

Environment Management Framework for Project “Strengthening Governance and Service Delivery in Karnataka Panchayats”

FINAL REPORT

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Acronyms List:

AAP – Annual Action Plan
AE – Assistant Engineer
AEE – Assistant Executive Engineer
ANSSIRD - Abdul Nazir Sab State Institute for Rural Development
BCM – Billion Cubic Meter
CB – Capacity Building
CC – Cement Concrete
CRZ – Coastal Regulation Zone
DAC – Decentralisation Analysis Cell
EE – Environment Engineer
EIA – Environmental Impact Assessment
EMF – Environment Management Framework
ER – Environment Review
ESA – Ecologically Sensitive Areas
GoK – Government of Karnataka
GP – Gram Panchayat
HTL – High Tide Line
ICRR - Implementation Completion and Results Report
IEC – Information Education and Communication
IS – Indian Standards
JE – Junior Engineer
KGSP – Karnataka Gram Swaraj Project
KRIDL – Karnataka Rural Infrastructure Development Limited
KSCST – Karnataka State Council of Science and Technology
KSNDMC - Karnataka State Natural Disaster Monitoring Committee
LTL – Low Tide Line
MIS – Management Information System
MoEF – Ministry of Environment and Forests
NGO – Non Governmental Organisation
NRM – Natural Resource Management
O&M – Operation and Maintenance
OP – Operational Policy
PA – Protected Area
PDO – Panchayat Development Officer
PMU – Project Management Unit
PRI – Panchayati Raj Institutions
RD&PRD - Rural Development and Panchayati Raj Department
SIRD – State Institute of Rural Development
SHG – Self Help Group
ToR – Terms of Reference
WLS – Wild Life Sanctuary

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Executive Summary

Introduction:

The Government of Karnataka (GoK) has implemented the Karnataka Gram Swaraj Project (KGSP) during 2006-14 with the support of World Bank in Gram Panchayats of 39 'most backward taluks'. The project sought to increase resources for development in the backward GPs by providing untied grants and enhancing the management capacities of GPs. With satisfactory completion of the project GoK is now proposing for project "Strengthening Governance and Service Delivery in Karnataka Panchayats in order to benefit 40 'more backward taluks' and to support the GPs under Karnataka Gram Swaraj Project to attain self sustainability. The project reach will be to 79 blocks in 25 districts of Karnataka.

The Project Development Objective is "to enhance the capacity of the Gram Panchayats to deliver services prioritized in their perspective plans of the 'most' and 'more' backward taluks (blocks) of Karnataka."

The project has the 3 following components:

Component A - Block Grants to Gram Panchayats: The grants will finance creation, augmentation or rehabilitation of small infrastructure works by GPs.

Component B - Institutional Development: This component covers the range of holistic institutional development activities and investments required to ensure the progress towards the Project Development Objective.

Component C - Project Management Support: This activity would put in place systems at the state level to enable it to oversee, facilitate and manage the Panchayat system and the project GPs.

Developing Environment Management Framework (EMF) for project "Strengthening Governance and Service Delivery in Karnataka Panchayats"

As per the requirement of the Operational Safeguard Policies of the World Bank [Environmental Assessment (OP 4.01), Forests (OP 4.36), Natural habitats (OP 4.04)], an Environment Management Framework has been prepared based on the EMF procedures followed during Karnataka Gram Swaraj Project and learning's from the same.

The potential impacts identified on environment (based on previous experience) are as follows:

Construction activities (roads and building) - loss of vegetation due to site clearance activities, noise and dust pollution during construction, disposal of wastes, issues due to improper design of drains during road construction and maintenance, over extraction of raw materials or use of low quality raw materials, lack of separate kitchen in anganwadis, absence of safety measures like parapet walls, grills for building terraces etc.

Drinking water supply – absence of quality check before commissioning of the supply and at regular intervals, wastage of water due to pilferage.

Public toilets: absence of septic tanks, lack of water supply inside, issues in maintenance.

The EMF for project “Strengthening Governance and Service Delivery in Karnataka Panchayats has focused on determining the potential impacts of GP works, identifying the environmental hotspots in the project area, and describing the strategy and plan for environmental management. The EMF for project “Strengthening Governance and Service Delivery in Karnataka Panchayats” focuses on the following key elements:

1. Simplifying the procedures (environment guidelines) bringing in specificity and user friendliness.
2. Strong capacity enhancement for the technical staff (AEEs, JEs, AEs and EEs) on technical aspects of environment friendly designs.
3. Enhancing the awareness among GP functionaries and communities towards sustainable management of the infrastructure and general aspects of better environment management.
4. Focused technical support for GPs in environment hotspots such as Ecologically Sensitive Areas in Western Ghats, over exploited zones of groundwater use, areas with water contamination, drought prone areas and coastal areas.

The process of developing EMF involved consultations with select GPs, PMU, World Bank staff; secondary research on environmental concerns in the state; desk review of screening criteria, environment guidelines and the environment review report from the Karnataka Gram Swaraj Project. Views of key stakeholders obtained through stakeholder consultations organised on 11th December 2015 at Department of Rural Development and Panchayati Raj (RDPR). The draft and final reports disclosed on the websites of the GoK and the World Bank.

Details of the Environment Management Framework (EMF):

The objective of the EMF is to ensure environmental sustainability of the activities undertaken by Gram Panchayats and to enhance the capacities of the Panchayati Raj Institutions (PRIs) in sustainable management of environment.

The approach of EMF is:

- Integrating environmental sustainability dimension into the GP perspective plans and annual action plans
- Integrating required environmental guidelines into the construction, operation and maintenance of all GP infrastructure works
- Integrating aspects of environment management into the capacity building programmes

The institutional mechanism to operationalise the EMF contains identification of responsible staff at the state, taluk and GP levels; environment review of GP plans (perspective plans and annual action plans) and monitoring of GP infrastructure works; capacity enhancement of technical (engineering) staff; increasing awareness among PRIs; and, focused assistance to GPs in hotspot areas.

The EMF implementation plan includes:

- Environmental Review of the GP Perspective Plans and Annual Action Plans (AAPs) using environment guidelines
 - Screening for ensuring compliance with list of ‘Dos and Don’ts’
 - Integrating mitigation measures into technical designs, budgets and contracts as required
- Capacity Building
 - Capacity Building for technical staff serving the PRIs
 - Capacity Building for elected representatives and other staff of PRIs
- Monitoring and Evaluation:
 - Internal monitoring: Monitoring of implementation of environmental guidelines in infrastructure works
 - External Audits: Audit of environmental management in the project “Strengthening Governance and Service Delivery in Karnataka Panchayats”
- Pilots on Environmental Management in selected GPs:
 - Pilot in W. Ghats GPs
 - Pilot in coastal GPs
 - Pilot in GPs in over-exploited groundwater areas
 - Pilot in GPs in poor water quality areas
 - Pilot in GPs in drought prone areas
- Institutional arrangements:
 - Environment Specialist at state level for overall coordination of EMF implementation
 - Environment Engineers at Taluk level for ensuring integration of environmental measures into GP works

Timeline and Budget:

The detailed roll out plan of EMF is given for a period of 6 years. The estimated budget requirement for EMF implementation is Rs. 1,86,50,000 (one crore eighty six lakh and fifty thousand only) and this has been included in the project costing.

Chapter I: Introduction

1. Karnataka Gram Swaraj Project:

Government of Karnataka (GoK) has implemented the Karnataka Gram Swaraj Project (KGSP) during 2006-14 with the support of World Bank in Gram Panchayats (GPs) of 39 'most backward taluks'. The project sought to increase resources for development in the backward GPs by providing untied grants and enhancing the management capacities of GPs. With satisfactory completion of the project, GoK is now proposing for a project in order to benefit 40 'more backward taluks' and to support the GPs under Karnataka Gram Swaraj Project to attain self sustainability.

1.1. About Karnataka Gram Swaraj Project:

Previous project was implemented through Rural Development and Panchayat Raj Department (RD&PRD), GoK during 2006 – 2014 in 1341 Gram Panchayats (GPs) under 39 most backward taluks of the state with a budget outlay of US\$ 140 million. The Project Development Objective was 'to improve the effectiveness of service delivery by Karnataka's Gram Panchayats (village governments) particularly with respect to the management of public resources and the delivery of relevant services that the rural people prioritize'. The key project achievements in project GPs include - provision of basic amenities like drinking water, inter road connectivity, sanitation facilities etc; improved access to basic services, capacity enhancement of Panchayati Raj Institutions (PRIs)¹, improved financial management and transparency, increase in own source of revenue and increased awareness about PRIs among people.

1.2. About Strengthening Governance and Service Delivery in Karnataka Panchayats

Following the Karnataka Gram Swaraj Project, GoK has proposed a follow-on project, with an outlay of 223 million US\$. The project "Strengthening Governance and Service Delivery in Karnataka Panchayats" will follow the same aspects of its predecessor - to provide block grants for provision of basic amenities and to build the management capacity of PRIs with an expanded geographic coverage and stronger performance triggers.

Project "Strengthening Governance and Service Delivery in Karnataka Panchayats" includes 1431 GPs of '39 most backward taluks' that are part of Karnataka Gram Swaraj Project and 1355 GPs of 40 more backward taluks. Therefore the total coverage will be 2786 GPs in 79 blocks. The project period is 2015/16-2021/22.

¹ PRI is a three tiered system with elected bodies at Grama (village), Taluk and District levels for greater participation of the people and more effective implementation of rural development programmes.

GoK has requested for retroactive financing (US\$ 40 million) during the preparation period from the Bank in order to carry out some of the project activities in advance. The retroactive financing proposal includes – (i) block grants to 39 “most backward” taluks covering 1431 Gram Panchayats; (ii) intensive capacity building program for the newly elected representatives of the Panchayats and for preparation of the five year perspective plans; (iii) launching of GIS and Asset Mapping exercise across all 6010 GPs; (iv) GP automation and strengthening of the Pancha-Tantra ²; (v) strengthening of the Project Monitoring Unit (PMU) and the Decentralization Analysis Cell (DAC) at the state level including hiring of technical experts and initiating key consultancies such as the Tribal Development Plan, Environmental and Social Management Framework and other diagnostic work.

1.3. Project Development Objective:

The project development objective is “to enhance the ability of Gram Panchayats to manage resources and deliver services prioritized in their development plans in the least developed areas of Karnataka”

The project development objective would be achieved through a mix of support in the form of: (a) block grants to Gram Panchayats through a mechanism that provides incentives for service delivery, local participation and accountability; (b) institutional development to strengthen the capacity of Gram Panchayats to manage resources, service delivery and civil society to engage in articulating local priorities as well as providing oversight; and (c) project management support.

1.4. Project Components:

The project has the 3 following components:

Component A - Block Grants to Gram Panchayats: The grants will finance creation, augmentation or rehabilitation of small infrastructure works by GPs.

Component B - Institutional Development: This component covers the range of holistic institutional development activities and investments required to ensure the progress towards the project development objective.

Component C - Project Management Support: This activity would put in place systems at the state level to enable it to oversee, facilitate and manage the Panchayat system and the project GPs.

Under these components the World Bank will finance block grants to GPs, hiring of services from consultants and operational costs. The detailed description of the components is provided in *Annexure 1*.

² The PanchaTantra is a comprehensive web based accounting software developed by the RDPR.

1.5. Project Location:

The project will be implemented in 25 districts in 79 block covering 2815 GPs. The list of Project districts along with taluks is attached as *Appendix 1*.

1.6. Environment Management Framework (EMF):

The purpose of EMF is to ensure that the project interventions are environmentally sustainable and are in compliance with applicable environmental laws and regulations of the Government of India, GoK and triggered safeguard policies of the World Bank.

The EMF is applicable to all activities of “Strengthening Governance and Service Delivery in Karnataka Panchayats”. EMF is an integral part of the implementation arrangements.

1.6.1. Methodology for Development of the EMF:

The methodology followed for developing the EMF is as follows:

- Desk review of the documents - Environment Assessment report of Karnataka Gram Swaraj Project as well as the formats/ tools (Screening Tool and OK cards) developed to operationalise it, and, the Environment Review report of Karnataka Gram Swaraj Project.
- Field survey covering 8 GPs
- Consultations with PMU and World Bank
- Stakeholders’ consultation
- Disclosure of draft and final EMF on GoK website

Insights are drawn from the Environment Review report – ‘How Green is Gram Swaraj?’ for highlighting the common issues associated with GP works, tools and procedures. The recommendations regarding mitigation measures and policy level interventions required for enabling the environment management of GP works are also drawn from the report.

This EMF document need to be viewed as dynamic document and should be reviewed and updated as per the emerging project contexts.

1.6.2. Objective of EMF and Approach

The objective of the EMF is to ensure environmental sustainability of the activities undertaken by Gram Panchayats and to enhance the capacities of Panchayati Raj Institutions (PRIs) in sustainable management of environment.

The approach is:

- Integrating environmental sustainability dimension into the GP perspective plans and annual action plans
- Integrating required environmental guidelines into all construction activities

- Integrating aspects of environment management into the capacity building programmes

1.6.3. Overview of the EMF Report:

The structure of the report is as follows:

Chapter 1 provides an overview of the objective and components of the project “Strengthening Governance and Service Delivery in Karnataka Panchayats”.

Chapter 2 discusses briefly the environment profile of the project area.

Chapter 3 provides legal and regulatory framework that is applicable to the project activities.

Chapter 4 discusses the subproject activities supported under project and provides the Environment Guidelines for the most infrastructure works in GPs.

Chapter 5 provides institutional arrangements and procedures for the Environment Management in the project.

Chapter II – Environmental Profile of Karnataka: KGSP context

2. Environmental Profile of the State:

2.1. Geographical regions:

Karnataka state comprises of 30 districts, 4 revenue divisions and 177 taluks. Geographically the state is situated in a table land where the Western and Eastern Ghats converge into the Nilgiri Hills complex in the Deccan Plateau region of India. The state has the following geographical regions³:

Northern Karnataka Plateau: the districts in this region include Belgaum, Bidar, Bijapur and Gulbarga. The region is largely composed of Deccan traps. Soils are black cotton type. This region is transversed by the river plains of Krishna, Bhima, Ghataprabha and Malaprabha.

Central Karnataka Plateau: the districts in this region include Bellary, Chikmagalur, Chitradurga, Dharwad, Raichur and Shimoga. This region represents Tungabhadra basin.

Southern Karnataka Plateau: the districts in this region include Bangalore, Bangalore Rural, Hassan, Kodagu, Kolar, Mandya, Mysore and Tumkur. Cauvery river basin lies in this area.

Karnataka Coastal Region: coastal region consists of two broad physical units, the plains and the Western Ghats. The districts in this region are Udupi, Dakshina Kannada and Uttara Kannada.

2.2. Agro Climatic Zones⁴ in Project Area:

Karnataka is divided into 10 agro climatic zones taking into consideration the rainfall pattern, distribution, soil types, topography, vegetation, crops etc. The table below provides distribution of project taluks in different Agro Climatic Zones of Karnataka.

Table 1: Distribution of Project Taluks in Agro Climatic Zones of Karnataka

<i>Agro Climatic Zones</i>	<i>Features</i>	<i>Project Taluks in the Zone</i>
<i>North Eastern Transition Zone</i>	The annual rainfall in this region varies from 830-890 mm. The soils are shallow to medium black, clay in major areas and lateritic in the	Aland, Bhalki, Basavakalyan, Bidar, Chincholi, Humnabad, Aurad.

³ Source: http://wgbis.ces.iisc.ernet.in/energy/paper/TR109/tr109_std2.htm accessed on 9th September 2015.

⁴ Source: http://wgbis.ces.iisc.ernet.in/energy/paper/TR109/tr109_std2.htm accessed on 9th September 2015.

	remaining areas.	
<i>North Eastern dry Zone</i>	The annual rainfall varies from 633.2 to 806.6 mm. The soils are deep to very deep black clay in major areas and shallow to medium black in minor pockets.	Afzalpur, Chitapur, Gulbarga, Jevargi, Sedam,Shorapur, Shahapur, Yadgir Raichur, Devdurga, Manvi.
<i>Northern Dry Zone</i>	The annual rainfall ranges from 464.5-785.7 mm. The soils are shallow to deep black clays in major areas.	Koppal, Kushtagi, Lingasur, Sindhanur, Yelbarga, Badami, Bagalkote, Bagewadi, Bilgi, Bijapur, Hunagund, Indi, Muddebhihal, Sindagi, Bellary, Hagaribommanahalli, Kudligi, Sandur, Siruguppa, Mundargi, Gokak, Athani.
<i>Central Dry Zone</i>	The annual rainfall ranges from 453.5-717.7 mm. Soils are red sandy loams in major areas, shallow to deep black in the remaining areas.	Challakere, Hiriya, Hosadurga, Holalkere, Jagalur, Molakalmur, Kadur, Madhugiri, Pavagada, Korategere, Chikkanayakanahally, Sira.
<i>Eastern Dry Zone</i>	The annual rainfall ranges from 679.1-888.9 mm. Soils are red loamy in major areas, lateritic in the remaining areas.	Gubbi, Kanakapura, Magadi, Bagepalli, Gudibande, Gowribidanur, Mulbagal.
<i>Southern Dry Zone</i>	The annual rainfall ranges from 670.6-888.6 mm. Soils are red sandy loam in major areas and red loamy in the remaining areas.	TirumakudalNarasipur, Kollegal, Nanjangud, Turuvekere, Kunigal, Nagamangala, Malavalli, K.R.pet, Chamrajnagar, Gundlupet.
<i>Southern Transition Zone</i>	The annual rainfall ranges from 611.7-1053.9 mm. Soils are red sandy loam in major areas and red loamy in the remaining areas.	Heggadadevanakote, Hunsur, Arakalgud, Honnali, Channagiri.
<i>Northern Transition Zone</i>	The annual rainfall ranges from 619.4-1303.2 mm. The soils are shallow to medium black clay and red sandy loam in equal proportions.	Shiggoan, Savanur, Hirekerur.
<i>Hilly Zone</i>	The annual rainfall ranges from 904.4-3695.1 mm. The soils are red sandy loams in major areas.	Yellapur, Supa.
<i>Coastal Zone</i>	The annual rainfall ranges from 3010.9-4694.4 mm. Soils are red lateritic and coastal alluvial.	Bhatkal.

Drought⁵:

The average rainfall of the state is about 1779 mm, however two-thirds of the state experiences drought due to 750 mm or less rainfall. Considering moderate and severe droughts, the taluks, which have had droughts in 25 percent or more years, are Chitradurga, Hosadurga, Sira, Madhugiri, Shorapur, Athani and Bagepalli. The taluks with the greatest percentage of drought years are Sira, Madhugiri, Korategere, Kadur, Kushtagi, Shorapur, Shahapur, Yadgir, Bangarpet, Mulbagal, Srinivasapur, Gudibanda, Bagepalli, Athani, Raibag, Saundatti and Gokak. The taluks in the northern drought-prone districts have in general, more years of moderate and severe drought than the taluks in the southern districts.

During 2011, Karnataka State Natural Disaster Monitoring Committee (KSNDMC) has declared 273 hoblis⁶ in 123 taluks of 24 districts as drought affected which is nearly 70% of the total taluks. Out of the 79 project taluks 70 are drought affected.

