WHITE PAPER

Buddha Darya &Satluj Cry for Justice
--Punjab's Water Emergency--

A People's Environmental Accountability & Restoration Charter (2025)

Issued by:
PAC-Public Action Committee (Regd.) Mattewara Jungles, River Satluj& Buddha Darya (Registered), Ludhiana

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Motto: Water is Life – Justice is Survival

0. Prelude: PAC's Journey and Environmental Awakening

Punjab's water crisis did not erupt overnight. It is the result of decades of systemic apathy, unchecked industrialisation, collapsing sewage systems, illegal stormwater diversions, and institutional failures.

Against this backdrop, the PAC-Public Action Committee (Regd.) emerged as a people-led environmental institution—transforming scattered concerns into a sustained, organised civil movement.

PAC's operations span the entire 47.55 km stretch of Buddha Darya, especially the 14 km City Reach under Municipal Corporation Ludhiana (MCL), where pollution is at its peak.

PAC has built a wide base of:

Volunteers

Technical experts

Hydrologists

Researchers

Students

Community leaders

Farmers

Doctors

Environmentalists

The Committee has established a model of people's environmental democracy, where science, society, and administration meet to restore water bodies.

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0.1 Buddha Darya Padyatra (BDP): 2022–2025 – A People's Movement

The BDP series is among India's largest civil-led river documentation and awareness missions.

Phase – Theme / Focus – Outcome / Result

BDP-1 – "Know Your River"
45 discharge points mapped; chemical hotspots identified.

BDP-2 – "Clean Buddha Darya"
Door-to-door mobilisation; reports submitted to Chief Minister, MLAs & PPCB.

BDP-3 – "Justice for Buddha Darya"
Multiple petitions filed; issue received sustained statewide press coverage.

BDP-4 – "From Nadi to Nullah – Nectar Turned Poison"
Illegal stormwater diversions exposed; National Green Tribunal (NGT) took cognisance.

BDP-5 – "Operation Surprise"
Multi-faith institutions joined river conservation efforts; surprise inspections held.

BDP-6 – "Mission Kala Paani"
Illegal dairies and CETP bypass lines revealed.

BDP-7 – "Faith in Justice"
Unannounced inspections; real-time social media documentation of ground realities.

BDP-8 – "Hear the Cry of Buddha Darya"
High-impact school, college & university campaigns; youth mobilisation across districts.

0.2 Collective Impact of PAC

Buddha Darya became a statewide environmental priority after nearly 40 years of neglect.

The issue has been acknowledged by:

Government of Punjab

Hon'ble Governor, Punjab

National Green Tribunal

Punjab Pollution Control Board (PPCB) – on record

Multiple universities

Regional & national media

Community–administration–academia networks have been formed for data-driven environmental justice.

The PAC model is now replicable for other polluted rivers of North India.

1. Geographic, Hydrological & Administrative Context

1.1 Impacted States

Punjab – entire hydrological zone impacted

Rajasthan – downstream water contamination via the Indira Gandhi Canal

1.2 Affected District

The Buddha Darya "runs through most of Ludhiana district" (as per Feasibility Report).

1.3 Total Length of Buddha Darya

Total length: 47.55 km (PMIDC)

Origin: Neelon Drain near Koom / Kum Kalan

Mouth: Satluj River near Walipur Kalan

1.4 Classification of Stretches

Upper Reach: ~16.76 km

City Reach (within MCL limits): 14 km

Outer Reach: ~17.2 km

1.5 MCL Responsibility

The 14 km city stretch under MCL's jurisdiction includes responsibility for:

Sewage management

Stormwater network

Desilting & widening

Encroachment removal

Solid waste control

Restoration and protection measures

This is also the most severely contaminated stretch of Buddha Darya.

2. Accountability, Liability & Institutional Failures

2.1 Municipal Corporation Ludhiana (MCL)

Liabilities identified:

Allowed mixing of sewage and stormwater

Did not prevent dumping of solid waste into and along the channel

Failed to maintain channel width, desilting and structural integrity

Inadequate monitoring and sealing of illegal connections

No systematic, time-bound upkeep plan for the city stretch

Consequences:

A massive load of untreated waste enters the drainage system and ultimately the Satluj.

2.2 Punjab Pollution Control Board (PPCB)

Liabilities identified:

Weak enforcement of Zero Liquid Discharge (ZLD) norms

CETPs monitored inadequately and irregularly

No robust, independent third-party testing regime

Night-time discharges largely unchecked

Industrial bypass pipelines and unauthorised outlets ignored

No visible, deterrent action against electroplating and other highly polluting units

Consequences:

Heavy metals, dyes, acids, and chemical waste enter the river on a daily basis.

2.3 Other Departments & Institutions

Drainage Department: Failed in structural maintenance, desilting and protection of natural drainage.

Revenue Department: No clear floodplain demarcation; illegal constructions and encroachments proliferated.

NGT: Active, but adjudication and enforcement slowed by administrative delays and weak compliance.

Industries: Long-term non-compliance, especially in dyeing, electroplating, paint, textile, paper, cardboard, sheet metal, and dairy sectors.

