A

SOURCE BOOK

FOR

NET PLANNING IN NABARD WATERSHED

May 2008

FOUNDATION FOR ECOLOGICAL SECURITY

FES

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INDEX

1. “Net Planning” in NABARD project

1.1. Introduction: The ultimate aim of the guidelines is provide guidance to those persons, who are involved in the process of planning, surveys and the compilation of data for net planning in NABARD watershed. “Net planning” is a term, used mainly with reference to the NABARD watersheds and is described as a process of technical planning for soil and water conservation measures. Under the guidelines for “net planning”, the procedures for watershed planning including the data collection, technical surveys, and the formats for the compilation of data are described in a systematic way. Most of the spearhead teams of FES are involved in the planning of watershed projects. The guidelines would facilitate the spearhead teams in the preparation of project proposals for the Capacity Building Phase in the NABARD funded watershed projects.

The Guidelines have following aspects related to watershed planning:

- It is a very useful document for the training and orientation related to the net planning in NABARD funded watersheds. It is also useful for the team members in understanding the concept of net planning.
- It is also very useful for the team members in understanding the parameters of field data collection like soil depth, erosion pattern, soil texture, slope of the land etc. for the identification of land capability classes under each survey number. The nature and extent of proposed watershed interventions on a particular area of governed by land capability class.
- NABARD guidelines for watershed projects mention different various formats for the data compilation of a watershed. All of these formats are simplified under these “guidelines” so that any field staff can easily record the collected field data in the prescribed formats.
- A detail procedure on how to prepare a treatment map is described systematically in the guidelines. The treatment map is a very important part of the “net planning”; it is a map that guides in the implementation of a watershed projects. Treatment Maps are also very useful for the field staff and village supervisors, to help them easily understand the

proposed treatments of each survey number with respect to their dimension, location and orientation with respect to the North direction.

- A brief review of the soil and water conservation measures focused mainly on the type of probable ridge area structures and drainage line structures and the criteria for site selection. The design based on the cross sections of structures is also included in the guidelines.
- A brief estimate of manpower requirement for the different stages of Capacity Building Phase has also been included in the guidelines, so that the team can design a strategy for the NABARD watershed project. The different stages involve in the CBP are: training for the net planning, fieldwork for net planning, compilation of data, and report writing etc.

1.2. Net Planning Format

Name of Group:---------- Date of survey:----------

i) Survey No.: **From land record** ii) Name of micro-watershed:----

iii) Name of farmer:---------- iv) Name of village:----------

v) Soil depth: **Table (A)** vi) Slope: **Table (B)**

vii) Erodability: **Table (C)** viii)Texture: **Table (D)**

ix) Land capability class: **Table (F)**

x) Present land use: **Table (E)** xi) Proposed land use:**Table (E)**

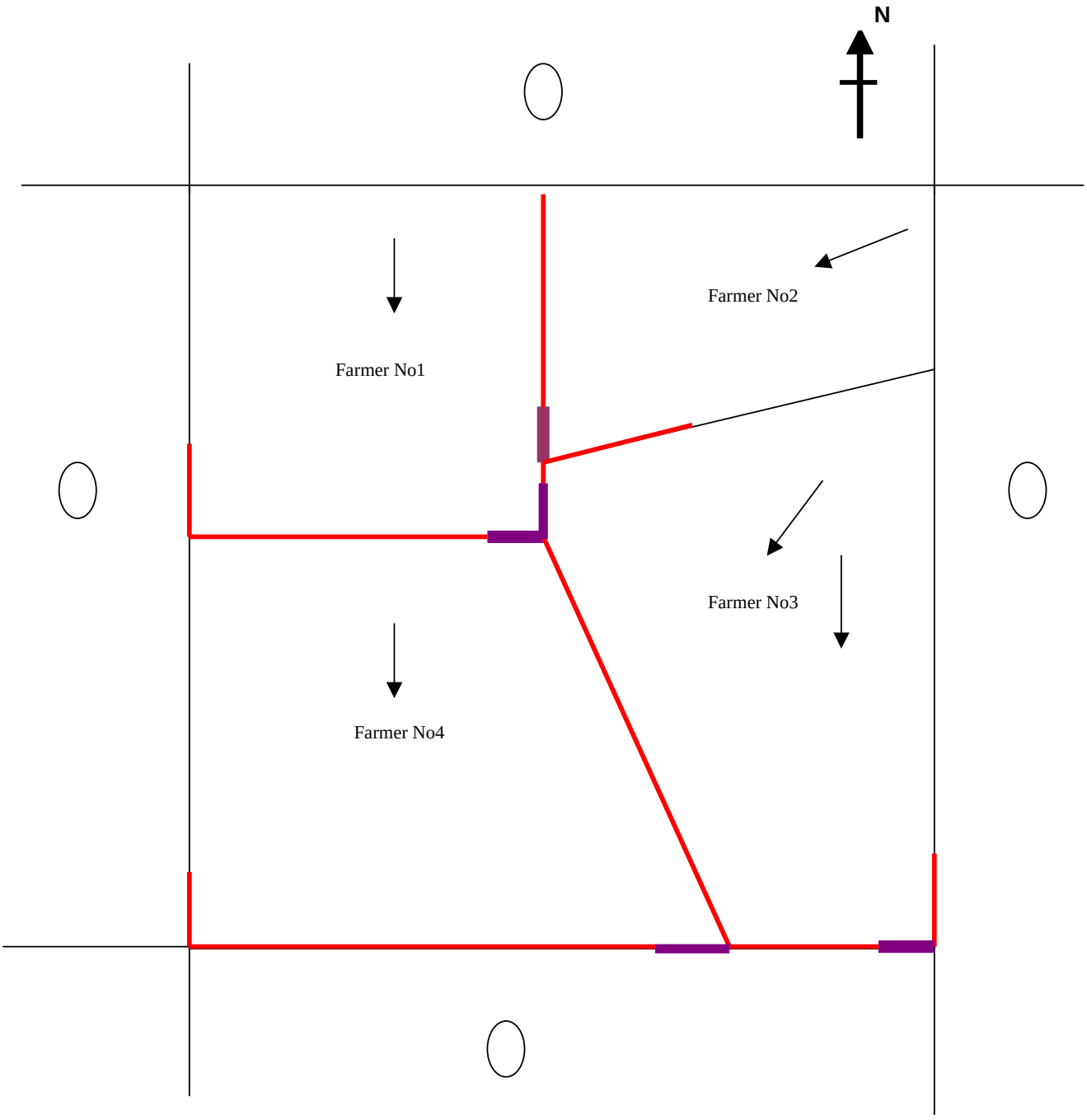
Detail of Area treatment & Gully treatment:

