REJUVENATION OF KANOI PAR POND
Village Kanoi, Sam Block, Jaisalmer, Rajasthan
Submitted by: Tarun Bharat Sangh (TBS)

EXECUTIVE SUMMARY: Tarun Bharat Sangh (TBS) proposes the comprehensive rejuvenation of **Kanoi Par Pond**, around 900 year old pond near Kanoi village in the Sam Block of Jaisalmer district, Rajasthan. The pond, which historically served as one of the primary source of freshwater for drinking, domestic use, and livestock, has become defunct due to severe siltation, structural degradation, and disruption of its natural catchment system.

This proposal aims to restore the pond through a combination of **traditional ecological knowledge and scientific watershed management practices**, including desilting, deepening, strengthening of embankments, and rehabilitation of inflow channels and associated water systems such as *beris*.

The intervention is expected to directly benefit approximately **800 households and over 5,000 livestock**, significantly reducing dependence on costly tanker water, enhancing groundwater recharge, and strengthening climate resilience in one of India's most water-scarce regions.

BACKGROUND AND NEED: The Thar Desert region of Rajasthan represents one of the most water-stressed landscapes in India. Kanoi village, situated within this fragile ecosystem, experiences:

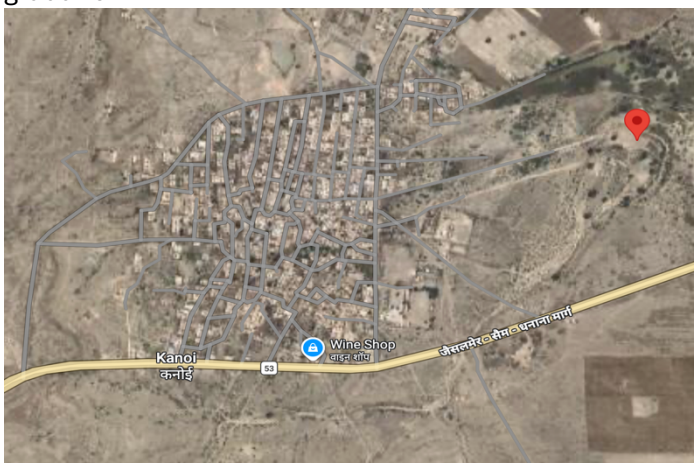
- **Extremely low and erratic rainfall**, often limited to short monsoon bursts
- **High evapotranspiration rates**, leading to rapid loss of surface water
- **Sandy soils**, which promote infiltration but lack water retention
- **Saline groundwater**, making it unsuitable for drinking purposes

Historically, communities developed sophisticated water harvesting systems such as **ponds (talabs/sarovars)** and **beris (shallow wells)** to capture and store rainwater.
Kanoi Par Pond functioned as:

- A **central water storage system**
- A **shallow-water recharge zone**
- A **lifeline for both humans and livestock**

However, over time, due to neglect, climatic stress, and lack of maintenance, this system has deteriorated, creating an urgent need for restoration.

CURRENT SITUATION ANALYSIS: A comprehensive field assessment of Kanoi Par Pond reveals multiple layers of degradation:



Satellite view of Kanoi village showing settlement layout and Kanoi Par Pond.



Village elders of Kanoi and TBS team gathered under a tree, engaged in discussion.

Structural Degradation: The structural condition of Kanoi Par Pond has significantly deteriorated over time, primarily due to the accumulation of silt and lack of maintenance. The pond basin has become increasingly shallow as layers of silt have settled over the years, drastically reducing its original water storage capacity. In addition, the embankment (paal), which plays a critical role in retaining water, has weakened and undergone erosion, leading to poor water retention and increased vulnerability to breaches. The basin itself has also become uneven, further affecting the uniform distribution and efficient storage of water.



Dry, degraded desert landscape at Kanoi Par marked by traditional stone pillars and sparse vegetation.



Open, degraded Kanoi Par Pond with scattered vegetation and defunct Beris in ponding area.