3. The Environmental Reality – A River Turned Toxic

Buddha Darya today functions as a chemical waste conveyor, carrying:

Untreated industrial effluents

Acids, dyes and heavy metals

Electroplating cyanide waste

Biomedical and hospital waste

Dairy waste and cowdung slurry

Domestic sewage

Stormwater drains illegally converted to carry chemical waste

This is not a natural tragedy.
It is a man-made assault on Punjab's ecology.

Contaminated water flows directly into:

Agricultural fields

Village aquifers

River Satluj

Canal systems and, ultimately, to Rajasthan via the Indira Gandhi Canal

4. Ground Status (2022–2025): Multi-Domain Breakdown

4.1 Industrial Pollution

ZLD remains largely on paper; CETPs routinely discharge untreated or partially treated water.

Over 5,000 electroplating units dump waste covertly into sewers or open drains.

PDA and other pipelines are misused for bypassing chemicals around treatment facilities.

MPDs, IPS and CETP systems suffer routine failures, shutdowns and overflows.

4.2 Sewage & Biomedical Failures

Hospitals and diagnostic labs mix biomedical and chemical waste with municipal sewers.

Hotels and restaurants discharge untreated grey water and kitchen waste.

Dairies continually send cowdung sludge and wash water to STPs, overloading treatment capacity.

4.3 Solid Waste Hazards

Fly ash and mixed solid waste dumped along banks and in floodplains.

No sustained mechanised or manual desilting undertaken in critical stretches.

4.4 Encroachment & Structural Collapse

No effective floodplain demarcation despite repeated NGT directions.

Encroachments, link roads and illegal bridges have narrowed the natural flow and blocked stormwater pathways.

4.5 Institutional Collapse

Biogas plants remain incomplete or non-functional.

Bhattian STP still releases coloured, chemically contaminated drainage directly into the Satluj.

No substantive partnerships with IITs, CSIR or universities for long-term solutions

5. Human Health & Ecological Disaster

5.1 Water Contamination

Groundwater tests in affected zones reveal presence of:

Chromium

Nickel

Cadmium

Lead

Arsenic

Synthetic dye molecules

These contaminants have been detected up to depths of around 200 ft.

5.2 Public Health Emergency

Communities report rising incidence of:

Various cancers

Hepatitis and liver disorders

Skin diseases and allergies

Respiratory distress

Reproductive and hormonal disorders

Neurological disorders

5.3 Agricultural Toxicity

Heavy metals and toxic compounds are now entering:

Fodder and animal feed

Agricultural soils

Milk and broader food supply chains

5.4 Groundwater Depletion

All 13 blocks of Ludhiana are notified as Dark Zone.

Water table is falling by approximately 1.2–2.8 metres per year.

Aquifer collapse is imminent if extraction and pollution continue unchecked.

6. Scientific, Satellite & Drone Surveillance

PAC proposes an integrated surveillance and monitoring model.

6.1 Ground Surveys

Ground Penetrating Radar (GPR) for subsoil contamination

Detailed hydrogeological mapping

Soil toxicity studies and long-term monitoring

Village-wise Heavy Metal Index and contamination mapping

6.2 Satellite Monitoring

ISRO/NRSC-supported remote sensing and mapping

Spectral imaging to identify chemical hotspots and algal blooms

GIS-based river basin and catchment management systems

6.3 Drone-Based Eco-Surveillance Grid

Daily or scheduled drone runs along critical stretches

Identification of illegal pipelines, hidden outlets and night discharges

Automatic alerts to PPCB, District Administration and NGT monitoring cells

7. Subsoil Degradation – Slow Poisoning of Punjab

Indicative Chemical Indicators (2023–2025)

Parameter	Safe Limit	Observed Concern
TDS	< 500 mg/L	1600–2300 Severe mineral and chemical load
Nitrate	< 45 mg/L	120–200 Risk of Blue Baby Syndrome and other illness
Chromium	< 0.05 mg/L	0.30–0.45 Carcinogenic, long-term health hazard
pH	6.5–8.5	9.2–9.8 High alkalinity indicating chemical intrusion

The subsoil now acts as a chemical reactor, with cascading impacts on:

Soil fertility

Crop productivity

Animal health

Groundwater quality and potability

8. Accountability Framework for Environmental Governance

PAC proposes a Four-Tier Monitoring Framework:

Tier 1: Satellite Intelligence
Continuous remote sensing, hotspot tracking and trend analysis.

Tier 2: Quarterly Sampling (Groundwater / Surface Water / Soil)
Fixed monitoring stations with transparent protocols.

Tier 3: Annual Independent Scientific Audits
Conducted by IITs, CSIR, NEERI and reputed universities.

Tier 4: Public Disclosure Portal
All data to be made public in real time or near real time.

IoT Sensor Network

An integrated network of sensors to measure:

pH

COD / BOD

Turbidity

Heavy metals

Flow rates

All connected to a real-time, publicly visible digital dashboard accessible to citizens, media, researchers and courts.

