## Potential of Sustainable Integrated Farming System (SIFS) for Living Income of Indigenous Community in Central India



### **Participatory Feasibility Assessment Report**





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SIFS	•	Sustainable Integrated Farming System	
WHO	•	World Health Organisation	
ILO	•	International Labour Organisation	
UN	:	United Nations	
CBOs	•	Community Based Organisation	
VDCRCs	•	Village Development Child Rights Committee	
SS	:	Saksham Samooh	
HEA	•	Household Economy Approach	
SDG	•	Sustainable Development Goals	
MCA	:	Multi Criteria Analysis	

### Abbreviations

### Preface

Poor tribal families do not have sufficient resources and appropriate knowledge and skills to grow diverse and high-value crops. At the same time, the remaining area remains unattended as they do not have adequate resources and suitable technological know-how for proper utilization, such as Agro-Horti-forestry, etc. Some of the critical factors affecting their livelihood are sloping land, poor government investment, low capacity for investment, extreme precipitation resulting in soil erosion, low water holding capacity resulting in small production.

VAAGDHARA is dedicated to working with the most deprived indigenous communities and helping them improve against the UN-SDGs. In terms, it is part of mainstream development within the country and participates in the commitment of India's government to the UN towards improving the situation of SDGs.

Almost one decade has passed since VAAGDHARA is promoting the concept of adopting a systematic approach within farming in the name of "True-Farming." This report is an effort to understand the experience so far has shown the need to establish the link of the SIFS approach and its benefit towards the living of small and marginal farmers. VAAGDHARA is a participant within a living income community of practice. Therefore, it planned to taking-up this study of the feasibility of SIFS as a tool to bring living income for small and marginal farmers within the indigenous community under KKS supported SIFS project. Principles of living income were studied and customized to understand "living-income benchmarking" for the target community within the study area of 15 villages of Ghatol and Pipalkhunt blocks of Banswara and Pratapgarh districts.

I hope this report explores the potential of adopting SIFS to shorten the living income gap for small and marginal farmers within the project area.

We are very much thankful to KKS, Germany, for their support for this study and bringing out this publication.

Thanks!

#### **Jayesh Joshi** Secretary VAAGDHARA

### Introduction

VAAGDHARA works in the tribal junction of Rajasthan (Banswara, Dungarpur, and Pratapgarh), Madhya Pradesh (Jhabua, Ratlam), and Gujarat (Mahisagar, Dohad, Aravali). It is a civil society organization dedicated to tribal development, focusing on livelihood security, child rights, and tribal sovereignty. It has a professional grassroots level team in livelihoods, education, child rights, leadership building, and community mobilization towards tribal sovereignty. The area is known for its high vulnerability on undulating terrain, low-soil cover, larger area out of production activities, low productivity, hunger, anaemia, malnutrition, poor child growth, low income, exploitative markets, poor connectivity, and limited access to services. Prevalence of these conditions results in instability of livelihoods for poor tribal families, thus forcing them for stress-migration to large urban centers like Ahmedabad, Rajkot, Mumbai, Surat.

The area is part of a semiarid to sub-humid climate with an average rainfall of 700 to 900 mm, precipitate in an average of 30-35 rainy days spread over in the four months of monsoon. Agriculture and allied activities are the mainstays of life. Geographically the area is undulating with small mounds and hills, and a large area is out of production, <30% of the land is under cultivation, that too without proper land development. The majority of families in the area have smallholding (average 2-4 acres), including various types such as cultivated, cultivable-waste, pastures, revenue wasteland resulting in not enough food. Nearly 60-70% of land in the area is sloping with reduced soil depth and a high degree of erosion. Climate change-induced extreme events of precipitations further exaggerate this erosion. Most families cultivate and concentrate their efforts on 20-25%

of the land. Most rainfed-dependent farmers mainly grow maize, pigeon pea, black gram, and other local produce. Cotton has traditionally been a cash crop for people in this area, which Soybean is slowly-slowly replacing. Community reflects that the significant reason behind this is the increasing cost of cultivation in cotton, thus affecting the income from this crop.

Poor tribal families do not have sufficient resources and appropriate knowledge and skills to grow diverse and high-value crops. At the same time, the remaining area remains unattended as they do not have adequate resources and suitable technological know-how for proper utilization, such as Agro-Horti-forestry, etc. Some of the critical factors affecting their livelihood are sloping land, poor government investment, low capacity for investment, extreme precipitation resulting in soilerosion, low water holding capacity resulting in small production. The low productivity of land leads to food insecurity in terms of physical and economic access. Adoption of the linear approach of market-based agriculture with high input costs makes them more vulnerable, particularly in climate change.



