GOVERNMENT OF KERALA

Abstract

Local Self Government Department – Work-Time-Motion Study Report of Mahathma Gandhi NREGA - approved- Orders Issued.

LOCAL SELF GOVERNMENT (DD)DEPARTMENT

G.O.(Ms)No. 162/2017/LSGD

Dated,Thiruvananthapuram,19/08/2017

Read: 1 GO (Rt) No.3922/2008/LSGD dt. 06.11.2008.

2 GO (Rt) No.1142/2013/LSGD dt. 07.11.2014.

3 Letter No.44390/EGS Al/14/REGS dated 29.09.2016 of Mission Director, Mahatma Gandhi NREG State Mission;

ORDER

Government are pleased to approve the report of Work-Time-Motion study of Mahathma Gandhi NREGA as appended, conducted by KILA, as per Government order read as 1st paper above and scrutinized by the Advisory Committee constituted for the purpose as per Government order read as 2nd paper above.

By order of the Governor

A. SHAHJAHAN

SECRETARY

To:- 1.Mission Director(MGNREGS),Thiruvananthapuram
2.Commissioner for Rural Development,Thiruvananthapuram
3.Director(KILA),Thrissur
4.Principal Accountant General(Audit)Kerala,Thiruvananthapuram
5.All Members of the Advisory Committee(Through the Mission Director)
6.Director,Information Kerala Mission
7.Stock file/Office copy

Forwarded/By order

Signature valid
Digitally signed by SHAJI T R
Date: 2017.08.[illegible] 13:30:40 IST
Reason: Approved

Section officer

Work-Time-Motion Study of

Mahatma Gandhi NREGS

Kerala

Final Report

Maithri, Palakkad

Kerala Institute of Local Administration

LBS Centre for Science &Technology

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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
LBS	Lal Bahadur Shastri Centre For Science and Technology
NGO	Non-Government Organization
CRM	Centre for Rural Management
ILO	International Labour Organization
CADA	Command Area Development Authority
IAY	Indira Awas Yojana

REPORT ON WORK -TIME- MOTION STUDY

1. Relevance of Schedule of Rates

Generally the public works systems the world over are designed to cater to centralized management of works. No wonder, Governments and Local Governments tend to get their civil works executed by contractors. In sharp contrast to this, the architecture of Mahatma Gandhi NREGS has been so designed as to suite to community contracting. The hallmark of MGNREGS is its persistence on community participation, particularly participation of the workers, in the planning, designing, implementation and monitoring and evaluation of works.

It goes without saying that wherever contractors are involved profit motive would come into play. Contractors will organize labour, tools, materials and other logistics in such a way as to maximize their profits. On the contrary, the objective of government will be to ensure that the work done is of stipulated quantity and quality and that the contractor is not making undue profit. So the intrinsic dynamics of the relationship between government and the contractor is that of mutual distrust and suspicion. Therefore all centralized systems of public works execution have developed built-in checks and balances to ensure that public interests are safeguarded whenever works are contracted out.

In order that proper checks and balances are established, it is necessary to define 'work' in the first instance. In the case of most of the civil works, this is a simple matter as they consist of a series of well-defined tasks which are often carried out by skilled labourers in a sequential manner or as interrelated parallel activities. For example, the construction of a building can be broken down in to various component activities, namely, site clearance, earth work for foundation, construction of foundation, basement, earth filling of basement, construction of

walls, fixing door and window frames, lintel casting, roof casting, plastering, flooring etc. Each of the above activity is done in a sequential manner by a team of able bodied workers having special skills and tools with distinctly measurable outputs under the close supervision of the contractor. There is little scope for unexpected developments or contingencies during the execution of this type of a work. The prevalent Schedules of Rates have been developed with a view to enabling the government agencies to estimate the work and to check whether the work has been carried out as per estimates approved by competent authority.

But in case of soil and water conservation work in a typical homestead, the work will involve clearing of thorny bushes, bio-fencing, strengthening of the existing bunds, constructing new bunds, digging rain pits, small ponds, leveling/terracing of land, tree planting, centripetal terracing of coconut trees etc. A team of labourers drawn from the locality with varying physical capabilities and uneven distribution of the skill sets can do all these tasks simultaneously. In the process of execution of the above work, unexpected issues like encounter with poisonous snakes, hard soil/rock, excessively thorny bushes, hazardous wastes like glass shards etc. which will hamper work in between might crop up. But the PWD SoR is not amenable to estimate or measure works like this, done by a mixed group of common people consisting of women and the aged who do not ordinarily possess any special skills, in widely differing geo-morphological, climatic and cultural conditions.

2. Community Contracting

Local communities are capable of undertaking water supply, sanitation, minor irrigation, soil and water conservation works etc. directly even without external technical support. The community can raise contributions in the form of cash, materials, land, labour or all of them for the work. The work could be managed by those selected by the community from among themselves. This format of implementation is preferable as the community would continue to show a sense of ownership even after the completion of the project thereby facilitating hassle free

operation and maintenance of the assets. Community contracting will also go in a long way to ensure appropriateness of technology, quality, utility, optimal maintenance costs and in the process community empowerment. From the larger point of view, this process reinforces the good governance principles of participation, transparency and accountability. During the Ninth Plan, the People's Plan Campaign attempted community contracting with mixed results.