Hydrological Dysfunction: The hydrological functioning of Kanoi Par Pond has been severely compromised due to the disruption of its natural water flow systems. The inflow channels, which are essential for guiding rainwater into the pond, have become indistinct and obstructed over time, preventing effective runoff capture. As a result, a significant portion of rainwater either bypasses the pond or disperses into the surrounding sandy terrain without being utilized. Furthermore, the pond currently lacks the capacity to retain water for extended periods, with whatever little water it collects quickly percolating or evaporating.

Ecological Changes: Extensive sand deposition across the pond bed, along with the growth of terrestrial vegetation, indicates that the area has not held water for a considerable duration. Consequently, the pond has lost its natural aquatic environment, leading to a decline in biodiversity, including the disappearance of aquatic organisms, birds, and other wildlife that once depended on it. The degradation of this ecosystem has further reduced the environmental and ecological value of the pond within the local landscape.



Sparse vegetation across dry, sandy terrain at Kanoi Par, reflecting degraded land with limited moisture retention.

Collapse of Traditional Systems: The deterioration of Kanoi Par Pond has directly contributed to the collapse of the region's traditional water systems, particularly the *beris*; shallow wells that depend on subsurface recharge of sweet rainwater. Historically, around 120 beris in the area provided a reliable source of potable water by tapping into the naturally filtered *water*. However,

due to the reduced recharge caused by the non-functional pond, only about 20 beris remain operational today, while the rest have either dried up or become filled with sand. This sharp decline has significantly reduced the availability of sweet water in the village, forcing communities to rely on external and often costly sources, thereby undermining a time-tested and sustainable water management system.



Defunct Beri in a dry, sandy landscape at Kanoi Par within a degraded ecosystem.

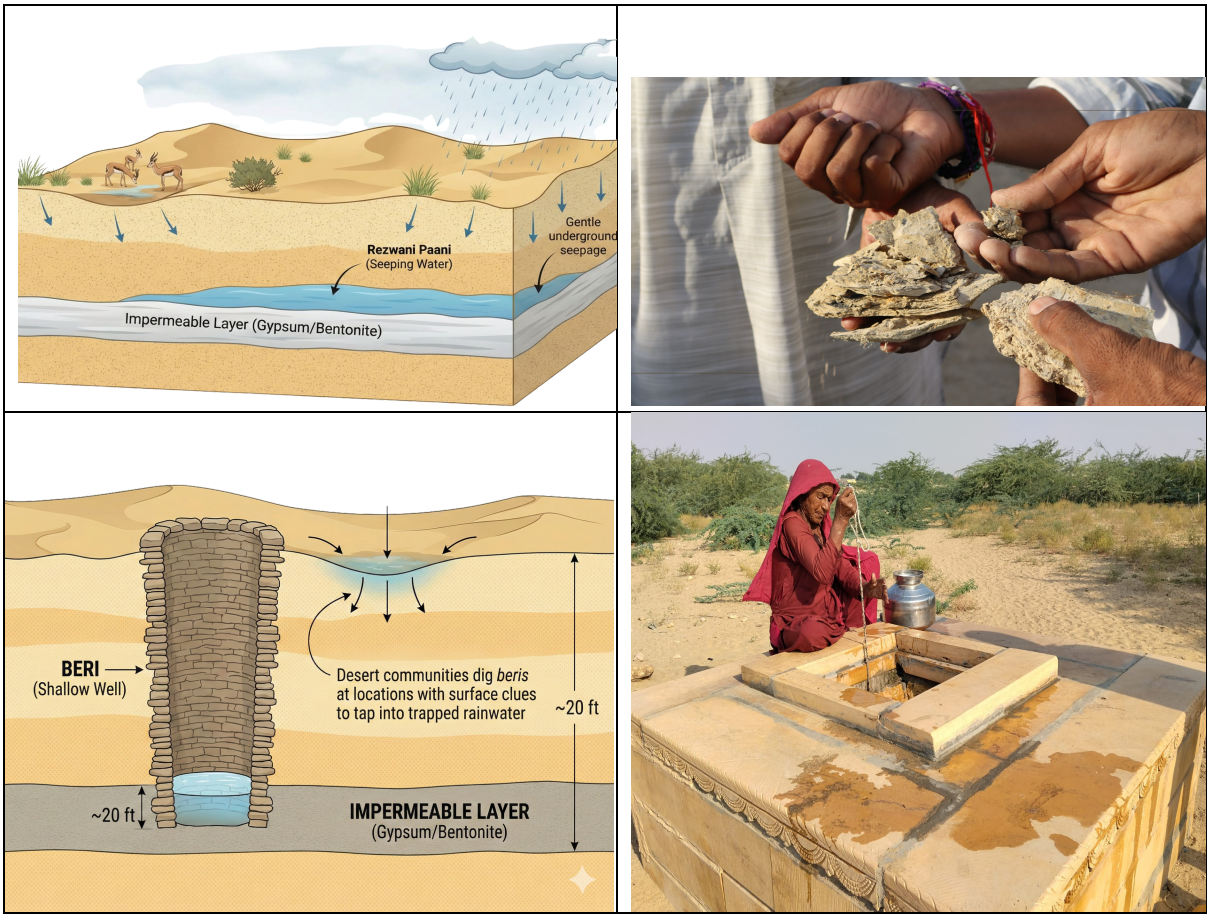
Socio-Economic Impact: The degradation of Kanoi Par Pond has led to significant socio-economic challenges for the local community. With the collapse of the traditional water system, villagers are now entirely dependent on tanker-based water supply to meet their daily needs. This dependence has resulted in a high and recurring financial burden, as households are required to spend substantial amounts each month on purchasing water. The situation is particularly difficult for economically vulnerable families, for whom water expenses consume a significant portion of their income.

