MANUAL FOR DATA COLLECTION

Preparation of Detailed Project Report for rejuvenation of Krishna and Godavari rivers through forestry interventions

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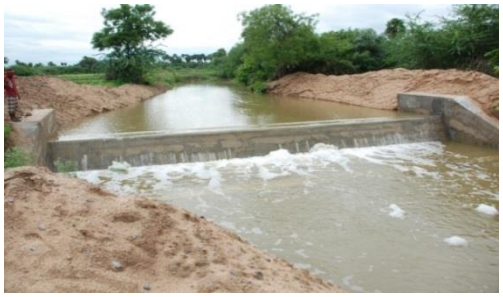
Soil Moisture Conservation Structures: The following structures can be proposed while suggesting the interventions.

Check Dam/Percolation Tanks



A check dam is generally constructed on small streams and long gullies formed by the erosive activity of water. The ideally a check dam is located in a narrow stream with high banks. The height of the check dam should be such that even during the highest flood, water does not spill over the banks. Percolation tank is aimed to see that rain water percolates and increases ground water regime and moisture availability to root zone. These are to be constructed in gently sloping areas (upto 5% slope)

A check dam/PT serves many purposes.

•It cuts off the runoff velocity and reduces erosive activity

•It improves infiltration and increases the soil moisture content of the adjoining areas and allows percolation to recharge the aquifers.

Contour Trenches:

Contour trenches / Staggered Contour Trenches are used both on hill slopes as well as on degraded and barren waste lands for soil and moisture conservation and afforestation purposes. The trenches break the slope and reduce the velocity of surface runoff. It can be used in all slopes irrespective of rainfall conditions (i.e., in both high and low rainfall conditions), varying soil types and depths. The trenches are to be constructed strictly on contours irrespective of the category.

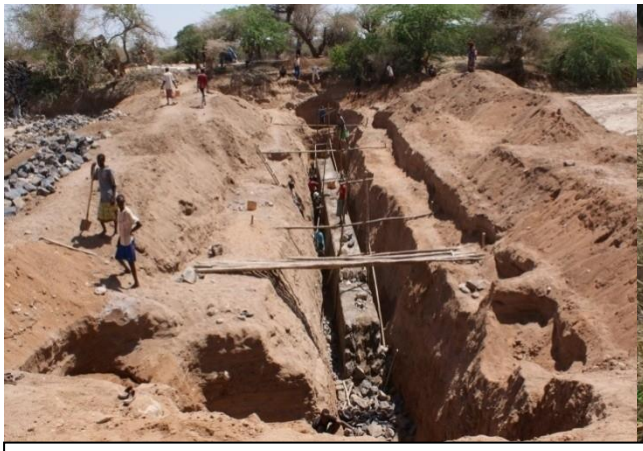
Layout: require careful layout. Intermittent trenches are adopted. The size of the trench depends upon the soil depth. Normally each trench would be 3m to 5mlength x 45cm width x 45cm depth. The distance between each contour trench line would be generally 10 to 20 m depending upon slope. Steeper the slope lesser would be the distance. These are to be taken up in moderately sloping areas (5-10% slope). However some more slopey areas may be considered in forest areas depending on the need upto 25% slopes can be

considered in special cases with proper care to see that soil is stabilized and not carried away. In forest areas these can act as forest fire barriers also. Hence, the septa or gap areas to be cleaned during fire season.

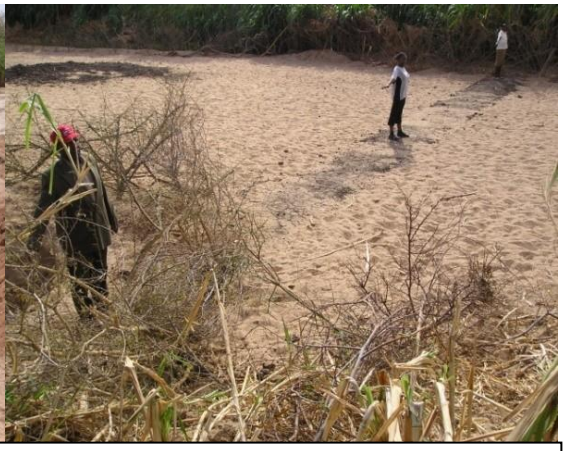
Specifications: Trenches can be continuous or interrupted. The interrupted one can be in series or staggered, continuous one is used for moisture conservation in low rainfall areas and in high rainfall areas.