Sr No	**Activity**	**Existing**		**Proposed**		**Status N/E/R**
		Cross Section	**Length**	**X- Section**	**Length**	
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**

Remark: New activity (N), Existing (E), Repair (R)

Signature of Farmer ---------- Signature of team member----------

1.3. Treatment map of Survey No



Name of farmer ---------- **Signature of farmer----------**

Annexures

Annexure I: Tables for land capability survey

Table (A) Soil depth classes:

Symbol	Name	Depth range (cm)
d1	Very shallow	0 – 7.5
d2	Shallow	7.5 – 22.5
d3	Moderately deep	22.5 – 45
d4	Deep	45 – 90
d5	Very deep	> 90

Table (B) Slope classes:

Symbol	Slope Class	Slope %	Reading of Abney Level
A	Nearly level	0 –1	0 – 35’
B	Gently sloping	1 – 3	35’ - $1^0$44’
C	Moderate sloping	3 – 5	$1^0$44’ – $2^0$52’
D	Strongly sloping	5 – 10	$2^0$52’ – $5^0$43’
E	Moderate steep	10 – 15	$5^0$43’ – $8^0$32’
F	Steep	15 – 25	$8^0$32’ – $14^0$03’
G	Very steep	25 – 33	$14^0$03’ – $18^0$16’
H	Very very steep	> 33	$18^0$16’ – $26^0$34’

Table(C) Soil erosion phases:

Symbol	Erosion phase	Characteristics
E1	Not apparent or slight (sheet)	0 –25% top soil or original plough layer within a horizon removed
E2	Moderate (sheet and rill)	25- 75% top soil removed
E3	Severe (Sheet rill and small gully)	75 –100% top soil and up to 25% sub soil removed
E4	Very severe (shallow gullies)	Gullied land
E5	Very very severe (Shallow gullies)	Very severely gullied land or sand dunes

Table (D) Soil Texture:

Type	Particle size	Remark
Sand	0.05 – 2 mm	Particle visible
Silt	0.002 – 0.05 mm	Particles hardly visible
Clay	< 0.002 mm	Particles not visible
Clayey soils	> 50% clay particles	
Silty soils	> 50% silt particles	
Sandy soils	> 50% sand particles	

Details of soil Texture:

Soil type	Code	% Sand	% Silt	% Clay
Sand	S	80-100	0-20	0-20
Sandy Loam	SL	50-80	0-50	0-20
Loam	L	30-50	30-50	0-20
Silty Loam	SiL	0-50	50-100	0-20
Sandy Clay Loam	SCL	50-80	0-30	20-30
Clay Loam	CL	20-50	20-50	20-30
Silty Clay Loam	SiCL	0-30	50-80	20-30
Sandy Clay	SC	50-70	0-20	30-50
Clay	C	0-50	0-50	30-100
Silty Clay	SiC	0-20	50-70	30-50

Table (E) Land Use pattern:

Symbol	Description
CC	Crop cultivation
GT	Grass land with trees
HP	Horti-pasture
AF	Agro forestry (afforestation)
C1R	Single crop rainfed
C2R	Double crop rainfed
C1I	Single crop irrigated
C2I	Double crop irrigated
W1	Wasteland (cultivable)
W2	Wasteland (uncultivable)

Table (F) Land capability rating table:

Sr. No.	Description	Class I	Class II	Class III	Class IV	Class V	Class VI	Class VII	Class VIII
1	Degree of limitation for use	Few	Moderate	Severe	Very severe	Few	Moderate	Severe	Very severe
2	Soil depth	Very deep	Deep	Moderate	Shallow	Very deep	Very shallow	Very shallow	Rock very
3	Slope	<1	1-3	3-5	5-15	<1	15-25	>25	Precipitous
4	Effect of erosion	e1	e1	e2	e3	e1	e4	e5	Precipitous

Annexure II: Guideline for the net planning survey:

Area treatment: Details of structures

1. Continuous Contour Trench (CCT)
2. Contour Bund (CB)
3. Farm Bund (FB)
4. Stone Outlet (SO)
5. Earthen Gully Plug (EGP)
6. Boulder Gully Plug (BGP)
7. Plantation (P)

Drainage line treatment: Details of structures

1. Gabion (G)
2. Earthen Water Harvesting Structure (EWHS)
3. Cement Masonry Check Dam (CMCD)

A. Site selection and planning criteria

A.1. Area Treatment:

A.1.1. Continuous Contour Trench (CCT)

1. It is a treatment for the non-agricultural land.
2. It is a suitable intervention on land with its slope range between10 to 30%.
3. The size of the contour trench depends on the depth of the soil and the rainfall pattern of the area.
4. Avoid the CCT, if the depth of soil is less than 20 cm.
5. Thumb rule for the vertical interval between two rows of contour trench:
   V.I.= Slope (%)/C, where value of C = 12 for the medium rainfall.
   In this case, Horizontal Interval between two rows will be 8 to 10 meter.
6. Determine the length of the slope and mark the line of slope on the ground. Measure the length of each contour line and mention it in the format and drawing also.
7. Do not plan the continuous contour trench in the area having black cotton soil.
8. Trench should be designed on the basis of rainfall, slope, soil type, land use and the critical velocity of the runoff.

A.1.2. Farm bund and Contour bund (FB/CB)

1. Farm bund is recommended for the slope between 1 to 3 %.
2. Contour bund is recommended for the slope between 4 to 10 %.
3. The size of the farm bund and contour bund depends on the depth of soil.
4. Formula for the vertical interval between two rows:

   VI = 0.305 X {(S/3) + 2}, Where S is slope in percentage

Slope (%)	V.I. (m)	H.I.(m)
1	0.71	70
2	0.81	40
3	0.91	30
4	1.01	25
5	1.11	22
6	1.22	20
7	1.32	19
8	1.42	18
9	1.52	17
10	1.62	16

5. The spacing between rows of contour/farm bund should be finalized only in consultation with the farmer.
6. Make a group of farmers according to the slope of their, and do the net planning with the respective groups.
7. Farm bunds should always be aligned perpendicular to the slope.
8. Farm bunds should not be proposed, where it is used only for the land demarcation, generally these bunds are always parallel to the slope or on ridgeline.
9. Do the net planning with the group of farmers for farm bund and channelize the excess water into the nearby natural drain.
10. An extra attention is needed while planning for farm/contour bunds in the black cotton soil area. In such area a plan is initially required to drain out the excess rainwater safely into the nearby natural drain.
11. Always involve the farmer groups, while adjudging the position and number of outlets requirement for farm bunding.

