

A market led institutional approach to enable smallholders and their FPCs access mainstream markets and services in India

Service Delivery Model Analysis

May 2023



Introduction

Smallholder livelihoods

Agriculture plays a key role in the wellbeing of people and planet. 70% of the rural poor rely on the sector for income and employment. Agriculture also contributes to and is affected by climate change, which threatens the long-term viability of global food supply. To earn adequate livelihoods without contributing to environmental degradation, farmers need access to affordable high-quality goods, services, and technologies.

Service Delivery Models

Service Delivery Models (SDMs) are supply chain structures which provide farmers with services such as training, access to inputs, finance and information. SDMs can sustainably increase the performance of farms while providing a business opportunity for the service provider. Using IDH's data-driven SDM methodology, IDH analyzes these models to create a solid understanding of the relation between impact on the farmer and impact on the service provider's business.

Insights & Innovations

Our data and insights enable businesses to formulate new strategies for operating and funding service delivery, making the model more sustainable, less dependent on external funding and more commercially viable. By further prototyping efficiency improvements in service delivery and gathering aggregate insights across sectors and geographies, IDH aims to inform the agricultural sector and catalyze innovations and investment in service delivery that positively impact people, planet, and profit.



AGRI3 FUND

- The AGRI3 Fund works with commercial banks and other financial institutions to mobilize finance that promotes forest conservation, sustainable agriculture, and rural livelihoods. Built as an open architecture Fund, the Fund aims to work with a range of banks and financial institutions (from now on called “Partner-banks”), providing de-risking instruments (often in the form of guarantees) to mobilize finance in a range of sectors and geographies.
- One such key strategic region is India, where the Fund is interested to work with Indian financial institutions (including Non-Banking Financial Companies) to scale up financing to projects and businesses which support Indian agriculture to become more sustainable, including climate smart and regenerative agriculture, and in doing so help improve the livelihoods of farmers.
- IDH the Sustainable Trade Initiative, as manager of the AGRI3 Technical Assistance Facility (TAF), can support companies and commercial financial institutions to develop high sustainability impact investment projects using technical assistance (TA) support (grants and advisory). The aim of this support is to meet investment requirements for commercial financing that can be supported by impact funds such as the AGRI3 Fund, or to maximize the impact of projects already supported by AGRI3 Fund.
- The SDM Study was co-funded by AGRI3 TAF with the objective to provide insight into the business case for the farmer and PAPL and provide suggestions on i.e. how to innovate services offered to farmers, how to make the SDM investable and how to scale the SDM.



Report outline

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1 Executive summary

2 The Business Model

3 Business case

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1

Executive summary

About Ploughman Agro and the organic commodities sector in India



Ploughman Agro¹

- Ploughman Agro Private Limited (PAPL) is a private limited company established in 2020 with the aim to connect millions of smallholders with markets through Farmer Producer Organisations (FPOs). Several FPOs have also taken stake in the company
- PAPL aims to support FPOs with marketing, processing, brand building, credit linkage, infrastructure and other professional services
- The idea of PAPL was conceptualised to bridge this gap by the Action for Social Advancement (ASA), a not for profit organisation which pioneered the concept of FPOs and began the FPO development work in India in 2005
- In its first year of operation in 2020, PAPL has completed multiple transactions with 19 FPOs in the space of organic cotton and other consumables (including wheat, paddy and soybean), trading of conventional agri commodities, agriculture inputs supply and technical services to the FPOs for quality control and supply chain management



The organic cotton and agri-commodity sector in India²

- India is the largest producer of cotton globally. It makes up around 59% of the raw material consumption in the Indian textile industry. It plays a major role in sustaining the livelihoods of an estimated 6.5 million cotton farmers and engages about 60 million people in related activities
- With 11.7 million hectares, India has the world's largest cotton cultivated area, constituting about 36% of the global cotton area. Cotton is produced in three main zones; the Northern zone, the Central zone and the Southern zone
- In the year 2021-22, India's total cotton production was 34.1 million bales, which is equal to 5.8 million MT
- Increasing domestic consumption has not outpaced production, leading India to become one of the top exporting countries in the world. In 2020-21 the export of processed cotton amounted to 2.5% of the total value of exports from India
- Consumers in India are increasingly preferring consumption organically grown grains and pulses over conventionally grown commodities

Sources: 1) [Ploughman Agro \(2023\)](#); 2) [IBEF \(2022\)](#)



Recommendations (1 of 3)

	Challenge or observation	Recommendation
Scale	- PAPL is expected to increase the number of farmers it works with from 60,000 in 2022 to 100,000 by 2026(with FPOs increasing from xx to xx during the same period) - During the same period, the area under organic agri-commodities is expected to nearly double from 45,000 acres to 86,000 acres - Volume of organic Agri-produce traded will more than double from XXX MT in 2022 to XXX MT by 2026 - Since PAPL doesn't have large base of fixed assets relative to its financing needs, raising funds at competitive rates has been a challenge	- Since the share of non-ASA promoted FPOs will increase in the outer years, define terms of engagement with them to ensure farmer loyalty and continuity are on par with ASA promoted FPOs - Prioritize timely (in line with crop activities) delivery of seeds, inputs, working capital advances and payment for procured produce to FPOs and finally to farmers to improve loyalty, achieve higher yields and lower default rates - Getting impact investors to provide capital or guarantees to financial institutions will be critical to raise required funds at competitive rates
Commercial viability	- PAPL's core activity is to provide market access to organic cotton FPOs and nurture long standing relationships with them, the business is profitable from the inception - The asset-light business model doesn't require large increase in capital base to scale its operations thereby improving the profit margins - Viability of new business units such as farmer on-lending, carbon in-setting and B2C channel are not tested at scale	- Increase the working capital turnover at the FPOs by evenly spreading the procurement volumes over the entire season - Reduce cost of working capital finance by attracting equity capital, reduce loan cost by impact investors extending guarantees to financial institutions - Incubate new opportunities such as on-lending arm, carbon in-setting unit and business to consumer (B2C) channel development conservatively which doesn't need large upfront capital investments

These topics, challenges and recommendations were derived from a set of learning questions that were formulated up front. A list of these learning questions can be found [in the annex](#)



Recommendations (2 of 3)

	Challenge or observation	Recommendation
Investment readiness	• PAPL's business is profitable and operates at scale (60,000 farmers) and poised for further growth • Limited sourcing risk due to strong FPO network and wide farmer base spread across a wider geography • Most of the commission income is from organic cotton trading with extensive direct selling arrangements with reputed final buyers • PAPL isn't directly exposed to price risk of Agri-commodities it trades in	• Forecast existing business growth projections and review them via a bottoms-up approach • Ensure increase in EBIT margin of existing business to realize full benefits of scale • Incubate new business units with dedicated capital allocation and further scale based on new business units meeting prior agreed KPIs
Financial on-lending	• In next 5 years, PAPL plans to start on-lending business as non-banking finance company (NBFC). Meanwhile it will continue arranging farmer loans through linkage with other FIs and NBFCs. • Lending livelihood loans to farmers will positively impact farmer lives, strengthens PAPL's relationship with them and add on as profitable business unit • However, credit administration and keeping defaults rates low becomes critical when size of farmer advances increase <u>substantially to \$X M by 2026</u>	• Reduce average cost of credit by getting support from development institutions such as NABARD plus getting funding from impact investors • Lend to individual farmers based on credit scores (CIBIL), farmer loyalty and respective FPO approval • Loans lent to farmers should be a mix of life quality improvement (water filter, mixer grinder etc) and asset formation for income improvement (livestock, agri-assets and infrastructure at farm)

NABARD - National Bank for Agriculture and Rural Development. CIBIL - Credit Information Bureau (India) Limited

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Recommendations (3 of 3)

Challenge or observation	Recommendation
FPO performance - Segmentation is mainly based on turnover of FPOs which can be further sharpened to include other qualitative performance criteria - Higher FPO turnover is directly related to higher profitability since the fixed costs vary little based on their turnover - Federal laws in India doesn't allow FPOs to lend to farmers	- PAPL can capture detailed data of all FPOs on various dimensions in a digital system to grade and categorize them - FPO maturity can be assessed based on SCOPEInsight framework and tailor the capacity building to overcome identified gaps - Consider consolidating loss making FPOs and explore income augmentation by other means to offset the loss
Carbon in-setting - Standards and processes for measuring the carbon in-setting are not evolved leading to much uncertainty in monetizing carbon in-setting activities - Price/credit in carbon credit trading market is highly volatile and driven by various factors such as source of credit, activity, geography, measurability etc - Agroforestry model of eucalyptus plantation can generate carbon credit income which is 2/3rd of the income from selling the eucalyptus logs as raw material to paper industry	- Encourage farmers to take up agroforestry in fallow lands and explain the dual income (logs and carbon credits) potential from the same - Monetize the lower carbon footprint of organic grown agri-commodities vs conventional agri-commodities by quantifying the carbon credits and trading them - Sign carbon credit purchase agreements with potential buyers at a competitive price to offer stability from volatile market prices

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Scale sustainably by realizing benefits of low hanging fruits and progressively capitalize on new opportunities

	Priority and ideal time	Considerations
Operational scale	High 2023 onwards	• Ensure PAPL has the resources in terms of staff, systems, capital and offtake partners to seamlessly deliver services to increasing number of FPOs
Business profitability	High 2023	• Continue to operate profitably while aiming to improve profitability by increasing operational efficiency (handling higher volume of products and services) and undertaking value-add activities (organic, e-commerce channel, branding etc)
Fund raising (Investment readiness) for scale	High 2023	• External financing is required to finance rapid growth of core business and for establishing financial on-lending and carbon credit monetizing mechanism • Set clear growth forecasts and KPIs for each business lines
Financial on-lending	Medium 2024	• Captive farmer base, availability of data and offtake contracts are conducive for operating farmer financial on-lending arm • Profitability of core business will strengthen the ability to raise capital
Digitalization	Medium 2023/24	• Integrate the IT systems onto a common platform to support the operations on the back of exponential growth in business • Chart out a detailed digital strategy and implementation roadmap
Carbon off-setting	Medium 2024/25	• Pilot a project to test the viability of carbon credit mechanism. Such a pilot will reveal nuances related to monetizing carbon credits • Management time and financial resources can be committed after establishing a business case through a pilot project



2

The Service Delivery Model



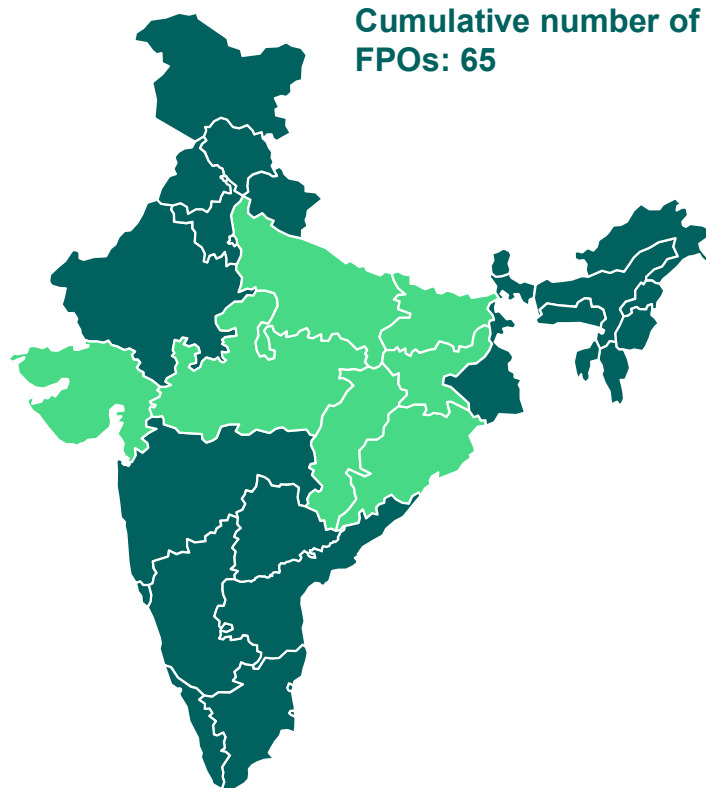


Objectives of the SDM

	Objective	Farmers	Ploughman Agro	IDH
Core objective	Promote sustainable agriculture production by improving access to market, credit, insurance and other key agricultural services, support and assist in formation of FPOs.	- Improving Yield through adapting sustainable agriculture - Increase long Income through diversification of Income sources	Negotiate with the market and fetch a better price for FPOs.	Contribute to security of supply of organic cotton and safeguarding farmer's interest.
Secondary objectives	Access to finance	Ability to invest in own farms	Demonstrate business case for asset financing	Demonstrate business case for asset financing
	Sustainable Production	Increase sustainability in long production	Increase production organic material.	Organic production can be financially and economically feasible
	Adopting Digital Technologies	Increase efficiencies in procurement and ease of payment.	Facilitate market procurement and farmer management.	Demonstrate business case for digital transformation.