2.1 Issues

Despite its overwhelming advantages, community contracting has its weaknesses too. The community managers with their limited experience in civil works need not be as efficient as the supervisors employed by the professional contractors. In community contracting workers are drawn from the community itself based on their free will. More often than not, those who cannot find work in the open job market for various reasons volunteer to work here. To compound this, the able bodied and experienced workers may not turn up as sub market wages are offered. Under MGNREGS also the general profile of the workers in any given worksite would consist of the aged, the challenged, malnourished and women. They may be wanting in certain basic skills, their team work may be poor, and tools may not be suitable for them and these factors adversely affect work output. These workers are not comparable with the well-knit labour teams functioning under professional contractors. Naturally work output under community contracting will be less than that of contract works. Nevertheless, community driven public works will generate remarkable social capital.

2.2. Spin off

It would not be fair to make community suffer financial loss due to the relatively lower outturn of the mixed group of workers compared to work outturn of experienced workers under contractors. Those working under MGNREGS are physically vulnerable. They are people who have nothing but their willingness to work as capital. Works which are available to them under MGNREGS are mainly earth work which is arduous and at times very difficult for women and the physically weak. The difference in productivity levels of workers occurs due to reasons beyond the control of the workers. Factors such as variations in weather, geological conditions, socio- cultural milieu of communities across districts also considerably influence work out turn. Therefore it is rational that district specific rates are developed for assorted community teams of workers.

Under MGNREGS, an assortment of people of differing capabilities, mainly women are engaged as workers. They have differing skill sets and capacities. Often they are made to work in a given situation with available tools- in number, ergonomic suitability and quality. In many sites it may not be practicable for all of the workers to do the same type of work because of specific site conditions. As a group, they perform different operations like clearing of bush, desilting storm water drain and depositing and levelling the desilted earth on the nearby mud road simultaneously- all happening together- and deliver a composite output. A new bund may be laid, grass collected and planted-simultaneously. The members of each team rotate as per the above conditions to optimize the resources.

Under Mahatma Gandhi NREGS, it is these types of composite works aimed at enhancing the resilience of natural resources that are mostly being taken up. These types of works are easily intelligible to the local communities and common workers making the whole work fully transparent. The dynamics of such works are entirely alien to the existing PWD system of typical definition of a work- say construction of a building- which is being executed by exclusive teams with well-defined skills.

3. Mahatma Gandhi NREGA

3.1 Labour

The Mahatma Gandhi NREG Act, 2005 stipulates that a worker should normally earn not less than the minimum wage rate fixed by the State Government for agricultural labourers under the Minimum wages Act, 1948, unless the wages are notified by the Central Government under Section 6(1) of the Act. The Act directs that task rates should be fixed so that the objective is fulfilled. The Act also stipulates that equal wages are to be paid to both the men and women workers. The minimum wages notified by Government of India for Kerala is Rs.125 per day. The enactment guarantees 100 days of unskilled labour in a year, at the rate of Rs.125/- per day, to families residing in rural areas whose adult members volunteer to do manual work. MGNREGA is a unique piece of legislation as it confers a right to demand work for those who need it. This demand is met at the work site where work is provided. It directly touches the lives of the poor and promotes inclusive growth. Here Government is held accountable to pay minimum wages to workers under MGNREGS.

For practical purposes, each work under MGNREGS would have to be done by a team of labourers and the total output measured collectively at the end of every sixth day of work as wages are ideally to be paid on a weekly basis. The proposition to give the workers the daily wages @Rs.125/- per day is loaded with a whole host of implementation-related issues. Each person is supposed to work for 8 hours/day and his /her work is measured as per the PWD data and Schedule of Rates. Following standard rates for daily wages irrespective of the nature of work, conditions at work site and capability of the worker is one of the major factors that discourage participation of workers in MGNREGS.

Individual worker's output is likely to vary based on the terrain, climatic conditions, soil type, age, sex, skill and physical and social conditions (such as

pregnancy, malnutrition, cultural traits etc.). This situation therefore warrants that the output of an average person is scientifically pre-determined at various given climatic, terrain and soil conditions. With the help of such a data, each team's output can be measured which would have a very high probability to conform to reality. This implies that there is a need to scientifically assess the output of an average individual for a continuous work of 8 hours/day (by taking into account the mandatory breaks entitled as per the labour laws in force), under different terrain/soil conditions, for all of the possible types of works.

Fortunately, the Operational Guidelines of MGNREG Act reiterates the need for sufficient basic data that can be derived from time and motion studies, for resolving the labour estimation and productivity monitoring related issues. This proposition would mean replacing PWD data and specifications with realistic data, specifications and standards derived through a scientific time and motion study as far as MGNREGS is concerned.

The Operational Guidelines of National Rural Employment Guarantee Act issued by the Government of India stipulate that the respective State Governments should undertake comprehensive time and motion studies for developing District Schedule of Rates after observing work out-turn.