A.1.3. Earthen Gully Plug (EGP)

1. A site of EGP should be proposed on the basis of availability of good construction material at nearby site, and farmer should agree for this intervention.
2. A site of EGP should be finalized after ensuring the land availability for providing an exit.
3. The total number of EGP in a drain depends on the slope of the drain bed, height of the EGP, cross section of the drain, and the availability of the construction material.
4. The spacing between the two EGP depends mainly on the slope of the drain bed and the height of the EGP.
5. Ideal catchment area, for the site selection of an EGP, should be up to 10 hectares (first order drain).
6. The cross section of the EGP depends on the cross section of the drain. Measure the length of the proposed EGP after finalising the cross section.
7. Draw a treatment map of the survey number showing the details like location, the spacing, and the size (L x B) of EGP.

A.1.4. Boulder Gully Plug (BGP)

1. Construction material should be available at the site in required size and amount; boulders should have more than 100 mm diameter.
2. The catchment area of the drain should be up to 20 hectares.
3. Farmers should agree for this intervention.
4. The total number of BGP in a drain depends on the slope of the drain bed, height of the BGP, cross section of the drain, and the availability of the construction material.
5. The spacing between the two BGP depends mainly on the slope of the drain bed and the height of the BGP.
6. The cross section of the BGP depends on the cross section of the drain. Measure the length of the proposed BGP after finalising the cross section.
7. Draw a treatment map of the survey number showing details like the location, the spacing, and the size (L x B).

A.2. Drainage line Treatment:

There are some general considerations, which should be borne in mind while selecting the site for locating structures on the drainage line:

1. The width of the drainage line at the point of treatment should be narrow
2. The width of the drainage line upstream of the point should be comparatively greater than that of the downstream part.
3. The embankments at that point should be well defined, stable and high.
4. The upstream bed slope of the drainage line should be low
5. The upstream bed of the drainage line should be made up of impervious material if the principal aim is to harvest water for irrigation. On the other hand, if the main aim is to increase the rate of groundwater recharge, this material should be relatively pervious.
6. In structures where waste weirs have to be constructed, ideally the sub-strata of the naala banks should be hard enough so that the banks of the weir do not easily get eroded.
7. In all such structures where overtopping is allowed, it is to be ensured that the height of the structure *plus* the depth of peak flow in the stream is always less than the height of the embankments.
8. Always locate a structure at such a place, where the materials with which it is made are available in requisite size and quantity.

A.2.1Gabian

1. Always mark the location of a gabian for getting the details of catchment area by using GPS.
2. Construction material should be available at the site in required size and amount; and the boulders should have a minimum diameter of 100 mm.
3. The catchment area of the drain should range between 20 to 100 hectares.
4. Drain should be narrow at the location of gabian but wider in the upstream side.
5. It should not submerge any important land.

6. Locate the Gabian in the upstream side of any water harvesting structure.
7. Mark the location of a Gabian on the embankments by marking any permanent point.
8. Conduct technical surveys for the measurement of height and the length of the structure.
9. Collect all the details regarding benefits of the structure.

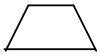
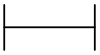
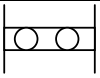
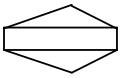
A.2.2. Earthen Water Harvesting Structure (EWHS)

1. Always mark the location of an EWHS for getting the details of catchment area by using GPS.
2. Construction material should be available at the site in required size and amount;
3. Collect all the information about the availability of water, clay, stones and the transportation distances for the purpose of cost estimation of the earthen water harvesting structure.
4. If the drain is very small than collect the details of catchment area from the nearby farmers.
5. Collect all the details regarding the probable benefits of the structure.
6. Land required for providing the waste weir should be available at site.
7. The site should be close to farmlands and wells.
8. It should not submerge any kind of important land.
9. Following technical surveys should be conducted under the guidance of a technical person:
    - The cross section survey of the drain
    - The longitudinal section survey of the drain
    - The survey for the marking of submergence area.
    - Survey for the cost estimation: Details of soil type, lead lift, and transportation distance for all kinds of construction material.
    - Marking of the position of the top bund level (TBL) on both the banks.

A.2.3. Cement Masonry Check Dam. (CMCD)

1. Always mark the location of a EWHS for getting the details of catchment area by using GPS.
2. It is an intervention suitable for the nala having a catchment area of more than 100 hectares, and in areas where an earthen structure is not feasible.
3. Design the structure with a gated type main wall only, if the community agrees for maintaining such a gated type structure.
4. It is good if the nala has a base flow up to January end, so that the structure may be used to provide irrigation for Rabi crops.
5. Collect all the details regarding the availability of: sand, aggregates, cement, water etc. and also the cost of transportation.
6. The embankment of the nala should be firm and the foundation strata should be hard and suitable for the masonry structure.
7. Collect all the information related to the expected benefits and the cost benefit ratio of the structure.
8. Following technical surveys should be conducted under the guidance of a technical person:
    - The cross section survey of the drain
    - The longitudinal section survey of the drain
    - The survey for the marking of submergence area.
    - Survey for the cost estimation: Details of soil type, lead lift, and transportation distance for all kinds of construction material.
    - Mark the position of the top bund level (TBL) on both the banks.

B. Code/Color/Symbol to be used for the SWC interventions

Sr. No.	Activity	Code	Color	Symbol	Remark
1	Continuous Contour Trench	CCT	Pink		Area Treatment
2	Contour Bund	CB	Blue		Area Treatment
3	Farm Bund	FB	Red		Area Treatment
4	Boulder Gully Plug	BGP	Black		Area Treatment
5	Earthen gully Plug	EGP	Violet		Area Treatment
6	Plantation	P	Green		Area Treatment
7	Stone Outlet	SO	Yellow		Area Treatment
8	Gabion	G	Black		Drainage Treatment
9	Earthen Water Harvesting Structure	EWHS	Blue		Drainage Treatment
10	Cement Masonry Check Dam	CMCD	Red		Drainage Treatment
11	Existing Structure	(ES)	Pencil (with code)		All Treatment
12	Repair Structure	(RS)	Same color dotted		All Treatment