The drought affected taluks in project districts are given in the table below:

Table2: Project Taluks that are affected by Drought during 2011⁷

<i>District</i>	<i>Drought Affected Taluks</i>
Chickballapur	Gowribidanur, Bagepalli, Gudibanda
Tumkur	Gubbi, Chiknayakanhalli, Koratagere, Kunigal, Madhugiri, Pavagada, Sira, Turuvekere
Kolar	Mulbagal
Ramanagara	Kanakapura, Magadi
Chitradurga	Challakere, Hosdurga, Hiriyur, Holalkere, Molakalmuru
Davanagere	Harpanahalli, Honnali, Jagalur
Chamarajanagar	Chamarajanagar, Gundlupet, Kollegal
Mysore	Najanagud, Tirumakkudal Narsipur
Mandya	Krishnarajpet, Nagamangala, Malavalli
Bellary	Hadagalli, Hagaribommanahalli, Kudligi, Sandur, Siriguppa
Koppal	Koppal, Kushtagi, Yelbarga
Raichur	Devadurga, Lingsugur, Manvi, Raichur, Sindhunur
Gulbarga	Afzalpur, Aland, Chincholi, Chitapur, Jevargi, Sedam
Yadgir	Shahpur, Shorapur, Yadgir
Bidar	Aurad, Bhalki, Basavakalyan, Homnabad
Belgaum	Athni
Bagalkot	Bilgi, Badami, Hungund
Bijapur	Basavana Bagewadi, Indi, Muddebihal, Sindgi
Gadag	Mundargi
Haveri	Herekerur, Savanur, Shiggoan
Hassan	Arkalgud

⁵Sourced at http://wgbis.ces.iisc.ernet.in/energy/paper/TR109/tr109_std2.htm accessed on 9th September 2015.

⁶ Cluster of adjoining villages administered together for tax and land tenure purposes

⁷ Source: <http://dmc.kar.nic.in/DroughtRep11-12.pdf>, accessed on 10th September 2015.

Chikmangalur	Kadur
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Implications for GPs:

Most of the project taluks are drought prone. In view of this, the capacity building and facilitation support provided to the GPs for development of the perspective plan and the annual action plans should include information on drought proofing mechanisms such as water conservation and groundwater recharge works to meet the needs of drinking water supply, critical irrigation, etc., during the drought years.

2.3. Forest Area:

The state has a forest cover of 43,356 sq. kms, which is 22.6% of geographical area of the state. Out of this 17.3% is under notified forest. These forests support 25% of elephant population and 18% tiger population of India. The State has 5 National Parks 27 Wild Life Sanctuaries (WLS) and 5 Tiger Reserves. The table below presents the details of National Parks, WLS and Tiger Reserves in project taluks:⁸

Table 3: Project Taluks with National parks, Tiger reserves and Wild Life Sanctuaries⁹:

<i>National Parks</i>	<i>Project Districts</i>	<i>Taluks</i>
Bandipur National Park	Chamarajnagar Mysore	Gundlupet, Nanjangud. Heggadadevanakote
Nagarahole National Park	Mysore	Hunsur, Heggadadevanakote
<i>Tiger Reserves</i>	<i>Districts</i>	<i>Taluks</i>
Bandipur Tiger Reserve	Chamarajnagar Mysore	Gundlupet. Nanjangud, Heggadadevanakote
Nagarahole Tiger Reserve	Mysore	Hunsur, Heggadadevanakote
Biligiri Ramaswamy Temple (BRT) Hills	Chamrajnagar	Kollegal
<i>Wild Life Sanctuaries</i>	<i>Districts</i>	<i>Taluks</i>
Bheemaswari WLS	Mandya	Malavalli
Bonal Bird Sanctuary	Yadgir	Shorapur
Gudavi Bird Sanctuary	Shimoga	Sorab
Nagu WLS	Mysore	Heggadadevanakote
Ghataprabha	Belgaum	Gokak
Daroji Sloth Bear Sanctuary	Bellary	Sandur
Biligiri Rangaswamy Temple	Chamrajnagar	Kollegal

⁸Sources: <http://aranya.gov.in/Static%20Pages/ManagementPlans.aspx>

and Sanctuaries in India: Sourced at <http://www.sanctuariesindia.com/states/wildlife-sanctuaries-in-karnataka/> on 8th September

⁹National Parks of Karnataka, sourced at <http://www.aranya.gov.in/Static%20Pages/NationalParks.aspx> on 8th September 2015.

WLS		
Arabithittu WLS	Mysore	Hunsur
Adichunchangiri WLS	Mandya	Nagamangala
Malai Mahadeswara Sanctuary	Chamrajnagar	Gundlupet
Gudekote Sloth Bear Sanctuary	Bellary	Kudligi
Chincholi Wildlife Sanctuary	Gulbarga	Chincholi

Implications for GPs:

The GPs located near the proximity of National Parks and Wild Life Sanctuaries are required to follow certain regulations as per the Wild Life (Protection) Act, 1972, The Karnataka Forest Act, 1963 and Forest (Conservation) Act, 1980. The details are mentioned in the List of ‘Dos and Don’ts.

Western Ghats:

Western Ghats is one of the important biodiversity hotspots in the world, noted to be home for many endemic species. Western Ghats is place of origin for rivers like Krishna, Godavari, Nethravathi, Vaigai, Kaveri and Kunti. This is a UNESCO ‘World Heritage Site’ and includes protected areas. About 60% of area defined under Western Ghats is under cultural landscape overlapping with human settlements, which needs to be conserved, managed and regenerated. Proper planning and observing the regulations is the key for conserving this recognized centre for biodiversity.

The Ministry of Environment Forests and Climate Change (MoEFCC) identified Ecologically Sensitive Areas (ESA) in the Western Ghats region, under the Sub-rule (3) of Rule 5 of Environment Protection Rules 1986 (draft notification), for protection, sustainable management and regeneration. The ESA represent more or less a contiguous band of vegetation extending over 1500 km across the 6 states – Maharashtra, Gujarat, Goa, Karnataka, Tamil Nadu and Kerala.

The area covered under Western Ghats in Karnataka is 44,448 sq km, which is about 23% of the total geographical area of the state (which is 1,91,791 sq kms). About 46.50 % of the area under the taluks falling in Western Ghats region is classified as ESA. In total, 1576 villages in the state fall within the ESAs. The table below lists the districts, taluks and villages falling under ESAs of Western Ghats¹⁰.

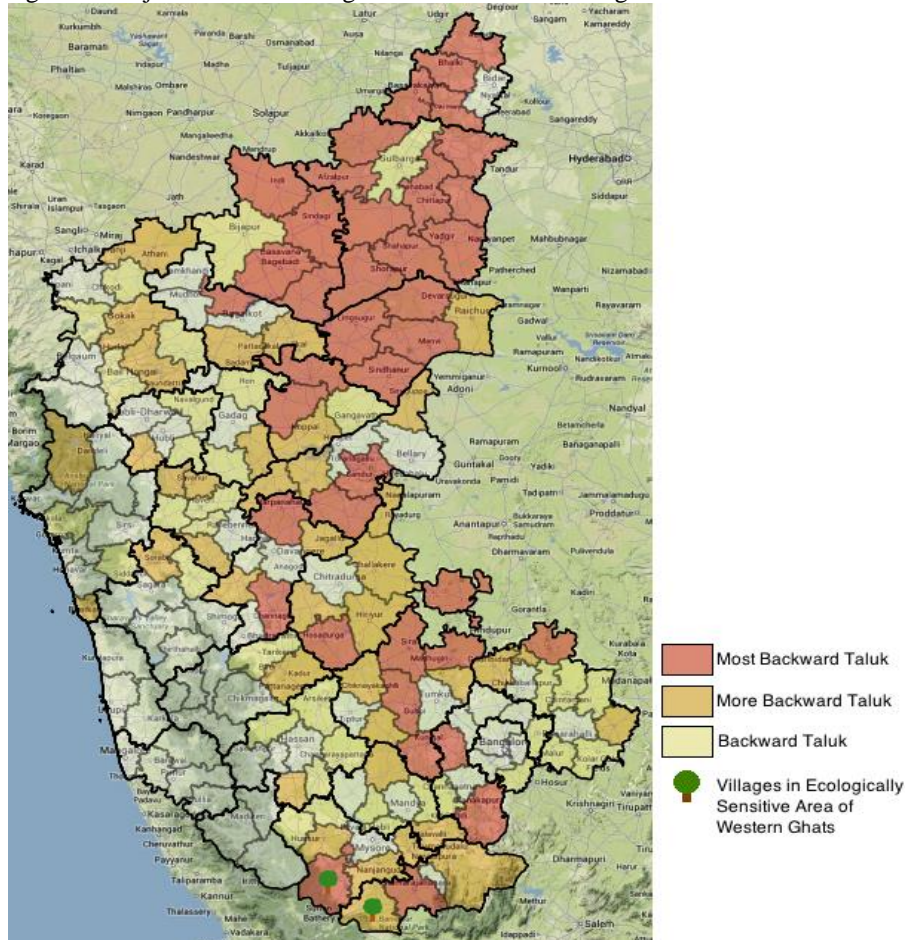
Table4: Project Districts and Taluks falling under Western Ghats

<i>District</i>	<i>Project Taluks</i>	<i>Taluk Area(sq km)</i>	<i>Ecologically Sensitive Areas (ESA)</i>	<i>Names of Project Villages within ESA</i>
Chamarajnagar	Gundlupet	1,377	574	Baragi Berambadi Bachahalli

¹⁰Draft notification, source: <http://www.dgms.net/Western%20Ghats%20Eco-sensitive%20Area%20draft%20Notification%2004.09.2015%20%282%29.pdf>, accessed on 5th December 2015.

Mysore	Heggadadevanakote	1,616	844	Hirehalli Antharasanthe N. Belathur Alanahalli
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Figure 1: Project Districts falling under Western Ghats region



Implications for GPs:

As per the draft notification on Ecologically Sensitive Areas under sub-rule (3) of rule 5, Environment Protection Rules 1986, activities like mining, quarrying and sand mining are not permitted in the Ecologically Sensitive Areas. The GPs enclosing or sharing borders with ESAs should be made aware of the provision under the act and ensure that there is no quarrying and sand mining for any construction activities.

2.4. Water Resources:

Karnataka state has limited water resources that are stressed and depleting due to increasing demands from rising population, urbanization and growing sectoral demands. The annual normal

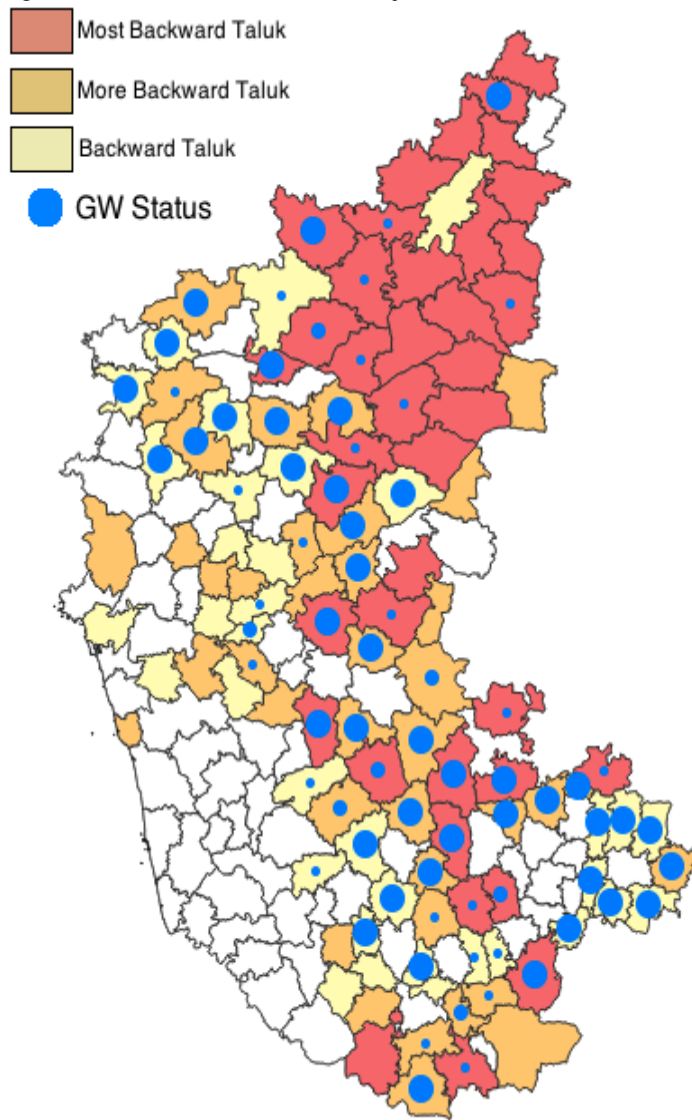
rainfall of the state is 1779 mm. However; about 2/3rd of the geographical area of the state receives less than 750 mm of rainfall¹¹. There are seven river systems in the State viz., Krishna, Cauvery, Godavari, West Flowing Rivers, North Pennar, South Pennar and Palar.

Ground Water:

Net annual availability of groundwater in the state is 14.81 BCM. The stage of ground water development is 64%. Ground water development is not uniform throughout the state. Exploitation of ground water in the dry taluks of north and south interior Karnataka is higher as compared to coastal, hilly areas and irrigation command areas. There is deficiency of water for drinking, agricultural and industrial use in dry taluks of north and south interior Karnataka. The figure below presents the groundwater status in the project taluks. The size of blue dots represents the status of ground water - the large size dots represent over exploited areas, medium size dots represent critical areas and smaller dots represent semi critical areas.

¹¹State Water Policy, Accessed at <http://www.cseindia.org/userfiles/Karnataka.pdf> on 9th September 2015.

Figure 2: Groundwater Status of Project Taluks



Ground water status:

The stage of groundwater development in project districts with over exploited taluks is given in the table below:

Table 5: Groundwater Development Status in Project districts (as on 2011)¹²:

<i>District</i>	<i>Stage of development (percentage)</i>	<i>Over Exploited Blocks</i>
Bagalkot	91%	Badami Hungund
Belgaum	78%	Athani Gokak
Bellary	42%	Hagaribommanahalli
Chamrajnagara	80%	Gundlupet
Chikballapur	145%	Gauribidalur Gudibanda
Chikmagalur	43%	Kadur
Chitradurga	102%	Challakere Hiriyur Holalkere
Davangere	89%	Channagiri Harpanahalli Jagalur
Kolar	187%	Mulbagal
Koppal	43%	Koppal
Mandya	47%	Krishnarajpet Malavalli
Mysore	43%	Krishnrajanagara
Ramanagaram	108%	Kanakapura Magadi

Based on the stage of groundwater exploitation, GoK has notified the following areas for regulation of groundwater development¹³:

Table6: Taluks Notified for Regulation of Groundwater Development¹⁴

Project Districts	Project Taluks
Bagalkote	Badami taluk
Chikballapur	Gauribidanur taluk Gudibanda taluk
Tumkur	Koratagere(P) taluk

¹² Source: <http://www.cgwb.gov.in/documents/Dynamic-GW-Resources-2011.pdf> accessed on 9th October 2015.

¹³ Source: http://cgwb.gov.in/gw_profiles/st_karnataka.html, accessed on 8th September 2015.

¹⁴ Groundwater scenario of Karnataka, sourced at <http://www.cgwb.gov.in/State-Profiles/Karnataka.pdf>, accessed on 15th September 2015.

Implications for GPs:

The GPs should be aware of groundwater status in their taluks. 22 taluks in 13 project districts are under over exploited category and 5 of the project taluks in 3 districts are notified for regulation of groundwater development. The GPs in notified taluks will require permission to sink wells for drinking purpose. In the taluks with over-exploited groundwater status, the GPs need to be provided technical support to plan and undertake water-harvesting and groundwater recharge measures.

Ground water quality:

Ground water is the major drinking water source in Karnataka and 80% of Rural Water Supply schemes have their source based on ground water¹⁵.

The presence of chemical contaminants like Fluoride, Nitrate and Arsenic in drinking water poses health risk. Groundwater quality problems exist in the following project districts and taluks¹⁶.

Table7: Groundwater Contamination in Project Districts and Taluks

Contaminants	Districts affected (in part)	Project Taluks
Salinity (EC > 3000 μ S/cm at 25 ° C)	Bagalkot, Belgaun, Bellary, Davangiri, Gadag, Gulbarga, Raichur.	--
Fluoride (>1.5 mg/l)	Bagalkot, Bangalore, Belgaun, Bellary, Bidar, Bijapur, Chamarajanagara, Chikmagalur, Chitradurga, Davanagere, Dharwad, Gadag, Gulbarga, Haveri, Kolar, Koppala, Mandya, Mysore, Raichur, Tumkur.	Chikballapur – Bagepalle taluk Devanagere –Jagalur taluk Gulbarga - Jewargi, Afzalpur taluks. Yadgir – Shorapur, Shahpur taluks
Chloride (> 1000 mg/l)	Bagalkot, Belgaum, Gadag, Dharwar.	Bellary - Siruguppa taluk
Iron (>1.0 mg/l)	Bagalkot, Belgaum, Bellary, Bidar, Bijapur, Chikmagalur, Chitradurga, Davanagere, Gulbarga, Hasan, Haveri, Kolar, Koppala, Mysore, Raichur, Shimoga, Tumkur, Uttar Kannada.	--
Nitrate (>45 mg/l)	Bagalkot, Belgaum, Bellary, Bidar, Bijapur, Chamarajanagara, Chikmagalur, Chitradurga, Davanagere, Dharwad, Gadag, Gulbarga, Hassan, Haveri, Kolar, Koppala, Mandya, Mysore, Raichur, Shimoga, Udupi, Uttar Kannada.	Bellary - Siruguppa, Hadagali taluks. Chikmangalur - Kadur taluk Gulbarga - Jewargi, Afzalpur taluks. Yadgir – Shorapur, Shahpur taluks.
Arsenic (>0.05 mg/l)	Raichur and Yadgir districts	---

¹⁵Supplementary Note on Contingent Action plan of Rural Water Supply in Karnataka accessed at <http://indiawater.gov.in/SanctionOrders/karnataka.pdf> on 10th September 2015.

¹⁶ Source: http://cgwb.gov.in/gw_profiles/st_karnataka.htm accessed on 8th September 2015.