3.2 Works

Permissible items of works that may be carried out under MGNREGA have been selected for time and motion studies. Schedule I of the MGNREG Act lists the following items of works that can be undertaken in the order of priority

1. Water conservation and water harvesting
2. Drought proofing (including afforestation and tree plantation)
3. Irrigation canals (including micro and mini irrigation works)
4. Provision of irrigation facility to land owned by households belonging to the Scheduled Castes and Scheduled Tribes or to land of beneficiaries of land reforms or that of the beneficiaries under the Indira Awas

Yojana (IAY), or Small Farmers and Marginal farmers;

5. Renovation of traditional water bodies including desilting of tanks;
6. Land development;
7. Flood control and protection works including drainage in water logged areas;
8. Rural connectivity to provide all-weather access
9. Any other work which may be notified by the Central Government in consultation with the State Government.

3.3 Methodology

Work- Time-Motion studies have been conducted in the Phase -I districts of Palakkad and Wayanad and Phase-II districts of Idukki and Kasargode. 35 different items of work were initially identified for work studies based on field observations of specific nature of works undertaken in these districts. The types of works and activities under each type finally taken up for work study are tabulated below.

Table 1: Items of work selected for work studies among the MNREGS approved works

No.	Work listed	Items selected for Work study
1	Water conservation and water harvesting	1.Centripetal terracing, 2.Rain pit construction, 3.Earthen bund construction
2	Drought Proofing	
3	Irrigation canals	4.Desilting of irrigation canal, 5.Desilting of earthen canal, 6.Desilting of CADA canal
4	Provision of irrigation facility to SC/ST, beneficiaries of land reforms or IAY	7.Digging of small pond
5	Renovation of traditional water bodies	8.Desilting of existing ponds
6	Land development	9.Clearing grass, 10.Clearing bushes, 11.Clearing thorny bushes, 12.Land levelling

7	Flood control and protection	13. Desilting of drainage, 14. New earthen Channel
8	Rural connectivity to provide all-weather access	15.Sectioning of road
9	Any other notified by Central Government	

The above items of work were identified on the basis of field observations.

4. Relevance of Work- Time-Motion Study

4.1 History

Work study is a general term for those techniques particularly method study and work measurement which are used in the examination of human work in all its contexts and which lead systematically to the investigation of all the factors by which efficiency and economy of the situation being reviewed in order to effect improvement."(1991; Introduction to Work Study-Indian Adaptation, ILO).

Generally work studies are conducted with a view to improving productivity. Earlier it was called "Time and Motion Study" which is now termed as work study by including much broader perspectives. One of the important aspects of Work-Time-Motion study is the evaluation of human work. Work measurement techniques are designed to establish the time for a qualified worker to carry out a specific job at a defined level of performance. Work-Time-Motion study has an important role in the labour estimation process and in deriving the wages, remuneration and incentives for the labourers.

Work-Time-Motion Study is conducted to assess with exactness the effort and time required to perform a particular task and also to determine more efficient ways of doing the task. Usually the task is broken down to a series of specific motions and the time taken by an average person to carry out these motions is measured by a

person who does not have any vested interest in the outcome, by using a stop watch and a camera.

4.2 Justification

Work, time and motion study seeks to evolve a system of wage rates sensitised to the nature of work, conditions at worksite and worker capability in addition to ensuring better accuracy in planning work schedules.

4.3 Methodology

Time and motion studies are today referred as 'work studies'. ***Work study*** *is a systematic examination of human work processes, designed to identify the ways in which the efficiency and effectiveness of these processes can be improved. It usually consists of a method study to compare existing methods with proposed methods and work measurement to establish the time required by a qualified worker to do the job to a specified standard.*

Intended to improve productivity at work, 'time and motion study' of any productive process is understood as a combination of 'work measurement' and 'method study'. *Work measurement* for productive work, involves application of techniques to derive the time taken by a qualified worker to achieve a defined level of output. For example, let us assume desilting of a water body to be the work at hand. Work measurement will help understand the standard time an able bodied worker takes to clear 1 cu.m of silt (defined level of output). Performance benchmarks established by work measurements will vary with factors such as sex, age and health conditions, variability of effort at work due to climate, geology etc. *Method study* involves detailed examination of the production process with the objective of maximizing production efficiency (with consideration of ergonomics) at appropriately low production costs. According to the International Labour Organization, any such study typically involves a sequence of stages.

5. The process

5.1 Initiation

The State Employment Guarantee Council (Kerala) in its first meeting held on 3 January 2006, decided that a scientific work, time and motion study be conducted to achieve the objective of fixing productivity norms under different geomorphologic and climatic conditions, across and within districts, taking into account the high degree of location specificity and variability in the soil, slope and geological conditions and seasonal variations. Pilot Work- Time - Motion studies in the State were initiated at Vadakarapathy Grama Panchayat on 9 August 2006 by Maithri, an accredited technical institution. Later, in order to validate the methodology, about 105 work studies were conducted in the pilot phase in Chitur, Kollengode and Alathur blocks by Maithri.

5.2 Institutional Mechanism

A State Level Steering Committee under the chairmanship of Principal Secretary (LSG) was constituted for overseeing and reviewing the work, time and motion studies. It was decided that this initiative will be coordinated by KILA under the technical assistance of LBS Centre for Science & Technology and that the community mobilisation and organisational aspects will be facilitated by Maithri.