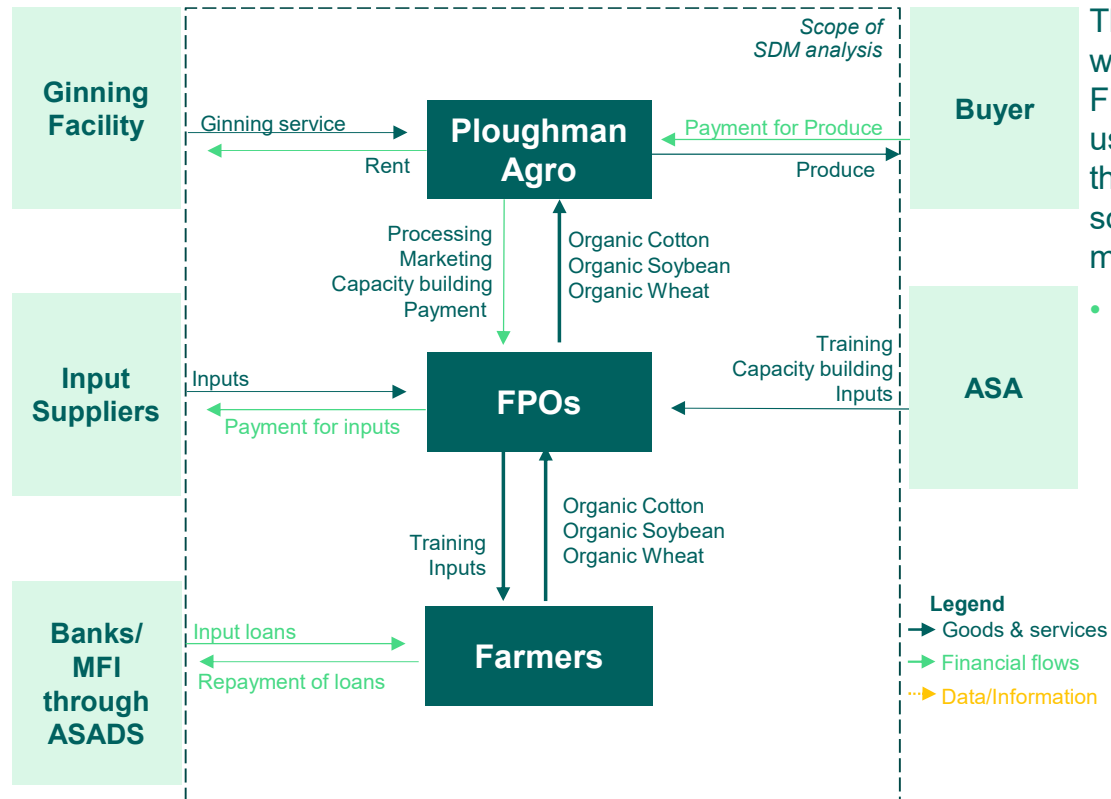
Ploughman Agro Private Limited | Empowering farmer producer companies access markets



- Headquartered in Bhopal, PAPL a private enterprise has been set up in 2020 to scale and support FPOs to strengthen the marketing, processing, brand building, and value chain, provide market linkage and direct access to markets and finance.
- The main objective of the company is "To enhance the income of small farmers so they can lead a better life"
- PAPL aims at least 70% of all commodities(all the FPO acreage under PAPL) produced under the organic / regenerative practices is market linked through farmers' organizations. FPOs and producers are brought into the value chains with prominence; traceable and transparent systems established
- PAPL wants to work with over 100,000 farmers by 2026 from 60,000 farmer in 2022 eventually covering 150,000 acres in Kharif season and 90,000 acres in Rabi season
- In its first year of operation in 2020, the PAPL has completed multiple transactions with 19 FPOs and procured over XXX Metric Tonnes of wheat, paddy and onion for Food and Civil Supplies Department of Government of Madhya Pradesh and NAFED
- The enterprise counts Arvind Limited, ITC, Inditex, Argon Spinning Mills, Ruchi Soya, Dhanuka, Avanti Finance among its client for organic cotton.
- PAPL currently operates in Madhya Pradesh with a presence in Gujarat, Uttar Pradesh, Bihar, Jharkhand, Odisha, and Chhattisgarh.



SDM overview | PAPL plans to bring together the fragmented Small holder farmers (SHFs) and provide market linkages for their products



The fragmented nature and lack of collective bargaining power have always been significant drawbacks for the SHFs. FPOs along with the efforts of ASA have enabled SHFs to use their collective bargaining power in the marketplace. But the lack of proper management structure and vision has sown a certain level of distrust for these FPOs in the marketplace.

- PAPL solves this problem as follows;
 - Aggregate and market the bulk produce for FPOs
 - Marketing of niche products (organic, non-pesticides) produces by thousands of small, tribal farmers.
 - Help facilitate contract farming between FPOs and the market.
 - Development of common infrastructure like warehouses, processing units, and Market yards.
 - Provide and facilitate access to finance, insurance, and technology.
 - Promote and educate farmers on sustainable agriculture.



Stakeholders | PAPL works with different stakeholders in the ecosystem to effectively deliver services to farmers

Actor	Type of org..	Function (within this SDM)	Revenue model (within this SDM)	Incentive to participate (Within this SDM)
Action For Social Advancement	Non-profit Organization	Offer training on and support to farmers and FPOs.	Grants and funding from donors	Obtain training and insights in puts based on individual farm operations
PAPL	Private Limited	PAPL will source and process farmer produce and market final products.	Margin on trading of agriculture produce	Revenue from offering service
Farmer Producer Company	Private limited company	Provides collective support and management for farmers to support agriculture production.	Margin from sale to PAPL and other buyers	Improve income and thereby livelihood
Banks/FIs	Private limited companies	- Provide loans and advances to PAPL - Provides farmers with bank accounts and loans.	Interest on loans	Obtain insights and de-risking individual farm loans.
Input suppliers	Private limited companies	Sells agricultural equipment and raw material to farmers and FPOs.	Profit on sale of equipment's	Improved quality and quantity of produce



Stakeholders | PAPL works with different stakeholders in the ecosystem to effectively deliver services to farmers

Actor	Type of org..	Function (within this SDM)	Revenue model (within this SDM)	Incentive to participate (Within this SDM)
IDH	Non-profit Organization	- Supporting design of SDM - Knowledge partner - Potential future TA (technical assistance and funding)	N/A	- Improve farmer productivity and profitability through service delivery - Evaluating linkage of PAPL with investors such as Agri3 Fund



Farmer segments | Farmers are segmented based on type of crop grown, growing method and scale of operations

	 Baseline¹	 Segment 1: Conventional	 Segment 2: Regenerative
Description	Individual farmers owning or leasing 1-2 acres of land for farming land	Individual farmers participating in FPOs but are yet to adopt organic farming methodology.	Individual farmers participate in FPOs and practice regenerative farming methodology.
Key characteristics	• Average farm size of 1.5 acres • Minimal access only to government schemes. • Access to financial services limited • Average yield N/A • High post-harvest losses	• Average farm size of 1.5 acres • Access to Government schemes and support from ASA and PAPL. • Access to financial services. • Average yield of 450 kg/acre • Low post-harvest losses • Practices conventional methods of farming and is heavily reliant on chemical fertilizer and fertilizers.	• Average farm size of 1.5 acres • Access to Government schemes and support from ASA and PAPL. • Access to financial services. • Average yield of 400 kg/acre • Low post-harvest losses • Practices regenerative method of farming and is open to new and modern practices.
Services received	None	• Financing • Market linkage • Input supply	• Financing • Market linkage • Input supply

Note: 1. Baseline farmers are cotton farmers in Madhya Pradesh who aren't part of PAPL supply chain



Farmer relationships |PAPL works with FPOs to ultimately provide farmers better market linkages, access to finance and explore other opportunities to enhance farmer income and resilience



Outreach

- Outreach for farming assets will initially be done through ASA and the Local FPOs
- Successive relationships to customers are supported by a ground agents.
- Relationship are developed on basis of goodwill of local FPOs and outreach through Business Development team.



Selection

- Potential farmers are selected on basis of prior working relationship with local FPOs and nature of produce(organic cotton).
- All farmers who require PAPL services will receive these under the SDM initially based on the farmers' willingness and participation.



Contracting

- Formal contracts are signed between Farmer- FPOs and FPO-PAPL.
- The business is conducted based on contracts and established goodwill where PAPL provides FPOs and SHFs with input the value of which will be deducted from the final sales' value.



Segmentation

- PAPL currently segments the farmers based on regenerative and conventional farming methods.
- Farmers can potentially be further segmented based on their crop grown, size of operations and access to infrastructure and irrigation.



Graduation

- The majority of FPOs are in a formative stage and lack consistent management and financial maturity required for graduation.
- Services and other add-ons create opportunities for farmer graduation based on farmer loyalty and mentorship.



Data collection

- PAPL have a robust data collection system. Through its network of field agent and help from ASA, PAPL has adopted a data driven business decision making.
- Agricultural data is collected for verification of produce and to ensure a farmer is selling only what he can produce.

FPOs| Organization and working of FPOs



- Smallholder farmers lack access to sustainable agricultural practices, market access, credit, storage, and lack of collective bargaining power which leads to lack of scale in getting quality inputs at accessible price and in getting fair market prices for their crops. Therefore, FPOs are promoted for SHFs to come together as a group.
- Each FPO will have an elected Board of members / Board of Director as per bye-laws.
- Several FPOs have taken a stake in PAPL ownership (amounting to 12% of PAPL ownership). Any dividends paid by PAPL in future will also accrue to the FPOs that have stake and FPOs in turn can distribute the FPO profits including of dividends to farmer members of respective FPOs



FPOs| Segmentation of FPOs

	ASA Pro. SEGMENT 1	ASA Pro. SEGMENT 2	ASA Pro. SEGMENT 3	Non-ASA Promoted ¹
DESCRIPTION ...	- Management of these FPOs operate under the guidance of ASA - Part of their ambition is to become a 'mature' cooperative and operate independently.			Management of these FPOs operate independently or promoted by other NGOs
FPO-STATS	# Avg. Member Farmer: 3600 Revenue > \$ 35,000 Annual attrition: --	# Avg. Member Farmer: 820 \$10,000 < Revenue < \$30,000 Annual attrition: --	# Avg. Member Farmer: 180 Revenue < \$10,000 Annual attrition: --	# Avg. Member Farmer: NA Revenue: NA Annual attrition: NA
HEAD-COUNT ...	Board of Directors: Elected # Average Number of Employee: 3			Board of Directors: Elected # Average Number of Employee: NA
Volumes	# Average Volume of Produce aggregated: 6,667 Quintal of organic cotton. Wheat, paddy, soybean, gram and maize	# Average Volume of Produce aggregated: 2,272 Quintal of organic cotton. Wheat, paddy, soybean, gram and maize	# Average Volume of Produce aggregated: 800 Quintal of organic cotton. Wheat, paddy, soybean, gram and maize	# Average Volume of Produce aggregated: Organic cotton Wheat, paddy, soybean, gram and maize

Note: 1. Non-ASA promoted FPOs will have to adhere to ASA's Responsible Crop Initiative (RCI) code while other inputs and services will be coordinated by FPOs themselves or other NGOs. PAPL will select FPOs that are well managed and can potentially improve their performance to partner with PAPL for market linkages.