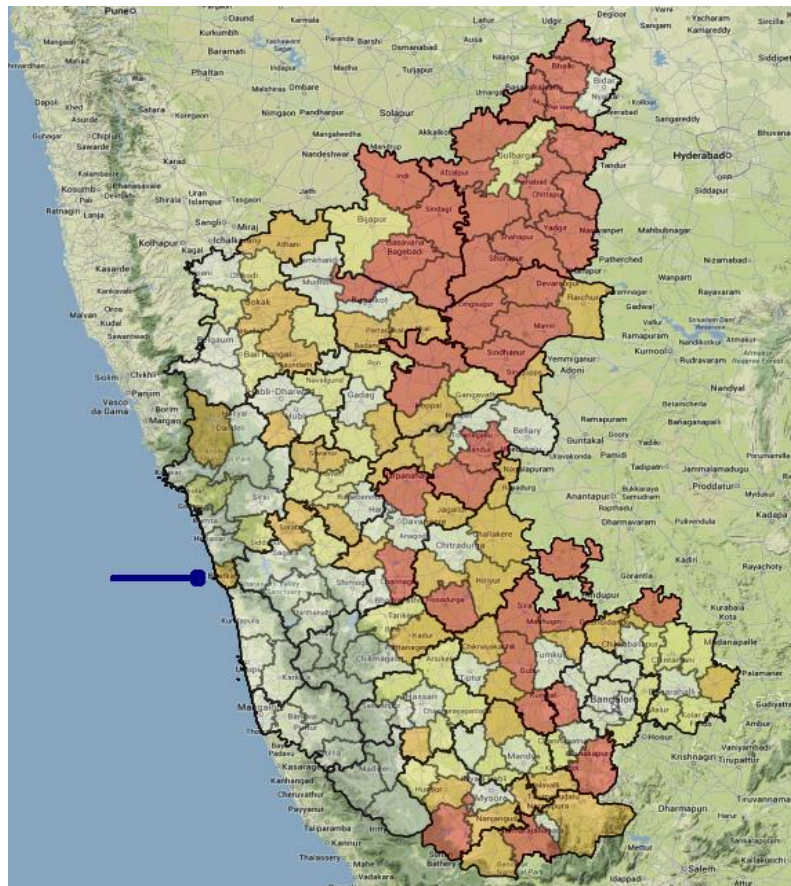
Implications for GPs:

One of the important activities GPs could take up is drinking water supply. The GPs need to know about the quality of ground water as it should confirm to the prescribed standards when used for drinking purpose. In water scarce areas water recharge measures and rain water harvesting could become part of bore wells and building construction works.

2.5. Coastal Area:

The Coastline of Karnataka is about 300 sq. kms, and 320 sq. kms including coastal islands. The 3 coastal districts are Uttara Kannada (160 kms), Udipi (98 kms) and Dakshina Kannada (62 kms) with 13 taluks along the coast. Of these only Bhatkal Taluk in Uttara Kannada is part of the project.

Figure 3: Project Taluk in Coastal Area



Key concerns:

The coast is thickly populated and intensely cultivated. The coast line faces direct threat of cyclones and severe cyclones originating in Arabian Sea and indirect attack of cyclones originating along the Eastern coastline.

Implications for GPs:

The GPs in the coastal taluk should be aware of the provisions under Coastal Regulation Zone notification as activities like mining sand, rocks is prohibited in the CRZ areas. Construction activities are regulated in CRZ I and II.

Chapter III: Legal and Regulatory Framework

3. Legal and Regulatory Framework

The objective of the project is to “to enhance the ability of Gram Panchayats to manage resources and deliver services prioritized in their development plans in the least developed areas of Karnataka” The component A of the project ‘Block Grants to Gram Panchayats’ provides funding for creation, augmentation or rehabilitation of small infrastructure works by GPs in the “most” and “more” backward taluks. The component B ‘Institutional Development’ proposes to enhance the capacities of GPs and people. While working towards the objective it is important to keep in mind that all the interventions under the Block Grants and Capacity Building are compliant with the environmental laws and regulations of the Government of India and GoK and the Safeguard Policies of World Bank. Compliance with the legal and regulatory framework will help to ensure sustained benefits from the created infrastructure and sustainable management of natural resources. This chapter lists out the applicable Acts, Rules and Regulations of Government of India and GoK. A List of “Dos and Don’ts” (that are not permitted under the project) based on the Legal and Regulatory Framework applicable to project “Strengthening Governance and Service Delivery in Karnataka Panchayats” is provided as *Annexure 2*.

Table 8: Legal and Regulatory Framework Applicable to proposed project

S. No	Act, Policy or Government Order	Brief Overview	Applicability to KPSP
National Legislations			
1.	<p>The 73rd constitutional amendment.</p> <p>The Act devolves duties and functions to Panchayats in respect of 29 matters listed in XIth schedule.</p> <p>The Karnataka Panchayat Raj Act 1993.</p>	<p>The 73rd constitutional amendment empowers gram sabhas / panchayats to take necessary steps for management of areas under them, including the protection of environment and sustainable utilization of the natural resources.</p> <p>The panchayats' responsibilities include conserving and maintaining public properties such as gomala, tanks, tank beds, ground water, grazing grounds of the cattle, mines etc., within the limits of the GramPanchayats.</p>	<p>The provisions in the Act regarding the role of panchayats in protecting environment and sustainable use of natural resources are applicable to all GPs in general.</p> <p>Capacity building modules for GPs, TPs and ZPs (elected representatives and staff) should include that protection of environment and sustainable use of natural resources is part of their responsibilities under the Panchayati Raj Act.</p>
2.	<p>Environment (Protection) Act, 1986 and EIA Notification, 2006.</p> <p>Draft notification on Ecologically Sensitive Areas in Western Ghats region, under the Sub-rule (3) of Rule 5 of Environment Protection Rules 1986 (draft notification).</p>	<p>Environmental Impact Assessment (EIA) is required for specified categories of industry.</p> <p>Ecologically Sensitive Areas in Western Ghats are notified by the Government spread in 6 states including Karnataka. Mining, quarrying and sand mining are not allowed in Ecologically Sensitive Areas identified by High Level Working Group constituted by MoEF.</p>	<p>Construction materials for works such as stone paving of roads, construction of buildings, etc., could source materials from quarrying and sand mining in ecologically sensitive areas. Activities restricted in Ecologically Sensitive areas – sand mining, quarrying are included in the 'List of Dos and Don'ts'. The list of GPs falling under Ecologically Sensitive areas is provided in chapter 2 and in reference section of <i>Annexure 2</i>.</p> <p>GPs, TPs and ZPs (elected representatives and</p>

			staff)should be made aware of this provision through capacity building programmes.
3.	<p>Forest (Conservation) Act, 1980.</p> <p>The Act is an interface between conservation and development.The act permits judicious and regulated use of forest land for non-forestry purposes.</p>	<p>Any forest land or any portion of it should not be used for any non-forest purposes. While the forest policy has recorded rights, concessions and privileges of the local people, activities likefelling of trees or break up the forest floor so as to procure stones, minerals, or take up constructions, etc is not permitted.</p>	<p>Felling of trees and breaking up the forest floor for construction activities (while constructing roads, buildings, toilets and drinking water supply) could occur in GPs located in proximity of forest areas. It is necessary to take permission from the Forest Department in cases where forest land is involved.</p> <p>The requirement to take permission from Forest Department is included in ‘List of Dos and Don’ts’.</p> <p>GPs, TPs and ZPs (elected representatives and staff)should be made aware of the need to take permission as part capacity building programmes.</p>
4.	<p>Indian Forest Act 1927.</p> <p>An Act to consolidate the law relating to forests, the transit of forest-produce and the duty leviable on timber and other forest-produce.</p>	<p>Formation of village forests - The state government may assign to any village community the rights of Government to or over any land which has been constituted as reserve forest and may cancel such assignment. All forest so assigned shall be called village forests.</p>	<p>This Act is applicable to all GPs in general that are located in the proximity of forests.</p> <p>The capacity building modules for GPs, TPs and ZPs (elected representatives and staff)should include the provision of Act – formation of village forests and role of GPs in conservation and management of the same.</p>
5.	<p>Wild Life (Protection) Act 1972.</p> <p>An Act to provide for the protection of [Wild animals, birds and plants]and for mattersconnected there with or ancillary or incidental thereto.</p>	<p>Destruction, exploitation or removal of any wild life including specified plants and forest produce from a sanctuary or the destruction or diversification of habitat of any wild animal, or the diversion, stoppage or enhancement of the flow of water into or outside the sanctuary, cultivation of specified plants is prohibited without a permit granted by the Chief Wildlife</p>	<p>GPs near WLSs undertaking the water supply works or construction activities are likely to draw water from or release waste water into the sanctuary area. Under this Act diversion, stoppage or enhancement of flow of water into or outside sanctuary is prohibited. This is included in the ‘List of Dos and Don’ts’. List of WLS in project districts is given in chapter 2</p>

		<p>Warden.</p> <p>The Act provides for protection to listed species of flora and fauna and establishes a network of ecologically-important Protected Areas (PAs).</p>	<p>and in reference section of <i>Annexure 2</i>.</p> <p>Representatives of GPs, TPs and ZPs (elected representatives and staff) which are in the proximity of the Wild Life Sanctuaries existing in the project area (mentioned in chapter 2, and reference section of <i>Annexure 2</i>) should be made aware of this condition of the Act.</p>
6.	<p>Forest Rights Act 2006.</p> <p>Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006.</p>	<p>The Act seeks to recognize and vest certain forest rights in the forest dwelling Scheduled Tribes and other traditional forest dwellers such as collection of minor forest produce, access to grazing grounds and water bodies, traditional areas of use by nomadic or pastoral communities.</p> <p>The Central Government can provide for diversion of the forest for infrastructural facilities managed by Government which involve felling of trees not more than 75 per ha such as schools, hospitals, fair price shops, drinking water, irrigation, water harvesting structures, non conventional sources of energy, roads, vocational and skill training centres, community centres etc.</p>	<p>GPs located near forests (tribal areas) could take up activities like construction of roads, schools, anganwadis, community halls, drinking water facilities, toilets etc. that might require felling of trees.</p> <p>The GP should take approval from forest department through Range Officer in such cases. The number should not exceed 75 per ha.</p> <p>This condition is included in the 'List of Dos and Don'ts'. Appropriate mitigation measures that are to be followed in case of felling of trees are made part of environment guidelines for construction activities.</p> <p>GPs, TPs and ZPs (elected representatives and staff) should be made aware of this condition and mitigation measures as part of capacity building programmes.</p>
7.	<p>The Biological Diversity Act 2002.</p> <p>An Act to provide for conservation of biological diversity, sustainable use of its</p>	<p>Every local body shall constitute a Biodiversity Management Committee within its area for the purpose of promoting conservation, sustainable use and documentation of biological diversity including preservation of habitats,</p>	<p>All GPs in general should comply with this Act by Constituting Biodiversity Management Committees.</p> <p>Capacity building modules for GPs, TPs and ZPs (elected representatives and staff) should emphasize GPs role in</p>

	components and fair and equitable sharing of the benefits.	conservation of land races, folk varieties and cultivars, domesticated stocks and breeds of animals and micro organisms and chronicling of knowledge relating to biological diversity.	conservation, sustainable use and documentation of local biological diversity under the Biological Diversity Act 2002.
8.	Indian Standard for Drinking Water – Specification IS 10500: 2012.	The desired quality of drinking water is described in specific parameters which should be complied with for drinking water supply projects.	The water quality of water supply projects taken up by GPs should confirm to the prescribed limits specified under IS 10500: 2012. The condition to confirm to the standards is included in the ‘List of Dos and Don’ts’. GPs, TPs and ZPs (elected representatives and staff) should be made aware of the standards to be confirmed as part of Capacity Building Programmes.
9.	Water (Prevention and Control of Pollution) Act, 1974. An Act to provide for the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water.	No person shall knowingly cause or permit any poisonous, noxious or polluting matter determined in accordance with such standards in to stream or well or sewer or on land. No person shall cause or permit to enter into any stream any other matter which may tend, either directly or in combination with similar matters, to impede the proper flow of the water of the stream in a manner leading or likely to lead to a substantial aggravation of pollution.	GPs are likely totake up construction of drainswhich couldbe dischargedinto streams, wells etc. in the village or outside the village. GP are also likely to take up construction works and there is a risk that the construction debris may be dumped into nearby water bodies like streams, wetlands. This Act prohibits release of any kind of matter or material that may pollute or obstruct the flow of water into streams, wells or land. The provision is included in the ‘List of Dos and Don’ts’. GPs, TPs and ZPs (elected representatives and staff)should be made aware of this condition as part of capacity building programmes.

10.	<p>Coastal Regulation Zone Notification 2011, and Island Protection Zone Notification 2011.</p> <p>To ensure livelihood security to the fisher communities and other local communities, living in the coastal areas, to conserve and protect coastal stretches, its unique environment and its marine area and to promote development through sustainable manner.</p>	<p>The Government of India declares the coastal stretches of seas, bays, estuaries, creeks, rivers and backwaters which are influenced by tidal action up to 500m from the High Tide Line (HTL) and the land between the Low Tide Line (LTL) and the HTL as Coastal Regulation Zone (CRZ) and imposes restrictions on the setting up and expansion of industries, operations or processes, etc., in the CRZ. Mining of sands, rocks and other substrata materials is prohibited in the CRZ.</p> <p>With drawl of ground water is prohibited from between 200 – 500m except when done manually through ordinary wells for drinking, horticulture, agriculture and fisheries and where no other source of water is available.</p> <p>Construction activities are prohibited in CRZ I¹⁷.</p> <p>Buildings are permitted only on the landward side of existing road in CRZ II¹⁸.</p>	<p>The GPs located in the coastal district of Uttara Kannada may take up construction activities or drainage works that might be located in Coastal Regulation Zone.</p> <p>Buildings are prohibited in CRZ I and permitted only on landward side of CRZ II. These regulations are included in the ‘List of Dos and Don’ts.’</p> <p>GPs, TPs and ZPs (elected representatives and staff) should be made aware of the provisions of the notification as part of capacity building programmes.</p>
11.	<p>The Noise Pollution (Regulation And Control) Rules 2000.</p> <p>To regulate and control noise producing and generating sources with the objective of maintaining the ambient air quality standards in respect of noise.</p>	<p>Sound emitting construction equipment shall not be used or operated during night times in residential areas and silence zones (hospitals and educational institutions).</p>	<p>The construction activities undertaken by GPs may involve use the sound emitting construction equipment during nights or near silence zones.</p> <p>The rules prohibit the use of sound emitting construction equipment during night times near residential areas, hospitals and educational institutions.</p>

¹⁷The areas that are ecologically sensitive and the geomorphological features which play a role in the maintaining the integrity of the coast

¹⁸The areas that have been developed upto or close to the shoreline.

			<p>The rules are included in ‘List of Dos and Don’ts’.</p> <p>GPs, TPs and ZPs (elected representatives and staff) should be made aware of the rules as part of capacity building programmes.</p>
12.	The Batteries (Management and Handling) Rules, 2001.	<p>Ensure safe transportation of the used batteries to designated collection centres or registered recyclers and ensure no damage is caused to environment during storage or transportation.</p>	<p>GPs may take up solar street lighting activity or may procure betteries for UPS where the use of batteries might be there.</p> <p>The used batteries should be disposed through registered recyclers as per the Rules.</p> <p>The rule is included in the ‘List of Dos and Don’ts’.</p> <p>GPs, TPs and ZPs (elected representatives and staff)should be made aware of this requirement as part of capacity building programmes.</p>
State Legislations			
13.	<p>The Karnataka Forest Act, 1963.</p> <p>An act to consolidate and amend the law relating to forests and forest produce in the State of Karnataka.</p>	<p>Certain acts like clearing, kindling fire etc. are prohibited in reserve forests.</p> <p>State Government has authority toconstitute village forests, make rules for village forests, inquiry into and settlement of rights, constitution of village forest committee for joint forest planning and management of forests.</p>	<p>GPs located in proximity of forests might take up construction works that involve some amount of forest clearance.</p> <p>No clearing of forest should be done in reserve forests. This is listed in ‘List of Dos and Don’ts’.</p> <p>GPs, TPs and ZPs (elected representatives and staff)should be made aware of this requirement as part of capacity building programmes.</p>
14.	The Karnataka Preservation of Trees Act, 1976.	<p>No person shall fell any tree or cause any tree to be felled in any land, whether in hisownership or occupancy or otherwise, except with the previous permission of the Tree Officer.</p>	<p>Construction activities undertaken by GPs (roads, buildings, water supply, etc.) could involve felling of trees.</p> <p>For felling of trees permission should be taken from Tree Officer (Forest Officer appointed for</p>

		<p>Permission is issued for felling more than 50 trees that are necessitated for any public purpose like road widening, construction of road, canal, tanks, buildings etc., subject to condition that it is only after issue of public notice to invite objections from the public and the same is considered by the Tree Officer.</p> <p>Where permission to fell a tree is granted, the Tree Officer may grant it subject to the condition that the applicant shall plant another tree or trees of the same or any other suitable species on the same site or other suitable place within thirty days from the date the tree is felled or within such extended time as the Tree Officer may allow.</p> <p>This will not apply to the felling of Casuarina – <i>Casuarina equisetifolia</i>, Coconut – <i>Cocos nucifera</i>, Erythrina – <i>Erythrina indica</i>, Eucalyptus spp, Glyricidia – <i>Glyricidia sepium</i>, Common susum - <i>Hopea wightiana</i> Prosopis spp, Rubber – <i>Hevea brasiliensis</i>, Sesbania spp, Silver Oak – <i>Grevillea robusta</i>, Subabul - <i>Leucaena leucocephala</i>, Areca nut – <i>Areca catechu</i>, Coffee – <i>Coffea arabica</i>, Guava – <i>Psidium guajava</i>, Hebbevu - <i>Melia dubia</i>,</p>	<p>the purpose).</p> <p>For felling more than 50 trees (other than species specified in the Act) permission is issued from Tree Officer followed by issue of public notice to invite objections from public. Where felling is done Plantation should be taken up with the same species of suitable local species within a month.</p> <p>This provision is included in the ‘List of Dos and Don’ts’ and mitigation measures are included as part of environment guidelines for construction of roads, buildings etc.</p> <p>GPs, TPs and ZPs (elected representatives and staff) should be made aware of the provisions of this act through capacity building programmes.</p>
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		Tree of Heaven - <i>Ailanthus excelsa</i> , Lemon – <i>Citrus limon</i> , Umbrella tree- <i>Maesopsis eminii</i> , Mango – <i>Mangifera indica</i> , Sapota – <i>Achras zapota</i> , Seemegala - <i>Dendrocalamus stocksii</i> , Burma Bamboo - <i>Bambusa burmanica</i> , Yellow Bamboo - <i>Phyllostachys aurea</i> , Acacia hybrid - <i>Acacia mangium</i> , Belanji - <i>Acrocarpus fraxinifolius</i> and Cashew – <i>Anacardium occidentale</i> .	
15.	The Karnataka Ground Water (Regulation and Control of Development and Management) Act, 2011.	Any user of ground water desiring to drill or dig a well in the notified area for any purpose either on personal or community basis shall apply to the authority for grant of permit. Every existing user of groundwater in the notified area shall within a period of one hundred twenty days from the date of declaration as notified area by the Government shall apply to the authority for grant of a certificate of a registration.	GPs in notified taluks are likely to drill bore wells for drinking water supply. GPs in notified taluks (mentioned in chapter 2 and reference section of <i>Annexure 2</i>) need to take permission from groundwater authority for drilling bore well. Existing users (GPs) should register their wells. The provision is included in the ‘List of Dos and Don’ts’ and appropriate mitigations measures are made part of environment guidelines for drinking water projects. GPs, TPs and ZPs (elected representatives and staff) should be made aware of the provisions of this act through capacity building programmes.
16.	The Karnataka Ground Water (Regulation for Protection of Sources of Drinking Water) Act, 1999. An Act to regulate the exploitation of ground water for the protection of public sources	Sinking a well for the purpose of extracting or drawing water within a distance of 500 metres from a public drinking water source without obtaining permission of the appropriate authority is prohibited. The appropriate authority, in times of water scarcity may declare an area to be a water scarcity area up to 1 year at a time	GPs are likely to sink wells near existing wells. At times the GP area may overlap with watersheds declared as over exploited. GPs should take permission for sinking wells within a distance of 500 mts from public drinking water source or in over exploited watershed areas. The GPs should verify with Groundwater Authority if the watershed is over

	of drinking water and matters connected therewith and incidental thereto.	and prohibit extraction for any purpose where such well is within 500 metres of the public drinking water source. Appropriate authority can declare a watershed as over exploited and shall have powers to prohibit sinking of wells in over exploited watersheds. In case if any existing well in area of an over exploited watershed is already affecting any public drinking water source the authority may prohibit the extraction of water from such well during the period from February to July every year.	exploited. The provision is included in the ‘List of Dos and Don’ts’ and appropriate mitigation measures are included in the environment guidelines for water supply activity. GPs, TPs and ZPs (elected representatives and staff) should be made aware of the provisions of this act through capacity building programmes.
World Bank Safeguard Policies			
17.	Environmental Assessment (OP 4.01)	The Bank requires Environmental Assessment (EA) of projects proposed for Bank financing to ensure that they are environmentally sound and sustainable, and thus to improve decision making.	As required an EA was undertaken and the existing Environment Management Framework is updated for the project.
18.	Natural Habitats (OP 4.04)	The Bank does not support projects that, in the Bank’s opinion, involve the significant conversion or degradation of critical natural habitats.	Applicable where the GPs are located in proximity of forest areas, areas under Western Ghats and coastal areas. Relevant safeguard measures are included in the list of ‘List of Dos and Don’ts’. The safeguard policy should be made part of capacity building programmes for GPs, TPs and ZPs (elected representatives and staff).
19.	Forests (OP 4.36)	The Bank does not finance projects or plantations that, in its’ opinion, would involve significant conversion or degradation of critical forest areas. The Bank distinguishes investment projects that are exclusively	Applicable where the GPs are located in proximity of forest areas including areas under western Ghats. Relevant safeguard measures are included in the ‘List of Dos and Don’ts’. The safeguard policy should be made part of