In the four districts identified for work studies, Maithri chose local NGOs as partners to assist in the field work. They included PLANET in Wayanad and Centre for rural Management (CRM) in Idukki. The State level Technical Advisory Team (STAT) helped the Steering Committee on technical matters.

The District Programme Co-ordinator (District Collector) of the MGNREGS in each district guided the field co-ordinators appointed by Maithri to identify work sites for conducting work studies within the District concerned. District level Field

Coordinators were engaged to co-ordinate work in each district. Direct observations of works and data collection were done by work study personnel deployed in the field. A retired engineer of sufficient experience was engaged to supervise and validate the works of the study teams in each Block. Maithri and LBS Centre for Science and Technology imparted training to all the appointed field co-ordinators in matters of conducting work studies, measuring work, filling up of forms, requirements of photo recording of works etc.

5.3 Phasing

The entire project is envisaged to complete in two phases as shown below:

Phase 1:

1) To generate work, time and motion study data by direct observation of 35 types of works in all blocks of Palakkad, Kasaragod, Idukki and Wayanad districts, by studying at least 3 samples of each item of work in each block.
2) To devise a cost effective methodology for generating time and motion study data
3) Compile and analyse the data generated so as to create a basic data for work assessment and estimation in MGNREG Scheme.

Phase 2:

To extend the time and motion studies for the same items of work as in Phase- I mutates mutandis to the remaining 10 districts.

5.4 Methodology

The ILO recommended methodology was followed for the study. A typical sample worker was chosen for observation under time and motion studies. Worker having average height, weight, age and mobility at work was chosen. At sites where majority of the workers were females, the sample worker chosen for observations

was a female worker. Each sample of work was assigned a 10 digit code. Sample code PKD/ATR/25/02 would denote the 2nd sample (coded 02) of work item 25 (coded 25), observed in Alathur block (coded ATR) of Palakkad district (coded PKD).

The investigator would observe the workers' group on the field without interfering with the work. The labourers doing the work under study were not informed about the motive of the study. Any change of activity during the work hours were captured by the investigator. Tools were employed for both visual recording and paper recording of field activities of the items of work chosen. The visual documentation conducted was in the form of photos using digital still cameras. Recordings on paper were on field level data collection forms. (These tabular formats are annexed). They were used to record work quantity measurements, climatic conditions in the field on the day of the observation and to record details of the workers at the work study site.

For the purpose of work measurement, time at work has been divided into four types-(1) active time, (2) passive time, (3) idle time, and (4) work breaks. Active time refers to time expended in actual work. Passive time refers to unscheduled resting time that is characteristic of the type of work studied.

Idle time refers to time expended in movements unrelated to the actual work. Work breaks include all that time allotted for breakfast, lunch, or tea break. Most of these work breaks are scheduled, though informally, in most cases. For work measurement, effective time = duration of actual work - (duration of work break time + duration of idle time).

Under the MGNREGS, this is required to be 8 hours a day. Actual work time = Active time + Passive time. Assuming that the workers' group is homogenous, output of the individual is calculated as the total output divided by the number of workers.

Though the workers' group is considered homogenous for output measurement, variables which affect output at work are identified for each item of

work. (The format used to track time utilization is annexed). At each work site, details of all workers available for work on the day of the observations were collected. This helps verify whether the worker chosen as the sample for study is truly representative of the workers' group.

Data was collected on selected items of work in the four districts of Kasaragod, Wayanad, Palakkad, Kasargode and Idukki at the block level with a fixed sample size of 3 for each item of work both in monsoon and summer. There were instances where some of the studies were having more component activities than standard samples like – cleaning up irrigation canal and then desilting it – done simultaneously by a team. The data samples collected were filtered to eliminate such works. Samples of works which were found to be mismanaged in terms of workers or time were also discarded. Analysis of this data was carried out to obtain the standard time requirements for a specified level of output both in summer and monsoon seasons in each of the four districts.

5.5 Events

TABLE 2: LIST OF IMPORTANT EVENTS

Date	Activity
09-Aug-06	Pilot Work Study at Vadakarapathy in Chitur, Palakkad
21-Aug-06	-Meeting with Shri. V.N. Jithendran, Prof. K. Narayanan, Shri. James Varghese and Shri.P.B.Sajan and Maithri team at Thiruvananthapuram
29-Aug-06	First Training Programme at Maithri for 15 Participants
31-Aug-06	Field visit to Vadakarapathy by Prof. K Narayanan (LBS)
02-Sep-06	Presentation of the progress before, Shri.S.M.Vijayanand and Shri.V.N. Jithendran at Maithri, Palakkad
12-Sep-06	Second Training Programme at Maithri for 29 Participants
03-Oct-06	Inception Report to Commissioner for Rural Development
	105 studies of 21 items in Alathur, Kollengode and Chittur Thaluks during the monsoon of 2006