RATIONALE OF THE WORK: In arid regions like the Thar Desert, traditional water bodies such as **ponds (sarovars)** play a vital role in capturing rainwater, recharging groundwater, slowing runoff, and strengthening the overall watershed, especially under conditions of uncertain and erratic rainfall. A pond is not merely an excavation but a carefully designed system built with deep hydrological understanding. Rainwater flows across the land through a natural process known as catchment, guided by the catchment slope, and collects in the storage basin, where it is retained by the embankment. Excess water is safely discharged through the spillway, protecting the structure from damage.



Beneath the sandy terrain of the Thar lies a hidden impermeable layer, often composed of gypsum or bentonite, at depths ranging from ten to sixty feet. Rainwater that infiltrates the sand gradually percolates downward and accumulates above this

layer, forming a unique subsurface water system known as Reza. The water stored in this form, called Rezani Paani, remains preserved within the sand long after the rains have ceased. Subtle ecological indicators such as patches of green vegetation and the presence of animals often signal the availability of this hidden water. Traditional **Beris (shallow wells)** are strategically constructed at such locations to tap into this naturally filtered, sweet water. For generations, desert communities have relied on this intricate relationship between surface water harvesting and subsurface recharge. Restoring Kanoi Par Pond will revive this interconnected system, ensuring sustainable water availability and resilience in a fragile desert ecosystem.



PROBLEM STATEMENT: Kanoi village faces severe water scarcity due to the degradation of Kanoi Par Pond. Siltation, weak embankments, and disrupted inflows have reduced water storage, leading to the decline of traditional *beris*. The community now depends on costly tanker water, increasing financial stress and burden on households, especially women.

