Sustainable Agri-aqua Investment Fund (SAIF)

Thesis: Accelerating Punjab's sustainable agricultural transition via groundwater retention through better irrigation practices, financed by SAIF, and supported by government subsidies, microfinancing, and pooled carbon credits.

CHALLENGE: Groundwater depletion in Punjab

India's breadbasket, Punjab, could run out of usable groundwater in a mere 14 years. The state produces 11% of India's rice but consumes nearly one-third of the nation's groundwater. With nearly 80% of irrigation blocks over-exploited, this imbalance threatens national food security, disrupts supply chains critical to India's \$500B agri-economy, and endangers regional trade and livelihoods.

Paddy cultivation lies at the heart of this challenge. Each kilogram of rice demands up to 5,000 liters of water. Farmers remain dependent on paddy due to assured procurement policies, minimum support prices, and stable market demand which further entrench waterintensive cycles.

Existing government interventions such as the Per Drop More Crop scheme under PMKSY provide subsidies covering up to 55% of micro-irrigation costs. However, adoption remains at just 1.2% among Punjab's 360,000 small and marginal farmers. The remaining upfront capital requirement is prohibitive, especially for farmers locked in low-margin paddy cultivation cycles.

Formal credit channels hesitate to finance these farmers due to high default risks, income volatility, and limited to no collateral, while fragmented philanthropic efforts lack the scale and structure for long-term impact. This leaves a financing gap that public subsidies cannot fill. Without scalable financing solutions, Punjab risks losing up to \$1 billion in agricultural value, with cascading effects on food security and livelihoods, throughout the region.

Unlocking affordable capital for Punjab's farmers is essential to enable a transition toward water-efficient agriculture, secure regional food systems, and build long-term ecosystem and community resilience.

Investors	Potential investors
Financial Investors	Rabobank Foundation
	Samunnati [®] SOCIETE Intested is Your Growth
DFIs and IFIs	
Technical Advisory	ASHA FOUNDATION TRUST

SCALABILITY

SAIF's potential extends beyond Punjab, to additional key states such as Haryana, Uttar Pradesh, and Rajasthan, which together account for over 30% of India's groundwater-dependent agriculture, and mimic paddycentric farming patterns and water stress profiles

SOLUTION: Grow different and more with less water

SAIF unlocks capital for small farmers, aligning government subsidies with private investment to accelerate Punjab's agricultural transition. Tapping into underutilized subsidies like PMKSY, Punjab Crop Diversification Program (PCDP), and *Paani Bachao, Paisa Kamao*, SAIF ensures that farmers can access critical irrigation upgrades without upfront capital barriers.

SAIF's returns come from interest repayments, structured around farmers' recurring revenue from electricity savings, crop diversification subsidies, and pooled carbon credit sales. By managing carbon credit pooling through a dedicated cooperative, SAIF ensures farmers benefit from cost savings and long-term income gains.

Through loan repayments with predictable farm revenues, SAIF de-risks capital deployment while ensuring stable investor returns.

HOW THE FUND WORKS



MARKET ASSESSMENT

Punjab presents a high-impact investment opportunity in India's expanding micro-irrigation market, projected to grow from \$0.71B in 2025 to \$1.65B by 2030. Despite 97% irrigated farmland, micro-irrigation adoption is significantly below the 19% national average. India's push for crop diversification, supported by the \$15.1B millet market size by 2030 will further boost demand for waterefficient practices.

Technological advancements in precision irrigation further strengthen SAIF's scalability to ensure long-term investor returns and ecosystem resilience across India's agricultural regions.

CAPITAL STACK AND STRUCTURE

Fund Size (Raise) Fund term Investment Period Asset Class Beneficiaries Tranche A Tranche B \$30M 10 years 5 years Sustainable Agriculture Small & Marginalized Farmers \$18M (60% Market Rate, Pvt Investors) \$12M (40% Concessionary, DFI, IFIs)

FINANCIAL ANALYSIS



Net IRR (Tranch A): 11.15% | Net IRR (Tranch B): 6.65%

INVESTMENT OPPORTUNITY

Launching SAIF now capitalizes on policy momentum and carbon market tailwinds, delivering stable, scalable returns while transforming Punjab's agricultural ecosystem.