Sub-surface dam

A sub-surface dam/ dyke is an impediment created when an embankment is constructed across a sandy river to restrict sub-surface flow, allowing the water to percolate.In a subsurface dam, the embankment wall is below the surface of the stream bed. A subsurface dam can be constructed with stone masonry or compacted clay.



(a) Construction of Subsurface dam



(b)subsurface dam just after construction

Farm ponds

Farm ponds are small tank or reservoir like constructions. They are constructed for the purpose of storing the surface runoff, generated from the catchment area. The farm ponds are the water harvesting structures, solve several purposes of farm needs such as supply of water for irrigation, cattle feed, fish production etc. The dimension of farm pond can vary depending on availability of area. Generally the farm pond dimensions would be 15m length x 10m width x 2m depth.

Gully plugs

Gully plugs, also called check dams, are mainly built to prevent erosion and to settle sediments and pollutants. Furthermore, it is possible to keep soil moisture due to infiltration. Depending on the topography, amount of precipitation, material and financial resources available, there are several methods to construct a gully plug. They have to be inspected regularly and any damages must be repaired.

Biological Measures

Contour cultivation

Contour cultivation is nothing but carrying out agricultural operations like planting, tillage and inter-cultivation very neatly on the contour.

Purpose

Contour cultivation reduces the velocity of overland flow and retards soil erosion. Crops like maize, sorghum, pearl millet which are normally grown in rows are ideally suited for contour cultivation. When contour cropping is adopted, the downward movement of soil and erosion by rains is reduced considerably

Location

Contour cultivation on terraces is practiced on a large scale for soil and water conservation. It has the capacity to retard runoff, increase infiltration of rainfall and conserve soil and water. In the field, guidelines are to be marked across the slope using a dumpy level or even a hand level. All subsequent agricultural operations are carried out making use of the guideline.

Strip cropping

Strip cropping is the growing of a soil-exposing and erosion-permitting crop in strips of suitable widths across the slopes on contour, alternating with strip of soil-protecting and erosion-resisting crop. The dense foliage of the erosion resistant crop prevents the rain from beating the soil surface directly. The alternate strip consists of close growing erosion resisting crop (close growing crops such as moong, urad, moth bean, groundnut, grasses) to erosion permitting crops like (row

crops such as maize, jowar, bajra, cotton, etc). To achieve the best result, strip cropping is to be done in combination with other farming practices, like good crop rotation, contour cultivation etc. There are four types of strip cropping systems. They are: (1) contour strip cropping, (2) field strip cropping, (3) buffer strip cropping and (4) wind strip cropping.

Purpose

Strip cropping reduces soil erosion by reducing the effective slope length and facilitating absorption of rain water by the soil in undulating terrain. This is achieved by growing in strips and in an alternating fashion a minimum of two different crops along a slope. The crops usually differ substantially in their planting and harvesting date, thereby ensuring that at any time at least half of the slope is covered by vegetation. Strip cropping permits crop rotation, maximises the use of rainfall and allows use of modern machinery.

Location

This method is useful on regular slopes and with the soil of high infiltration rates.

Retention Ditches

Retention ditches are large ditches, designed to catch and retain all incoming runoff and hold it until it infiltrates into the ground. They are sometimes also called infiltration ditches.

Purpose

In semi-arid areas retention ditches are commonly used for trapping rain water and for growing crops that have high water requirements, such as bananas. These crops can be planted in the ditch and thereby get increased supply of moisture.

Location

Retention ditches are particularly beneficial in semi-arid areas where non-availability of soil moisture is a problem. They should be constructed on flat or gentle sloping land and soils should be permeable, deep and stable. Retention ditches are not suitable on shallow soils or in areas prone to landslides.

Contour Farming

Contour farming means that field activities such as ploughing, furrowing and planting are carried out along contours, and not up and down the slope.

Purpose

The purpose is to prevent surface runoff down slope and encourage infiltration of water into the soil. Structures and plants are established along the contour lines following the configuration on the ground. Contour farming may involve construction of soil traps, bench terraces or bunds, or the establishment of hedgerows.

