoU for Phase 2
5	29-Nov-10	Submission of Phase 1 report
6	18-Dec-10	Lr No DB 4/9720/CE/LSGD/10, approval from CE, LSGD for Phase 1 data
7	17-Jan-11	GO (RT) 159/2011 LSGD on approval of TMS data- Phase 1
8	23-Feb-11	Circular No 115244/DD2/11 LSGD on piloting the Phase 1 data in 4 districts
9	20-Jul-11	Review meeting by Mission Director, NREGS
10	09-Jan-13	Presentation at tenth AIMS international conference on management
11	25-Feb-13	Review meeting by Mission Director, NREGS - Decision to stop field work
12	17-Jun-13	Workshop at KILA
13	31-Oct-13	Status report by Maithri
14	11-Aug-14	Advisory committee meeting chaired by Secretary, LSGD
15	16-Sep-14	Review meeting by Mission Director NREGS
16	30-Jun-16	Review meeting by Secretary, LSGD
17	14-Jul-16	Workshop at HUDCO
18	15-Jul-16	Workshop at LBC
19	22-Jul-16	Interaction with MGNREGS engineers at KILA
20	05-Aug-16	Review meeting by Commissioner for Rural Development

Specifications

for works to be taken up under MGNREGA in Kerala

Developed by HUDCO Regional Office, Thiruvananthapuram

**Towards fulfilment of contractual obligation in the conduct of
The Time and Motion Study facilitated by KILA for
The Government of Kerala**

August 2016

Introduction

A joint Memorandum of Understanding signed with KILA (Kerala Institute of Local Administration), HUDCO, NIT Kozhikode, LBC (Laurie Baker Centre for Habitat Studies) and Maithri Palakkad on 25 Sept. 2010 to conduct time and motion study to arrive at work outturn and specifications for standard works undertaken in NREGS, Kerala.

HUDCO's scope of work:

- (i) Will develop specifications including tools required and optimum working conditions of the works going to be studied in the proposed phase. The attempt will also cover the works studied under the pilot phase.
- (ii) Will provide inputs to the methodology as and when required and facilitate an interaction between various stakeholders of the study.

Limitation

LBC and Maithri have conducted the time and motions studies in the field and are compiling and analyzing the study data. Thereafter the findings along with representative photographs are compiled and delivered to HUDCO to take up its scope of work.

Thus, HUDCO's work is constrained by the quantity and quality of the inputs it receives from the relevant parties.

Application

Standard items of work are obtained after combining similar items. Base items are standardized.

Each base item may be applied in multiple ways spread over two seasons (summer and monsoon) and 12 agro-ecological zones.

1	Coastal sandy	7	High ranges
2	Kuttanad	8	Malappuram type
3	Malayoram	9	Northern midland
4	Onattukara	10	Palakkad plains
5	Red loam	11	Southern mid land
6	Central Midland	12	Chittoor Black soil

1. EARTH WORK

1.1 DEFINITIONS

Deadmen or Tell Tales: Mounds of earth left undisturbed in pits dug out for burrowing earth.

Burjis: Short pillars of brick/ stone having top surface finished with cement plaster for marking etc.

Formation or Profile: Final shape of the ground after excavation or filling up.

Foul condition: Filthy and unhygienic conditions where physical movements are hampered such as soil mixed with sewage or night soil.

Lead: All distances shall be measured over the shortest practical route and not necessarily the route actually taken. Route other than shortest practical route may be considered in cases of unavoidable circumstances.

Carriage by manual labour shall be reckoned in units of 10 metres or part thereof.

Lift: The vertical distance for removal with reference to the ground level. The excavation up to 0.75 metres depth below the ground level and depositing the excavated materials upto 0.75 metres above the ground level are included in the rate of earth work. Lifts inherent in the lead due to ground slope shall not be paid for.

Safety rules: Safety rules as laid down by the statutory authority and as provided in National Building Code (NBC) shall be followed.

1.2 CLASSIFICATION OF SOILS

1.2.1 The earthwork shall be classified under the following categories and measured separately for each category:

(a) **Loose soil:** Generally any strata, such as sand, gravel, loam, clay, mud, black-cotton, moorum, and their mixtures which for excavation yields to application of showels or draw hoes.

(b) **All kind of soils:** Generally any strata, such as sand, gravel, loam, clay, mud, black-cotton, moorum, shingle, river or nallah bed boulders, siding of roads, paths etc. and hard core, macadam surface of any description (water bound, grouted tarmac etc.), lime concrete, mud concrete and their mixtures which for excavation yields to application of picks, showels, jumper, sacrifiers, ripper and other manual digging implements, other than loose soil explained at (a) above.

(c) **Ordinary rock:** Generally any rock which can be excavated by splitting with crow bars or picks and does not require blasting, wedging or similar means for excavation such as lime stone, sand stone, hard laterite, hard conglomerate and un-reinforced cement concrete below ground level.

(d) **Hard rock:** Generally any rock or boulder for the excavation of which blasting is required such as quartzite, granite, basalt, reinforced cement concrete (reinforcement to be cut through but not separated from concrete) below ground level and the like.

(e) **Hard rock (blasting prohibited):** Hard rock requiring blasting as described under (c) but where the blasting is prohibited for any reason and excavation has to be carried out by chiseling, wedging, use of rock hammers and cutters or any other agreed method.

1.3 ANTIQUITIES AND USEFUL MATERIALS

1.3.1 Any finds of archaeological interest such as relics of antiquity, coins, fossils or other articles of value shall be delivered to the NREGA Supervisor-in-Charge (Mate) and shall be the property of the Government.

1.3.2 Any material obtained from the excavation which in the opinion of the NREGA Supervisor-in-Charge (Mate) is useful shall be stacked separately in regular stacks as directed by the NREGA Supervisor-in-Charge (Mate) and shall be the property of the Government.

1.4 PROTECTIONS

1.4.1 Excavation where directed by the NREGA Supervisor-in-Charge (Mate) shall be securely barricaded and provided with proper caution signs, conspicuously displayed during the day and properly illuminated with red lights and/or written using fluorescent reflective paint as directed by NREGA Supervisor-in-Charge (Mate) during the night to avoid accidents.

1.4.2 The NREGA Supervisor-in-Charge (Mate) shall take adequate protective measures to see that the excavation operations do not damage the adjoining structures or dislocate the services. Water supply pipes, sluice valve chambers, sewerage pipes, manholes, drainage pipes and chambers, communication cables, power supply cables etc. met within the course of excavation shall be properly supported and adequately protected, so that these services remain functional. However, if any service is damaged during excavation, arrangements shall be done to ensure restoration in reasonable time.

1.4.3 Excavation shall not be carried out below the foundation level of the adjacent buildings until underpinning, shoring etc. is done as per the directions of the NREGA Supervisor-in-Charge (Mate), for which payment shall be made separately.

1.4.4 Any damages done by the NREGA Supervisor-in-Charge (Mate) to any existing work shall be made good by her at her own cost. Existing drains pipes, culverts, over head wires, water supply lines and similar services encountered during the course of execution shall be protected against damage by the NREGA Supervisor-in-Charge (Mate). The NREGA Supervisor-in-Charge (Mate) shall not store material or otherwise occupy any part of the site in manner likely to hinder the operations of such services.

1.5 SITE CLEARANCE

1.5.1 Before the earth work is started, the area coming under cutting and filling shall be cleared of shrubs, rank vegetation, grass, brushwood, trees and saplings of girth up to 20cm measured at a height of one metre above ground level and rubbish removed up to a distance of 10 metres outside the periphery of the area under clearance. The roots of trees and saplings shall be removed to a depth of 60cm below ground level or 30 cm below formation level or 15 cm below sub grade level, whichever is lower, and the holes or hollows filled up with the earth, rammed and levelled.

1.5.2 The trees of girth above 20 cm measured at a height of one metre above ground shall be cut only after permission of the Engineer-in-Charge is obtained. The roots of trees shall also be removed as specified above. Payment for cutting such trees and removing the roots shall be made separately.

1.5.3 Existing structures and services such as old buildings, culverts, fencing, water supply pipe lines, sewers, power cables, communication cables, drainage pipes etc. within or adjacent to the area if required to be diverted/removed, shall be diverted/dismantled as per directions of the Engineer-in-Charge and payment for such diversion/dismantling works shall be made separately.

1.5.4 In case of archaeological monuments within or adjacent to the area, the NREGA Supervisor-in-Charge (Mate) shall provide necessary fencing around such monuments as per the directions of the Engineer-in-Charge and protect the same properly during execution of works. Payment for providing fencing shall be made separately.

1.5.5 Lead of 10 m mentioned in the 'Schedule of Quantities' is the average lead for the disposal of excavated earth within the site of work. The actual lead for the disposal of earth may be more or less than the 10 m for which no cost adjustment shall be made in the rates.

1.5.6 Earth shall be disposed off at the specified location. The NREGA Supervisor-in-Charge (Mate) has to take advance written permission about place and quantity of disposal of earth, from Engineer-in-Charge, if earth is to be moved from privately owned spaces to publicly owned spaces or vice versa.

1.6 SETTING OUT AND MAKING PROFILES

1.6.1 A masonry pillar or wooden or bamboo peg to serve as a bench mark will be erected at a suitable point in the area, which is visible from the largest area. Necessary profiles with strings stretched on pegs, bamboos or 'Burjis' shall be made to indicate the correct formation levels before the work is started. The NREGA Supervisor-in-Charge (Mate) shall arrange labour and material for constructing bench mark, setting out and making profiles and connecting bench mark with the standard bench mark. The pegs, bamboos or 'Burjis' and the bench mark shall be maintained by NREGA Supervisor-in-Charge (Mate) during the excavation to check the profiles.

1.6.2 Suitable steps to document existing and excavated levels to enable measurements and calculation of quantities may be taken, such as:

1.6.2.1 The ground levels shall be taken at 5 to 15 metres intervals (as directed by the Engineer-in-Charge in uniformly sloping ground and at closer intervals where local mounds, pits or undulations are met with). The ground levels shall be recorded in field books and plotted on plans. The plans shall be drawn to a scale of 5 metres to one cm or any other suitable scale decided by the Engineer-in-Charge. North direction line and position of bench mark shall invariably be shown on the plans. These plans shall be signed by the NREGA Supervisor-in-Charge (Mate) before the earth work is started.

1.6.2.2 Any other method approved by the Engineer-in-Charge.

1.7 EXCAVATION IN ALL KINDS OF SOILS

1.7.1 All excavation operations manually shall include excavation and 'getting out' the excavated materials. In case of excavation for trenches, basements, water tanks etc. 'getting out' shall include throwing the excavated materials at a distance of at least one metre or half the depth of excavation, whichever is more, clear off the edge of excavation. In all other cases 'getting out' shall include depositing the excavated materials as specified. The subsequent disposal of the excavated material shall be either stated as a separate item or included with the items of excavation stating lead.

1.7.2 During the excavation the natural drainage of the area shall be maintained. Excavation shall be done from top to bottom. Undermining or undercutting shall not be done.

1.7.3 In firm soils, the sides of the trenches shall be kept vertical upto a depth of 2 metres from the bottom. For greater depths, the excavation profiles shall be widened by allowing steps of 50 cms on either side after every 2 metres from the bottom. Alternatively, the excavation can be done so as to give slope of 1:4 (1 horizontal: 4 vertical). Where the soil is soft, loose or slushy, the width of steps shall be suitably increased or sides sloped of the soil shored up as directed by the Engineer-in-Charge. It shall be the responsibility of the NREGA

Supervisor-in-Charge (Mate) to take complete instructions in writing from the Engineer-in-Charge regarding the stepping, sloping or shoring to be done for excavation deeper than 2 metres.

1.7.4 The excavation shall be done true to levels, slope, shape and pattern indicated by the NREGA Supervisor-in-Charge (Mate).

1.7.5 In case of excavation for foundation in trenches or over areas, the bed of excavation shall be to the correct level or slope and consolidated by watering and ramming. If the excavation for foundation is done to a depth greater than that shown in the drawings or as required by the Engineer-in-Charge, the excess depth shall be made good with the concrete of the mix used for levelling/ bed concrete for foundations. Soft/defective spots at the bed of the foundations shall be dug out and filled with concrete (to be paid separately) as directed by the Engineer-in-Charge.

1.7.6 While carrying out the excavation for drain work care shall be taken to cut the side and bottom to the required shape, slope and gradient. The surface shall then be properly dressed. If the excavation is done to a depth greater than that shown on the drawing or as required by the Engineer-in-Charge, the excess depth shall be made good with stiff clay puddle at places where the drains are required to be pitched and with ordinary earth, properly watered and rammed, where the drains are not required to be pitched. In case the drain is required to be pitched, the back filling with clay puddle, if required, shall be done simultaneously as the pitching work proceeds. The brick pitched storm water drains should be avoided as far as possible in filled-up areas and loose soils.

1.7.7 In all other cases where the excavation is taken deeper, it shall be brought to the required level by filling in with earth duly watered, consolidated and rammed.

1.7.8 The excavation shall be done manually only.

1.8 EXCAVATION IN ORDINARY/HARD ROCK

1.8.1 All excavation operations shall include excavation and 'getting out' the excavated matter. In case of excavation for trenches, basements, water tanks etc. 'getting out' shall include throwing the excavated materials at a distance of at least one metre or half the depth of excavation, whichever is more, clear off the edge or excavation. In all other cases 'getting out' shall include depositing the excavated materials as specified. The subsequent disposal of the excavated material shall be either stated as a separate item or included with the item of excavation stating lead.

1.8.2 During the excavation, the natural drainage of the area shall be maintained. Excavation shall be done from top to bottom. Undermining or under cutting shall not be done.