Figure Problem issues of small and marginal farmers

Infrastructures such as road, electricity, water supply, an input mechanism, and markets are not sufficient affecting production and prize realization. Limited financial inclusion; thus, lowincome families cannot invest in development works like land, water, and technologies. The above background indicates that the primary reason behind this is the lack of or limited participation of the tribal community in development processes. There are many direct and indirect factors adding to this situation, and the key among them is lack of awareness, knowledge, skills, and enabling environment towards farming system approach. These problems result in limited work opportunities within villages and areas, forcing them to depend mainly upon daily wages in distant urban areas. There is a need to demonstrate communityowned sustainable processes that adapt lowinput oriented regenerative can building in collaboration, cooperation, integration for sustainable livelihood, and social cohesion.

VAAGDHARA recognized the gravity of the situation, which may cause chronic poverty for these already vulnerable families. In the last week of April 2020, we organized rounds of discussions with tribal farmers and leaders. During these discussions, most farmers have indicated that

they do not have quality seeds, manure, fertilizers, labor, market, and cash. Their youth, who went to cities to work there, to arrange cash income for all these preparations, are back without money. They also said that their resources are dried up, and the hope for credit is negligible. They do not have sufficient cash to procure seed, prepare fields, buy manure, etc.

Thus, there is no way instead of keeping these lands un-cultivated. If it happens like this, in the memories of farmers, VAAGDHARA, and perhaps we all, probably it will be the first time that a considerable number of farmers leave their field un-cultivated, due to lack of sufficient resources. It is a precarious situation that agriculture, the largest occupation provider in India, faces a threat. It is not the question of one season of the crop. And instead, it is a matter of trust in agriculture. VAAGDHARA believes that if civil society does not take appropriate, timely steps and well-meaning individuals and institutions, we may witness another pandemic in nutrition insecurity for small and marginal indigenous communities.



Figure Linear Model of Agriculture adapted from Allen 2015

# A Conceptual framework for studying the SIFS and Living Income

VAAGDHARA is dedicated to work with the most deprived indigenous communities and helping them improve the UN-SDGs. In terms, it is part of mainstream development within the country and participates in the commitment of India's government to the UN towards improving the situation of SDGs.

Almost one decade has passed since VAAGDHARA is promoting the concept of adopting a systematic approach within farming in the name of "True-Farming." The experience so far has shown the need to establish the link of the SIFS approach and its benefit towards the living of small and marginal farmers. VAAGDHARA is a participant within a living income community of practice. Therefore, it planned to taking-up this study of the feasibility of SIFS as a tool to bring living income for small and marginal farmers within the indigenous community under KKS supported SIFS project. Principles of living income were studied and customized to understand "living-income benchmarking" for the target community within the study area of 15 villages of Ghatol and Pipalkhuntblocks.



Once benchmarking income levels are established, household economic analysis was carried out for 200 families within fifteen pilot villages of two districts. The findings are consolidated and analyzed with the lens of living income, actual income, and living income gap. The report explores the potential of adopting SIFS to shorten the living income gap for small and marginal farmers within the project area.



From : Anker, M & Anker, R. (2017) Living wages around the world : manual for measurement Edward Eigar Publishing cheltenham, UK

### **Defining Sustainable Integrated Farming System**

Sustainable Integrated Farming System (SIFS) is a combination of different agricultural activities in a unit area of land which aims at:

- Maximizing return from the unit area
- Maintaining soil status and fertility
- Utilizing the by-products of one component of the farming system as an input in other for ensuring supplementary and complementary enterprise relationship
- Reducing environmental pollution.

![](_page_9_Figure_7.jpeg)

Figure SIFS Major Components

SIFS follows the concept of circularity within the approach of the nutrient and energy cycle.

![](_page_9_Figure_10.jpeg)

Figure Sustainable Integrated Farming System and its components

### **Defining Living Income Concept**

The concept of living income goes a step beyond traditional poverty alleviation notions concerned with bare subsistence and survival. It puts a strong emphasis on the idea of decency and earning enough income to live comfortably.When thinking about income, as opposed to wages, it is crucial to recognize that a household earns can come from multiple sources. For example, in the case of smallholder farmers, income can be earned through off-farm business and remittances and crop sales. This income needs to cover the costs of decent living for it to be considered a living income.