C. Procedure of planning for soil and water conservation interventions:

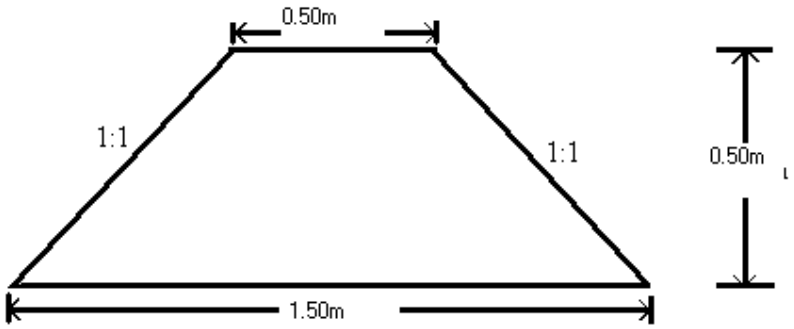
1. Understand all the guideline carefully before field visit; if there is some confusion in it please clarifies it with the help of a resource person beforehand.
2. Keep all the guideline and formats before leaving for field.
3. Plan the day's work in sessions and inform the concerned village volunteers and farmers in advance.
4. All the interventions that are technically feasible for the fields, should be discussed with the farmers. If the farmers agree for it then these interventions should be proposed.
5. If the farmers are not satisfied with the locations or the spacing of the structure/bund then discussions with farmers should be done, to plan out an available and technically feasible middle path. If the farmer suggests the location of bund/structure, which is technically not feasible, then that field should not be incorporated in the plan.
6. Measure all the dimensions of the interventions in the field and share it to concerned farmers and village volunteers.
7. Mark the location of all-important structures by GPS. Please keep all the details in hard copy with date and waypoint number.
8. Fill up all the formats, mentioned earlier, in the field. Do not keep any information blank in the formats.
9. Draw treatment maps of all survey number in the field with suggested code/color/symbol.
10. Do not keep any pending work in the formats, it should be finished at the end of day's work.
11. Compile all the documents related to net planning regularly in computer.
12. Share all the experiences of the day's work to other team members in the evening meetings.
13. If you propose an intervention, which is not according to the guideline, please share it with the resource person.

Annexure III: Details of cross section

A. Cross section of Stone Outlet

A.1. Type a

Top width: 0.50m	**Bottom width: 1.5m**	**Height: 0.50m**
U/S slope: 1:1	**D/S slope: 1:1**	**Cross sectionarea:0. 50sqm**



3. Cross Section Area: 0.50sqm

B. Cross Section of CCT

B.1. Type a

Top width: 0.60m	**Bottom width: 0.6m**	**Depth: 0.30m**
Cross section area: 0.18sqm		

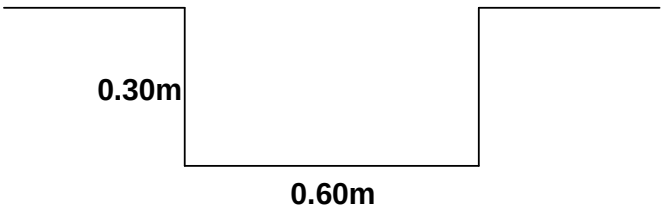


fig. 1 Continuous Contour Trench

B.2. Type b Cross Section of CCT

Top width: 0.45m	Bottom width: 0.45m	Depth: 0.45m
Cross section area: 0.20sqm		

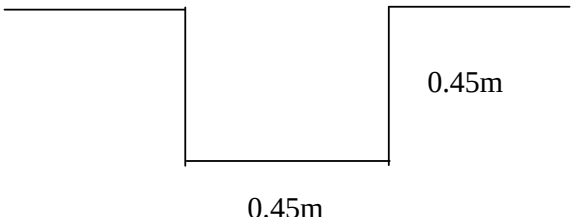


fig. 1 Continuous Contour Trench

C. Cross Section of Boulder Gully Plug
C.1. Type a

Sr. No.	Height, m	Top width, m	Bottom Width, m	Cross section area, sqm	U/S slope	D/S slope
1	0.45	0.45	1.8	0.5	1:1	1:2

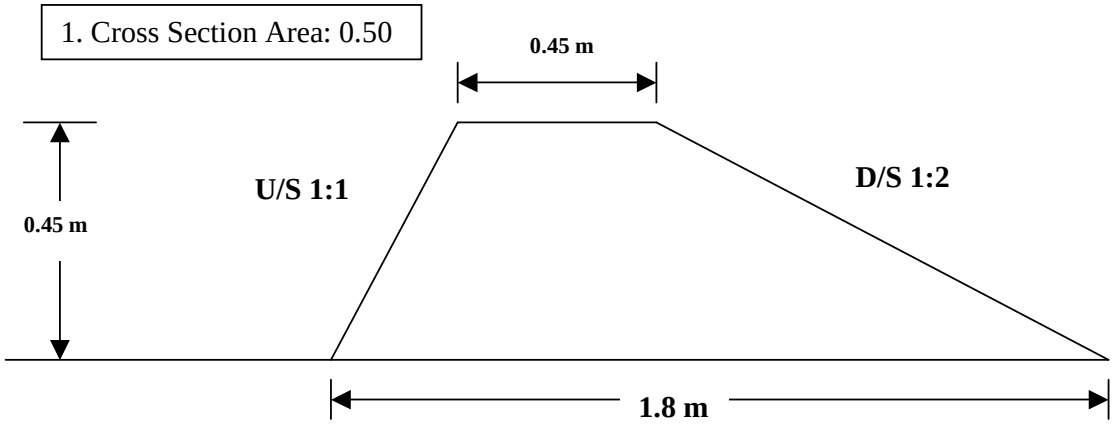


Fig.1. Boulder Gully Plug

C.2. Type b

Sr. No.	Height, m	Top width, m	Bottom Width, m	Cross section area, sqm	U/S slope	D/S slope
2	0.6	0.45	2.25	0.81	1:1	1:2

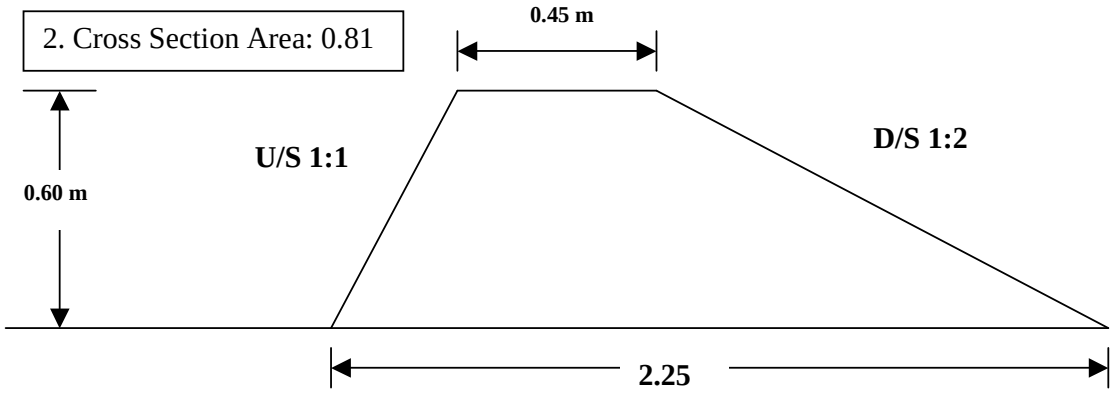


Fig.2. Boulder Gully Plug

C.3. Type c

Sr. No.	Height, m	Top width, m	Bottom Width, m	Cross section area, sqm	U/S slope	D/S slope
3	0.75	0.45	2.7	1.18	1:1	1:2