1.8.3 Excavation in hard rock shall be done manually, by chiseling or such other appropriate method.

1.8.4 In ordinary rock excavation shall be carried out by crowbars, pick axes and blasting operation shall not be adopted.

1.8.5 The excavation shall be done manually only and NREGA Supervisor-in-Charge (Mate) shall ensure every safety measures for the workers.

1.9 FILLING

1.9.1 The earth used for filling shall be free from all roots, grass, shrubs, rank vegetation, brushwood, tress, sapling and rubbish.

1.9.2 Filling with excavated earth shall be done in regular horizontal layers each not exceeding 20 cm in depth. All lumps and clods exceeding 8 cm in any direction shall be broken. Each layer shall be watered and consolidated. The top and sides of filling shall be neatly dressed.

1.10 MEASUREMENTS

1.10.1 The length and breadth of excavation or filling shall be measured with a steel tape correct to the nearest cm. The depth of cutting or height of filling shall be measured, correct to 1 cm, by recording levels before the start of the work and after the completion of the work. The cubical contents shall be worked out to the nearest one place of decimal in cubic metres.

1.10.1.1 In case of open footings up to the depth of 1.5 metres, around excavation of 30 cm. beyond the outer dimension of footing shall be measured for payment to make allowances for centering and shuttering.

1.10.1.2 In case of open footings/Rafts at a depth of more than 1.5 metre, around excavation of 75 cm shall be measured for payment to make allowance for centering and shuttering.

1.11 RATES

1.11.1 Rates for Earthwork shall include the following:

- (a) Excavation and depositing excavated material as specified.
- (b) Handling of antiquities and useful material as specified on 1.3.
- (c) Protection as specified in 1.4.
- (d) Site clearance as specified in 1.5.
- (e) Setting out and making profiles as specified in 1.6.
- (f) Forming (or leaving) dead – men or ‘Tell Tales’ in borrow pits and their removal after measurements.
- (h) Initial lead of 10 m and lift of 0.75 m.

1.11.2 No deduction shall be made from the rate if in the opinion of the Engineer- in-charge, operations specified in 1.11.1 (b) to (h) are not required to be carried out on any account whatsoever.

1.12 SURFACE EXCAVATION

1.12.1 Excavations exceeding 1.5 m in width and 10 sqm. on plan but not exceeding 30 cm. in depth in all types of soils and rocks shall be described as surface excavation and shall be done as specified in 1.7 and 1.8.

1.12.2 Measurements: The length and breadth shall be measured with a steel tape correct to the nearest cm. and the area worked out to the nearest one place of decimal in square metres.

1.12.3 Rate shall be as specified in 1.11.

1.13. ROUGH EXCAVATION AND FILLING

1.13.1 Excavation for earth from burrow pits, cutting hill side slopes etc. shall be described as rough excavation and shall be done as specified in 1.7 and 1.8.

1.13.2 Wherever filling is to be done, the earth from excavation shall be directly used for filling and no payment for double handling of earth shall be admissible. Filling of excavated earth shall be done as specified in 1.9. In case of hill side cutting, where the excavated materials is thrown down the hill slopes, payment for filling excavated earth shall not be admissible.

1.13.3 Measurements shall be as specified in 1.10.

1.13.4 Rates shall be as specified in 1.11.

1.14 EXCAVATION OVER AREA (ALL KINDS OF SOIL)

1.14.1 This shall comprise:

- (a) Excavation exceeding 1.5 m in width and 10 sqm on plan and exceeding 30 cm in depth.
- (b) Excavation for basements, water tanks etc.
- (c) Excavation in trenches exceeding 1.5 m in width and 10 sqm on plan.

1.14.2 Excavation shall be done as specified in 1.7.

1.14.3 Measurements shall be as specified in 1.10.

1.14.4 Rates shall be as specified in 1.11.

1.15 EXCAVATION OVER AREA (ORDINARY/ HARD ROCK)

1.15.1 This shall comprise:

- (a) Excavation exceeding 1.5 m in width and 10 sqm on plan and exceeding 30 cm in depth.
- (b) Excavation for basements, water tanks etc.
- (c) Excavation in trenches exceeding 1.5 m in width and 10 sqm on plan.

1.15.2 Excavation shall be done as specified in 1.8.

1.15.3 Measurements shall be done as specified in 1.10.

1.15.4 Rates shall be as specified in 1.11.

1.16 EXCAVATION IN TRENCHES FOR FOUNDATIONS AND DRAINS (ALL KINDS OF SOIL)

1.16.1 This shall comprise excavation not exceeding 1.5 m in width or 10 sqm on plan and to any depth in trenches (excluding trenches for pipes, cables, conduits etc.)

1.16.2 Excavation shall be done as specified in 1.7.

1.16.3 Measurements shall be as specified in 1.10.

1.16.4 Rates shall be as specified in 1.11.

1.17 EXCAVATION IN TRENCHES FOR FOUNDATION AND DRAINS (ORDINARY/ HARD ROCK)

1.17.1 This shall comprise excavation not exceeding 1.5m in width or 10 sqm. On plan and to any depth in trenches (excluding trenches for pipes, cables, conduits etc.)

1.17.2 Excavation shall be done as specified in 1.8.

1.17.3 Measurements shall be as specified in 1.10.

1.17.4 Rates shall be as specified in 1.11.

1.18 PLANKING AND STRUTTING

1.18.1 Being a specialized work, special care should be taken while undertaking excavation in difficult/dangerous situations and while erecting planking and strutting. Skilled workers should be employed to do planking and strutting.

1.18.2 When the depth of trench in soft/loose soil exceeds 2 metres, stepping, sloping and/ or planking and strutting of sides shall be done. In case of loose and slushy soils, the depths at which these precautions are to be taken shall be determined by the Engineer-in-Charge according to the nature of soil.

Planking and strutting shall be 'close' or 'open' depending on the nature of soil and the depth of trench. The type of planking and strutting shall be determined by the Engineer-in-Charge. It shall be the responsibility of the NREGA Supervisor-in-Charge (Mate) to take all necessary steps to prevent the sides of trenches from collapse. Engineer-in-Charge should take guidance from IS: 3764 for designing the shoring and strutting arrangements and specifying the profile of excavation.

1.18.3 Close Planking and Strutting

Close planking and strutting shall be done by completely covering the sides of the trench generally with short upright, members called 'poling boards'. These shall be 250x38 mm in section or as directed by the Engineer-in-Charge.

The boards shall generally be placed in position vertically in pairs. One board on either side of cutting. These shall be kept apart by horizontal waling of strong wood at a maximum spacing of 1.2 metres cross strutted with ballies, or as directed by Engineer-in-Charge. The length and diameter of the ballies strut shall depend upon the width of the trench. Typical sketch of close timbering is given in fig.1.2.

Where the soil is very soft and loose, the boards shall be placed horizontally against the sides of the excavation and supported by vertical 'walings' which shall be strutted to similar timber pieces on the opposite face of the trench. The lowest boards supporting the sides shall be taken in the ground for a minimum depth of 75 mm. No portion of the vertical side of the trench shall remain exposed.

The withdrawal of the timber members shall be done very carefully to prevent collapse of the trench. It shall be started at one end and proceeded systematically to the other end. Concrete or masonry shall not be damaged while removing the planks. Efforts should be made to safely remove all the planks where it is practically feasible, unless required by the Engineer-in-Charge to be left permanently in position.

1.18.4 Open Planking and Strutting

In case of open planking and strutting, the entire surface of the side of the trench is not required to be covered. The vertical boards 250 mm wide & 38 mm thick, shall be spaced sufficiently apart to leave unsupported strips of 50 cm average width. The detailed arrangement, sizes of the timber and the distance apart shall be subject to the approval of the Engineer-in-Charge. In all other respect, specifications for close planking and strutting shall apply to open planking and strutting. Typical sketch of open planking and strutting is given in fig. 2.2.

1.18.5 Measurements

The dimensions shall be measured correct to the nearest cm and the area of the face supported shall be worked out in square metres correct to one places of decimal.

1.18.5.1 Works shall be grouped according to the following:

- (a) Depth not exceeding 0.75 m.
- (b) Depth exceeding 0.75m in stages of 0.75 m.

1.18.5.2 Planking and strutting to the following shall be measured separately:

- (a) Trenches.
- (b) Areas- The description shall include use and waste of raking shores.
- (c) Shafts, walls, cesspits, manholes and the like
- (d) Where tightly driven close but jointed sheeting is necessary as in case of running sheeting is necessary as in case of running sand the item shall be measured separately and packing of cavities behind sheeting with suitable materials included with the item.
- (e) Planking and strutting required to be left permanently in position shall be measured separately.

1.18.6 Rates

Rates shall include use and waste of all necessary timber work as mentioned above including fixing and subsequent removal.

1.19 EXCAVATION IN WATER, MUD, FOUL or HAZARDOUS POSITION

1.19.1 All water that may accumulate in excavations during the progress of the work from springs, tidal or river seepage, broken water mains or drains, and seepage from subsoil aquifer shall be bailed, pumped out or otherwise removed. The NREGA Supervisor-in-Charge (Mate) shall take adequate measures for bailing and/or pumping out water from excavations and/or pumping out water from excavations and construct diversion channels, bunds, sumps, coffer dams etc. as may be required. Pumping shall be done directly from the foundation trenches or from a sump out side the excavation in such a manner as to preclude the possibility of movement of water through any fresh concrete or masonry and washing away parts of concrete or mortar. During laying of concrete or masonry and for a period of at least 24 hours thereafter, pumping shall be done from a suitable sump separated from concrete or masonry by effective means.

Capacity and number of pumps, location at which the pumps are to be installed, pumping hours etc. shall be decided from time to time in consultation with the Engineer-in-Charge.

Pumping shall be done in such a way as not to cause damage to the work or adjoining property by subsidence etc. Disposal of water shall not cause inconvenience or nuisance in the area or cause damage to the property and structure nearby.

To prevent slipping of sides, planking and strutting may also be done with the approval of the Engineer-in-Charge.

1.19.2 Pumping need not be done in the case of minor excavations in ponds/canals/drains etc. where mortar or concrete based construction work, which can be easily damaged by the presence/flow of water, is not planned.

1.19.3 Classification

The earth work for various classification of soil shall be categorised as under:

(a) **Work in or under water and/or liquid mud:** Excavation, where water is met with from any of the sources specified in 1.19.1 shall fall in this category. Steady water level in the trial pits before the commencement of bailing or pumping operations shall be the sub-soil water level in that area.

(b) **Work in or under foul position:** Excavation, where sewage, sewage gases or foul conditions are met with from any source, shall fall in this category. Decision of the NREGA Supervisor-in-Charge (Mate) whether the work is in foul position or not shall be final.

(c) **Work in or under hazardous position:** Excavation, where shards of sharp objects such as glass, metal etc., snakes or other poisonous life forms, hazardous chemicals, etc. are met with, shall fall in this category. Decision of the NREGA Supervisor-in-Charge (Mate) whether the work is in hazardous position or not shall be final. Works in hazardous position may be undertaken only with the approval of the Engineer-in-Charge and with appropriate protective gear.

1.19.4 Measurements

1.19.4.1 The unit, namely, metre depth shall be the depth measured from the level of foul position/ subsoil water level and upto the centre of gravity of the cross sectional area of excavation actually done in the conditions classified in 1.19.3. Metre depth shall be reckoned correct to 0.1 m, 0.05 m or more shall be taken as 0.1 m and less than 0.05 m ignored. The extra percentage rate is applicable in respect of each item but the measurements shall be limited only to the quantities of earth work actually executed in the conditions classified in 1.19.3.

1.19.4.2 In case earth work in or under foul position is also in or under water and/or liquid mud, extra payment shall be admissible only for the earth work actually executed in or under foul position.

1.19.4.3 Pumping or bailing out water met within excavations from the sources specified in 1.19.1 where envisaged and specifically ordered by the NREGA Supervisor-in-Charge (Mate) shall be measured separately and paid. Quantity of water shall be recorded in kilolitres correct to two places of decimal. This payment shall be in addition to the payment under respective items of earthwork and shall be admissible only when pumping or bailing out water has been specifically ordered by the NREGA Supervisor-in-Charge (Mate).

1.19.4.4 Planking and strutting or any other protection work done with the approval of the NREGA Supervisor-in-Charge (Mate) to keep the trenches dry and/or to save the foundations against damage by corrosion of rise in water levels shall be measured and paid for separately.

1.19.4.5 Bailing or pumping out water, accumulated in excavation, due to rains is included under respective items of earthwork and is not to be paid separately.

1.19.5 Rates

The rates for respective items described above shall include cost of all the operations as may be applicable.

1.20 EARTH WORK FOR MAJOR WORKS

1.20.1 Excavation shall be undertaken to the width of the Basement/Retaining wall footing including necessary margins for construction operation as per drawing or directed otherwise. Where the nature of soil or the depth of the trench and season of the year, do not permit vertical sides, the NREGA Supervisor-in-Charge (Mate) shall put up the necessary shoring, strutting and planking or cut slopes with or without steps, to a safer angle or both with due regard to the safety of personnel and works and to the satisfaction of the Engineer-in-Charge. Measurement of actual excavation undertaken shall be permitted.

1.20.2 The NREGA Supervisor-in-Charge (Mate) shall make all necessary arrangements for maintaining water level, in the area where works are under execution low enough so as not to cause any harm to the work and the workers shall be considered as inclusive of pumping out or bailing out water, if required, for which extra payment shall be made.

1.20.3 The NREGA Supervisor-in-Charge (Mate) shall take all necessary measures for the safety of traffic during construction and provide, erect and maintain such barricades including signs, markings, flags, lights and flagman, as necessary at either end of the excavation/embankment and at such intermediate points as directed by the Engineer-in-Charge for the proper identification of construction area. The Engineer-in-Charge shall be responsible for all damages and accidents caused due to negligence on her part.