"The net annual income required for a household in a particular place to afford a decent standard of living for all members of that household. Elements of a decent standard of living include food, water housing, education, transport, clothing, and other essential needs including provision for unexpected events."

![](_page_10_Figure_5.jpeg)

Source: adapted from https://www.living-income.com/measurement-actual-income

Figure Key thought within Living Income Approach

For calculating the cost of a decent standard of living, the methodology details costing approaches for the following areas:

- **Decent food** Local market surveys, model diets, and secondary data
- **Decent Housing** Rental costs, building costs, contextual and international housing standards & secondary data.
- Non-food non-housing (such as school and clothing) Focus groups and secondary data.
- Other Socializing expenses Travel, Marriages, Communication, etc.
- The margin for unforeseen events Drought, Fire, health shocks, etc. (dependent on the context.)

These are costed considering international decency standards (e.g., WHO, ILO, and UN-Habitat). However, the local context is also

considered, bearing in mind that local definitions of decency may vary geographically. It makes the decency standards normative Figure-3 gives a pictorial representation of decent living.

![](_page_11_Picture_3.jpeg)

For more information and to join the community visit: www.tiving-income.com Contact: Livingincome@iseatatliance.org

Figure Key thought within Living Income Approach

Federal Me

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#### Living Income Benchmark High Level Breakdown

#### The Living Income Community of Practice

58

giz

![](_page_11_Figure_8.jpeg)

Figure 8 Components of Decent Living (captured from living income community

The living income CoP promotes the Anker methodology, which is a robust and cost-effective methodology for calculating the cost of a decent standard of living is unique. The study followed some of the basic guidelines provided under the methodology.The actual income for small and marginal farmers usually covers three significant components: net farm income, net off-farm income, and other incomes. Figure-5 shares various sub-components that are part of the composition of actual income. The significant component within actual income is the produce consumed at home, which mostly remains nonrecognized and unaccounted.

![](_page_12_Figure_3.jpeg)

Figure Composition of Actual Income

Three significant aspects are income from primary and secondary cash crops and produce consumed at home (Figure-6). It talks about the various costs such as input, land, labour, unexpected, etc., and revenues generated in social, natural, financial, physical, and human capitals.

![](_page_12_Figure_6.jpeg)

![](_page_12_Picture_7.jpeg)

Figure Farming as a Business (Source LI-COP)

### Living Income for Farmers of Project Community

Within the above theoretical context of living income for farmers, VAAGDHRA initiated a study to apply the approach to explore the actual income of the small and marginal farmer's community in the area. The team conducted focus group discussion with people's organizations, CBOs, VDCRCs, and SS to capture standard of living income for the current poverty line in India is Rs 1,059.42 (62 PPD USD) per month in rural areas, which works out to Rs63565.2 for an average family of five members, which is much below the poverty line adopted by the world bank, i.e.1.9\$ PPD making a family actual living income of Rs.2,56,595. Global MPI 2020 Report 7 indicates that India 8 is 62nd among 107 countries with an MPI score of 0.123 and 27.9% population identified as multi-dimensionally poor, the number was 36.8% for rural and 9.2% for urban India.

Table 1Major Category wise bifurcation of living income at project villages in Ghatol and Pipalkhunt blocks

Sl	Particulars	Ghatol	Peepalkhunt	Average	
Α	Food Items	98080	93160	95620	
В	Decent Housing	13400	14200	13800	
С	Clothing	8000	8700	8350	
D	<b>Education &amp; Health</b>	16400	17100	16750	
Ε	Communication	6000	2800	4400	
F	Social Expenses	44000	39300	41650	
	Total Expenses	185880	175260	180570	

VAAGDHARA undertook a stakeholder consultation involving local community leaders indicated an average living income benchmark of Rs.180570 (Say Rs.180000) for project community in both the blocks Ghatol (Banswara district) and Pipalkhunt (Pratapgarh district).

To capture the actual income and gap scenario project studied the guidance from "The Living Income Community of Practice" on the use of the Household Economy Approach (HEA) to capture factors around farmer circumstances and present income situations. 208 samples from 11 Gram-Panchayats were studied through intensive schedule capturing family assets, type of occupations each family member involved, income generated, various farm produce and their consumption pattern, etc. It has helped to clarify the approaches to measuring actual farm incomes to be compared and analyzed against Living Income benchmarks.