9. Citizen Science Integration

Jal Rakshak Teams

Trained community volunteers for:

Basic water testing

Drone observations and reporting

Photographing and documenting illegal discharges

Assisting in emergency containment measures

Environmental Literacy in Schools & Colleges

Establish River Clubs and eco-volunteer brigades.

Set up low-cost water testing labs in schools and colleges.

Integrate river and groundwater conservation into the curriculum.

Encourage student-led surveys, plantation drives and awareness campaigns along Buddha Darya and Satluj.

10. Policy Recommendations – A 12-Point Charter

1. Punjab Water Integrity Mission (PWIM)
Multi-agency enforcement body combining PPCB, MCL, Drainage, Health, Revenue and Civil Society for time-bound compliance.

2. State Hydrological Audit 2025–26
Comprehensive GIS + ground survey of all rivers, drains, canals, wetlands and aquifers.

3. Independent Environmental Tribunal for Punjab (IETP)
A dedicated forum for water and pollution-related cases to ensure speedy justice and effective compensation.

4. Mandatory Environmental Bonds for Polluting Industries
Performance-linked bonds encashable in case of violations; funds to be used for restoration.

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5. Floodplain Protection Act
Declare "No Construction Zones" along rivers, canals and major drains with strict penalties and demolition for violations.

6. Third-Party ZLD Certification
Monitoring and certification only through independent, accredited laboratories; mandatory online data disclosure.

7. Sewer–Stormwater Isolation Mission
Mapping, separation and sealing of all mixed networks; strict prohibition of industrial discharge into stormwater drains.

8. DEWATS Systems for Dairies
Decentralised Wastewater Treatment Systems for dairy clusters; village-scale models for manure, biogas and treated water reuse.

9. Rejuvenation of Natural Drains
Restoration of natural drainage lines with bio-remediation, vegetation corridors and eco-buffer zones.

10. Environmental Education Mandate
Integrate environmental literacy and compliance training across schools, colleges, industrial associations and government departments.

11. Eco-Green Buffers along Buddha Darya &Satluj
Creation of continuous green belts with native species, community parks and biodiversity zones along riverbanks and floodplains.

12. Industrial Cluster Restructuring

Gradual relocation or transformation of red-category units from floodplains and highly sensitive zones to regulated, well-monitored industrial parks.

11. Mission Jal Zindagi – A New Model for Punjab

Restoring Buddha Darya is not a single project.
It is a statewide transformation agenda.

11.1 Science

Evidence-driven monitoring

Sensor networks

Drone and satellite intelligence

Deep partnerships with universities and research institutions

11.2 Society

Citizen guardianship of rivers and drains

Youth engagement and leadership

Community-based monitoring and reporting

Accountability through public platforms and social audits

11.3 State

Strong, enforceable legal frameworks

Transparent reporting and data-sharing

Swift action against violators with zero compromise

Long-term investment in prevention, not just damage control

Mission Jal Zindagi must become the people's movement for water justice, health and survival in Punjab.

12. Turning Financial Losses into a Boon

The apparent financial loss and under-utilisation of funds can be converted into a powerful opportunity for course correction.

Approximately:

□650 crore has already been spent on Buddha Darya "Rejuvenation" projects from various sources.

Over □10 crore has been spent on erecting steel mesh fencing.

Around □2 crore per year is incurred on routine and result-less maintenance.

Instead of viewing this only as sunk cost, the present moment must be treated as a turning point—a chance to:

Audit what went wrong, technically and administratively.

Redesign projects with genuine scientific inputs and community participation.

Convert infrastructure and investments into effective, outcome-oriented solutions.

With utmost sincerity, transparency and accountability, this "loss" can become a game changer and a supportive boon for real rejuvenation—if the system is willing to learn and act.

13. Conclusion – A Call to Conscience

Punjab's rivers, its soil, its groundwater, and its children are at a crossroads.

Buddha Darya is a mirror reflecting what has gone wrong.
Satluj is a reminder of what can still be saved.

This White Paper is not merely a document.
It is a pledge, a warning, and a roadmap.

"Justice for Water is Justice for Life."

<>STOP POLLUTING BUDDHA DARYA<> SAVE SATLUJ<>
<>SAVE PUNJAB<> SAVE THE FUTURE<>

For and on the behalf of
PAC-Public Action Committee (Regd.)
Mattewara Jungles, River Satluj& Buddha Darya, Ludhiana.

Col CM Lakhanpal
Member,
M:94171 38044

Mahinder Singh Sekhon
Member,
M:85287 58228

Dan Singh Osahan
Member,
M:81465 46068

for Maninderjit Singh Benepal
Member,
M:94631 00077

Ranjodh Singh
Member,
M:98144 22744

Yogesh Khanna-
Advocate
Member,
M:98140-03482

Sukhwinder Singh Goldy
Member,
M: 98729 00108

Ms Ritu Malhan
Member,
M:98761 44019

Rajinder Singh Kalra
Member,
M:9815666649

Narinder Singh Masson
Member,
M: 94170 01405

Mrs Anita Sharma
Member,
M:941-742-3238

Harpal Singh Dugri
Member, M:9815943920

Advocate RS Arora
Member,
M:83603 62640

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