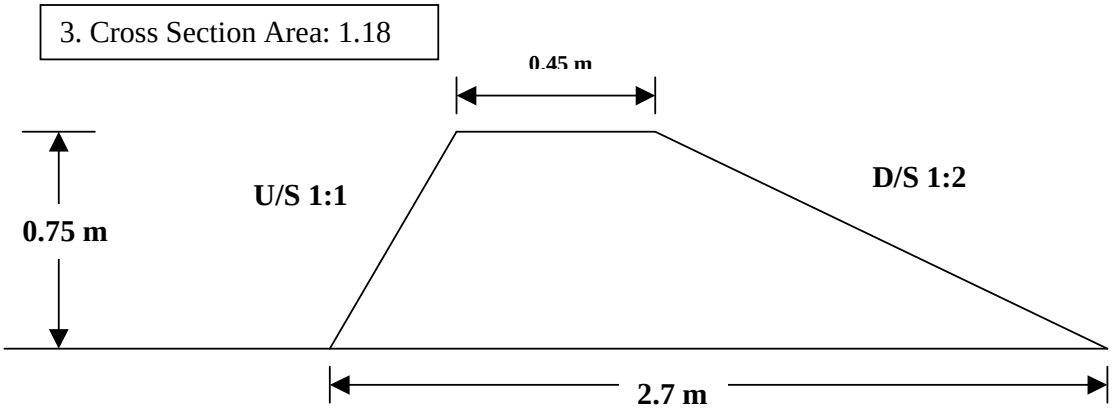


Fig. 3. Boulder Gully Plug

C.4. Typed

Sr. No.	Height, m	Top width, m	Bottom Width, m	Cross section area, sqm	U/S slope	D/S slope
4	0.9	0.45	3.15	1.62	1:1	1:2

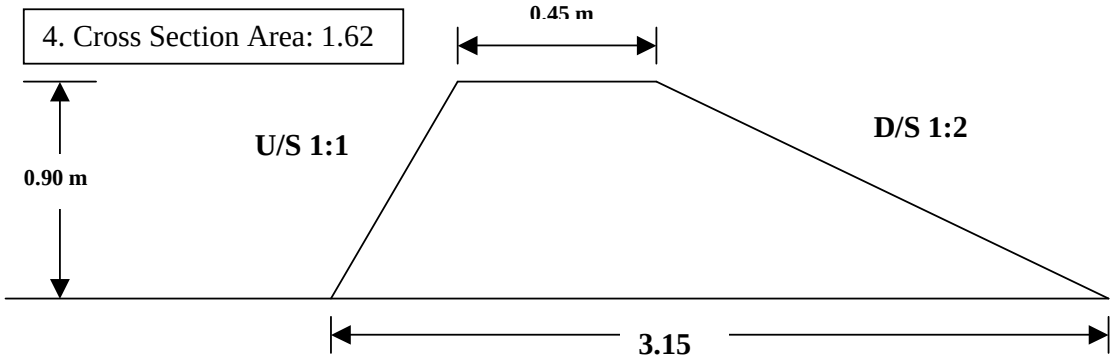
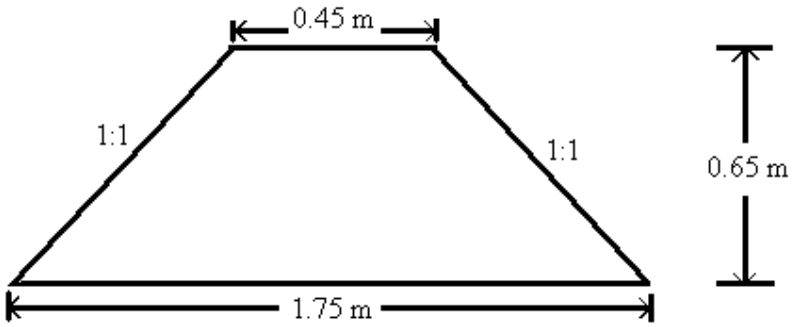


Fig.4. Boulder Gully Plug

D. Cross Section of Farm bund/Contour bund
D.1.Type a

Sr. No.	Height, m	Top width, m	Bottom Width, m	Cross section area, sqm	U/S slope	D/S slope
1	0.65	0.45	1.75	0.72	1:1	1:1



3. Cross Section Area: 0.72 sqm

E. Cross Section of Earthen Gully Plug

E.1. Type a

Sr. No.	Height, m	Top width, m	Bottom Width, m	Cross section area, sqm	U/S slope	D/S slope
1	2	1	9	10	1:2	1:2

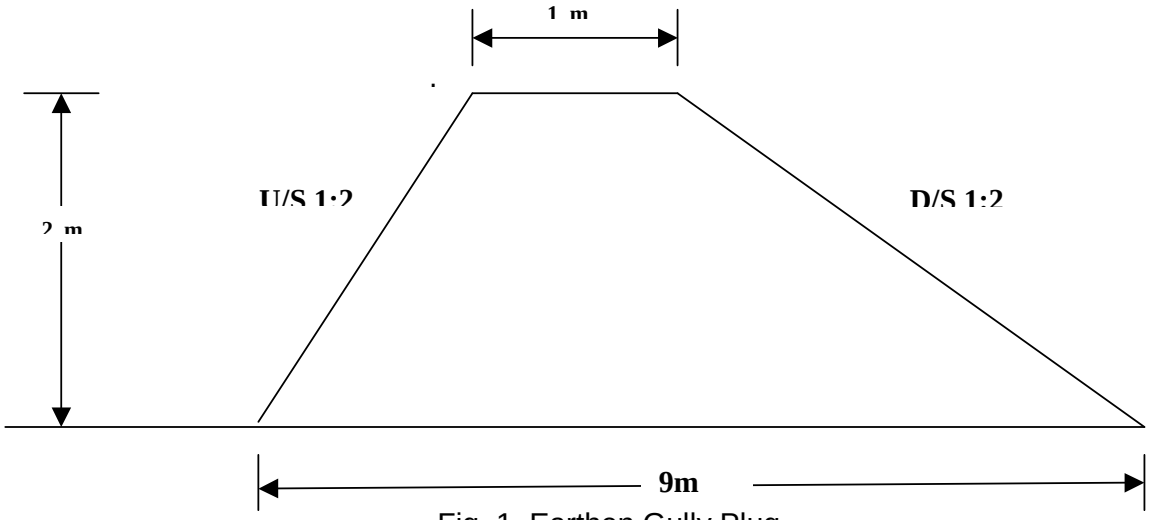


Fig. 1. Earthen Gully Plug

Annexure IV: Manpower requirement for the net planning

Stage I: Preparation for net planning and orientation of team members for the net planning.