		<p>environmentally protective (e.g., management of protected areas or reforestation of degraded watersheds) or supportive of small farmers (e.g., farm and community forestry) from all other forestry operations. Projects in this limited group may be appraised on the basis of their own social, economic, and environmental merits.</p> <p>The Bank finances plantations only on non-forested areas (including previously planted areas) or on heavily degraded forestland.</p>	<p>capacity building programmes for GPs, TPs and ZPs (elected representatives and staff).</p>
20.	Involuntary Resettlement (OP4.12)	<p>This policy covers direct economic and social impacts that both result from Bank-assisted investment projects, and are caused by the involuntary taking of land resulting in</p> <ul style="list-style-type: none"> • relocation or loss of shelter; • lost of assets or access to assets; or • loss of income sources or means of livelihood, whether or not the affected persons must move to another location 	<p>The component A of the project ‘Block Grants to Gram Panchayats’ provides funding for creation, augmentation or rehabilitation of small infrastructure works the “most” and “more” backward taluks.</p> <p>The project does not expect any involuntary taking of land for construction/rehabilitation of such small infrastructures as community assets. Small plots of private land may be required for certain small infrastructure sub-projects such as check dams, culverts, bore wells, pump houses and drains. These will be acquired through voluntary donations or purchase, provided they are legally available, litigation free and under the legal guidelines of the state of Karnataka. As was seen in KPSP, similar approaches were already in place for the state’s rural water and sanitation services project and these would continue to be adopted for the proposed Project.</p> <p>The provision to not to select an infrastructure activity which may require involuntary taking</p>

			of land is included in the ‘List of Dos and Don’ts’.
21	Indigenous People (OP 4.10)	<p>A project proposed for Bank financing that affects Indigenous Peoples requires:</p> <p>(a) screening by the Bank to identify whether Indigenous Peoples are present in, or have collective attachment to, the project area;</p> <p>(b) a social assessment by the borrower;</p> <p>(c) a process of free, prior, and informed consultation with the affected Indigenous Peoples’ communities at each stage of the project, and particularly during project preparation, to fully identify their views and ascertain their broad community support for the project;</p> <p>(d) the preparation of an Indigenous Peoples Plan or an Indigenous Peoples Planning; and</p> <p>(e) disclosure of the draft and final Indigenous Peoples Plan or draft and final Indigenous Peoples Planning Framework.</p> <p>7. The level of detail necessary to meet the requirements specified in paragraph 6 (b), (c), and (d) is proportional to the complexity of the proposed project and commensurate with the nature and scale of the proposed project’s potential effects on the Indigenous Peoples, whether</p>	<p>A Tribal and disadvantaged groups inclusion Plan based on social assessment has been prepared for the project separately.</p>

		adverse or positive.	
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Chapter IV – Environmental Impact of Project Activities and Mitigation Measures

4. Sub-project activities supported under the project “Strengthening Governance and Service Delivery in Karnataka Panchayats”:

Under Component A ‘Block Grants to Panchayats’, the Panchayats will receive grants for creation, augmentation and rehabilitation of small infrastructure works. The works will be identified as part of the Five Year Perspective Plans of the “most” and “more” backward taluks covering 2815 Gram Panchayats. The planning process would involve participation of all stakeholders. The perspective plans are discussed in Ward Sabhas and presented in Gram Sabha meetings, wherein the community will collectively prioritize which activities and areas to be covered in the first year’s annual action plan and other activities in subsequent years. The perspective plans and the budgets will be translated into annual action plans for five years.

The year wise average grant to GPs is Rs. 65 lakh for ‘more backward taluks’ and Rs. 83 lakhs for ‘most backward taluks’¹⁹. Each GP consists of 5 villages on an average (or about 10 habitations). The average number of activities in a GP annual plan is between 26-50 (as observed in 63% of GPs) and about 10 works are executed in a year. The nature of activities include – inter road connectivity, sanitation (drainages, community toilets), asset creation (schools, bus stands, community halls), drinking water supply (pipeline, cistern and borewell) and other infrastructure like bridges, dobhi ghats, solar lights etc. The financial scale of the activities ranges from Rs. 50,000 to Rs. 1,50,000²⁰.

The Block grants are utilized by GPs for the following purposes during Karnataka Gram Swaraj Project.

Table 9: Works Funded by Karnataka Gram Swaraj Project²¹:

<i>Nature of work</i>	<i>Type of works</i>	<i>Number of works</i>	<i>Percentage</i>
Inter Road Connectivity	Cement road	19694	44.58%
	Cement road with drainage	2415	
	Metal (granite) road	1085	
Sanitation	Drainage	7730	17.97%
	Community toilets	1621	
Asset Creation	Buildings	4270	9.76%

¹⁹ Concept note on Strengthening Governance and Service Delivery in Karnataka Panchayats Project

²⁰ How Green is Gram Swaraj – Report of the Environment Review

²¹ Concept note on Strengthening Governance and Service Delivery in Karnataka Panchayats Project

	Bus stands	415	
	Commercial buildings	397	
Drinking water	Pipe line	1222	4.53%
	Cistern	937	
	Bore well	202	
Other Infrastructure	Bridge, Dobhi ghat, Solar lights etc.	14189	27.27%
Total		52018	100

4.1. Environmental Impact and Mitigation Measures for Small Infrastructure funded through Block Grants:

The nature and scale of works indicate that there could be no potential negative impact on the environment. Rather, the works could contribute to positive impact on environment (eg: improved sanitation) and human health (eg: provision of safe drinking water) if the infrastructure is well designed and managed in sustainable manner. However, some of the activities undertaken by GPs may have negative impact on local environment by virtue of the location of infrastructure in ecologically sensitive areas, extraction of natural resources for construction from ecologically sensitive areas, improper disposal of wastes, issues in use and maintenance of infrastructural facilities.

This section lists out the potential negative impacts on environment for each activity and provides mitigation measures. These will serve as guidance in conducting Environment Review (ER) and subsequently in issuance of OK cards and to integrate the obligations of contractors in to their contracts.

4.1.1. Environmental Impacts and Mitigation Measures for Construction of Roads and Drains:

Majority of the works taken under the project during Karnataka Gram Swaraj Project are road works. Total number of road works taken up under the project is 23,194 which is about 45% of total works by GPs. The types of activities under road construction included cement road, cement roads with drainage, and stone paved pathways. An average CC road is of 30-50 m length and may cost around 1 lakh. About 14 such roads are built on an average in a village.

As per the observations of Environment Review of Karnataka Gram Swaraj Project, the provision of CC roads has improved the local sanitation to some extent. The common environmental issues observed are stagnant sullage and storm water which is due to improper provision of drainage (size and alignment of drains, connectivity to larger drains) or improper maintenance of drains (weeding, silt removal etc.). Paving the entire area between houses is observed to obstruct water infiltration there by escalating sullage problem.

The recommendations given to address the issues include– provision of drains with design appropriate to the volume of sullage. Soak pits at household level could also help to scale down the sullage problem. Pre cast modules may be explored for smaller lanes which will allow seepage of sullage and storm water.

Based on the experiences from Karnataka Gram Swaraj Project, the table below presents the possible environmental issues and mitigation measures for road construction activities:

Table10: Environmental Impacts and Mitigation Measures for CC Roads and Drains:

<i>Activity</i>	<i>Environmental Impacts</i>	<i>Mitigation Measures</i>
Site selection (applicable in case of laying new road at location where no pathway has existed previously)	<ul style="list-style-type: none"> • Sites that are prone to erosion and flooding will reduce the life and functioning of the road and will lead to drainage problems. • The proposed road should not be obstructing natural drainage patterns. 	<ul style="list-style-type: none"> • Avoid loose rock areas and lands prone to erosion, land sliding or submergence during floods. Under unavoidable circumstances appropriate measures should be integrated. • All roads must include provision for cross drainage which should be planned well in advance.
Site clearing	<ul style="list-style-type: none"> • Site clearance and cutting of trees may cause damage to local environment. 	<ul style="list-style-type: none"> • In cases where cutting of trees is required, permission should be taken from Tree Officer (Forest Officer appointed for the purpose). If there is need cut more than 50 trees the permission is issued followed by public notice for any objections. • In cases where site clearance and cutting of trees is necessary, plantation of the similar trees or any local species should be done to compensate the loss. The plantation should be done along the road side to the extent possible or in any other common lands. • In case of tree felling in forest areas, permission from Forest Department should be obtained by applying to Range Officer (in any case the felling must not involve more than 75 trees per ha.).
Soil excavation works or cut and fill operations during construction	<ul style="list-style-type: none"> • Extraction of fertile top soil from nearby agricultural lands for road construction will have negative impact on the crop productivity, water holding capacity etc. 	<ul style="list-style-type: none"> • Use of top soil from agricultural land should be avoided for construction of roads; instead soil from open barren lands should be used. • The excavations should be

	<ul style="list-style-type: none"> • Mining sand from streams etc. is illegal and it will reduce the rate of water infiltration into soil. 	<p>refilled using suitable materials or should be converted into small water harvesting or recharge structure. The first 15 cm of the excavated soil has to be heaped separately and spread back over the excavated area.</p> <ul style="list-style-type: none"> • Recommended quantities of alternate filling material like fly ash²², modified bitumen, plastic wastes etc. can be used.
Raw materials for construction	<ul style="list-style-type: none"> • Possibility of use of illegally mined or low quality materials affecting the sustainability of environment and the infrastructure. 	<ul style="list-style-type: none"> • All raw materials should be sourced from authentic and approved vendors, possessing valid permits. Relevant supporting documents should be presented for scrutiny on request. • Innovations like utilizing plastic waste in bituminous mix which reduces usage of asphalt etc. can be tried out where feasible.
Providing drains	<ul style="list-style-type: none"> • Improper alignment of drainage channels will lead to accumulation of sullage leading to unhygienic environment. • Drainage design when not done according to the sullage volumes and maintenance plans, may lead to overflows. • The drainage channels along the road may become problematic if not connected to larger drain. • Drainage channels may contaminate drinking water supply pipelines. • Shallow channels lead to overflow during heavy rains or due to non removal of solid 	<ul style="list-style-type: none"> • Decision on alignment (central or side), size (large or small) of channels should be taken before construction with respect to volume of sullage and in discussion with community regarding the maintenance and related responsibilities (small channels could be maintained by community while the large channels need maintenance by Panchayats). • The drainage channels designed along with the road should be connected to a larger drainage but not let out openly or into water sources, agricultural lands, etc. In absence of larger drains, as an alternative, a soak pit can be

²² The Government of India through MoEF notification, SO 1164(E) on 5 November 2002, requires that all road construction works located within a radius of 100 km from coal or lignite based thermal power plants have to use “fly ash” as part of materials for construction of embankment.

	waste or silt.	<p>constructed with appropriate filter media.</p> <ul style="list-style-type: none"> • To the extent possible, ensure that a drain is not aligned close to existing water pipelines. • Drain channels should be constructed of required depth and profile to ensure smooth flow. • The option of Wardha model of sullage management through piped conveyance from households to common soak pit should be considered wherever feasible to avoid generation of large quantities of sullage openly on the road.
Construction operations	<ul style="list-style-type: none"> • Operation of the construction equipment may cause inconvenience to the workers and by passers due to dust, noise. • Possibility of involvement of child labour Possibility of chance finds of archeological importance. • Requirement of land. 	<ul style="list-style-type: none"> • Operations like mixing raw materials should be done in areas where people's movement is less and the workers should use masks during the operation. • Construction equipment that emits noise should not be used in residential areas during night or near schools and hospitals. • Use of child labour should be avoided. • Any chance finds should be deposited with District Collector. • As far as possible the land should be an unencumbered community, GP or Government land, else it should be obtained through outright purchase, voluntary donations (with safeguards in place) or with predictable benefit sharing arrangements from private holders.
Paving the roads	<ul style="list-style-type: none"> • Covering the entire areas between road and houses may lead to sullage accumulation and overflow. 	<ul style="list-style-type: none"> • Some area, along road sides, could be left unpaved to allow natural infiltration. • For small lanes, instead of CC roads the option of paving using pre-cast concrete modules may be explored which allows the

		seepage of sullage.
Post construction	<ul style="list-style-type: none"> • The roads may be prone to erosion when the slopes are not stabilized and may cause drainage problems. • Disposal of debris and leftover material on the side of roads obstructs drains and lead to unhygienic environment. 	<ul style="list-style-type: none"> • After construction of roads, provide slope stabilization immediately in the form of concrete wall, rock fill, vegetative slope protection etc. • Debris and leftover materials should be put an alternate use like filling the excavations, low lying water stagnant areas or should be disposed off safely in isolated locations. These materials should not be left on sides of the roads.
Maintenance	<ul style="list-style-type: none"> • Improper maintenance will lead to sullage accumulation. 	<ul style="list-style-type: none"> • Regular removal of silt and solid waste from drainage channels is required which should be planned in the beginning involving the community.
<p>Construction in ecologically sensitive areas and in fragile environments</p> <p>Cement Concrete roads may not be permitted in reserve forest areas because of which the creation of basic amenities is obstructed.</p>	<ul style="list-style-type: none"> • CC roads in ecologically sensitive areas if not properly planned and executed could impede natural drainage; contribute to increased velocity of runoff and erosion. • CC roads may get excessively hot during summer impeding the movement of animals • CC roads may be aesthetically inappropriate in these natural landscapes. 	<ul style="list-style-type: none"> • Shaping of natural earth surface to shed water on each side and making simple culverts to carry water can be tried in reserve forest areas where constructions are not permitted. Stone paving using naturally available stone can also be explored. • Innovations like use of natural geo textiles (eg: made of coir) in soft marine soils and for stabilizing the banks of roads can be explored. Central Road Research Institute (CRRRI), Karnataka State Council of Science and Technology (KSCST), Centre for Sustainable Technologies, IISc can be contacted for technical support regarding innovations to address any specific problems.

4.1. 2. Environmental Impacts and Mitigation Measures for Drinking Water Supply:

The water supply activities during Karnataka Gram Swaraj Project included pipelines, cisterns with faucets and bore wells which comprises 4.5% of the total works.

Cattle water troughs, dhobi ghats (tanks and platforms for washing clothes) and open wells are other types of activities which are about 27% of total works. Average cost of drinking water supply activity is about Rs. 70,000. The number of water supply activities taken up on an average in a GP is around 2.

The key environmental issues associated with water supply projects during Karnataka Gram Swaraj Project included -absence of water testing for quality prior to commissioning of the scheme and lack of continued periodic monitoring, wastage of water due to lack of taps, poor sanitation around the drinking water cisterns etc. Lack of protective walls or grills for open wells is also a concern. Issues with cattle water troughs are lack of water or irregular supply leading to abandonment of the facility. Regular use of dhobi ghats is also affected due to lack of water supply. In case of cattle troughs lack of platforms on either side of troughs is an issue.

The recommendations for water supply included – mandatory testing of drinking water for quality during commissioning and at regular intervals during the use. Issues related to maintenance need to be addressed on regular basis involving the communities.

Based on the experiences from Karnataka Gram Swaraj Project, the table below presents the possible environmental issues and mitigation measures for drinking water supply activities:

Table 11: Environmental Impacts and Mitigation Measures for Drinking Water Supply Activities

<i>Activity</i>	<i>Environmental Impacts</i>	<i>Mitigation Measures</i>
Raw materials for construction	<ul style="list-style-type: none"> • Possibility of use of illegally mined or low quality materials affecting the sustainability of environment and the infrastructure. 	<ul style="list-style-type: none"> • All raw materials should be sourced from authentic and approved vendors, possessing valid permits. Relevant supporting documents should be presented for scrutiny on request.
Water quality at the source	<ul style="list-style-type: none"> • There is possibility of contamination of the water source with organic or inorganic pollutants (eg: fecal matter and other organic pollutants, pesticide residues, high concentration of fluoride, arsenic, nitrate etc.) which will have impact on public health. 	<ul style="list-style-type: none"> • Water should be tested prior to the commissioning of source and supply should be initiated only when it meets the water quality standards as per Indian Standard for Drinking Water Specification IS 10500: 2012. • Water contamination can happen over a period of time and hence mechanism for regular periodic monitoring of water quality

		should be put in place. The record of all water quality monitoring reports should be maintained at GP level.
Location of the water source	<ul style="list-style-type: none"> • Location of water source near to the toilets has high chances of contamination. • Salt water intrusion could be common phenomenon in coastal areas and with drawl of water close to the coast will have impact on coastal ecology. 	<ul style="list-style-type: none"> • The drinking water source should be located at safe distance from the toilets. Septic tank should be downhill from the water source. The safe distance from water source depends on local hydrological conditions; however 30 m is treated as safe distance²³. • Groundwater source should be at least 500 m away from coast.
Maintenance of water source	<ul style="list-style-type: none"> • In case if the water source is ground water, over exploitation coupled with lack of recharge may leading drying up of the bore well. • Uncovered abandoned boreholes may lead to accidental falls. • Open wells when not closed or guarded with wall results in accidental falls. 	<ul style="list-style-type: none"> • No new irrigation wells should be sunk in within 250 m distance from the drinking water well. • Recharge structures should be planned for all ground water sources in advance. • All the abandoned boreholes should be securely covered. • Grills or protective wall should be provided to open wells as part of design.
Supply system	<ul style="list-style-type: none"> • In the piped supply system leakages are possible which leads to contamination with sewage water near drains etc. 	<ul style="list-style-type: none"> • The supply pipes should be resistant to breakage and to the extent possible should not be aligned through drains or in the proximity of drains.
Addressing quality issues like fluoride contamination	<ul style="list-style-type: none"> • In villages where defluoridation units are established disposal of sludge may pose a serious environment hazard. 	<ul style="list-style-type: none"> • About 80-100g of sludge is generated per 1000 liters of water in electrolytic defluoridation units. Feasible options for sludge treatment and disposal are to be explored – such as brick making and sanitary landfills. Dewatering the sludge allows for safe storage for a period of time which can be used for dry land filling.
Use and	<ul style="list-style-type: none"> • Lack of tap heads at the 	<ul style="list-style-type: none"> • System for regular check up and

²³Septic Tanks, http://www.who.int/water_sanitation_health/hygiene/emergencies/fs3_9.pdf viewed on 28th March 2014.

maintenance	<p>community stand posts due to pilferage and cracked water cisterns leads to wastage of water.</p> <ul style="list-style-type: none"> • Water stagnation around the taps and cisterns may lead to contamination. 	<p>maintenance of water points should be put in place.</p> <ul style="list-style-type: none"> • There must be provision for drain and soak pit to prevent water stagnation around taps and cisterns. Surrounding areas of water taps and cisterns should be kept clean. A cement platform should be provided around the tap with waste water outlet.
Cattle water troughs, dhobi ghats (tanks and platforms for washing clothes) and open wells.	<ul style="list-style-type: none"> • Discontinuity in supply of water leads to abandonment of facility. • Water stagnation near common facilities is possible due to excess use of water. 	<ul style="list-style-type: none"> • All facilities should be equipped with continuous supply of water and a system to fill the troughs. • Platforms, drains and soak pits should be made part of the design to allow waste water to drain away and prevent stagnation.