Services | PAPL business model is anchored on principles created by its mentor organization ASA

Category	Service	Impact	Implementation	Revenue model	Status
Training & Farm Advisory	Agronomy training	Increase good management practices to utilize impact of access to other services.	ASA	Increased yield during harvest and potential training fees.	Active
Inputs	Fertilizer provision	Accelerating the shift towards organic fertilizer	PAPL	Margin on fertilizers	Active
	High quality seedlings	Increase the yield of farmers accessing seeds	PAPL	Margin on seedlings	Active
Financial services	Short-term loans	Support farmer working capital to enable access to quality seedlings.	ASA Development Services (ASA DS)	Interest income	Provided by ASA DS and eventually under PAPL
	Crop insurance	Encourages farmers to adopt organic farming and other modern practices.	Government of India	None	Active

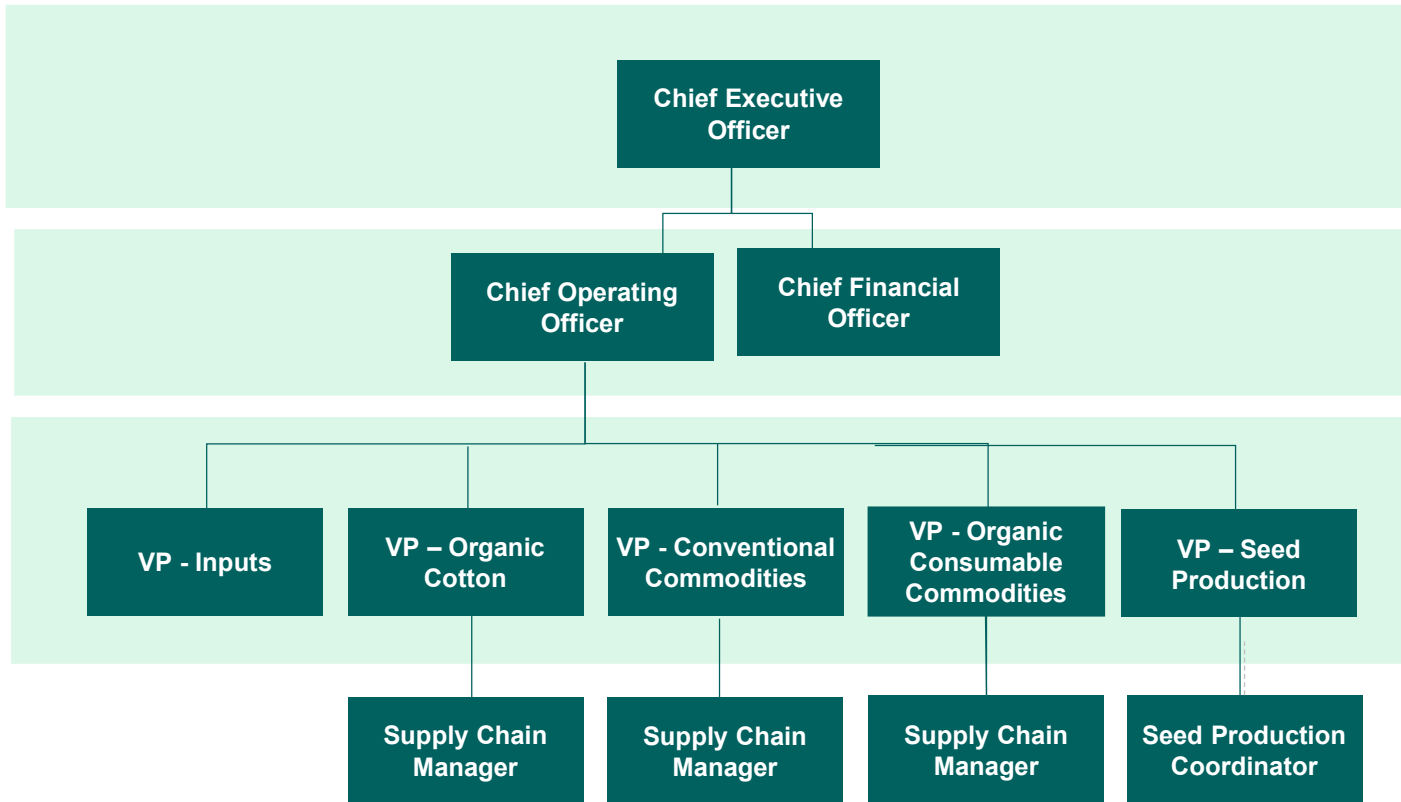


Services | Data driven decision making is a core tent for PAPL

Category	Service	Impact	Implementation	Revenue model	Status
Market access	Branding	Creating goodwill and market awareness for local organic cotton.	PAPL	Margin on the goods sold	Active
Digital/ IT Services	KRAI	Improved data-driven procurement and payment from farmers and FPOs.	PAPL	None	Active
Post-harvest services	Aggregation	Facilitating market linkage and payments for farmer's and FPOs.	PAPL	None	Active
	Transport	Reduction in loss due to unavailability of warehousing .	PAPL	None	Active



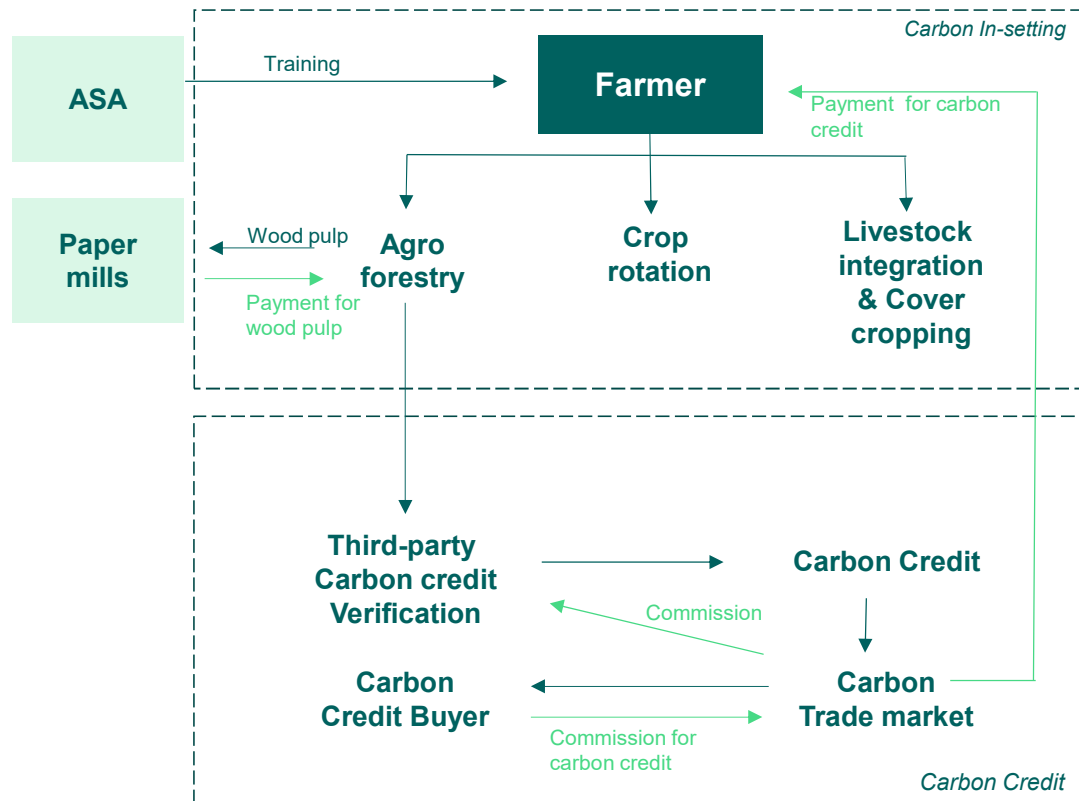
Organizational structure | PAPL has put together an experienced leadership team for overseeing the scale of business operations



- PAPL has a total of 15 fulltime staff (26% females and 74% males).
- Casual staff numbers vary across seasons



Carbon In-setting overview | PAPL is exploring various options to develop carbon credit mechanism and eventually monetize the same



Agroforestry: Partnering with local paper mills and integrating trees such as eucalyptus and bamboo into local agricultural value-chain PAPL has increased farmer income enabling carbon in-setting simultaneously

Crop rotation: Improved irrigation has enabled farmers to rotate crops between different agriculture seasons i.e., Kharif cotton and Rabi i.e., wheat in-effect reducing tillage.

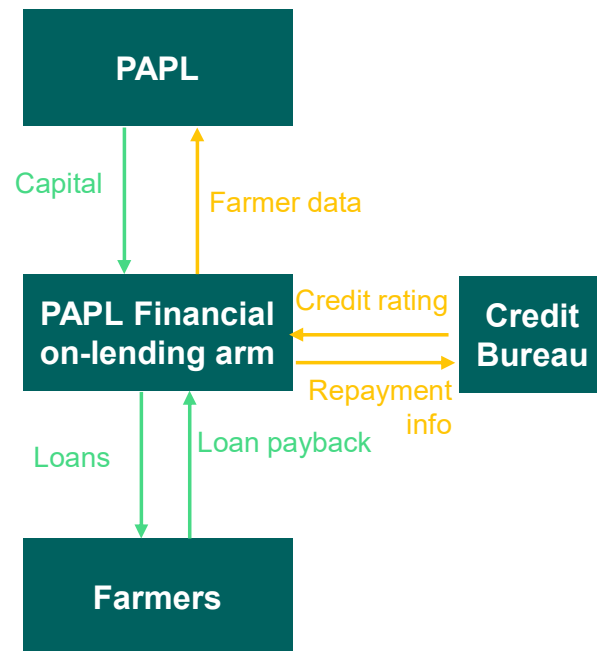
Livestock integration & Cover cropping: Through farmer training programs and integration of livestock and cover crops into cropping systems have helped to improve the use of bio-fertilizer management and reduce dependence on conventional fertilizer.

Carbon Credit: Carbon credits are a form of permit that allows organizations to emit/offset a specific amount of carbon dioxide or other greenhouse gases. **Creating a financial incentive for companies to reduce emissions, promoting afforestation and green tech simultaneously.** The carbon credit verification process, done by an independent third-party institutions, verifying the carbon in-setting that is real and permanent. The registrar will review emissions data and may conduct on-site inspections.

Once verified, the individual can earn carbon credits, which it can sell to other organizations ensuring the credibility of the carbon credits traded in the market and the integrity of the carbon credit market.



Financial On-lending| Enhancing the farmer livelihoods



Legend:

- Goods & services
- Money
- Data & information

ASA has set-up ASA Development Services both directed lend and facilitating financial institutions lending to farmers towards livelihood enhancement needs of farm households. The majority of current portfolio is of financial institutions. Once ASADS farmer loan book is transferred to PAPL in next 5 years, the plan to move away from managed loan book² to only direct lending to farmers

The self-sustaining ideology of PAPL is to deliver credit services critical towards the development of sustainable agriculture practices and the social sector. Access to credit has enabled small scaled farmers¹.

- Stabilise livelihoods by facilitating micro-enterprise such as grocery shops, livestock rearing and other activities
- Improving quality of life by reducing drudgery
- Expediting the switch towards organic and sustainable farming
- water resource development, land development, tree plantation and promotion of organic agriculture.

