UNIVERSAL WATER REGISTRY

Project Concept Note & Monitoring Report (PCNMR)	
Rainwater Offset Unit (RoU) Standard	Version 8.0
UWR RoU Scope (Annual RoU threshold limit)	**RoU Scope 2 (**1,000,000 RoUs)
UWR RoU Scope (Annual RoU threshold limit)	**RoU Scope 5 (**1,000,000 RoUs)
UNDP Human Development Indicator	0.644
National Water Security Index	2

Project Aggregator and Consultants	**SDG-CR CONSULTING LLP**
Project Proponent	**SHREE RAMKRISHNA EXPORTS PVT.LTD.**
RoU Scope Description	1. Measures for conservation and storage of unutilized water for future requirements including freshwater ecosystems and wetlands. 2. Conservation measures taken to recycle and/or reuse water, spent wash, wastewater etc. across or within specific industrial processes and systems, including wastewater recycled/ reused in a different process, but within the same site or location of the project activity. Recycled wastewater used in off-site landscaping, gardening or tree plantations/forests activity are also eligible under this Scope.
Project Description	1. Rainwater Conservation by creating Surface water storage and gainful use for irrigation purposes. 2. Recycle sewage wastewater and gainful use of treated water for irrigation, flushing, cooling tower makeup water purposes.
Project Location	1. SRK HOUSE & SRK EMPIRE – SURAT 2. GITA VATIKA - Nimlai
Monitoring Period:	01/01/2023 - 31/12/2025
Crediting Period:	2023 -2025
Document Title	Project Concept Note and Monitoring Report (PCNMR)
Purpose	FOR VERIFICATION
SDGC Project Number	2526-SDGC-001_SRK_110226
Revision	R0
PCNMR report submission date:	May 2026

REVISION HISTORY					
REV NO	DATE	DESCRIPTION	PREPARED BY	REVIEWED BY	APPROVED BY

PREFACE

SDG-CR Consulting LLP (SDGC) is a specialized consulting firm dedicated to advancing sustainable water management through market-based, data-driven, and community-centred approaches. The firm plays a pivotal role in implementing Water Credit Programs that leverage competitive market mechanisms to incentivize voluntary environmental actions across individual, community, and industrial stakeholders.

Beyond promoting behavioural change, SDGC enables private sector industries, companies, and institutions to meet their environmental compliance and sustainability obligations by aligning their actions with activities that generate or purchase water credits. Through this mechanism, SDGC bridges environmental responsibility with economic value creation.

At the core of SDGC's operations lies a robust digital data repository that integrates Geographical Information Systems (GIS) and Artificial Intelligence (AI). This integration provides actionable insights supporting ESG (Environmental, Social, and Governance) reporting, social impact assessments, and business value enhancement, enabling data-driven decision-making for sustainable growth.

As a project aggregator and consultant, SDGC collaborates with institutions, industries, and civil society organizations to promote integrated water management practices. Its initiatives align with the Universal Water Registry (UWR) framework, emphasizing the reversal of groundwater depletion and the recognition of water as both a social and economic asset.

SDGC's methodologies, developed in alignment with UWR RoU standards, quantify the ecosystem service value of water to foster behavioural change and sustainable water use. By integrating various water verticals—such as watershed studies, surface water analysis, and groundwater assessments—SDGC redefines water as a vital "source" rather than a mere resource.

This integrated approach establishes a clear relationship between water's price and its value, supporting applications in business risk analysis, climate risk assessment, green finance, engineering design, and resource valuation. SDGC's mission aligns with the triple bottom line of sustainability—People, Planet, and Profit—ensuring that its initiatives deliver social, environmental, and economic benefits in balance.

Through its innovative methodologies and comprehensive analytical framework, SDGC contributes to creating a hydraulic balance across the earth's water systems, promoting sustainable water use and safeguarding humanity's future before the economy.

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1 EXECUTIVE SUMMARY

SDG-CR Consulting LLP (SDGC) conducted a comprehensive Water Audit and Assessment for the brownfield facilities of Shree Ramkrishna Exports (SRK) in Surat, Gujarat, India. The recommendations derived from this study aim to support water valuation, design of alternative water structures, and the identification of opportunities to enhance water stewardship.

By implementing these measures, SRK can progress toward water-positive operations aligned with the Science Based Targets initiative (SBTi), integrating climate-resilient and resource-efficient practices across its facilities. These interventions not only contribute to water credit generation but also strengthen SRK's alignment with broader ESG and sustainability goals, reinforcing its commitment to responsible and future-ready operations.

A. The site was physically visited, and the water-holding reservoirs were verified in November 2025 and February 2026.
B. The SRK House & SRK Empire sites were visited in November 2025 to verify the operational STP units.
C. The premises are physically established as functional throughout the year irrespective of their occupancy.
D. Statutory compliance for the premises may be revisited for GDCR (Gujarat Development Control Regulations and CGWA (Central Ground Water Authority)
E. Water reservoirs were constructed in 2022 and water was gainfully used since 2023.
F. The STP units were installed and put into use from 2024 onwards.
G. The project has been commissioned with a conscious and sustainable design approach, however the same is now complying with the UN's Sustainability goals.
H. SDG No. 6 - Drinking Water and Sanitation
I. SDG No. 9 - Industry, Innovation, and Infrastructure
J. SDG No. 11 - Sustainable Cities and Communities
K. SDG No. 12 - Responsible Consumption and Production
L. SDG No. 13 - Climate Change

M.	SDSG No. 17 – Partnership for the goals
N.	Significant year-to-year variability in rainfall is observed. For instance, the lowest annual rainfall recorded was just 172 mm in 1985, while the highest was a remarkable 2242 mm in 1988. Such a wide range-from complete drought to extremely high rainfall-demonstrates the unpredictable nature of precipitation in this region.
O.	**Total water credits have been calculated for Scope 2 is 3,42,353 RoU**
P.	**Total water credits have been calculated for Scope 5 is 1,10,729 RoU**
Q.	**Total water credits have been calculated for both the Scopes is 4,53,082 RoU**

2 ABOUT THE PROJECT PROPONENT

Shree Ramkrishna Exports Private Limited (SRK), is a Mumbai based private limited company incorporated in 2012 by Mr. Govindbhai Dholakia and his family members. Mr. Dholakia has been associated with the diamond trade since 1964. Initially, the business was carried out as a proprietorship concern (Shree Ramkrishna Exports); later in 1976, it was converted into a private limited firm. The company is processing and trading Cut & Polished Diamonds (CPD). SREPL has two manufacturing facilities at Katargam, Surat, Gujarat, and a registered office at Bharat Diamond Bourse (BDB) - BKC, Mumbai. The company sells in domestic and overseas markets, including the USA, Israel, Europe, and Hong Kong.

UWR requires projects that are real, verifiable, and must be currently operational. UWR Rules allow projects from domestic and developing nations as well. All UWR water conservation and recharge activities have prescriptive eligibility, evaluation, and verification requirements as outlined in their approved positive project list protocol requirements, as outlined in the UWR Rainwater Offset Standard Version 8.0.

Project proponent and owner	SHREE RAMKRISHNA EXPORTS PVT.LTD.
Project proponent and owner's address	SRK Empire, 99, Vasta Devdi Rd, Tunki, Katargam, Surat, Gujarat 395004
Project aggregator and consultant	SDGC
Project aggregator and consultant's address	4th Floor, Shreeji House, Behind M. J. Library, Ellisbridge, Amdavad 380006, Gujarat, Bharat.
Date of PCNMR Prepared	28th May 2026

2.1 UNDP HUMAN DEVELOPMENT INDICATOR

All projects using this methodology must be ideally located in a country or region with a recent UNDP Human Development Indicator below 0.900. However, countries and regions with higher HDI's will also be considered taking the goal of UN SDG 17 into account, especially water conservation and recharge projects that encourage and promote effective public, public-private, and civil society partnerships, building on the experience and resourcing strategies of partnerships.

India falls into 2022 HDI value 0.644 which is represented in the below image.

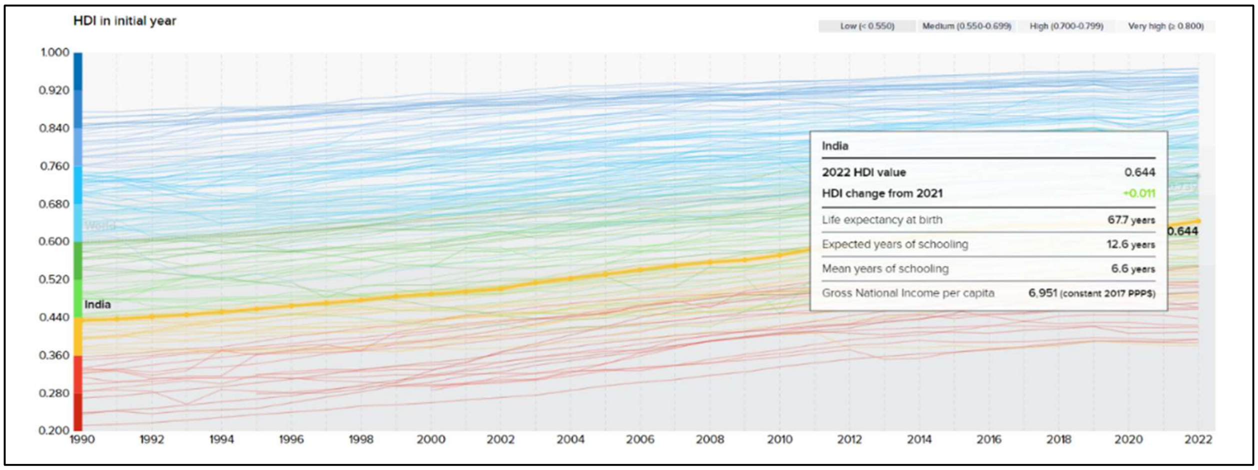


Figure 2.1: UNDP Human Development Indicator

2.2 NATIONAL WATER SECURITY INDEX

Five Key Dimensions form the National Water Security Index (NWSI). The maximum score for each KD is 20. The maximum NWS score—the sum of the KDs—is 100. At NWSI Stage 1, the water situation is encouraging, however there is a large gap between the current state and the acceptable level of water security. At NWSI Stage 5, the country may be considered a model for its management of water services and resources, and as water secure as possible under current circumstances.

All projects using this methodology are ideally below the NWS score of 60 and NWSI equal to or lower than 2 (NWSI ≤ 2). However, projects above the NWS score of 60 can also use the methodologies outlined in the UWR RoU Standard and be eligible for RoUs under the program.

NWSI	NWS Score	NWS Stage	Description
5	96 and above	Model	All people have access to safe, affordable, and reliable drinking water and sanitation facilities. Economic activities are not constrained by water availability. Environmental governance is good, and pressure on aquatic ecosystems is limited. Water-related risks are acceptable and relatively easy to deal with.
4	78–96	Effective	Nearly all people have access to affordable safe drinking water and sanitation facilities. Economic water security is high. Environmental governance is generally acceptable, and attention is given to ecological restoration. There are systematic commitments to reduce disaster risk.
3	60–78	Capable	Access to safe drinking water and sanitation facilities is improving. Economic water security is moderate. Environmental governance is moderate, with clear pressure on the ecosystem. There are some institutional commitments to reduce disaster risk.
2	42–60	Engaged	A significant majority of rural and urban households have access to basic water supply but less to sanitation. Economic water security is low. Environmental governance is moderate, with severe pressures on aquatic ecosystems. Progress in achieving disaster risk security is low.
1	0–42	Nascent	A low proportion of rural and urban households have access to basic water supply and sanitation. Economic water security is low. Environmental governance is poor, with significant pressures on the aquatic ecosystems. Hardly any attention is given to disaster risk reduction.

Figure 2.2: National Water Security Stages

India falls into the Engaged Stage (2) of the National Water Security Index in 2020 which is represented in the below image.

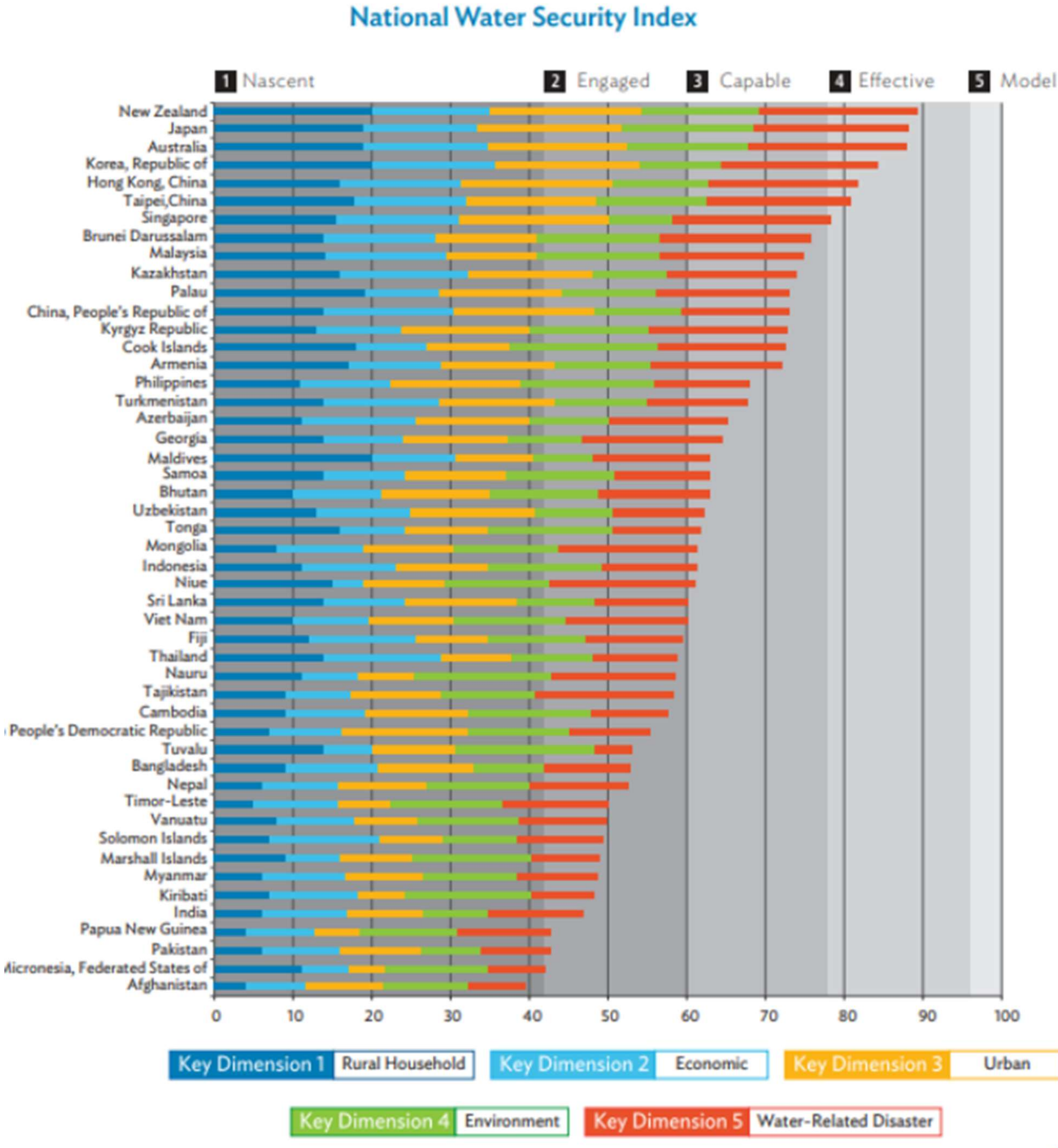


Figure 2.3: National Water Security Index

2.3 LOCATION OF PROJECT ACTIVITIES

The map highlights three key sites in Surat, Gujarat — Gita Vatika, SRK Empire, and SRK House. Gita Vatika (red marker), currently under construction, is proposed as an institutional campus for the Skill Development Programme under the Skill India Movement of the Government of India. SRK Empire (yellow marker) and SRK House (blue marker) serve as prominent business establishments.

Two sites (SRK House and SRK Empire) are strategically located within Surat's urban area centrally positioned within the city's commercial district., offering excellent connectivity to major city amenities and transport networks. Gita Vatika lies toward the southwestern zone, near the Tapi River and coastal belt,

Inset maps provide geographical context, illustrating each site's location within Gujarat and India. Their prime positioning offers convenient access to Surat's cultural, historical, and economic centres, making these locations highly suitable for sustainable development and long-term investment.

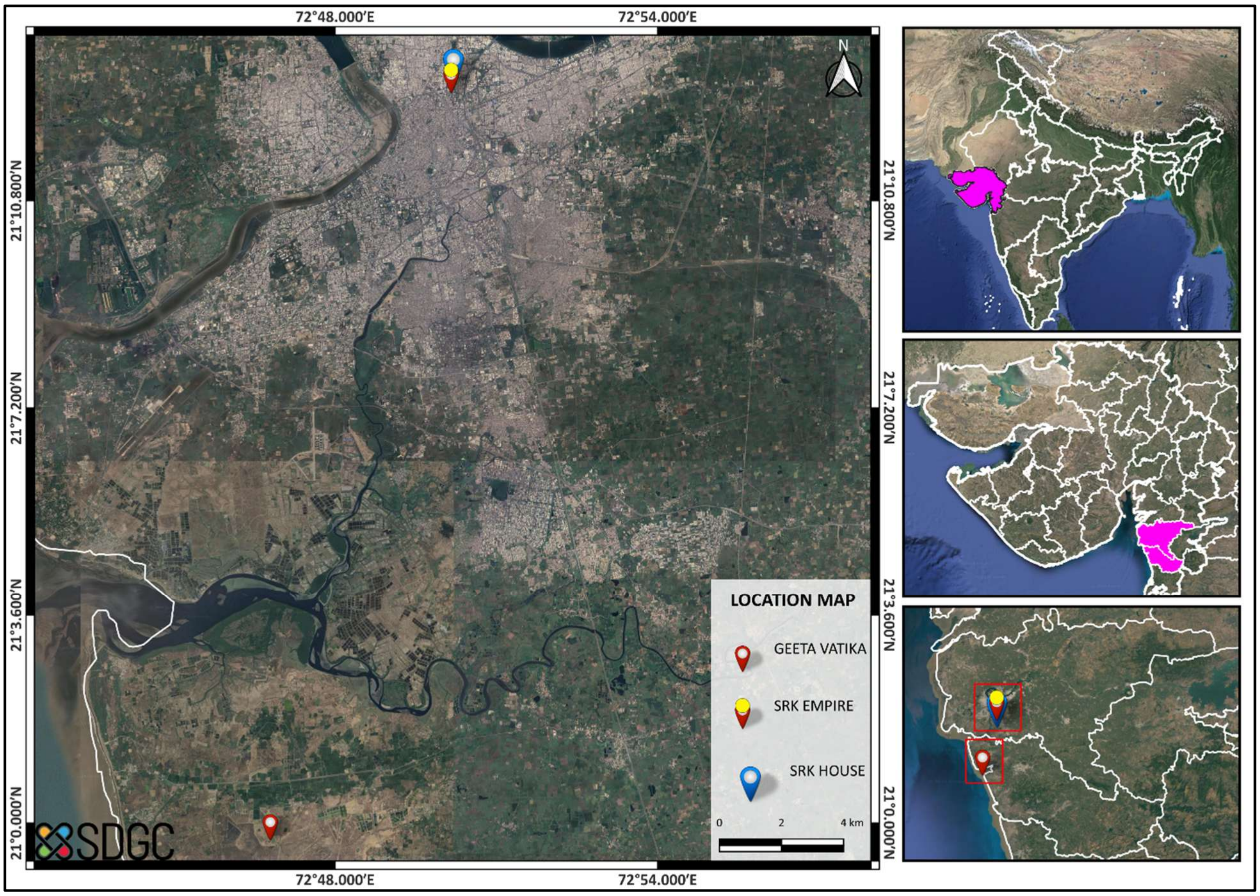


Figure 2.4: Location Map

2.4 PROJECT BRIEF

The following site-specific information and details are to be referred to get acquainted with the water condition of the premises.

Table 2.1: Project Brief - SRK Empire

SN	SPECIFICS	DESCRIPTION
1	Address of the project activity	SRK Empire, 99, Vasta Devdi Rd, Tunki, Katargam, Surat, Gujarat 395004
2	District	Surat
3	State	Gujarat
4	Country	Bharat
5	Latitude – Longitude	21°13'04.3"N 72°50'09.7"E
6	Land use type	Commercial use
7	Project type	Industrial Use
8	Industry type	Gems and Jewellery Industry
9	MSME Type	No
9	Plot area	1 acre
10	Block basin	Tapi
11	Sub-basin	Lower Tapi
12	Assessment Unit Type	Safe
13	Primary water supply source	Surat Municipal Corporation water supply
14	Secondary water supply source	Production borewell (Groundwater)
15	Drainage connection	Yes

Table 2.1: Project Brief - SRK House

SN	SPECIFICS	DESCRIPTION
1	Address of the project activity	SRK House, Near Gajera Circle, Katargam, Surat, Gujarat 395004
2	District	Surat
3	State	Gujarat
4	Country	Bharat
5	Latitude – Longitude	21°13'20.97"N 72°50'12.56"E
6	Land use type	Commercial use
7	Project type	Industrial Use
8	Industry type	Gems and Jewellery Industry
9	MSME Type	No
9	Plot area	0.95 acre

10	Block basin	Tapi
11	Sub-basin	Lower Tapi
12	Assessment Unit Type	Safe
13	Primary water supply source	Surat Municipal Corporation water supply
14	Secondary water supply source	Production borewell (Groundwater)
15	Drainage connection	Yes

Table 2.3: Project Brief – Gita Vatika

SN	SPECIFICS	DESCRIPTION
1	Address of the project activity	Gita Vatika, Nimlai, Navsari, Gujarat
2	District	Navsari
3	State	Gujarat
4	Country	Bharat
5	Latitude – Longitude	21° 0'6.07"N 72°46'47.19"E
6	Land use type	Commercial use
7	Project type	Infrastructure project
8	Industry type	Service Industry
9	MSME Type	No
9	Plot area	224 acres
10	Block basin	Purna
11	Sub-basin	Purna
12	Assessment Unit Type	Safe
13	Primary water supply source	Harvested Rainwater
14	Secondary water supply source	Harvested Rainwater
15	Drainage connection	No

2.5 KEY ROLES AND RESPONSIBILITIES

The Project Proponent and Owner (PP) possess all the necessary permits and ownership documents for the uncontested legal land title for the project area within the project boundary.