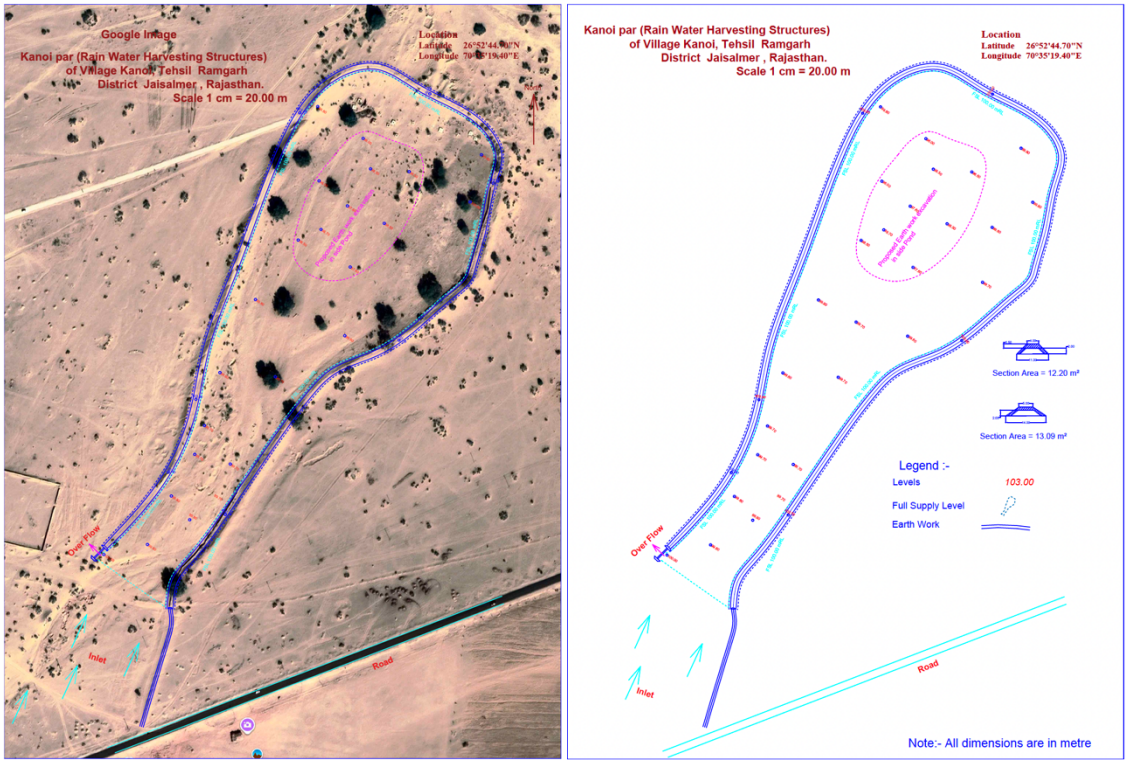
PROJECT OBJECTIVES :

Primary Objective: To restore Kanoi Par Pond as a sustainable and climate-resilient water source by enhancing its rainwater harvesting efficiency.

Specific Objectives

1. Increase pond storage capacity through desilting and deepening
2. Improve rainwater capture through catchment treatment
3. Strengthen structural integrity of the pond
4. Revive traditional water systems (beris)
5. Reduce dependence on tanker water
6. Enhance community participation and ownership

PROPOSED SOLUTION & ACTIVITIES :



The image is a **technical layout (engineering drawing)** of the proposed rejuvenation of **Kanoi Par Pond**. It shows the **shape, structure, levels, and key components** of the pond along with how water will enter, be stored, and safely exit. Key elements visible in the diagram are:

- **Outer boundary lines (blue):** Define the pond's embankment
- **Inner dotted contour (pink):** Indicates the **deepened storage basin**
- **Arrows:** Show **direction of water flow (inflow)**
- **Inlet channel:** Where rainwater enters the pond
- **Overflow point / spillway:** Where excess water exits safely

- **Road nearby:** Indicates accessibility and site context
- **Sections (cross-sections):** Show depth and slope design of the pond
- **Levels (103.00 etc.):** Define elevation for proper water storage

The proposed intervention focuses on restoring the structural and hydrological integrity of Kanoi Par Pond through a set of carefully designed technical measures rooted in both traditional knowledge and scientific practices. The first step involves **desilting and deepening of the pond**, where accumulated silt layers will be removed to restore the original depth and significantly enhance the water storage capacity.

Simultaneously, **strengthening of the embankment** will be undertaken by repairing eroded sections, followed by compaction and slope stabilization to prevent future breaches and improve water retention.