1.21 FILLING IN TRENCHES, PLINTH, UNDER FLOOR ETC.

1.21.1 Earth

Normally excavated earth from same area shall be used for filling. Earth used for filling shall be free from shrubs, rank, vegetation, grass, brushwood, stone shingle and boulders (larger than 75mm in any direction), organic or any other foreign matter. Earth containing deleterious materials, salt peter earth etc. shall not be used for filling. All clods and lumps of earth exceeding 8 cm in any direction shall be broken or removed before the earth is used for filling.

1.21.2 Filling

The space around the foundations and drains in trenches shall be cleared of all debris, brick bats etc. The filling shall be done in layers not exceeding 20 cm in depth. Each layer shall be watered, rammed and consolidated. Ramming shall be done with iron rammers where possible and with blunt end of crow bars where rammers cannot be used. Special care shall be taken to ensure that no damage is caused to the pipes, drains, masonry or concrete in the trenches. In case of filling under floor, the finished level of filling shall be kept to the slope intended to be given to the floor.

1.21.3 Measurements

1.21.3.1 Filling Side of Foundations: The cubical contents of bed concrete levelling course and masonry/ concrete in foundations up to the ground level shall be worked out and the same deducted from the cubical contents of earthwork in excavation for foundations already measured under the respective item of earth work to arrive at the quantity for filling sides of foundation. The quantity shall be calculated correct to one places of decimal.

1.21.3.2 Filling in Plinth and under Floors: Depth of filling shall be the consolidated depth. The dimensions of filling shall be on the basis of pre-measurement correct to the nearest cm and cubical content worked out in cubic metres correct to one places of decimal.

1.21.4 Rates

The rates include cost of all the operations described above.

1.22 SURFACE DRESSING

1.22.1 Surface dressing shall include cutting and filling upto a depth of 15 cm and clearing of shrubs, rank vegetation, grass, brushwood, trees and saplings of girth upto 20 cm measured at a height of one metre above the ground level and removal of rubbish and other excavated material upto a distance of 10 metres outside the periphery of the area under surface dressing. High portions of the ground shall be cut down and hollows depression filled upto the required level with the excavated earth so as to give an even, neat and tidy look.

1.22.2 Measurements

Length and breadth of the dressed ground shall be measured correct to the nearest cm and the area worked out in square metres correct to two places of decimal.

1.22.3 Rates

The rates shall include cost of labour involved in all the operations described above.

1.23 CLEARANCE OF GRASS

Cutting and clearing operation involving only the clearance of grass, not uprooting, shall be measured and paid for separately and shall include removal of rubbish upto a distance of 20 m outside the periphery of the area under clearance.

1.23.1 Measurements

The length and breadth shall be measured correct to the nearest cm and area worked out in square metres correct to two places of decimal.

1.23.2 Rates

The rate includes cost of all the operation described above.

Note: Clearance of grass is not payable separately for the earth work specified in 1.14 to 1.17.

1.24 JUNGLE CLEARANCE

1.24.1 Jungle clearance shall comprise uprooting of rank vegetation, grass, brushwood, shrubs, stumps, trees and saplings of girth upto 20 cm measured at a height of one metre above the ground level. Where only clearance of grass is involved it shall be measured and paid for separately.

1.24.2 Uprooting of Vegetations

The roots of trees and saplings shall be removed to a depth of 60 cm below ground level or 30 cm below formation level or 15 cm below sub-grade level, whichever is lower. All holes or hollows formed due to removal of roots shall be filled up with earth rammed and levelled. Trees, shrubs, poles, fences, signs, monuments, pipe lines, cable etc., within or adjacent to the area which are not required to be disturbed during jungle clearance shall be properly protected by the NREGA Supervisor-in-Charge (Mate).

1.24.3 Stacking and Disposal

All useful materials obtained from clearing and grubbing operation shall be stacked in the manner as directed by the Engineer-in-Charge. Trunks and branches of trees shall be cleared of limbs and tops and stacked neatly at places indicated by the NREGA Supervisor-in-Charge (Mate). The materials shall be the property of the Panchayat, unless belonging to privately owned premises. All unserviceable materials which in the opinion of the NREGA Supervisor-in-Charge (Mate) cannot be used or auctioned shall be removed up to a distance of 10 m outside the periphery of the area under clearance.

1.24.4 Measurements

The length and breadth shall be measured correct to the nearest cm and area worked out in square metres correct to two places of decimal.

1.24.5 Rates

The rate includes cost of all the operation described above.

Note: Jungle clearance is not payable separately for the earth work specified in 1.14 to 1.17.

1.25 FELLING TREES

1.25.1 Felling

While clearing jungle, grown trees above 20 cm girth (measured at a height of one metre above ground level) to be cut, shall be approved by the Engineer-in-Charge and then marked at site. Felling trees shall include taking out roots up to 60 cm below ground level or 30 cm below formation level or 15 cm below sub-grade level, whichever is lower.

All excavation below general ground level arising out of the removal of trees, stumps etc. shall be filled with suitable material in 20 cm layers and compacted thoroughly so that the surfaces at these points conform to the surrounding area. The trunks and branches of trees shall be cleared of limbs and tops and cut into suitable pieces as directed by the NREGA Supervisor-in-Charge (Mate).

1.25.2 Stacking and Disposal

Wood, branches, twigs of trees and other useful material shall be the property of the Panchayat, unless belonging to privately owned premises. The serviceable materials shall be stacked in the manner as directed by the NREGA Supervisor-in-Charge (Mate) upto a lead of 10m. All unserviceable material, which in the opinion of NREGA Supervisor-in-Charge (Mate) cannot be used or auctioned shall be removed from the area and disposed off as per the directions of the NREGA Supervisor-in-Charge (Mate). Care shall be taken to see that unsuitable waste materials are disposed off in such a manner that there is no adverse social or environmental.

1.25.3 Measurements

Cutting of trees above 20 cm in girth (measured at a height of one metre above level) shall be measured in numbers according to the sizes given below:

- (a) Beyond 20 cm girth, upto and including 60cm girth.
- (b) Beyond 60 cm girth, being specialised work, need not be taken up under NREGA.

1.25.4 Rate

The rate includes the cost involved in all the operations described above. The contract unit rate for cutting trees above 20 cm in girth shall include removal of stumps as well.

1.26 TOOLS & IMPLEMENTS

Size, type and weight of tools and implements should be identified, procured and made available to the workers free of cost in accordance with the anthropometrics, effort capabilities and skill levels.

Tools, implements, protective gear and safety equipments to be supplied by the Panchayat.

1.27 OPTIMUM WORKING CONDITIONS

Climatic: Avoid working in conditions that may result in sun stroke, heat stroke, dehydration, cold bite, muscle cramps, etc.

Protection to be ensured and protective gear and safety equipments to be used in hazardous and foul situations.

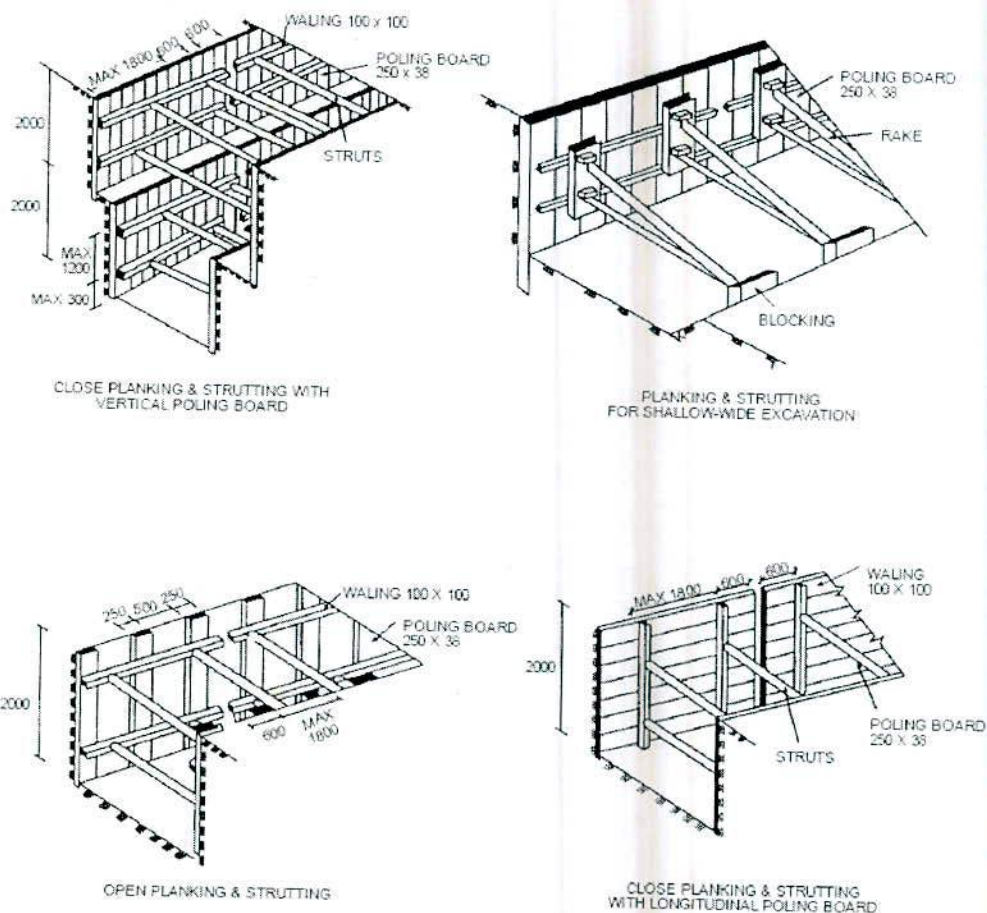
Safety of all workers to be ensured.

Basic sanitation facilities to be ensured.

1.28 REFERENCES:

1. IS 1200 (Pt 1) Method of measurement of earthwork.
2. CPWD Specifications 2009
3. Specifications of various State PWDs
4. Schedules of rates of various Departments of State Governments
5. DSR 2013.

Fig. 1.1 Close & Open Planking & Strutting



DRAWING NOT TO SCALE
ALL DIMENSIONS ARE IN M.M

2. Geo Textile for grassing

Open mesh coir geo textiles are laid side by side by overlapping of 150mm while end to end overlapping of two coir geo textiles is 200mm.

The overlapping edges are fixed with the ground with the help of either 150mm long, U-shaped nails or 220mm long J shaped hooks made of 3 mm iron or steel wire. The U shaped nails or J shaped hooks should be driven at intervals of 500 – 750mm; along sides and overlapping sections at a distance of 300-500mm. Wooden bamboo pegs may also be used for fixing the coir geo textiles. The hooks must be at the same level with the ground for smooth water flow over the joint to the next fabric.

Secure the top and bottom ends of the coir geo textiles into slots about 300mm deep, dug into the slope for the purpose. Fill in the slots with soil and tamp it flush with the soil surface.

Peg down the coir geo textiles using U/J shaped or wooden pegs driven at intervals of 500-750mm, along sides and overlapping sections at a distance of 300-500 mm.

Do second seeding of grass at 10g per sq.metre after the coir geo textiles is in place. Finally, tamp the coir geo textiles flush with the soil surface. Care should be taken to ensure that no aggregate stays between coir geo textiles and the base soil either at the bottom sides. Irrigate the treated slope as required to promote the growth of vegetation. Care must be taken to protect the treated site from trampling by human and cattle till vegetation comes up fully.

Close monitoring should be carried out for at least two-season cycle. Displacement of coir geo textiles, if any, is to be noted and watched without disturbing it initially. Fresh coir geo textiles pieces duly stapled on all sides may overlap torn portions.

Grade I (H2M6; 400 gsm) or Grade II (H2M5; 700gsm) open weave coir bhoovastra

2.1 The slope shall be made free from undulations soil slurry, mud and sharp projections and compacted with additional earth where necessary.

2.2 Anchoring trenches shall be excavated at the top and toe of the slope along the slope downward caring, to see that it touches the soil surface at all points.

2.3 The selected coir woven bhoovastra shall be unrolled across the top trench and along the slope downward, caring to see that it touches the soil surface at all points.

2.4 Overlaps shall be minimum 150 mm at sides and ends (see Fig . I). The coir woven bhoovastra at the higher level on the slope shall be placed over level. Side overlaps of a coir woven bhoovastra piece shall be placed over its next piece on one side and under the next piece on the other.

2.5 The coir woven bhoovastra shall be fixed in position by steel staples of 220 mm lengths (usually of 11 gauge diameter) or by split bamboo pegs. Stapling shall be done normally at an interval of 500-750 mm both in longitudinal and transverse directions. Special care shall be taken to staple the coir woven bhoovastra within the anchoring trenches (300 mm depth and 150 mm width) both at the bottom and at the sides .

2.6 The anchoring trenches shall be filled up with brick-bats/soil for preventing displacement of the coir woven bhoovastra. Care shall be taken that the overlaps are not displaced during installation.

2.7 Care shall be taken to ensure that the coir woven Bhoovastra is not damaged due to puncture tear and other operational stresses.

2.8 Seeds of vegetation (grass, legumes, etc., of appropriate variety) shall than be spread. If seeds are not available, saplings of the appropriate plant species may be planted at suitable intervals through the opening of the coir woven bhoovastra.

2.9 In special circumstances, a second dose of seeds may be spread with dibbling of locally available grass.

2.10 Installation shall be completed preferably before the monsoon to take advantage of the rains for quick germination of seeds.

1. Open weave coir Bhoovastra-Specification, 2008, IS 15869.
2. Application of coir geotextiles (coir woven Bhoovastra) for rain water erosion control in roads, railway embankments and hill slopes-Guidelines, 2009, IS 15872.

Ref:

Schedule of Rates for Forestry Works, Government of Kerala, 2007.