	16-May-07	G.O.(Rt) No. 1434/2007/LSGD dated 16/05/2007 - Administrative Sanction
	05-Jun-07	Meeting in the Chamber of the Principal Secretary, LSGD
	18-Jun-07	Meeting of Maithri, Shreyes, CRM, CRD and LBS representatives at Maithri ,Palakkad
	11-Jul-07	Presentation of the findings of 105 studies. Validation of the methodology, calculations and items for study at Guest House, Thycaud
	30-Jul-07	Meeting in the Chamber of the Principal Secretary, LSGD
	05-Sep-07	Meeting in the Chamber of CRD
	07-Sep-07	Tripartite MoU among the CRD, KILA and LBS Centre
	22-Dec-07	Review meeting in the Chamber of the Principal Secretary, LSGD
		17 studies in Alathur, Kollengode and Chitur Thaluks during January 2008
	18-Jan-08	Presentation on proposed 30 items for study at in a workshop at Guest House, Thycaud
	04-Feb-08	Training to 30 enumerators at Maithri
	31-Jan-08	Steering Committee meeting at CRD
	20-Feb-08	Steering Committee meeting at CRD
	03-Mar-08	MoU between Maithri and LBS Centre
		Steering Committee meeting at CRD
	07-Mar-08	Field visit by Prof.K.Narayanan (LBS) in Palakkad
	16-Mar-08	Training to PLANET team at Wayanad
	17-Mar-08	Training to Kasaragod team at Kanhangad
	10-Apr-08	Training to CRM team at Idukki
	12-Apr-08	Training to second PLANET team at Wayanad
	03-Jun-08	Steering Committee meeting in the Chamber of the Principal Secretary, LSGD
	20-Jun-08	Data submission
	28-Jul-08	Presentation of summer data to State Level Technical Advisory Team at CRD
	07-Nov-08	Steering Committee meeting at CRD
	16-Dec-08	Steering Committee meeting at CRD

26-Mar-09	STAT meeting at Rest House Thycaudu- Presentation of Data
15-Apr-09	STAT meeting at KILA- Review of Data
19-Jun-09	STAT meeting at CRD- Review of Data
19-Oct-09	Steering Committee meeting in the Chamber of the Principal Secretary, LSGD
17-Nov-09	STAT meeting at CRD- Review of Data
17-Feb-10	STAT meeting at CRD- Review of Data
23-Feb-10	Steering Committee meeting in the Chamber of CRD
10-Mar-10	STAT meeting - presentation of Final Data
30-Mar-10	Steering Committee- chaired by the Principal Secretary, LSGD
07-Apr-10	STAT meeting in the Chamber of CRD

The field co-ordinators were imparted training on all aspects of filling up of formats, manner of approaching workers group without being intrusive, requirements of photo recording, work measurement techniques and duration and etiquette to be followed while recording observations of the works. A tool kit containing a digital camera, humidity/temperature meter, weighing balance, tape, carrying bag etc. was provided to the field level coordinators.

Table 3: District- wise Sample Distribution across Seasons

District	No: of Samples		
	Summer	Monsoon	Total
Palakkad	146	147	293
Idukki	26	22	48
Kasaragod	55	78	133
Wayanad	31	78	109

6. Outputs

During 2007-2009 over 1531 time and motion studies were conducted in Wayanad, Palakkad, Idukki and Kasaragod districts involving 33658 workers. Each sample was studied for a whole day to understand utilization of time for work and work outturn. Variants such as male participation, seasons, temperature, terrain, work culture etc. were factored in. The studies were conducted by trained persons from the neighbouring communities and cross checked by professionals. The proceedings of the entire day were systematically documented and the whole process was done without informing the worker so as not to prejudice him/her. The following data and definitions are derived from the analysis of the data thrown up by these studies.

6.1 Data

Though the intention was to build up Block level data and specifications, this was given up for want of enough number of samples of certain items of work in some blocks. Therefore it was finally decided to develop district -wise data.

Rates arrived from the Work, Time and Motion studies are presented here. The data presented is per person outturn in a given day, adjusted to single digit accuracy for easiness of calculation. For special zones, works done under water and additional lifts and lead, the existing ratios of PWD SoR may be followed.

Annexure 1- Data proposed as per work, time and motion study.			Out turn per person per day during monsoon (m) and summer(s). (Monsoon- 1 June to 31 December)							
No	Details		Unit	Kasaragod		Palakkad		Wayanad		Idukki	
				M	S	M	S	M	S	M	S
1	Cleaning up an area	Clearing grass and other over growth vegetation, small trees of girth up to 30cm including rooting out and removal of rubbish and waste material etc. up to a distance of 150 m etc. complete.	Sq.m	48.4	46.9	32.0	28.4	27.1	24.1	36.6	32.5
2	Cleaning up an area with bushes	Clearing light jungle including uprooting of thick vegetation and small trees of girth up to 30cm and removal of rubbish and waste material up to a distance of 150 m etc. complete.	Sq. m	67.7	75.6	35.0	43.5	32.6	42.6	34.2	36.0
3	Cleaning up an area with thorny bushes	Clearing thick and thorny jungle and small trees of girth up to 30cm including rooting out and removal of rubbish and waste, etc. up to a distance of 150 m etc. complete.	Sq. m	55.3	34.1	28.6	17.6	69.9	43.1	45.9	28.3
4	Centripetal terracing	Earth work excavation in all classes of soil around the coconut tree up to 30 cm depth, and radius up to 2metre and depositing on the bank with a maximum of 2 meters from the coconut trunk.	Each	3.1	0.0	2.4	0.0	3.6	0.0	2.2	0.0
5	Rain water pits	Earth work excavation in all classes of soil except rock for rain water harvesting pits up to 60 cm depth and depositing on the bank as directed by the engineering supervisor, including neat banking etc. complete.	Cu. m	3.9	2.9	1.8	1.4	2.6	2.0	2.3	1.8