![](_page_13_Figure_9.jpeg)

Figure 12 Composition of expenditure pattern of small and marginal farmers of an indigenous community

The expenditure patterns indicate that 53% of expenses for the indigenous small and marginal families are on food items, followed by 23% of

expenses on social expenditures. At the same time, the remaining 24% takes care of education, housing, clothing, and communication.

![](_page_14_Figure_3.jpeg)

Figure 13 Composition of Farm-income for families with minimum and maximum income categories

![](_page_14_Figure_5.jpeg)

Figure 14: Increased in income and composition of family income

**Figure-9** gives a clear link between the other income and higher income. Families on the lower-income extreme do not have a sustained source of other income. As the income category changes, one findsa critical contribution of other income. **Figure-10** gives a clear predominance of net-farm

income (66%) contribution to overall family income followed by 25% part from non-farm income, mostly labour (both MNREGA and Non-MNREGA). Other income revenues from migration, salary, labour work, etc., constitute 9% of the overall family income.

![](_page_15_Figure_3.jpeg)

Figure 15 Income composition percentage of the farm, non-farm, and other categories of Living income concept

![](_page_15_Figure_5.jpeg)

Figure 16 Living Income Gap Concept

#### Questions answered in this section:

- What percentage of farmers has household incomes above the living income benchmark in their area?
- What is the gap between reference year farmers' incomes and a living income?
- What is the gap between reference year net income from a crop and the crop income benchmark?

The HEA is an analytical tool developed initially to improve humanitarian assistance and food security programming. It can serve some purposes associated with understanding the economic situations of target communities. Still, this guidance,'Applying the HEA to Measure and Address Income Gaps in Agriculture Supply Chains', focuses on how it can be leveraged to calculate income gaps and help design and target supply-chain interventions. In brief, the HEA acts as a relatively flexible framework that can fit various purposes, depending on the user's needs. VAAGDHARA has adopted HEA to measure and analyze incomes, measure household economies against thresholds/benchmarks (including Living Income), and identify actions to improve income using scenario modeling.

The ability of small-scale farmers to earn a living income is critical to ensure their viability and economic success. This paper argues that closing the living income gap for small-scale farmers requires tackling the underlying imbalance in risk and market power that many faces when engaging in food value chains. This imbalance is not accidental but reinforced by how individual supply chains, commodity sectors, and public policy agendas are set up and operate. The study identifies entry points for lead buyers to help close income gaps for small-scale farmers.

![](_page_16_Figure_8.jpeg)

Figure 17 Situation of Samples studied against the BPL (Indian and WB)

![](_page_17_Figure_1.jpeg)

Figure 18 Socio-Economic Stratification of surveyed community

The ability of small-scale farmers to earn a living income is critical to ensure their viability and economic success. Small-scale farmers play a critical role in the global food system. Their success depends on having adequate resources to manage the risks of growing food crops, engaging with profitable and equitable markets, and a governance environment that supports smallscale farmers.

The core of the living income challenge for smallscale farmers lies a significant imbalance between the risks of agriculture shouldered by farmers and their power to shape their market participation. This imbalance is not accidental but reinforced by structural barriers at individual supply chains, commodity sectors, and national public policy agendas. Based on the framework of risk, power, and structural barriers, this paper offers input for discussions and interventions that aim to close income gaps for small-scale farmers participating in global food value chains.

Disproportionate risk can represent a crucial deterrent for farmers to invest in their farms to try and grow their incomes. Small-scale farmers, in particular, are limited in their capacity to ensure predictable conditions and buffer against potential shocks. These farmers face various risks and include issues related to price, inputs, climate, and land. Underlying the inequality in risks and market power are structural barriers that disadvantage small-scale farmers. At the level of the supply chain, inequities in risk and power are manifested in the captive relationships between a large and fragmented group of farmers and a concentrated group of buyers in many commodity sectors.

At the public policy level, the imbalance between risk and market power faced by small-scale farmers is reinforced by a diverse set of policy areas ranging from land rights to access to inputs, market infrastructure, export policies, taxation, and investment.

Women farmers face gender-specific income barriers, including restricted access to resources and services and discriminatory social norms. At the same time, however, women farmers represent a crucial investment for raising farmer incomes, given their expanding role in global agriculture. It is valid for divorced or widowed women who are responsible for their farms when other family members work elsewhere.

Entry points for overcoming these income barriers exist. Global buyers are responsible for addressing their contributions to farmers' income challenges under the UN Guiding Principles on Business and Human Rights. Their incentives to do so are to ensure a future supply of commodities for their final products and to build sustainable production models and global reach.

