Chapter 4

Eligible Investments

Component 1A: Climate resilient agriculture

Improvement of water-use efficiency:

Watershed (Catchment) areas-

Structural and Vegetative activities suggested under Four Waters Concept (FWC) will be retro-fitted in the existing/new clusters to be taken up under RACP, where ever feasible.

Through: Watershed Development & Soil Conservation Department, GoR.

Where: Areas falling in watershed and ground water clusters and also in upper catchment areas of potential surface water clusters.

1. Institutional Activities:
   i. Finalization of project boundaries / pilot areas.
   ii. Identification of potential beneficiaries and other stakeholders.
   iii. Formation of Multi Task Group (MTGs) of individual land based activities by involving 15-20 no. of farmers (Farmers having lands/fields adjoining or contiguous)
   iv. Formation of Users Groups (UGs) who have resource dependency, sharing arrangement and responsibility of management of common property resources/assets by involving 10-15 users.
   v. Formation of Multi Task Association at Gram Panchayat level.
   vi. Federation of MTGs/UGs/MTAs at the cluster level to form Cluster Level Producer Organization (CLPO).
   vii. Identification of Community Resource Persons (CRPs) for MTAs/CLPOs.
   viii. PRA exercises and interaction with the beneficiaries, Gram Panchayat / PRI.
   ix. Procurement of IT equipment i.e. computers and peripheral & scanners etc. for the PIUs/line department/ MTAs/CLPOs.
   x. Trainings & Exposure visits of all the stakeholders (farmers, MTGs, UGs, MTAs, CLPOs) including PRIs.
   xi. Environment Building, Awareness Generation, Community Mobilisation and IEC activities.
   xii Working out detailed resource-use agreements (for surface/ground water & common/forest land usufructs) among UG members in a participatory manner based on principles of equity & sustainability.

2. Physical Activities:

A. General Activities:
   i. Collection of basic required data.
   ii. Base line survey base line survey of cluster area for carrying out socio economic analysis apart from other required surveys.
   iii. GIS mapping, Procurement of thematic layers and preparation of Watershed Development Plan.
   iv. Assessment of water resources availability and its uses.
   v. Design, construction of hydraulic structures and hydrological monitoring network (HMN). Instrumentation like runoff recorder, sediment sampler, automatic rain gauge, drop spillway
Eligible Investments

and instruments housing facility shall be provided.

vi. Annual Crop Water Budgeting (CWB).

B. Activities on Arable Lands:

B-1 Arable Land Conservation Measures:

The important principles to be kept in view while planning measures for proper conservation of water are increasing the time of concentration & thereby allowing more runoff water to be absorbed, intercepting the long slope into short ones & protection against damage by excessive runoff. In broader way, it is a series of mechanical barriers to reduce the slope percentage.

a. Contour Bund / Field Boundary Bund: It is one of the most commonly adopted indigenous technologies for in-situ moisture conservation. Contour bunds to be formed wherever farmers agree. Bunds are stabilized by grasses of local palatable/perennial species to supplement the fodder needs for animals (FWC).

b. Waste weirs: To protect contour / field bund from breaching & prevent crop damage, masonry outlet structures are constructed to drain away excess water.

C. Mini Percolation Tanks (MPTs)- 30 to 40 per watershed in the first and second order streams, if falling in the farmers' fields (FWC)

d. Sunken pits in gullies in first and second order streams, if falling in the farmers' fields (FWC).

e. Diversion drains/channels and sump, for recharging open dug wells (FWC).

f. Dugout Farm Ponds: The farm ponds, at a lower elevation, are constructed to harvest the excess runoff after in-situ moisture conservation. Farm pond helps in providing supplemental irrigation as well as increasing cropping intensity. Size of farm pond & design would depend on rainfall, catchment area of farm, runoff data, slope, runoff water availability. Plastic lined farm ponds are cheaper & best suited on individual farms if the soil blow is permeable.

B-2 Arable Land Production Measures:

a. Contour Ploughing /cultivation in rainfed lands (FWC).

b. Strip and mixed cropping.

c. Green Manure Crops before the main Kharif season crops (FWC).

d. Cover crops in rain-fed lands during post Kharif for Rabi season crops & dry period (FWC).

e. Trees on all boundary bunds of rain-fed lands with a small trench on either side, to prevent tree roots spreading horizontally or competing with crops (FWC).

f. Agro Forestry including block plantation, shelter belts, sand dune stabilization (FWC).

g. Installation of PVC pipe lines on farmers' field and drip irrigation from farm ponds.

h. Raising Nurseries for fodder, timber, fuel wood and horticulture.