1. [ASA DS](#) 2. Managed loan book implies the loan is provided by other bank or financial institution which is managed by ASADS



Gender assessment | To better support women within the SDM, PAPL will need to document their gender strategy

Questions	Answer	Explanation
Gender strategy: Is gender equality a strategic goal for PAPL which is communicated in documents?	Yes	The majority of the FPOs with which PAPL does business are dominated by women farmers.
Data collection: Does PAPL collect data on staff or customers/farmers disaggregated by gender?	Yes	Data collected by PAPL does have gender, allowing them to retrieve the segregated data.
Inclusive workplace: Does PAPL have policies or practices to make the workplace inclusive for both women and men?	Yes	PAPL prides itself on being an inclusive workspace with an integral and comprehensive HR policy.
Inclusive consultation: Does PAPL speak to or consult both male and female customers (farmers) to learn about their different needs and preferences when designing a product	Yes	Most field-level activities are done with the participation of male and female farmers.
Independence and control over resources: Do services enable women to improve their independence, control over resources and/or value capture?	Yes	Programs and services offered by PAPL are targeted to enhance quality of life at a farm-household level. Promoting Community institutions with the active participation of women and encouraging women to take up a leadership role is a strategic initiative
Inclusive tailoring: Does PAPL tailor services based on how needs may be different for men and women?	Yes	PAPL does consider it their priority while delivering their services such as their working hours, availability, workload, their specific contribution to occupational practice, customizing delivery based upon their literacy level and social constraints



Digitalization | As PAPL business operations scale, its imperative to transition from standalone digital and IT systems to an integrated enterprise wide IT platform (1/2)

PAPL has number of systems for managing its business operations. However, the size and scale of business operations is forecasted to multiply **3-4x in next 4-5 years**. As such, a digital platform / software, integration of the existing IT tools (developed in-house) being used by the PAPL, becomes critical for better understanding of the business dynamics and for ease of doing business

Functional Area	Current system description	Primary user groups
Enterprise resource planning (ERP)	Main system to working with FPO, vendor relationships including accounts and payments	PAPL, FPOs and PAPL vendors
Farm produce procurement and aggregation	KRAI (Kommodity Receipt and Invoicing)	PAPL and FPOs
Loan/lending management system	Basic system provided by Grameen Foundation. Software not advanced enough to handle large scale and complexity	
Farmer extension services	Farmer extension system was developed and used mainly by ASA. PAPL plans to get the extension services system in house	PAPL, ASA, FPOs and farmers
Artificial Intelligence	PAPL has tried WadhwaniAI for controlling pink ball worms in cotton -works for conventional farming and not trained for organic farming	FPOs and farmers



Digitalization | As PAPL business operations scale, its imperative to transition from standalone digital and IT systems to an integrated enterprise wide IT platform (2/2)

Functional Area	Required system description	Primary user groups
Inputs distribution	- Forecasting seed and input requirements for at FPO level - Coordinating delivery of inputs to farmers - Coordinating collection and transportation from ACs and warehouses	PAPL, FPOs and vendors
Loan/lending management system	- Managing loan disbursement and repayments - Integrating digital accounts of farmers and local banking correspondents - Advanced risk analytics	PAPL
Carbon sequestration	- Data capture and accreditation of carbon sequestration including satellite images and GPS coordinates - Transfer and trading of carbon credit	PAPL
AI	- AI solutions trained for pest control organic farming - Explore other solutions as suitable	PAPL, ASA, FPOs and farmers
B2C marketplace	Marketplace software to reach B2C (wholesale and retail) channels	PAPL



Enabling Environment (1/2) | While advancements in technology allow for scaling and more efficient service delivery, significant investments are required in environment and infrastructure

Opportunity

Neutral

Risk

Definition	Situation	Impact on SDM
Technology	Mobile & Internet penetration: With affordable data rates and Cellular hardware¹ majority of farmers have access to the internet. Digital agricultural technologies: PAPL has an in-house digital team working on procurement solutions.	Leveraging digital technology, internet and mobile penetration will allow for scaling and more efficient service delivery, communication on services on information regarding climate/weather and good agricultural practices.
Environment	Climate: India's agricultural sector is heavily dependent on rainfall², which is becoming more irregular due to climate change. Irrigation: Only a minority of Indian agricultural land is irrigated.	Farmers lacking irrigation infrastructure may suffer reduced incomes or crop losses which will result in lower rates of repeat customers.
Infrastructure	Road networks: Rural infrastructure and last mile connectivity³ is below par and is further hampered during rainy seasons. Handling & packaging: Lack of storage, crude packaging and transportation technologies⁴ leads to product damages resulting in loss to farmers.	Investments by PAPL or other entities is required to improve efficiency regarding the farmer training on post-harvest handling and storage for this SDM
Labor	Labor availability: Traditionally, most smallholders depend on family labor to carry out farming activities.	Disguised labor will result in loss of income to the farm household.
Social Norms	Gender: While women are instrumental in the provision of farm labor, their decision making is limited⁵	There is need for deliberate efforts to include women in the SDM for maximum impact.

1. [Statista](#), 2. [NABARD](#), 3. [Shellfoundation](#), 4. [IIMB](#), 5. [NITI Aayog](#)



Enabling Environment (2/2) | Stiff competition, low farm gate prices and lack institutional reforms are potential disincentives for investment in production

Opportunity

Neutral

Risk

Definition	Situation	Impact on SDM
Inputs & Financing	Input financing: Most farmer rely on credit to obtain seed and fertilizer for their crops⁶. Financing: Bureaucracy and red tape often leads to farmers turning towards informal lenders, who charge high interest rates leading the fellow farmer in a debt trap⁶.	Inadequate financing limits farmer productivity and impact timely yields.
Trading System	Agricultural Produce Market Committees: Established by Government of India, to eliminate the exploitation incidences of the farmers by the intermediaries by tracking every purchase and setting a minimum price for produce⁷.	Trading blocs provide a market for produce, whether directly or indirectly through aggregators.
Pricing & Competition	Produce supply: Market glut and perishability results in lower prices and wastage at the farm level during high production seasons⁸. Produce pricing: Farmers have not benefited from farmgate prices for vegetable produce against rising costs of production with middlemen absorbing much of the value within the chain⁸.	- The supply gap creates opportunities for the SDM operator to exploit to increase sales. - Low prices create disincentivizes investment in production.
Institutional Stability	Regulatory reform: Increasing the efficiency and profitability of the farmer by reducing the role of intermediaries, improving market access, and encouraging the use of modern technologies is a focal point for consecutive government's elected in India⁹.	Institutional stability is critical for creating a predictable environment that spurs value chain investment.
Land Tenure	Ownership: Traditionally ownership of land is with men.	To increase participation of women as farmers in the SDM, there is a need to get buy in from the men.

6. [NABARD](#), 7. [ENAM](#), 8. [IIMB](#), 9. [RBI](#)



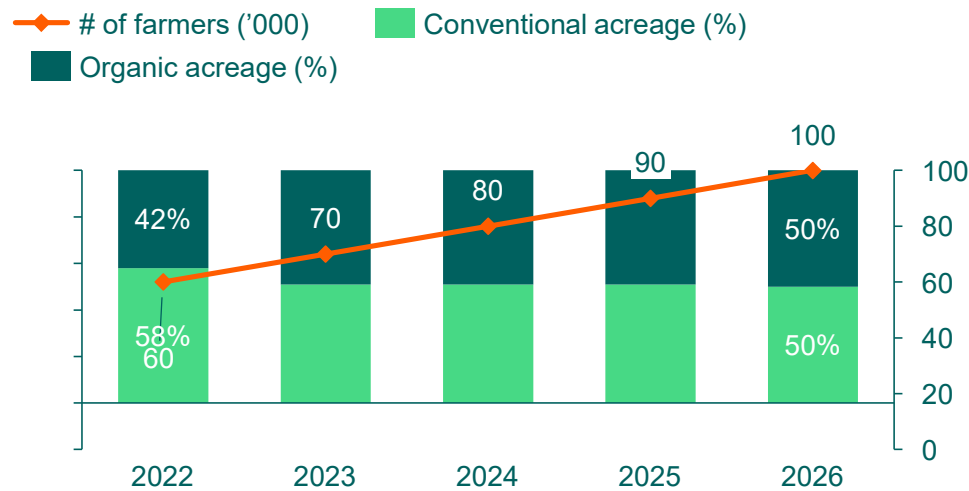
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Business Case



Scale | PAPL is expecting to increase their farmer base by 67% over next 5 years, mainly increasing the share of organic crop acreage (from 45% to 55%) within the total mix of crops

Number of farmers and acreage (acres) by season



Acreage Kharif season	90,000	105,000	120,000	135,000	150,000
Acreage Rabi season	54,000	63,000	72,000	81,000	90,000
Agro forestry	1,500	3,750	6,000	9,000	10,000
Acreage total	145,500	171,750	198,000	225,000	250,000

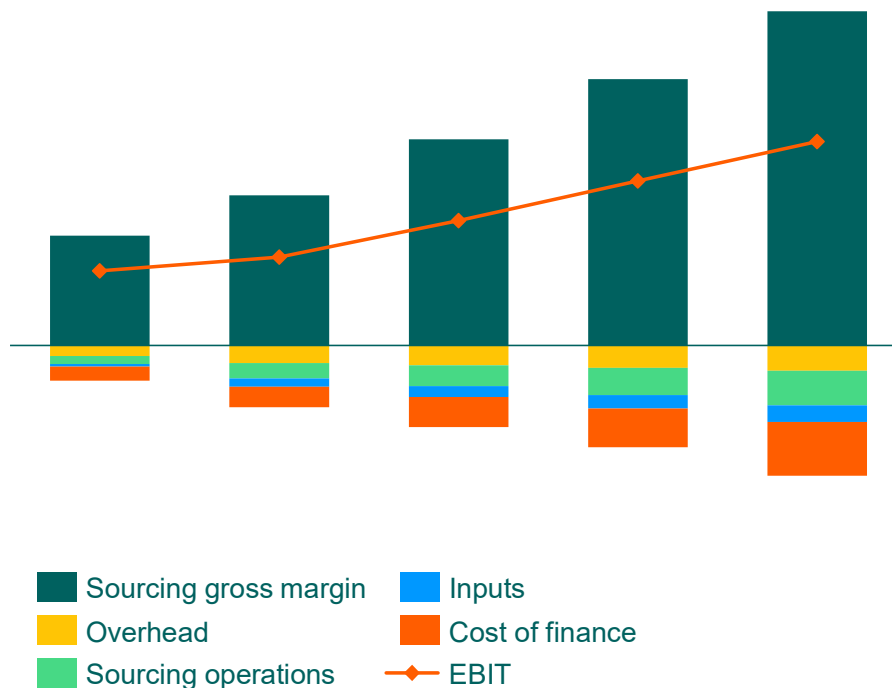
- PAPL is expected to increase the number of farmers it conducts business with to 100,000 by 2026 from 60,000 in 2022. Most of the growth in farmer base comes from adding the FPOs promoted by ASA or graduated from ASA plus some non-ASA promoted FPOs.
- Kharif (monsoon) season is the main crop season with nearly all available land area is cultivated whereas Rabi (winter) is secondary season during which only about 60% of land are is cultivated
- Organic cotton is the main crop of kharif season, which accounts for 55-60% of land area followed by other crops such as urad, maize, soybean (approx. 10% each) and others
- Conventional wheat is the main crop of Rabi season (60% of cultivated area) followed by conventional Gram (20%) and Tur

Kharif season also known as monsoon crop season lasts from June to November. Rabi crop season refers to winter crops grown during December to April of following year



P&L over time | Share of revenue and gross profit contribution from agroforestry and other commodities increase over next 4 years while organic cotton remains the largest contributor

Profit and loss for 2022-2026 (USD)



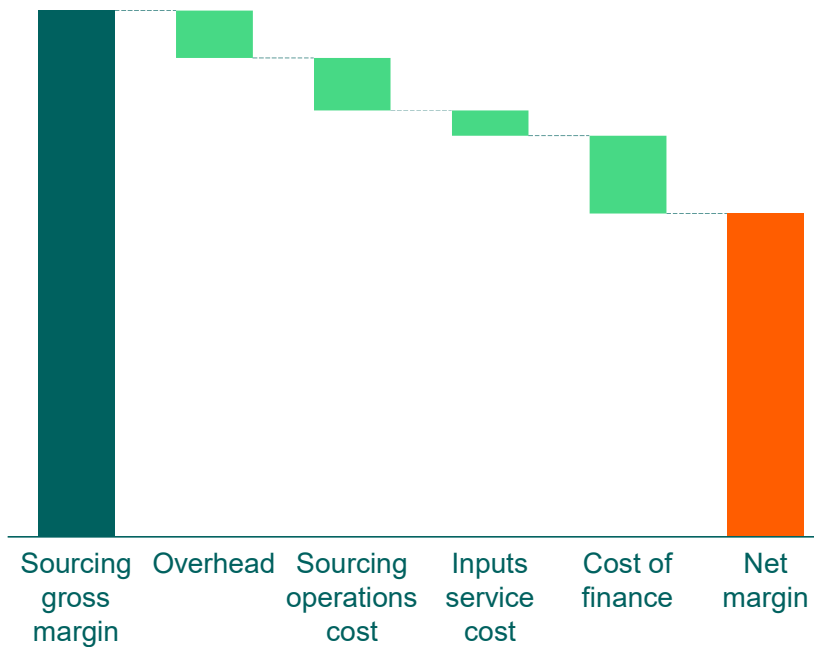
- PAPL doesn't charge FPOs or farmers directly for services and hence there is no direct revenue (or gross profit) from services
- Gross profit of cotton and other Agri-commodities is arrived after deducting direct costs associated with aggregation such as purchase price, transport cost, bag costs, handling labour costs and mandi tax are
- Gross profit increase comes from **trading commission** earned from sourcing and sale of farm commodities with **organic cotton, agroforestry**, other Agri-consumable commodities, seeds trade, MSP procurement and inputs trade
- PAPL **doesn't incur costs related to mobilizing FPOs/farmers**, farmer training and field operations on the production side since those tasks are undertaken by ASA and other NGOs in the region
- EBIT is expected to decline in 2023 vs 2022 due to increase in staff costs from hiring for both senior staff positions and support staff