As a purpose-driven company, SRK places the highest importance on quality, society, and the environment. Both SRK Empire and SRK House are certified Net Zero Energy and Net Zero Emissions facilities, with natural diamonds that carry a negative carbon footprint as its finished product. Having successfully eliminated Scope 1 and 2 emissions, SRK is now targeting Scope 3 emissions and pursuing Net Zero certifications for Water and Waste. Since 2024, SRK has been a signatory of the UN Global Compact, committing to its principles on human rights, labour, environment, and anti-corruption. Guided by its four strategic pillars, SRK is dedicated to advancing the UN Sustainable Development Goals (SDGs) and supporting India's leadership in achieving a zero-emissions future. SRK's first *Pure Impact Report* highlights the company's history of community engagement, its partnership with the Global Network for Zero (GNFZ), and its roadmap for greater transparency and sustainable growth. Recognizing the critical importance of water stewardship, SRK has implemented comprehensive water management strategies across its facilities. The Master Plan prioritizes sustainable water use through the establishment of Sewage Treatment Plant (STP) units, reservoirs, and water conservation infrastructure. With support from PP, ponds were developed and became operational in 2023–24 to further enhance water conservation efforts. These ponds are regularly de-silted, and the collected water is used for irrigation within the premises. Similarly, STP-treated water is repurposed for on-site applications. Preventive maintenance of all water infrastructure will continue in the coming years to ensure efficient and sustainable resource use.

The project developing ponds/reservoirs for RWH at Gita Vatika and setting up an STP unit for water reuse at SRK Empire and SRK House project sites, Gujarat, Bharat is an initiative for water conservation, storage of unutilized water for future requirements, and reusing water. The timelapse study is carried out by sourcing relevant satellite images of the site and the surrounding regions to understand the morphological changes within the site boundary. Relevant images have been sourced to visualize the particular man-made structure during rainy days. The ponds were operational from 2023-24 to conserve rainwater within the premises. Since the monsoon of 2023, water started accumulating for a significant period.

PROJECT NAME	**Gita Vatika, SRK Empire & SRK House**
UWR Scope:	Scope 2 & Scope 5
Date PCNMR Submitted	February 2026
Month and Year of Construction of Pond	Gita Vatika - April 2022 to November 2022
Month and Year of STP unit installation	SRK Empire – February 2024 SRK House – December - 2022

The capacity of the pond was designed based on yearly water demand primarily for irrigation & domestic requirements. Pond is designed at strategic locations to ensure continuous replenishment of rainwater during rainy days. Below is the sequence of important events based on the timelapse of satellite images.

Table 2.4: Data Source

Data Source	Launched in 1999, Landsat 7 is a satellite that captures images of the Earth's surface
How is it generated?	It carries the Enhanced Thematic Mapper Plus (ETM+) sensor, which collects data in eight spectral bands. These bands provide information about the Earth's surface in different wavelengths of light, including visible, near-infrared, and thermal infrared.

What does it provide?	Historical images for particular land parcel to observe the changes on a surface.
What are its applications?	Applications including land cover mapping, monitoring deforestation, and tracking changes in earth surfaces can be obtained from Landsat 7 data, that is freely available.

April 2022

October 2022

April 2023

October 2023

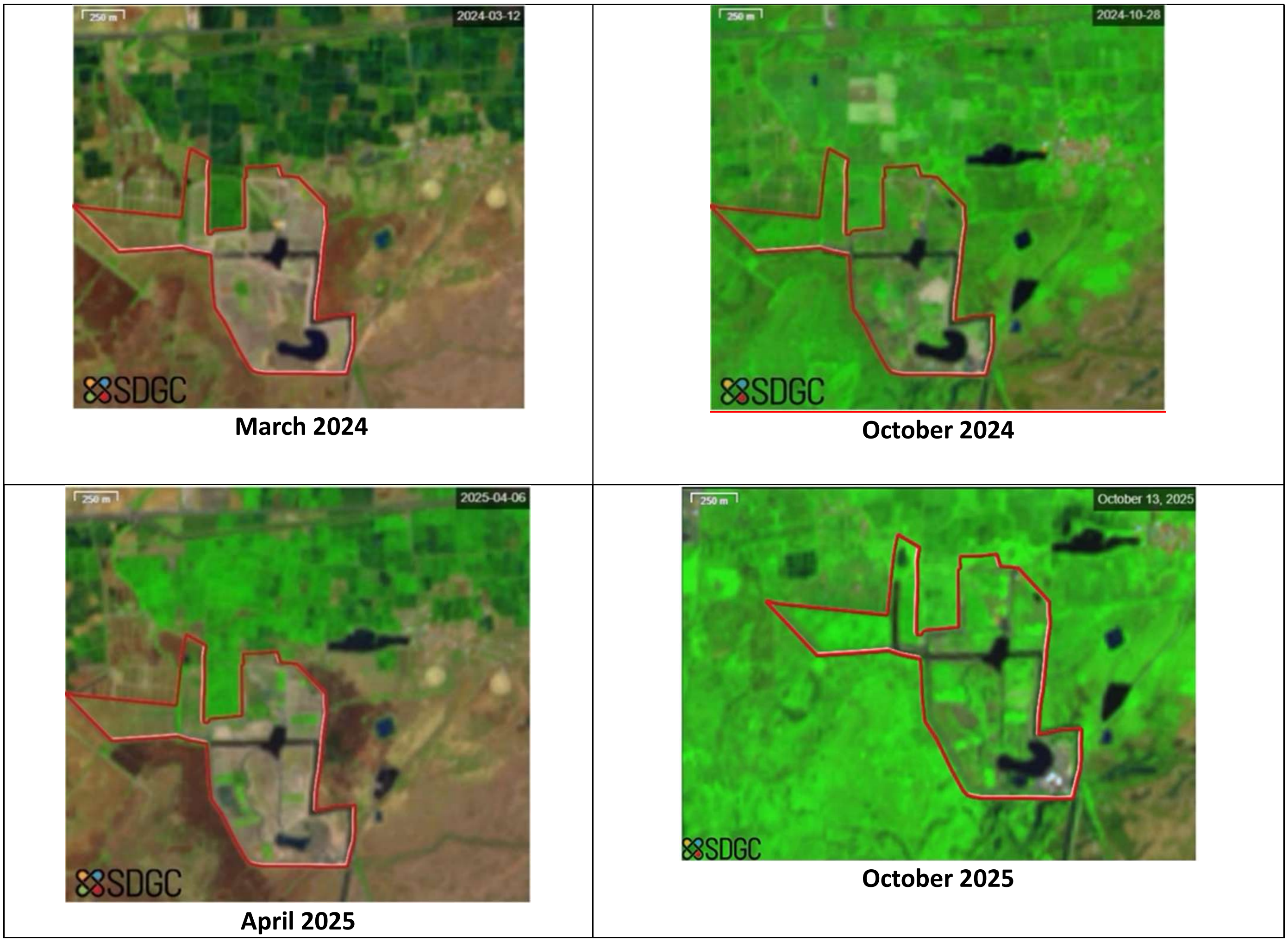


Figure 2.5: Pond Formation Satellite image

2.6 SITE VISIT

The following images were captured during a physical field visit on 18th November, 2025 and 24th February 2026 to identify various geophysical features of the study area, to understand the terrain, and to carry out an accuracy check of digital elevation data, while observing the physiography of the study area. The ground-truthing study helps the further mapping requirements of the site such as geography, climate, elevation modeling land-use dynamics, etc.


Aerial Overview - Gitavatika


Canal – Gitavatika


Canal – Gitavatika


Canal - Gitavatika


Canal – Gitavatika


Canal Gate – Gitavatika

 **Canal Gate – Gitavatika**	 **Interconnecting Canal – Gitavatika**
 **Pond – Gitavatika**	 **Pond – Gitavatika**
 **Pond – Gitavatika**	 **Miyawaki Plantation – Gitavatika**

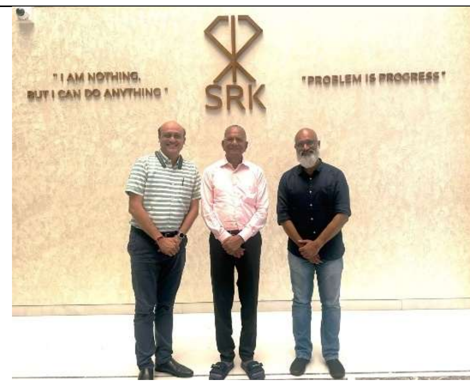
 School Building Construction – Gitavatika	 STP – SRK House
 STP – SRK EMPIRE	 At SRK Group Board Room

Figure 2.6: Site Visit

The installed STP units at SRK House & SRK Empire, which have been in operation since 2024 each STP Unit has a capacity of 100KLD, catering to the overall occupancy. Treated water will be stored and used for gainful uses. The capacity of the STP was designed based on estimated occupancy and water consumption patterns for the facility, which will generate sewage water.

3 STATUTORY COMPLIANCE

Groundwater usage laws and their enforcement are taking shape in Bharat. The policies also reach the end users, who are expected to be key stakeholders in a way they would understand its provisions and their role. Therefore, the UWR RoU program and methodologies are introduced to employ the broad monitoring and accounting framework to promote available technologies like GIS and remote sensing, where water security plans encompass a watershed for a large number of entities.

Yet the water security concept in its true sense has not become institutionalized enough, which is expected to capture the impacts of various water recharging, harvesting, recycling, and conservation practices, that are aimed at enhancing groundwater supply stocks. Therefore, it is mandatory to comply with statutory guidelines to obtain various “No Objection Certificates” to put the building in use, while claiming the water credits.

Groundwater abstraction guidelines have been prepared to regulate groundwater extraction and conserve the scarce groundwater resources in the country to have sustainable management of water resources. These guidelines come into force in 2020, 24th September through Gazette Notification number CG-DL-E-24092020-221952 and will supersede all earlier guidelines issued by the Central Ground Water Authority (CGWA).

The authority has been regulating groundwater development and management by issuing 'No Objection Certificates' for groundwater extraction to all new/ existing residential, industries or infrastructure projects unless specifically exempted. Framed guidelines apply to PAN India.

(Reference - THE GAZETTE OF INDIA: EXTRAORDINARY [PART II—SEC. 3(ii)] Clause no 4.3 – page no 38 – 39).

3.1 COMMERCIAL USE – INFRASTRUCTURE & INDUSTRIAL PROJECTS

Since infrastructure projects are location-specific, granting of No Objection Certificate to such projects located in over-exploited assessment units shall not be banned. New infrastructure projects/ residential buildings may require dewatering during construction activity and/ or use groundwater for construction. In both cases, applicants shall seek a No Objection Certificate from CGWA before the commencement of work. However, in over-exploited assessment units, groundwater use for construction activity shall be permitted only if no treated sewage water is available within a 10 km radius of the site.

All industries drawing ground water in safe, semi-critical and critical assessment units shall be required to pay ground water abstraction charges as per the CGWA Notification. All existing industries drawing ground water in over-exploited assessment units shall be liable to pay ground water restoration charges as applicable as per CGWA Notification.

All industries abstracting ground water in excess of 100 m3/d shall be required to undertake annual water audit through certified auditors and submit audit reports within three months of completion of the same to CGWA. All such industries shall be required to reduce their ground water use by at least 20% over the next three years through appropriate means.

3.1.1 DIGITAL WATER FLOW METER

In the case of infrastructure projects that require dewatering, the proponent shall be required to carry out regular monitoring of the dewatering discharge rate (using a digital water flow meter) and submit the data through the web portal to CGWA/SGWA as applicable. Monitoring records and results should be retained by the proponent for two years, for inspection or reporting as required by CGWA/ SGWA.

3.1.2 SEWAGE TREATMENT PLANT

For infrastructure projects, installation of Sewage Treatment Plants (STP) shall be mandatory for new projects, where the groundwater requirement is more than 20 m3 /day. The water from STP shall be utilized for toilet flushing, car washing, gardening, etc.

3.1.3 VALIDITY – NOC

For infrastructure dewatering/ construction activity, a No Objection Certificate shall be valid for a specific period as per the detailed proposal submitted by the project proponent.

3.1.4 PIEZOMETER

A piezometer is one of the borewell/tube wells being used only for measuring the water level/piezometric head and to take water samples periodically but not to be used for groundwater abstraction. It is also being used to take a water sample for water quality testing whenever needed. The groundwater quality must be monitored and tested once a year during the pre-monsoon (April/ May) and post-monsoon (Oct/ Dec) period by industries drawing groundwater.

Construction of a Piezometer(s) (An observation well(s)) is mandatory for the premises since the water extraction quantity is more than 10 m3 /day of groundwater. The Piezometer is suggested to be installed within the premises and monitored for water level monitoring as statutory compliance. Monthly water level data shall be submitted to the CGWA through the web portal. The piezometer (observation well) is proposed at a minimum distance of 15 m from the borewell/production well. The depth and aquifer zone tapped in the piezometer shall be the same as that of the pumping well/ wells. (Reference - THE GAZETTE OF INDIA: EXTRAORDINARY [PART II—SEC. 3(ii)] Clause no 14 – page no 45).

Table 3.1: No. of Piezometers to be constructed & Type of Water Level Monitoring Mechanism

Table 14.1 No. of Piezometers to be constructed & Type of Water Level Monitoring Mechanism					
S.No.	Quantum of Ground water withdrawal (cum/d)	No. of piezometer required	Monitoring mechanism		
			Manual	DWLR	DWLR with Telemetry
1	<10	0	0	0	0
2	11-50	1	1	0	0
3	51-500	1	0	1	0
4	>500	2	0	1	1

3.1.5 WETLAND

Since groundwater is very crucial for the survival of the wetland area, any excessive groundwater development within the zone of the wetland area would affect the volume of water in that wetland. Projects falling within 500 m. from the periphery of demarcated wetland areas shall mandatorily submit a detailed proposal indicating that any groundwater abstraction by the project proponent does not affect the protected wetland areas. Furthermore, before seeking permission from CGWA, the projects shall take consent/approval from the appropriate Wetland Authorities to establish their projects in the area.

3.1.6 CAUTION

Aquifers are to be enhanced by artificial recharge and to be used as potable aquifers. Hence, it must be ensured that the water that is to be recharged is free from any type of contaminant. The water quality of the pumping tube wells should be monitored periodically. **Injection of treated/ untreated wastewater into the aquifer system is strictly prohibited.**

4 BASELINE SCENARIO

Scope 2 & Scope 5 applicability with respect to the Baseline Scenario –

SRK House & SRK Empire – RoU Scope 5 –

Prior to 2024, the Project Proponent's primary manufacturing units i.e. SRK House & SRK Empire were totally reliant on freshwater supply from the Surat Municipal Corporation (SMC) as its primary source of water. The city of Surat lies in the basin of Tapi river. The SMC water supply to the entire city of Surat is sourced from the same river basin. Thus, both SRK House & SRK Empire were directly reliant on surface water of Tapi river basin for their water supply through the SMC with the waste water generated being directly discharged into the city sewer system. In 2024, STPs were commissioned in both locations by the project proponent for wastewater recycling and reuse within the premise. This treated & recycled water started being used for process, flushing, gardening and other domestic uses except for drinking and kitchen. This gainful use of STP recycled sewage water within both the premises of the project proponent led to a steady reduction in reliance of municipal freshwater resulting in direct conservation of river surface water making it qualified to claim RoUs under Scope 5 of the UWR RoU standard version 8.1.

Gitavatika – RoU Scope 2 –

Gitavatika project was envisioned for creating world class educational infrastructure with a Sainik School and residential facilities for students. The site is located close to the Arabian Sea coastline near the village of Nimlai in the Navsari district of Gujarat State. The original site as acquired was semi marshland and scrub bushes growing all over the site. All the rain water in the local catchment area was either flowing through the site or led to inundation of the site location. At the time of land clearance, the project proponent undertook hydrology and flood analysis studies and created a new channel for the rain water to flow within the site leading from north to south direction generally. Project proponent also set up a bund at the end of the canal where it exited its site premises to hold the rain water draining through the canal so created. Over time, the project proponent enlarged this artificial canal to form lakes for collection and storage of the rain water being channeled through the canal. A separate additional lake was also created on the site to collect and store rainwater that did not enter the canal which was hitherto being runoff through the site. Rainwater so collected in each monsoon since 2023 started being used for irrigation of the Miyawaki plantations being cultivated since 2023 in a phased manner. With the above interventions, the project proponent has harvested, collected and gainfully used rainwater which was hitherto draining into the sea thus making it qualified to claim RoUs under Scope 2 of the UWR RoU standard version 8.1.

5 CONCEPT

It is pertinent to look back at ancient Sanskrit literature for valuable insights from age-old wisdom, containing highly advanced scientific concepts regarding the hydrological cycle. The present report refers to **'Conceptual Aspect of Hydrological Cycle in Indian Mythology of Kishkindha Kanda, Ramayana'**, to arrive at the representational approach for aquifer mapping in the modern context. The concept of modern hydrology can be transformed based on a conceptual model of how water circulates between the earth and atmosphere in different states as water vapour, liquid or solid.

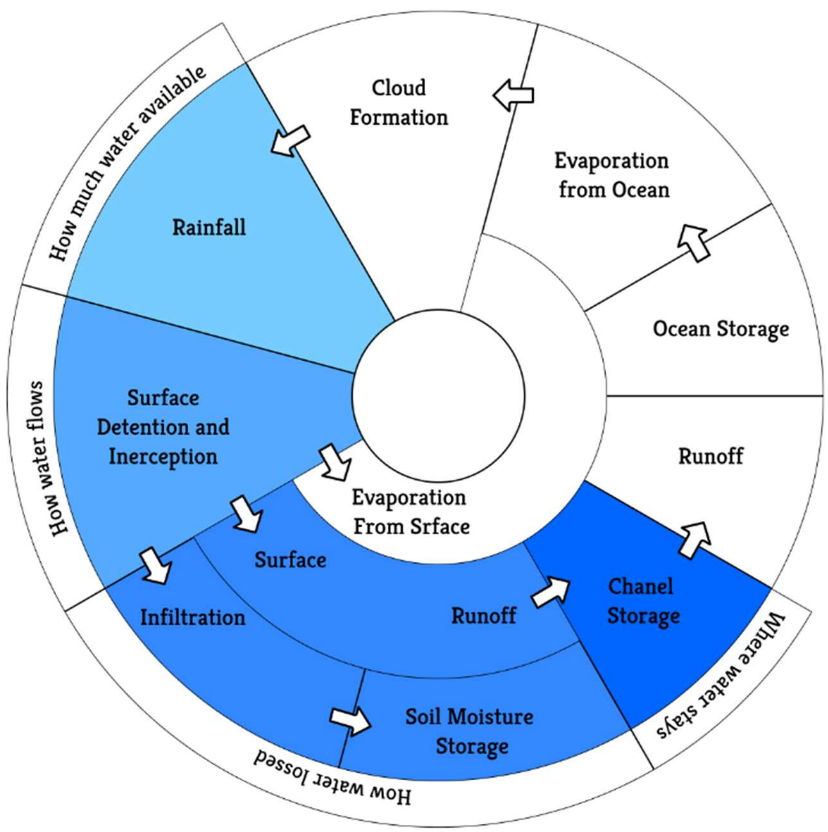


Figure 5.1: Ancient Hydrological Cycle from 800 to 500 B.C.

The present report uses these insights during the study as well as analysis of the data being generated at various stages. The Aquifer Management Plan will be based on the interdependencies of various stages to generate a contemporary understanding of the hydrological cycle with all important facets. It is required to base modern hydrological study approaches on ancient insights to obtain contextual reference and strengthen the modern approaches in terms of accuracy. Therefore, it is proposed to revisit ancient Indian water management practices to design the methodology statement to generate water credits.

6 OBJECTIVE

The objective of this voluntary water offset program is supported by the Universal Water Registry Rainwater Offset Unit Standard Version 8.0 (UWR RoU Standard or Programme). This initiative is to drive unutilized water harvesting, recharge, and conservation efforts, defined as the catchment-based initiatives independent of water quality parameters undertaken for capturing/recycling/reusing unutilized water that is in consonance with the triple bottom line of sustainability i.e. People, Planet and Profit.

As this initiative will benefit the whole premises of Shree Ramkrishna Exports Pvt. Ltd. (SRK), rainwater conservation is done by creating a farm pond as an effective solution at Gita Vatika along with effective operations of STP installations at SRK Empire and SRK House. Sufficient water is made available for irrigation and domestic gainful use throughout the year, to reduce the consumption of groundwater. The overall goal of this project is to promote sustainable water development to maintain groundwater reserves and ensure water security in Bharat to attain the United Nations Sustainable Development Goals (SDGs) 6, 9, 11, 12, 13 and 17.

Figure 6.1: Sustainable Development Goals

7 METHODOLOGY

The UWR RoU program and methodology employs a broad monitoring and accounting framework that is expected to capture the impacts of various water recharging, harvesting, recycling, and conservation practices aimed at unutilized water savings and enhancing groundwater supply stocks. This methodology and protocol are aimed at the voluntary water conservation market and address the potential to quantify unutilized water units from water conservation, harvesting, restoration, reuse of recycled sewage water and other recharge projects.