C. Activities on Non Arable Lands:

C-1 Non Arable Land Conservation Measures:

The area not suited to cultivation limits their use largely to pasture or forest. These lands have a great potential for producing fodder, fuel, fibre etc. To protect these lands from further degradation, suitable SWC measures supplemented with proper afforestation are planned.
a. **Continuous Contour Trenches (CCTs)** V-shaped ditches strictly along contour, with side slope for cut section with MPTs at gully junctions to reduce the velocity of runoff (FWC). Plants are put in trench along berm (FWC).

b. **Constructing** the box shaped **staggered trenches** across the deeper slopes.

c. **Fencing of Pasture Lands**: The pasture land is developed by fencing the area by ditch cum bund, vegetative, stone wall or other suitable fencing.

**C-2 Non Arable Land Production Measures:**

a. **Tree plantation** on all un-cultivated Non arable / Pasture lands to develop a three tier canopy (FWC).

b. **Tree plantation** on slopes and banks of gully (FWC).

c. **Vegetative cover** (Agave) for gully slopes (FWC).

d. **Over seeding** of grass seeds in pasture land areas.

**D. Drainage line treatment:**

a. **Mini Percolation Tanks (MPTs)** - 30 to 40 per watershed in the first and second order streams, if falling in the drainage line of common lands (FWC)

b. **Big percolation tanks** in third and fourth order stream (FWC).

c. **Check Dams** in second and third order streams with earthen dam in center and surplus weir on side (No check Dam in the main stream and no cement structure in the stream course). The earthen bund check dams should not be constructed in the main stream where maximum flood **discharge will be very high** (FWC).

d. **Sunken pits** in gullies in first and second order streams (FWC).

e. **MPTs** at head of gullies & upstream of sunken pits & drainage line treatments (FWC).

f. Rubble stone **diversion weir** on the main stream, for gravity irrigation (FWC).

g. Restoring and **de-silting** very small tanks lying within the watershed (FWC).

h. Construction of **masonry structures**.

i. **Gully control structures**- It consists of constructing earthen bunds of suitable dimension across the small nalla or gullies to hold the runoff water. Temporary storage of runoff against the bunds carries deposition of silt & water is drained off in controlled manner. The water impounding facilitates percolation of water, which otherwise will flow with intense velocity.

j. Construction of **Water harvesting structures/Tanks**: Where ever feasible small water harvesting structures called ponds / talai’s will be constructed. Repair, rehabilitation of old tanks & talai would be undertaken on priority.

k. **Sub surface dams** at the downstream of the watershed (FWC).

**E. Consolidation of various works:**

a. Preparation of project completion report (PCR) with status of each intervention including details of funds available, bank account etc. & will be submitted to the PMU.

b. Up-scaling and Documentation of successful experiences as well as lessons learnt for future use. Strategy for management of developed natural resources.

c. Improving the sustainability of various interventions under the project.

d. NGO will help the MTAs/PRIs in formal allocation of user’s right over common property resources (CPRs) for sustainable utilization of developed natural resources.

e. Collection of user charges for CPRs;
f. Repair, maintenance and protection of CPRs;
g. Sustainable utilization of developed natural resources;
h. Involvement of GP/other institutions (as governance body) in addressing above aspects.

Implementation arrangements in terms of planning procurement, installation and asset use

Beneficiary’s Contribution and Post Project Sustainability:

A. Beneficiary’s Contribution:
Under RACP farmer's contribution is an integral part of project cost besides World Bank and State Government’s contribution in order to ascertain the belongingness of the local community.
i. There will be a beneficiary contribution of **10% for small and marginal farmers and 20% for others farmers** in all the individual watershed development activities and will be adjusted in the tranches of the installment as per Finance Management Chapter & shall be deposited in the RACP account at the concerning DPMU level.

ii. These contributions would be acceptable either in Cash/Labour/Material.

iii. There will be **no beneficiary contribution** for activities on common / Panchayat land.

iv. The Community Resource Person (CRP) of Multi Task Association (MTA) will maintain the record of farmer's contribution towards project costs as per directions given by DPMU/PMU.