4.1.3. Environmental Impacts and Mitigation Measures for Buildings:

About 10% of the works under Karnataka Gram Swaraj Project included schools, anganwadis, GP buildings, community halls, compound walls, commercial buildings, bus stands, etc. The average cost varied from Rs. 80,000 to Rs. 2,70,000 depending on type of building. On an average upto 4 building works are done in a GP.

The environmental issues observed in buildings during Environment Review of Karnataka Gram Swaraj Project are – absence of toilets (or improper management) and inadequacy of cross ventilation, lack of separate kitchen for anganwadis, and absence of chimneys in the kitchens. The potential for rain water harvesting has not been utilized in the buildings.

The recommendations for the above issues include provision of properly designed and constructed toilets for school, anganwadis, etc., and provision of adequate ventilation and separate kitchens for anganwadis.

Based on the experiences from Karnataka Gram Swaraj Project, the table below presents the possible environmental issues and mitigation measures for construction of buildings:

Table 12: Environmental Impacts and Mitigation Measures for Buildings – Schools, Anganwadis, Community Halls etc.

Activity	Environmental Impacts	Mitigation Measures
Site - site selection and clearing	<ul style="list-style-type: none"> • Constructions in ecologically sensitive areas may cause damage to the environment by felling trees, clearing vegetation etc. 	<ul style="list-style-type: none"> • In cases where cutting of trees is required, permission should be taken from Tree Officer (Forest Officer appointed for the purpose). If there is need cut more than 50 trees the permission is issued followed by public notice for any objections. • Compensatory plantation of trees of local species should be done in equal or more number at suitable site within 30 days • In case of tree felling in forest areas , permission from Forest Department should be obtained by applying to Range Officer(in any case the felling must not involve more than 75 trees per ha).
Raw materials for construction	<ul style="list-style-type: none"> • Possibility of use of illegally mined or low quality materials affecting the sustainability of environment and the infrastructure. 	<ul style="list-style-type: none"> • All raw materials should be sourced from authentic and approved vendors, possessing valid permits. Relevant supporting documents should be presented for scrutiny on request.
Design – ventilation, water harvesting	<ul style="list-style-type: none"> • Lack of proper ventilation leads to non use of facilities and consumes high energy for artificial lighting and air circulation. • Lack of water source in the premises may lead to over extraction from nearby sources and may involve transportation cost. 	<ul style="list-style-type: none"> • Building design should incorporate the proper ventilation requirements like sufficient number of ventilators, windows. • Every building should be equipped with rain water harvesting structure which can meet the water requirement of the facility at least for non-drinking purposes.
Facilities – toilets, dustbins, drinking water	<ul style="list-style-type: none"> • Lack of sanitation facilities in/near the buildings leads to use of nearby open spaces for toilet needs and creates unhygienic environment. • Anganwadi toilets are not used when not designed specific to 	<ul style="list-style-type: none"> • Each facility should be provided with sufficient number of functional toilets separately for males and females with running water facility inside. The toilets must have septic tanks or leach pits. Hand wash facility with

	<p>child needs.</p> <ul style="list-style-type: none"> • Lack of drinking water may add to cost of supply and inconvenience to the people, students. • Lack of waste management system leads to poor hygiene. 	<p>running water should be made available outside the toilets.</p> <ul style="list-style-type: none"> • Child friendly anganwadi toilets should be designed with easy access to water tub, provision of opening from inside and outside, small 14 inches pan, water storage at 1 feet ht. • Safe drinking water should be provided at each facility. • Solid and liquid waste management system needs to be put in place.
Drainage and soak pits provision	<ul style="list-style-type: none"> • Improper drainage may cause overflow which results in mosquito breeding. 	<ul style="list-style-type: none"> • Proper drainage and soak pits should be made part of every facility.
Placement of kitchen in anganwadis	<ul style="list-style-type: none"> • In case of Anganwadis having the kitchen as part of the same building exposes the children to indoor air pollution (in cases of fuel wood use) and has potential to lead to fire accidents. 	<ul style="list-style-type: none"> • LPG is recommended in place of fuel based cooking.
Safety measures	<ul style="list-style-type: none"> • Absence of safety measures like grills for stairs/balconies/terraces or parapet walls may lead to accidental falls. 	<ul style="list-style-type: none"> • Each building should include grills or parapet walls for stairs, balconies and terraces.
Construction operations	<ul style="list-style-type: none"> • The construction equipment operation may cause inconvenience to the workers and by passers due to dust, noise etc. • Possibility of involvement of child labour. • Possibility of chance finds of archeological importance. • Requirement of land. 	<ul style="list-style-type: none"> • Operations like mixing raw materials should be done in areas where people's movement is less and workers should use masks. • Construction equipment that emits noise should not be used in residential areas during night or near schools and hospitals. Use of child labour should be avoided. • Any chance finds should be deposited with District Collector • As far as possible the land should be an unencumbered community, GP or Government land, else it should be obtained through outright purchase, voluntary donations (with

		safeguards in place) or with predictable benefit sharing arrangements from private holders.
Disposal of construction debris	<ul style="list-style-type: none"> • Open disposal of debris near the toilet sometimes blocks the access and acts as hiding place for snakes etc. • Debris disposed near drains leads to stagnation obstructing the flow of sewage. 	<ul style="list-style-type: none"> • The debris should be disposed away from the site preferably through land filling.
Construction in ecologically sensitive areas and in fragile environments Construction of buildings may not be permitted in reserve forest areas because of which the creation of basic amenities is obstructed.	<ul style="list-style-type: none"> • Construction activities like site clearing, sourcing raw materials locally, waste disposal etc. may disturb the fragile local environment and may be aesthetically inappropriate. 	<ul style="list-style-type: none"> • For construction of buildings in ecologically sensitive areas and fragile environments, ecological housing methods like mud buildings using bamboo, or using sun dried mud blocks (as in Wardha housemodels) lined with terracotta tiles or bamboo houses on foundation of concrete blocks can be explored. • Prototypes proposed by NIRD, Centre of Science for Villages (CSV), KSCST and CST-IISc can be explored and adopted based on suitability to these regions.

4.1.2.4. Environmental Impacts and Mitigation Measures for Public Toilets:

About 4% of the activities supported under Karnataka Gram Swaraj Project are public toilets (about 18% of total works are drainage and public toilets). The average cost for public toilet construction is about Rs. 80,000. On an average one public toilet is constructed in each GP.

The key environmental issues observed with regard to public toilets are – lack of septic tanks or leach pits, improper use or lack of maintenance.

Because of the issues in construction and non use, it is recommended not to construct public toilets. Promotion of individual toilets may result in better outcomes.

Based on the experiences from Karnataka Gram Swaraj Project, the table below presents the possible environmental issues and mitigation measures for toilet construction activities:

Table 13: Environmental Impacts and Mitigation Measures for Public Toilets

<i>Activity</i>	<i>Environmental Impacts</i>	<i>Mitigation Measures</i>
Location of the toilet	<ul style="list-style-type: none"> • Location of toilets near to the drinking water source has high 	<ul style="list-style-type: none"> • Safe distance from drinking water sources should be

	<p>chances of contaminating the water.</p> <ul style="list-style-type: none"> • Location too far from the houses or too near to the houses may deter the use. 	<p>followed. The location of the septic tank should be downhill from the water source depending on feasibility. The safe distance depends on local hydrological conditions; however 30 m is treated as safe distance²⁴.</p> <ul style="list-style-type: none"> • Appropriate location should be selected which will not discourage the use in consultation with the households.
Design of the toilet	<ul style="list-style-type: none"> • Absence of leach pit or septic tank leaves the fecal matter in open leading to contamination • Possibility of contamination of drinking water supply from leach pits. 	<ul style="list-style-type: none"> • Septic tank or leach pits should be made compulsory for all toilets. • If water supply main is within 3 m from the pits, the inlet pipes connecting leach pits should be kept below the level of water pipeline.
Raw materials for construction	<ul style="list-style-type: none"> • Possibility of use of illegally mined or low quality materials affecting the sustainability of environment and infrastructure. 	<ul style="list-style-type: none"> • All raw materials should be sourced from authentic and approved vendors, possessing valid permits. Relevant supporting documents should be presented for scrutiny on request.
Construction operations	<ul style="list-style-type: none"> • The construction equipment operation may cause inconvenience to the workers and by passers due to dust, noise etc. • Possibility of involvement of child labour. • Possibility of chance finds of archeological importance • Requirement of land 	<ul style="list-style-type: none"> • Operations like mixing raw materials should be done away where people's movement is less and workers should use masks. • Construction equipment that emits noise should not be used in residential areas during night or near schools and hospitals. • Use of child labour should be avoided. • Any chance finds should be deposited with District Collector • As far as possible the land should be an unencumbered community, GP or Government land, else it should be obtained through outright purchase, voluntary donations (with

²⁴Septic Tanks, http://www.who.int/water_sanitation_health/hygiene/emergencies/fs3_9.pdf viewed on 28th March 2014.

		safeguards in place) or with predictable benefit sharing arrangements from private holders.
Water facility inside the toilet	<ul style="list-style-type: none"> Lack of water facility inside discourages the use and affects cleanliness. 	<ul style="list-style-type: none"> Running water facility should be provided inside. In areas with water scarcity water efficient toilets like ecosan toilets can be constructed. 2 pit system toilet with Pan with steep slope 25⁰-28⁰ and trap with 20 mm water seal will reduce the usage of water (required 1-1.5 lfor flushing)²⁵.
Hand wash facility	<ul style="list-style-type: none"> Practice of not washing hands after toilet use will cause fecal contamination of food and water while handling, eating etc. 	<ul style="list-style-type: none"> Hand wash facility outside the toilet should be made integral part of design. Water and soap should be made available outside.
Ventilation	<ul style="list-style-type: none"> Poor ventilation discourages use and affects cleanliness and maintenance. 	<ul style="list-style-type: none"> Proper ventilation should be ensured.
Disposal of construction debris	<ul style="list-style-type: none"> Open disposal of debris near the toilet itself blocks the access and acts as hiding place for snakes etc. Debris disposed near drains leads to stagnation obstructing the sewage flow. 	<ul style="list-style-type: none"> The debris should be disposed away from the site preferably through land filling.
Use and maintenance	<ul style="list-style-type: none"> Improper use and maintenance will result in dysfunction of facilities. 	<ul style="list-style-type: none"> Awareness building on proper use to guide the new users will help in sustaining the facilities.

²⁵Two Pit System, viewed at <http://www.sulabhinternational.org/content/two-pit-system>, on 28th March 2014.

Chapter V: Institutional Strategy and Procedures for Environment Management

5.1. Institutional Strategy for Environment Management:

5.1.1. Lessons from Environmental Management in Karnataka Gram Swaraj Project:

During Karnataka Gram Swaraj Project, the project has put in place a system for environmental management which included screening the activities for negative impacts and integrating environment guidelines (or mitigation measures) during construction by using activity wise environment guidelines (referred to as OK Cards). This was supported by training programmes for the staff and for the GP functionaries on the key environmental issues and on the use of the OK cards. However the Environment Review conducted during Karnataka Gram Swaraj Project (2013) shows that OK cards were present only in 35% of the works and were absent in 37% of works visited (they could not be verified in 28% of works visited²⁶). In cases where the OK cards are present the following issues were observed:

- The OK cards were attached in some works but were not duly filled except for the basic details like name of the work, village etc.
- The filled in OK cards do not include relevant issues or mitigation measures, instead most cards mention that there are ‘no environmental impacts’. The reason could be not referring to the environment guidelines

With regard to trainings, about 65% of the target group were trained which includes GP Presidents, Vice Presidents, Secretaries, Junior Engineers and SHGs (in total 16,769 are trained out of the target 25,869)²⁷.

The key learnings from the implementation of EMF during Karnataka Gram Swaraj Project, as mentioned in Implementation Completion and Results Report (ICRR) and in the report of Environment Review (conducted in 2013) – ‘How Green is Gram Swaraj’ are²⁸:

- Policy Recommendations: keeping in view the issues concerned with design, construction and management of infrastructure facilities under the project it was recommended that the annual action plans should be preceded by review of assets created during Karnataka Gram Swaraj Project. This would help in avoiding repetition of disused infrastructure, and help in planning for reviving the assets that have functional problems due to incomplete works or missing components.

²⁶ The review covered a sample of 83 works.

²⁷ Borrower’s Implementation Completion Report (ICR)

²⁸Source: Implementation Completion and Results Report (ICRR)

- Simplifying procedures (environmental guidelines and tools): The screening tools and OK cards need to be simplified and made relevant to the context of Karnataka. They also need to be limited to specific concerns that are most common in each activity.
- Capacity Building: Capacity enhancement of staff (JEs and AEs) on technical aspects of environment management is crucial for proper design and execution. Capacity building the GPs and user communities on desired operation and management aspects is also important.
- Monitoring: Putting in place a strong monitoring system will help in focused implementation of EMF for desired outcomes.

5.1.2. Environment Management Strategy for project “Strengthening Governance and Service Delivery in Karnataka Panchayats”:

Keeping in view the learnings from Karnataka Gram Swaraj Project, the Environmental Management Framework (EMF) for project “Strengthening Governance and Service Delivery in Karnataka Panchayats” is focused on determining the potential impacts of GP works, identifying the environmental hotspots in the project area, and describes the strategy and plan for environmental management. The EMF for project “Strengthening Governance and Service Delivery in Karnataka Panchayats” focuses on the following key elements:

1. Simplifying the procedures (environment guidelines) bringing in specificity and user friendliness
2. Strong capacity enhancement for the technical staff (AEEs, JEs, AEs and EEs) on technical aspects of environment friendly designs
3. Enhancing the awareness among PRIs, especially GP functionaries and communities towards sustainable management of the infrastructure and general aspects of better environment management.
4. Focused technical support for GPs in environment hotspots such as Ecologically Sensitive Areas in Western Ghats, over-exploited zones of groundwater, areas with water contamination, drought prone areas and coastal areas

5.1.3 Approach to development of EMF:

The approach followed for developing EMF is as follows:

Desk review:

The EMF of project “Strengthening Governance and Service Delivery in Karnataka Panchayats” is based on the EMF of Karnataka Gram Swaraj Project. The EMF has been updated primarily by reviewing the existing documents – negative list (screening criteria), OK cards (environment guidelines), and the Environment Review report of Karnataka Gram Swaraj Project. Information available from the websites of the Karnataka Forest Department, Central Ground Water Board, Ministry of Water Resources, Ministry of Environment and Forests, Indian Institute of Science, Karnataka State Disaster Monitoring Cell, Central Pollution Control Board etc. has also been reviewed to update the information on the environmental status of the project area and on the legal and regulatory framework.

Consultations:

Consultations are done with PMU and World Bank staff on the learnings from Karnataka Gram Swaraj Project and amendments required for the project “Strengthening Governance and Service Delivery in Karnataka Panchayats”.

Field consultations were conducted with representatives of 8 GPs by the PMU for obtaining information on outcomes from GP works, potential works under project “Strengthening Governance and Service Delivery in Karnataka Panchayats”, environmentally sensitive areas including Western Ghats, coastal area, drought-prone area, etc. The key findings of the field consultations are presented in *Annexure 3*.

A stakeholder consultation workshop was organized at Department of Rural Development and Panchayati Raj (DRDPR) on 11th December 2015 to share the EMF for project “Strengthening Governance and Service Delivery in Karnataka Panchayats” and to obtain suggestions from all relevant stakeholders. The EMF will be subsequently revised based on the suggestions received during the consultation. A detailed report of stakeholder consultation is attached as *Annexure 4*. The EMF document was disclosed on the website of GoK inviting suggestions.

5.2. EMF Implementation Plan for project “Strengthening Governance and Service Delivery in Karnataka Panchayats”:

EMF implementation plan is 3 pronged.

1. Environment Review (ER) of the Perspective Plans, Annual Action Plans and Monitoring & Evaluation of implementation of environment guidelines suggested as part of ER
2. Capacity Building of Project Staff;PRIs, specifically GP functionaries on environment management
3. Focused support to GPs in environment hotspots such as - Ecologically Sensitive Areas in Western Ghats, over-exploited zones of groundwater, areas with water contamination, drought prone areas and coastal areas

5.2.1. Over view of EMF Implementation Plan:

This section details the EMF implementation plan for project “Strengthening Governance and Service Delivery in Karnataka Panchayats” which includes the following aspects.

- Environmental Review of the GP Perspective Plans and Annual Action Plans (AAPs) using environment guidelines
 - Screening for ‘Dos and Don’ts
 - Integrating mitigation measures into technical designs, budgets and contracts as required
- Capacity Building
 - Capacity Building for technical cadre
 - Capacity Building for PRIs (special focus on GPs)
- Monitoring and Evaluation:
 - Internal monitoring: Monitoring of implementation of environmental guidelines in infrastructure works
 - External Audits: Audit of environmental management in the project “Strengthening Governance and Service Delivery in Karnataka Panchayats”
- Pilots on Environmental Management in selected GPs:
 - Pilot in W.Ghats GPs
 - Pilot in coastal GPs
 - Pilot in GPs in over-exploited groundwater areas
 - Pilot in GPs in poor water quality areas
 - Pilot in GPs in drought prone areas

5.2.2 Details of EMF Implementation Plan for project “Strengthening Governance and Service Delivery in Karnataka Panchayats”:

5.2.2.1. Environmental Review of GP Perspective Plans and Annual Action Plans (AAPs):

GPs prepare 5 year plans known as Comprehensive Development Plans (CDPs) or Perspective Plans. This will be done referring to the guidelines provided by GoK with support of ANSSIRD. The preparation of perspective plan includes extensive participatory meetings held at Ward Sabha. The community will identify the key services, and activities and mode of delivery. This will be presented in Gram Sabha meeting wherein the community will collectively prioritize which activities and areas to be covered in the first year’s annual plan and others planned for subsequent years. Environment guidelines will be made part of guidelines provided by ANSSIRD. These will help the GPs to identify environmental concerns in their panchayats and to propose for solutions as part of perspective plans or Annual Action Plans.