The detailed methodology statement and work sequence have been developed to carry out integrated water resource planning and designing for pre-defined study objectives. Effective regional hydrology and site hydraulics are studied using an integrated approach of Geospatial technique and multiple criteria decision-making technique. Datasets based on Geographic Information Systems (GIS) are used as criteria and sub-criteria. A wide range of spatial datasets for the study area is generated, analyzed, and integrated by using various historical data like topographical, meteorological, geological, and geophysical within the context of the project.

A geographic Information System (GIS) is an essential tool to analyze and study such a large surface by remote sensing methods. Information about the physical characteristics and climatic parameters of the land has been acquired to understand its response to the business operation of the project premises for the design phase as well as for the operation/ maintenance phase. The information generated from the study may be analyzed, interpreted, and articulated as strategies to implement future water credit opportunities within the premises.

The below flowchart represents the detailed methodology statement and work sequence developed for pre-defined study objectives, where we deliberately transform and convert the ancient Indian water management practices into modern hydrology based on how water moves around between the earth and atmosphere in different states as a gas, liquid, or solid in terms of accuracy to calculate water credit and water valuation.

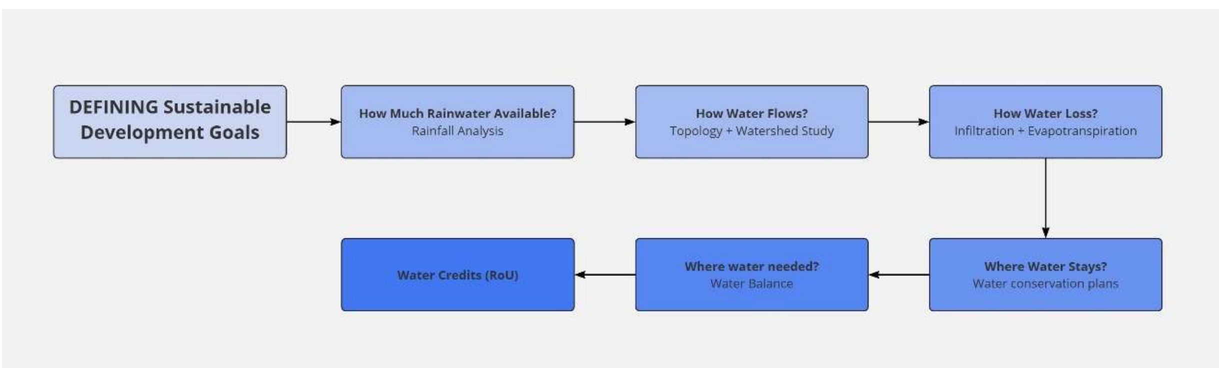


Figure 7.1: Flow Chart

8 RAINFALL ANALYSIS (How much rainwater is available?)

The southwest monsoon (June to September) is crucial for Bharat's economy, and it plays a pivotal role in water management and water security. Bharat receives around 76% of its total annual rainfall during four months – June, July, August, and September called the southwest monsoon. However, monsoonal variability triggers contrasting wet and dry conditions, leading to hydro-meteorological disasters. It's important to highlight that rainfall assessment primarily aims to provide fundamental insights into changing rainfall patterns in a simplified manner.

We undertook this assessment at the study area to quantify and understand trends in changes in rainfall during the southwest monsoon (between June and September), while analyzing the trends over the past 40 years (1985–2025) approximately, with a particular focus on the quantification of changes over the past decade, between 2015 and 2025. Our primary aim with this assessment is to offer fundamental insights into calculating rainwater conservation to quantify the water credits. These insights are intended to serve to derive water valuation for stakeholders across various sectors, including water management, agriculture, energy, and urban planning, among others, to help them make climate-informed decisions.

Rainfall frequency analyses have been generated by using historical precipitation data obtained from the nearest rain gauge station Surat of the Indian Metrological Department (IMD), which is situated approximately 21 km far from one of the site locations as represented in the following map.

Figure 8.1: Raingauge Station- Surat

8.1 Annual Rainfall

Rainfall patterns in arid and semi-arid regions can fluctuate dramatically from year to year, a fact that becomes evident when examining long-term rainfall statistics for a specific location. The annual rainfall recorded at the Surat rain-gauge station over the past 40 years is illustrated in the bar chart below.

The chart clearly shows significant year-to-year variability in rainfall. For instance, the lowest annual rainfall recorded was just 172 mm in 1985 while the highest was a remarkable 2242 mm in 1988, as highlighted in yellow. Such a wide range-from complete drought to extremely high rainfall-demonstrates the unpredictable nature of precipitation in this region.

Over the years, rainfall amounts have fluctuated, with some years experiencing moderate rainfall (e.g., 842 mm in 1990, 981 mm in 1997), and others seeing very high totals (e.g., 1825 mm in 2003, 1723 mm in 2005). The dotted red trend line indicates a gradual increase in average rainfall over the period, although the year-to-year variation remains substantial.

This variability underscores the challenges faced by communities and agricultural activities in arid and semi-arid zones, where planning for water resources must account for both drought years and occasional heavy rainfall events.

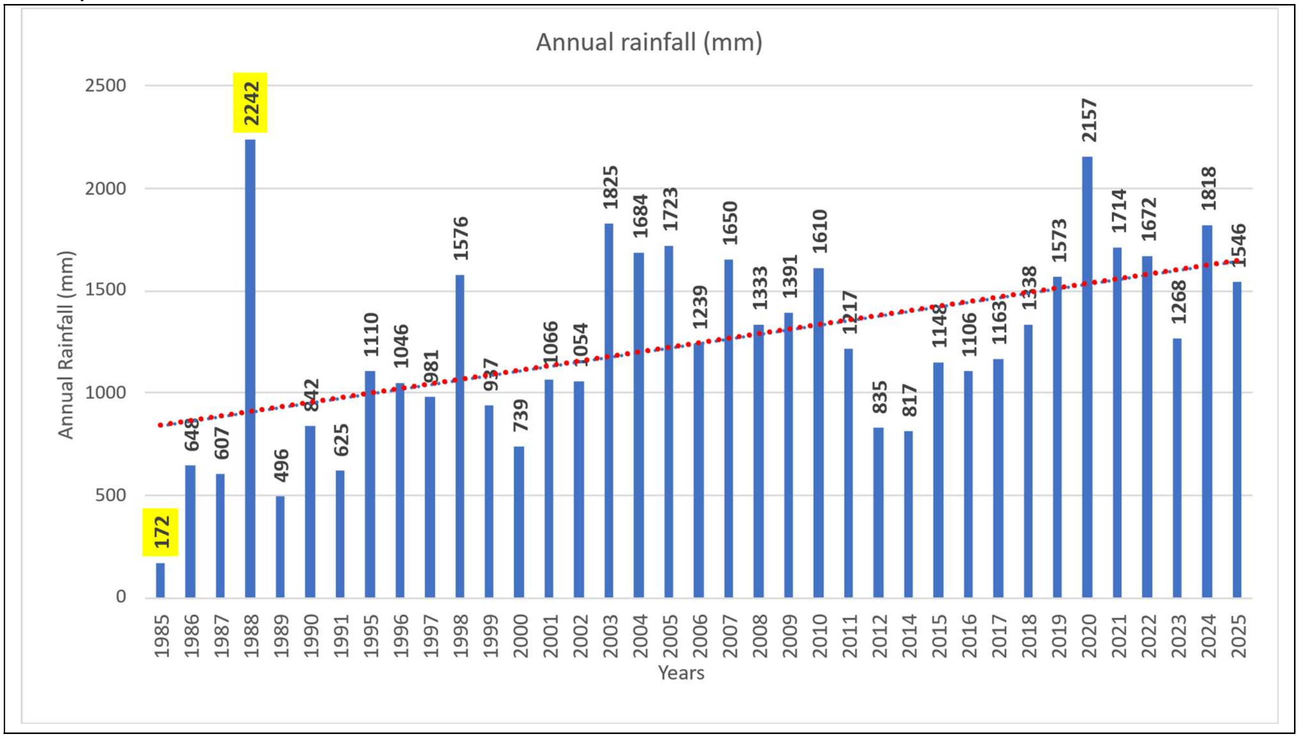


Figure 2.2: Annual Rainfall

8.2 Monthly Mean Rainfall

The line chart below illustrates the monthly mean rainfall recorded at the Surat rain gauge station. The data reveals a distinct seasonal pattern, with the majority of rainfall concentrated during the monsoon months.

June, July, August, and September are identified as the primary rainy months. Notably, July experiences the highest average rainfall, peaking at 476.57mm, as highlighted in yellow on the graph. Substantial rainfall is also observed in June (217.42 mm), August (277.4 mm), and September (208.15 mm), confirming the dominance of the monsoon season in the region's annual precipitation.

Rainfall in the remaining months is minimal, with values ranging from less than 1 mm to just over 40 mm, indicating only marginal unseasonal rainfall outside the monsoon period.

This monthly rainfall distribution is crucial for effective planning and scheduling of maintenance and housekeeping activities. Tasks such as cleaning rainwater harvesting filters, roofs, and gutters, as well as desilting reservoirs and declogging stormwater networks, should be prioritized as pre-monsoon or post-monsoon activities. By aligning these efforts with the rainfall pattern, communities can ensure efficient water management and minimize the risk of flooding or waterlogging during peak rainfall months.

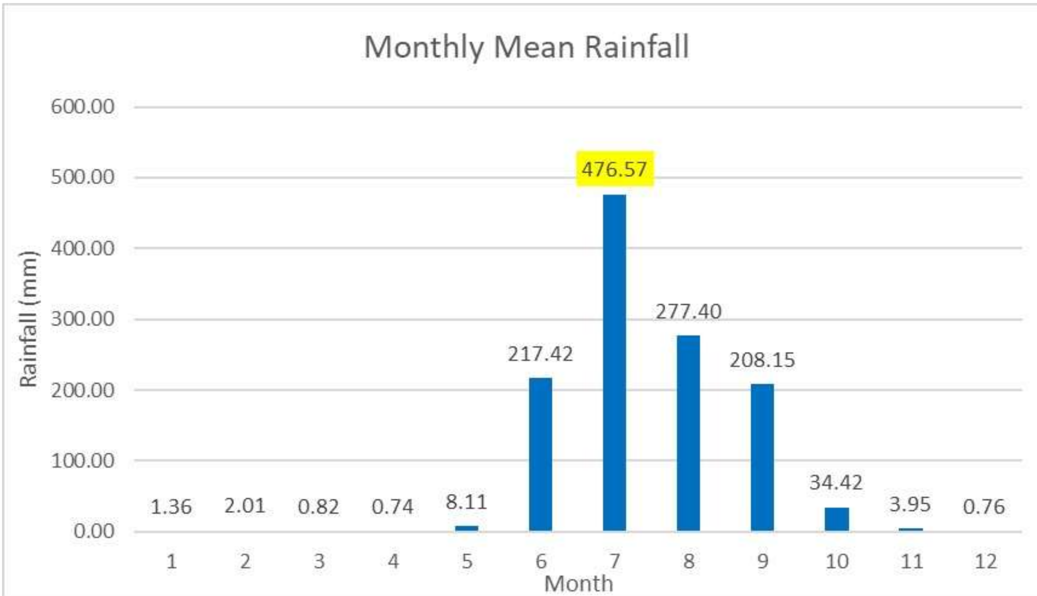


Figure 8.3: Monthly Mean Rainfall

8.3 Rainy Days

The number of rainy days is useful to define the sizes of rainwater conservation structures and water management efforts involving capital investment. The same can be further designed based on the minimum number of rainy days considering the worst-case scenario. Rainwater storage inventory for the number of years can also be decided based on this information.

The bar chart below presents the annual rainy days recorded at the Surat rain gauge station over a 40-year period, from 1985 to 2025. The data clearly illustrates significant inter-annual variability in rainfall, a characteristic feature of arid and semi-arid regions.

The lowest number of rainy days was in the year 1985 and the highest number of rainy days were observed in the year 2025. However, an increasing trend has been observed in the total number of days rainfall occurred in a year.

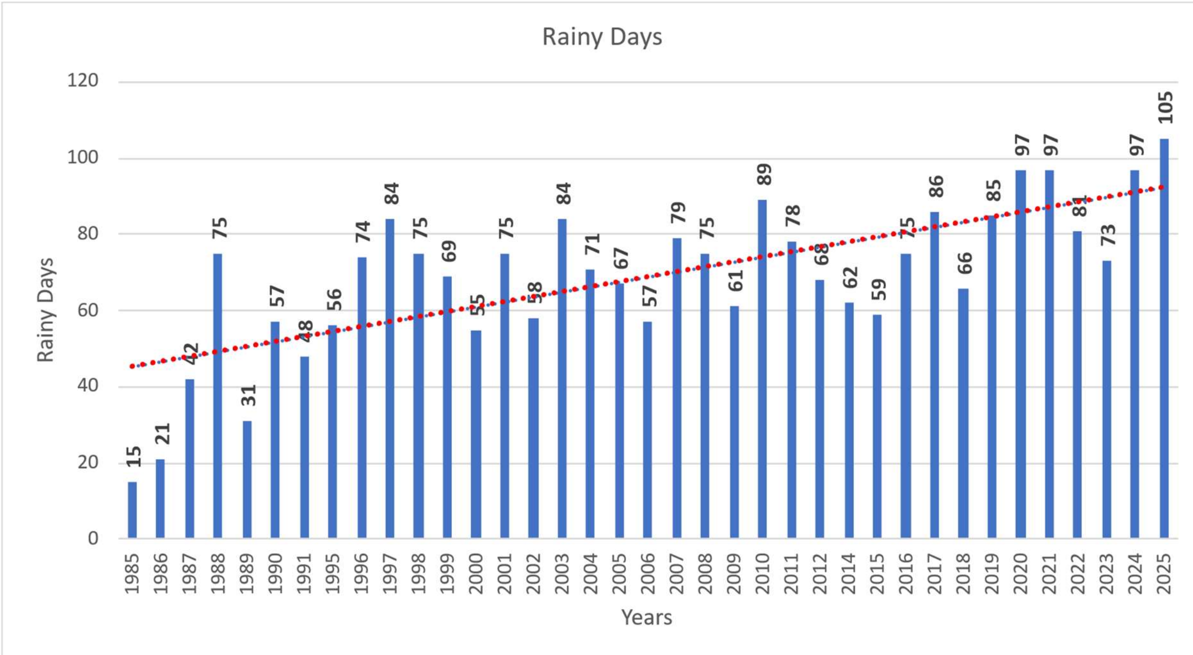


Figure 8.4: Number of Rainy Days

9 EARTH SURFACE ASSESSMENT

Earth surface assessment is the scientific process of monitoring, analyzing, and quantifying the physical, chemical, and biological characteristics of the Earth's surface (land and water) to understand its current state, how it changes over time, and its interaction with the atmosphere and interior. Topography, Morphology, Land use / Land cover, surface composition and state, Surface pollution and Natural Hazards are the key aspects of surface assessment.

9.1 WATERSHED STUDY (How water flows?)

The UWR RoU Standard challenges the notion of using hydrological basins as the basic organizational focus and looks at how water (and other vectors) move — a view that suggests that a "water harvesting/conservation/recharge system" could be a city, an ecosystem, a farmer's field, or a factory setting within closed boundaries. Water security plans need to consider a new approach that includes water sources on the surface water and groundwater.

A surface water catchment is defined by the area of land from which all precipitation received flows through a sequence of streams and rivers towards a single river mouth, as a tributary to a larger river, or the sea.

9.1.1 Topographical data

Topographical maps are represented by Digital Elevation Maps to understand the natural water flow direction being generated by natural terrain including effective water outfall locations in downstream. The quality of the topographical data source is an important factor in the accuracy and reliability of the generated hydrology maps; thus, it is important to select the most suitable topographical data source.

Table 9.1: Data Source

What is a Digital Elevation Map?	Digital Elevation maps are detailed representations of natural water flow direction generated from the natural terrain of the earth's surface.
How is it generated?	Digital Elevation maps are generated by using a high-resolution 30 m grid capturing the extent of all possible (upstream) catchment areas.
What is the data source?	DEM (Digital Elevation Model) is taken from Copernicus European Space Agency. This is based on the radar satellite data acquired during the TanDEM-X Mission, which is funded by a Public Private Partnership between the German State.
What does it provide?	The digital elevation map typically includes information such as relative elevation using different colors, to indicate the slope of the study area.

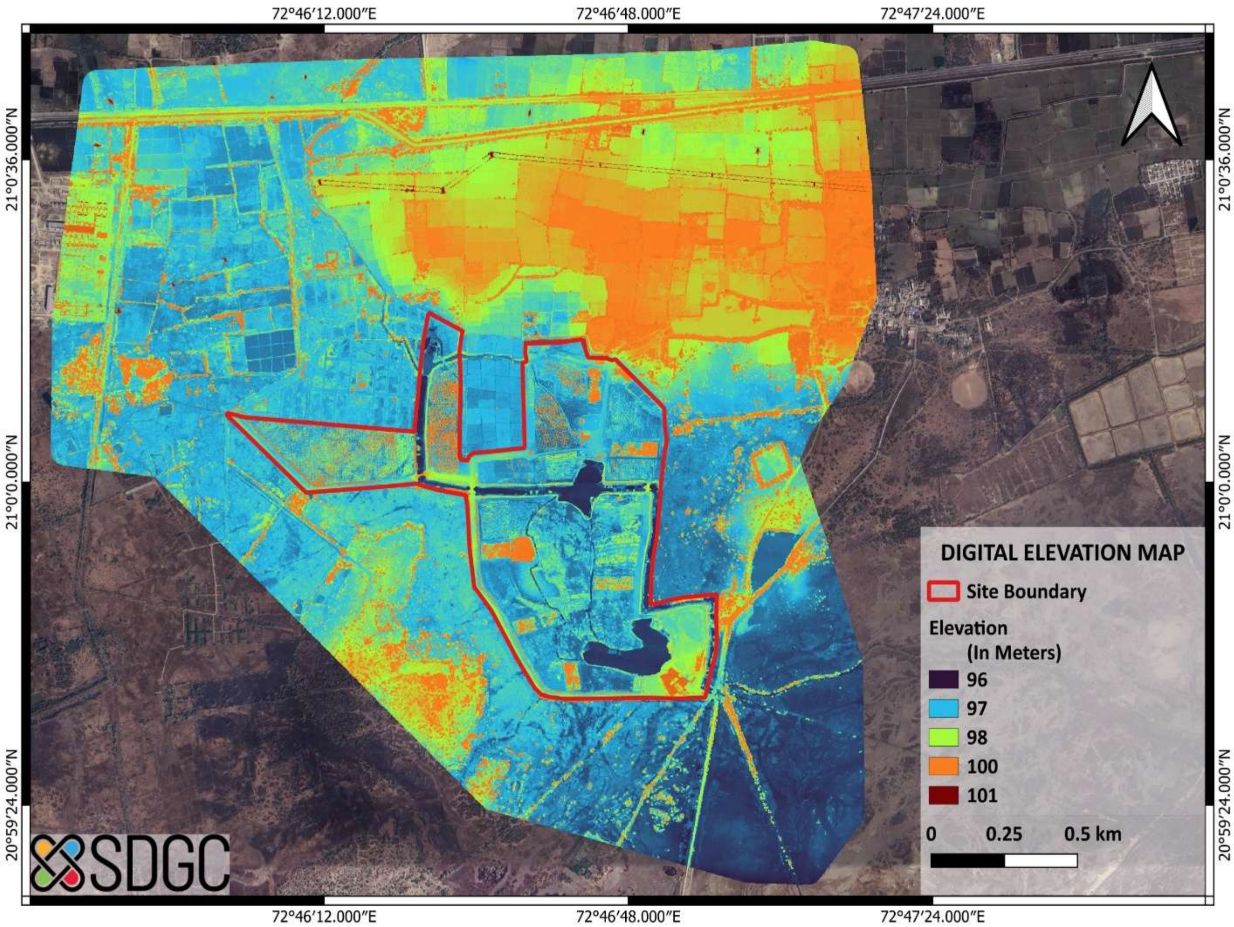


Figure 9.1: Digital Elevation Model Map (Gitavatika)

The following technical insights have been discovered from the Digital Elevation Map.

Table 9.2: Technical Insights

SN	TECHNICAL INSIGHTS
1	The dark brown shade indicates the high elevation part of the study area
2	The dark blue color indicates the low elevation part of the study area.
3	All the levels mentioned in the map are to be referred from the mean sea level.
4	The highest terrain of the study area is at an elevation of 100m.
5	The lowest terrain of the study area is at an elevation of 96m.
5	The southeast part of the study area indicates higher elevation due to built-up area presence.