Location

Contour ploughing is successful on slopes with a gradient of less than 10%. On steeper slopes contour ploughing should be combined with other measures, suchas terracing or strip cropping. The fields should have an even slope, since on very irregular slopes it is too time-consuming to follow the contours when ploughing.

Contour Furrows

Contour furrows are, small earthen banks, with a furrow on the higher side which collects runoff from the catchment area between the ridges.

Purpose

The catchment area is left uncultivated and clear of vegetation to maximize runoff. Crops can be planted on the sides of the furrow and on the ridges. Plants with high water requirements, such as beans and peas are usually planted on the higher side of the furrow, and cereal crops such as maize and millet are usually planted on the ridges.

Location

Contour furrows are suitable for areas with annual average rainfall amounts of 350- 700mm. The topography should be even to facilitate an even distribution of the water. Contour furrows are most suitable on gentle slopes of about 0.5-3%. Soils should be fairly light. On heavier clayey soils these are less effective because of the lower infiltration rate.

Broad Bed and Furrows

The Broad Bed and Furrow system has been mainly introduced by the International Crops Research Institute for the Semi-arid Tropics (ICRISAT) in India. Broad beds of 100 cm width are prepared and 50 cm furrows are provided in between two beds.

Purpose

To encourage moisture storage in the soil profile to support plants through mid-season or late-season spells of drought and to provide a better drained and more easily cultivated soil in the beds. Double cropping by means of inter-cropping or sequential cropping is also possible.

Location

The BBF system is particularly suitable for the vertisols. The technique works best on deep black soils in areas with dependable rainfall averaging 750 mm or more. It has not been as productive in areas of less dependable rainfall, or on alfisols or shallower black soils - although in the later cases more productivity is achieved than with traditional farming methods. The broad bed and furrow system is laid within the field boundaries. The land levels taken and it is laid using either animal drawn or tractor drawn ridges.

Grass Strips

Grass strips are cheap alternatives to terracing. Grass is planted in dense strips, up to a meter wide, along the contour.

Purpose

Grass strips create barriers that minimize soil erosion and runoff. Silt builds up in front of the strip, and within time benches are formed.

Location

Grass strips are suitable in areas where there is a need of fodder or mulch. If farmers do not have livestock, they have little incentive to plant grasses. Grass strips are not applicable on steep slopes and in very dry areas since grasses might not withstand drought.

Planting Pits

Planting pits are the simplest form of water harvesting. They have proved successful especially for growing sorghum and millet in areas with minimal rainfall.

Purpose

The purpose is to trap runoff, increase soil moisture status and reduce erosion.

Location

Planting pits have been proven successful in areas with annual rainfall of 200-750 mm. They are particularly useful for rehabilitating barren, crusted soils and clay slopes, where infiltration is limited and tillage is difficult. The slope should be gentle (below 2%) and soils should be fairly deep. Where soils are already shallow, they become even shallower when planting pits are dug. In those cases farmers should not plant in the pit, but in top of the ridge of excavated soils in order to maximize rooting depth.

Mulching

Mulching is done by covering the soil between crop rows or around trees or vegetables with cut grass, crop residues, straw or other plant material. This practice help to retain soil moisture by limiting evaporation prevents weed growth and enhances soil structure.

Purpose

Mulching is used in areas subject to drought and weed infestation. The mulch layer is rougher than the surface of the soil and thus inhibits runoff. The layer of plant material protects the soil from splash erosion and limits the formation of crust.

Location

Areas with limited rainfall usually respond very well to mulching. Mulching is not applicable in wet conditions. The fields should have good drainage

Cover Crops

Cover crops are usually creeping legumes which cover the ground surface between widely spaced perennial crops such as fruit trees and coffee, or between rows of grain crops such as maize. Often cover crops are combined with mulching.

Purpose

Cover crops are grown to protect the soil from erosion and to improve soil fertility. They protect the soil from splashing raindrops and too much of heat from the sun.

Location

Cover crops are suitable in dry areas, with annual rainfall of more than 500 mm. Cover crops are good alternative source of mulch, especially useful in semi-arid lands where crop residue are important animal feed.

Conservation Tillage

Conservation Tillage refers to the practice in which soil manipulation is reduced to a minimum. This practice preserves soil structure and, increases soil moisture availability and reduces runoff and erosion.