One Project Officer and two Field Associates may be required for 10 days for the preparation of documents, required for the orientation of net planning. One technical person will be needed for conducting a 5 days orientation. It is a preliminary stage and does not have any direct relation to the total area of watershed.

Stage II: Net planning for the CBP in the field.

It is a very important stage of the net planning process. A team of one project officer, two field associates and two village volunteers can complete the net planning of 10 hectares in one day. It is a group work, and the role of a project officer is to guide his team members and keep a vigil on the net planning, so that it is as per NABARD guideline (for the preparation of CBP). Field visits of one technical person are needed in the initial 2-3 days of net planning.

- A team of 1 project officer, 2 field associates and two village volunteers can complete the net planning of 100 hectares in 10 days at the rate of 10 hectares per day.
- A team of 1 project officer, 4 field associate and 4 village volunteer can complete the net planning of 100 hectares in 5 days at the rate of 20 hectares per day.
- For one micro watershed, one project officer can lead to 2 - 3 teams for the net planning survey.

Stage III: Compilation of net planning survey and cost estimation of watershed interventions for the CBP.

- All the survey formats has to be compiled in the excel sheets as suggested by NABARD.
- One project officer and one field associates can compile the data of 20 - 30 hectares net planning in a day.
- A technical person would be required in the initial 2 - 3 days for helping the team in the compilation of net planning and cost estimation of watershed interventions.

Annexure V: Checklist Of Documents Required In Each Stage

AT PRE-PROPOSAL STAGE

Step 1. NGO submits Watershed Data Sheet & NGO Data Sheet as per the formats of NABARD.

- Prescribed format by NABARD for Watershed datasheet and NGO datasheet
- Acquire NOC From DRDA
- Acquire Gram Panchayat at resolution

Step 2. MOU with state NABARD Regional office

- Sign MOU for cost sharing and details of work to be done with NABARD Regional office

Step 3. NABARD asks formally to initiate the shramdaan requirements of four days of mandatory shramdaan from at least 70% of the eligible households of the watershed area.

Step 4. NABARD officials monitor the physical progress.

- Show them the work site, measurement of work done, attendance of shramdaan and photographs.

Step 5. NABARD asks to arrange for Pre CBP exposure of Farmers for which it gives funds.

- Receive the approval in letter rather than word of mouth.

AT CAPACITY BUILDING PHASE (CBP) STAGE

Step 1. NABARD asks for detailed net planning & proposal for CBP.

- Arrange Toposheet, cadastral map, watershed map, Revenue records (Survey no. wise plot detail from block office)
- Ridgeline identification on the cadastral map to mark the plots to be surveyed.
- Fill up the form provided by NABARD for Net planning during survey of plots, signature on farmers consent letter, and baseline data for the sample family.
- Compilation of the data as per given format by NABARD.

- Performa by NABARD for village details, Activities technical design, resolution of VWC, Basic Schedule Rate, Individual farmer undertaking form.
- To maintain Impact sheet in a register for each survey plot.

Step 2. Formation of VWC

- Try to form VWC before Net planning so to make the exercise of net planning more participative and easy. NABARD asks for VWC formation in between net planning stage.

Step 3. NGO to prepare CBP as per the guidelines for CBP & send it to NABARD along with audited financial statement for the past financial year & annual report.

- Receive the approval in letter rather than word of mouth. Send back the signed copy of letter of offer

Step 4. In the mean time NABARD arranges for Training of the NGO for Proposal Preparation & documentation, Reporting under NABARD WS.

Step 5. NABARD releases the first installment (a total of four installments is under CBP) after receiving the letter of offer.

Step 6. After each replenishment request the NABARD officials visit for monitoring

Step 7. After completion of at least 60% expenditure under total CBP NGO can ask for funds required to conduct Feasibility study for preparation of proposal for the Full Implementation Phase (FIP).

AT FULL IMPLEMENTATION PHASE (FIP) STAGE.

Step 1. NGO to formulate the proposal for Conduct of Feasibility Report (FR) as per the format & guidelines for the same from NABARD.

Step 2. NABARD gives letter of offer for the conduct of FR for FIP.

Step 3. NGO accepts it & conducts Feasibility study as per NABARD. guidelines.

Step 4. NGO submits the proposal under the format of NABARD for the same.

2. NABARD Guidelines

Points as per the guidelines pertaining to WDF under NABARD Watershed

NABARD along with KFW started the Watershed development fund (WDF) project & it supports the NGO's either through the Grant component of WDF or the Loan component (loan to the state government which in return through DRDA's gives grant to the NGO's) to plan & implement watershed development activity.

All the points mentioned below are negotiable with the NABARD Regional Office with logical reasoning as these are not mandatory & may change according to contexts except that of initial Shramdan.

2.1.Criteria of Selection of Watershed

1. The size of the Watershed should be around 1000 ha but not less than 500 ha.
2. The location of Watershed to be in the upper ridges of a river system.
3. Irrigated area not to exceed 30% of total cultivable land.
4. Watershed area should not have more than 30% forestland.
5. The general cropping pattern should not include high water demanding crops.
6. Predominantly poor villages with high proportion of SC/ST & where much difference in size of the land holdings is not witnessed.
7. Villages should commit to ban on clear felling & free grazing, to do shramdaan of initially four days by all the eligible households of the watershed area & later on contribute by way of Shramdaan or otherwise 16% of the unskilled labour costs of the project during the implementation phase. Only landless, poor, single parent households, widow headed households or Handicapped headed households are exempted from the list of eligible HH for shramdaan.
8. Villagers to commit to creation of a watershed maintenance fund to be created by the villages from second or third year in which

NABARD may deposit some part of the shramdaan component later on as funds for repair & maintenance. (not written in guideline only verbally told by the GM, RO, NABARD, Ahmedabad).

9. Villagers have to constitute a VWC registered as a society (NABARD RO, Ahmedabad is not rigid on the same) with at least 30% members as women with in 6 months of the commencement of implementation work during CBP.
10. After the mandatory shramdaan of 4 days the village should commit to under take CBP under at least 50-100 ha of land.

After shramdaan the Regional Office asks the NGO to submit the plan for Capacity Building programme of the identified Watershed.