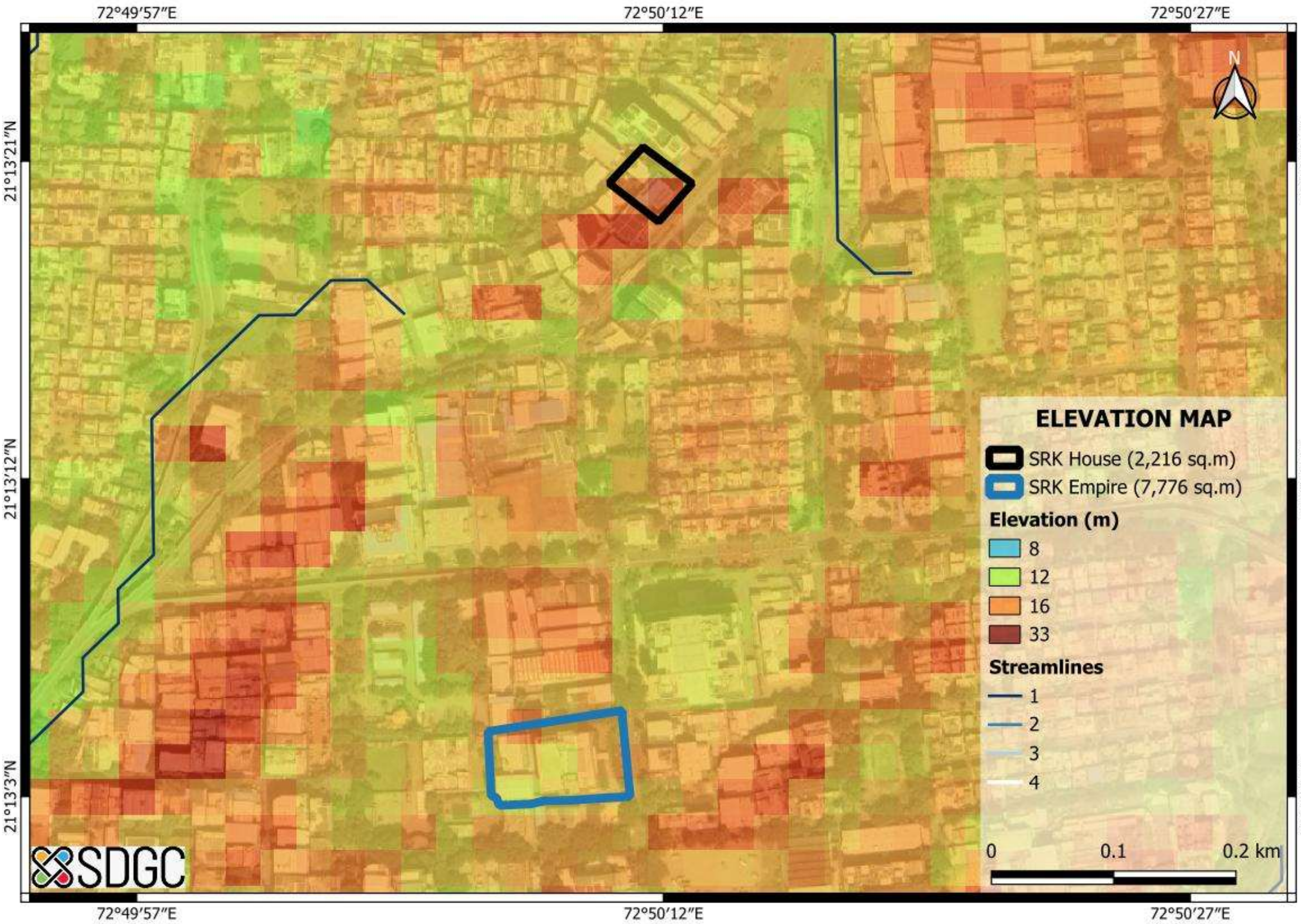


Figure 9.2: DEM (SRK HOUSE AND EMPIRE)

The following technical insights have been discovered from the Digital Elevation Map.

Table 9.3: Technical Insights

SN	TECHNICAL INSIGHTS
1	The dark brown shade indicates the high elevation part of the study area
2	The dark blue color indicates the low elevation part of the study area.
3	All the levels mentioned on the map are to be referred to from the mean sea level (MSL).
4	The highest terrain of the study area is at an elevation of 33m.
5	The lowest terrain of the study area is at an elevation of 12m.

9.1.2 Drainage pattern

It is necessary to break the area of interest into manageable units to analyze the hydrological properties of an area. Catchments are defined as: "The region draining into a river, river system, or body of water." Catchments are always physically delineated by the area upstream from a given outlet point. This generally means that the contributing region upstream to a separate ridgeline catchment from each other for a stream network.

Before landscapes can be managed as catchments, we need to delineate the boundaries of catchments to use common spatial terminology. Many GIS software applications contain routines to delineate catchment boundaries and perform other hydrologic analyses. This includes tools such as catchment delineation, flow accumulation, and flow length.

Table 9.4: Data Source

What is Catchment Delineation?	Digital Elevation Maps are detailed representations of natural water flow direction generated from the natural terrain of the earth's surface.
How is it generated?	The drainage pattern is generated by using a Digital Elevation map (topographical map).
What is Catchment? (Alternative terms are watershed, basin, and river basin.)	Catchment of origin refers to a catchment, distinct from the site's catchment(s), where a product or service is manufactured or sourced. It may be anywhere from an adjacent catchment to the other side.
What does it provide?	The drainage pattern signifies the catchment delineation map, where the ridge is represented by higher elevation data and drainages (streams) are represented by lower elevation data showing the slope of the study area.

The boundary for the study is georeferenced to know an effective catchment, that is not restricted to a limited distance from the site boundary. The hydrological catchment of the proposed premises has been identified with the probable drain path location.

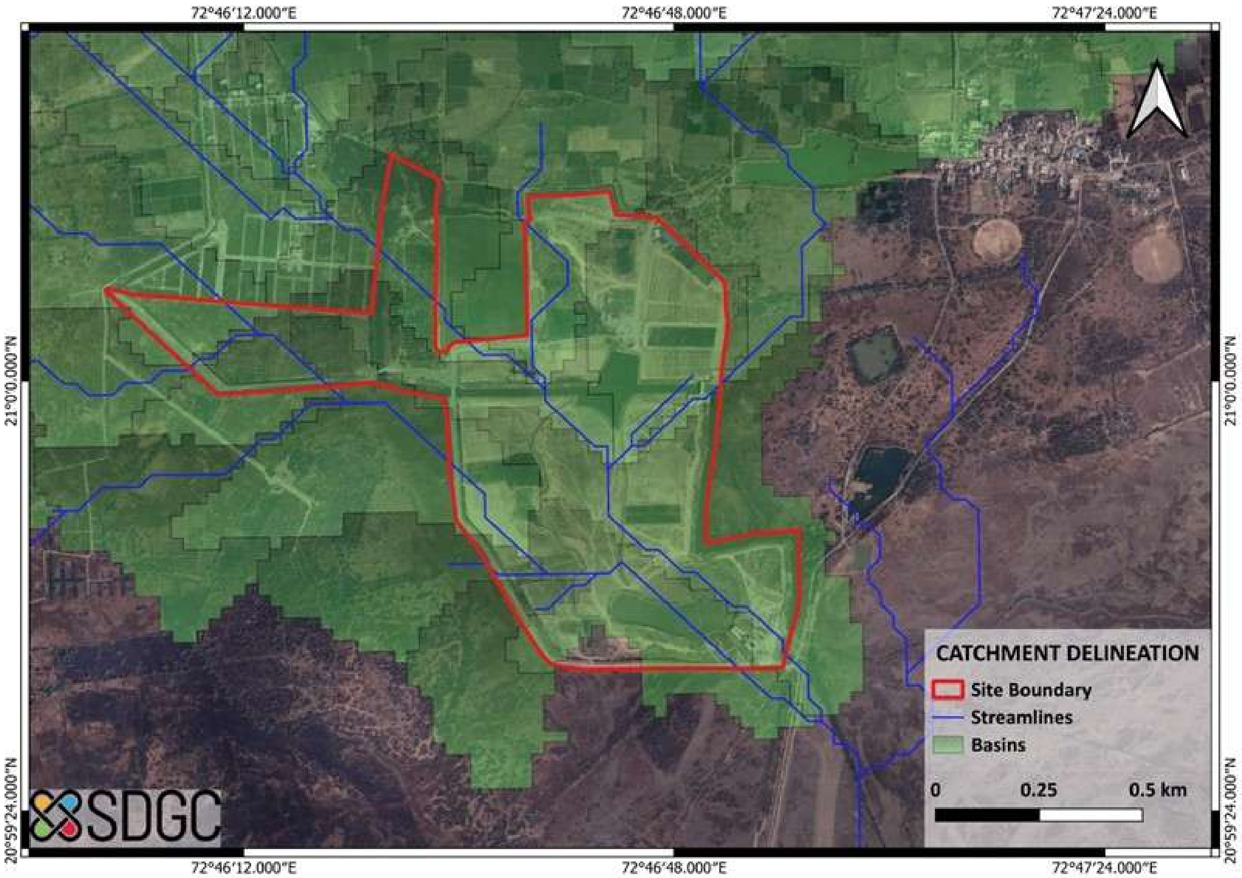


Figure 9.3: Regional Catchment Delineation (Gita vatika)

Table 9.5: Technical Insights

SN	TECHNICAL INSIGHTS
1	Catchment delineation represents the area of land that contributes to water flow into and around the site location.
2	The black lines represent the ridge lines of the catchment, which have a higher elevation value.
3	The blue lines indicate the streams having a lower elevation value that generates natural flow in that area.
4	The natural water flow is observed from the north western part of the site towards the south eastern part.

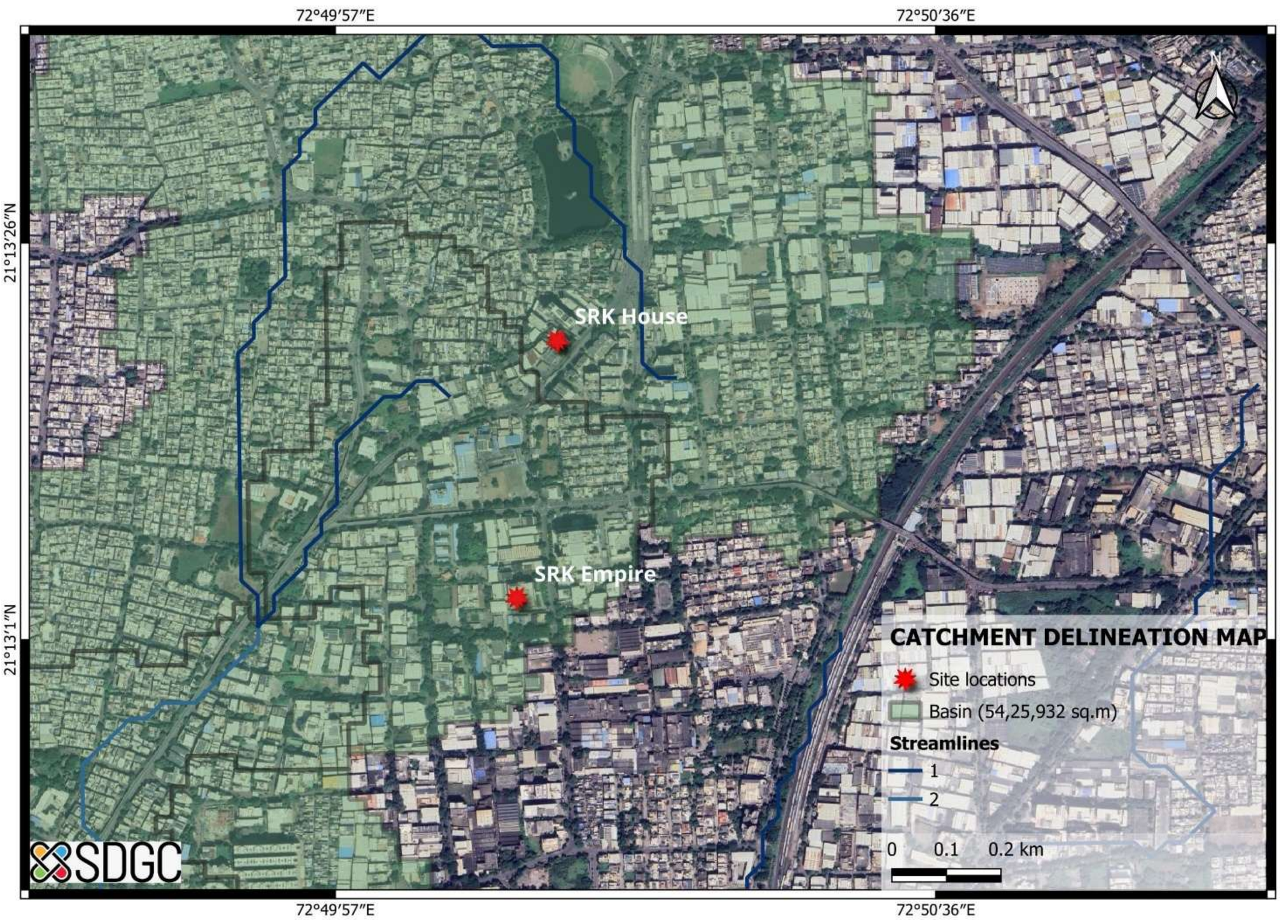


Figure 9.4: Regional Catchment Delineation (SRK House and SRK Empire)

The following technical insights have been generated and interpreted to analyze the hydrological impact of the study area from the above map. Tangible data and information will be further incorporated into water credit quantification.

Table 9.6: Technical Insights

SN	TECHNICAL INSIGHTS
1	Catchment delineation represents the area of land that contributes to water flow into and around the site location.
2	The black lines represent the ridge lines of the catchment, which have a higher elevation value.
3	The blue lines indicate the streams having a lower elevation value that generates natural flow in that area.

4	The site is situated in the upstream of the regional catchment.
5	The natural water flow is observed from the north east part of the region towards the south west part.

Table 9.7: Runoff Volume (Gitavatika)

Description	Value	Unit	Remarks
2023			
Effective Catchment Area	906,497	sqm	
Rainfall for 2023	1.2	M	
Runoff Co-efficient	0.2	-	Ref: IGBC (vegetation, 1-3% slope)
Available Runoff Water	**217,559**	cum	
2024			
Effective Catchment Area	906,497	sqm	
Rainfall for 2024	1.8	M	
Runoff Co-efficient	0.2	-	Ref: IGBC (vegetation, 1-3% slope)
Available Runoff Water	**326,339**	cum	
2025			
Effective Catchment Area	906,497	sqm	
Rainfall for 2025	1.5	M	
Runoff Co-efficient	0.2	-	Ref: IGBC (vegetation, 1-3% slope)
Available Runoff Water	**271,949**	cum	

9.2 HYDROLOGICAL LOSSES (How much water was lost?)

The amount of water losses depends on local climatic conditions like high air temperature, low humidity, strong winds, and sunshine. Hydrological losses include interception, infiltration, evaporation, and transpiration from the plant surface. The hydrological losses have no local economic value and are not usable, therefore it is essential to calculate such losses and discount that into available freshwater quantification.

9.2.1 Evapotranspiration

The rate of evapotranspiration (ET) depends on several factors such as temperature, wind, atmospheric pressure, impurities of water, and shape and size of water. Understanding evapotranspiration patterns is essential for various fields, including agriculture, water source management, climate studies, and environmental monitoring.

The Evapotranspiration graph presents a detailed assessment of ET patterns across a specified geographic area, utilizing advanced remote sensing techniques, meteorological data, and modelling algorithms. It offers a comprehensive overview of ET rates, spatial distribution, and temporal variations, enabling stakeholders to make informed decisions regarding water management strategies, land use planning, and environmental conservation efforts. As water scarcity and climate variability continue to pose significant challenges, the ET map emerges as a crucial asset for informed decision-making and adaptive management strategies aimed at ensuring the sustainable use of water sources and the resilience of ecosystems in a changing climate context.

The actual ET data unit is in millimeters (mm) and is in the range from 2014 to the present. For Evapotranspiration analysis, TerraClimate data are used, which provides important inputs for ecological and hydrological studies at global scales that require high spatial resolution and time-varying data. All data have yearly temporal resolution and its unit is mm/year.

Table 9.8: Data Source

What is Evapotranspiration?	Evapotranspiration (ET) is a critical process in the hydrological cycle, encompassing the combined loss of water from the Earth's surface through evaporation and transpiration by plants and water bodies
What is a data source?	India WRIS
What does it provide?	This map provides data on the loss of water from the earth's surface.

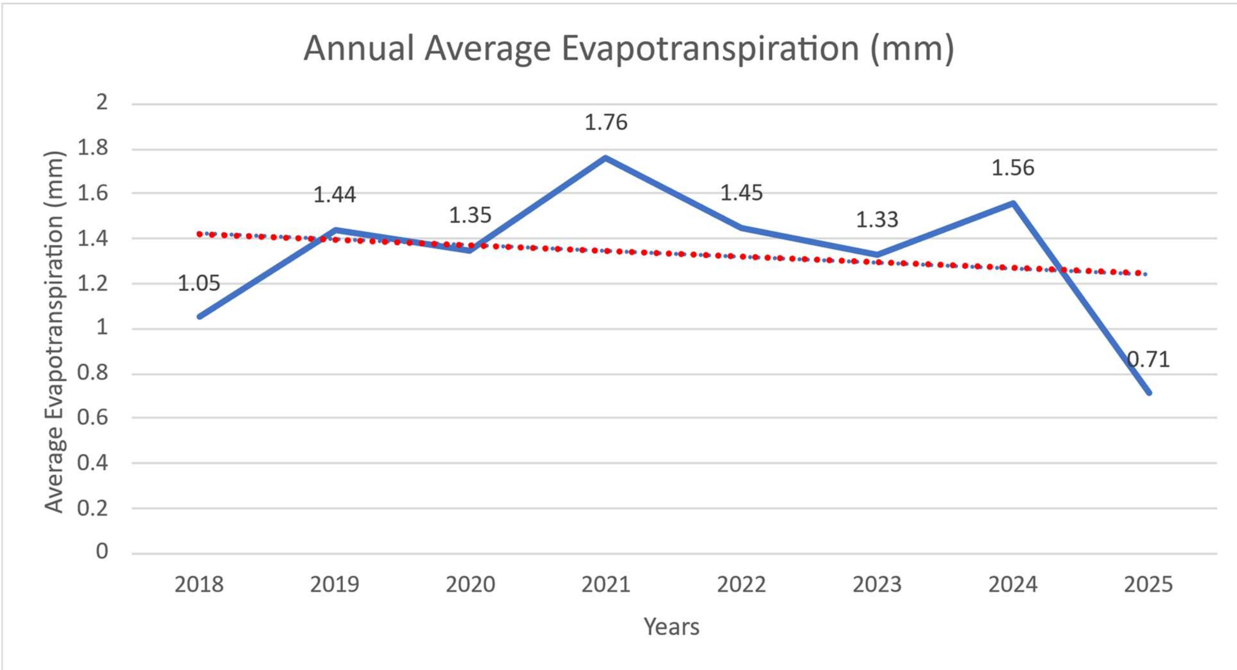


Figure 9.5: Annual Average Evapotranspiration (Gitavatika)

The above graph and data help in generating tangible information and technical insights to interpret and analyze the hydrological impact of the study area. Evapotranspiration value has been observed in decreasing trend in the last 7 years. These data will be further incorporated into water credit quantification.

9.2.2 Infiltration

The rate of infiltration depends on various land cover surfaces and human activity (e.g., grazing, conservation) associated with a specific land unit. In this study, land cover will be the preferred term as it has a more direct bearing on the data required to determine the runoff coefficient.

The infiltration coefficient refers to the water loss due to the soil properties and land cover Therefore, land cover for the study area is prepared based on a supervised classification technique utilizing Sentinel-2 Multi-spectral Imagery.

Since the study area falls in vicinity of coastline, there is a high-water table observed in the study area which will not allow the water infiltration. Moreover, all water holding structures fall into laminated plastic clay that has high content of clay and silt and that will also not allow the water to get infiltrated. Therefore, infiltration coefficient has not been considered.

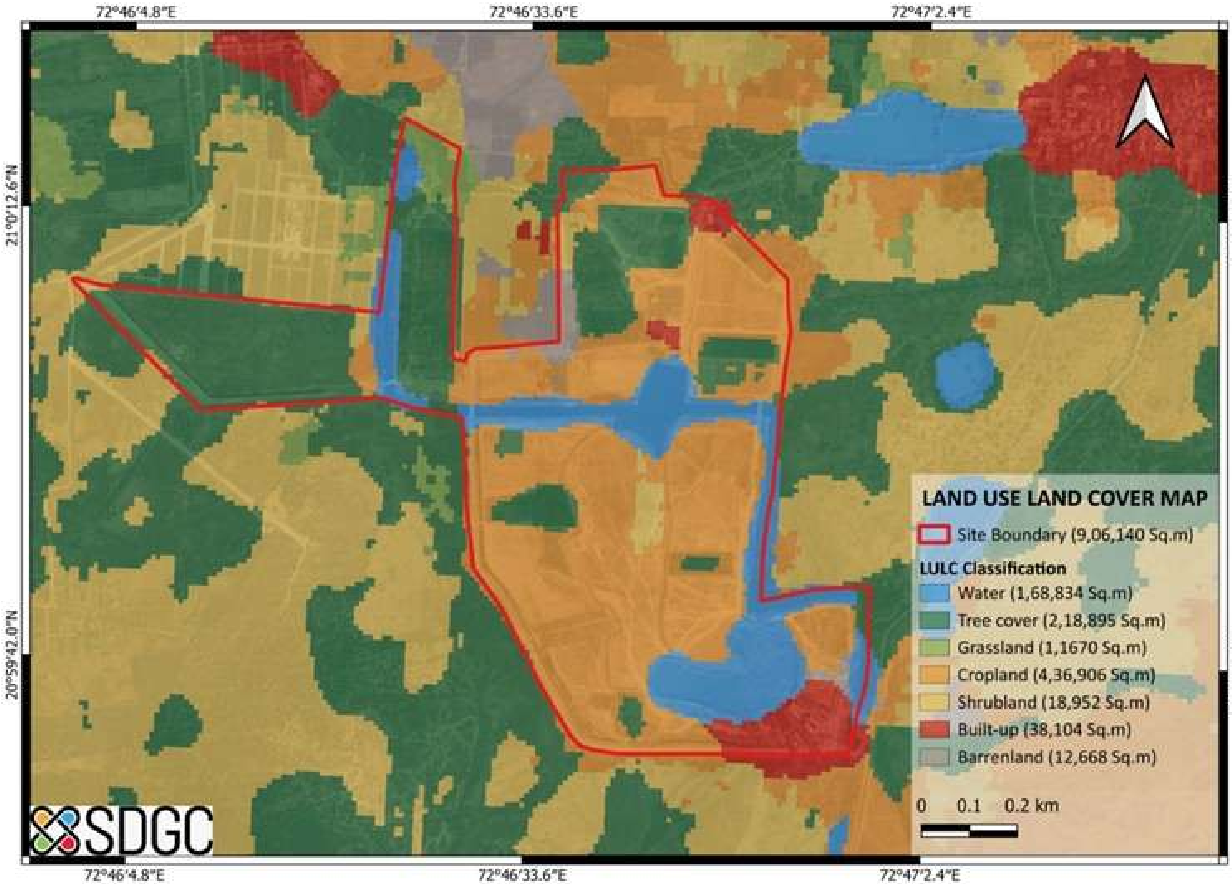


Figure 9.6: Land Cover Map - Gita vatika

Table 9.9: Technical Insights

SN	TECHNICAL INSIGHTS
1	The study area is mostly covered with vegetation (cropland, scrubland, and tree cover).
2	Runoff coefficient = 0.2 (Ref: IGBC (vegetation, 1-3% slope)
3	The tentative water consumption for this land cover is approximately 5 Lit/ SqMt/Day.
4	Some of the south-east part of the land is covered with built-up area.
5	The water bodies like ponds and canal are in stable condition flowing from north-west to south-east.