Purpose

To reduce labour and farm power requirements, costs, energy requirement and increase crop yield due to less direct impact of raindrops on bare soil and increased soil moisture status.

Location

Conservation tillage takes various forms, depending on the prevailing soil and farming conditions. When introducing conservation tillage, it is important to focus on the needs of the specific farming conditions. Each farmer's plot has specific soil characteristics and management needs.

Vegetative Barrier

Vegetative barriers inhibit surface runoff, slowing and ponding water and capturing and preventing sediment from flowing downhill. Vegetative barriers have potential to not only reduce erosion but can enhance vegetated filter strips in the uptake of nutrients.

Purpose

Vegetative barriers are narrow strips of vegetation which are created primarily to slow runoff, capture sediment and resist gully development. A vegetative barrier reduces water velocities and establishes a broad uniform vegetative surface for the uptake of nutrients.

Location

Vegetative barriers can be used to eroding sites on areas of cropland, pastureland, feedlots, mined land, gullies, and ditches. This practice should be used in conjunction with other conservation practices in a conservation management system.

Agroforestry Systems

- **Agri-silviculture system**
- **Silvipastoral system**
- **Agri-silvipastoral system**
- **Hori-silvicultural system**
- **Agri-Horticulture system**
- **Agrihortisilvicultural system**
- **Multipurpose Forestry production**
- **Apiculture with trees**
- **Aquasilviculture or Aquaforestry systems**
- **Agrisilviaquaculture systems**

Protocol for Field Survey and data collection
It is very important to establish a protocol for the field survey and data collection; each team member must understand their role, and adhere to the protocol. The following sections describe the protocol followed during the field survey, and provide some suggestions for conducting field surveys.

Equipment Setup

GPS:

- Take one, or preferably two, GPS units to the field;
- Make sure you know how to use the GPS – read the instructions;
- Set up the GPS with the WGS-1984 coordinate system, Decimal Degrees for your mapping work;
- Check the memory and download and archive any waypoints that remain in memory;
- Take spare batteries – do not buy low quality batteries! and
- Set up the GPS to store tracks – make sure you have enough memory to store the total number of track points from your survey. Adjust the time interval between track points based on the estimated time in the field, and the amount of memory, to ensure tracks do not get over-written.

Camera:

- Make sure your camera has sufficient memory to store several high quality photographs;
- Set the camera picture quality to its highest resolution;
- Take spare batteries
- Take a back-up camera and additional memory (if possible), in the event of technical problems.

Data collection form:

- Print sufficient data collection forms;
- Write with a pencil; and
- Carry copies of field maps.

Data Collection Form

The data collection form was developed using an Excel spreadsheet; see General instructions for a copy of the form. The form and Annexures has fields for collection of general information and waypoint information. The form fields are defined below and the protocol for completion of each form is described in Section.

General Information

The following information should be recorded at the start of each survey day and on each data collection sheet:

Page # - if multiple pages are needed, record the page sequence;

Date – the date of the survey;

GPS Model – the ID of the GPS used, which may be important if several GPS units are used;

Camera Model – the ID of the camera used, which may be important if a department or organization has several cameras used for surveys;

Notes Taken By – the name of the person recording the field notes;

Team Members – the names of all members of the survey team;

GPS Co-ordinate System – the projection, datum, and co-ordinate system used for the field data collection;

Waypoint Information

The following information should be recorded when waypoints are collected:

GPS Waypoint Name – the waypoint name or number for the GPS used (i.e. 001, 002, 003, etc.);

Photo Number – the number of the photo taken;

Photo Time – time the photo was taken in hours and minutes, synchronized with the GPS (i.e.

hh:mm);

Photo Bearing – photo bearing in degrees (i.e. 0 to 360°) in the direction of the object being described;

GPS Time – time in hours, minutes, seconds recorded from the GPS (i.e., hh:mm:ss);

Waypoint GPS Coordinates – (Latitude and Longitude in the decimal format eg. N 13.3453426^{o} and E 77.3746576^{o});

Description – additional description of the land cover, including the name of other classes recorded in the vicinity (e.g. plantation) or context information; and

Sketch Box – additional information on surrounding features can be schematically drawn.