P&L build-up | Cost of working capital finance, staff costs and overheads are the main cost drivers

Profit and loss drivers, 5-year average 2022-2026 (USD)

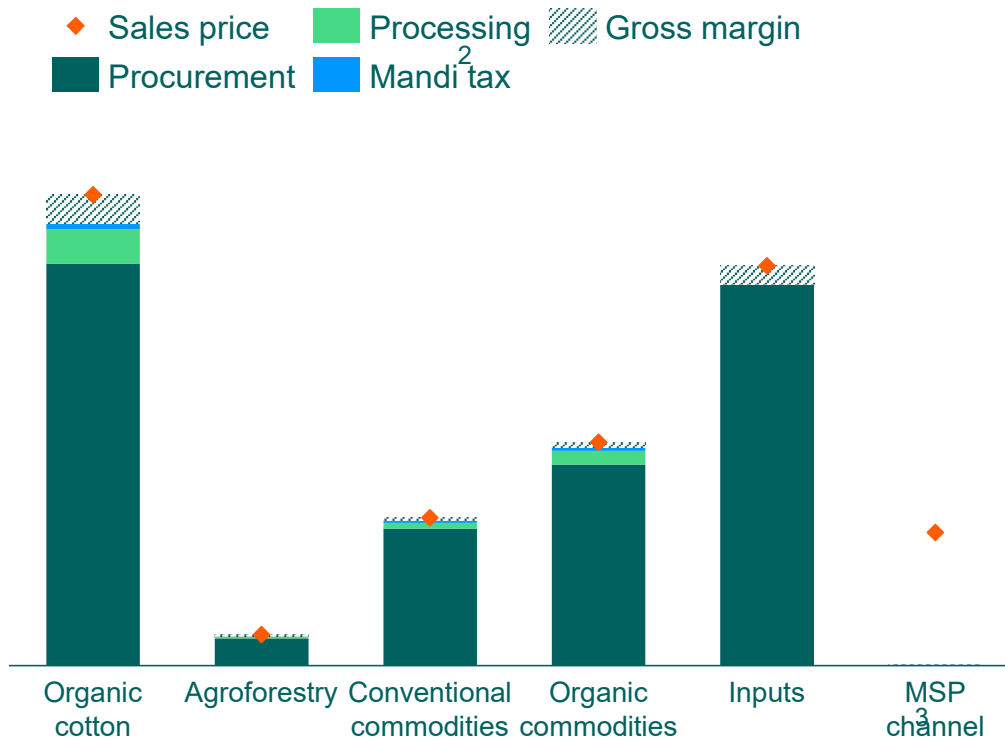
■ Gross profit ■ Expense ■ Net





Business units While organic cotton remains the main profit driver of PAPL sourcing business, other commodities provide further growth of the bottom-line

Business segment gross margin (USD/Quintal¹)



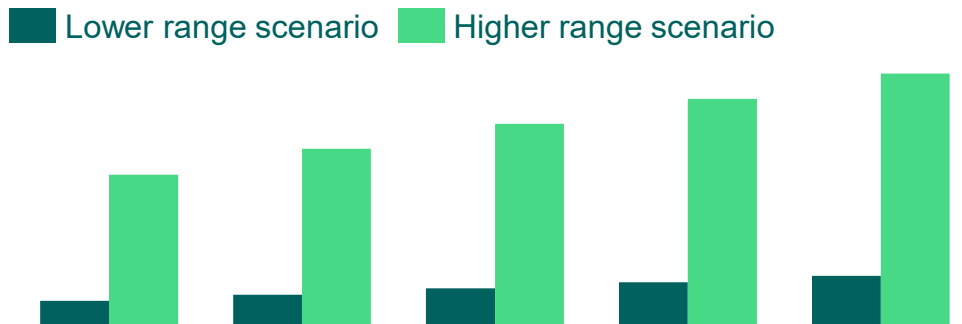
- Notably organic cotton is the main commodity of PAPL's business and requires extensive involvement by PAPL in training, proving seeds and inputs, sourcing, financing, ginning and finally trading at all stages of organic cotton lifecycle
- **Inputs gross margin** is mostly from seeds business wherein PAPL manages sowing seeds production of organic cotton and other commodities
- Maize is major crop among conventional commodities while paddy accounts for large share in organic commodities
- Only existing business units are considered in gross profit contribution of PAPL P&L, future business units such as financing on-lending arm, carbon onsetting are analysed in separate sections
- MSP channel is mostly for wheat and paddy, PAPL plays facilitation role between FPOs and government procurement agency. PAPL is not involved in processing, transport or warehousing in MSP channel.

Note: 1. One quintal is 100Kg 2. Mandi are market yards of Agricultural Produce Market Committees (APMCs), which are marketing boards established by Government of India
MSP – Minimum support price procurement done by Government of India

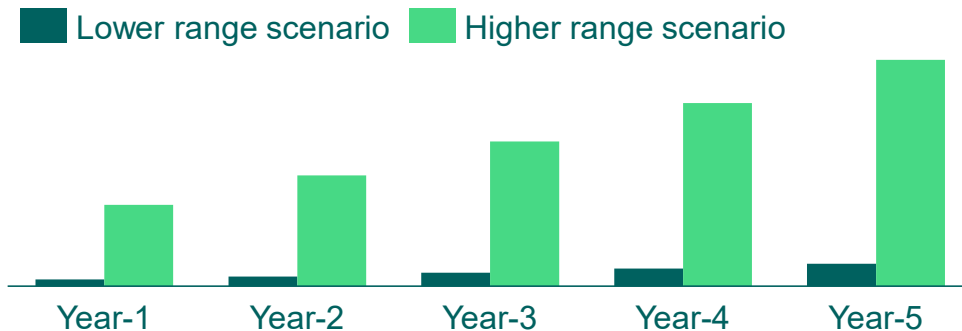


Carbon in-setting | Agroforestry – pathway to monetizing carbon credits

Eucalyptus farm income/acre from carbon credits (USD/acre)



Commission income to PAPL from carbon credits (USD '000)



- Agroforestry farm income from carbon credit trading will be determined by 2 factors 1) **amount of carbon (MT) sequestered yearly per acre** 2) realized **market price per carbon credit**
- In the lower range scenario – the carbon sequestered is at lower range reaching a maximum of 8MT/year/acre¹ and price per carbon credit² (1 carbon credit = 1 MT of carbon sequestered) is assumed at \$5
- In the higher range scenario – the carbon sequestered is at lower range reaching a maximum of 20MT/year/acre and price per carbon credit is assumed at \$10
- On top of the factors impacting carbon credit income, two other things play a role in PAPL's income ie 1) total area under agroforestry 2) commission to PAPL for facilitating carbon trade

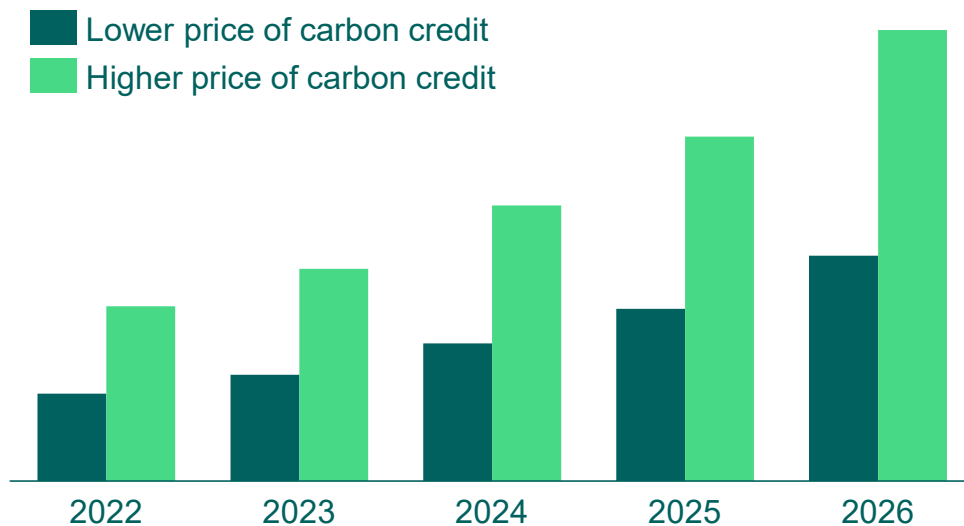
1. <https://www.co2australia.com.au/how-much-carbon-does-a-tree-offset-which-tree-is-best/>

2. Market price of carbon credit varies according to numerous factors (<https://8billiontrees.com/carbon-offsets-credits/new-buyers-market-guide/carbon-credit-pricing/>) and hence we have assumed a range of \$5-10 in our analysis



Carbon in-setting | Organic cotton - pathways to monetizing carbon credits

Income from carbon credit generated from organic cotton farming (USD '000)



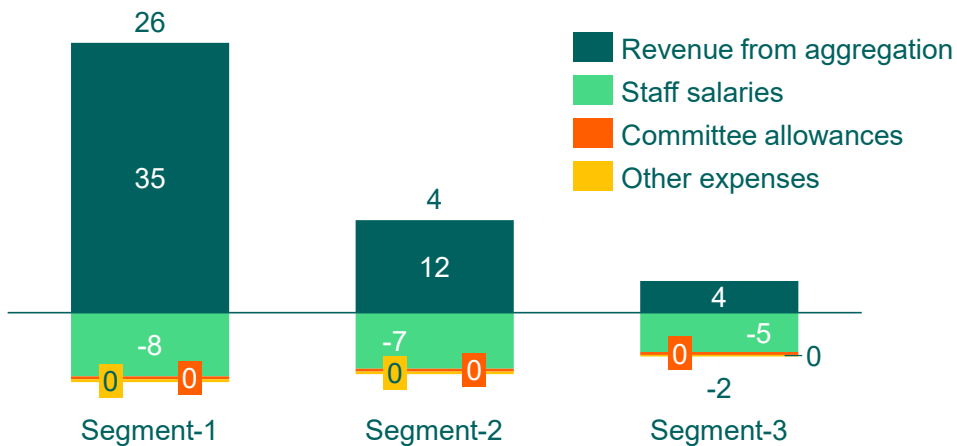
- Organic farming produces **lesser carbon per kg of seed cotton** produced vs cotton produced from conventional growing methods that's uses higher quantities of chemical fertilizers and pesticides
- A WWF study¹ estimates organic cotton produces lesser CO₂ by **1.0kg CO₂/ kg** of seed cotton than conventional cotton
- If PAPL can establish the lower carbon footprint of organic cotton and quantify the same, it can trade the carbon credits in market
- An indicative lower price of \$5/carbon credit and higher price of \$10/credit is assumed to estimate the revenue potential from carbon credit trading resulting in a revenue range of \$xxx at lower price range to \$xxx at an higher price range by 2026

1. Page 8 of http://awsassets.wwfindia.org/downloads/wwf_cotton_carbon_emission.pdf

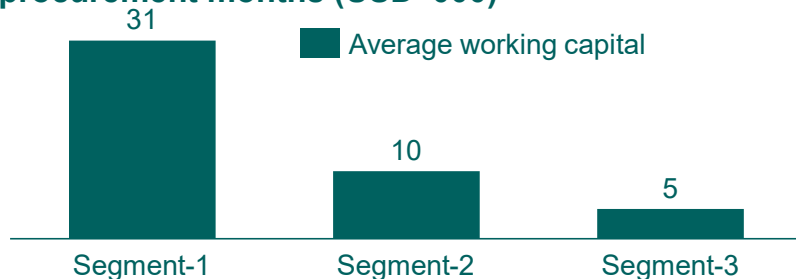


FPOs | Commission income is key determinant in FPOs ability to cover fixed costs and stay profitable; small FPOs will require external financial support while they grow and scale

Profit and loss for FPO segments (USD '000)



Peak working capital required per FPO during cotton procurement months (USD '000)