To improve water inflow, **catchment treatment** will be carried out by re-establishing natural drainage pathways, removing obstructions, and guiding rainwater runoff effectively into the pond. This will enhance the pond's capacity to capture rainwater during the monsoon. Further, the **spillway** will be constructed and strengthened to ensure safe discharge of excess water, thereby protecting the embankment from damage during high rainfall events. In addition, **rejuvenation of beris** will be undertaken by cleaning and desilting these traditional wells and restoring their connection with the recharge system. This will help revive access to sweet shallow-underground water, ensuring long-term water availability for the community.

S.No.	Particulars	
1.	Location	Latitude 26°52'44.70"N Longitude 70°35'19.40"E
2.	Catchment Area / Length	2.5 Sqkm /2.5 km. (Natural Slope from South west side of Pond)
3.	Full Supply Level of Pond / Talab	100.00 mRL.(Assumed Level) 2.50 m Free Board
4.	Present deepest Level of Pond/Talab	97.60 mRL
5.	Pond /Talab Area	53876 Sqm or 5.3ha.
6.	Water storage Capacity of Talab / pond	Existing Capacity: - Nil (due to Siltation and embankment failure) 8,08,14,000 Ltr (Proposed Capacity)
7.	Earth work (up height)	2.00m (Present) 2.00-3.00 m (Proposed)
8.	Earth work top width	2.00-4.00 m (Present) 4.00- 5.00 m (Proposed)
9.	Earth work Bottom width	4.00-10.00 (Present) 6.00 to 14.00 m (Proposed)
10.	Length of Earthen Bund	1000 m
11.	Earth Work Quantity including Base work Excavation	12,644.30Cum (Bandh)
12	Construction of overflow L= 6m, B=1.5m, H=3m	₹2,16,000
13	Repairing of 5 Beri's	₹2,80,000
14.	Cost of Earth work	₹2010443.70
15	Total Cost of RWHS	₹25,06,443.70

Abstract of Cost Name of Work : Earth Work of Kanoi Par (Earthen Pond) At Village Kanoi Tehsil Ramgarh, Jaisalmer (Rajasthan) (BSR Jaipur City Circle 2019)						
S.No.	**Item**	**Sectional Area (Sqm)**	**Length (m)**	**Volume (Cum)**	**Rate**	**Amount (Rs.)**
1	Earth work in excavation by mechanical means (Hydraulic excavator)/ manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50m and lift upto 1.5 m , disposed earth to be levelled and neatly dressed: All kinds of soil Page 52 Item 1.6		**12644.3**		**159**	**2010443.7**
	Section Area	12.20	500	6101.80		
	Section Area	13.09	500	6542.50		
	Total		1000	12644.30		
	Pucca Work Construction of Over flow L=6m, B=1.5m, D=3m	216000.00				**216000.00**
	Repairing of 5 Beri's	5.00			**56,000**	**2,80,000**
Total (INR)						**25,06,443.70**

Approximate: Twenty Five Lakh Rupees Only

Community Engagement: Community engagement forms a central pillar of the project, ensuring long-term sustainability and local ownership of the restored water system. The initiative will begin with regular village meetings and awareness programs to sensitize the community about the importance of water conservation and the revival of traditional systems. Active participation will be encouraged through community contributions in the form of cash or labour, fostering a sense of responsibility and collective ownership.

EXPECTED OUTCOMES: The proposed intervention is expected to generate significant positive outcomes across short-, medium-, and long-term timeframes. **In the short term (0–6 months),** the restoration of Kanoi Par Pond will lead to a substantial increase in water storage capacity, enabling the community to capture and retain more rainwater during the monsoon. This will result in an immediate reduction in dependence on tanker-supplied water. **In the medium term (6–18 months),** improved groundwater recharge will help revive traditional *beris*, restoring access to sweet drinking water and reducing household expenditure on water. **Over the long term (2–5 years),** the project will contribute to sustainable water security, foster a climate-resilient ecosystem, and strengthen rural livelihoods by ensuring reliable water availability for both domestic use and livestock.