GENERAL INSTRUCTIONS FOR FILLING FORMAT – II

Interventions in Agricultural landscapes are to be proposed to promote farmers for taking up Agro-forestry / farm forestry in their farms.

A. FORESTRY INTERVENTIONS		**AGRICULTURE LANDSCAPE**
B. MODEL NO.		***To be filled later on***
C. GEOGRAPHICAL DETAILS		
1.	State	Telangana
2.	District	
3.	Development Block (Mandal) Name	-
4.	Tehsil	-
5.	Panchayat	-
6.	Village	-
		Provide the name of the State/ District/ / Block (Tehsil)/ Mandal/ Panchayat/ Village whatever applicable.
D. TREATMENT SITE (DETAILS)		
1.	NAME OF SITE	Name of the Farmer: Survey Number: Gender: Caste: Bank Account Number: IFSC Code: Aadhar Number:
2.	AREA (IN HECTARE)	Provide the area of the site in Hectare (Village): Pattedar Pass Book Number:
E. BASELINE DATA		

		Trees and Number	Shrubs and Number	Herbs	Fauna
1.	Dominant Flora and Fauna of the area	Neem Modhuga Nalla Tumma Ippa chettu Tella Tumma Narlenga	Gacchakaya (Cesalpinia bandhuc) Bonthu poda Dulagondi	Indigofera Garika gaddi Nimma gaddi Tunga gaddi	Krshna Jinka (Deer) Nakka, Fox Todelu Wolf Adavi Pandi Wild bore, Mulla pandi Porcupine,

		Chinta chettu Australia tumma Nalla tumma Shikayi Bandaru Pedda manu Uduga Seethapalam Tirman Kadimi Vepa Kadapa chettu Japhra Buruga Tadi Moduga Girika tadi Sarugudu Tella buruga Kobbari Jitregi Sisam Baditha Marri Bommedi Gummadi teak Narepi Erra gogu Kunkuma chettu Mamidi Malabaru vepa Battaganam Togaru mogili Eetha Kanuga Nemalinara Pusuga Neredu Seemachinta Teak Tella maddi Avisa Shikakayi	Lantana Aridonda Boda kakara Vavili Donda Wakkaya Pulicheru Boda kakara Manga Balusu Takkali Adavi amudamu Danthi Hyptis suaveolens	Nela vemu Vasa Adavi kasa gaddi Jammu Erra pula gaddi Vatti veru Atti patti Cheepuru gaddi Konda cheepuru Jeeluga Jala brahmi Atika mamidi Saraswati Kaki cheruku Vempali Nallalam Parthenium Congress grass Oyyaribama Uttareni Ummetta	Trachu pamu Cobra Rakta pinjara Russels viper, Chedugu Pits viper, Konda chiluva Python, Katlapamu, Krait Eluka, Rat; Udumu Monitor lizard Veranus Jerripotu (rat snake) Konga (Crane), Kaki (Crows), Koila (Nightingale) Chiluka (Parrot) Palapitta (Indian roller bird) Batu (Spot billed Duck) Gadda (Hawk) Black winged kite (Falcon) Burka pitta (quail) Pavuram (Dove) Gudlaguba (Owl) Pona inki (Indian nightjar) Nemali (Pea cock) Rabandhu (Vulture)
		Provide the details of dominated Flora and Fauna of the area (e.g. Trees, Shrubs, Herbs, Grasses, birds, animals etc.) Trees:,			