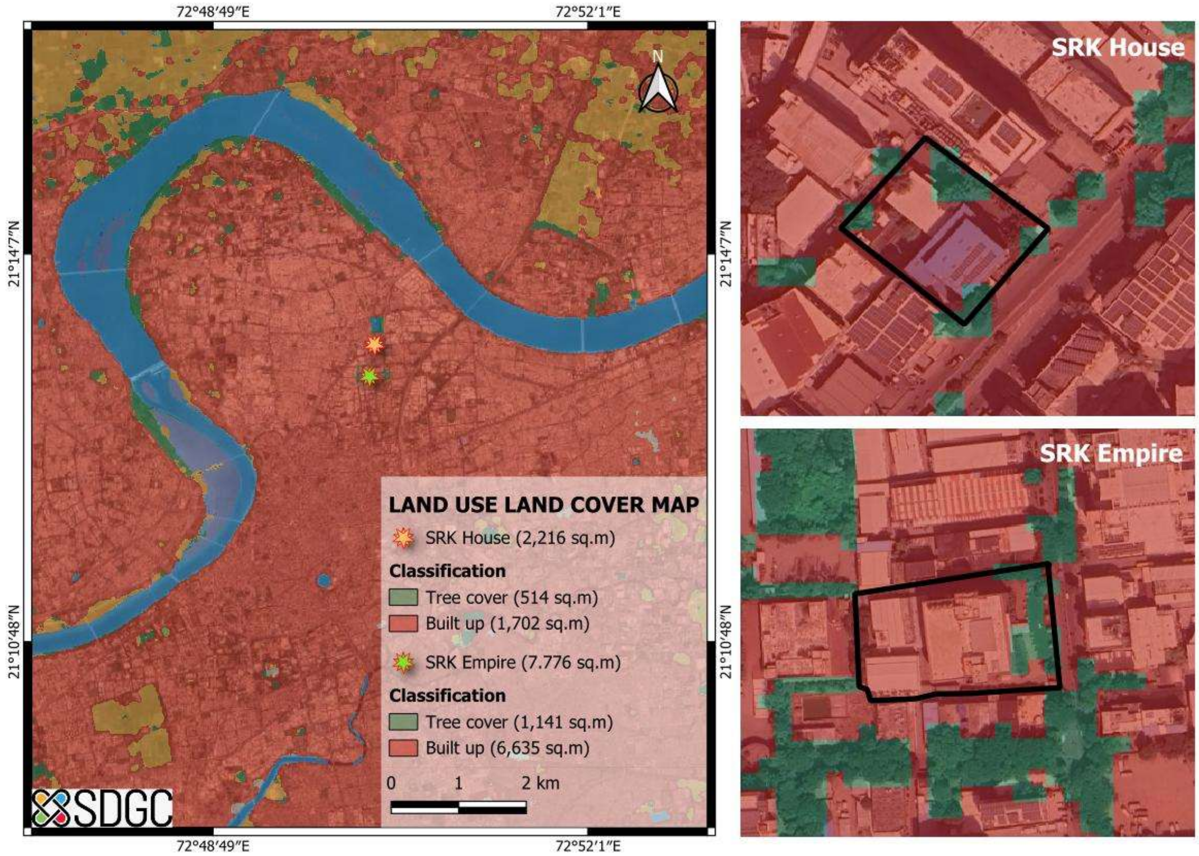


Figure 9.7: Land Cover Map – SRK House and SRK Empire

Table 9.10: Technical Insights

SN	TECHNICAL INSIGHTS
1	The study area is mostly covered with built-up and some part with tree cover.
2	Runoff coefficient = 0.25 (Ref: IGBC (turf -flat, 0-1% slope)

The following technical insights have been generated and interpreted to analyze the hydrological impact of the study area from the above map. Tangible data and information will be further incorporated into water credit quantification.

9.2.3 Geomorphology

Geomorphology is the scientific study of the origin and evolution of topographic and bathymetric created by physical, chemical, and biological processes operating at or near the earth's surface. The morphological analysis concerns the annual water presence and transition processes due to hydrological impact.

The following technical insights have been generated and interpreted to analyze the hydrological impact of the study area from the below map. Tangible data and information will be further incorporated into water credit quantification.

Table 9.11: Data Source

What is a Geomorphology Map?	This map represents the surface landforms and terrain features of a particular area.
How are they created?	The geomorphological data is obtained from Bhukosh (Geological Survey of India).
What do they provide?	Detailed information about the gradual changes in shape, composition, and arrangement of landforms such as mountains, valleys, plains, hills, rivers, and coastlines.
What is the application of this map?	Geography, geology, environmental science, urban planning, and engineering while understanding the morphological process and landform evolution of earth surfaces.
Water body (pond/ river)	Area containing water either freshwater, brackish or seawater, which may include lakes, rivers, ponds, reservoirs, etc.
Younger Coastal Plain	The Younger Coastal Plain refers to the relatively recent sedimentary deposits along coastal areas formed during the late Quaternary period (last few hundred thousand years).
Older Coastal Plain	It refers to geological formations along the coast that are geologically older than the younger coastal plain deposits, often dating back to the late Tertiary or early Quaternary periods.
Salt Pan	It is a flat expanse of ground covered with salt and other minerals, typically formed by the evaporation of saline water in arid or semi-arid coastal or inland areas.

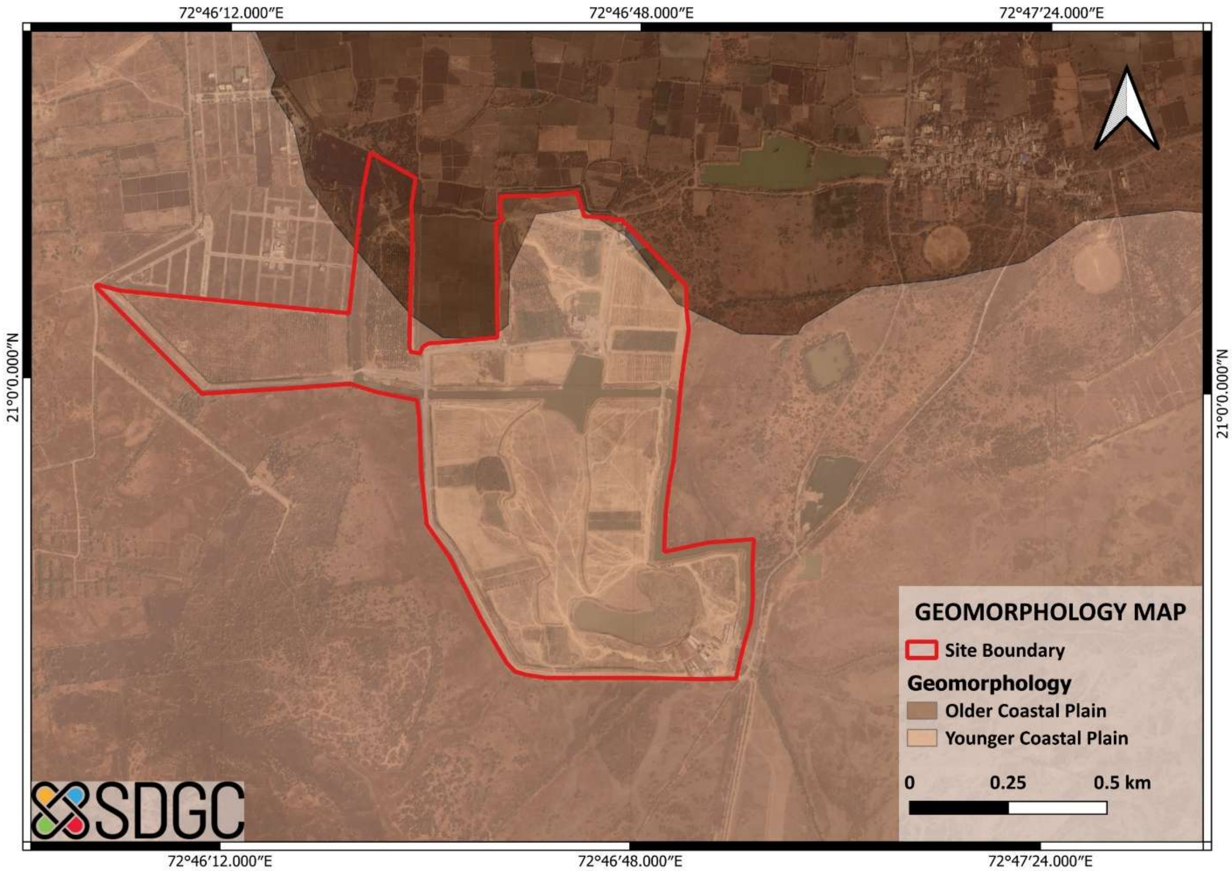


Figure 9.8: Geomorphology – Gita Vatika

Table 9.12: Technical Insights

SN	TECHNICAL INSIGHTS
1	The geomorphology map represents the presence of topsoil/ landscape activities above the geological strata.
2	The geomorphology of the site is mostly covered with Younger and slightly covered with Older Coastal Plain.
3	Most of the land is depicted in the geomorphology as a Younger coastal plain, indicating that most of the region has been deposited with alluvium brought by the rivers erosion and deposition action which is directly related to the infiltration properties of that particular soil.
4	This map provides data on the permanent water bodies around the study area.

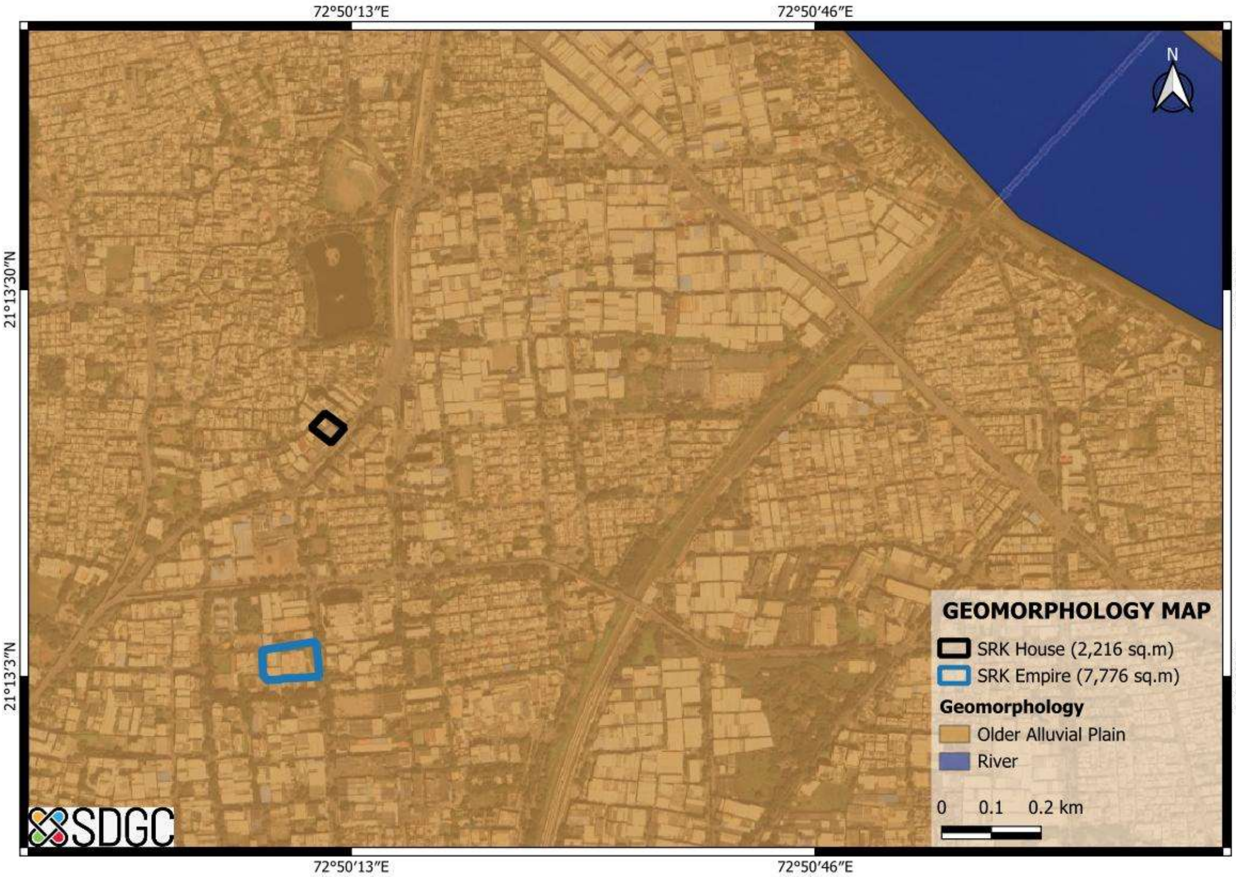


Figure: 9.9 Geomorphology – SRK House and SRK Empire

Table 9.13: Technical insights

SN	TECHNICAL INSIGHTS
1	The land also represents the geomorphology as an older alluvial plain.
2	Older Alluvial Plain indicates that most of the region has been deposited with silt/ clay.
3	The older alluvial plains with high clay content often have lower infiltration rates. This reduced capacity increases the risk of waterlogging, particularly during heavy rainfall.

9.2.4 Geology

Geology, in this context, refers to the study of lithology the physical makeup of rock and rock formations within the upper 10–30 meters of the subsurface. By characterizing each layer's composition, grain structure, texture, and hardness, it gains crucial insight into how water may infiltrate or percolate, and where potential weaknesses or preferential seepage paths may exist. This information also helps predict subsurface flow patterns, ensuring that both construction and long-term operations remain safe and resilient.

Table 9.14: Data Source

What is a Geological Map?	It represents the geological features and characteristics of a particular area.
What do they provide?	Display information such as rock units (lithology), geological formations, faults, folds, joints, fractures, dykes, mineral deposits, and other geological phenomena.
How are they created?	The geological data is obtained from Bhukosh (Geological Survey of India).
What is the application?	This geological information provides primary technical insight into the topsoil layer. That provides a broad idea of soil infiltration possibilities. That helps us to decide on the volume of water that may create flood situations and rainwater management plans.
Clay, Silt, and Sand	Clay, silt, and sand are soil particles distinguished by size—clay being the smallest, silt medium, and sand the largest. The Clay proportion is high, the silt proportion is moderate, and the Sand proportion is low. Clay feels sticky and holds water well, silt feels smooth and retains moderate moisture, while sand feels gritty and drains water quickly.
Fine Aeolian Sand	Fine aeolian sand consists of very small, well-sorted sand grains transported and deposited by wind. It forms smooth, uniform layers—common in deserts and coastal dunes—with excellent drainage but low nutrient and moisture retention.
Laminated Plastic Clay, Silt, and Sand	Laminated plastic clay, silt, and sand are sediment layers arranged in thin, alternating sheets or laminae. This structure forms from repeated changes in deposition conditions, often in environments like river deltas or tidal flats, where fine clay, silt, and sand settle in distinct layers.
Sand, Silt and Clay	The sand proportion is high, the silt proportion is moderate, and the clay proportion is low.

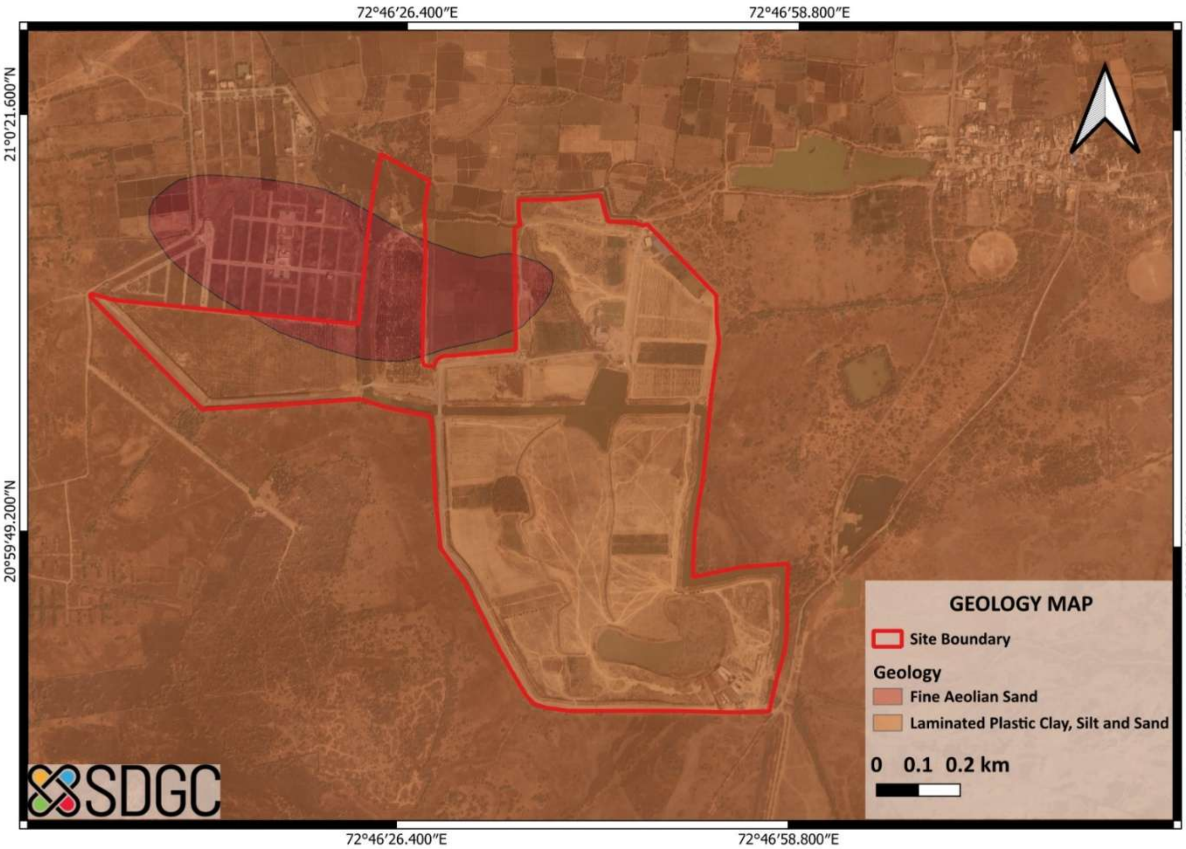


Figure 9.10: Regional Level Geology Map – Gita Vatika

The following technical insights have been generated and interpreted to analyse the hydrological impact of the study area from the above map.

Table 9.15: Technical Insights

SN	TECHNICAL INSIGHTS
1	The study area and the surrounding region were observed to include 1. Laminated Plastic Clay, Silt, and Sand, 2. Fine Aeolian Sand.
2	The site area is mostly covered by Laminated Plastic Clay, Silt, and Sand and small portion is of Fine Aeolian Sand.
3	Due to the laminated plastic clay, silt, and sand strata, the area has low permeability and uneven infiltration, resulting in reduced water velocity, high surface water retention, and limited natural recharge. However, these soil conditions offer potential for effective surface storage and controlled recharge through engineered rainwater harvesting systems.
4	Fine aeolian sand, with its better drainage characteristics and moderate bearing capacity, allows improved water movement and infiltration. However, its loose structure also makes it

	prone to erosion and instability, making compaction and erosion control essential for effective groundwater recharge and sustainable rainwater harvesting.