Environment Review (ER) will be done to the Perspective Plans and the Annual Action Plans to ensure environmental sustainability of the activities identified in the plans. The process of ER is detailed below:

ER of Perspective Plans:

The steps in the ER of the perspective plans are given below along with the staff responsible:

Table 14: Environment Review of Perspective Plans – Stages and Responsibilities

<i>Work Stage</i>	<i>Environment Review Stage</i>	<i>Responsibility</i>
Perspective Plans	Environment Review of the perspective plan <ul style="list-style-type: none"> • Checking the plan if it is likely to include activities mentioned in ‘List of Dos and Don’ts’. • Reviewing the proposed activities using OK cards and suggesting mitigation measures that are applicable • Suggestions on inclusion of activities to address environmental issues in the GP (water scarcity, sanitation etc.) 	AE, JE Environment Engineer
Revision of perspective plans	Revision of plans based on review suggestions	GP
Revision of AAP	Revision to AAP as per changes in perspective plan	GP

ER of Annual Action Plans:

Table 15: Environment review of AAPs – Stages and Responsibilities

Work Stage	Stage of Environment review and Monitoring	Officials Involved
Activities proposed by Ward Sabha		
Gram Sabha discusses the proposal and passes it to General Body		
Annual Action Plan received by General Body	<p>Step 1: Environmental review of Annual Action Plan using the OK cards (including list of ‘Dos and Don’ts’ and environment guidelines). Attached as <i>Annexure 5</i>.</p> <p>Step 2: Final decision on taking up the investment, provisional environmental clearance (Issuance of OK cards).</p>	<p>JE, AE</p> <p>General body</p>
Technical designs and cost estimates	Step 3: Preparation of technical designs and cost estimates – including suggested environmental measures.	Section Officer, JE, AE
Environment review of Technical designs and Budgets	<p>Step 4: ER is conducted for technical designs and additional technical inputs are provided if needed. Field visits will be done where required.</p> <p>The AAPs without ER or without integration of suggested measures into designs or budget are referred back to the Section Officer /JE/AE by EE for reconsideration and for ensuring due integration.</p>	Environment Engineer
Technical approval	Step 5: Review of the technical design and technical approval	AEE

Review of financial aspects and administrative approval	Step 6: Review of financial aspects and administrative approval, approval of environment review.	Panchayat Development Officer (PDO) and Adhyaksha
Tenders and Procurement formalities	Step 7: Inclusion of contractor's obligations on environmental management into contracts, taking necessary permissions from departments as required. Contactor's obligations are attached as <i>Annexure 6</i> .	PDO
Supervision of works execution	Step 8: Supervising inclusion of environmental measures during work execution.	AE, JE, Environment Engineer (a sample)
Verifying environmental compliance of the works	Step 9: Verification of compliance of works with list of Do's and Don'ts and with environment guidelines.	Environment Engineer (EE)
Measurement and final consent	Step 10: Checking the measurement and giving final consent for payment to contractors.	PDO & AE/JE
Completion report	Step 11: Providing completion report. This should also mention inclusion of environmental measures.	PDO & AE/JE
Payment settlement		PDO and Adhyaksha

Environment Engineer (EE) cadre is deputed by GoK for the purpose of providing environment management support. The EEs will handle the responsibility of ensuring integration of environmental measures into the designs through review of technical designs and verification. 2-3 EEs will be available per district.

5.2.2.2. EMF Capacity Building Plan:

Capacity Building (CB) is the key input for effective integration of mitigation measures into infrastructure activities and sustainable management of environment by GPs. An environment management cell will be established in ANSSIRD to address the capacity building needs of PRIs and suitable technical agency/agencies will be hired to provide technical trainings to engineers (AEEs, JEs, AEs and EEs).

The Capacity Building Plan has 3 segments.

Segment 1: Technical Trainings on integrating environment aspects into designs for the Engineers –AEEs, JEs, AEs, and EEs: Technical trainings will be provided to the engineers of GoK who are

involved in the project activities. ANSSIRD will hire a suitable Technical Agency or agencies (preferably Government institutes) to provide this support.

Providing technical trainings to the engineers (AEEs, JEs, AEs and Environment Engineers) helps in addressing environmental management issues during the design and execution stages of works. These trainings emphasize the technical aspects of environmental management including location, design, work execution, maintenance, etc. Followed by this the Engineers will orient the contractors at Taluk level on the required skills for including the environmental measures into the construction works based on technical designs.

Segment 2: Training on Environment Management for the Engineers (AEEs, JEs, AEs and Environment Engineers).

These trainings will focus on need for environment review, procedures and tools (OK cards) involved highlighting the roles and responsibilities at different levels. The trainings on Environment Management for engineers will be conducted by ANSSIRD, which will set up a dedicated cell for these trainings.

Segment 3: Trainings on Environment Management for the PRIs (GPs, TPs and ZPs):

These trainings aim to increase the awareness of PRIs on environment management. The trainings for Gram Panchayat functionaries (Adhyaksha/Upadhyaksha, Ward members and PDO) focus on environment management of GP works.

These training programmes will help GPs to understand the common environmental issues related to GP works. The trainings at TP and ZP levels focus on roles of PRIs in environment management in general and specific to project.

Awareness programmes will be organized for community to help the community to understand their role in better management of the infrastructure facilities to avoid negative environmental impacts. Some of the key messages would be

- Maintenance of drains, avoiding dumping of solid waste into drains
- Avoiding wastage of water near drinking water points, cattle water troughs, dhobi ghats etc.
- Importance of toilets at household level

The trainings on Environment Management will be organized by ANSSIRD which will set up a dedicated EMF cell for these trainings.

Design and Implementation of Capacity Building Plan:

The CB modules will be designed as per the requirement of different target groups (Engineers, PRIs and Communities). 3 separate modules will be designed targeting the following groups with specified content.

Table16: Capacity Building plan for KGSP

Target Group, EMF	Content	Resource Agency	Indicative Training Duration, Methodology, and
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Responsibility			Frequency
<p>Engineers – AEEs, JEs, AEs, Environment Engineer</p> <p>JEs, AEs: The responsibility is to conduct environment review of Perspective Plans, AAPs, integrate mitigation measures into technical designs and budget, monitoring the works for integration.</p> <p>AEEs: Review of technical designs and technical approval</p> <p>Environment Engineers: Review of technical designs for integration of environment guidelines and verification after completion of works.</p>	<ul style="list-style-type: none"> • Common infrastructural interventions (GP works) and common environmental issues • Environmental Guidelines for most common GP works • Integrating environmental aspects into technical designs 	<ul style="list-style-type: none"> • A suitable technical agency preferably a Government Department (such as KSCST, KRIDL) will be identified by PMU to develop a technical manual with environmentally sustainable designs for GP works covering different geographies and to deliver the training to engineer cadres. • ANSSIRD coordinates the trainings with support of Technical Agency and the PMU (Environment Specialist). 	<ul style="list-style-type: none"> • A 5 day main training on technical aspects will be organized with class room and field based sessions by technical agency/agencies. For staff from 79 taluks, training will be organized in 12-15 batches at state or regional level. • Refresher training on technical aspects will be organized for 1 day once every year
<p>Contractors</p>	<ul style="list-style-type: none"> • Permissions that are necessary for construction works • Environmental mitigation measures for construction works 	<ul style="list-style-type: none"> • The technical staff JE, AE, AEE will orient the contractors on Environment 	<ul style="list-style-type: none"> • One orientation will be organized at taluk level after identifying the contractors.

<p>Engineers –AEEs, JEs, AEs and Environment Engineers.</p> <p>Environment Review of Perspective Plans and AAPs. JEs and AEs are responsible for ER. AEEs are responsible for technical approval. EEs are responsible for verification.</p>	<ul style="list-style-type: none"> • Requirement of environment management for project “Strengthening Governance and Service Delivery in Karnataka Panchayats”, Strategy and Procedures. • Environment Review - procedures. • Environmental Guidelines for most common GP works – List of ‘Dos and Don’ts’ and environment guidelines. 	<p>guidelines.</p> <ul style="list-style-type: none"> • ANSSIRD. PMU (Environment Specialist) will provide any required support 	<ul style="list-style-type: none"> • A 2 day training programme in 12 -15 batches organized at state or regional level. • As a refresher training, a session on environment management will be integrated into other trainings or review meetings on annual basis.
<p>GP representatives and representatives of TPs and ZPs.</p> <p>Responsibilities under environment management include integration of environment concerns into AAPs, AAP environmental review approval, sustainable operation and management of facilities created.</p>	<ul style="list-style-type: none"> • Common environment issues related to GP works and solutions – covering all GP activities • Requirement of integration of environment guidelines into works for ensuring sustainability • Roles of PRIs in integrating environmental concerns into their activities: <ol style="list-style-type: none"> 1. Integrating environment concerns into perspective plans and AAPs 2. Ensuring Environment Review of AAP, revision, clearance and administrative approval 3. Role in Sustainable Operation and 	<ul style="list-style-type: none"> • ANSSIRD. • PMU (Environment Specialist) will provide any necessary support. 	<ul style="list-style-type: none"> • Trainings at state level for ZP representatives and staff (2 members), at district level for Talukarepresentatives and staff (2 members) and Taluk level for GP representatives and staff (Adhyaksha/Upadhyaksha, Ward members and PDO). Duration will be one day for main training. • Yearly refresher sessions for 2 hrs or half day as part of any other training programmes– SATCOM facility may be used as per the need.

	<p>Management of the facilities</p> <ul style="list-style-type: none"> • Importance of natural resource management for sustainable development. Roles of PRI in areas related to Natural Resource Management (NRM) – as per Panchayat Raj Act, with devolved powers in 29 areas. 		
<p>Awareness programmes for communities.</p> <p>Responsibilities include sustainable use and maintenance of facilities.</p>	<ul style="list-style-type: none"> • Operation and management of infrastructure created, role of community • General awareness programmes on environmental sanitation, health impacts etc. 	<ul style="list-style-type: none"> • ANSSIRD develops the module, IEC and integrates with other awareness programmes 	<ul style="list-style-type: none"> • Dissemination materials like posters • Screening films, radio programmes as and when required

The Capacity Building Programmes on ‘Environment Management’ for the Engineers, PRIs will be undertaken by ANSSIRD. ANSSIRD will have a dedicated cell for trainings on environment management.

For providing technical trainings for engineering cadre ANSSIRD will hire the services of suitable technical agency/agencies. It is preferable that the technical agency is a Government institution with the suitable capacity – eg: Karnataka State Council of Science and Technology (KSCST) or Karnataka Rural Infrastructure Development Limited (KRIDL). However, the ANSSIRD may hire the services of other Government and NGO agencies as per need.

Inputs for the ToR for hiring technical agency/agencies are provided in *Annexure 7*.

Existing state infrastructure such as state and regional SIRDs, district and taluka resource centres, will be used for trainings. Karnataka has launched interactive satellite linked training programme (SATCOM) for PRIs. This is a regular interactive training system which will be used for interactive trainings to GPs based on the need.

The trainings for the AEES, AEs, JEs and GP representatives of initial project GPs (around 850) need to start in the beginning of the first year itself and hence the modules development should be completed within 3 months of the project launch. The trainings should be completed within 6 months. These will serve as a model for training of the remaining GPs.

5.2.2.3. EMF Monitoring Plan:

A strong monitoring system ensures implementation and captures the outcomes of the implementation for performance rating. An MIS based monitoring system will be put in place for monitoring the compliance of GP activities with environment guidelines. The following aspects will be monitored in each activity:

Table 17: Aspects to be Monitored in GP Works

<i>GP works</i>	<i>Aspects monitored</i>
CC roads	Permissions required for construction are obtained Drainage is included as an integral part of road design
Drinking water	Permission is taken for sinking the well Water quality check is conducted before commissioning the supply Water quality meets prescribed standards Platforms and soak pits are constructed near taps, cisterns Pipelines are not aligned along drains Safe distance is maintained from toilets
Schools, Anganwadis and Buildings	Required permissions are taken for constructions Functional toilets are part of every building Separate kitchen with chimney is provided for anganwadis Provision of adequate ventilation Provision of safety measures like grills, parapet walls etc.
Toilets	Leach pit or septic tank are made part of toilet Running water facility is provided inside the toilets Toilets are being used and are well-maintained

The information on compliance with regard to design and construction will be obtained from the verification visit conducted by the Environment Engineer to all the completed GP works. Apart from this, yearly supervision visits will be conducted by the Environment Engineer to all GPs for monitoring the status (use and maintenance of the infrastructure facilities).

Progress reports will be developed annually based on the above information by the PMU (Environment Specialist). Based on the information on compliance, performance ratings will be developed for environmental management of the GPs. The required formats with parameters (or indicators) and weightage will be developed by the PMU (Environment Specialist) with support of DAC in discussion with World Bank. This task needs to be done during first 2 months after project launch.

The activity wise key monitoring indicators are given below:

Table 18: Activity wise Key Monitoring Indicators

<i>Activity Indicators</i>	<i>Compliance status</i>	<i>Rating</i>
Percentage of roads with well-maintained drains	80-100%	Satisfactory
	60-80%	Moderately satisfactory
Percentage of drinking supply activities with potability confirmed through quality test in last 6 months	40-60%	Less satisfactory
	Below 40%	Not satisfactory
Percentage of anganwadis having LPG for cooking		
Percentage of buildings with functional toilets		
Percentage of functional public toilets with		

leach pits or septic tanks and running water facilities		
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The project will work on including environment management indicators into the performance criteria for the performance/incentive component of the block grants'. The criteria could be

- Environment Review of all Perspective Plans and AAPs 100% and maintenance of records by GPs
- Verification of 100% GP works by Environment Engineer

Internal Monitoring

The internal monitoring happens at 3 levels.

1. Monitoring all works during construction: all GP works will be monitored during construction by AE, JE and Environment Engineer(a sample) for ensuring integration of mitigation measures.
2. Monitoring all GP works post construction: post the construction, all GP works will be monitored by Environment Engineer for checking the compliance with mitigation measures. Yearly monitoring will be done by Environment Engineer for supervising the operation and maintenance. The status reports will be submitted to PMU.
3. Monitoring sample works during and post construction by State Environment Specialist: the State Environment Specialist will monitor sample of works (in about 5% GPs) during and post the construction. Monitoring by State Environment specialist will happen once every year.

External Audits:

Two external audits will be conducted– before Mid-Term Review of the project and prior to project closure by an external agency hired by PMU. All the GPs in hotspot areas and about 1% of general GPs will be covered under external audits. External audits will identify gaps in implementation, suggest any revisions to the information capturing and performance rating systems and suggests alternatives for any emerging key environmental concerns. The inputs for ToR are attached as *Annexure 7*.

5.2.3 Details of Implementation Plan for Hotspot Areas:

For the hotspot areas falling under Ecologically Sensitive Areas of Western Ghats, over exploited zones of groundwater use, areas with water contamination, drought prone areas and coastal areas (which are identified in the baseline report) a special strategy will be followed.

Support for developing model facilities:

Hand holding support will be provided to the GPs in hotspot areas for developing model facilities in sustainable manner, with the support of expert institutions (NGOs or Government institutes) who will be hired by the PMU. This will be done on pilot basis. While the implementation arrangements remain the same – environment review of Perspective Plans, AAPs, integrating environmental guidelines into technical designs, implementation and monitoring etc., additional hand holding support will be provided through expert institutions depending on the location of the hotspot areas.

One Taluk each in over exploited groundwater areas, areas with water contamination, drylands and coastal areas will be taken for this pilot and 5 GPs in the Taluk will be provided with the additional handholding support for 2 years during the project period. All of the 7 project GPs (given in Table: 4) within the Ecologically Sensitive Areas will be covered under the pilot. This will be initiated in the year 1, so that the learning from the pilot would be taken to other taluks and GPs from 2nd year onwards.

NGOs or Government Institutes having working experience in the selected districts, taluks and in identified issues will be selected and will be delegated with the responsibilities of

- Providing support to GPs in developing perspective plan and annual action plans – for due integration of environmental concerns. Examples of some activities that can be taken up in hotspot areas are:
 - Roof top rain water harvesting in drought prone areas and areas with over exploited ground water table
 - Water conservation measures (water harvesting, ground water recharge etc.) in drought prone areas
 - Ground water observation wells in over exploited water table areas
 - Constructions utilizing the locally available materials and using low cost local technologies in Ecologically Sensitive Areas.
 - Eco tourism infrastructure in GPs near forest areas
 - Water treatment plants in areas with water contamination
- Designing the capacity building module relevant to the specific issues in the hotspot areas that could be influenced by the GP works and delivery of the training programmes.
- Once the technical designs are finalized after ER, the expert institutions supports in integration of the environment guidelines into construction through monitoring.
- Trains the GP representatives and staff on sustainable use and maintenance of the facilities as required.
- Organises awareness programmes for community on regular basis.
- Reviews the status and use of facilities and on yearly basis.