Section: Forest Nursery and Plantation Works

Items: l, m, n, o, p, q, r & s give different labour outturn for digging items in 'after rains' and 'dry' conditions

Time and Motion Data

			Items of work		
Sl. No.	Code		Description	Unit	Labour in person days
CLEANING / CLEARING					
1	C1	Clearing grass			
			Clearing grass (cutting using spade; not uprooting) and removal of rubbish upto a distance of 20m outside the periphery of the area cleared.	100 Sqm	2.16
2	C2	Clearing Bushes			
			Clearing light undergrowth/bushes (mostly cutting; not uprooting); with grass cover less than 25% and removal of rubbish upto a distance of 20m outside the periphery of the area cleared. Trees / saplings of girth more than 0.20m at a height of one metre from ground level shall not be cut/damaged.		
	C2.1		For area under thorny bushes less than 25% of the total area of work.	100 Sqm	2.42
	C2.2		For area under thorny bushes more than then 25% of the total area of work.	100 Sqm	4.84
3	C3	Removal of floating materials from water bodies			
	C3.1		From the surface of water bodies.	100 Sqm	3.91
	C3.2		Upto a water depth of 0.9m, and disposing upto a lead of 10m.	100 Sqm	4.89
	C3.3		Beyond a water depth of 0.9m, and disposing upto a lead of 10m.	100 Sqm	8.85
4	C4	Cleaning of drains			
			Removal of silt, grass, weeds, litter, refuse, etc. or such other objectionable materials from lined / unlined drains, of width not more than 0.6m and depositing with initial lead upto 10m and lift upto 0.75m	Meter	0.05
	C4a	Extra: Cleaning of drains			
			Removal of silt, grass, weeds, litter, refuse, etc. or such other objectionable materials from lined / unlined drains, of width not more than 0.6m and depositing with initial lead upto 10m and lift upto 0.75m. Extra for work under foul or hazardous conditions. (Rate is over corresponding basic item C4)	Meter	0.05
5	C5	Cleaning of road sides and public places			
			Cleaning of road sides and public places by removal of grass, weeds, litter, garbage, etc. and disposing at a lead of 10m.	100 Sqm	3.24

Time and Motion Data

Sl. No.	Code	Description	Unit	Labour in person days
	C5a	Extra: Cleaning of road sides and public places		
		Cleaning of road sides and public places by removal of grass, weeds, litter, garbage, etc. and disposing at a lead of 10m. Extra for work under foul or hazardous conditions. (Rate is over corresponding basic item C5)	100 Sqm	1.60
6	C6	Cleaning of streams		
		Removal of rubbish, garbage or such other objectionable materials from beds of streams upto 10m lead and lift upto 0.75m. Special care taken to avoid damage to flora and fauna and vegetation on the banks.		
	C6.1	In dry condition	100 Sqm	6.93
	C6.2	In water of 0.5m depth	100 Sqm	10.40
	C6.3	In water of 1.0m depth	100 Sqm	13.86
	C6a	Extra: Cleaning of streams		
		Removal of rubbish, garbage or such other objectionable materials from beds of streams upto 10m lead. Special care taken to avoid damage to flora and fauna and vegetation on the banks. Extra for lifts exceeding initial 0.75m, for each additional increment of 0.75m or part thereof. (Rate is over corresponding basic item C6.1, C6.2, C6.3)	100 Sqm	1.70
	C6b	Extra: Cleaning of streams		
		Removal of rubbish, garbage or such other objectionable materials from beds of streams upto 10m lead. Special care taken to avoid damage to flora and fauna and vegetation on the banks. Extra for work under foul or hazardous conditions. (Rate is over corresponding basic item C6.1, C6.2, C6.3)	100 Sqm	6.80
EARTHWORK				
7	E1	Centripetal Terracing		
		Earth work excavation and depositing on a circular bank on the periphery of a cross section of not less than 0.45m base width and 0.30m maximum height (measured from within the excavation) with a radius of 2m from tree trunk; including neat banking, in loose soil.	Meter	0.09

Time and Motion Data

Sl. No.	Code	Description	Unit	Labour in person days
8	E2	Rain water pits		
		Earth work excavation for rain pits; in loose soil and all kinds of soil; of width not less than 0.45m, length not less than 0.90m and depositing within a lead of 2m on the lower side of slope. Upto a depth of 0.75m.	10 Cum	6.41
	E2a	Extra: Rain Water pits		
		Earth work excavation for rain pits; in loose soil and all kinds of soil; of width not less than 0.45m, length not less than 0.90m and depositing within a lead of 2m on the lower side of slope. Extra for lifts exceeding initial 0.75m, for each additional increment of 0.75m or part thereof. (Rate is over corresponding basic item E2).	10 Cum	1.60
9	E3	Earthen bunds		
		Preparation of earthen bunds in loose soil (of cross section: 0.45m base width, 0.30m average height) using earth from higher side of slope, including neat banking and consolidation.	Meter	0.11
10	E4D	Digging and desilting of ponds: Dry		
		Earthwork excavation, in loose soil and all kinds of soil, of width and length not less than 1.5 m. With special care taken to avoid damage to flora and fauna and vegetation on the banks. For initial depth upto 0.75m, lead of maximum 10m. In dry conditions.		
	E4D.1	Small ponds (area not exceeding 25 Sqm), In all kinds of soil	10 Cum	5.46
	E4D.2	Large ponds (area exceeding 25 Sqm), In all kinds of soil	10 Cum	6.12
	E4Da	Extra: Digging and desilting of small ponds: Dry		
		Earthwork excavation, in loose soil and all kinds of soil, of width and length not less than 1.5m. Extra for lifts exceeding initial 0.75m, for each additional increment of 0.75m or part thereof. (Rate is over corresponding basic item E4D.1 or E4D.2) and lead of maximum 10m. In dry conditions. With special care taken to avoid damage to flora and fauna and vegetation on the banks.	10 Cum	1.40

Time and Motion Data

Sl. No.	Code	Description	Unit	Labour in person days
	E4W	Digging and desilting of ponds: Water		
		Earthwork excavation, in loose soil and all kinds of soil, of width and length not less than 1.5m. In under water conditions, where the work is done by workers standing in water, with depth of water ranging between 0.10m and 0.45m or saturated soils. For initial depth upto 0.75m, lead of maximum 10m. With special care taken to avoid damage to flora and fauna and vegetation on the banks.		
	E4W.1	Small ponds (area not exceeding 25 Sqm) in all kinds of soil	10 Cum	5.19
	E4W.2	Large ponds (area exceeding 25 Sqm) in all kinds of soil	10 Cum	5.81
	E4Wa	Extra: Digging and desilting of ponds: Water		
		Earthwork excavation, in loose soil and all kinds of soil, of width and length not less than 1.5m. In under water conditions, where the work is done by workers standing in water, with depth of water ranging between 0.10m and 0.45m or saturated soils. With special care taken to avoid damage to flora and fauna and vegetation on the banks. Extra for lifts exceeding initial 0.75m, for each additional increment of 0.75m or part thereof. (Rate is over corresponding basic item E4W.1 or E4W.2) and lead of maximum 10m, with depth of water ranging between 0.10m and 0.45m after completion of digging or desilting.	10 Cum	1.30
11	E5D	Desilting of lined irrigation canal: Dry		
		Removal of silt (with less than 10% area under grass/weed cover) from lined irrigation canals, during periods of no-flow, less than 0.1m water depth, for canals of width not less than 1.5m depositing on bank with initial lead upto 10m and lift upto 0.75 m. (If grass/weed area exceeds what is stated here, such areas may be measured separately and the item of work for grass clearing may be operated.)	10 Cum	5.59

Time and Motion Data

Sl. No.	Code		Description	Unit	Labour in person days
	E5Da	Extra:	Desilting of lined irrigation canal: Dry		
			Removal of silt (with less than 10% area under grass/weed cover) from lined irrigation canals, during periods of no-flow, less than 0.1m water depth, for canals of width not less than 1.5m depositing on bank with initial lead upto 10m. Extra for lifts exceeding initial 0.75m, for each additional increment of 0.75m or part thereof. (Rate is over corresponding basic item E5D)	10 Cum	1.40
12	E6		Desilting of small earthen channels		
			Removal of silt, grass, weeds, litter, etc. from unlined irrigation canals, of width not more than 1.5m, water depth not more than 0.1m and depositing on bank with initial lead upto 2 m and lift upto 0.75m.	10 Cum	6.03
	E6a	Extra:	Desilting of small Earthen channels		
			Removal of silt, grass, weeds, litter, etc. from unlined irrigation canals, of width not more than 1.5m, water depth not more than 0.1m and depositing on bank with initial lead upto 2m. Extra for lifts exceeding initial 0.75m, for each additional increment of 0.75m or part thereof. (Rate is over corresponding basic item E6)	10 Cum	1.50
	E6b	Extra:	Desilting of small Earthen channels		
			Removal of silt, grass, weeds, litter, etc. from unlined irrigation canals, of width not more than 1.5m, water depth not more than 0.1m and depositing on bank with initial lead upto 2m. Extra for work under foul or hazardous conditions. (Rate is over corresponding basic item E6)	10 Cum	6.00
13	E7		Desilting of small lined canals		
			Removal of silt from lined irrigation canals, no-flow, for canals of width not more than 1.5m, depositing on bank with initial lead upto 2m and lift upto 0.75m. (Special care to be taken against flash floods)	10 Cum	7.37
	E7a	Extra:	Desilting of lined irrigation canal		
			Removal of silt from lined small irrigation canals, no-flow, for canals of width not more than 1.5m, depositing on bank with initial lead upto 2m. Extra for lifts exceeding initial 0.75m, for each additional increment of 0.75m or part thereof. (Rate is over corresponding basic item E7)	10 Cum	1.80

Time and Motion Data

Sl. No.	Code	Description	Unit	Labour in person days
14	E8	Removal of coconut palm bottom.		
		Removal of all remains of the bottom of a coconut palm, which is left after the palm is cut, by digging around it, slicing using axes and crow-bars, etc. and stacking within a lead of 10m. (Cutting of palm tree is not included).	10 Cum	24.15
15	E9	Formation of earthen roads		
		Dressing, levelling and filling earthen road surfaces, using new earth of average compacted thickness 0.15m; earth brought by head load from a lead of not more than 5m. Filling with excavated earth shall be done in regular horizontal layers each not exceeding 0.2m in depth. All lumps and clods exceeding 0.08m in any direction shall be broken. Each layer shall be watered and consolidated. The top and sides of filling shall be neatly dressed.	100 Sqm	17.60
16	E10	Surface dressing and Land levelling		
		Surface dressing of the ground including removing vegetation and undulations not exceeding 0.15m deep and disposal of rubbish, lead upto 10 m and lift upto 0.75m.	100 Sqm	5.88
17	E11	Earth work excavation		
		Earth work in excavation by manual means in foundation trenches, drains, elephant trenches, new pond, canal, etc., including dressing of sides and ramming of bottoms, lift upto 0.75m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 10m in all kinds of soil.	10 Cum	7.58
	E11a	Extra: Earthwork excavation		
		Earth work in excavation by manual means in foundation trenches, drains, elephant trenches, new pond, canal, etc., including dressing of sides and ramming of bottoms, lift upto 0.75m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 10m. Extra for lifts exceeding initial 0.75m, for each additional increment of 0.75m or part thereof. (Rate is over corresponding basic item E11)	10 Cum	1.90

Time and Motion Data

Sl. No.	Code	Description	Unit	Labour in person days
18	E12	Loosening of top soil		
		Loosening of top soil to prepare for agriculture, manually using hand tools such as spade, hoe, pick-axe, etc. upto a depth of 0.20m breaking clods to sizes not more than 0.08m in any direction.		
	E12.1	Dry soil	100 Sqm	4.07
	E12.2	Saturated soil	100 Sqm	5.86
19	E13	Conical heaping of top soil		
		Excavation of top soil upto a depth of 0.2m and heaping it in conical formations of average height of 0.6m.	10 Cum	5.04
20	E14	Repair of earthen bunds		
		Adding or removal of extra earth from existing earthen bunds with neat banking, in layers of thickness not more than 0.20m.	Meter	0.14
21	E15	Desilting of streams		
		Removal of silt from beds of streams, with special care taken to avoid damage to flora and fauna, upto 10m lead and lift of 0.75m		
	E15.1	In dry condition	10 Cum	3.50
	E15.2	In water of 0.5m depth	10 Cum	5.08
	E15.3	In water of 1.0m depth	10 Cum	6.69
	E15a	Extra: Desilting of streams		
		Removal of silt from beds of streams, with special care taken to avoid damage to flora and fauna, upto 10m lead. Extra for lifts exceeding initial 0.75m, for each additional increment of 0.75m or part thereof. (Rate is over corresponding basic item E15.1)	10 Cum	0.90
22	E16	Filling using available earth		
		Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 0.2m in depth, lead upto 10m and lift upto 0.75m in all kinds of soil.		
	E16.1	Consolidating each deposited layer by ramming and watering.	10 Cum	3.90
	E16.2	Without ramming, for plantation.	10 Cum	2.35