2.	Current Land Use Pattern	1. Community/Social forest ☐ 2. Tree plantation crops☐3. Grassland☐4. Cultivated land ☐ 5. Barren/Waste land ☐ 6. Waterbody/Wetland☐ 7. Scrub forest☐ 8. Grazing land ☐9. Temple land☐ 10. Canal side/Road side ☐11. Other (Specify)_____ **Tick (✓) whether the land is agriculture land or under Tree plantation or Grassland or Barren/Wasteland or Other (Specify)**
3.	Cropping Pattern	**Tick (✓) whether Rainfed or Irrigated** Cropping pattern refers to the manner in which crops are cultivated in a farm land simultaneously and/or sequentially which mainly depends on availability of water and soil characteristics. Crops raised: Sugar cane, Cotton, Maize (Mokkajonna), Bajra, Sajjalu, Chilli, Rice, Kandulu, Pesulu, Minumulu, Jonnalu, Ragulu, Uluvalu, Senegalu, Nuvulu, Veru senaga, Bobbarlu, Arkelu, Korralu, Kuragayalu: Vankaya, Beera, Sora, Benda, Chikkudu, kakara, Soyabean, Tomato, Onion, Ginger, turmeric, Seed production,
4.	Land Ownership Status	Ownership is the state or fact of exclusive rights and control over property. **1. Revenue land ☐ 2. Patta land ☐ 3. Community land ☐** **Tick (✓) whether Private patta land or Leased land or Community land or Anyother land (Specify)**
5.	Geology	Provide Geology of the area 1. Basalt ☐ 2. Granite☐ 3. Gnesis ☐ 4. Sandstone☐ 5. Shales☐ 6. Lime stone ☐7. Any other rock type (Specify):_____ Tick (✓) whether Basalt or Granite or Gneiss or Sandstone or Shales or Limestone or Any other rocktype (Specify)
	Soil type	Soil can be categorized into sand, clay, silt, peat, chalk and loam types of soil based on the dominating size of the particles within a soil. **Alluvial soil(Loamy) ☐ Sandy soil ☐ Clayey soil ☐ Lateritic soil ☐** **Red soil ☐ Brown soil ☐ Black soil ☐ Saline/Alkaline soil ☐** **Tick (✓) whether Alluvial soil(Loamy) or Sandy soil or Clayey soil or Lateritic soil Red soil or Brown soil or Black soil or Saline/Alkaline soil or Any other soil type(Specify)**
6.	Terrain	This is usually expressed in terms of the elevation, slope, and orientation of geographic features. Terrain affects surface water flow and distribution. It also a determining factor for soil erosion. Hilly ☐ Plain ☐ **Tick (✓) whether Hilly area or Plain area**
	Slope	Slope tells how steepness of the land, or how much vertical distance (height) increases as horizontal distance (length) increases from a point. **0-10 Percentage ☐ 10-30 Percentage ☐ Above 30 Percentage ☐** **Not mandatory**

		Tick (✓) whether 0-10 Percentage or 10-30 Percentage or Above 30 Percentage		
	Aspect (In case of Hilly area)	**Tick (✓) appropriate. Aspect is facing of the slope direction.** **North fecing ☐ South fecing ☐** **Not mandatory**		
	Land type Source of Irrigation	**Tick (✓) whether Dry Land or Wet land** Dry land ☐ Wetland ☐ 1. Canal ☐ 2. Open well ☐ 3. Bore well ☐ 4. Drip ☐ 5. Other ☐ Specify:_____		
7.	Average Annual Rainfall (in mm)	**Provide average annual rainfall of the area (in mm)**		
8.	Special features of the site (e.g. Rocky/Undulating surface, Ravine/Gully, Near to monument etc.) (Only for Community lands)	**Provide the details of any special futures of the site (e.g. Rocky surface, Ravine/Gulley, Near to monument etc.)** 1. Rocky ☐ 2. Undulating surface ☐ 3. Ravine ☐ 4. Gully ☐ 5. Near to monument ☐ 6. Any other(Specify):_____		
9.	Accessibility	**Tick (✓) whether** Accessible ☐ **or** Inaccessible ☐		
	Distance from nearest Road (Approximate distance in km)	**Provide the distance in meters from nearest road** **0-1** ☐ 1-2 ☐ 2-3 ☐ 3-4 ☐ 4-5 ☐		
10.	Distance from Main River /Tributary with Name of the river (Approximate distance in km)	**Provide the distance in meters main river name or Tributary with name of the river** **0-1** ☐ 1-2 ☐ 2-3 ☐ 3-4 ☐ 4-5 ☐		
11.	Suggestive Cash Crops (Horticulture, Forest Trees and Medicinal plants) for Plantation	Trees	Shrubs	Herbs and Grasses
		Mangifera indica, Anacardium accidentalis, Nicotiana tobaccum, Hileanthus annua Arachis hypogea Annona squamosa Psidium guavaja Apple ber Dragon fruit	Woodfordia fruticosa, Decalepis hamiltonii, Ceasalpinia bondhuc, Grapes crop Ornamental & Floriculture crops etc.,	Withania somnifera, Rauvolfia serpentina, Gloriosa superba, Chrypsopogon ziziniodes Cymbopogon citrallus Andrographis paniculata Thysanolaena latifolia Acorus calomus
		Tectona grandis, Gmelina arborea, Azadirachta indica, Acacia nilotica, Eucalyptus citrodora, Sandalwood, Dalbergia latifolia, Prosopis cineraria, Pongamia pinnata, Adina cordifolia, Phyllanthus emblica, Butea monosperma, Mytrgina purviflora, Ailanthus excelsa		
		Provide the details of cash crops (Horticulture, Forest trees and Medicinal plants) for plantation e.g. Trees, Shrubs, Herbs, Grasses etc.		