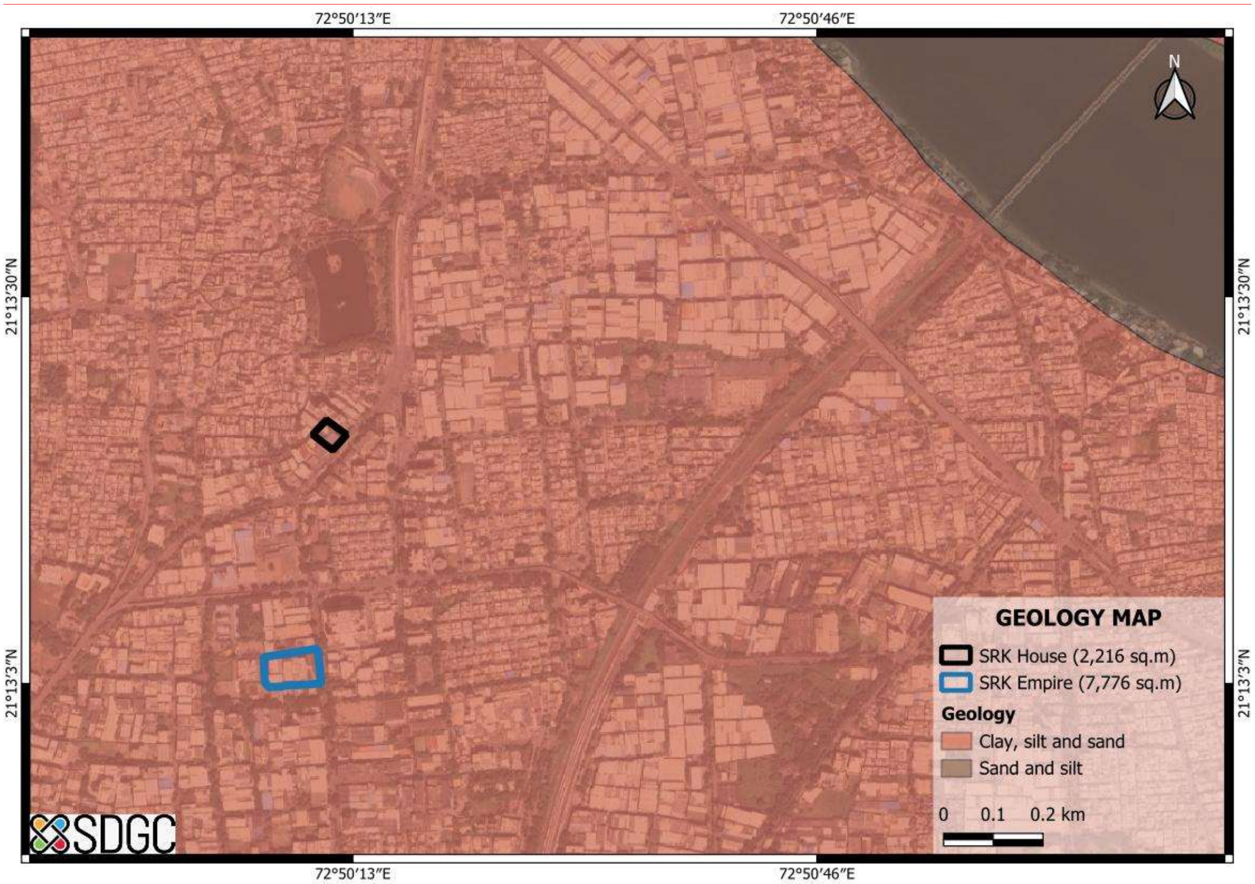


Figure 9.11: Geology Map – SRK House and SRK Empire

Table 9.16: Technical Insights

SN	TECHNICAL INSIGHTS
1	Site location and the nearby area have clay, silt, and sand formations.
2	Clay, silt, and sand formed due to alluvial depositions.
3	There is no rainwater infiltration taking place in the study area due to this geological condition.

10 WATER CONSERVATION (How water conserved?)

The hydrological basin may or may not be the “system” in many places, however, that focuses on what is happening within the project boundary (e.g. aquifers, often exist in recharge and discharge basins that have complex relationships with what is happening on the surface with reservoirs like rivers and lakes).

This methodology understands its own water use, catchment context, and shared concerns in terms of water governance; water balance; Important Water-Related Areas; Water, Sanitation, and Hygiene (WASH), and then engages in meaningful actions that benefit people, the economy, and nature. In all project activities under this methodology, the end use of the water must either be consumption, utilization, recycling with gainful end use, groundwater recharge, or protection of freshwater-related ecosystems.

10.1 SURFACE WATER STORAGE (Where water stays?)

The study of the water conservation pattern at SRK House & SRK Empire emphasizes wastewater generation and calculating water balance to manage the water footprint effectively. The wastewater generated is treated, stored, and reused for promoting sustainability and meeting the company’s ESG goals. The following assumptions help in defining the domestic water demand for the premises.

Table 10.1: Data Assumptions

SN	ASSUMPTIONS
1	Domestic use of water consists of various direct and indirect activities like drinking, cooking, housekeeping, etc.
2	Staff and workforce at the facility are included in water demand calculation.
3	It is assumed that the processing units are occupied fully during weekdays. Therefore, the water footprint for that occupancy is accounted for.
4	Domestic water consumption is assumed to be 135 Lit/ person/day for residents and 45Lit/person/day for office occupants as accounted as per CGWB guidelines for restaurants.
5	The installed capacity of STPs at SRK House and SRK Empire are 100KLD each, however, it is assumed that it gets operated on 90% of the recovery coefficient after some conveyance losses of 10%.

10.2 Recharge Aspects

The recharge aspects for the study area are divided into two different components, rainwater harvesting including surface water storage and groundwater recharge.

10.2.1 Surface water Storage Potential

The Gita Vatika premises has a large open water pond that is designed and excavated to store rainwater to fulfill annual irrigation & other domestic water demand. The recharge potential/aspects are not taken into account, since all water bodies are constructed over saturated sub-surface.

Moreover, the surface water infiltration takes place while conveyance on different ground surfaces with specified runoff coefficients as presented in the Land Cover Map. Since the infiltration takes place into the topsoil, the same is not taken into the water credit calculations consideration since the infiltration in topsoil is a natural process.

The annual rainwater availability is calculated by subtracting surface infiltration to arrive at available rainwater for conservation. The same is represented below with detailed calculations.

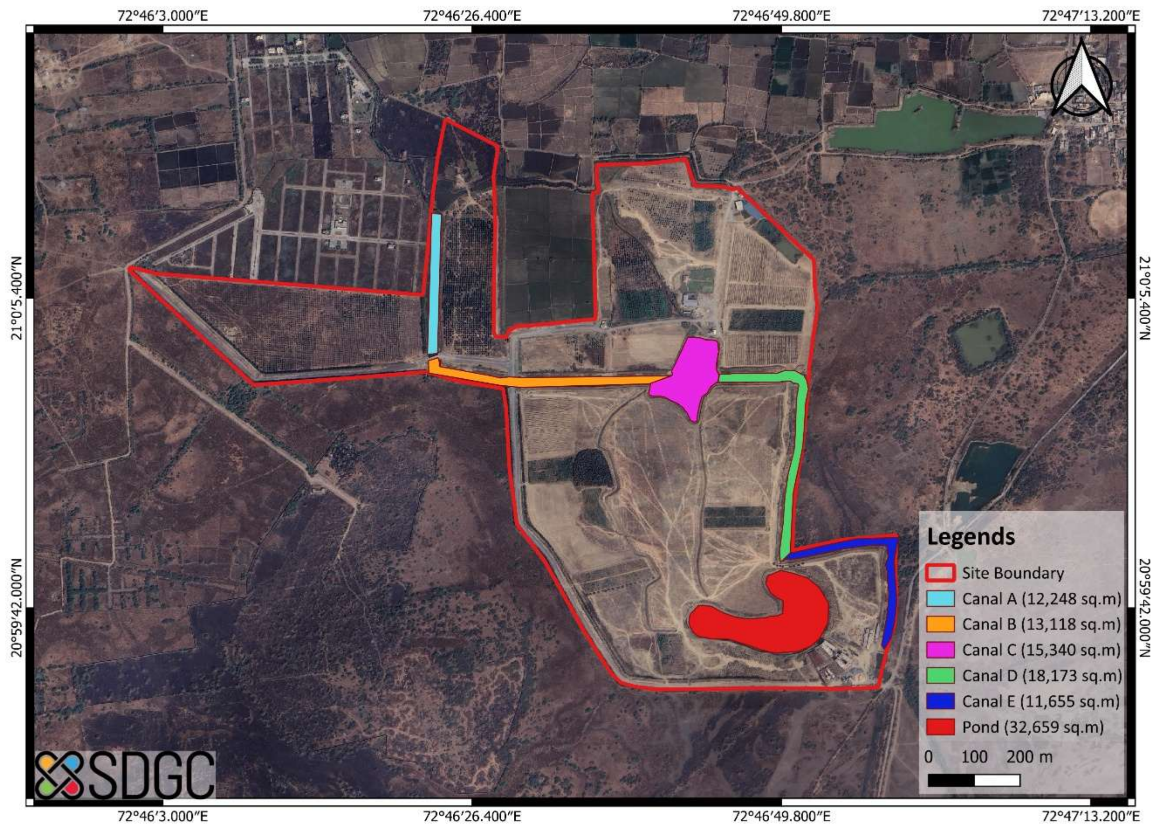


Figure 10.1: Measurement & Identification of Reservoirs

Based on the identified reservoir sections as above, the following table shows its surface area measurements -

Table 10.2: **Surface Water Area Potential (Ref. Annexure 2)**

Water Storage (POND + CANAL) FOR 2023									
SN	Storage	Length (m)	Width (m)	Surface Area (SqMt)	Average Depth (m)	Volume (CuMt)	Evapotranspiration (m/year)	Total losses (CuMt)	Total water available (CuMt)
1	POND 1	Perimeter		32,659	3.0	97,977	0.0013	43	97,934
2	CANAL A	341.08	35.91	12,248	3.0	36,745	0.0013	16	36,728
3	CANAL B	484.58	27.07	13,118	3.0	39,353	0.0013	17	39,335
4	CANAL C	Perimeter		15,340	3.0	46,020	0.0013	20	46,000
5	CANAL D	596.04	30.49	18,173	3.0	54,520	0.0013	24	54,496
6	CANAL E	473.21	24.63	11,655	3.0	34,965	0.0013	16	34,950
	CANAL VOLUME								2,11,509
	TOTAL WATER AVAILABLE (POND + CANAL) (KL/YEAR)								**3,09,442**

Water Storage (POND + CANAL) FOR 2024									
SN	Storage	Length (m)	Width (m)	Surface Area (SqMt)	Average Depth (m)	Volume (CuMt)	Evapotranspiration (m/year)	Total losses (CuMt)	Total water available (CuMt)
1	POND 1	Perimeter		32,659	3.0	97,977	0.0016	51	97,926
2	CANAL A	341.08	35.91	12,248	3.0	36,745	0.0016	19	36,725
3	CANAL B	484.58	27.07	13,118	3.0	39,353	0.0016	20	39,332
4	CANAL C	Perimeter		15,340	3.0	46,020	0.0016	24	45,996
5	CANAL D	596.04	30.49	18,173	3.0	54,520	0.0016	28	54,491
6	CANAL E	473.21	24.63	11,655	3.0	34,965	0.0016	18	34,947
	CANAL VOLUME								2,11,493
	TOTAL WATER AVAILABLE (POND + CANAL) (KL/YEAR)								**3,09,419**

Water Storage (POND + CANAL) FOR 2025									
SN	Storage	Length (m)	Width (m)	Surface Area (SqMt)	Average Depth (m)	Volume (CuMt)	Evapotranspiration (m/year)	Total losses (CuMt	Total water available (CuMt)
1	POND 1	Perimeter		32,659	3.0	97,977	0.0007	23	97,954
2	CANAL A	341.08	35.91	12,248	3.0	36,745	0.0007	9	36,736
3	CANAL B	484.58	27.07	13,118	3.0	39,353	0.0007	9	39,343
4	CANAL C	Perimeter		15,340	3.0	46,020	0.0007	11	46,009
5	CANAL D	596.04	30.49	18,173	3.0	54,520	0.0007	13	54,507
6	CANAL E	473.21	24.63	11,655	3.0	34,965	0.0007	8	34,957
	CANAL VOLUME								2,11,552
	TOTAL WATER AVAILABLE (POND + CANAL) (KL/YEAR)								**3,09,506**

Years	Total Available Water (CuMt)
2023	3,09,442
2024	3,09,419
2025	3,09,506

11 WATER BALANCE (Available Water for gainful use)

The existing annual water balance for SRK Empire, SRK House & Gita Vatika is prepared to understand water demand, water consumption, and expected water losses in the study area. This will be used to define the gross water footprint and recharge potential of the study area to implement water sustainability initiatives.

11.1 WATER DEMAND

Water Demand describes the total amount of water required from its source/ alternate source (Groundwater in aquifer + Surface water storage + Recycled water) to be used. Water demand could be assessed based on potential water requirements. The following assumptions have been made while calculating raw water demand for the premises.

Table 11.1: Data Assumptions

SN	ASSUMPTIONS
1	The premises are functional for 365 days continuously.
2	Irrigated area is 1,15,339 SqMt.
3	The number of rainy days can be referred to in chapter 8.
4	Domestic use of water consists of various direct and indirect activities like hand washing, face washing, housekeeping, car washing and other related activities.
5	Direct domestic use is marginal in proportion to overall water demand due to higher numbers of floating occupancy.
6	Irrigation water consumption for the Miyawaki forests is calculated for the dry season only as 5 Lit/sqm/ day.
7	Landscaping/ horticulture water demand is not calculated for rainy days, assuming there is no water demand during rain.

11.1.1 Raw Water Demand

Water is a very important source to be used judiciously to ensure the long-term operation and performance of the facility, it is important to define operational philosophy while maintaining the water usage limit against water availability.

Occupancy details, plumbing fixtures, and sanitary fixtures have been obtained to calculate raw water demand. The table below shows technical information on the installed fixtures, including flow rates, which have been used to calculate the facility's water demand.

Raw water demand is calculated for the water footprint that is accounted for directing water consumption required for the operation and maintenance of the facility. Water consumption data is projected for domestic use consisting of various direct and indirect activities like bathing, hand washing, face washing, housekeeping, and other human consumptions/ activities.

Table 11.2: Water Demand for irrigation at Gita Vatika (Refer Annexure 1 to this report)

TOTAL WATER DEMAND FOR PLANTATION - GITAVATIKA		
Years	**In Litres**	**In KL**
2023	2,79,76,881	27,977
2024	15,45,54,260	1,54,554
2025	15,45,54,260	1,54,554
Total	33,70,85,401	**3,37,085**

Table 11.3: Domestic Water Demand at Gita Vatika

Water Demand														
	Domestic													
	CONSTRUCTION OF SCHOOL				CONSTRUCTION WORKERS				RESIDENT WORKERS					TOTAL
Years	Construction of School (Days)	School Area (sq. m)	Avg. Water Requirement (L/sq.m/day)	Total WatervReq. for construction(litres)	Water Req. by a construction worker (L/day)	Number of labours	Number of Construction Days	Total Water Req. by labours (litre)	Water Req. by Resident labours (L/day)	No. of Resident labours	Total residential Days	Total water Req. by resident workers (litre)	Total Water Req. other than plantation(litres)	Total Water Req. Other than plantation (KL)
2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2024	189	5,940	1	11,22,660	10	60	189	1,13,400	135	20	365	9,85,500	22,21,560	2,222
2025	315	5,940	1	18,71,100	10	60	315	1,89,000	135	20	365	985,500	30,45,600	3,046

Table 11.4: Total Water Demand (Gitavatika)

Total Water Demand - Gitavatika (KL)			
Years	**Plantation**	**Domestic**	**Total**
2023	27,977	-	27,977
2024	1,54,554	2,222	1,56,776
2025	1,54,554	3,046	1,57,600

Table 11.5: SRK Empire – Industrial Water Demand

Assumptions

Description	Value	Unit
HVAC LOAD	0.074	ToR/SqMt
Electrical Consumption for 50% area coverage under Chiller	0	KWH/ToR
Electrical Consumption for 50% area coverage under Standalone AC	0	KWH/ToR
Electrical Consumption for HVAC load	0	KWH/ToR
Diversity Factor	0.8	
Air Conditioning Area in Block	0	
Annual Operating Days	270	
Daily Operating Hours	8	
Total Operating Hours	2160	
Operating Hours in Vidhaan Sabha @ 25%	0	
Built Area/Carpet Area Ratio (100/80)	0	
Total Air Conditioning Load (ToR) (excluding Block 8 to 14)	599.104	
Water Demand in cooling Tower	5	Gallons ToR/Day
Water Demand in Cooling Tower	20	Lit ToR/Day
Total Water Demand	11.98208	CuMt/Day
Total Water Demand	3235.162	CuMt/Year

Industrial Demand Calculations

SN	Floors	Floors	Area (SqMt)	Total Carpet Area (SqMt)	Total Area / Block (SqMt)	Air Conditioning Area (SqMt)	HVAC Load (ToR)	Water Demand/Floor/Day
1	GF	1	2,200	2,200	2,200	440	26	521
2	1	1	2,200	2,200	2,200	1,320	78	1,563
3	2	1	2,200	2,200	2,200	1,760	104	2,084
4	3	1	2,200	2,200	2,200	1,760	104	2,084
5	4	1	2,200	2,200	2,200	1,760	104	2,084
6	5	1	2,200	2,200	2,200	1,760	104	2,084
7	6	1	2,200	2,200	2,200	1,320	78	1,563

Table 11.6: SRK House – Industrial Water Demand

Assumptions

Description	Value	Unit
HVAC LOAD (ToR/SqMt)	0.074	ToR/SqMt
Electrical Consumption for 50% area coverage under Chiller	0	KWH/ToR
Electrical Consumption for 50% area coverage under Standalone AC	0	KWH/ToR
Electrical Consumption for HVAC load	0	KWH/ToR
Diversity Factor	0.8	
Air Conditioning Area in Block	0	
Annual Operating Days	270	
Daily Operating Hours	8	
Total Operating Hours	2160	
Operating Hours in Vidhaan Sabha @ 25%	0	
Built Area/Carpet Area Ratio (100/80)	0	
Total Air Conditioning Load (ToR) (excluding Block 8 to 14)	833.536	
Water Demand in cooling Tower	5	Gallons ToR/Day
Water Demand in Cooling Tower	20	Lit ToR/Day
Total Water Demand	16.67072	CuMt/Day
Total Water Demand	4501.0944	CuMt/Year

Industrial Demand Calculations

SN	Floors	Floors	Area (SqMt)	Total Carpet Area (SqMt)	Total Area / Block (SqMt)	Air Conditioning Area (SqMt)	HVAC Load (ToR)	Water Demand/Floor /Day (L)
1	GF	1	2,200	2,200	2,200	440	26	521
2	1	1	2,200	2,200	2,200	1,320	78	1,563
3	2	1	2,200	2,200	2,200	1,760	104	2,084
4	3	1	2,200	2,200	2,200	1,760	104	2,084
5	4	1	2,200	2,200	2,200	1,760	104	2,084
6	5	1	2,200	2,200	2,200	1,760	104	2,084
7	6	1	2,200	2,200	2,200	1,320	78	1,563
8	7	1	2,200	2,200	2,200	1,320	78	1,563
9	8	1	2,200	2,200	2,200	1,320	78	1,563
10	9	1	2,200	2,200	2,200	1,320	78	1,563

11.2 CAPACITY CALCULATION -STP

The STP plays a vital role in water conservation and eco-friendly waste management. The STP is a critical infrastructure for managing sewage and promoting sustainable water usage. Treating and reusing wastewater minimizes environmental impact, supports resource conservation, and ensures a healthier ecosystem. Proper design, operation, and maintenance are essential for maximizing its efficiency and benefits.

The physical site survey was done on 30th November 2025, to know STP unit type at both SRK House and SRK Empire and its capacity to treat the wastewater.

Table 11.7:

PROJECT : SRK EMPIRE

DOCUMENT : WATER DEMAND & SEWAGE GENERATION FOR COMMERCIAL BUILDING - 2024

Sr No.	Description	Nos. of Population	Water Requirement per person per Day as per NBC (LTR)			Total Water Requirement per Day (LTR)	Total Waste Water Generation per Day in LTR (80% Domestic+ 100% Flushing)	Nos. Of working Day / Month	Total Waste Water Generation in KL per Month
			Domestic	Flushing	Total	Total water			
A	B	C	D	E	F =D+E	K=I+J	L= (Gx80%)+(Hx100%)	M	N=(LxM)/1000
1	February-2024	3344	25	20	45	1,62,463	1,33,760	24	3,210
2	March-2024	3346	25	20	45	1,62,553	1,33,840	26	3,480
3	April-2024	3356	25	20	45	1,63,003	1,34,240	26	3,490
4	May-2024	3351	25	20	45	1,62,778	1,34,040	27	3,619
5	June-2024	3458	25	20	45	1,67,593	1,38,320	25	3,458
6	July-2024	3527	25	20	45	1,70,698	1,41,080	27	3,809
7	August-2024	3538	25	20	45	1,71,193	1,41,520	26	3,680
8	September-2024	3553	25	20	45	1,71,868	1,42,120	26	3,695
9	October-2024	3531	25	20	45	1,70,878	1,41,240	27	3,813
10	November-2024	3462	25	20	45	1,67,773	1,38,480	25	3,462
11	December-2024	3359	25	20	45	1,63,138	1,34,360	27	3,628
	TOTAL	**37,825**				**18,33,938**	**15,13,000**		**39,344**

PROJECT : SRK HOUSE

DOCUMENT : WATER DEMAND & SEWAGE GENERATION FOR COMMERCIAL BUILDING-2025

Sr No.	Description	Nos. of Population	Water Requirement per person per Day as per NBC (LTR)			Total Water Requirement per Day (LTR)	Total Waste Water Generation per Day in LTR (80% Domestic+ 100% Flushing)	Nos. Of working Day / Month	Total Waste Water Generation in KL per Month
			Domestic	Flushing	Total	Total water			
A	B	C	D	E	F =D+E	K=I+J	L= (Gx80%)+(Hx100%)	M	N=(LxM)/1000
1	January-2025	3353	25	20	45	1,62,868	1,34,120	26	3,487
2	February-2025	3386	25	20	45	1,64,353	1,35,440	24	3,251
3	March-2025	3460	25	20	45	1,67,683	1,38,400	26	3,598
4	April-2025	3539	25	20	45	1,71,238	1,41,560	26	3,681
5	May-2025	3539	25	20	45	1,71,238	1,41,560	27	3,822
6	June-2025	3743	25	20	45	1,80,418	1,49,720	25	3,743
7	July-2025	3786	25	20	45	1,82,353	1,51,440	27	4,089
8	August-2025	3815	25	20	45	1,83,658	1,52,600	26	3,968
9	September-2025	3798	25	20	45	1,82,893	1,51,920	26	3,950
10	October-2025	3792	25	20	45	1,82,623	1,51,680	27	4,095
11	November-2025	3774	25	20	45	1,81,813	1,50,960	25	3,774
12	December-2025	3801	25	20	45	1,83,028	1,52,040	27	4,105
	TOTAL	**43,786**				**21,14,166**	**17,51,440**		**45,563**

Table 11.8:

PROJECT : SRK HOUSE
DOCUMENT : WATER DEMAND & SEWAGE GENERATION FOR COMMERCIAL BUILDING - 2024

Sr No.	Description	Nos. of Population	Water Requirement per person per Day as per NBC (LTR)			Total Water Requirement per Day (LTR)	Total Waste Water Generation per Day in LTR (80% Domestic+ 100% Flushing+80% Industrial)	Nos. Of working Day / Month	Total Waste Water Generation in KL per Month
			Domestic	Flushing	Total	Total water			
A	B	C	D	E	F =D+E	K=I+J	L= (Gx80%)+(Hx100%)	M	N=(LxM)/1000
1	Dec-2024	1517	25	20	45	84,937	60,680	27	1,638
	TOTAL	**1,517**				**84,937**	**60,680**		**1,638**

PROJECT : SRK HOUSE
DOCUMENT : WATER DEMAND & SEWAGE GENERATION FOR COMMERCIAL BUILDING-2025

Sr No.	Description	Nos. of Population	Water Requirement per person per Day as per NBC (LTR)			Total Water Requirement per Day (LTR)	Total Waste Water Generation per Day in LTR (80% Domestic+ 100% Flushing+80% Industrial)	Nos. Of working Day / Month	Total Waste Water Generation in KL per Month
			Domestic	Flushing	Total	Total water			
A	B	C	D	E	F =D+E	K=I+J	L= (Gx80%)+(Hx100%)	M	N=(LxM)/1000
1	January-2025	1,508	25	20	45	84,532	60,320	26	1,568
2	February-2025	1,525	25	20	45	85,297	61,000	24	1,464
3	March-2025	1,567	25	20	45	87,187	62,680	26	1,630
4	April-2025	1,591	25	20	45	88,267	63,640	26	1,655
5	May-2025	1,594	25	20	45	88,402	63,760	27	1,722
6	June-2025	1,962	25	20	45	1,04,962	78,480	25	1,962
7	July-2025	2,178	25	20	45	1,14,682	87,120	27	2,352
8	August-2025	2,226	25	20	45	1,16,842	89,040	26	2,315
9	September-2025	2,257	25	20	45	1,18,237	90,280	26	2,347
10	October-2025	2,259	25	20	45	1,18,327	90,360	27	2,440
11	November-2025	2,229	25	20	45	1,16,977	89,160	25	2,229
12	December-2025	2,315	25	20	45	1,20,847	92,600	27	2,500
	TOTAL	**23,211**				**12,44,559**	**9,28,440**		**24,184**

11.3 WATER BALANCE CALCULATION

Yearly water balance datasets are calculated to derive a site's water security potential using a water balance model that incorporates reference evapotranspiration, precipitation, temperature, and interpolated plant extractable soil water capacity.