2.2. Planning for CBP

1) The planning should be in the ridge area constituting around 100 ha (Approximately 10% of total watershed area) of land. The treatment should be in area basis involving both private & common lands.
2) The CBP area is like a sample area of the project & should cover all the Area treatment & some drainage line treatment works. Emphasis can always be given on the regeneration activities.
3) Permanent structures like check dams, Nala bunds are generally not taken up during the CBP.
4) The planning should involve the Participatory Net plan method i.e. Survey number wise planning.
5) The plan should be presented to the RO as a proposal along with markings in the toposheet & cadastral maps.
6) The period of CBP execution is from 12 to 18 months.
7) The initial rate per hectare in Gujarat for WDF was Rs 6000/ha, which now has been revised to Rs 8000/ ha.

2.3. Wage Rates

NABARD does not allow payment always as per the minimum wages; it depends to the Regional Office of NABARD. It stresses that the villagers are improving their own lands through project support & the wage rates prevalent as per the local rates should be the rate of daily wage labour

payment. It is better to negotiate with NABARD in the beginning about the prevailing rates as per our project area keeping minimum wages in mind.

2.4. Institution Building

1) Village Watershed Committee has to be made in the CBP phase.
2) 1/3rd members must comprise of Women
3) The elected Panchayat body must be informed about VWC.
4) Must be registered as a society.
5) Efforts to be made to create SHG's, access bank credit & skill up gradation. This is not compulsory.

2.5. Release of Funds from NABARD

1) Before the release of funds an account of the village watershed committee has to be opened. This is a jointly operated account by both VWC & the NGO representative.

2) The NGO is responsible for all accounts & audit of the funds received by the VWC.

3) The expenditure under project measures, including the cost of supervision by the village level workers is released as advance as four installments under CBP to the VWC account.

4) The expenditures under the training, stationary, salary is released to the NGO's account as project management expenditure which is 25% of the total expenditure under the project measures including the shramdaan & is also in four installments. *(This is not applicable in case of Co-finance arrangement between NABARD and FES).*

5) The NGO can request for replenishment of the funds once 60% of the expenditure has been met from the previous installment.

6) After the replenishment request NABARD sends its officers for monitoring of the completed works & at their recommendation installments are released.

2.6. Monitoring

The monitoring team of NABARD may comprise of officers from RO, local DDM or government functionaries.

They come after the request for release of installments. The monitoring team generally looks into the Plan versus the achievement in terms of physical & financial progress & records. They prepare a monitoring report in the field signed by VWC, NGO & NABARD & a copy is given to the NGO & VWC for compliances completion.

2.7. Village Development Fund

Village development fund has to be created from community contribution & NABARD will support it after one year based upon its performance by depositing in it the 50% of shramdaan amount till that date for the purpose of repair & maintenance.

2.8. Full Implementation Phase

After successful completion of CBP (at least 60% of the work under CBP) the NGO can apply for funds for the preparation of Feasibility Study Report for the planning of Full Implementation Phase.

Under FIP as a norm emphasis has to be taken in planning of Area Treatment Works & Drainage line treatment works can be allowed up to 25% of the expenditures under the area treatment measures. Some portion of the grant under the Project measures has to be planned for the livelihood support activities of the landless families.

The proposal for preparation of FR is as per the NABARD Format & their baselines for different states/regions.

3. Formats prescribed by NABARD for Watershed Development Fund

3.1. PROFORMA No. 1 (For CBP and FIP proposals)

a. General Description Of The Watershed Area

i. Name of Watershed:	
ii. Villages Covered:	Latitude:
iii. Block and District:	Longitude:
iv. Major Drainage System of which Watershed is a part:	
	Length:
v. Identification of the watershed if any from Government Sources:	Breadth
	Shape Factor:
vi. Highest Point in the Watershed (Above MSL):	
vii. Lowest Point in the Watershed (Above MSL):	
viii. Height Differences (in meters):	

b. Details Of The Area Of The Watershed (Govt. Records)

Description of land	**Village wise area (ha)**		**Total**
	Village 1	Village 2	
Forest Land			
Other Public Land			
Revenue Land			
Water Bodies Area			
Sub-Total			
Private land			
Cultivated			
Uncultivated			
Sub Total			
Total			

3.2. PROFORMA No. 2 (For CBP and FIP proposals)

Demographic Details

a.

Reference Year:		
Sr. No.	**ITEM**	
1.	Total Number of Households/Families: (a) Landless- (b) Landowners-	
2.	Average Family Size:	

b. Age-Group

Population	**0<5**	**5<15**	**15<40**	**40<0**	**60 and above**	**Total**
Male						
Female						
Total						

c. Education Data

Education	**Male**	**Female**	**Total**
Illiterate			
Read and write only			
Primary			
Secondary			
Matriculate			
Graduate and Above			

d.

Households	**SC**	**ST**	**Others**	**Total**
No. of Households				

3.3. PROFORMA NO. 3 (For CBP and FIP proposals)

Land Holding Pattern Of Watershed Area

A. Existing Gross Holding (Ha)

Sr No	Land Holding Class	Households		Land held	
A.	Existing gross holding (ha)	**Number**	**% to total**	**Ha**	**% to total**
1	Landless				
2	Marginal farmer (< 1 Ha)				
3	Small farmers (1 – 2 Ha)				
4	Semi-medium farmers (2-4 Ha)				
5	Medium (4– 8 Ha)				
6	Large farmers (> 8 Ha)				
	Total				

Average gross land holding per Household:

B. After Converting Irrigated Area to Equivalent Dry land Area (Ha):

(Please state conversion unit/ratio) Conversion Ratio-

Sr No.	Land Holding Class	Households		Land held	
		Number	**% of Total**	**Ha**	**% to total**
1	Landless				
2	Marginal farmer (< 1 Ha)				
3	Small farmers (1 – 2 Ha)				
4	Semi-medium farmers (2-4 Ha)				
5	Medium (4 – 8 Ha)				
6	Large farmers (> 8 Hectares)				
	Total				

Average landholding (dry land cultivable) per household:

One acres of irrigated area may be converted into equivalent rainfed area in the proportion of the yield per acre of the major cereal under irrigated and rainfed conditions.

Data Source- **Reference year**

3.4. PROFORMA No. 4 (For CBP and FIP proposals)

Climatic Data

Nearest meteorological Station or observation point from which the data has been obtained:

Distance from project site:

1. Normal Rainfall of the area month wise (mm) (December to January)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Normal rainfall												

2. Highest Intensity/hr of rainfall in the last 10 years :

3. Highest Rainfall in 24 hours in the last 10 years (mm) :

4. Temperature – (degree centigrade)

	Summer	**Monsoon**	**Winter**
Maximum			
Minimum			

5. Rainfall Data

S No	**Year**	**Total Annual Rainfall (mm)**
1	1995	
2	1996	
3	1997	
4	1998	
5	1999	
6	2000	
7	2001	
8	2002	
9	2003	
10	2004	
11	2005	

*Current year rainfall -

Information on draught cycle if available may be given in the text.