12.	Suggested spacing and Pit size	**Provide the details for spacing and pit size for plantation** **Tree pit size** 30X30X30cm ☐ 45X45X45 cm ☐ 60X60X60 cm ☐ **Spacing:** **Herbs:** Scooping ☐ Sowing ☐ **Shrubs:** below 30X30X30 ☐ Any other (Specify):_____
13.	Details of Fencing works, if required before plantation	**Provide the details for fencing works if required before plantation e.g.** **Type of fencing:** Bio-fencing (Species: *Laswenia inermis, Jatropha curcus, Macuna prurencis, Caesealpinia bunduc, Agave americana, Carissa carandas, Prosopis juliflora, Abrus precatorius, Ampelocissus latifolia, Aspidopterys cordata, Butea superb, Capparis zeylanica, Cissampelos pareira, Cocculus hirsutus, Derris scandens Dioseorea pentaphylla, Gymnema sylevstre, Jasminum auriculatum, Olax scandens Ziziphus oenoplea* etc.,) **Length of fencing :_____(200 mtr, 400 mtr, 600 mtr)** **Cost for fencing:_____**
14.	Details of SMC works, if required before plantation	**Provide the details of SMC works, if required before plantation e,g.** 1.Contour trenching ☐ 2. Staggered trenching ☐ 3. Gully plugging ☐ 4. Bunding ☐ 5. Checkdam ☐ 6. Percolation tank ☐ **7.** Farm pond ☐ **8.** Any other SMC measure (Specify)_____ Number of new SMC structures proposed:_____ Number of existing SMC structures need repair/upgrade :_____ Volume of work:_____Cu.m Unit cost:_____
15.	Extent of intervention (Plantation) (In hectare) Ex: Silvi – Horti - Agri Models Block plantation, Bund planting(farm forestry) Silvi-pasture, Community Plantations Institutional Plantations Tank Bund Plantations Tank Fore shore area plantations Eetha Plantations in Society Lands Canal bund Plantations Haritha Vanalu in Forest	

S.No.	Type of Intervention	Year 1	Year 2	Year 3	Year 4	Year 5
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

	Areas Road side /Avenue Plantations Homestead plantation	**15**						
		16						
		17						

16.	Planting cost including nursery cost (Approximate in Lakh Rs.)	**S.No.**	**Type of Intervention**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
		1						
		2						
		3						
		4						
		5						
		6						
		7						
		8						
		9						
		10						
		11						
		12						
		13						
		14						
		15						
		16						
		17						
		Cost pertaining to Item 15.						

17.	Maintenance cost of plantation with years (Approximate in Lakh Rs.)	**S.No.**	**Type of Intervention**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
		1						
		2						
		3						
		4						
		5						
		6						
		7						
		8						
		9						
		10						
		11						
		12						
		13						
		14						
		15						
		16						
		17						
		Cost pertaining to Item 16						

	Budget proposed for supporting activities (Approximate in Lakh Rs.) **(Provide consolidated budget for the entire Division)**	Year 01	Year 02	Year 03	Year 04	Year 05