Examples of NGOs or Government Institutes who can be partnered with, in hotspot areas:

- Ecologically Sensitive Areas, Forest areas:
 - Keystone foundation
 - Ashoka Trust for Research in Ecology and Environment (ATREE)
 - Arghyam foundation
 - Centre for Research on Sustainable Building Science (CRSBS), The Energy Research Institute (TERI)
 - SVAGRIHA
 - GRIHA Council
 - MYRADA
 - World Resources Institute (WRT)
- Over exploited ground water areas, Drought prone areas:
 - MYRADA
 - Arghyam foundation
 - Centre for Research on Sustainable Building Science (CRSBS), The Energy Research Institute (TERI)
 - SVAGRIHA

- GRIHA Council
- World Resources Institute (WRT)
- Fragile coastal areas:
 - Arghyam foundation
 - Ashoka Trust for Research in Ecology and Environment (ATREE)
 - Centre for Research on Sustainable Building Science (CRSBS), The Energy Research Institute (TERI)
 - SVAGRIHA
 - GRIHA Council
 - World Resources Institute (WRT)

5.3 Budget (tentative):

The estimated budget for environment management proposed project is provided below:

Table 19: Budget Estimate (Tentative):

Budget Head	Unit Cost	Total cost
Environment Management Cell in ANSSIRD – staff costs Costs of capacity building on Environment Management for engineer cadre, PRIs, community awareness programmes	Should reflect in scope and budget of ANSSIRD	--
IEC materials		
EMF manual in Kannada for Engineers	Rs. 50 per manual for 3000 copies	1,50,000
Posters on environment management for GPs	Rs. 100 per set of posters for 5000 sets	10,00,000
Hiring technical agency for training engineer cadre	Rs. 50,00,000	50,00,000
Hiring expert institutions for support in Hotspot areas (pilots) – 5 taluks, 5 GPs each	Rs. 20,00,000 per expert institution for 5 institutions for 2 years each	100,00,000
Hiring agency for External Audit	Rs. 15,00,000 per audit for 2 audits	30,00,000
Costs of Environment review, Capacity Building and Monitoring	Will be part of project implementation costs	--
Total		1,86,50,000

5.4. Timeline

The following is the roll out plan for the key activities under EMF:

Table 20: Roll out Plan for Key Activities under EMF

S. No	Task	Responsibility	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6	
			0-6	6-12	0-6	6-12	0-6	6-12	0-6	6-12	0-6	6-12	0-6	6-12
1	Hiring the Technical Agency for training the Engineer cadres	PMU												
2.	Hiring of NGOs for Providing support in Hotspot areas	PMU												
3.	Developing Capacity Building modules on Environment Management	ANSSIRD												
4.	Developing Technical guidance manual for Engineers by Technical Agency / Agencies (TA)	TA												
5.	Main training to Engineer Cadres by Technical Agency/ Agencies	TA												
6.	Refresher training to Engineer Cadre by technical Agency/ Agencies	TA												

S. No	Task	Responsibility	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6	
			0-6	6-12	0-6	6-12	0-6	6-12	0-6	6-12	0-6	6-12	0-6	6-12
6. a	Orientation to Contractors on measures	Technical staff												
7.	Main training to Engineer cadre on Environment Management	ANSSIRD												
8.	Refresher training to Engineer cadre of Environment Management	ANSSIRD												
9.	Main training to PRIs on Environment Management	ANSSIRD												
10	Refresher training to PRIs on Environment Management	ANSSIRD												
11	Awareness programmes to community	ANSSIRD												
12.	Internal Monitoring by JE, AE, EE	JE, AE, AEE												
13.	Compliance verification by Environment Engineer (EE)	EE												
14.	Internal Monitoring by State Environment specialist	ES												

<i>S. No</i>	<i>Task</i>	<i>Responsibility</i>	<i>Year 1</i>		<i>Year 2</i>		<i>Year 3</i>		<i>Year 4</i>		<i>Year 5</i>		<i>Year 6</i>	
			<i>0-6</i>	<i>6-12</i>	<i>0-6</i>	<i>6-12</i>	<i>0-6</i>	<i>6-12</i>	<i>0-6</i>	<i>6-12</i>	<i>0-6</i>	<i>6-12</i>	<i>0-6</i>	<i>6-12</i>
15	External Environment Audits	External Agency												

ANNEXURES

Annexure 1: Description of Project Components

Project “Strengthening Governance and Service Delivery in Karnataka Panchayats” has the following components:

Component A: Block Grants to Gram Panchayats (US\$ 210.5 million IBRD; US\$ 70 million GoK):

This component will provide funding for block grants to GPs which will strengthen their capacity to manage resource, deliver services and enhance their accountability towards the community. The grants will finance creation, augmentation or rehabilitation of small infrastructure works²⁹ identified as part of the Five Year Perspective Plans of the “most” and “more” backward taluks covering 2815 Gram Panchayats (“Project GPs”). The perspective plans would be focused towards activities which improve the delivery of mandatory services, as per the PRI Act. The Planning process would be based on an intensive and rigorous model of participation where all constituents, stakeholders and panchayat functionaries are consulted for indenting community *needs* (which services to focus on), *preferences* (various service options such as choice between of borewells, public stand posts or tap connections) and *priorities* (which service to be targeted in first year, which area - within the GP to be selected, etc.). Special attention would be paid to ensure that women and other marginalized and historically groups will be consulted and their views taken onboard for defining the plan priorities.

Component B: Institutional Development (building capacity of Gram Pachayats) (US\$ 10.1 million IBRD; US\$ 20.5 million GoK):

This component covers the range of holistic institutional development activities and investments required to ensure the progress towards the PDO. The block grants would be accompanied by a suite of targeted capacity building and technical assistance activities that will strengthen the capacities of the panchayats, strengthen monitoring systems and increase awareness among rural people. This component will support the following activities:

B1: Capacity Building of Panchayats:

This subcomponent will strengthen the capacity of all three levels of Panchayats to function effectively as local self-government. It will focus on enabling panchayats to administer participatory planning and budgeting, manage public resources, improve own source revenue mobilization, revive and build capacities of the defunct standing committees, revisit the roles and responsibilities of the panchayat functionaries and upgrade/promote competent staff for efficient monitoring of project indicators and outcomes.

B2: Community Engagement and Feedback:

This subcomponent will strengthen the participation of people during – a) planning stage to define specific activities and priorities; b) during implementation stage for oversight and

²⁹ A negative list of items will be drawn up as per the Operations Manual. This would include activities which will not be funded by block grants.

community supervision; and c) during operations and maintenance phase for O&M cost collections and providing feedback on quality of service received. This will ensure that not only community preferences are taken into account for the utilization of the Block Grant funds, but that the quality of works undertaken improves. The component will strengthen the functioning of the existing mechanisms inbuilt to address the issues of inclusion, participation and accountability and leverage them to promote participatory planning and accountability.

B3: Information Systems for Evidence Based decision making:

This subcomponent will increase the awareness of all relevant stakeholders about their rights, responsibilities and entitlements under the project. It focuses on providing user-centric and actionable information that is tailored to the range of target audiences, including both state and civil society actors.

Component C: Project Management Support (building capacity of the state) (US\$ 2.2 million, IBRD; US\$ 4.5 million GoK):

This activity would put in place systems at the state level to enable it to oversee, facilitate and manage the Panchayat system and the project GPs. The activity will include: (i) upgrading the PMU capacity in line with extended project coverage; (ii) incorporating Decentralisation Analysis Cell (DAC) into the Rural Development and Panchayati Raj Department, GoK; (iii) establishing a dedicated project cell within Strengthening Abdul Nazir Sab State Institute for Rural Development (ANSSIRD) to facilitate intensive training and networking with other institutions on thematic areas; (iv) developing a robust Monitoring and Evaluation framework for effective management of the Project.

C1: Strengthening the Project Monitoring Unit (PMU):

The Project Management Unit (PMU) will be the overall implementation unit of the proposed Project. The PMU, headed by a full time senior civil servant, will be responsible for the day-to-day project management for all project activities. It will be responsible for overall project implementation during the proposed Project and ensure that project activities are carried out as planned and project objectives are met. The PMU with support from the Decentralisation Analysis Cell (DAC), ANSSIRD will lead the development a detailed Monitoring and Evaluation for managing the project. The PMU will also provide technical guidance to the Districts, Taluks and Gram Panchayats in assessing their human resource strength and to recruit staff through transfers and deputation or outsourcing. The PMU will monitor Panchayat conformity with Government Orders, in particular to those pertaining to the financial management and accounting System, planning guidelines, environmental guidelines and procurement procedures. The PMU will identify any capacity gaps within GPs to implement these Government Orders and provide resources to fill these gaps. The PMU will provide additional guidance and mentoring to Gram Panchayats as they develop and implement their Perspective Plans. The PMU will ensure that all Gram Panchayats have access to the IT tools developed by the proposed Project, and receive all necessary training. Additionally, the PMU will inform the GPs of any recorded feedback captured through grievance reporting systems, and investigate any potential misconduct on the part of PRI staff.

C2: Strengthening the DAC:

The Decentralization Analysis Cell (DAC) will be responsible for basic analysis, evaluation, monitoring of fiscal flows to Panchayats, own revenues and service delivery and development of the intergovernmental fiscal system. The existing capacity gaps of the Decentralization Analysis Cell (DAC) will be analyzed and addressed to make it a ‘think tank’ which could influence the fiscal transfers of the state. It will provide tracking of fiscal and other socio-economic data annually, and will support GP transfers by evaluating and analyzing the formula with adjustments for better achievement of the project objectives. Periodic studies will be taken up on various issues related to Rural Development to provide required policy inputs. A panel of experts will be empanelled for working with DAC for producing quality research publications and assisting DAC by providing need based technical assistance. DAC will also establish partnerships with key state, national and international research institutions and collaborate with them by undertaking joint research on relevant focus areas.

C3: Strengthening Abdul Nazir Sab State Institute for Rural Development (ANSSIRD)

ANSSIRD will have overall responsibility for the capacity building activities under the proposed project. It will be responsible for conducting a trainings need assessment, development of training content based on particular themes and keeping in mind the project development objectives, roll out of the training program based on a training calendar, management of resource persons /facilitators, monitoring of the training process and the impact evaluation of the training. For these purposes ANSSIRD can tie up with other capacity building organizations. ANSSIRD will run two way SATCOM centres, the distance learning programs, the face to face training, maintenance and operation of the TRCs and ensure that taluk panchayats assume their Operation & Management through appropriate strategies. ANSSIRD will also carry out special studies to generate information for the training programs. It will also play advocacy role in influencing state government to development appropriate capacity building policies and its effective implementation. A Dedicated cell within ANSSIRD will be established, exclusively for project activities.

Annexure 2: List of "Dos and Don'ts" for project “Strengthening Governance and Service Delivery in Karnataka Panchayats”

Don'ts:

Involuntary taking of Land:

- Activities that involve the involuntary taking of land that may lead to displacement or loss of livelihood should not be supported under the project – ***Involuntary Resettlement (OP 4.12)***.
- Any land with disputed title and/or legal or illegal settlements will not be considered for the Project.

Forests and Trees:

- No construction activities are permitted in Protected Areas (Reserve Forests and National Parks)- ***Forest (Conservation) Act, 1980., The Karnataka Forest Act, 1963.***
- Activities like tree felling, clearing, kindling fire are prohibited in Reserve Forests - ***The Karnataka Forest Act 1963.***
- Mining, quarrying and sand mining are not allowed in GPs classified as Ecologically Sensitive Areas of Western Ghats. - ***Environment Protection Act 1986, Section 3.*** The list of villages in the project area is provided in reference section of this annexure.
- Diversion, stoppage or enhancement of the flow of water into or outside the sanctuary is prohibited - ***Wild Life (Protection) Act 1972.*** The list of taluks in WLSs is provided in the reference section of this annexure.
- Activities that involve the significant conversion or degradation of critical natural habitats should not be supported under the project - ***Natural Habitats (OP 4.04).***
- Activities that would involve significant conversion or degradation of critical forest areas should not be supported under the project - ***Forests (OP 4.36).***

Water Resources:

- No well should be dug within 500 mts of a drinking water well without permission from appropriate authority - ***The Karnataka Ground Water (Regulation for Protection of Sources of Drinking Water) Act 1999.***
- Mining of sands, rocks and other substrata materials is prohibited from the Coastal Regulation Zone (500 metres from the High Tide Line (HTL) and the land between the Low Tide Line (LTL) and the HTL) - ***Coastal Regulation Zone Notification 2011.***
- Construction activities are prohibited in CRZ I zone³⁰ - ***Coastal Regulation Zone Notification 2011.***
- Buildings are permitted only on the landward side of existing road in CRZ II³¹ - ***Coastal Regulation Zone Notification 2011.***

³⁰The areas that are ecologically sensitive and the geomorphological features which play a role in the maintaining the integrity of the coast

³¹The areas that have been developed upto or close to the shoreline.

Waste Management and Pollution:

- Solid waste dumping and discharge of polluting matter or untreated wastes from human settlements into water bodies and wetlands is prohibited– ***Water (Prevention and Control of Pollution) Act, 1974*** and ***Wetland Rules 2010***. The list of wetlands in Karnataka is provided in reference section of this annexure.
- Sound emitting construction equipment shall not be operated during night times in residential areas and silence zones (hospitals and educational institutions) - ***The Noise Pollution (Regulation and Control) Rules 2000***.

Do’s:

Private/community land:

Small plots of private land may be required for certain small infrastructure sub-projects such as check dams, culverts, bore wells, pump houses and drains. These will be acquired through voluntary donations or purchase, provided they are legally available, litigation free and under the legal guidelines of the state of Karnataka. As was seen in KPSP, similar approaches were already in place for the state’s rural water and sanitation services project and these would continue to be adopted for the proposed Project.

As was the case in KPSP, all voluntary land transactions will meet the following criteria:

- i) the land in question will be free of squatters, encroachers or other claims of encumbrances;
- ii) lands will be chosen (by the community) after ensuring site suitability both from an environmental and social perspective;
- iii) verification of the voluntary nature of land donations in each case;
- iv) land transfers will be completed–land title will be vested in the GP through registered sale deed or MOU; and
- v) provision will be made for redress of grievances.
- vi) Land will be accepted from owners whose holding will be less than the minimum economical viable stipulated size (2.5 acres).

Forests and Trees:

- Permission of Tree Officer (Forest Officer appointed for the purpose) is required for felling of trees. If there is need cut more than 50 trees the permission is issued followed by public notice for any objections.- ***The Karnataka Preservation of Trees Act 1976***.
- Plantation of trees of same species or suitable species should be done in the same site where tree is felled or any alternate site within 30 days (except for trees listed in The Karnataka Preservation of Trees Act, 1976). - ***The Karnataka Preservation of Trees Act 1976***.The list of exempted trees is provided in reference section of this annexure.
- It is necessary to take permission from the forest department for felling of trees and for construction activities in forest areas - ***Forest (Conservation) Act 1980***.
- For construction of infrastructural facilities such as schools, hospitals, fair price shops, drinking water, irrigation, water harvesting structures, non conventional sources of energy, roads, vocational and skill training centres, community centres etc. in forest areas permission should be taken from forest department through an application to Forest Range

Officer, followed by resolution from Gram Sabha. Felling of trees from should not be more than 75 per ha. - ***Forest Rights Act 2006.***

Water Resources:

- The quality of drinking water should confirm to the prescribed standards as per the Indian Standard for Drinking Water – Specification IS 10500: 1991 for supply - ***Indian Standard for Drinking Water Specification IS 10500: 2012.***
- GPs in notified taluks need to take permission from groundwater authority for drilling bore well. Existing user should register the bore wells. - ***The Karnataka Ground Water (Regulation and Control of Development and Management) Act, 2011.*** The list of notified taluks is provided in the reference section of this annexure.

Reference Scetion for Annexure 2:

List of Villages Classified as Ecologically Sensitive Areas (ESAs) in Western Ghats

<i>District</i>	<i>Taluks</i>	<i>Villages</i>
Chamarajanagar	Gundlupet	Baragi Berambadi Bachahalli
Mysore	Heggadadevanakote	Hirehalli Antharasanthe N.Belathur Alanahalli

Project Taluks covering National Parks, Tiger Reserves and Wild Life Sanctuaries

<i>National Parks³²</i>	<i>Project Districts</i>	<i>Taluks</i>
Bandipur National Park	Chamarajnagar Mysore	Gundlupet Nanjangud, H.D. Kote
Nagarahole National Park	Mysore	Hunsur, H.D. Kote
<i>Tiger Reserves</i>	<i>Districts</i>	<i>Taluks</i>
Bandipur Tiger Reserve	Chamarajnagar Mysore	Gundlupet Nanjangud, H.D. Kote
Nagarahole Tiger Reserve	Mysore	Hunsur, H.D. Kote
Biligiri Ramaswamy Temple (BRT) Hills	Chamrajnagar	Kollegal
<i>Wild Life Sanctuaries</i>	<i>Districts</i>	<i>Taluks</i>
Bheemaswari WLS	Mandya	Malavalli
Bonal Bird Sanctuary	Yadgir	Shorapur
Gudavi Bird Sanctuary	Shimoga	Sorab
Nagu WLS	Mysore	Heggadadevanakote
Ghataprabha	Belgaum	Gokak
Daroji Sloth Bear Sanctuary	Bellary	Sandur
Biligir Rangaswamy Temple WLS	Chamrajnagar	Kollegal
Arabithittu WLS	Mysore	Hunsur

³²National Parks of Karnataka, sourced at <http://www.aranya.gov.in/Static%20Pages/NationalParks.aspx> on 8th September 2015.

Environment Management Framework for project “Strengthening Governance and Service Delivery in Karnataka Panchayats”

Adichunchangiri WLS	Mandya	Nagamangala
Malai Mahadeswara Sanctuary	Chamrajnagar	Gundlupet
Gudekote Sloth Bear Sanctuary	Bellary	Kudligi
Chincholi Wildlife Sanctuary	Gulbarga	Chincholi

List of Wetlands in Karnataka

District	Wetland
Tumkur	Kallambella
Kolar	Chitravathi
Mysore	Arsanikere
Mandya	Lokapavani
Hassan	Devihalli
Shimoga	Hirehalla
Chikmagalur	Mugalikatte
Chitradurga	Ganjigunte
Dharwad	Asudinala
Raichur	Hirehalla
Gulbarga	Muchkulla nala , Marugutti
Bidar	Doddahalla nala
Bijapur	Chandakavate
Belgaum	Hirehalla
Bellary	Sannabombrahalla
Uttara Kannada	Tattihalla

(Source: Conservation and Management of Wetland Ecosystems in Karnataka : accessed at http://wgbis.ces.iisc.ernet.in/biodiversity/sahyadri_enevs/newsletter/issue25/article1.htm#karnataka on 10th September 2015).

List of Trees that can be felled without permission from Tree Officer as per - The Karnataka Preservation of Trees Act 1976.

Casuarina – *Casuarina equisetifolia*
Coconut – *Cocos nucifera*
Erythrina – *Erythrina indica*
Eucalyptus spp
Glyricidia – *Glyricidia sepium*
Common susum - *Hopea Wightiana*
Prosopis spp
Rubber – *Hevea brasiliensis*
Sesbania spp
Silver Oak – *Grevillea robusta*
Subabul - *Leucaena leucocephala*
Areca nut – *Areca catechu*
Coffee – *Coffea arabica*
Guava – *Psidium guajava*
Hebbevu - *Melia dubia*
Tree of Heaven - *Ailanthus excelsa*
Lemon – *Citrus limon*
Umbrella tree- *Maesopsis eminii*
Mango – *Mangifera indica*
Sapota – *Achras zapota*
Seemegala - *Dendrocalamus stocksii*
Burma Bamboo - *Bambusa burmanica*
Yellow Bamboo - *Phyllostachys aurea*
Acacia hybrid - *Acacia mangium*
Belanji - *Acrocarpus fraxinifolius*
Cashew – *Anacardium occidentale*

Notified Taluks for Groundwater Exploitation as per The Karnataka Ground Water (Regulation and Control of Development and Management) Act, 2011.