Sl. No.	Code	Description	Unit	Labour in person days
	E16a	Extra: Filling using available earth		
		Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 0.20m in depth, consolidating each deposited layer by ramming and watering, lead upto 10m in all kinds of soil. Extra for lifts exceeding initial 0.75m, for each additional increment of 0.75m or part thereof. (Rate is over corresponding basic item E16.1)	10 Cum	1.00
23	E17	Geo textiles for grassing		
		Laying and fixing of geotextiles on cleaned and even slopes for planting of grass using metal nails or wooden/bamboo pegs at an interval of 0.3m to 0.75m. All materials to be paid for separately.	100 Sqm	16.05
HORTICULTURE AND LANDSCAPING				
24	B1	Bio fencing		
		Preparation of plant cuttings of length 1.5m, planting in pits of 0.3m depth and upto 0.075m diameter at a spacing of 0.3m, forming of bund of 0.3m base width and 0.2m height, bracing and horizontal ties at two levels using plant cuttings, tied with coir. Cost of coir to be paid separately.	Meter	0.17
25	B2	Turfing		
		Remove debris, litter, stones and earth clods larger than 0.02m in any direction from the surface. Top soil should be loosely turned over and ideally 0.15m thick good soil is required for laying the turf. Once the soil has been loosened, it should be lightly compacted by walking over the whole area. Level the surface by raking. Water the surface for a couple of days before laying the turf. Start laying the turves preferably along a straight edge, butting closely end to end. On subsequent rows, stagger the joints, Lightly firm down the turves with the head of a rake or piece of wood to ensure good contact between the turves and the soil.	100 Sqm	6.18
26	B3	Stone pitching for terrace walls		
		Dry stone pitching to construct steep terrace retaining / leaning walls of 0.2m average thickness including grading, backfill behind etc. to ensure drainage, preparing surface complete, not exceeding a height of 0.75m, slope between 90 and 60 degrees to the horizontal. Cost of stone and any other materials not included.	100 Sqm	34.30

		Central Midland		Chittoor Black soil		Coastal sandy		High ranges		Kuttanad		Malappuram type	
	Row Labels	Monsoon	Summer	Monsoon	Summer	Monsoon	Summer	Monsoon	Summer	Monsoon	Summer	Monsoon	Summer
1	Clearing grass	1.17	1.26	0.97	1.45	1.15	1.18	0.96	1.17	0.83	1.01	0.78	0.90
2	Clearing Bushes	0.92	1.02	1.01	1.09	0.90	0.93	0.96	1.13	0.91	0.98	0.85	1.09
3	Removal of floating materials	1.04	1.08	1.13	1.17	1.40	1.44	0.96	0.99	0.89	0.91	1.05	1.09
4	Cleaning of drains	0.87	0.94	0.83	1.03	0.75	0.78	0.86	1.37	0.99	1.58	0.77	0.96
5	Cleaning of road sides and public places	0.80	1.11	0.88	1.22	0.78	1.07	1.15	1.34	1.07	1.11	0.86	1.19
6	Cleaning of streams	0.77	1.06	0.73	1.01	0.97	0.99	0.98	1.35	1.34	1.38	0.75	1.03
7	Centripetal Terracing	1.24	1.33	0.86	1.07	0.75	0.77	0.85	1.13	0.73	0.97	0.95	1.36
8	Rain water pits	1.40	1.51	0.78	0.92	0.67	0.79	1.24	1.47	1.07	1.26	0.99	1.17
9	Earthen bunds	1.09	1.24	1.02	1.16	0.91	1.04	0.85	1.19	0.73	1.18	1.18	1.35
10	Digging and desilting of ponds: Dry	0.82	1.47	0.92	1.38	0.75	1.23	0.76	1.01	0.79	0.87	0.89	1.60
11	Desilting of lined irrigation canal: Dry	1.05	1.13	0.94	1.17	0.86	1.19	0.92	0.95	0.79	0.82	0.88	1.21
12	Desilting of small earthen channels	1.24	1.36	1.14	1.22	1.07	1.27	0.51	0.59	0.62	0.71	1.17	1.42
13	Desilting of small lined canals	0.88	0.89	1.09	1.10	1.34	1.37	0.86	0.91	0.74	0.78	1.07	1.16
14	Removal of coconut palm bottom.	1.05	1.09	1.14	1.18	1.41	1.45	0.96	0.99	0.83	0.86	1.06	1.10
15	Formation of earthen roads	0.87	1.42	1.05	1.29	0.87	1.14	1.19	1.49	1.03	1.28	0.93	1.09
16	Surface dressing and Land levelling	1.30	1.40	1.34	1.67	1.66	1.74	0.57	0.60	0.49	0.52	0.83	1.05
17	Earth work excavation	1.28	1.50	0.88	1.07	0.73	0.90	1.04	1.14	1.26	1.38	1.27	1.54
18	Loosening of top soil	1.02	1.10	0.82	1.18	1.01	1.10	0.93	1.23	0.80	1.06	0.95	1.37
19	Conical heaping of top soil	1.05	1.09	1.14	1.18	1.41	1.45	0.96	0.99	0.83	0.86	1.06	1.10
20	Repair of earthen bunds	1.00	1.33	0.82	1.09	0.76	1.01	1.10	1.45	1.03	1.36	1.05	1.39
21	Desilting of streams	0.80	1.19	0.92	1.37	0.81	1.20	0.96	1.42	0.91	1.34	0.84	1.25
22	Filling using available earth	1.18	1.29	0.96	1.06	0.77	0.85	0.96	1.06	1.11	1.22	1.03	1.13
23	Geo textiles for grassing	1.03	1.07	1.12	1.16	1.15	1.19	0.95	0.98	0.81	0.84	1.04	1.08
24	Bio fencing	1.05	1.08	1.14	1.17	1.08	1.11	0.96	0.99	0.83	0.85	1.06	1.09
25	Turfing	0.96	1.27	0.78	1.04	0.92	1.21	1.04	1.38	1.08	1.43	1.00	1.32
26	Stone pitching for terrace walls	0.87	1.20	0.77	1.05	0.84	1.14	1.13	1.27	0.97	1.09	0.93	1.28

Time and Motion data

		Malayoram		Northern midland		Onattu kara		Palakkad plains		Red loam		Southern mid land	
	Row Labels	Monsoon	Summer	Monsoon	Summer	Monsoon	Summer	Monsoon	Summer	Monsoon	Summer	Monsoon	Summer
1	Clearing grass	0.99	1.28	1.99	2.06	0.76	0.78	0.87	0.90	0.87	0.90	0.74	0.85
2	Clearing Bushes	0.89	1.15	1.15	1.28	0.93	0.96	0.96	1.34	0.91	1.06	0.88	1.03
3	Removal of floating materials	1.10	1.14	0.92	0.95	0.93	0.96	1.05	1.09	1.00	1.04	0.67	0.69
4	Cleaning of drains	0.86	1.10	1.22	1.37	1.61	1.65	0.76	0.95	0.87	1.12	0.82	1.59
5	Cleaning of road sides and public places	0.91	1.26	0.82	1.04	0.86	0.94	0.80	1.10	0.84	1.14	0.99	1.44
6	Cleaning of streams	0.81	1.04	1.52	1.76	0.90	0.98	0.83	1.15	0.79	1.02	0.94	1.11
7	Centripetal Terracing	1.04	1.31	1.12	1.40	0.79	0.82	0.97	1.22	0.98	1.22	0.90	1.17
8	Rain water pits	1.26	1.62	0.66	0.78	0.63	0.75	0.97	1.14	0.97	1.15	1.23	1.50
9	Earthen bunds	0.98	1.12	0.65	0.79	0.63	0.82	1.06	1.21	1.19	1.35	1.12	1.28
10	Digging and desilting of ponds: Dry	0.81	1.33	0.87	1.18	0.91	0.98	0.80	1.44	0.89	1.61	0.84	1.52
11	Desilting of lined irrigation canal: Dry	0.69	0.86	1.25	1.55	0.86	1.18	0.98	1.35	0.99	1.36	0.84	1.15
12	Desilting of small earthen channels	1.09	1.39	1.16	1.39	0.88	1.06	1.01	1.21	1.01	1.21	1.02	1.46
13	Desilting of small lined canals	0.85	1.18	1.17	1.19	0.89	0.90	1.02	1.04	1.02	1.04	1.01	1.10
14	Removal of coconut palm bottom.	1.11	1.15	0.92	0.96	0.93	0.96	1.06	1.09	1.01	1.04	0.68	0.70
15	Formation of earthen roads	1.04	1.29	0.83	1.13	0.58	0.75	0.80	1.02	0.78	0.97	0.91	1.61
16	Surface dressing and Land levelling	0.86	1.11	0.79	1.59	1.10	1.15	1.52	1.90	1.52	1.90	0.78	0.99
17	Earth work excavation	0.85	1.01	0.76	1.13	0.63	0.82	0.95	1.18	0.96	1.20	0.81	0.98
18	Loosening of top soil	0.67	0.87	0.84	1.68	1.14	1.18	0.86	1.23	0.89	1.15	0.75	1.25
19	Conical heaping of top soil	1.11	1.15	0.92	0.96	0.93	0.96	1.06	1.09	1.01	1.04	0.68	0.70
20	Repair of earthen bunds	0.92	1.22	0.70	0.93	0.67	0.89	1.02	1.36	1.03	1.36	0.73	0.97
21	Desilting of streams	0.74	1.09	0.79	1.16	0.81	1.20	0.82	1.21	0.82	1.22	0.88	1.31
22	Filling using available earth	1.08	1.19	0.82	0.90	0.67	0.73	1.20	1.32	1.20	1.32	0.86	0.94
23	Geo textiles for grassing	1.13	1.45	0.91	0.94	0.92	0.95	1.04	1.08	0.99	1.02	0.80	0.82
24	Bio fencing	1.11	1.15	0.92	0.95	0.93	0.96	1.06	1.09	1.01	1.04	0.81	0.83
25	Turfing	0.88	1.16	0.67	0.88	0.80	1.06	0.97	1.29	0.98	1.30	0.70	0.92
26	Stone pitching for terrace walls	1.10	1.57	0.78	1.09	0.74	1.01	0.87	1.20	0.92	1.27	0.75	1.03

Sl No	Panchayat name	Agro-Ecological Zone
1	Amboori	Malayoram
2	Anadu	Malayoram
3	Anchuthengu	Southern midland
4	Andoorkkonam	Southern midland
5	Aruvikkara	Malayoram
6	Aryanadu	Malayoram
7	Aryancode	Malayoram
8	Athiyanloor	Red loam
9	Azhoor	Southern midland
10	Balaramapuram	Red loam
11	Chemmaruthi	Southern midland
12	Chenkai	Red loam
13	Cherunniyur	Southern midland
14	Chirayinkeezhu	Southern midland
15	Edava	Southern midland
16	Elakamon	Southern midland
17	Kadakkavoor	Southern midland
18	Kadinamkulam	Southern midland
19	Kallara	Malayoram
20	Kallikade	Malayoram
21	Kalliyoor	Red loam
22	Kanjiramkulam	Red loam
23	Karakulam	Malayoram
24	Karavaram	Southern midland
25	Karode	Red loam
26	Karumkulam	Red loam
27	Kattakkada	Malayoram, Red loam
28	Kazhakkootam	Southern midland
29	Kilimanoor	Southern midland
30	Kizhuvilam	Southern midland
31	Kollayi	Malayoram, Red loam
32	Kottukal	Red loam
33	Kudappanakkunnu	Southern midland
34	Kulathoor	Red loam
35	Kunnathukal	Malayoram
36	Kuttichal	Malayoram
37	Madavoor	Southern midland
38	Malayinkeezhu	Red loam
39	Manampoor	Southern midland
40	Mangalapuram	Southern midland
41	Manikkal	Malayoram
42	Maranalloor	Malayoram, Red loam
43	Mudakkal	Southern midland
44	Nagaroor	Southern midland
45	Nanniyode	Malayoram
46	Navayikkulam	Southern midland
47	Nellaradu	Southern midland

Sl No	Panchayat name	Agro-Ecological Zone
48	Ottasekharamanglam	Malayoram
49	Ottoor	Southern midland
50	Pallichal	Red loam
51	Pallickal	Southern midland
52	Panavoor	Malayoram
53	Pangodu	Malayoram
54	Parasala	Red loam
55	Pazhayakunnummel	Southern midland
56	Peringammala	Malayoram
57	Perumkadavila	Malayoram
58	Poovachal	Malayoram
59	Poovar	Red loam
60	Pothankode	Southern midland
61	Pulimathu	Southern midland
62	Pullampara	Malayoram
63	Sreekaryam	Southern midland
64	Thirupuram	Red loam
65	Tholikkode	Malayoram
66	Uzhamalackal	Malayoram
67	Vakkam	Southern midland
68	Vamanapuram	Southern midland
69	Vattiyoorkavu	Southern midland
70	Vellanadu	Malayoram
71	Vellarada	Malayoram
72	Vembayam	Malayoram
73	Venganoor	Red loam
74	Vettoor	Southern midland
75	Vilappil	Malayoram
76	Vilavoorkkal	Red loam
77	Vithura	Malayoram
78	Vizhinjam	Red loam

Sl No	Panchayat name	Agro-Ecological Zone
1	Adichanalloor	Southern midland
2	Alappad	Onattukara
3	Alayamon	Malayoram
4	Anchal	Malayoram
5	Aryankavu	Malayoram
6	Chadayamangalam	Southern midland
7	Chathanloor	Southern midland
8	Chavara	Onattukara
9	Chithara	Southern midland
10	East Kallada	Southern midland
11	Edamulackal	Malayoram
12	Elamadu	Southern midland
13	Elampalloor	Southern midland
14	Eroor	Malayoram
15	Ezhukon	Southern midland
16	Ittiva	Southern midland
17	Kadakkal	Southern midland
18	Kalluvathukkal	Southern midland
19	Karavallur	Malayoram
20	Kareepra	Southern midland
21	Karunagapally	Onattukara
22	Klapana	Onattukara
23	Kottamkara	Southern midland
24	Kottarakkara	Southern midland
25	Kulakkada	Southern midland
26	Kulasekharapuram	Onattukara
27	Kulathooppuzha	Malayoram
28	Kundra	Southern midland
29	Kunnathoor	Southern midland
30	Mantrothuruthu	Southern midland
31	Mayyazhadi	Southern midland
32	Melila	Malayoram
33	Mylam	Southern midland
34	Mynagapally	Onattukara
35	Nedumpana	Southern midland
36	Neduvathoor	Southern midland
37	Neendakara	Onattukara
38	Nilamel	Southern midland
39	Ochira	Onattukara
40	Panayam	Southern midland
41	Panmana	Onattukara
42	Pathanapuram	Malayoram
43	Pattazhi	Malayoram
44	Pattazhivadakkekkara	Malayoram
45	Pavithreswaram	Southern midland
46	Perayam	Southern midland
47	Perinadu	Southern midland