B. Post Project Sustainability:
i. NGO, Community Mobilization will prepare consolidation & exit strategy, management plan for repair, maintenance & protection of developed common properties.

ii. NGO will build up capacity of MTAs / PRIs to take over the task of operation & maintenance of assets created & in consultation with the project, will make suitable administrative & financial arrangements for its maintenance and further development after the project period.

iii. On individual lands, beneficiary will be responsible for post project maintenance of works executed on their fields.

iv. On common / community /panchayat lands, the asset maintenance after the project period shall be taken up by MTAs with the earned amount separately in their bank account and/or with the support of panchayat funds in consultation with PRIs.

v. User charges, sales proceeds and disposal amounts of intermediate usufruct rights shall be deposited in the MTA’s bank account with separate records.

vi. Income earned from assets created under the project on common property resources shall also be credited in the designated bank account of MTA with separate records.

Under Ground water areas

1. Institutional Activities

i. Formation & Fostering of GPLC & GWMA

ii. Construction of GPLC & GWMA Building with furniture

iii. Procurement of IT equipment's i.e. computers and peripheral, laptop & scanners etc. for GWD, GPLCs and GWMAs

iv. Trainings & Exposure visits of GPLC & GWMA

v. IEC Consultancy

2. Physical Activities

i. Base line Survey

ii. GIS mapping
iii. Social assessment
iv. Economic & demographic survey
v. Construction of Piezometer
vi. Installation of Rain gauge stations
vii. Installation of digital water level recorder on piezometers
viii. Construction of recharge structure

3. Water Management Activities
   i. Benchmarking and water auditing
   ii. Assets management
   iii. Procurement & Installation of Water meters including training of community (GPLC/GWMA) on data recording and O&M of water meter
   iv. Construction of water harvesting structures (such as check dams/dugout ponds/anicuts/sub surface barriers/roof top rain water harvesting etc.) in the aquifer area
   v. Restoration of existing community ponds
   vi. Construction of cross drainage/drainage works
   vii. Construction of farm ponds
   viii. Provision for promoting water efficient irrigation techniques such as sprinklers and drips etc.
   ix. Measurement of ground water extraction in the aquifer (tube well wise)

Canal Irrigated areas

1. Institutional Activities
   i. Fostering and Capacity Building of WUOs:
   ii. Providing permanent offices to WUO’s
   iii. Office equipment to WUO’s (computer, Hardware/software etc.)
   iv. NGO support to WUO’s
   v. Trainings to WUO

2. Physical activities
   i. Irrigation system rehabilitation/modernization: Rehabilitation/modernization of canals
   ii. Rehabilitation/modernization of Structures (such as off take structures/gates, siphons, aqua ducts, falls & canal crossing village bridges)
   iii. Installation/modernization of measuring devices

3. Water Management Activities:
   i. Benchmarking and water auditing
   ii. Assets management
   iii. Construction of diggies
   iv. Installation of micro Irrigation system
Eligible Investments

Component 1B: Technology transfer and market led advisory services

Agriculture

B1: Setting up Farmer Common Service Centres: FCSCs will be eligible for financial grant of 75% under the project.

B2: Setting up Centers of Excellence: All activities will be beard by the project - 100% under the project.

B3: Use of Information and Communication Technology (ICT) for Farmer Advisory Services

B4: Promoting Adoption and Documentation of Improved Technologies

- **Soil Testing**: Analysis of soil samples and supply of soil health cards to the farmers.

- **On-farm Demonstrations**: Integrated crop management (ICM) demonstrations package of practices for a particular crop from land preparation to harvesting of the crop (including use of seed of improved high yielding varieties/hybrids, seed treatment, soil test based application of fertilizers (including use of organic manures, bio-fertilizers like Azotobacter, Rhizobium, PSB)) and micronutrients, weed control, integrated pest management (including use of bio-pesticides, and bio-rational pesticides), efficient methods of on-farm water management, use of mulches, carrying out all cultural practices, low cost methods for improving on-farm water use efficiency such as alternate furrow irrigation, paired row irrigation, use of crop residues as mulches for reducing evaporation loss, Demonstrations on other crops which are grown in a cropping sequence with the value chain crop with the objective of improving water use efficiency, diversification to low water requiring, high value and other crops, reducing water foot print, promoting resource conservation technologies, popularizing climate smart agricultural practices. 100% cost would be beard by the Project.