- FPO's are segmented based on the promoter organization (most of FPOs are ASA promoted) and size of their business turnover per cotton season – larger FPOs (segment-1) with turnover of over \$368K per year account for nearly 50% of the total organic cotton sourced by PAPL
- Commission earned on aggregating organic cotton is the main source of income to FPO (nearly 94% of total revenue) and other commodities accounting for rest of the revenue – FPOs earn about \$5 in commission per quintal (100kg) of seed cotton supplied to PAPL
- Staff employed by FPOs to run operations accounts for largest expense category followed by committee allowances, facility rent, travel allowances among others.
- Profit of FPOs are largely driven by scale of turnover more than size of expenses
- FPOs require peak working capital advance of about **10% of their total turnover** for 4 months of peak cotton procurement season



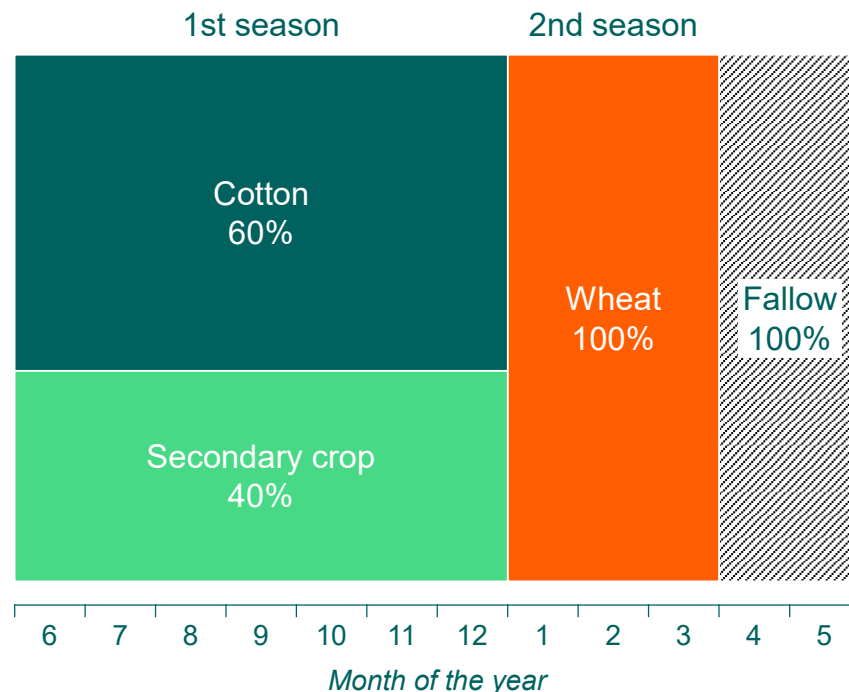
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Impact Case



Organic agriculture | Most farmers that PAPL works with are part of the ASA Responsible Crop Initiative¹, resulting in a diversified crop portfolio and sustainable practices

Farming scheme (for a 1.5 acre farm)



- All the farmers that PAPL works with, are part of the ASA Responsible Crop Initiative (RCI)¹. This framework aims to reduce the environmental and social footprint of agriculture, while increasing yield and productivity for the farmer, making the business of farming more sustainable
- Since RCI comprises a wide range of principles, the requirements for organic certification^{2,3} as well as GAP as defined by the FAO⁴, fit seamlessly in this framework
- As part of the RCI, farmers cultivate a diverse crop portfolio, as depicted in the diagram on the left
- During the main season, which starts in June, farmers grow cotton next to a secondary crop (usually soybean or paddy)
- During the second season, starting in January, the entire farmland is used to grow wheat
- After the second season, the land is left fallow for 2 months, giving the soil time to restore

Sources: 1) [ASA \(2023\)](#); 2) [USDA \(2023\)](#); [European Commission \(2023\)](#); 4) [FAO \(2016\)](#)



Farmer segments | Conventional and organic farmers mainly differ in terms of the inputs used. Yields for organic farmers are lower, but they also have lower costs and they receive a premium



Characteristics	Conventional	Organic
Farm size	1.5 acres	1.5 acres
Seasons	2	2
Secondary crop	Soybean	Soybean
Share of farm dedicated to cotton	60%	60%
Cotton yield	450 kg/acre	400 kg/acre
Farm-gate price*	0.97 USD/kg	0.97 USD/kg
Premium received*	0 USD/kg	0.19 USD/kg
Services		
Post-harvest services	Processing	
	Marketing	
Market access		RCI

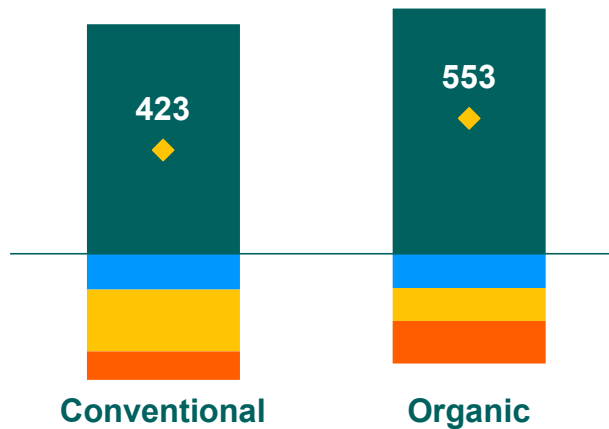
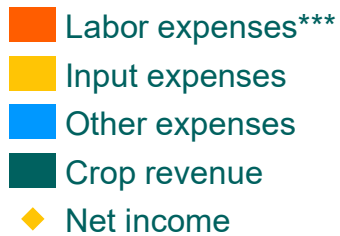
- The PAPL farmer base consists of 30% conventional farmers and 70% organic farmers
- Most farmers in the region are conventional farmers, but ASA and PAPL support them to transition to organic
- Organic farming practices to be followed by organic farmers are codified by ASA called as **‘Responsible Crop Initiative’** (RCI) or popularly known as “**Jimmedar Kheti**”, a form of certification for agricultural practices followed that reduces the environmental and social footprint of agriculture, while increasing yield and productivity for the farmer, making the business of farming more sustainable.
- RCI encompasses restoring soil health, reducing footprint of agrochemicals and conserving natural resources including water
- Increasing demand for organic produce, results in a 20% premium for organically certified crops
- However, organic farming is more labor intensive compared to conventional farming, and organic farmers incur some costs to get their land organically certified

* Prices and costs are converted from INR to USD using an exchange rate of 82.85 INR/USD. More assumptions can be found [in the annex](#)



Farm P&L | Input costs for organic farmers are \$117 (46%) lower while labor costs are \$59 (51%) higher. Net income for a 1.5 acre organic farm is \$130 (31%) higher

Profit and loss per farm (USD)* and profitability per crop**



Cotton profitability (USD/MT)	467	720 +54%
Soybean profitability (USD/MT)	348	517 +49%
Wheat profitability (USD/MT)	163	208 +27%

- The P&L of a 1.5-acre farm demonstrates the favorable business case for organic farmers, which yields a USD 130 higher profit
- For conventional farmers, USD 190 (45%) of their net income comes from cotton, USD 48 (11%) comes from soybean, and USD 185 (44%) comes from wheat.
- For organic farmers it is USD 261 (47%), USD 76 (14%), and USD 216 (39%) respectively.
- For conventional farmers, the largest expense is inputs, accounting for USD 252 (49%) of their total costs, versus USD 135 (30%) of total costs for organic farmers, since they don't use any chemical inputs
- For organic farmers, the largest expense is labor***, accounting for USD 174 (39%) of their total costs, versus USD 116 (23%) of total costs for conventional farmers.
- Profit per MT of produce is a lot higher for organic farmers as well. For cotton it is USD 253 higher, for soybean it is USD 169 higher and for wheat it is USD 45 higher.

* Prices and costs are converted from INR to USD using an exchange rate of 82.85 INR/USD. More assumptions can be found [in the annex](#)

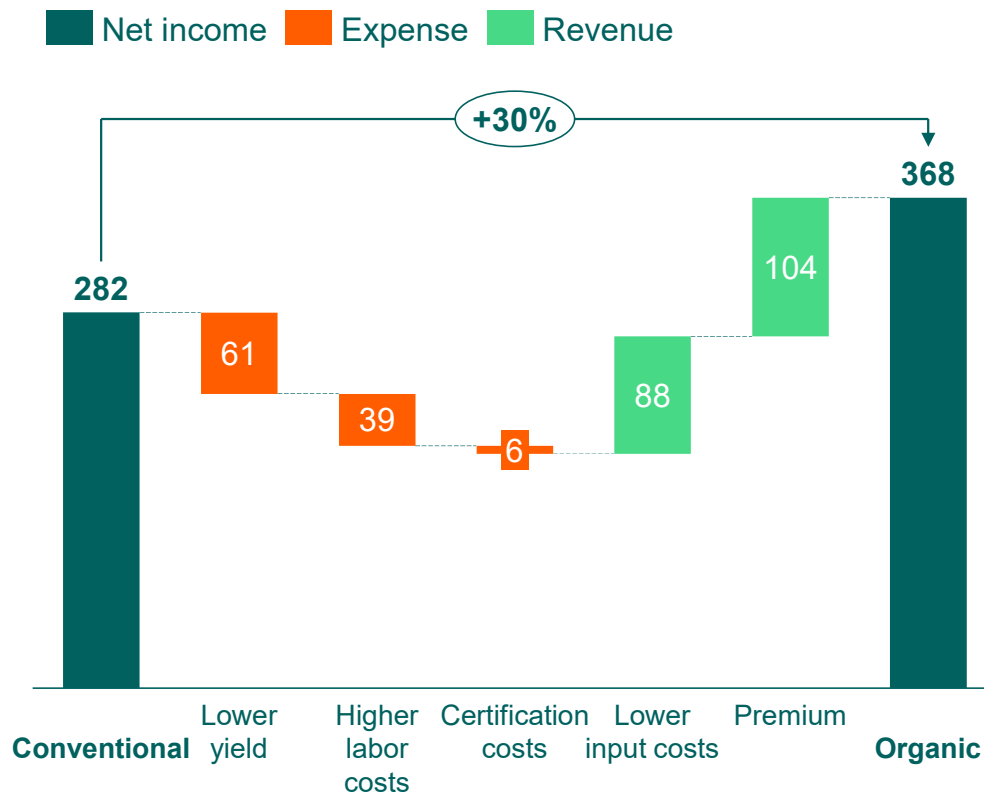
** To calculate the profitability per crop, no home consumption was considered. In reality, home consumption is around 100 kg of soybean and 500 kg of wheat

*** Labor costs represent the monetary value of the required labor. The majority of these labor needs are fulfilled by family labor or communal labor, and are therefore not an actual expense



Income build-up | Although organic farmers have lower yields and higher labor costs, their income per acre is \$86 (31%) higher due to lower input costs and a 20% premium on all crops

Drivers of income improvement (USD/acre)*



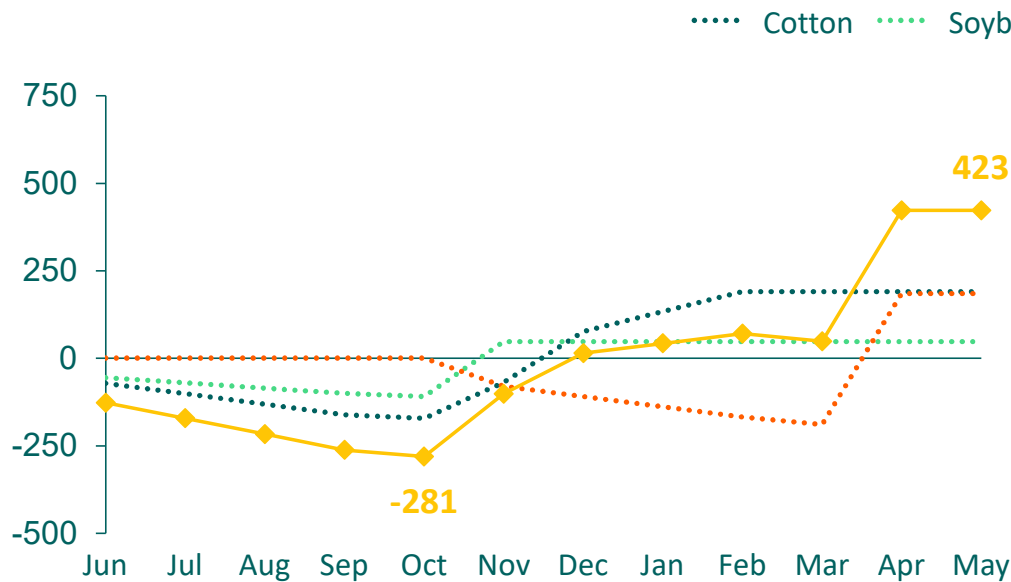
- Organic farmers make USD 86 (30%) more money compared to conventional farmers. Additionally, organic farming requires less investments in terms of inputs, resulting in lower risks for organic farmers
- Organic farmers don't use chemical inputs, leading to lower yields compared to conventional farmers. For all crops combined, this leads to foregone revenues of USD 61 per acre
- Although the total production is lower, organic farmers receive a certification premium that increases the revenue per kg, leading to increased revenues of USD 104 per acre. This premium is a requirement for organic farming to be more profitable than conventional farming
- As a result of not using chemical inputs, the cost of production of organic farmers is USD 88 lower per acre
- Organic farming is more labor intensive, leading to labor costs which are USD 39 higher per acre
- On top of that, farmers incur an administrative cost of USD 6 per acre to get their land organically certified