SI No	Panchayat name	Agro-Ecological Zone
48	Piravanthoor	Malayoram
49	Poothakulam	Southern midland
50	Pooyappally	Southern midland
51	Poruvazhi	Southern midland
52	Sasthamkotta	Southern midland
53	Sooranadu	Southern midland
54	Sooranadu North	Southern midland
55	Thalavoor	Malayoram
56	Thazhava	Onattukara
57	Thekkumbhagam	Onattukara
58	Thenmala	Malayoram
59	Thevalakkara	Onattukara
60	Thodiyoor	Onattukara
61	Thrikkadavoor	Southern midland
62	Thrikkaruva	Southern midland
63	Thrikovilvattom	Southern midland
64	Ummannoor	Southern midland
65	Velinalloor	Southern midland
66	Veliyam	Southern midland
67	Vettikkavala	Malayoram
68	Vilakkudy	Malayoram
69	West Kallada	Southern midland

Sl No	Panchayat name	Agro-Ecological Zone
1	Ala	Southern midland
2	Ambalapuzha North	Coastal sandy
3	Ambalapuzha South	Coastal sandy
4	Arattupuzha	Onattukara
5	Aroor	Coastal sandy
6	Arukutty	Coastal sandy
7	Aryadu	Coastal sandy
8	Bharanikkavu	Southern midland
9	Bludhanoor	Southern midland
10	Champakulam	Kuttanad
11	Chennam pallippuram	Coastal sandy
12	Chennithala-Thrippurunth	Onattukara
13	Cheppadu	Onattukara
14	Cheriyannadu	Southern midland
15	Cherthala south	Coastal sandy
16	Cheruthana	Onattukara
17	Chettikulangara	Onattukara
18	Chingoly	Onattukara
19	Chunakkara	Southern midland
20	Devikulangara	Onattukara
21	Edathwa	Kuttanad
22	Ezhupunna	Coastal sandy
23	Harippad	Onattukara
24	Kadakkarappally	Coastal sandy
25	Kainakary	Kuttanad
26	Kandalloor	Onattukara
27	Kanjikkuzhy	Coastal sandy
28	Karthikappally	Onattukara
29	Karuvatta	Coastal sandy
30	Kavalam	Kuttanad
31	Kodanthuruthu	Coastal sandy
32	Krishnapuram	Onattukara
33	Kumarapuram	Onattukara
34	Kuthiyathodu	Coastal sandy
35	Mannanchery	Coastal sandy
36	Mannar	Southern midland
37	Mararikulam North	Coastal sandy
38	Mararikulam South	Coastal sandy
39	Mavelikkara-Thamarakulam	Southern midland
40	Mavelikkara-Thekkekkara	Onattukara
41	Muhamma	Coastal sandy
42	Mulakkuzha	Southern midland
43	Muthukulam	Onattukara
44	Muttar	Kuttanad
45	Nedumudi	Coastal sandy
46	Neelamperoor	Kuttanad
47	Nooranadu	Southern midland
48	Palamel	Southern midland
49	Pallippadu	Onattukara

Sl No	Panchayat name	Agro-Ecological Zone
50	Paṇavally	Coastal sandy
51	Pandanadu	Southern midland
52	Pathiyoor	Onattukara
53	Pattanakadu	Coastal sandy
54	Perumbalam	Coastal sandy
55	Pulinkunnu	Kuttanad
56	Puliyoor	Southern midland
57	Punnapra North	Coastal sandy
58	Punnapra South	Coastal sandy
59	Purakkadu	Coastal sandy
60	Ramankary	Kuttanad
61	Thaikkatussery	Coastal sandy
62	Thakazhi	Kuttanad
63	Thalavadi	Kuttanad
64	Thanneermukkam	Coastal sandy
65	Thazhakkara	Onattukara
66	Thiruvandoor	Southern midland
67	Thrikkunnappuzha	Onattukara
68	Thuravoor	Coastal sandy
69	Vallikkunnu	Southern midland
70	Vayalar	Coastal sandy
71	Veeyapuram	Onattukara
72	Veliyanadu	Kuttanad
73	Venmoney	Southern midland

Sl No	Panchayat name	Agro-Ecological Zone
1	Anikkade	Southern midland
2	Aranmula	Southern midland
3	Auravappulam	Malayoram
4	Ayiroor	Southern midland
5	Chenneerkkara	Southern midland
6	Cherukole	Southern midland
7	Chittar	Malayoram
8	Enadimangalam	Malayoram
9	Erathu	Malayoram
10	Ezhamattoor	Southern midland
11	Ezhamkulam	Malayoram
12	Ilanthoor	Southern midland
13	Iraviperoor	Southern midland
14	Kadampanadu	Southern midland
15	Kadapra	Kuttanad
16	Kalanjoor	Malayoram
17	Kalluppara	Southern midland
18	Kaviyoor	Southern midland
19	Kodumon	Malayoram
20	Koipram	Southern midland
21	Konni	Malayoram
22	Kottanadu	Southern midland
23	Kottangal	Southern midland
24	Kozhencherry	Southern midland
25	Kulanada	Southern midland
26	Kunnamthanam	Southern midland
27	Kuttoor	Southern midland
28	Malayalappuzha	Malayoram
29	Mallappally	Southern midland
30	Mallappuzhassery	Southern midland
31	Mezhuveli	Southern midland
32	Mylappra	Malayoram
33	Naranammoozhi	Malayoram
34	Naranganam	Southern midland
35	Nedumpram	Kuttanad
36	Niranam	Kuttanad
37	Omalloor	Southern midland
38	Pallikkal	Southern midland
39	Pandalam	Southern midland
40	Pandalam Thekkekkara	Southern midland
41	Peringara	Kuttanad
42	Pramadam	Malayoram
43	Puramattom	Southern midland
44	Ranni	Malayoram
45	Ranni-Angadi	Malayoram
46	Ranni-Pazhavangadi	Malayoram
47	Ranni-Perunnadu	Malayoram

Sl No	Panchayat name	Agro-Ecological Zone
48	Seethathode	Malayoram
49	Thannithode	Malayoram
50	Thottapuzhassery	Southern midland
51	Thumpamon	Southern midland
52	Vadaserikkara	Malayoram
53	Vallikkode	Southern midland
54	Vechuchira	Malayoram

Sl No	Panchayat name	Agro-Ecological Zone
1	Aimanam	Southern midland
2	Akalakkunnam	Malayoram
3	Arpookara	Southern midland
4	Athirampuzha	Southern midland
5	Ayarkkunnam	Malayoram
6	Bharananganam	Malayoram
7	Chempu	Coastal sandy
8	Chirakkadavu	Malayoram
9	Elikkulam	Malayoram
10	Erattupetta	Malayoram
11	Erumely	Malayoram
12	Ettumanoor	Malayoram
13	Kadanadu	Malayoram
14	Kadaplamattom	Malayoram
15	Kaduthuruthy	Southern midland
16	Kallara	Southern midland
17	Kanakkary	Malayoram
18	Kangazha	Malayoram
19	Kanjirappally	Malayoram
20	Karoor	Malayoram
21	Karukachal	Southern midland
22	Kidangoor	Malayoram
23	Kooroppada	Malayoram
24	Koottinkkal	High ranges
25	Kozhuvanal	Malayoram
26	Kumarakam	Coastal sandy
27	Kumaranalloor	Southern midland
28	Kuravilangadu	Malayoram
29	Kurichi	Southern midland
30	Madappadu	Southern midland
31	Manimala	Malayoram
32	Manjoor	Southern midland
33	Mannarkkad	Southern midland
34	Marangattupally	Malayoram
35	Maravanthuruthu	Coastal sandy
36	Meenachil	Malayoram
37	Meenadam	Southern midland
38	Melukavu	Malayoram
39	Mulakkulam	Central Midland
40	Mundakkayam	High ranges
41	Munnikavu	Malayoram
42	Mutholy	Malayoram
43	Nattakam	Southern midland
44	Nedumkkunnam	Southern midland
45	Nendoor	Southern midland
46	Njeezhoor	Southern midland
47	Pallikkathodu	Malayoram

SI No	Panchayat name	Agro-Ecological Zone
48	Pampady	Malayoram
49	Panachikkavu	Southern midland
50	Parathode	Malayoram
51	Payippadu	Southern midland
52	Poonjar	Malayoram
53	Poonjar-Thekkekkara	Malayoram
54	Puthuppally	Southern midland
55	Ramapuram	Malayoram
56	T.V. Puram	Coastal sandy
57	Thalanad	Malayoram
58	Thalappalam	Malayoram
59	Thalayazham	Coastal sandy
60	Thalayolaparampu	Coastal sandy
61	Theekoyi	Malayoram
62	Thidanad	Malayoram
63	Thiruvappu	Southern midland
64	Thrikkodithanam	Southern midland
65	Udayanapuram	Coastal sandy
66	Uzhavoor	Malayoram
67	Vakathanam	Southern midland
68	Vazhappally	Southern midland
69	Vazhoor	Malayoram
70	Vechoor	Coastal sandy
71	Veliyanloor	Malayoram
72	Vellavoor	Malayoram
73	Velloor	Central Midland
74	Vijayappuram	Malayoram

Sl No	Panchayat name	Agro-Ecological Zone
1	Adimali	High ranges
2	Ayyappancoil	High ranges
3	Bisonvally	High ranges
4	Chakkupallam	High ranges
5	Chinnakanal	High ranges
6	Irattayar	High ranges
7	Kamakshy	High ranges
8	Kanchiyar	High ranges
9	Kanthallloor	High ranges
10	Karunapuram	High ranges
11	Kattappana	High ranges
12	Kokkayar	High ranges
13	Konnathady	High ranges
14	Mankulam	High ranges
15	Marayoor	High ranges
16	Mariyapuram	High ranges
17	Munnar	High ranges
18	Nedumkandam	High ranges
19	Pallivasal	High ranges
20	Pampadumpara	High ranges
21	Pecrumade	High ranges
22	Peruvanthanam	High ranges
23	Rajakkad	High ranges
24	Rajakumari	High ranges
25	Santhanpara	High ranges
26	Senapathi	High ranges
27	Udumbanchola	High ranges
28	Vandanmedu	High ranges
29	Vandiperiyar	High ranges
30	Vathikudy	High ranges
31	Vattavada	High ranges
32	Vellathooval	High ranges
33	Arakulam	Malayoram
34	Elappara	High ranges
35	Idukki-Kanjikuzhy	Malayoram
36	Karimannoor	Malayoram
37	Kumily	High ranges
38	Udumbannoor	Malayoram
39	Upputhara	High ranges
40	Vannapuram	High ranges
41	Vazhathope	Malayoram
42	Alakkode	Malayoram
43	Idavetty	Malayoram
44	Karinkunnam	Malayoram
45	Kodikkulam	Malayoram
46	Kudayathoor	Malayoram
47	Kumaramangalam	Malayoram

Sl No	Panchayat name	Agro-Ecological Zone
48	Manakkad	Malayoram
49	Muttom	Malayoram
50	Purapuzha	Malayoram
51	Velliyamattom	Malayoram

Sl No	Panchayat name	Agro-Ecological Zone
1	Aikaranad	Central Midland
2	Alangad	Central Midland
3	Amballur	Central Midland
4	Arakuzha	Malayoram
5	Asamanoor	Central Midland
6	Avoly	Malayoram
7	Ayavana	Malayoram
8	Ayyampuzha	Central Midland
9	Chellanam	Coastal sandy
10	Chendamangalam	Coastal sandy
11	Chengamanad	Central Midland
12	Cheranallur	Coastal sandy
13	Chittattukara	Coastal sandy
14	Chooranikkara	Central Midland
15	Chottanikkara	Central Midland
16	Edakkattuvayal	Central Midland
17	Edathara	Central Midland
18	Edavarakkade	Coastal sandy
19	Elamkunnappuzha	Coastal sandy
20	Floor	Central Midland
21	Ezhikkara	Coastal sandy
22	Ilunji	Central Midland
23	Kadamakkudy	Coastal sandy
24	Kadungallur	Central Midland
25	Kalady	Central Midland
26	Kalloorkkade	Malayoram
27	Kanjoor	Central Midland
28	Karukutty	Central Midland
29	Karumalloor	Central Midland
30	Kavalangade	High ranges
31	Keeranpara	Malayoram
32	Keezhmad	Central Midland
33	Kizhakkambalam	Central Midland
34	Koothattukulam	Central Midland
35	Koovappady	Central Midland
36	Kottappadi	Malayoram
37	Kottuvally	Coastal sandy
38	Kumbalam	Coastal sandy
39	Kumbalangy	Coastal sandy
40	Kunnathunadu	Central Midland
41	Kunnukara	Central Midland
42	Kuttampuzha	High ranges
43	Kuzhuppily	Coastal sandy
44	Malayattoor-Neeleswaram	Central Midland
45	Manceed	Central Midland
46	Manjalloor	Malayoram
47	Manjapra	Central Midland