Data source- **Reference year -**

3.5. PROFORMA NO. 5: (Only for FIP proposal)

A. Estimate of existing and post development agricultural production (for major crops only)

S. N.	Particulars		Total Production (qtls)	yield/ ha (Qtls)	Crops under proposed land use	Total production	yield/ ha
	Existing crops	Area					

B. Fodder (derived from the major crops)

S. N.	Particulars		Total Production (qtls)	yield/ ha (Qtls)	Crops under proposed land use	Total production	yield/ ha
	Existing crops	Area					

C. Other details related to crops:

Crop/ Grain	Market Price (Rs/ Qtls)	Assessed value of production (qn)	Total(Rs)	Cost of production (Rs)	Net Income (Rs)

Data Source- Reference Year -

3.6. FROFORMA NO. 6 (Only for FIP proposal)

A. Livestock resources and feed requirement under present land use

S.No.	Category of livestock	Existing no.	Conversion factor	Equivalent livestock units	Feed requirement per unit/year-dry feed in quintals	Total requirement of feed in quintals
1	Bullocks					
2	Cows					
3	Buffaloes					
4	Goats					
5	Others					
	Total					

B. Livestock resources and feed requirement under proposed land use

S.No.	Category of livestock	Existing no.	Conversion factor	Equivalent livestock units	Feed requirement per unit/year-dry feed in quintals	Total requirement of feed in quintals
1	Bullocks					
2	Cows					
3	Buffaloes					
4	Goats					
5	Others					
	Total					

Data source Reference year

3.7. PROFORMA NO. 7 (Only for FIP proposal)

Income Assessment of the household

S.No.	Household category	Number in Samples (10%)	Average income from the sources				Total income	Average
			Agricultural labour	Non agricultural labour	Agriculture	Other sources like service etc.		
1	Landless							
2	0-1 ha							
3	1-2 ha							
4	2-4 ha							
5	4-10 ha							
6	>10 ha							
7	Others							

Data Source Reference year

3.8. PROFORMA NO. 8 (Only for FIP proposal)

Well Inventory:

S.No.	Particulars	Well No.1	Well No.2	Well No.3	Well No.4
1	Well Location (Survey No.)				
2	Type of Use*				
3	Year of Construction				
4	Diameters (in meters)				
5	Depth of well-below ground level (in meters)				
6	Depth of water table (in meters)				
7	Geological formation				
8	Lifting device, if any				
9	HP of pump				
10	Hourly discharge cu.m.				
11	Operating hours				
12	If drained completely-recovery time in hours				
13	Daily draft Cum				
14	Operating days per year				
15	Yearly draft Cum				
16	Average area irrigated				
17	Name of farmer				

** whether used for perennial irrigation, two/one season irrigation, drinking water purpose, defunct, etc.*

Total no of wells			
of which,	a)	Dug wells	
	b)	Bore wells	
	c)	Shallow tube wells (Hand pump)	

3.9. PROFORMA NO. 9 (Only for FIP proposal)

Soil Survey Studies

S.No.	Survey no. where sample is taken	Soil depth (In cm)	Soil texture (as per mechanical analysis)					Soil pH	Organic carbon	P (kg/ac)	K (kg/ac)	Soil Type	Electrical conductivity
Total													
Average													

Data Source Reference Year

3.10. PROFORMA NO. 10 (For CBP and FIP proposals)

Survey No. Wise Net Planning:

Micro Watershed No	
Area for CBP	
Area for FIP	
Villages	
Name of watershed	

Form No.	Survey. no	Area (ha)	Slope	Depth of soil	Texture	Erodibility	Class	Present land use	Proposed land use	Existing treatment				Proposed treatment				Additional Earthwork	Cost per Unit	Cost of earthwork (Rs.)	No. of Plants	Total cost of plantation	Total treatment cost (Rs)	Unit cost	Remarks
										Type	Length (m)	Section (sq. m)	Volume (cum)	Type	Length/ units (m/N)	Section (sq. m)	Volume (cum)								

3.11. PROFORMA NO. 11A (Only for FIP proposal)

Drainage line treatments- Details of Existing engineering Structures

S no	Structure type and Identification	Location to nearest survey no.	Year of construction	Dimensions				Remarks about it effectiveness	Dimensions			Nature of Repair with Specification *1	Total cost of repairs if any *2				Community contribution	Total Grant
				Length	Top width	Bottom width	Height						Skilled Labour cost	Unskilled labour cost	Material cost	Total cost		
Total																		

3.12. PROFORMA 11B (Only for FIP proposal)

Details of proposed drainage line structures

S no	Structure type and Identification	Location to nearest survey no.	Catchment Area in ha	Length of catchment	Elevation difference	Time of Concentration	Rainfall intensity for Tc(mm/hr)	Peak runoff rate (cum/sec)	**Design dimensions of structure**			Storage capacity	Total cost				Community contribution	Grant
									Length	Top width	Height		Skilled Labour cost	Unskilled labour cost	Material cost	Total cost		

3.13. PROFORMA NO. 12 (For CBP and FIP proposals)

Summary of Area Treatment

Sr No	Proposed Land Use	Land Class	Area (ha)	Treatment	Length/Unit	Volume (cum)	Cost per unit (Rs)	Grass Seed	No. of Plants	Forestry plants	Cost of planting		Total Cost	Labour cost	Material Cost	Grant amount excl 16% of labour cost	Proposed treatment and assumptions
											Labour	Material					

3.14. PROFORMA NO. 14 (Only for FIP proposal)

Project Management Cost

S.No	Particulars	Periods (in month)	Rates per months (in Rs)	Total Cost (in Rs)
A	**NGO/ PFA Staffs**			
1	Project manager/Community organizer			
2	Engineer			
3	Agronomist			
4	Office clerks/Accountant			
	Sub Total (A)			
B	**Recurring expenses**			
1	Office expenses			
2	Jeep hiring charges as and When required			
3	Motorcycles Expenses			
4	Miscellaneous			
	Sub total (B)			
	Grand Total (A+B)			

3.15. PROFORMA NO. 15 (For CBP and FIP proposals)

Total Project Cost

Sl No	Item	Labour Cost (Rs.)	Material Cost (Rs.)	Supervision & Transport (Rs.)	Total Cost (Rs.)	Community Contribution(Rs)	Total Grant (Rs)
1	Area Treatment Cost						
2	Drainage Line Treatment						
3	Administrative Overhead						
4	Development of Women and Landless						
5	Training and Capacity building						
6	Maintenance fund						
	Total						
Administrative Overhead is -- % of the total project cost and -- % of the treatment							