6	New earthen bunds	Earth work excavation in all classes of soil except rock for forming bund including neat banking etc. complete.	Cu. m	2.5	0.0	2.0	0.0	2.9	0.0	1.8	0.0
7	Digging of small ponds	Earth work excavation in all classes of soil except rock for digging ponds up to a depth of 3m and depositing the spoil for forming bund including neat banking and conveying the excess earth with a lead up to 20m etc. complete.	Cu. m	2.4	2.0	1.9	1.5	2.4	2.3	2.6	2.1
8	Desilting of irrigation canals	Removing silt from irrigation canal and depositing within initial lead up to 50 m and lift up to 1.5 m.	Cu. m	0.0	0.0	2.5	1.9	0.0	0.0	0.0	0.0
9	Desilting of Earthen channels	Removal of silt from drains and depositing with a lift up to 1.5 m. and lead up to 50m.	Cu. m	1.4	1.3	1.9	1.8	3.8	2.9	4.5	4.2
10	Desilting of CADA channels	Removal of silt from field bothies(CADA) and depositing within initial lead up to 50 m and lift up to 1.5 m.	Cu. m	0.0	0.0	1.5	1.5	0.0	0.0	0.0	0.0
11	New Earthen channels	Earth work excavation in all classes of soil except rock for digging new channels to a depth up to 60 cm and depositing on bank with initial lead up to 50 m and lift up to 1.5 m including neat banking.	Cu. m	2.2	2.1	1.8	1.6	2.6	2.5	1.6	1.4

6.2 Observations

A critical issue that has not been resolved yet is the low productivity of workers. This means that workers are unable to perform the task required to earn the minimum wages. There could be several reasons for this. Excessive and inappropriate productivity norms are one of the major issues. By deriving new rates, an attempt has been made here, to address this problem of equity and fairness in the treatment of workers in public works. There are other issues also which need to be tackled.

MGNREGS guidelines stipulate that workers be provided with adequate tools and implements free of cost, the cost of which is borne under the material head. But field observation shows that the tools provided under the scheme to the workers are neither sufficient in number nor appropriate to their weak physical stature. This in turn leads to reduction in outturn of the workers.

MGNREGS is undoubtedly a gender sensitive scheme. It is mandatory that at least one third of the workers should be women. Undoubtedly the scheme has been able to mobilise women in large number. In most of the work sites the female work participation is above 90%. Majority of these women come from BPL families and their anthropometric measurements are below average. It should be a matter of serious concern that these physically weak women are made to use the tools which are originally designed for able bodied men. It goes without saying that women cannot handle these tools properly and this factor not only reduces their efficiency but also brings in drudgery. If the workers were asked to bring their own tools, to which they are used to, the output may raise substantially.

One of the deficiencies of the present study is the inability to ascertain the specific impact of tools on the output. All of the workers are using tools supplied by the Panchayats many of which are neither user friendly or suitable for optimum outturn. Since the works are manual it requires certain basic implements to execute permitted works under MGNREGS.

The most frequently used implements are: spade, pickaxe, iron shovel, and basket. The productivity of a worker and work out-turn per day depend a great deal on the quality of these implements. The quality of a spade has three aspects: sharpness, length of handle, and weight. During the study visits to worksites in all the selected sites it was observed that the implements used by workers want in quality. On examination of the sharpness of the implements it was found that they were often blunt, and the handles were either short or too long and not worker friendly. For example, a spade with a steel handle may be more durable but will certainly decrease outturn due to the higher weight of the tool. The average weight of the women workers is 50 Kg and their average height is 150 cm. In order to project the accurate outturn of work of women, it is a condition precedent that the tools supplied to them conform to their physical features.

In Kerala, market wages of men are higher than the wages paid under MGNREGS. Therefore able bodied men are reluctant to work under the scheme. A majority of the men participating in MGNREGS are either physically weak or disabled who are unable to get employment elsewhere. Their output cannot be compared with that of an average male. Even though there is a belief that male participation can improve the work outturn, in practice it was found to be false as far as MGNREGS is concerned. The fact of the matter is that under MGNREGS male participation does not significantly enhance work outturn.

Work outturn tends to change significantly with reference to different seasons. The monsoon period is indicated from 1st June to 31st December and the rest is reckoned as summer even though there are dry spells in the monsoon and rains in the summer.

The definition of lift in the SoR has to be carefully looked at. It is defined as 1.5 m in the belief that an average man will lift a basket of earth/material up to a height of 1.5 m, above his head. But in practice women tend to raise such materials to a height of 0.75 m only, thereby reducing the work outturn.

Similarly the areas where flood control works under MGNREGS is taken up - mainly in public land - are invariably strewn with glass shards, different kinds of waste, rubble pieces etc., reducing the outturn drastically. Many of the public places

where MGNREGS works are taken up are found to be infested with snakes as well. Sufficient protective gear for the workers and allowance for outturn are required in such conditions.