EXPECTED IMPACT: The proposed project will generate wide-ranging impacts across social, economic, and environmental dimensions. **Directly, it will provide improved and reliable water access to more than 800 households and support the water needs of over 5,000 livestock, thereby strengthening the village's primary livelihood base.** Economically, the reduction in dependence on tanker water will significantly lower household expenditure, leading to improved financial stability and resilience. Environmentally, the restoration of the pond will enhance shallow-groundwater recharge and contribute to the revival of the local ecosystem, including vegetation and biodiversity. Socially, the project will reduce the drudgery faced by women, who are primarily responsible for water management, and will lead to improvements in health, hygiene, and overall quality of life within the community.

SUSTAINABILITY: The project is designed to ensure long-term sustainability through a combination of community ownership, traditional knowledge, and ecological integration. Strong emphasis will be placed on community participation enabling local stakeholders to take responsibility for the operation and maintenance of the pond. By reviving traditional water systems that are inherently low-maintenance and well-adapted to the local environment, the project minimizes the need for external inputs.

The intervention aligns with natural hydrological processes, enhancing its resilience and effectiveness. With minimal operational costs, the system remains economically viable and sustainable over the long term.

Effectiveness of the Intervention: This approach is highly effective due to:

- Proven success of similar interventions by TBS
- Integration of **traditional knowledge and modern science**
- Low-cost, high-impact solution
- Strong community ownership ensures sustainability
- Reduction in recurring costs (tanker dependency)

TENTATIVE IMPLEMENTATION PLAN: 03 months from commencement

Phase	Activities	Timeline
Phase 1	Baseline survey, community mobilization	0 – 15 days
Phase 2	Desilting and excavation	15-30 days
Phase 3	Embankment strengthening	30- 45 days
Phase 4	Catchment treatment & spillway	45-60 days
Phase 5	Beri restoration & community handover	60 days – 90 days

BUDGET:

ENSURING WATER SECURITY IN ARID REGION OF WESTERN RAJASTHAN					
Particulars	**Village: KANOI**				
	No/ months	**Unit cost**	**Community contribution**	**Donor Support**	**Total**
PROJECT OPERATIONAL COST					
Project Activities					
Renovation of Community Ponds	1	25,00,000	6,25,000	18,75,000	25,00,000
Sub Total			**6,25,000**	**18,75,000**	**25,00,000**
PROJECT OVERHEADS					
Administration, Operational & Management Cost				**4,68,750**	**4,68,750**
Sub Total				**4,68,750**	**4,68,750**
Grand Total			**6,25,000**	**23,43,750**	**29,68,750**

Amount: 23,43,750 INR (~ 25,000 USD)
24942.85 USD @ 93.96 Rs / USD)

About Tarun Bharat Sangh : TBS is a community-driven organization based in Rajasthan, dedicated to water conservation, ecological restoration, and rural development. Founded on the principles of traditional wisdom and collective action, TBS has led the revival of rivers, johads (traditional water harvesting structures), and groundwater systems across drought-prone regions. Its approach combines indigenous knowledge with participatory planning, ensuring that local communities are at the center of decision-making and implementation. Over the decades, TBS has successfully restored thousands of water bodies, improved agricultural productivity, enhanced biodiversity, and strengthened livelihoods in rural areas.

Why TBS is Best Suited for This Work: TBS is uniquely positioned to undertake this work due to its deep grassroots presence, proven track record, and strong community trust. The organization has extensive experience in designing and implementing decentralized water conservation systems in arid landscapes similar to Kanoi Par. Its expertise lies not only in technical execution but also in mobilizing communities, reviving traditional institutions, and ensuring long-term sustainability through local ownership. TBS's low-cost, nature-based solutions are highly effective and replicable, making them ideal for large-scale impact. Additionally, its transparent processes, strong partnerships, and recognition at national and international levels reinforce its credibility as a reliable and impactful implementing agency.