The government actively wants high scheme' adoption to reduce their free electricity and assured purchasing burden (increasing their financial deficit). This positions SAIF to align public subsidies with private capital. Pooled carbon credit sales tap into India's growing \$1.16B carbon market by 2030, as the recurring loan repayments linked to scheme payouts ensure predictable revenue streams.

Additionally, SAIF leverages Forward Carbon Credit Purchase Agreements (FCCPAs) and secures pre-sale commitments from ESG-focused corporates. These forward sales guarantee future carbon credit revenues, synchronizing repayment schedules with secured cash inflows, minimizing default risks, and bolstering investor confidence.

By supporting India's climate goals, 45% reduction in carbon intensity by 2030 and net-zero emissions by 2070, SAIF offers a time-sensitive, scalable opportunity for investors seeking sustainable, impact-driven returns across India's water-stressed agricultural regions.

RISK MITIGATION		
Risk	Mitigation Strategy	
Farmer Adoption	FPO partnerships for trust-building and outreach. Profitability demonstration via procurement-backed incentives. Training programs through ICAR, Samunnati.	
Carbon credit market volatility	Multi-year off-take agreements with ESG corporates. Forward contracts to hedge price volatility.	
Verification & Certification	PSPCL (state energy provider) electricity data as a proxy for groundwater savings. 3rd-party certification.	
Liquidty	Staggered repayment schedules aligned with harvest and carbon sale cycles. Liquidity reserve pools funded by Tranche B investors.	
Political & Policy	The govt. subsidies have been unchanged through alternating parties. It is unlikely to change, given to its sensitive nature of being tied to farmers	

Key fund characteristics and general information:

- Farmers supported: 20,000
- Post subsidy investment/farmer: \$1500
- Total Investment: \$30M
- Fund Term: 10 years
- Management Fee: 2%

Proceed Distribution:

- 3% dividends to farmers
- 60:40 between Tranche A and B till principal repayment
- 80:20 between LPs and GPs after the principal is repaid
- Post-principle repayment:
 - 75% of inflows available to LPs post dividends to farmers, and proceeds to GPs are allocated to Tranche A
 - The rest (25%) flows to Tranche B investors

ACTIVE GOVT. SCHEMES & BENEFITS PER SEASON

The fund uses the positive incentive schemes already in place (versus a Pigouvian or social redistribution system):

Central Govt.'s PMKSY scheme | Avg. benefit: \$1,500

Launched in 2015–15, this program provides 50% discount to farmers buying irrigation equipment for their fields. The discount is directly paid to the equipment supplier

Punjab Govt.'s CDP (Crop Diversification Programme) | Avg. benefit: \$440

Started in 2013-14, with a 60:40 split between Centre & State Governments, the program provides Rs. 7,000 (\$88) per acre to farmers who grow alternate crops (non-paddy)

Punjab's *'Paani Bachao, Paisa Kamao' (Save Water, Earn Money)* scheme | Avg. benefit: \$133

Supported by the World Bank since 2018, farmers get Rs. 4 (5 cents) for every unit electricity saved from the allocated quota. This is managed by the Punjab State Electricity Board.

IMPACT ASSESSMENT

SDG	Intended Impact	Impact Metric
2 ZERO HUNGER	2.4 Scale sustainable farming through efficient irrigation	# of farmers adopting micro-irrigation
6 CLEAN WATER AND SANITATION	6.4, 6.5 Improve agricultural water-energy efficiency	# of kWh saved (irrigation energy) via PSPCL
13 action	13.1, 13.2 Support climate- resilient, low-carbon farming systems	tCO2e sequestered per ha & tCO2e credits monetized/ha
B DECENT WORK AND ECONOMIC GROWTH	8.3 Expand affordable financing & ensure loan sustainability	% of loans disbursed to small farmers & loan repayment rate
1 poverty Ř∗ŘŘ ŧŤ	1.1 Boost farmer income & reduce economic vulnerability.	% increase in annual net income per farmer
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	12.2 Lower agricultural input costs via efficient practices	% reduction in fertilizer & pesticide costs per hectare

15.3 Restore soil health & % improve land productivity o

% increase in soil organic carbon content/ha