* Prices and costs are converted from INR to USD using an exchange rate of 82.85 INR/USD. More assumptions can be found [in the annex](#)

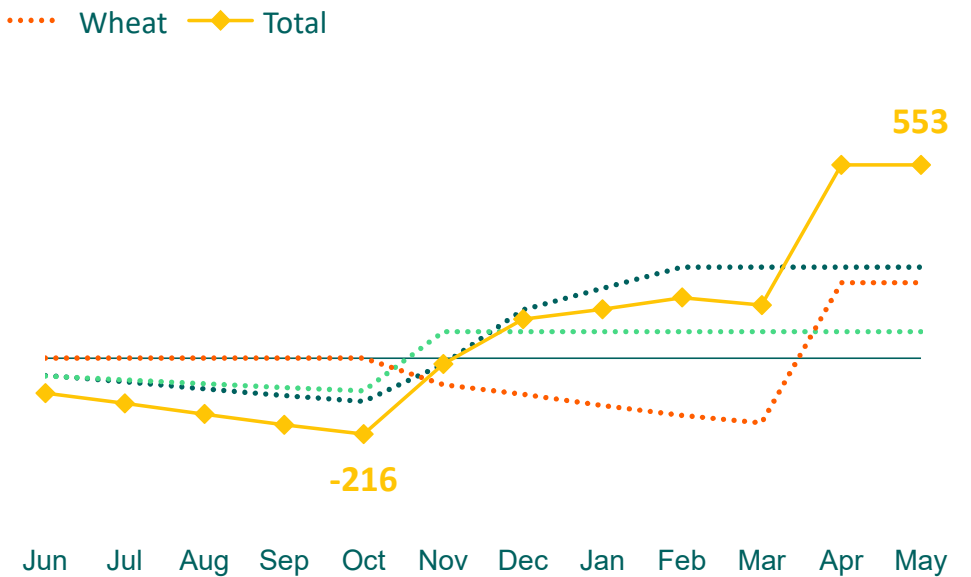


Monthly cash flow | All farmers have a relatively smooth cash flow due to their variety of crops. Organic farmers require \$65 (23%) lower investments and make a \$130 (30%) higher profit

Cumulative net cash flow - Conventional (USD)*



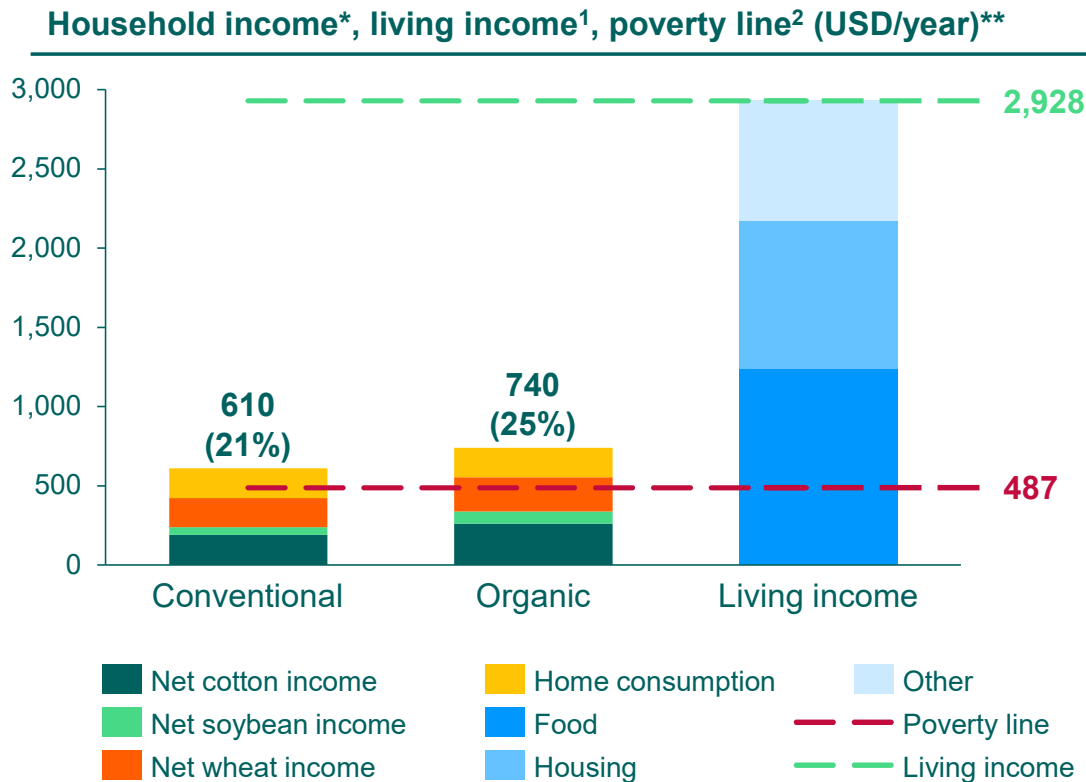
Cumulative net cash flow - Organic (USD)*



* Prices and costs are converted from INR to USD using an exchange rate of 82.85 INR/USD. More assumptions can be found [in the annex](#)



Living income | Although all farmers earn above the poverty line, significant Living Income gaps of 79% and 75% remain for conventional farmers and organic farmers respectively



- Both conventional and organic farmers earn more than the PPP and family size adjusted poverty rate of INR 1,400 per month per individual²
- When comparing the income of both segments to a living income (LI) benchmark¹, conventional farmers have a Living Income gap of 79% and organic farmers a Living Income gap of 75%
- This means that farmers are not able to achieve an income that supports a decent standard of living with the focus crops alone*. The analysis on the next slide shows what is needed for organic farmers to get there
- It should be noted that over 50% of farmers' income is from the non-farm sector. This mainly results from remittances received from members of the family who have migrated to cities for work³
- Additionally, PAPL wants to set up a financial arm to allow for direct lending to farmers, allowing them to accumulate assets and improve their livelihoods

* The household income is only based on the focus crops, and excludes income from other crops, other farm income and off-farm income

** Prices and costs are converted from INR to USD using an exchange rate of 82.85 INR/USD. More assumptions can be found [in the annex](#)

Sources: 1) [Global Living Wage \(2022\)](#), more information can be found [in the annex](#); 2) [IMF \(2022\)](#), assumptions can be found [in the annex](#); 3) [Ploughman Agro Sustainability Report \(2022\)](#)



Sensitivity analysis | Significant increases in the income drivers are needed to reach a living income. Combining an increase in yield, price and other income will be the most effective approach

The tables below shows the relative change that is needed (all else equal) for each of the income drivers* for cotton only to increase the income of organic farmers to the level of the living income benchmark of 2,928 USD/year. With a current annual income of USD 740, an income increase of USD 2,188 (+296%) is required.

Income driver	Current value	Required value	% change	Comment
Farm size (acre)	0.9	8.9	+889%	Farm size is not the most efficient lever to drive farmer incomes. First of all because increasing farm size is challenging, secondly because an almost 10-fold increase would be required
Yield (kg/acre)	400	2,498	+525%	Yields are inevitably lower for organic farming systems. A slight increase might be realized but the required change is not feasible, so increasing yields alone is not sufficient to get farmers to a living income
Price inc. premium (USD/kg)	1.16	7.24	+525%	Price and premium also require a significant change which is not feasible. Additionally, prices are mainly determined by the market and cannot easily be influenced by PAPL
Cost of production (USD/year)	171	N/A	N/A	The cost of production for regenerative farming is already relatively low and cannot be decreased further, and even it would be 0, living income would not be achieved
Other income (USD/year)	292	2,480	+749%	Other income is a broad category consisting of other crops, other farm income and off-farm income. Slightly increasing all of these different income sources might significantly increase total income

* The different income drivers influence the farm income through the following simplified formula: $Total\ household\ income = Farm\ size \times Yield \times Price - Cost\ of\ production + Other\ income$



Sensitivity analysis | Although only small increases to yield and farm-gate price of organic cotton will be feasible, their combined effect could still result in a significant increase of income

		Cotton farm-gate price (USD/kg)*						
		0.84	0.91	0.97	1.03	1.09	1.15	1.21
Cotton yield (kg/acre)	300	117	137	156	176	195	215	234
	350	163	186	208	231	254	277	300
	400	208	234	261	287	313	339	365
	450	254	283	313	342	371	401	430
	500	300	332	365	397	430	463	495
	550	345	381	417	453	489	525	560
	600	391	430	469	508	547	586	626

Current situation

- Cotton is the main source of income for organic farmers, accounting for almost half (47%) of their total net income. Furthermore, cotton is a cash crop that is not consumed within the household, but is solely cultivated for sales. Therefore, this crop plays a pivotal role in increasing farmer incomes
- Although only small increases to yield and farm-gate price of regenerative cotton will be feasible, their combined effect could still result in a significant increase of net income
- With a current yield of 400 kg/acre and a farm-gate price of USD 0.97, the net income from cotton alone is USD 261
- With an increase of the farm-gate price of USD 0.12 (12.5%) the net income from cotton would increase with USD 52 (20%)
- With an increase of the yield of 50 kg/acre (12.5%) the net income from cotton would also increase with USD 52 (20%)
- Both of these changes combined would even result in a higher net income of USD 111 (42.5%)

* Prices and costs are converted from INR to USD using an exchange rate of 82.85 INR/USD. More assumptions can be found [in the annex](#)

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IDH Annual Report 2021

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Thanks

IDH would like to express its sincere thanks to PAPL for their openness and willingness to partner through this study. By providing insight into their model and critical feedback on our approach, PAPL is helping to pave the way for service delivery that is beneficial and sustainable for farmers and providers



Partners



Ministry of Foreign Affairs



Swiss Confederation
Federal Department of Economic Affairs,
Education and Research EAER
State Secretariat for Economic Affairs SECO

BILL & MELINDA
GATES *foundation*

DANIDA





5

Annex



Abbreviations

Abbreviation	Meaning
DTA	Digital Transformation Assessment
EBIT	Earnings before interest and taxes
EBITDA	Earnings before interest, taxes, depreciation and amortization
FTE	Full-time equivalent
GAP	Good agricultural practices
GDP	Gross domestic product
IT	Information technology
MT	Metric ton (1,000 kg)
NGO	Non-governmental organization
P&L	Profit and loss statement
SDM	Service delivery model
SHF	Smallholder farmer
SWOT	Strengths, weaknesses, opportunities and threats
USD	United States dollar (currency)



Farmer assumptions

Variable	Unit	Conventional	Organic
Total farm size	Acres	1.5	1.5
Farm size main crop (1 st season)	Acres	0.9	0.9
Number of seasons	#	2	2
Secondary crop	Crop	Soybean	Soybean
Cotton yield	Kg/acre	450	400
Soybean yield	Kg/acre	500	470
Wheat yield	Kg/acre	1,300	1,200
Irrigation	Yes/No	Yes	Yes
Home consumption soybean	Kg	100	100
Home consumption wheat	Kg	500	500
Farm-gate price cotton	INR/MT	80,000	80,000
Farm-gate price soybean	INR/MT	55,000	55,000
Farm-gate price wheat	INR/MT	20,000	20,000
Organic premium	%	20%	20%



Learning questions

With this SDM analysis, we aim to answer the following questions:

Topic	Question
Main question	How can SDM be improved to scale up approach and work towards investment readiness?
Sub question 1	What does PAPL's current business model look like?
Sub question 2	What are PAPLs future ambitions and objectives?
Sub question 3	- Is there a business case for farmers? - How can farmers be incentivized and supported to switch to regenerative agriculture? - What are the key benefits for farmers that are part of a farmer group (e.g. cost of production, access to finance, markets, empowerment)?
Sub question 4	Is there a business case for PAPL?
Sub question 5	- What are successful strategies to build strong FPOs? - What criteria can best determine whether an FPO is investable?
Sub question 6	What are the opportunities for TA?