- **Field Days**: For dissemination of the improved technologies demonstrated in the ICM demonstrations - 100% to be beard by Project

- **Adoption support**: Quality seed of high yielding crop varieties, adoption support in terms of 50% cost of seed (for sowing one acre of crop)

- **Seed Production**: Demonstration technology empowerment of the farming community for production of quality seed of high yielding varieties of self-pollinated crops

- **Post-Harvest Management**: Promoting farm level drying, cleaning, grading and post-harvest management of the harvested produce, provision of low cost plastic sheets for protection against damage by rain and water.

- **Adaptive Trials**: On-farm testing of the promising emerging technologies ready for on-farm validation and testing.

- **Farmer Training**: Training and capacity building programs for farmers and farm women for adoption of knowledge-based crop husbandry and natural resource management/conservation practices for increasing productivity, enhancing diversification to high value and low water requiring crops/practices for reducing water foot print of agriculture, enhancing farmer incomes and improving rural livelihoods

- **Exposure visits**: Exposure visits for farmers within the state and outside the state

- **Training of Service Provider Staff**: Training programs for staff of the service providers about the project design, implementation arrangements, technical areas of crop production, post-harvest management and related aspects.

Horticulture

- **Setting up Farmer Common Service Centres**: FCSCs will be eligible for financial grant of 75% under the project.
Eligible Investments

- **Integrated Crop Management Demonstration (ICM) :-**
- Integrated Crop Management Demonstration (ICM) on Vegetables, Flowers, Spices and Medicinal and Aromatic crops:- Demonstrations will be laid out on Vegetables, Flowers, Spices and Medicinal and Aromatic crops as selected for the cluster based on CACP. The entire cost of demonstration will be borne by the project.
- **Integrated Crop Management Demonstration (ICM) on Fruits crops, Jojoba, Olive and Date palm :-** Project support will be 80% for general and 90% for small and marginal farmers in demonstration. For Date palm demonstrations project support will be 90% for all the farmers irrespective of their category.
- **On Farm Demonstration on Micro Irrigation :-** Project support will be 80% for general and 90% for small and marginal farmers on actual cost of micro irrigation system (Except Drip irrigation) up to the maximum limit of 5 ha per farmer (As per the CACP) for promoting micro irrigation systems in the project area. In case of Drip irrigation system project will provide 90% support irrespective of farmer category.
- **On Farm Protected Horticulture Demonstration:** Project support will be 80% for general and 90% for small and marginal farmers in demonstration for all types of protected cultivation demonstrations.
- **On Farm Demonstration on Solar Energy -** Project support will be 86% for general and 90% for small and marginal farmers on actual cost of micro irrigation system (Except Drip irrigation) up to the maximum limit of 5 ha per farmer (As per the CACP) for promoting micro irrigation systems in the project area. In case of Drip irrigation system project will provide 90% support irrespective of farmer category.
- Field Days: For dissemination of the improved technologies demonstrated in the ICM demonstrations on vegetables/fruit/protected cultivation.
- **Post-Harvest Management:** Project will provide 75% assistance for Post-Harvest Management as per CACP report of the particular cluster.
- **Training of Vegetable /Fruit Growers:** Training and capacity building programs for farmers and farm women for adoption of knowledge-based crop husbandry and natural resource management/conservation practices for increasing productivity, enhancing diversification to high value and low water requiring crops/practices for reducing water foot print of agriculture, enhancing farmer incomes and improving rural livelihoods.
- **Exposure visits:** Exposure visits for vegetable /fruit growers within the state and outside the state.
- **Training of NGO/Service Provider and Horticulture Department Staff:** Training programs for staff of the service providers about the project design, implementation arrangements, and technical areas of crop production, post-harvest management and related aspects.

Component 1C: Livestock strengthening and management

1. **Goats, why goat meat and the cluster -** The livestock component of RACP will demonstrate in a number of clusters how goat productivity and incomes from goat production can be significantly enhanced. The focus is on goat production due to several reasons: firstly, demand for goat meat is increasing (of the 40,000 head of Rajasthan livestock slaughtered daily nearly 60% are goats) and secondly, goats are kept by tribals and managed by women and so there is opportunity for the RACP to support livelihoods development of the most vulnerable. There is significant opportunity to improve profitability given that fact that markets are unorganized and animal productivity is low. While goats are found throughout the state (although production systems differ somewhat between the more arid western areas of the state as compared to the east) there are districts of higher number and concentration. Where RACP clusters based on water access are selected AND there is both population and density of goats, these clusters will be where goat activity will be targeted. Initially the first cluster being considered for goat production is Osian in Jodhpur district.