Lack of clarity on productivity norms to earn the minimum wage and poor worksite supervision arrangements are the other issues that need to addressed on a priority basis. The lack of awareness about the SoRs and Minimum Wages among workers is a matter of serious concern. Pamphlets containing the SoRs and Minimum Wage Rates should be printed and distributed among the workers. The Accredited Engineers are overstretched and therefore there is a need to train and deploy the much talked about bare foot engineers.

If MGNREGA is to graduate to the next phase of producing high quality assets, capacity building of Mates through training and retraining needs to be taken up urgently.

7. Way forward

7.1 Training

As of now, Engineers are trained to use the PWD SoR. In the case of earth work, the PWD data contains only a few items whereas the newly proposed data contains different items in earth work mainly for soil and water conservation works. Therefore Engineers need to be given orientation training to use the new data for preparing estimates and taking valuations. This would involve training of hundreds of Panchayat level accredited engineers and data entry operators in a short span of time. This can be done only through a cascading mode. The methodology of the present study, its objectives, logic and purpose need to be discussed in detail in the training of Engineers. As this is a transformative shift, an attitudinal change is also required to use the present data in an appropriate manner. This is easier said but too difficult to achieve.

7.2 Validation

The data need to be validated in the field at varying conditions. There must be pilot implementation phase in which estimates and measurements should be taken using the new data and specifications. It is important to ensure that people are paid for their time as per the norms laid down. Any excesses or deficits have to be studied carefully; the reasons should be accounted for and if necessary suitable corrections should be done in the proposed data schedule. Therefore the data developed through the present study may be pilot-tested in one Block each in Palakkad, Wayanad, Idukki and Kasargode Districts.

7.3 Remaining 10 districts

After the validation exercise, data from these districts can be adapted wherever similar agro climatic conditions and populations exist in the remaining districts. Since the geo-morphological conditions determine work out-turn, the SoR thus can be unified in accordance with geo-morphological conditions prevailing in different districts. For the remaining part of these districts, separate time and motion studies may be organized based on distinct agro climatic zones instead of administrative boundaries. This will greatly minimize efforts. The items which were not analyzed in the present study for want of sufficient number of samples can be studied in the larger time and motion study.

Annexe-1

FORMATS FOR DATA COLLECTION

i. General Information

Date --/--/----

District	Block	GP	Ward
Location			
Nature of work			
Details of watering			
Details of work			

i. Climate specific Data

No	Time	Dry Temperature	Wet Temperature	Rainfall

ii. Profile of the workers

Profile of the worker						
Address						
Gender						
Age						
Education						
Height						
Weight						
Experience						
Assessment on quality of work - Excellent / Good / Satisfactory / Bad/ Worst						
Any other details						

iii. Form for recording Time Utilization for each sample

No	Starting time	Details	Photo no	Code

iv. **Tool List**

No	Details of tools	Condition	Numbers	Photo No

v. **Work Measurement**

No	Grass/Bush/Road		Earth work Measurement				
	Length	Breath	Length	Breath Top	Breath Bottom	Depth Left	Depth Right

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 planned 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.

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

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 near banking, in loose soil.	Meter	0.09

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

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

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

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

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

Time and Motion data

		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	Athiyannoor	Red loam
9	Azhoor	Southern midland
10	Balaramapuram	Red loam
11	Chemmaruthi	Southern midland
12	Chenkal	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	Kazhakkoottam	Southern midland
29	Kilimanoor	Southern midland
30	Kizhuvilam	Southern midland
31	Kollayil	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	Nellanadu	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	Chathannoor	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	Karavaloor	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	Mayyanadu	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

Sl 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	Bhudhanoor	Southern midland
10	Champakulam	Kuttanad
11	Chennam pallippuram	Coastal sandy
12	Chennithala-Thripperunth	Onattukara
13	Cheppadu	Onattukara
14	Cheriyanadu	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	Kodamthuruthu	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	Panavally	Coastal sandy
51	Pandanadu	Southern midland
52	Pathiyoor	Onattukara
53	Pattanakkadu	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	Thaikkattussery	Coastal sandy
62	Thakazhi	Kuttanad
63	Thalavadi	Kuttanad
64	Thanneermukkam	Coastal sandy
65	Thazhakkara	Onattukara
66	Thiruvanvandoor	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	Aurvappulam	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	Munnilavu	Malayoram
42	Mutholy	Malayoram
43	Nattakam	Southern midland
44	Nedumkkunnam	Southern midland
45	Neendoor	Southern midland
46	Njeezhoor	Southern midland
47	Pallikkathodu	Malayoram

Sl 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	Thiruvarppu	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	Veliyannoor	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	Kanthalloor	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	Peerumade	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	Asamannoor	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	Choornnikkara	Central Midland
15	Chottanikkara	Central Midland
16	Edakkattuvayal	Central Midland
17	Edathala	Central Midland
18	Edavanakkade	Coastal sandy
19	Elamkunnapuzha	Coastal sandy
20	Eloor	Central Midland
21	Ezhikkara	Coastal sandy
22	Ilanji	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	Keerampara	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	Maneed	Central Midland
46	Manjalloor	Malayoram
47	Manjapra	Central Midland