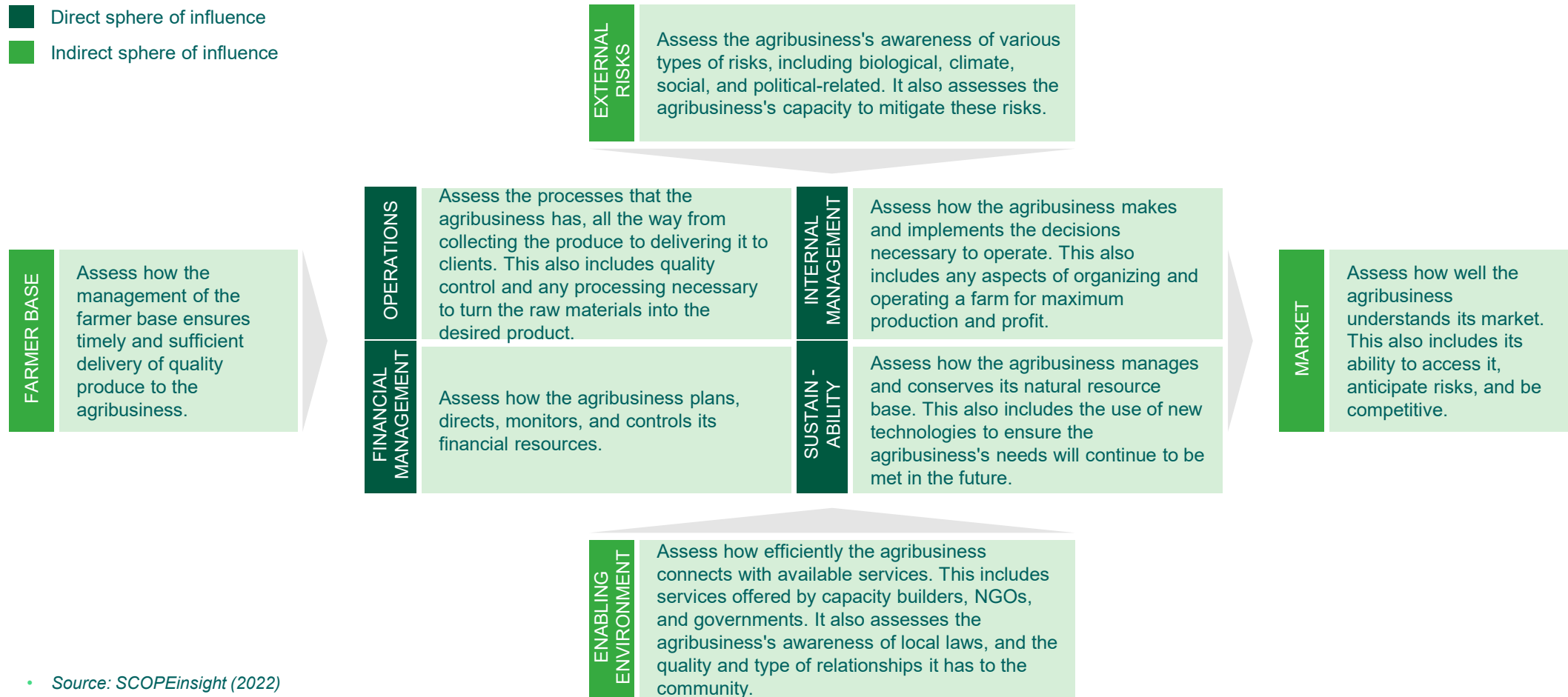


SWOT

		Helpful	Harmful
		Strengths	Weaknesses
Internal		- PAPL can tap into its mentor organization ASA's established long-standing and deep relationships with FPOs and farmers - Successfully scaled business operations over last 3 years and has a team of skilled operations managers and field staff having extensive experience in cotton and other agriculture value chains - Capital-light business model which doesn't required much capital in fixed asset investments	- PAPL's ability to scale business will be determined by its success in accessing both equity and debt capital in the coming years - Require additional staff in marketing, IT and operations to setup new business units and meet the scale/volume targets in existing business units
		Opportunities	Threats
External		- Demand for organic cotton is increasing globally - A large base of farmers yet to serve providing runway for growth in the coming years - Potential to provide new services to farmers such as a) direct lending to farmers b) monetizing carbon in-setting c) market access for other commodities - Develop new business opportunities a) B2C channel for commodities marketing b) supply raw materials to paper factory	- Risk of farmers shifting to conventional cotton in lure of higher yields - Profitability of PAPL is susceptible to volatile cotton price - An increase in adverse weather events due to climate change is increasing crop losses and negatively impacting farmer incomes and PAPL profitability - Competition by local and other traders might reduce the volume of commodities sourced



FPOs| Assess cooperatives' level of professionalism based on eight dimensions towards building their capacity and resilience



• Source: SCOPEinsight (2022)



Gender ladder



Gender unintentional

No steps taken to understand the different needs and preferences of men and women, or target gender gaps/barriers.

Gender intentional

Considers the different needs and constraints of women and men and takes some steps to create gender equality. Such projects adapt to the needs of women and men without seeking to change gender norms or barriers.

Gender transformative

Understands the different needs and constraints of women and men and address the root causes of gender inequality. A gender transformative approach needs to foster changes in **individual capacities (agency)**, **gendered norms and expectations (relations)**, and **institutional rules and practices (structures)**.

Why we believe investing in women can work for business

- By tailoring goods and services to the needs of women, companies can reach a large and often underserved market, potentially increasing revenues from service provision or enhancing their supply security.
- If women had similar access to and control of productive resources as men, yields of female farmers could increase by up to 30 percent. Higher farm yields and incomes create greater business opportunities for companies working with those farmers.
- Companies that are committed to gender equality outperform their peers. Improving gender diversity in the workplace can improve a company's financial performance by up to 25 percent.
- When companies are seen to invest in gender equality, this has the potential to lead to higher levels of farmer and/or worker loyalty. Conversely, unequal opportunities for women can negatively affect companies' reputations which can lose businesses customers as well as workers.



Digital Transformation Assessment methodology

The Digital Transformation Assessment identifies and prioritizes digital opportunities (tech use-cases) that fit an agri-service provider's needs, with ROI estimates. Additionally, through a digital maturity analysis, areas of improvement are suggested for the agri-service provider. Based on the assessment, the tool allows you to match-make with relevant tech-providers.

Identify digital gaps

Identifying and prioritizing the tech uses cases that are best-fit for your business

Expert network

We match-make through a database of tech providers and agri-specialists in your country

Efficient and cost-effective

An affordable, simplified process, supported by our experienced team.

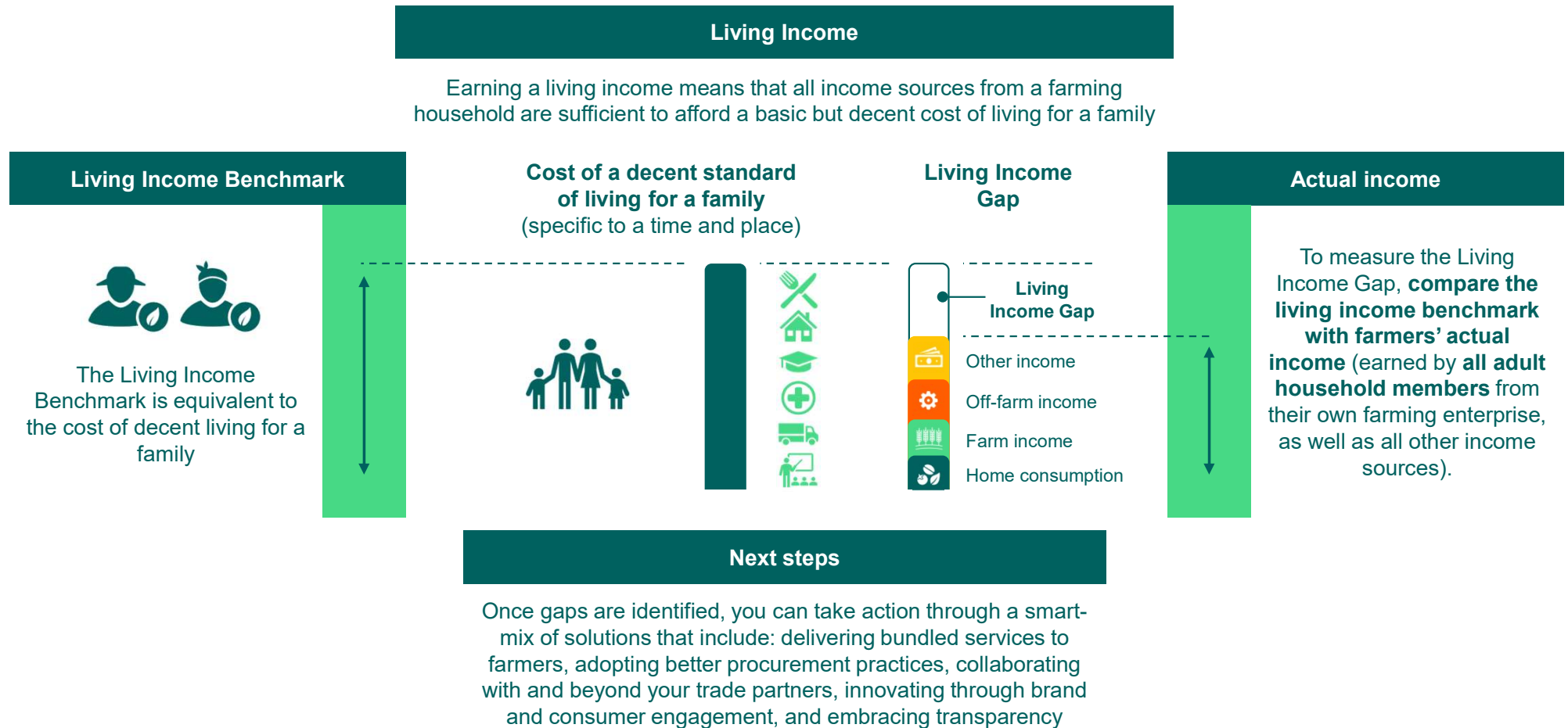
Intuitive, web-based platform

Web-based platform powered by a dynamic global database of 300+ tech providers

The DTA process

1. **Introduction with the organization:** Discuss the overall process
2. **Identification:** Performing the first step of the methodology in the online DTA on the use case database
3. **Prioritization:** Prioritize the earlier identified use cases from the database based on desirability and feasibility
4. **Digital Maturity Assessment:** Conduct the Digital Maturity Assessment to distinguish strengths and opportunities for improvement
5. **Results:** The results include identified and prioritized use cases and DMA analysis with improvement areas

LI definitions





Poverty line methodology

Poverty line

- The PPP adjusted poverty line for India is 1,400 INR per month¹ for one adult
- A typical Indian smallholder household consists of 5 people, including 1 male adult, 1 female adult and 3 children²

Poverty line adjustment

- Simply multiplying the poverty line with 5 would not take into account the composition of the household and would not take into account economies of scale
- For a proper representation, the poverty line was adjusted with the OECD-modified scale² to better reflect reality
- This scale differentiates between the household head, other adults and other children. The scale assigns a value of 1 to the household head, 0.5 to each additional adult member and 0.3 to each child
- Using this scale, a typical Indian smallholder household consists of $1 + 0.5 + 3 \times 0.3 = 2.4$ adult equivalents
- Therefore, the adjusted poverty line for a household would be $1,400 \times 2.4 = 3,360$ INR/month or 40,320 INR/year
- With an exchange rate of 82.85 INR/USD that has been used throughout this entire report, the poverty line for an Indian smallholder family is 487 USD/year

Sources: 1) [IMF \(2022\)](#); 2) [Global Living Wage \(2022\)](#); 3) [OECD](#)