SI No	Panchayat name	Agro-Ecological Zone
48	Maradu	Coastal sandy
49	Marady	Malayoram
50	Mazhuvannoor	Central Midland
51	Mookkannur	Central Midland
52	Mudakuzha	Central Midland
53	Mulanthuruthy	Central Midland
54	Mulavukade	Coastal sandy
55	Nayarambalam	Coastal sandy
56	Nedumbassery	Central Midland
57	Nelikkuzhi	Malayoram
58	Njarakkal	Coastal sandy
59	Ockal	Central Midland
60	Paingottur	Malayoram
61	Paipra	Malayoram
62	Palakuzha	Malayoram
63	Pallairmangalam	Malayoram
64	Pallippuram	Coastal sandy
65	Pampakuda	Central Midland
66	Parakkadavu	Central Midland
67	Pindimana	Malayoram
68	Piravam	Central Midland
69	Poothrikka	Central Midland
70	Pothanikkade	Malayoram
71	Puthenvelikara	Central Midland
72	Ramamangalam	Central Midland
73	Rayamanglam	Central Midland
74	Sreemoolanagaram	Central Midland
75	Thirumarady	Central Midland
76	Thiruvaniyoor	Central Midland
77	Thiruvankulam	Central Midland
78	Thrakkakara	Coastal sandy
79	Thuravoor	Central Midland
80	Udayamperur	Central Midland
81	Vadakekkara	Coastal sandy
82	Vadavucode-Puthenkurisu	Central Midland
83	Vahakkulam	Central Midland
84	Valakam	Malayoram
85	Varappetty	Malayoram
86	Varapuzha	Coastal sandy
87	Vengola	Central Midland
88	Vengoor	Central Midland

Sl No	Panchayat name	Agro-Ecological Zone
1	Adat	Central Midland
2	Alagappa Nagar	Malayoram
3	Alur	Central Midland
4	Annamanada	Central Midland
5	Anthikkad	Central Midland
6	Arimpoor	Central Midland
7	Athirappilly	Malayoram
8	Avannoor	Central Midland
9	Avinissery	Central Midland
10	Chazhoor	Central Midland
11	Chelakkara	Malayoram
12	Cherppu	Central Midland
13	Choondal	Central Midland
14	Chowvannur	Central Midland
15	Desamangalam	Central Midland
16	Edathiruthy	Coastal sandy
17	Edavilangu	Coastal sandy
18	Elavally	Central Midland
19	Engandiyur	Coastal sandy
20	Eriyad	Coastal sandy
21	Erumapetty	Central Midland
22	Kadangode	Central Midland
23	Kadappuram	Coastal sandy
24	Kadavallur	Coastal sandy
25	Kadukutty	Central Midland
26	Kaiparamb	Central Midland
27	Kaippamangalam	Coastal sandy
28	Kandanassery	Central Midland
29	Karalam	Central Midland
30	Kattakampal	Coastal sandy
31	Kattur	Central Midland
32	Kodakara	Central Midland
33	Kodassery	Malayoram
34	Kolazhy	Central Midland
35	Kondazhy	Malayoram
36	Koratty	Malayoram
37	Kuzhur	Central Midland
38	Madakkathara	Central Midland
39	Mala	Central Midland
40	Manalur	Central Midland
41	Mathilakam	Coastal sandy
42	Mattathur	Malayoram
43	Melur	Malayoram
44	Methala	Coastal sandy
45	Mulamkunnathukavu	Central Midland
46	Mullassery	Central Midland
47	Mulloorkara	Malayoram

SI No	Panchayat name	Agro-Ecological Zone
48	Mundathikode	Central Midland
49	Muriyad	Central Midland
50	Nadathara	Malayoram
51	Nattika	Coastal sandy
52	Nenmanikkara	Central Midland
53	Orumanayoor	Coastal sandy
54	Padiyur	Coastal sandy
55	Pananchery	Malayoram
56	Panjal	Malayoram
57	Paralam	Central Midland
58	Parappukkara	Central Midland
59	Pariyaram	Malayoram
60	Pavaratty	Coastal sandy
61	Pazhayannoor	Malayoram
62	Perinjanam	Coastal sandy
63	Pookkode	Coastal sandy
64	Poomangalam	Central Midland
65	Porathissery	Central Midland
66	Porkulam	Central Midland
67	Poyya	Central Midland
68	Pudukkad	Malayoram
69	Punnayur	Coastal sandy
70	Punnayurkulam	Coastal sandy
71	Puthenchira	Central Midland
72	Puthur	Malayoram
73	Sreenarayanapuram	Coastal sandy
74	Thaikkad	Coastal sandy
75	Thalikulam	Coastal sandy
76	Thanniyam	Coastal sandy
77	Thekkumkara	Central Midland
78	Thiruvilwamala	Malayoram
79	Tholur	Central Midland
80	Thrikkur	Malayoram
81	Vadakkancherry	Central Midland
82	Vadakkekkad	Coastal sandy
83	Vadanappally	Coastal sandy
84	Valappad	Coastal sandy
85	Vallachira	Central Midland
86	Vallathol Nagar	Central Midland
87	Varantharappilly	Malayoram
88	Varavoor	Central Midland
89	Vellangallur	Central Midland
90	Velukkara	Central Midland
91	Velur	Central Midland
92	Venkidangu	Central Midland

Sl No	Panchayat name	Agro-Ecological Zone
1	Agali	High ranges
2	Akathethara	Palakkad plains
3	Alanallur	Malayoram
4	Alathur	Palakkad plains
5	Ambalappara	Central Midland
6	Anaganadi	Central Midland
7	Anakkara	Malappuram type
8	Ayiloor	Malayoram
9	Chalavara	Central Midland
10	Chalisseri	Central Midland
11	Cherplassery	Malayoram
12	Elappally	Palakkad plains
13	Elevacherry	Chittoor Black soil
14	Erimayur	Palakkad plains
15	Erthampathy	Chittoor Black soil
16	Kadambazhippuram	Malayoram
17	Kanjirappuzha	High ranges
18	Kannadi	Palakkad plains
19	Kannampura	Palakkad plains
20	Kappur	Central Midland
21	Karakkurissi	Malayoram
22	Karimba	High ranges
23	Karimpuzha	Malayoram
24	Kavassery	Palakkad plains
25	Keralasseri	Palakkad plains
26	Kizhakkancherry	Palakkad plains
27	Kodumbu	Palakkad plains
28	Koduvayur	ChittoPalakkad plains
29	Kollengode	Chittoor Black soil
30	Kongad	Palakkad plains
31	Koppam	Central Midland
32	Kottayi	Palakkad plains
33	Kottopadam	Malayoram
34	Kozhinjampara	Chittoor Black soil
35	Kulukkallur	Central Midland
36	Kumarcamputhur	Malayoram
37	Kuthannur	Palakkad plains
38	Kuzhalmannam	Palakkad plains
39	Lakkidi-Peroor	Central Midland
40	Malampuzha	Palakkad plains
41	Mankara	Palakkad plains
42	Mannarkkad	High ranges
43	Mannur	Palakkad plains
44	Marutha Road	Palakkad plains
45	Mathur	Palakkad plains
46	Melakkode	Palakkad plains
47	Mundur	Palakkad plains

Sl No	Panchayat name	Agrô-Ecological Zone
48	Muthalamada	Chittoor Black soil
49	Muthuthala	Central Midland
50	Nagalassery	Central Midland
51	Nallepilly	Chittoor Black soil
52	Nellaya	Central Midland
53	Nelliampathy	Chittoor Black soil
54	Nemmara	Chittoor Black soil
55	Ongallur	Central Midland
56	Pallassana	Chittoor Black soil
57	Parali	Palakkad plains
58	Paruthur	Central Midland
59	Pattambi	Central Midland
60	Pattencherry	Chittoor Black soil
61	Pattithara	Central Midland
62	Perumatty	Chittoor Black soil
63	Perungottukurissi	Palakkad plains
64	Peruvembu	Palakkad plains
65	Pirayiri	Palakkad plains
66	Polppully	Palakkad plains
67	Pookkottukave	Malayoram
68	Pudur	High ranges
69	Puthucode	Palakkad plains
70	Puthunagaram	Palakkad plains
71	Puthuppariyaram	Palakkad plains
72	Puthussery	Palakkad plains
73	Sholayur	High ranges
74	Sreekrishnapuram	Malayoram
75	Thachampara	High ranges
76	Thachanattukara	Malayoram
77	Tharur	Palakkad plains
78	Thenkurissi	Palakkad plains
79	Thirumittakkode	Central Midland
80	Thirvegappura	Malappuram type
81	Thrikkadeeri	Malayoram
82	Thrithala	Central Midland
83	Vadakarapathy	Chittoor Black soil
84	Vadakkancherry	Palakkad plains
85	Vadavannur	Chittoor Black soil
86	Vallapuzha	Central Midland
87	Vandazhi	Palakkad plains
88	Vaniyamkulam	Central Midland
89	Vellinezhi	Malayoram
90	Vilayur	Malappuram type

Sl No	Panchayat name	Agro-Ecological Zone
1	A.R. Nagar	Malappuram type
2	Alangode	Coastal sandy
3	Aliparambu	Malayoram
4	Amarambalam	Malayoram
5	Anakkayam	Malappuram type
6	Angadioppuram	Malayoram
7	Areckkode	Malappuram type
8	Athavanad	Malappuram type
9	Chaliyar	Malayoram
10	Chelambra	Malappuram type
11	Cheriyamundam	Malappuram type
12	Cherukavu	Malappuram type
13	Chikkode	Malappuram type
14	Chokkade	Malayoram
15	Chungathara	Malayoram
16	Edakkara	Malayoram
17	Edappal	Coastal sandy
18	Edappatta	Malayoram
19	Edarikkode	Malappuram type
20	Edavanna	Malappuram type
21	Edayoor	Malappuram type
22	Elamkulam	Malayoram
23	Irimpiliyam	Malappuram type
24	Kalikavu	Malayoram
25	Kalpakancheri	Malappuram type
26	Kannamangalam	Malappuram type
27	Karulai	Malayoram
28	Karuvarakundu	Malayoram
29	Kavannur	Malappuram type
30	Keezhattur	Malayoram
31	Keezhparamb	Malappuram type
32	Kodur	Malayoram
33	Kondotty	Malappuram type
34	Koottilangadi	Malappuram type
35	Kottakkal	Malappuram type
36	Kuruya	Malayoram
37	Kuttioppuram	Malappuram type
38	Kuzhimanna	Malappuram type
39	Mambad	Malayoram
40	Mangalam	Malappuram type
41	Mankada	Malayoram
42	Maraskara	Malappuram type
43	Marancherry	Coastal sandy
44	Melattur	Malayoram
45	Moorkkanad	Malayoram
46	Morayoor	Malappuram type
47	Munniyoor	Malappuram type

SI No	Panchayat name	Agro-Ecological Zone
48	Muthedam	Malayoram
49	Nakkaraparambu	Malayoram
50	Nannambra	Malappuram type
51	Nannamukku	Coastal sandy
52	Nediyiruppu	Malappuram type
53	Nilambur	Malayoram
54	Niramaruthur	Malappuram type
55	Othukkungal	Malappuram type
56	Ozhur	Malappuram type
57	Pallikkal	Malappuram type
58	Pandikkad	Malayoram
59	Parappanangadi	Malappuram type
60	Parappur	Malappuram type
61	Perumannaclari	Malappuram type
62	Perumbadappu	Coastal sandy
63	Peruvalloor	Malappuram type
64	Ponmala	Malappuram type
65	Ponmundam	Malappuram type
66	Pookkottoor	Malappuram type
67	Porur	Malayoram
68	Pothukallu	Malayoram
69	Pulamanthole	Malayoram
70	Pulickal	Malappuram type
71	Pulppatta	Malappuram type
72	Purathur	Malappuram type
73	Puzhakkattiri	Malayoram
74	Tanur	Malappuram type
75	Tavanur	Coastal sandy
76	Thalakkad	Malappuram type
77	Thanalur	Malappuram type
78	Thazhekkode	Malayoram
79	Thenjippalam	Malappuram type
80	Thennala	Malappuram type
81	Thirunavaya	Malappuram type
82	Thirurangadai	Malappuram type
83	Thiruvalli	Malayoram
84	Thrikkalangode	Malappuram type
85	Thuvvur	Malayoram
86	Triprangode	Malappuram type
87	Urakam	Malappuram type
88	Urngattiri	Malappuram type
89	Valancherry	Malappuram type
90	Valavannur	Malappuram type
91	Vallikunnu	Malappuram type
92	Vattamkulam	Coastal sandy
93	Vazhakkad	Malappuram type
94	Vazhayoor	Malappuram type

Sl No	Panchayat name	Agro-Ecological Zone
95	Vazhikkadavu	Malayoram
96	Veliyancode	Coastal sandy
97	Vengara	Malappuram type
98	Vettathur	Malayoram
99	Vettom	Malappuram type
100	Wandoor	Malayoram

Time and Motion data

Sl No	Panchayat name	Agro-Ecological Zone
1	Arikkulam	Northern midland
2	Atholi	Northern midland
3	Ayancheri	Northern midland
4	Azhiyur	Northern midland
5	Balusseri	Northern midland
6	Beypore	Northern midland
7	Chakkittapara	Malappuram type
8	Changaroath	Northern midland
9	Chathamangalam	Northern midland
10	Chekyad	Malappuram type
11	Chelannur	Northern midland
12	Chemancherry	Malappuram type
13	Chengottukavu	Northern midland
14	Cherode	Northern midland
15	Cheruvannur	Northern midland
16	Cheruvannur-Nallalam	Northern midland
17	Edacheri	Malappuram type
18	Elathur	Northern midland
19	Eramala	Malappuram type
20	Feroke	Northern midland
21	Kadalundi	Malappuram type
22	Kakkodi	Malappuram type
23	Kakkur	Malappuram type
24	Karassery	Northern midland
25	Kavilumpara	Malappuram type
26	Kayakkodi	Northern midland
27	Kayanna	Northern midland
28	Keezhariyur	Northern midland
29	Kizhakkoth	Northern midland
30	Kodencheri	Malappuram type
31	Kodiyathur	Malappuram type
32	Koduvally	Malappuram type
33	Koodaranji	Malappuram type
34	Koothali	Malappuram type
35	Kottur	Northern midland
36	Kunnamangalam	Northern midland
37	Kunnummal	Malappuram type
38	Kurachundu	Northern midland
39	Kuruvattur	Northern midland
40	Kuttyadi	Malappuram type
41	Madavoor	Northern midland
42	Maniyur	Malappuram type
43	Maruthomkara	Northern midland
44	Mavoor	Northern midland
45	Meppayur	Malappuram type
46	Moodadi	Northern midland
47	Mukkam	Northern midland
		Malappuram type