Project Districts	Taluk
Bagalkote	Badami taluk
Chikballapur	Gauribidanur taluk Gudibanda Taluk
Tumkur	Koratagere(P) taluk Madhugiri(P) taluk

Over exploited Taluks in Project districts:

<i>District</i>	<i>Stage of development (percentage)</i>	<i>Over Exploited Blocks</i>
Bagalkot	91%	Badami Hungund
Belgaum	78%	Athani Gokak
Bellary	42%	Hagaribommanahalli
Chamrajnagara	80%	Gundlupet
Chikballapur	145%	Gauribidalur Gudibanda
Chikmagalur	43%	Kadur
Chitradurga	102%	Challakere Hiriyur Holalkere
Davangere	89%	Channagiri Harpanahalli Jagalur
Kolar	187%	Mulbagal
Koppal	43%	Koppal
Mandya	47%	Krishnarajpet Malavalli
Mysore	43%	Krishnrajanagara
Ramanagaram	108%	Kanakapura Magadi

Annexure 3: Information from Field Consultations

The PMU staff has visited 8 GPs (N. Belathur, Begur, Annur, Balakundi, Beerahalli, Kenchenagudda, Shanavasapura and B. Matakera) in H.D. Kote taluk of Mysore district and Siraguppa of Bellary district as part of field consultations. The information obtained on environment management aspects during the field consultations is as follows:

1. Types of works completed in the past 2 years: the types of works completed during last 2 years in the visited panchayats include:
 - drainage works – in 5 GPs
 - drinking water – in 6 GPs
 - CC Roads – in 6 GPs
 - anganwadi – 1 GP
 - compound wall – in 4 GPs for Panchayat Bhavans and 1 for school
 - GP building – 1 GP
 - maintenance of GP building – in 1 GP
 - toilets – in 2 GPs
 - road leveling – 1 GP
 - land leveling – 1 GP
 - plantation – 1 GP
2. Major environmental issues addressed during Karnataka Gram Swaraj Project include:
 - Open defecation – in 6 GPs
 - Open disposal of wastes – in 6 GPs
 - Water stagnation due to kutcha roads and lack of drainage – 2 GPs
 - Wastage of water – 3 GP
 - Provision of safe drinking water – 2 GPs
3. Environmental issues with the works completed during Karnataka Gram Swaraj Project include:
 - poor maintenance of drainages – in 4 GPs
 - lack of drainage provision with roads – in 4 GPs
 - lack of water availability during dry seasons for drinking water supply– in 1 GP
 - leakage of water taps cisterns – 2 GPs
 - People in village do not want to use buildings constructed – 1 GP
4. Environmental issues faced by the GPs at present include:
 - open drains – in 3 GPs
 - water stagnation – 2 GPs
5. Trainings related to environment management received by GPs during Karnataka Gram Swaraj Project:

In 3 of the GPs the representatives are newly elected, however in 5 some GPs there are some representatives who received training on environment management. All the GPs feel the need of training on environment management.
6. Works that are likely to be taken up in project “Strengthening Governance and Service Delivery in Karnataka Panchayats” include:
 - Maintenance of CC roads – 1 GP
 - New drains – 1 GP

- Drinking water supply – 6 GPs
 - Community hall – 2 GPs
 - School building – 1 GP
 - Toilets – 2 GPs
 - Any other basic amenities
7. Environmental Hotspots: Possibility of taking up works near hotspots is less in all GPs visited. 2 GPs are near forest and according to them permissions will be taken for any related works.
8. Major environmental concerns in the villages in general are (listed in order of importance):
- Open defecation
 - Water stagnationWater scarcity – drinking water and other uses
 - Water contamination
 - Soild Waste Management
 - Soil erosionUnfilled excavations
 - Loss of forests
 - Illegal mining

Observations:

The field consultations indicate that

- The most common works undertaken in recent years include drains, drinking water supply, CC roads, compound walls etc. The management issues associated with the works completed during Karnataka Gram Swaraj Project include – lack of provision (along with road) or maintenance of drains, scarcity of water for assured drinking water supply, wastage of water near water supply projects etc.
- Drinking water (scarcity and contamination) and sanitation (open defecation, open disposal of wastes) are the most common issues faced by the villages in general, which are also addressed to certain extent during Karnataka Gram Swaraj Project. Other issues include loss of top soil and unfilled excavations.
- During Karnataka Gram Swaraj Project the activities that are likely to be taken up are – drinking water supply, toilets, community hall, school building, maintenance of CC roads, construction of new drains etc.
- Some GPs are located near forests.
- The representatives in some of GPs are newly elected, have not undergone any training related to environment management previously. Some GPs have representatives who underwent training during Karnataka Gram Swaraj Project.

Annexure 4: Report on Stakeholder Consultation

A stakeholder consultation was organized on 11th December 2015 at Rural Development and Panchayati Raj Department (RDPRD) for inviting suggestions from the stakeholders – functionary staff of PRIs, elected representative, domain experts, NGOs, and other relevant Department representative. The meeting was chaired by Principal Secretary, (PR) RD&PR department. About 30 participants took part in the stakeholder consultation forum. The list of participants is enclosed.

A presentation was made on EMF prepared for the project. The key suggestions include:

- EMF should be followed in all schemes and activities under the Department, not only for Gram Swaraj Project.
- EMF should be applied to all vision plans, integrated plans, GPDP etc.
- EMF Capacity Building modules should cover all vision plans, integrated plans, GPDP etc
- Include GSP block grant in the resource envelope of GP particularly for EMF, include guidelines with budget
- Mitigation measures should also be planned for the existing infrastructure as well apart from new infrastructure. Eg: improving the existing road apart from construction of new road.
- Innovative ideas can be proposed for construction and management of facilities.
- In Ecologically sensitive areas, ideas to be explored for use of locally available, low cost, degradable, materials for constructions
- Apart from training the technical staff on environment friendly designs, it is also required to train the contractors who actually implement the works
- Awards and incentives should be put in place for the best performing GPs on EMF and for the citizens like teachers, ANMs etc. who would facilitate the performance
- Kitchens in all Anganwadis should have LPG, this will be communicated to Women and Child Welfare Department through Chief Secretary
- The EMF implementation plan along with budget is agreed upon




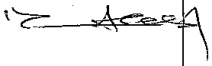
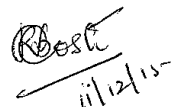
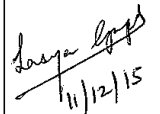
List of participants:

Environment Management Framework for project "Strengthening Governance and Service Delivery in Karnataka Panchayats"

Stakeholder consultation for Environment Management Framework

Date: 11.12.2015 , Banaglore, Karantaka

Venue : Room No 228, 229, II Floor, 3rd Gate, MS Building, Bengaluru

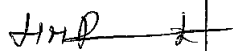
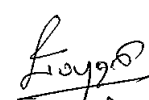
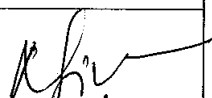
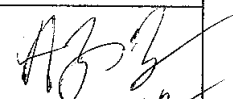
SN	NAME & DESIGNATION	CONTACT PARTICULARS (Mobile Phone Number & email ID)	Department	SIGNATURE
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Environment Management Framework for project "Strengthening Governance and Service Delivery in Karnataka Panchayats"

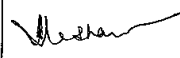


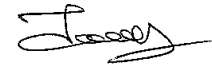
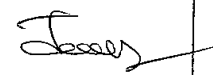
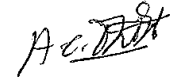

Stakeholder consultation for Environment Management Framework

Date: 11.12.2015 , Banaglore, Karantaka


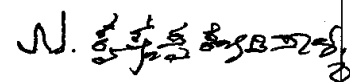
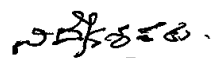
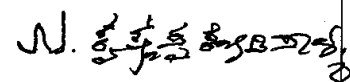

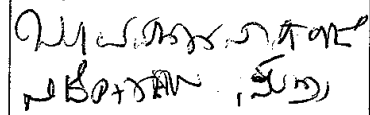

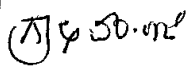
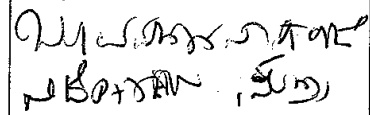
Venue : Room No 228, 229, II Floor, 3rd Gate, MS Building, Bengaluru

SN	NAME & DESIGNATION	CONTACT PARTICULARS (Mobile Phone Number & email ID)	Department	SIGNATURE
1.	H.M. Ravindra Kumar Taluk planning officer H.D. Kote Taluk MYSore District Job: Executive Officer T.P.HD Kote.	Taluk panchayat H.D. Kote MYSore District.	R.D.P.R	 11-12-2015
2.	Jauharah. G.P. N Beguru. (P.D.O) H.D. Kote Taluk. myforuy @uy	N. Beguru. Grama panch ath H.D. Kote Taluk Nphone (Diy) 9591176065	R.D.P.R.	 11/12/15
3.	N. Sivanna ISEC. Nagaythas Bengaluru-560022	9663381737 Sivanna Eisec.ac.in	ISEC	 11/12
4.	A. Aziz NKSIN Bengaluru	9580699624 ahmadaziz@nks.ac.in	CSSEIP.	 11.12

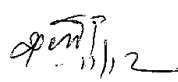



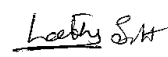
Environment Management Framework for project "Strengthening Governance and Service Delivery in Karnataka Panchayats"

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5.	P. Shiva Shankar Director, ANSSRD, Mysore	9480850707 sird.mysore@gmail.com	RDR	
6.	Kanaka Swamy o/sop/ Tribal Welfare Mysore.	9480384099 	ITDP MYS	
7.	Jagadee M. K. Taluk Tribal welfare officer H.D. Kotl. Mysore	 9449831999	Tribal welfare	
8.	A.C. Vinayathi ಅಧ್ಯಕ್ಷರು ಡಿ.ಜಿ. ಕುಪ್ಪೆ ಗ್ರಾಮ ಪಂಚಾಯತಿ ಹೆಚ್.ಡಿ. ಕೋಟೆ ತಾಲ್ಲೂಕು ಮೈಸೂರು ಜಿಲ್ಲೆ	944950689.	precedent	
9.	G. R. SREERAMA REDDY. panchayat facilitation expert gram swaraaj project Bengaluru.	9449524288	RDS, PR	 11/12/15


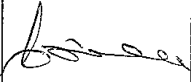

Environment Management Framework for project "Strengthening Governance and Service Delivery in Karnataka Panchayats"

SN	NAME & DESIGNATION	CONTACT PARTICULARS (Mobile Phone Number & email ID)	Department	SIGNATURE
10.	DR. R. KHANNA	CONSULTANT, IMACS 98107 20501 rajesh.khanna@imacs.in	IMACS	
11.	M. Vanitha Kommu	consultant, environment 9440409505 kommuvanitha@gmail.com	consultant.	Vanitha K
12.	N. 	 @. Sec. 512. R.P.R.		
13.	S. Nanjund Rao Chief DAC	Chief DAC A.S.		
14.	M.  M. 	9900393090		


Environment Management Framework for project "Strengthening Governance and Service Delivery in Karnataka Panchayats"

SN	NAME & DESIGNATION	CONTACT PARTICULARS (Mobile Phone Number & email ID)	Department	SIGNATURE
15.	M.H. Bhismakanna Panchayat Sachiv to GSP Gram Swaraj RDPR.	9611474056	RDPR	
16.	Jayanna M.V Gram Swaraj	9448373843		
17.	Sowmya R DAC, Gram Swaraj	9482088788	RDPR	
18.	H. Venugopal	9008073906	DAC RDPR	
19.	LATHA S.H	8197357797	GSP RDPR	

Environment Management Framework for project "Strengthening Governance and Service Delivery in Karnataka Panchayats"

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20.	Shashikala R.K.	7829177575	GSP RDPR	
21.	R.S. Subhasini	90085 03909	GSP ROPR	R.S. Subhasini
22.	Rajeshwari. B P.O. Halekote Sri Goppa. pp. Bellary Dist.	9480855370	ROPR	Rajeshwari B.
23.	C.V. Sreedhara. C.O. Jaleek Panna. Jaleek Sreegoppa. Bellary Dist.	9480855130	ROPR	
24.	B.P. Hanumantha Reddy AEE PRE Sub-Div Sri Goppa	9449604909	ROPR	

Environment Management Framework for project "Strengthening Governance and Service Delivery in Karnataka Panchayats"

SN	NAME & DESIGNATION	CONTACT PARTICULARS (Mobile Phone Number & email ID)	Department	SIGNATURE
25.	Avinash. B J-E PRE-Sub-division Silegutta	8867359757	RDPR	

Annexure 5: OK cards – Activity wise Environment Guidelines

Name of the Village:

Taluk:

Name of the GP:

District:

<i>Dos and Don'ts and Environment Guidelines</i>	Complied	Not complied	Not Applicable	Remarks
Construction of Roads and Drains				
Dos and Don'ts: <ul style="list-style-type: none"> • Felling of any trees if required, should be done only after permission from Tree Officer (designated Forest Officer) • Plantation of trees should done in double number in cases where tree felling is required • Permission should be taken from Forest Department (through Range Officer) for constructions in forest villages. Clearing of trees should not me more than 75 per ha. • Sand mining should not be done within 500 m from the coast, or from Ecologically Sensitive Areas. • Raw materials are to be purchased from approved vendors with valid permits • Construction debris should not be disposed in any kind of water bodies or next to road Environment Guidelines: <ul style="list-style-type: none"> • Drainage should be part of road designs and should be connected to larger drains, should not let out in open. Size and depth of channels should be as per sullage generation • Some area between households and road could be left open to allow natural seepage 				
Drinking Water Supply				
Dos and Don'ts: <ul style="list-style-type: none"> • Water quality check should be done to confirm with standards of specification - <i>IS 10500: 2012</i> • Any abandoned bore holes should be covered 				

<p>Environment Guidelines:</p> <ul style="list-style-type: none"> • Drinking water pipelines should not be aligned with drainage pipes • Drinking water source should be uphill from nearby toilet and at safe distance of 30 m • Surrounding areas of tap, cisterns should be paved with concrete with waste water outlet leading to soak pit • Quality checking on drinking water should be done once every 3 months 				
<p>Buildings – Schools, Anganwadis, Panchayat Bhavans, Community halls etc.</p>				
<p>Dos and Don'ts</p> <ul style="list-style-type: none"> • Felling of any trees if required, should be done only after permission from Tree Officer (designated Forest Officer) • Plantation of trees should done in double number in cases where tree felling is required • Permission should be taken from Forest Department (through Range Officer) for construction in forest villages. Clearing of trees should not me more than 75 per ha. • Sand mining should not be done within 500 m from the coast, or from Ecologically Sensitive Areas. • Raw materials are to be purchased from approved vendors with valid permits • Construction debris should not be disposed in any kind of water bodies or next to road • No construction activities should be taken up in CRZ I or on seaward side of CRZ II <p>Environment guidelines:</p> <ul style="list-style-type: none"> • Designs should include provision for adequate ventilation • Separate kitchens with chimneys should be built for anganwadis • Functional toilets with running water should be made part of all buildings • Drainage or soakpit should be provided for wastewater 				

<ul style="list-style-type: none"> • Buildings should have grills for stair case, parapet wall for balconies, terraces etc. 				
<p>Toilets:</p>				
<p>Dos and Don'ts</p> <ul style="list-style-type: none"> • Felling of any trees if required, should be done only after permission from Tree Officer (designated Forest Officer) • Plantation of trees should done in double number in cases where tree felling is required • Permission should be taken from Forest Department (through Range Officer) for construction in forest villages. Clearing of trees should not me more than 75 per ha. • Sand mining should not be done within 500 m from the coast, or from Ecologically Sensitive Areas. • Raw materials are to be purchased from approved vendors with valid permits • Construction debris should not be disposed in any kind of water bodies or next to road • No construction activities should be taken up in CRZ I or on seaward side of CRZ II <p>Environment Guidelies:</p> <ul style="list-style-type: none"> • Toilets should be 30 m away and down hill from nearest drinking water source • All the toilets should have leach pit or septic tank • Running water facility should be provided inside toilet • Hand wash facility should be provided outside the toilet 				

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Signature of the Environment reviewer AE, JE (after review)

Date:

Signature of PDO

Date:

Signature of Adhyaksha

Date

Signature of the Environment Engineer (after verification):

Date

Remarks of Environment Engineer if any:

Annexure 6: Contractors Obligations under EMF

As part of EMF requirement the contractors need to take certain permission and need to avoid activities mentioned in the ‘list of Dos and Don’ts’. As part of construction works the contractors need to implement certain measures to avoid negative impacts, inconvenience or accidents.

The measures listed below are based on ‘list of Dos and Don’ts’ and ‘environment guidelines’ which should be built into the contracts and should be supervised closely by GPs. GPs should ensure the contractor meet their obligations before closing the contracts.

- For any construction activities in forest areas and for felling trees permission from the forest department should be taken as per Forest (Conservation) Act 1980.
- Contractors should take permission from designated Tree Officer (Forest Officer Designated for the purpose) for felling of trees for construction purposes (except those, which are permitted under the Karnataka Preservation of Trees Act 1976) mentioned in Annexure 2.
- In cases where tree felling is done followed by permission, contractors should take up plantations of the same species at same location in double number within 30 days. In cases where it is not possible to plant same species at same location, suitable local tree species should be planted at suitable places in the village.
- Permission to fell trees for constructions in forest areas should be obtained from Forest department through Forest Range Officer as per Forest Rights Act 2006.
- All raw materials – sand, stones, timber etc. should be procured from authentic and approved vendors possessing valid permits. The contractor should not obtain raw materials through illegal means like:
 - sand and stone mining from the Coastal Regulation Zone – 500 mts from High Tide Line (HTL) and distance between Low Tide Line (LTL) and High Tide Line (HTL)
 - cutting of trees from Protected Areas (Reserve Forests and National parks)
 - sand mining from ecologically sensitive areas
 - with drawl of water from wetlands or from wells in watershed areas declared as over exploited.
- Extraction of soil from fertile agriculture lands should not be done
- Permission should be taken for sinking wells as part of construction activities from appropriate authority under The Karnataka Ground Water (Regulation for Protection of Sources of Drinking Water) Act 1999. For sinking wells for drinking purpose in notified taluks permission should be obtained from appropriate authority as per The Karnataka Ground Water (Regulation and Control of Development and Management) Act, 2011.
- Drinking water pipelines should not be aligned along with sewer lines
- All abandoned bore holes should be covered to avoid accidental falls.
- In case of construction activities, the construction debris should be disposed safely at isolated places, away from water bodies, desirably in landfills or borrow pits.
- Contractors should not operate sound emitting construction equipment during night times in residential areas and silence zones (hospitals and educational institutions) as per The Noise Pollution (Regulation and Control) Rules 2000.
- All the toilets should have septic tanks or leach pits
- For all building safety measures like grills or parapet walls should be in place

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- Anganwadi kitchens should have chimney
- Child labour should not be part of any construction activities
- Any chance findings of archeological importance should be handed over to District Collector after informing GP representatives

Annexure 7: Inputs for ToR for Hiring Technical Agencies

Inputs for Hiring Technical Agency/ agenciesfor Training Engineering Cadres:

Technical Agency/ agencies will be hired by PMU for training the engineering cadre on integration of environmental guidelines into the designs considering the different geographical contexts of the project areas. The agency will have the following responsibilities:

- Developing a Technical Manual on integrating environment guidelines (mitigation measures) into technical designs of GP works. This will serve as guidance for JEs, AEs who will prepare the technical designs for GP works and for EEs who will verify the works for compliance.
- Detailing special technical features for GP works in hotspot areas.
- Conduct a main training for the JEs, AEs , AEEs and for the EEs on inclusion of environment guidelines into technical designs
- Conducting refresher trainings at yearly intervals
- Providing guidance in addressing any emerging environment concerns with respect to infrastructure works during the project period.

Inputs for Hiring Expert Agency (NGO or Government Institutes) for pilots in Hotspot Areas:

Government Institutes or NGOs will be hired for providing support in developing model facilities in hotspot areas. The responsibilities of the Expert Agencies will include:

- Providing support to GPs in developing perspective plan and annual action plans that will take in to consideration the existing environmental situations in the GPs, taluks
- Providing support in integration of the environment guidelines into construction through monitoring.
- Designing Capacity Building modules (in addition to those developed by ANSSIRD) to suit to the specific environmental issues, concerns, opportunities prevalent in the region (eg: fluoride problem) and conducting trainings to GP representatives
- Community awarenss on operation and management of common infrastructure facilities such as roads, drains, waste management, public toilets etc.
- Regular review of functioning or use of the created infrastructures and supporting the GPs and communities in addressing the issues if any.