18.	1.Capacity building					
	2.Awareness raising					
	3.Adaptive R & D					
	4.Monitoring and evaluation					
	5.Miscelaneous activity					
	TOTAL					
19.	Remarks, if any (e.g. FSR, approved CDL rate for district) etc.					
20.	GPS coordinates of the site **(Record in decimal degrees: record up to 6 decimal places -*e.g.* Latitude:17.555202° Longitude:78.443713°)**	**For agriculture land holdings please provide GPS coordinates of one site where interventions are proposed** Provide Latitude and Longitude of the site (Record in decimal degrees: record up to 6 decimal places - *e.g.* Latitude:17.555202° Longitude:78.443713°) Fill the details in separate sheet with columns --- Item No. (eg 13.1, 14.6 etc.), Type of intervention (mention like CD, Firelines etc.), and for each corner Longitude, Latitude Separate sheet provided				
F. ROUGH SKETCH OF TREATMENT SITE / MAP (AS AN ATTACHMENT)		Provide rough sketch of treatment site or map (show in map)				
G. CURRENT PHOTOGRAPH (Share photo in the Co-ordinator's WhatsApp group)		Provide the current photograph of the treatment site and share photo in the Co-Ordinator's WhatsApp group				

List of common Species available in Agricultural fields

Trees		
Sl.No	**Name of the Species**	**Local name**
1	*Acacia auriculaeformis*	Australia tumma
2	*Acacia nilotica*	Nalla tumma
3	*Acacia sinuta*	Shikayi
4	*Adina cordifolia*	Bandaru
5	*Ailanthus excelsa*	Pedda manu
6	*Alangium salvifolium*	Uduga
7	*Annona squamosa*	Seethapalam
8	*Anogeissus latifolia*	Tirman
9	*Anthocephalus cadamba*	Kadimi
10	Azadirachta indica	Vepa
11	*Barringtonia acutangula*	Kadapa chettu
12	*Bixa orellana*	Japhra
13	*Bombax cieba*	Buruga
14	*Borassus flabellifer*	Tadi
15	*Butea monosperma*	Moduga
16	*Caryota urens*	Girika tadi
17	Casuarina equisetifolia	Sarugudu
18	*Cieba pentandra*	Tella buruga
19	*Cocus nucifera*	Kobbari
20	*Dalbergia latifolia*	Jitregi
21	*Dalbergia sisso*	Sisam
22	*Erythrina suberosa*	Baditha
23	*Ficus benghalensis*	Marri
24	*Ficus hispida*	Bommedi
25	*Gmelina arborea*	Gummadi teak
26	Hardwickia binata	Narepi
27	*Hibiscus tiliaceus*	Erra gogu
28	*Mallotus philippensis*	Kunkuma chettu
29	*Mangifera indica*	Mamidi
30	Melia dubia	Malabaru vepa
31	*Mitragyna purviflora*	Battaganam
32	*Morinda citrifolia*	Togaru mogili
33	*Pheonix sylvestris*	Eetha
34	Pongamia pinnata	Kanuga
35	Prosopis cineraria	Jammi
36	*Schlechera oleosa*	Pusuga
37	*Syzygium cumini*	Neredu
38	*Tamarindus indica*	Chintha
39	Tectona grandis	Teak
40	*Terminalia arjuna*	Tella maddi
41	*Sesbania grandiflora*	Avisa
Shrubs		

Sl.No	Name of the Species	Local name
1	*Getonia floribunda*	Bonthu poda
2	*Mucuna pruriens*	Dulagondi
3	*Ceasalpina bondhuc*	Gachakaya
4	*Capparis zylanica*	Aridonda
5	*Momordica dioica*	Boda kakara
6	*Vitex nigundo*	Vavili
7	*Coccinia grandis*	Donda
Herbs & Grasses		
Sl.No	**Name of the Species**	**Local name**
1	*Cyondon dactylon*	Garika gaddi
2	*Cymbopogon citrates*	Nimma gaddi
3	*Cyperus rotundus*	Tunga gaddi
4	*Andrographis paniculata*	Nela vemu
5	*Acorus calamus*	Vasa
6	*Arundo donax*	Adavi kasa gaddi
7	*Typha latifolia*	Jammu
8	*Themeda triandra*	Erra pula gaddi
9	*Chrysopogon zizanioides*	Vatti veru
10	*Mimosa pudica*	Atti patti
11	*Aristida setacea*	Cheepuru gaddi
12	*Thysanolaena latifolia*	Konda cheepuru
13	*Aeschynomene aspera*	Jeeluga
14	*Bacopa monnieri*	Jala brahmi
15	*Boerhavia difusa*	Atika mamidi
16	*Centella asiatica*	Saraswati
17	*Saccharum spontaneum*	Kaki cheruku