Sl 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	Nellikkuzhi	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	Thrikkakara	Coastal sandy
79	Thuravoor	Central Midland
80	Udayamperur	Central Midland
81	Vadakkekkara	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

Sl 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	Kannampra	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	Kottoppadam	Malayoram
34	Kozhinjampara	Chittoor Black soil
35	Kulukkallur	Central Midland
36	Kumaramputhur	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	Melarkkode	Palakkad plains
47	Mundur	Palakkad plains

Sl No	Panchayat name	Agro-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	Angadippuram	Malayoram
7	Areekkode	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	Kuruva	Malayoram
37	Kuttippuram	Malappuram type
38	Kuzhimanna	Malappuram type
39	Mambad	Malayoram
40	Mangalam	Malappuram type
41	Mankada	Malayoram
42	Marakkara	Malappuram type
43	Marancherry	Coastal sandy
44	Melattur	Malayoram
45	Moorkkanad	Malayoram
46	Morayoor	Malappuram type
47	Munniyoor	Malappuram type

Sl 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

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	Malappuram type
7	Chakkittapara	Northern midland
8	Changaroth	Northern midland
9	Chathamangalam	Malappuram type
10	Chekyad	Northern midland
11	Chelannur	Malappuram type
12	Chemancherry	Northern midland
13	Chengottukavu	Northern midland
14	Cherode	Northern midland
15	Cheruvannur	Northern midland
16	Cheruvannur-Nallalam	Malappuram type
17	Edacheri	Northern midland
18	Elathur	Malappuram type
19	Eramala	Northern midland
20	Feroke	Malappuram type
21	Kadalundi	Malappuram type
22	Kakkodi	Malappuram type
23	Kakkur	Northern midland
24	Karassery	Malappuram type
25	Kavilumpara	Northern midland
26	Kayakkodi	Northern midland
27	Kayanna	Northern midland
28	Keezhariyur	Northern midland
29	Kizhakkoth	Malappuram type
30	Kodencheri	Malappuram type
31	Kodiyathur	Malappuram type
32	Koduvally	Malappuram type
33	Koodaranji	Malappuram type
34	Koothali	Northern midland
35	Kottur	Northern midland
36	Kunnamangalam	Malappuram type
37	Kunnummal	Northern midland
38	Kurachundu	Northern midland
39	Kuruvattur	Malappuram type
40	Kuttyadi	Northern midland
41	Madavoor	Malappuram type
42	Maniyur	Northern midland
43	Maruthomkara	Northern midland
44	Mavoor	Malappuram type
45	Meppayur	Northern midland
46	Moodadi	Northern midland
47	Mukkam	Malappuram type

Sl No	Panchayat name	Agro-Ecological Zone
48	Nadapuram	Northern midland
49	Nadauvannur	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	Puthuppadi	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	Unnikkulam	Northern midland
74	Valayam	Northern midland
75	Vanimel	Northern midland
76	Velom	Northern midland
77	Villiyappally	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

Sl 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	Munderi	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	Payyavoor	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

1 പൊതുവിവരങ്ങൾ

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

2 പണിയെക്കുറിച്ചുള്ള വിവരങ്ങൾ

a.	പണിയുടെ പേര്	

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 മലിനവസ്തുകൾ ഉണ്ടെങ്കിൽ അവയുടെ വിവരങ്ങൾ

പൊട്ടിയ ചില്ല് / കുപ്പി	1
മനുഷ്യന്റെ വിസർജ്യം	2
ആശുപത്രി 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. കുഴിക്കാനുള്ള ബുദ്ധിമുട്ട്

ബുദ്ധിമുട്ടില്ല		കുറച്ച് ബുദ്ധിമുട്ട്	
കുറച്ചുകൂടി ബുദ്ധിമുട്ട്		വളരെ ബുദ്ധിമുട്ട്	

b. ഒട്ടിപ്പിടിക്കുന്നത്

ഒട്ടിപ്പിടിക്കുന്നതല്ല		കുറച്ച് ഒട്ടിപ്പിടിക്കുന്നത്	
നല്ലവണ്ണം ഒട്ടിപ്പിടിക്കുന്നത്			

c. ജലാംശം

വരണ്ടത്		കുറച്ച് ഈർപ്പം ഉള്ളത്	
കുറച്ചുകൂടി ഈർപ്പം ഉള്ളത്		വളരെയധികം ഈർപ്പം ഉള്ളത്	

d. മൺതരികളുടെ സ്വഭാവം

മണൽ		ചരൽ കലർന്നത്	
വലിയ കല്ലുകൾ		പാറ	

e. മൺതരം

f. മണ്ണിന്റെ സാംപിൾ നമ്പർ

4 വെള്ളത്തിന്റെ ലെവൽ

ഒട്ടും വെള്ളം ഇല്ല	0
വെട്ടിയാൽ വെള്ളം ഉണ്ട്	0
വെള്ളത്തിനടിയിൽ	0
ഒഴുക്കുള്ള 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	ഒരെണ്ണത്തിന്റെ 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 ഡൌൺലോഡ്		
ഇമെയിൽ		
ഡാറ്റ ചെക്ക്		