RoUs serve as an important tool in rebalancing the region's water dynamics through all efforts to harvest and conserve rainwater, methods that recycle and/or reuse wastewater, and projects that convert an unutilized water source into usable water. The establishment of RoUs leads to a water-secure environment.

All projects using this methodology will be required to maintain a ratio of 1m3 of unutilized water recharged/conserved/recycled to be eligible to generate 1 RoU (Rainwater offset Units) = 1000 liters of rainwater/unutilized water captured or recycled/reused/restored from systems (freshwater ecosystems included) and measures undertaken by individuals and entities per year. The following assumptions were made while calculating the raw water demand for the premises.

1. Please refer to chapter 11, table 11.1.
2. Average evapotranspiration data can be referred to in chapter 9, Section – 9.2.1
3. Available water storage volume is derived to calculate annual and comprehensive RoU. The same is mentioned in the below table.

Table 11.9: Water Balance – Gitavatika

Years	Upstream Catchment area (SqMt)	Rainfall	Runoff Coefficient	Rainwater Water Available (CuMt)	Water Storage (CuMt)	Water Demand (CuMt)
2023	9,06,497	1.2	0.2	2,17,559	3,09,442	27,977
2024	9,06,497	1.8	0.2	3,26,339	3,09,419	1,56,776
2025	9,06,497	1.5	0.2	2,71,949	3,09,506	1,57,600
Total				8,15,847	9,28,367	3,61,871

12 WATER CREDITS

The Universal Water Registry (UWR) Standard and Platform aim to introduce better waternomics with the next-generation voluntary rainwater offset projects that are far more efficient, faster, cheaper, de-centralized in transfer, and convenient for every small green project involved in rainwater or unutilized water capture and/or groundwater recharge. UWR Standard allows for early action projects and the ability to monetize rainwater credits from the vintage year 2014 onwards. Similar to the carbon vintage year concept, RoUs can be classified as the year in which the conservation, recharge, or recycling of water took place and quantified for the monitoring period from January, 2023 to December, 2025.

RoUs, serve as an important tool in rebalancing the water dynamics of the region by incentivizing and monetizing all efforts to harvest and conserve rainwater. The established RoUs represented below that is leading to a water-rich environment.

12.1 WATER CREDITS

Table 12.1: Water Credits – Gitavatika, SRK House, and SRK Empire

WATER CREDITS (RoUs) - GITAVITKA			
YEARS	From Canal (Irrigation)	From Pond (Construction)	**Total**
2023	27,977	-	**27,977**
2024	1,54,554	2,222	**1,56,776**
2025	1,54,554	3,046	**1,57,600**
TOTAL (KL)	**3,37,085**	**5,267**	**3,42,353**

WATER CREDIT (RoUs) - SRK EMPIRE		
YEARS	Total reuse year wise (KL)	STP Generation (KL)
2024	9,263	39,344
2025	15,863	45,563
TOTAL	**25,126**	**84,907**

WATER CREDIT (RoUs) - SRK HOUSE		
YEARS	Total reuse year wise (KL)	STP Generation (KL)
2024	1,299	1,638
2025	10,906	24,184
TOTAL	**12,205**	**25,822**

Table 12.2: Total Credits for Vintage Years 2023-2025 (For Gitavatika, House, and Empire)

Year	RoUs (1 RoU = 1000 litres)/Year
01/01/2023 to 31/12/2023	27,977
01/01/2024 to 31/12/2024	1,97,758
01/01/2025 to 31/12/2025	2,27,347
Total RoU	**4,53,082**

13 IMPLEMENTATION BENEFITS

13.1 Pond

The pond at Gita Vatika is only observed as the primary water source for the premises and they cater to substantial irrigation water needs. Hence the PP needs to carry out preventive maintenance of the pond to ensure water security since it is the only reliable and fully useable water source of the premises. This artificial storage addresses the following issues -

1. Harvesting of surplus monsoon runoff into the surface reservoir which otherwise was going un-utilized outside the watershed/ basin and to sea.
2. Fulfilling irrigation requirements by storing rainwater runoff which would have gone to the sea thereby preserving the groundwater security of the region and local geography.
3. Meeting substantial irrigation water requirements of the site with rainwater conservation for the vintage period.
4. Reduction of reliance on surface water from the major and minor canals that are primarily constructed to drain the used/ treated water of the area into the adjoining sea.
5. Ensuring drawable groundwater availability and water security to the local demand by harnessing and conserving rainwater.
6. Moreover, this pond is a freshwater ecosystem that support a variety of plants and animals and contribute to the environment in many ways.
7. Ponds provide habitats for many species, including amphibians, insects, fish, and birds to enhance biodiversity.
8. Ponds filter out sediments and can act as drinking water sources for wildlife.
9. Prevent water logging on roads and other parts of premises.
10. Serve as alternatives to enhance the sustainable yield in areas where overdevelopment has depleted the aquifer.
11. Reduces soil erosion.
12. Serves to conserve and store excess surface water for future requirements, since these requirements often change within a season or a period.
13. Ponds function as rainwater holding storage that can be connected with artificial rainwater harvesting to recharge surface water in groundwater by replenishing continuous water flow during the rainy season.

13.2 STP

The STP units at SRK House & SRK Empire are a primary wastewater treatment plants for the processing units, which treat the wastewater to make gainful use. When operating and maintaining a Sewage Treatment Plant (STP), certain preventive measures should be considered to ensure its efficiency, longevity, and environmental compliance. Here are the key preventive measures:

1. Contributing to water conservation and sustainable resource management aligns with global and local sustainability initiatives.
2. STP treats wastewater to remove harmful pollutants, ensuring that only clean, treated water can be reused for non-potable purposes such as irrigation, landscaping, etc.
3. Proper wastewater treatment prevents excessive groundwater use, which is crucial for regions relying on underground aquifers.
4. Reusing treated wastewater reduces the dependency on freshwater sources, lowering water procurement costs.

14 ALTERNATE WATER CONSERVATION METHODS

There is an urgent need for the management of water sources for sustainable development, where groundwater should be protected and preserved. Creating awareness amongst communities and industries regarding the conjunctive use of surface water and groundwater through the judicious use of water and the adoption of effective techniques has become imperative.

A planned water conservation strategy needs to be deployed for discharge and withdrawal of water, that can be used during the lean period. Resorting to artificial recharge practices by diverting surplus runoff during the monsoon into ponds, recharge wells with the concept of aquifer storage & recovery, spreading basins, etc. could be an alternative rainwater conservation method, that could be taken up through appropriate techniques. That may be implemented depending upon the suitable hydrogeological conditions to explore other scopes as mentioned in the UWR guidelines.

14.1 Recharge Wells with the concept of aquifer storage & recovery (ASR)

Table 14.1: Recharge Wells

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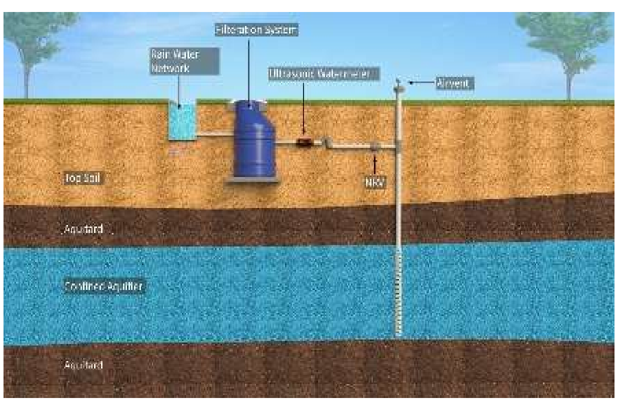

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Recharge wells are also known as infusion wells. This is being used to promote their products and concepts, however, the working fundamentals for both are the same.

Presently, surface rainwater runoff or rooftop rainwater gets diverted to a deeper aquifer (A1) through the reverse borehole through the conventional rainwater harvesting structure. Such structure could be planned in study area at various location.

Alternatively, the smart rainwater harvesting structure integrated with an ultrasonic water meter could be installed to recharge the deeper aquifer (A1) to bring groundwater balance. The number of such wells must neutralize groundwater extraction.
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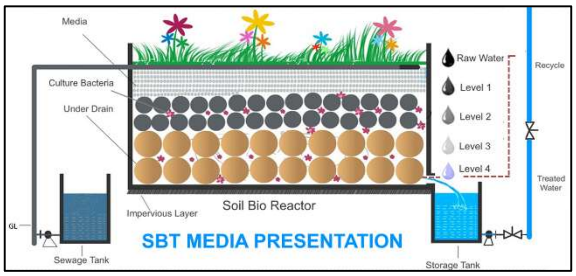
14.2 Soil Bio-Technology

Table 14.2 Soil Bio-Technology

	SBT (alternative to Sewage Treatment Plant) systems are practically maintenance-free, do not produce biosolids or foul odours, and consume minimal energy. They achieve river-quality water and enhance the surrounding aesthetic with greenery. Their operation is straightforward, cost-effective, and energy-efficient. SBT systems typically begin with an underdrain layer, followed by a media layer that supports culture and bioindicator plants. Water first flows through the additive layer and then through the media layer. The process can operate as either a single-stage or multi-stage system, depending on the desired water quality. Recirculation can be implemented for additional polishing if needed.

15 FEASIBILITY EVALUATION

Alternative conservation methods have been evaluated to check the feasibility of investigating various hydrological and hydrogeological conditions based on historical rainfall patterns.

15.1 Recharge well

1. Recharge wells are feasible to implement at the all the 3 sites of the Company.
2. Necessary hydrogeological study is required to be carried out to ascertain and identify aquifer recharge potential.
3. Surrounding region is never explored for ground water extraction. However, that needs to be studied further for future use while installing recharge wells (ASR).

15.2 Soil Bio-Technology

1. Soil Bio-Technology (SBT) is a green technology with green chemistry is feasible for Gita Vatika
2. Through SBT, waste water generated in the premise can be reused by passing it through bio-reactors with soil minerals and green plants.
3. Installation of low maintenance technology does not require skilled technicians to run, thus reducing the dependency on man power.

16 INTERVENTIONS BY PROJECT OWNER/ PROPONENT/ SELLER

The revenue from the sale of the water credits from this project activity for the vintage years under the UWR RoU program will enable the PP to finance and set up further action for water security for the Company's locations and surrounding region.

1. An annual water audit is required to identify the gap between water demand and water conservation.
2. The water audit will help in creating future possibilities to generate more water credits under other scopes as may be applicable.
3. Further, water consumption data during construction and development phase should be recorded digitally and for claiming future water credits.
4. There is still an opportunity to reduce the gap between water conservation and water consumption quantity.
5. Rainwater harvesting can be further planned within the campuses for effective and early rejuvenation of the depleted aquifer system.
6. Qualitative water test results to be analyzed for their gainful utilization to plan farming using saline/ high TDS water.
7. The maintenance of the check dam in the canal is to be ensured by scheduling a pre-monsoon activity list. Desilting into the pond/s is required to maintain the design capacity of the pond/s every year.
8. The future water credits should be ascertained based on digitized data while installation of a water meter in the inlet & outlet header of each user point to quantify gainful use.
9. Soil BioTechnology (SBT) can be further planned within the campus as a sustainable, eco-friendly, and efficient alternative for wastewater treatment.

17 UWR RAINWATER OFFSET DO NO NET HARM PRINCIPLES

The approach to mining water credits from projects addresses the **"Do No Harm or Negative Impact"** sustainability test. None of the information or elements of this project being mined on the UWR platform has any negative development impacts i.e. community or environment.

This PCNMR lays down the entire philosophy, methodology, implementation, and future proposal of the functional model for the Company as envisaged and operated by the PP. During project operations since 2007, there has not been a single case of adverse impact on the local flora, fauna, water security, or local human geography. On the contrary, the project has ensured several tangible and intangible direct and indirect benefits to the local geographical area by addressing several of the UNSDGs.

We support projects that contribute to UNSDGs encompassing environmental, social, and governance standards (ESG) as a key basis for eligibility on the UWR platform while accepting quality green water credit projects from a predefined list of activities. All our water conservation and groundwater recharge projects, either by individual or collective actions, benefit people, the economy, and nature. While this program and standard is aimed at all unutilized water conservation and recharge efforts (with or without treatment) worldwide, its genesis lies in Bharat and hence, the protocol keeps projects established within Bharat in mind as the basis of development and standardization of water offset or credits.

18 ECOLOGICAL ASPECTS

Sustainable Development Goals are part of a transformative agenda adopted by Bharat and which came into effect after the Sustainable Development Summit in 2015. At the core of this national agenda for 2030 is the principle of universality: 'Leave No One Behind'. Development in all its dimensions must include all people, everywhere, and should be built through the participation of everyone. This comprehensive agenda recognizes that it is no longer sufficient just to focus on economic growth but on fairer and more equal societies, and a safer and more prosperous planet.

Ecological aspects protect the planet and the biodiversity of the utilized areas as habitats, maintaining ecosystem services provided by various participants of the given ecosystems. An ecosystem contains functional aspects for its maintenance, biogeochemical cycles, energy flow, nutrient cycle, ecological succession, ecological pyramid, food web, and food chain.

The Sustainable Development Goals (SDGs) are a set of 6 goals that are a call to action to end poverty and inequality, protect the planet, and ensure that all people enjoy health, justice, and prosperity through the projects. These are precise outcomes against the pre-defined objective for the project.

18.1 CLEAN WATER AND SANITATION

UNSDG that is directly addressed	UNSDG indicator	How does the PP intervention with the project address the UNSDG
6 CLEAN WATER AND SANITATION	Ensure availability and sustainable management of water and sanitation for all.	Interventions of this project have fulfilled its irrigation requirements by storing surface rainwater runoff which would have gone to the sea thereby preserving the groundwater security of the region and local geography thus ensuring drawable groundwater availability and water security to the local agricultural farms and communities by harnessing and conserving rainwater.

18.2 INDUSTRY, INNOVATION AND INFRASTRUCTURE

UNSDG that is directly addressed	UNSDG indicator	How does the PP intervention with the project address the UNSDG
	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	The Project has met all its irrigation, Domestic & Industrial water demand of its campuses with rainwater conservation & Gainful reuse of Waste Water since 2022. The interventions by the PP through this project is a hallmark of resilient and sustainable infrastructure which has stood the test of time since 2002 in its industry segment.

18.3 SUSTAINABLE CITIES AND COMMUNITIES

UNSDG that is directly addressed	UNSDG indicator	How does the PP intervention with the project address the UNSDG
	Make cities and human settlements inclusive, safe, resilient and sustainable	The Project is catering to a community primarily for diamond processing activity and creating a world class educational campus with complete state of the art infrastructure and facilities. The outcomes of this project activity are enumerated above and are testimony to the fact that the project has created an infrastructure that is sustainable in all dimensions of the term.

18.4 RESPONSIBLE CONSUMPTION AND PRODUCTION

UNSDG that is directly addressed	UNSDG indicator	How does the PP intervention with the project address the UNSDG
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Ensure sustainable consumption and production patterns	The primary resource dependency of SRK is water for upkeep and maintenance for efficient use. With all of its irrigation, Domestic & Industrial water demand of its campuses being met with rainwater conservation & Gainful reuse of Waste Water since 2022, the project ensures a highly judicious, safe, sustainable and prudent utilization/ consumption of this highly valuable and finite resource.

18.5 CLIMATE ACTION

UNSDG that is directly addressed	UNSDG indicator	How does the PP intervention with the project address the UNSDG
13 CLIMATE ACTION	Take urgent action to combat climate change and its impacts	The primary drivers to combat climate change as outlined by thousands of peer-reviewed research papers over the years are carbon footprint reduction, water footprint reduction, and responsible waste management. The project addresses one of these 3 drivers positively i.e. water footprint reduction with sustainable water management practices as enumerated in this PCNMR.

18.6 PARTNERSHIP FOR THE GOALS

UNSDG that is directly addressed	UNSDG indicator	How does the PP intervention with the project address the UNSDG
17 PARTNERSHIPS FOR THE GOALS	Strengthen the means of implementation and revitalize the global partnership for sustainable development	SRK's water stewardship initiatives strengthen UNSDG 17 (Partnerships for the Goals) by fostering collaboration between communities, local authorities, and development partners. Through joint action, resource mobilization, and capacity-building aimed at securing reliable water access, SRK helps create strong, multi-stakeholder partnerships that advance sustainable development.

19 SCALING PROJECTS – LESSONS LEARNED – RESTARTING PROJECTS

Since a world class educational infrastructure is coming up and under construction, it is suggested that the annual drinking & cooking water demand can be met with rooftop rainwater storage within the built-up area itself.

SRK Empire and SRK House are fully functional and meeting their objectives primarily when it comes to water security. This rainwater harvesting structure can be further improved by installing ultrasonic water meters in the recharge wells to capture real time data. This model of water conservation can be easily replicated in Gita Vatika where development is still undergoing.

It is important to list lessons learned from this project that can be applied in future projects, restarting the new project as well as enhancing the existing system.

1. Statutory compliance is the prerequisite for enhancing the existing water management system before scaling up the project.
2. The new project must be conceptualized with a sustainability design approach while complementing the design phase, development phase, construction phase, and operational phase of the program.
3. The operational phase must be supported by the dashboard monitoring system by creating monitoring indicators to generate authentic data to support the verification process.
4. The construction phase must be supported by the Integrated Management Information System (IMIS), Real-time dashboard, and Geo-tagging assets will be updated periodically as the project progresses.
5. It is important to generate a large data bank to prepare water budgeting of the premises while planning the horizontal/ vertical growth.

6. By incorporating low-flow fixtures, can reduce the total water demand that will prevent the excessive use of groundwater.

7. Introducing water meters as a primary header and secondary header will be used as a powerful tool to quantify and initiate water conservation efforts for promoting environmental sustainability.

20 ABBREVIATIONS

1. **Safe area:** Area categorized as SAFE from the groundwater resources point of view, based on the latest groundwater resources assessment carried out jointly by CGWB and State groundwater organizations. Details are available on the websites of NOCAP and CGWB.

2. **Semi-critical area**: Area categorized as SEMI-CRITICAL from the groundwater resources point of view, based on the latest groundwater resources assessment carried out jointly by CGWB and State groundwater organizations. Details are available on the websites of NOCAP and CGWB.

3. **Critical area**: Area categorized as CRITICAL from the groundwater resources point of view, based on the latest groundwater resources assessment carried out jointly by CGWB and State groundwater organizations. Details are available on the websites of NOCAP and CGWB.

4. **Over-exploited area:** Area categorized as OVER-EXPLOITED from the groundwater resources point of view, based on the latest groundwater resources assessment carried out jointly by CGWB and State groundwater organizations. Details are available on the websites of NOCAP and CGWB.

5. **Aquifer:** Geological formation capable of storing and transmitting groundwater.

6. **Deeper Aquifer:** In areas having multiple aquifer systems, the aquifer(s) occur below the uppermost aquifer.