2. This will be achieved by 1) improving market access and value addition and 2) improving productivity through breeding, feeding, animal health, and 3) capacity building supporting
3. The potential for impact will arrive from increased profit to farmers by getting a higher price for their goats (through access to market information and value chain development through sale of meat, but also products like manure, hair, and hides); increased sale of goats due to reduced mortality and higher fecundity; and increased productivity (due to better breeding, feeding and health). Women in particular will benefit as currently they provide the labor for goat production but are often excluded in marketing. Economic and financial impact calculations will benefit from further clarity on the proposed production cycle in terms of number of farmers targeted, goats and bucks to be produced, marketed etc.

Descriptions of the livestock components and input requirements is given in table below:

<table>
<thead>
<tr>
<th>Component and Item</th>
<th>Description</th>
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<tbody>
<tr>
<td>Component 1</td>
<td></td>
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<tr>
<td>Market</td>
<td></td>
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<tr>
<td>Access/Value Chain Development</td>
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<tr>
<td>Producer organization</td>
<td>Likely to be 550 farmers organized by year 6. Specialize Producer Organizations will be developed for goat farmers. Assuming 20-25 farmers per village by end year 6 RACP would work with about 30 villages per micro cluster</td>
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<tr>
<td>Rural Haat</td>
<td>Scales, water, toilets, bins for manure. Rural Haat will be within 25 km radius of farmers</td>
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<td>Component 2</td>
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<tr>
<td>Productivity Enhancement</td>
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<td>Improved bucks provided to farmers</td>
<td>1 buck for every 15 females (thus about 1 per farmer). Sourced from: a) the 3 nucleus herds to be established and from yr 3 will provide 60 bucks per micro cluster with remaining bucks sourced from open market. b) University and c) open market?</td>
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<tr>
<td>Improved bucks provided to nucleus herds</td>
<td>3 large commercial herds (80-100 does) will be supported with 5 bucks each to produce bucks. This will be an upgrading program that will likely take 3 years to start to produce higher quality bucks</td>
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<td>Health &amp; awareness camps</td>
<td>To support vaccination/deworming/castration. 1 camp per month. Each camp will also contribute to animal health screening to M&amp;E disease situation</td>
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<tr>
<td></td>
<td>a) Deworming &amp; vac to treat x</td>
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<td></td>
<td>b) X</td>
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<td>Eligible Investments</td>
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<tr>
<td>Mobile animal health van</td>
<td>To support animal health camps – small &amp; large ruminants</td>
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<tr>
<td>Mineral supplements</td>
<td>Will be distributed at health - mthly health camps</td>
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<tr>
<td>Fodder private land – will include:</td>
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<tr>
<td>a) Minikits for fodder-trees b) Green fodder cultivation</td>
<td>a) Fodder tree distribution kits b) Seed distribution supporting 0.5 ha plots</td>
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<tr>
<td>Fodder common property includes silvi-pasture</td>
<td>50 ha for each of the RTC service areas e.g. about 50 ha for each of 8 villages</td>
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<td>Fodder storage – fodder banks?</td>
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<td>Chaffers?</td>
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<td>Mobile feed block maker</td>
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<tr>
<td>Concentrate feed</td>
<td>To be set up as a revolving fund. 25 tons to be supplied (5 tons supplied 5 times)</td>
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<tr>
<td>Widows supplied with goats</td>
<td>Each 60 widows will each get 4 pregnant does</td>
</tr>
</tbody>
</table>

**Component 3**

**Capacity building**

- Regional Tech Centres (RTC)- Infrastructure Frigde, spring balance, computer and accessories, blood testing etc. 1 for every 8 villages and therefore about 4 per cluster. Each RTC will support 200 farmers assuming 25 farmers/village
- RTC - staffing 1 livestock assistant for each RTC & 1 vet who will support 4 RTC
- Training of farmers  |
- Exposure visits for farmers Groups of 25 farmers will travel for 3 days to visit goat mktg & production model in Rasgen
- Training for SP2 expanded staff & AHD existing staff Groups of 20 will be trained for 2 days by university. There will be 3 training sessions during the project

**Component 4**

**Cross-cutting**

- Vehicle To support monitoring at the District level
Implementation arrangements in terms of planning procurement, installation and asset use

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