Sl No	Panchayat name	Agro-Ecological Zone
48	Nadapuram	Northern midland
49	Naduvannur	Northern midland
50	Nanmanda	Northern midland
51	Narikkuni	Malappuram type
52	Narippatta	Northern midland
53	Nochad	Northern midland
54	Olavanna	Malappuram type
55	Omassery	Malappuram type
56	Onchiyam	Northern midland
57	Panangad	Northern midland
58	Payyoli	Northern midland
59	Perambra	Northern midland
60	Perumanna	Malappuram type
61	Peruvayal	Malappuram type
62	Purameri	Northern midland
63	Puthupadi	Malappuram type
64	Ramanattukara	Malappuram type
65	Thalakulathur	Northern midland
66	Thamarassery	Malappuram type
67	Thikkodi	Northern midland
68	Thiruvallur	Northern midland
69	Thiruvambadi	Malappuram type
70	Thuneri	Northern midland
71	Thurayur	Northern midland
72	Ulliyeri	Northern midland
73	Unnikulam	Northern midland
74	Valayam	Northern midland
75	Vanimel	Northern midland
76	Velom	Northern midland
77	Villivappally	Northern midland

Sl No	Panchayat name	Agro-Ecological Zone
1	Ambalavayal	High ranges
2	Edavaka	High ranges
3	Kaniyambetta	High ranges
4	Kottathara	High ranges
5	Mananthavadi	High ranges
6	Meenangadi	High ranges
7	Meppadi	High ranges
8	Moopainade	High ranges
9	Mullankolly	High ranges
10	Muttil	High ranges
11	Nenmeni	High ranges
12	Noolpuzha	High ranges
13	Padinjarethara	High ranges
14	Panamaram	High ranges
15	Poothadi	High ranges
16	Pozhuthana	High ranges
17	Pulpally	High ranges
18	Sulthanbathery	High ranges
19	Thariyode	High ranges
20	Thavinjal	High ranges
21	Thirunelli	High ranges
22	Thondernadu	High ranges
23	Vellamunda	High ranges
24	Vengapally	High ranges
25	Vythiri	High ranges

SI No	Panchayat name	Agro-Ecological Zone
1	Alacode	Northern midland
2	Ancharakandy	Northern midland
3	Aralam	Northern midland
4	Ayyankunnu	Northern midland
5	Azhikode	Northern midland
6	Chapparapadavu	Northern midland
7	Chelora	Northern midland
8	chembilode	Northern midland
9	Chengalai	Northern midland
10	Cherukunnu	Northern midland
11	Cherupuzha	Northern midland
12	Cheruthazham	Northern midland
13	Chirakkal	Northern midland
14	Chittariparamba	Northern midland
15	Chokli	Northern midland
16	Dharmadom	Northern midland
17	Edakkad	Northern midland
18	Elayavoor	Northern midland
19	Eranjoli	Northern midland
20	Erimam-Kuttoor	Northern midland
21	Eruvassey	Northern midland
22	Ezhome	Northern midland
23	Irikkur	Northern midland
24	Kadamboor	Northern midland
25	Kadannapalli-Panapuzha	Northern midland
26	Kalliasseri	Northern midland
27	Kanichar	Northern midland
28	Kankole-Alapadamba	Northern midland
29	Kannapuram	Northern midland
30	Karivellur-Peralam	Malappuram type
31	Kariyad	Northern midland
32	Kathirur	Northern midland
33	Keezhallur	Northern midland
34	Keezhur-Chavassery	Northern midland
35	Kelakom	Northern midland
36	Kolacherry	Northern midland
37	Kolayade	Northern midland
38	Koodali	Northern midland
39	Kottayam	Northern midland
40	Kottiyoor	Northern midland
41	Kunjimangalam	Northern midland
42	Kunnothuparamba	Northern midland
43	Kurumathur	Northern midland
44	Kuttiyattoor	Northern midland
45	Madayi	Northern midland
46	Mahe	Northern midland
47	Malapattom	Northern midland

Sl No	Panchayat name	Agro-Ecological Zone
48	Malur	Northern midland
49	Mangattidom	Northern midland
50	Mattool	Northern midland
51	Mayyil	Northern midland
52	Mokeri	Northern midland
53	Munder	Northern midland
54	Muzhakkunnu	Northern midland
55	Muzhappilangad	Northern midland
56	Naduvil	Northern midland
57	Narath	Northern midland
58	New Mahe	Northern midland
59	Padiyurkalliad	Northern midland
60	Pallikunnu	Northern midland
61	Panniyannur	Northern midland
62	Panoor	Northern midland
63	Pappinisseri	Northern midland
64	Pariyaram	Northern midland
65	Pattiom	Northern midland
66	Pattuvam	Northern midland
67	Payam	Northern midland
68	Payyaroor	Northern midland
69	Peralassery	Northern midland
70	Peravoor	Northern midland
71	Perignome-Vayakkara	Northern midland
72	Peringalam	Northern midland
73	Pinarayi	Northern midland
74	Puzhathi	Northern midland
75	Ramanthali	Malappuram type
76	Srekandapuram	Northern midland
77	Thillankeri	Northern midland
78	Thriprangottur	Northern midland
79	Udayagiri	Northern midland
80	Ulickal	Northern midland
81	Valapattanam	Northern midland
82	Vengad	Northern midland

Sl No	Panchayat name	Agro-Ecological Zone
1	Ajanoor	Malappuram type
2	Badiyadka	Malappuram type
3	Balal	Malappuram type
4	Bedadka	Malappuram type
5	Bellur	Malappuram type
6	Chammanad	Malappuram type
7	Chengala	Malappuram type
8	Cheruvathur	Malappuram type
9	Delampady	Malappuram type
10	East-Eleri	Malappuram type
11	Enmakaje	Malappuram type
12	Kallar	Malappuram type
13	Karaduka	Malappuram type
14	Kayyur-Cheemeni	Malappuram type
15	Kinanoor-Karindalam	Malappuram type
16	Kodom-Bellur	Malappuram type
17	Kumbadaje	Malappuram type
18	Kumbala	Malappuram type
19	Kuttikole	Malappuram type
20	Madhur	Malappuram type
21	Madikkai	Malappuram type
22	Mangalpady	Malappuram type
23	Mangeswaram	Malappuram type
24	Meenja	Malappuram type
25	Mogral-Puthur	Malappuram type
26	Muliyar	Malappuram type
27	Neeleswaram	Malappuram type
28	Padanna	Malappuram type
29	Paivalike	Malappuram type
30	Pallikkara	Malappuram type
31	Panathady	Malappuram type
32	Pilicode	Malappuram type
33	Pullur-Periya	Malappuram type
34	Puthige	Malappuram type
35	Thrikkaripur	Malappuram type
36	Uduma	Malappuram type
37	Valiyaparamba	Malappuram type
38	Vorkady	Malappuram type
39	West-Eleri	Malappuram type

കോഡ്	തിയ്യതി	23-Nov
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പൊതുവിവരങ്ങൾ

a. ജില്ല	Palakkad	b. ബ്ലോക്ക്	
c. അഗ്രോക്ളെമാറ്റിക് സോൺ			
d. പഞ്ചായത്ത്		e. വാർഡ്	5
f. പ്രദേശം			
g. എത്താനുള്ള വഴി			

പണിയെക്കുറിച്ചുള്ള വിവരങ്ങൾ

a. പണിയുടെ പേര്	
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b. സാധനങ്ങൾ പൊക്കിയത് (Lift)

(ന)	സാധനം	ഉയരം(മീ)	പൊക്കിയ വിധം
		1	
		2	
		3	
		4	

c. സാധനങ്ങൾ കടത്തിയത് (Lead)

(ന)	സാധനം	ദൂരം(മീ)	കടത്തിയ വിധം
		1	
		2	
		3	
		4	

d. പണിസ്ഥലത്ത് മലിനവസ്തുക്കൾ ഉണ്ടെങ്കിൽ അവയുടെ വിവരങ്ങൾ

പൊട്ടിയ ചില്ല / കുപ്പി	1
മനുഷ്യന്റെ വിസർജ്യം	2
അശുപത്രി മാലിന്യം	3
അഴുക്ക് ചാൽ	4
മറ്റ് പാഴ് വസ്തുക്കൾ തള്ളിയത്	5

e. പണിയെ ബാധിക്കുന്ന മറ്റെന്തിങ്കിലും കാര്യങ്ങൾ ഉണ്ടെങ്കിൽ

1	
2	
3	
4	

3 മണ്ണിന്റെ വിവരങ്ങൾ കോഡ്

a. കൂഴിക്കാനുള്ള ബുദ്ധിമുട്ട്

ബുദ്ധിമുട്ടില്ല	കുറച്ച് ബുദ്ധിമുട്ട്	
കുറച്ചുകൂടി ബുദ്ധിമുട്ട്	വളരെ ബുദ്ധിമുട്ട്	

b. ഒട്ടിപ്പിടിക്കുന്നത്

ഒട്ടിപ്പിടിക്കുന്നതല്ല	കുറച്ച് ഒട്ടിപ്പിടിക്കുന്നത്	
നല്ലവണ്ണം ഒട്ടിപ്പിടിക്കുന്നത്		

c. ജലാംശം

വരണ്ടത്	കുറച്ച് ഹുർപ്പം ഉള്ളത്	
കുറച്ചുകൂടി ഹുർപ്പം ഉള്ളത്	വളരെയധികം ഹുർപ്പം ഉള്ളത്	

d. മൺതരികളുടെ സ്വഭാവം

മൺ	ചരൽ കലർന്നത്	
വലിയ കല്ലുകൾ	പാറ	

e. മൺതരം

f. മണ്ണിന്റെ സാംപിൾ നമ്പർ

4 വെള്ളത്തിന്റെ ലെവൽ

ഒട്ടും വെള്ളം ഇല്ല	0
വെട്ടിയാൽ വെള്ളം ഉണ്ട്	0
വെള്ളത്തിനടിയിൽ	0
ഒഴുകുളള വെള്ളത്തിനടിയിൽ	0
മുട്ട് വരെ വെള്ളത്തിൽ നിന്ന്	5
അര വരെ വെള്ളത്തിൽ നിന്ന്	0

5 കാലാവസ്ഥ വിവരങ്ങൾ			ചൂട്(°C)	മഴ	
ന	സമയം	ഡ്രൈ	വെറ്റ്	സമയം	വിവരണം
1	8:00 AM	28	25		
2	9:00 AM	28	25		
3	10:00 AM	28	25		
4	11:00 AM	28	25		
5	12:00 PM	28	25		
6	1:00 PM	28	25		
7	2:00 PM	28	25		
8	3:00 PM	28	25		
9	4:00 PM	28	25		
10	5:00 PM	28	25		

പണി നടക്കുന്ന സ്ഥലത്തെ ചൂട്

കടുത്ത വെയിൽ	0	കുറച്ചുകൂടി കുറഞ്ഞ വെയിൽ	0
ചെറിയ വെയിൽ	0	തണൽ	0

6 നിരീക്ഷണം

നിരീക്ഷണത്തിന് വിധേയമാക്കുന്ന ആളിന്റെ പേര്				
സീരിയൽ നമ്പർ (പണിചെയ്തവരുടെ ലിസ്റ്റിൽ കൊടുത്തിരിക്കുന്നത്)				
ന	തുടങ്ങുന്ന സമയം	വിവരങ്ങൾ	ഫോട്ടോ നമ്പർ	കോഡ്
1			1	1
2				5
3				2

7 പണിയായുധങ്ങൾ

ന	ആയുധത്തിന്റെ പേര്	അവസ്ഥ	ഒരേണ്ണത്തിന്റെ തൂക്കം	എണ്ണം	ഫോട്ടോ
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

പണിയായുധം കൈകാര്യം ചെയ്യുമ്പോൾ എന്തെങ്കിലും പ്രശ്നങ്ങളുണ്ടെങ്കിൽ

8 പണിയുടെ അളവുകൾ

എല്ലാ അളവുകളും മീറ്ററിൽ

ന	നീളം	വീതി		ആഴം		വ്യാസം	ഫോട്ടോ	അളവ്
		മുകളിൽ	താഴെ	ഇടത്	വലത്			
1								
0								
0								
0								
0								
0								

10 പണിയെടുക്കുന്നവരുടെ വിവരങ്ങൾ
പണിയെടുക്കുന്നവരുടെ ആകെ എണ്ണം

നം	പേര്	സ്ത്രീ/പു	വയസ്സ്	വിദ്യാഭ്യാസം	പൊക്കം	തൂക്കം	പരിചയം	അഭിപ്രായം
1								
0								
0								
0								
0								
0								

11 പ്രവർത്തനങ്ങൾ ചെയ്തവരുടെ വിവരങ്ങൾ

പേര്

തിയതി

പണി നിരീക്ഷിച്ചത്
ഫോറം പരിശോധിച്ചത്
ഡാറ്റ എൻട്രി
ഫോട്ടോ ഡൗൺലോഡ്
ഇമെയിൽ
ഡാറ്റ ചെക്ക്