7. **Well:** Any structure used for the extraction of groundwater, including open wells, dug wells, bore wells, dug-cum-bore wells, tube wells, filter points, collector wells, infiltration galleries, recharge wells, or any of their combinations or variations.

8. **Government Agency:** Maybe a Central or State Government body.

9. **Illegal Ground Water Abstraction Structure:** Any energized abstraction structure viz. dug well, tube, borewell used to withdraw groundwater without a valid No Objection Certificate from Central Ground Water Authority.

10. **Rainwater Harvesting:** The technique or system of collection and storage of rainwater, at the micro watershed scale, including rooftop harvesting, for future use or recharge of groundwater.

11. **Ground Water Draft:** Quantum of groundwater withdrawal.

12. **Saline Water:** Water having salinity above 2500 µsiemens/cm at 250C.

13. **Water Table Intersection**: Intersection of the water table on excavating the overlying material due to mining or other activities.

14. **Drinking and domestic use**: Besides drinking & domestic use of households, this category will cover drinking requirements of industries not requiring water for the industrial process; drinking, washing, cleaning use, etc. in the case of hospitals, hotels, malls & multiplexes, institutions, offices, banquet halls, fire stations, metro stations, railway stations, airports, seaports, stadia, etc.

15. **Sewage Treatment Plant (STP)**: is a process of purification of Sewage water and reusing for Gardening, Agricultural, and other general Purpose.

16. **Recycle/Reuse**: Using treated wastewater for various purposes/ putting water to multiple uses.

17. **Groundwater:** Water, which exists below the surface in the zone of saturation and can be extracted through wells or any other means or emerges as springs and base flow in streams and rivers.

18. **Bgl:** Below Ground Level.

19. **BCM:** Billion cubic meters.

20. **Groundwater Abstraction structure:** Structure used to withdraw groundwater like bore well/tube well / dug well/dug cum bore well/tunnel well.

21. **Observation well or Piezometer**: A bore well/tube well is used only for measuring the water level/piezometric head and to take water samples periodically but is not used for groundwater abstraction.

22. **Water Audit**: A method of quantifying water use in simple or complex systems to reduce water usage and often to save money on otherwise unnecessary water use.

23. **Groundwater pollution:** If the concentration of any parameter in groundwater exceeds the maximum permissible limit for drinking water prescribed by the Bureau of Indian Standards.

24. **Cooperative Group Housing Societies/ Builder flats**: A Housing Society is formed by house owners within a residential complex. The housing society formed must be formally registered with the registrar of co-operatives.

25. **KLD** – Kilo Liter per day

26. **ECGW –** Environmental compensation for drawing illegal groundwater.

27. **ECGWR –** Environmental compensation rates for drawing illegal groundwater.

28. **VES** – Vertical Electrical Sounding
29. **SWL** – Static Water Level
30. **PWL** – Pumping Water Level
31. **DD** – Draw Down
32. **LPM** – Liters Per Minute
33. **ppm** – Parts Per million
34. **TDS** – Total Dissolved Solids
35. **GPS** – Global Positioning System
36. **Aquifer Recharge** - defined as the process of water being added to a groundwater system comprised of a geological structure or formation, or part thereof, permanently, or intermittently permeated with water or capable of transmitting water. Water introduced or recharged into an aquifer becomes 'groundwater.'
37. **Aquifer storage and recovery (ASR)** - injection of water into a well for storage and recovery from the same well.
38. **Aquifer storage transfer and recovery (ASTR)** - injection of water into a well for storage and recovery from a different well, generally to provide additional water treatment.
39. **Aquitard**- A geological layer that has low permeability and confines or separates aquifers.
40. **Artificial recharge (AR)** —intentional banking and treatment of water in aquifers.
41. **Artificial recharge and recovery (ARR)** —recharge to and recovery of water from an aquifer; that is, both artificial recharge of the aquifer and recovery of the water for subsequent use.
42. **Augmentation pond**—water body designed to supply water to river systems at defined rates during particular times.
43. **Bank filtration**—extraction of groundwater from a well or caisson near or under a river or lake to induce infiltration from the surface water body, thereby improving and making more consistent the quality of water recovered.
44. **Conjunctive use**—combining the use of both surface and groundwater to minimize the undesirable physical, environmental, and economic effects of each solution.
45. **Dry well**—synonymous with vadose zone well.

46. **Infiltration basin**—synonymous with recharge basin.

47. **Managed (or management of) aquifer recharge (MAR)**—intentional banking and treatment of water in aquifers (synonymous with AR). MUS may be considered a subset of MAR.

48. **Recharge basin (or pond)**—a surface facility, often a large pond, used to increase the infiltration of surface water into a groundwater basin; basins require the presence of permeable soils or sediments at or near the land surface and an unconfined aquifer beneath. Recharge well—a well-used to directly recharge water to either a confined or an unconfined aquifer.

49. **Surface spreading**—recharging water at the surface through recharge basins, ponds, pits, trenches, constructed wetlands, or other systems.

50. **Spreading basin**—synonymous with recharge basin.

51. **Underground storage and recovery (USR)** —Similar to MUS; any type of project whose purpose is the artificial recharge, underground storage, and recovery of project water.

52. **Vadose zone well**—a well-constructed in the interval between the land surface and the top of the static water level and designed to optimize the infiltration of water.

53. **Borehole**: A vertical below-ground installation to abstract groundwater. It is drilled (or bored) and lined with metal or plastic tubes to keep it open, and to protect against surface/near surface pollution.

54. **Beneficial use:** A use of the environment or any element or segment of the environment which (a) is conducive to public benefit, welfare, safety, health, or aesthetic enjoyment and which requires protection from the effects of waste discharges, emissions or deposits or of the emission of noise or (b) is declared in India's environment protection policy to be a beneficial use.

55. **Catchment:** The geographical zone in which water is captured, flows through and eventually discharges at one or more points. The concept includes both surface water catchment and groundwater catchment.

56. **A surface water catchment** is defined by the area of land from which all precipitation received flows through a sequence of streams and rivers towards a single river mouth, as a tributary to a larger river, or the sea.

57. A **groundwater catchment** is defined by the geological structure of an aquifer and groundwater flow paths. It is replenished by water that infiltrates from the surface. It has vertical thickness (from a few meters to 100s meters) as well as area. Depending on local conditions, surface and groundwater catchments may be physically separate or interconnected.

58. **Catchment of origin** - refers to a catchment, distinct from the site's catchment(s), where a product or service is manufactured or sourced. It may be anywhere from an adjacent catchment to the other side of the world. Alternative terms are watershed, basin and river basin.

59. **Consumption** - references in the WF industry currently refer to it as the loss of water from the available ground–surface water body in a catchment area, which happens when water evaporates, is incorporated into a product or is transported to another catchment area or the sea.

60. **Contaminated water body**: A water body that receives (or has received) untreated sewage, effluent discharge and/or industrial waste, and/or is defined as 'heavily polluted' or "unfit for human consumption" by the authorities.

61. **Effluent**: Water or wastewater discharged from a site after being used. It is a more specific term than discharge (i.e., not including drainage or runoff). The quality of effluent may range from good to polluted, depending on its origin, its use, and the treatments applied.

62. **Embedded/virtual water**: Water that was used in the production or creation of an item, but not contained within it. For a crop, it is the water it needs to grow (irrigated or rain-fed), taken up by its roots and lost via transpiration, and is usually hundreds of times more than the water physically retained within the crop. It may also include water used to wash, process and transport it. Alternative terms are 'virtual water' and 'water footprint'.

63. **Freshwater**: Freshwater plays a fundamental role in support of the environment, society and the economy. Ecosystems such as wetlands, rivers, aquifers and lakes are indispensable for life on Earth.

64. **Rain Water Offset Unit or Credit (RoU)** is a volumetric measure of water harvested or conserved through project activities on UWR and expressed as m3 or 1000 liters of water per year.

65. **Groundwater**: Water below the surface of the Earth stored in pore spaces and fractures within rock or layers of sand and gravel (aquifers). In water resources management the term more specifically applies to water that can be extracted at a viable rate, quantity, and quality for human use (with or without treatment).

66. **Injection well** A well that admits water into an aquifer, either by pumping or under gravity.

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22 DISCLAIMER

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ANNEXURE 1

Irrigation Water Demand for the year 2023

Plants name	Total Saplings	Area under plantation (SqMt)	Daily water requirement (L/SqMt)	Total Daily Water Req.(L)	Rainy days	Irrigation days	Actual water demand (CuMt)
Conocarpus	22,000	18,267	5	91,333	73	172	15,709,326
Jamun deshi	300	249	5	1,245	73	172	214,218
Singapuri cherry	-	-	5	-	73	172	-
Arjun sadad	600	498	5	2,491	73	172	428,436
Karanj	300	249	5	1,245	73	172	214,218
Gulmahor	-	-	5	-	73	172	-
Tamarind	200	166	5	830	73	172	142,812
Kashid	-	-	5	-	73	172	-
Paras pipalo	-	-	5	-	73	172	-
Rain tree	1,050	872	5	4,359	73	172	749,763
Kaijelia	500	415	5	2,076	73	172	357,030
Peltophorum	1,400	1,162	5	5,812	73	172	999,684
Goras aambali	-	-	5	-	73	172	-
Badam	300	249	5	1,245	73	172	214,218
Jamun	-	-	5	-	73	172	-
Billi	-	-	5	-	73	172	-
Sapota	120	100	5	498	73	172	85,687
Rayan	120	100	5	498	73	172	85,687
Kamarakh	-	-	5	-	73	172	-
Saptaparni	-	-	5	-	73	172	-
Mango desi	60	50	5	249	73	172	42,844
Neem	30	25	5	125	73	172	21,422
Gliricidia	-	-	5	-	73	172	-
Baheda	-	-	5	-	73	172	-
Khair	-	-	5	-	73	172	-
Pipalo	50	42	5	208	73	172	35,703
Bahunia	-	-	5	-	73	172	-
Wood apple	-	-	5	-	73	172	-
Palash	-	-	5.00	-	73.00	172	-
Silk cotton tree	-	-	5.00	-	73.00	172	-
Vad	50.00	41.52	5.00	207.58	73.00	172	35,703.01

Plants name	Total Saplings	Area under plantation (SqMt)	Daily water requirement (L/SqMt)	Total Daily Water Req.(L)	Rainy days	Irrigation days	Actual water demand (CuMt)
Mahogany	-	-	5.00	-	73.00	172	-
Umaro	-	-	5.00	-	73.00	172	-
Subabul	-	-	5.00	-	73.00	172	-
Borsali	-	-	5.00	-	73.00	172	-
Sita ashok	-	-	5.00	-	73.00	172	-
Shirish	-	-	5.00	-	73.00	172	-
Sevan	-	-	5.00	-	73.00	172	-
Garmalo	-	-	5.00	-	73.00	172	-
Bangali baval	3,000.00	2,490.91	5.00	12,454.54	73.00	172	2,142,180.81
Nilgiri	1,200.00	996.36	5.00	4,981.82	73.00	172	856,872.32
Shishamadi	-	-	5.00	-	73.00	172	-
Casuarina	4,900.00	4,068.48	5.00	20,342.41	73.00	172	3,498,895.32
Khaya	-	-	5.00	-	73.00	172	-
Aonla	-	-	5.00	-	73.00	172	-
Guava	500.00	415.15	5.00	2,075.76	73.00	172	357,030.13
Sitaphal	-	-	5.00	-	73.00	172	-
Teak	-	-	5.00	-	73.00	172	-
Cashew	-	-	5.00	-	73.00	172	-
Ber	-	-	5.00	-	73.00	172	-
Ficus	-	-	5.00	-	73.00	172	-
Sargavo	-	-	5.00	-	73.00	172	-
Asopalav	-	-	5.00	-	73.00	172	-
Jackfruit	-	-	5.00	-	73.00	172	-
Setur	-	-	5.00	-	73.00	172	-
Gunda	-	-	5.00	-	73.00	172	-
Bottle brush	-	-	5.00	-	73.00	172	-
Bakam neem	-	-	5.00	-	73.00	172	-
Parijatak	-	-	5.00	-	73.00	172	-
Tecoma	-	-	5.00	-	73.00	172	-
Curry leaf	-	-	5.00	-	73.00	172	-
Ratrani	-	-	5.00	-	73.00	172	-
Aritha	-	-	5.00	-	73.00	172	-
Nagod	-	-	5.00	-	73.00	172	-
Putranjiva	-	-	5.00	-	73.00	172	-
Malabar neem	-	-	5.00	-	73.00	172	-

Plants name	Total Saplings	Area under plantation (SqMt)	Daily water requirement (L/SqMt)	Total Daily Water Req.(L)	Rainy days	Irrigation days	Actual water demand (CuMt)
Kailashpati	-	-	5.00	-	73.00	172	-
Piludi	-	-	5.00	-	73.00	172	-
Karoanda	-	-	5.00	-	73.00	172	-
Kadvi mahendi	-	-	5.00	-	73.00	172	-
Bamboo	2,200.00	1,826.67	5.00	9,133.33	73.00	172	1,570,932.59
Kaner	300.00	249.09	5.00	1,245.45	73.00	172	214,218.08
Ixora	-	-	5.00	-	73.00	172	-
Dendrolobium	-	-	5.00	-	73.00	172	-
Tulasi	-	-	5.00	-	73.00	172	-
Lime	-	-	5.00	-	73.00	172	-
Hibiscus	-	-	5.00	-	73.00	172	-
Asparagus	-	-	5.00	-	73.00	172	-
Malphigia	-	-	5.00	-	73.00	172	-
Lemongrass	-	-	5.00	-	73.00	172	-
Ardusi	-	-	5.00	-	73.00	172	-
Spider lily	-	-	5.00	-	73.00	172	-
Mahendi	-	-	5.00	-	73.00	172	-
Crape jasmine	-	-	5.00	-	73.00	172	-
Chameli	-	-	5.00	-	73.00	172	-
Bougainvillia	-	-	5.00	-	73.00	172	-
Curatain creepar	-	-	5.00	-	73.00	172	-
Tebubia rosea	-	-	5.00	-	73.00	172	-
Spathodia	-	-	5.00	-	73.00	172	-
Tebubia pallida	-	-	5.00	-	73.00	172	-
Tebubia arjentina	-	-	5.00	-	73.00	172	-
Kusum	-	-	5.00	-	73.00	172	-
Cassia	-	-	5.00	-	73.00	172	-
Tanash	-	-	5.00	-	73.00	172	-
Shisham	-	-	5.00	-	73.00	172	-
Khatumara	-	-	5.00	-	73.00	172	-
Champa	-	-	5.00	-	73.00	172	-
Kadamb	-	-	5.00	-	73.00	172	-
Coconut	-	-	5.00	-	73.00	172	-
Snowbush	-	-	5.00	-	73.00	172	-
Total	39,180.00	32,531.26	5.00	162,656.29	73.00	172	**27,976,881.31**

Irrigation Water Demand for the year 2024

Plants name	Total Saplings	Area under plantation (SqMt)	Daily water requirement (L/SqMt)	Total Daily Water Req.(L)	Rainy days	Irrigation days	Actual water demand (CuMt)
Conocarpus	22,000	18,267	5	91,333	97	268	24,477,322
Jamun deshi	1,350	1,121	5	5,605	97	268	1,502,017
Singapuri cherry	2,519	2,092	5	10,458	97	268	2,802,653
Arjun sadad	3,331	2,766	5	13,829	97	268	3,706,089
Karanj	2,954	2,453	5	12,264	97	268	3,286,637
Gulmahor	3,020	2,508	5	12,538	97	268	3,360,069
Tamarind	3,188	2,647	5	13,235	97	268	3,546,986
Kashid	1,905	1,582	5	7,909	97	268	2,119,514
Paras pipalo	2,433	2,020	5	10,101	97	268	2,706,969
Rain tree	4,147	3,443	5	17,216	97	268	4,613,975
Kaijelia	2,530	2,101	5	10,503	97	268	2,814,892
Peltophorum	4,572	3,796	5	18,981	97	268	5,086,833
Goras aambali	2,150	1,785	5	8,926	97	268	2,392,102
Badam	951	790	5	3,948	97	268	1,058,088
Jamun	1,495	1,241	5	6,207	97	268	1,663,345
Billi	555	461	5	2,304	97	268	617,496
Sapota	952	790	5	3,952	97	268	1,059,200
Rayan	997	828	5	4,139	97	268	1,109,268
Kamarakh	346	287	5	1,436	97	268	384,962
Saptaparni	410	340	5	1,702	97	268	456,168
Mango desi	1,940	1,611	5	8,054	97	268	2,158,455
Neem	2,258	1,875	5	9,374	97	268	2,512,263
Gliricidia	210	174	5	872	97	268	233,647
Baheda	115	95	5	477	97	268	127,950
Khair	720	598	5	2,989	97	268	801,076
Pipalo	617	512	5	2,561	97	268	686,478
Bahunia	805	668	5	3,342	97	268	895,647
Wood apple	50	42	5	208	97	268	55,630
Palash	330	274	5	1,370	97	268	367,160
Silk cotton tree	55	46	5	228	97	268	61,193
Vad	443	368	5	1,839	97	268	492,884
Mahogany	667	554	5	2,769	97	268	742,108
Umaro	224	186	5	930	97	268	249,224
Subabul	644	535	5	2,674	97	268	716,518
Borsali	356	296	5	1,478	97	268	396,088
Sita ashok	209	174	5	868	97	268	232,535
Shirish	330	274	5	1,370	97	268	367,160

Plants name	Total Saplings	Area under plantation (SqMt)	Daily water requirement (L/SqMt)	Total Daily Water Req.(L)	Rainy days	Irrigation days	Actual water demand
Sevan	220	183	5	913	97	268	244,773
Sevan	220	183	5	913	97	268	244,773
Garmalo	1,825	1,515	5	7,577	97	268	2,030,505
Bangali baval	5,708	4,739	5	23,697	97	268	6,350,752
Nilgiri	7,533	6,255	5	31,273	97	268	8,381,257
Shishamadi	250	208	5	1,038	97	268	278,151
Casuarina	7,095	5,891	5	29,455	97	268	7,893,936
Khaya	1,620	1,345	5	6,725	97	268	1,802,421
Aonla	980	814	5	4,068	97	268	1,090,353
Guava	2,685	2,229	5	11,147	97	268	2,987,346
Sitaphal	723	600	5	3,002	97	268	804,414
Teak	604	502	5	2,508	97	268	672,014
Cashew	420	349	5	1,744	97	268	467,294
Ber	1,035	859	5	4,297	97	268	1,151,547
Ficus	994	825	5	4,127	97	268	1,105,930
Sargavo	470	390	5	1,951	97	268	522,925
Asopalav	822	683	5	3,413	97	268	914,562
Jackfruit	501	416	5	2,080	97	268	557,415
Setur	900	747	5	3,736	97	268	1,001,345
Gunda	1,054	875	5	4,376	97	268	1,172,686
Bottle brush	895	743	5	3,716	97	268	995,782
Bakam neem	680	565	5	2,823	97	268	756,572
Parijatak	80	66	5	332	97	268	89,008
Tecoma	990	822	5	4,110	97	268	1,101,479
Curry leaf	300	249	5	1,245	97	268	333,782
Ratrani	275	228	5	1,142	97	268	305,967
Aritha	240	199	5	996	97	268	267,025
Nagod	360	299	5	1,495	97	268	400,538
Putranjiva	348	289	5	1,445	97	268	387,187
Malabar neem	25	21	5	104	97	268	27,815
Kailashpati	270	224	5	1,121	97	268	300,403
Piludi	3,140	2,607	5	13,036	97	268	3,493,581
Karoanda	2,640	2,192	5	10,960	97	268	2,937,279
Kadvi mahendi	2,690	2,234	5	11,168	97	268	2,992,909
Bamboo	2,450	2,034	5	10,171	97	268	2,725,884
Kaner	2,385	1,980	5	9,901	97	268	2,653,564
Ixora	1,169	971	5	4,853	97	268	1,300,636
Dendrolobium	1,630	1,353	5	6,767	97	268	1,813,547
Tulasi	1,190	988	5	4,940	97	268	1,324,001
Lime	1,020	847	5	4,235	97	268	1,134,858

Plants name	Total Saplings	Area under plantation (SqMt)	Daily water requirement (L/SqMt)	Total Daily Water Req.(L)	Rainy days	Irrigation days	Actual water demand
Hibiscus	1,600	1,328	5	6,642	97	268	1,780,169
Asparagus	690	573	5	2,865	97	268	767,698
Malphigia	560	465	5	2,325	97	268	623,059
Lemongrass	520	432	5	2,159	97	268	578,555
Ardusi	374	311	5	1,553	97	268	416,114
Spider lily	370	307	5	1,536	97	268	411,664
Mahendi	80	66	5	332	97	268	89,008
Crape jasmine	324	269	5	1,345	97	268	360,484
Chameli	482	400	5	2,001	97	268	536,276
Bougainvillia	732	608	5	3,039	97	268	814,427
Curatain creepar	1,060	880	5	4,401	97	268	1,179,362
Tebubia rosea	420	349	5	1,744	97	268	467,294
Spathodia	70	58	5	291	97	268	77,882
Tebubia pallida	100	83	5	415	97	268	111,261
Tebubia arjentina	265	220	5	1,100	97	268	294,840
Kusum	25	21	5	104	97	268	27,815
Cassia	290	241	5	1,204	97	268	322,656
Tanash	50	42	5	208	97	268	55,630
Shisham	656	545	5	2,723	97	268	729,869
Khatumara	158	131	5	656	97	268	175,792
Champa	3	2	5	12	97	268	3,338
Kadamb	1	1	5	4	97	268	1,113
Coconut	78	65	5	324	97	268	86,783
Snowbush	10	8	5	42	97	268	11,126
Total	138,912	115,339	5	576,695	97	268	154,554,260

ANNEXURE 2

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