### Living Income for Farmers of Project Community

It is essential to recognize that there is no silver bullet for driving improvements for smallholder incomes, and neither is any individual actor solely responsible for taking actions for change. Despite this, various levers and methods exist for improving incomes, appropriate for different actors that can be applied holistically and implemented in various combinations depending on the context. A recent study by the Sustainable Food Lab and Business fights poverty took input from and conducted interviews with experts from businesses, NGOs, donors, UN bodies, and research organizations to clarify roles and levers for different actors to help increase smallholder incomes. These five levers are:

![](_page_18_Figure_4.jpeg)

![](_page_19_Figure_1.jpeg)

Figure 19 Living Income Approach and its SDG linkages

### Socio-Economic Analysis Associated with Farming System for Promotion

Small and marginal farmers' promotion and adaptation of a Sustainable Integrated Farming System demand comprehensive socio-economic analysis against convention farming practices. This analysis can have the following components;

### Non-Market valuation techniques

It is common to use non-market valuation techniques to incorporate the benefits and costs of farming practices that are not priced in markets. Examples include downstream siltation from soil erosion or loss of organic fertilizer where dung is used as a fuel instead of farm fields. The valuation practices most appropriate to comparisons of SIFS and conventional farming practices include replacement cost, changes in productivity; direct and indirect substitute approaches, preventive or mitigative expenditures, and hypothetical or constructed market techniques (IIED, 1994).

#### Depletion of Soil as natural capital

Economic analyses at the project level can incorporate soil depletion as a form of natural capital under conventional tillage practices, enabling fairer comparisons with SIFS. This depletion constitutes a cost of non-sustainable cropping in addition to regular production costs. It is a user cost as it yields short-term gains at the expense of future income (Daly, 1996). Omitting user costs results in an overstatement of the net economic benefits of current cropping practices that deplete soils. Several techniques are available to calculate the user cost of depleting natural resource stocks. Two common approaches are the net price method and the marginal user cost method.

#### Farm-budgeting and Farm-planning

Proper environmental analysis requires assessing changes in environmental conditions in terms of

the full range of behavioural responses (Freeman, 1993). When farmers adopt SIFS, numerous ancillary changes can be expected, such as crop switching, changes in pest control measures, shifts in cropping duties for household members (by gender), etc. For this reason, comparative analyses of SIFS and alternative practices should adopt a whole farm approach to capture the full range of these behavioural changes (Sorenson, 2001).

Diebel et al. (1993) argue that analysis of individual practices in isolation can even provide misleading results when certain factors combine synergistically to raise barriers to adoption that are not otherwise evident.

#### **Project Evaluation techniques**

While project work uses cost-benefit analysis universally, other project evaluation techniques hold promise for the appraisal of SIFS projects or technologies. These include multi-criteria analysis (MCA), cost-effectiveness analysis, decision analysis, environmental impact assessment, and participatory methods. MCA recognizes that government decision-makers and smallholders have many objectives in mind when deciding about agricultural project viability and on-farm management practices, respectively; more than a cost-benefit analysis alone can capture. In addition, various trade-off techniques, such as trade-off curves or more sophisticated analytical techniques, can help assess the tradeoffs amongst competing objectives. For example, Van Kooten et al. (1990) use this method to examine the trade-offs between net returns and stewardship motivations amongst farmers in Saskatchewan, Canada, in adopting soil conservation practices.

# Economics of SIFS versus conventional farming in the area

While project work uses cost-benefit analysis universally, other project evaluation techniques hold promise for the appraisal of SIFS projects or technologies. These include multi-criteria analysis (MSIFS), cost-effectiveness analysis, decision analysis, environmental impact assessment, and participatory methods. MSIFS recognizes that government decision-makers and smallholders have many objectives in mind when deciding about agricultural project viability and on-farm management practices, respectively; more than a cost-benefit analysis alone can capture. In addition, various trade-off techniques, such as trade-off curves or more sophisticated analytical techniques, can help assess the tradeoffs amongst competing objectives. For example, Van Kooten et al. (1990) use this method to examine the trade-offs between net returns and stewardship motivations amongst farmers in Saskatchewan, Canada, in adopting soil conservation practices.

## Input Costs (Fertilizer, Labour, Pesticides, Machinery and Fuel)

Present-day farmers are facing challenges in managing inputs within conventional farming like a seed, fertilizers, pesticides, machinery, and fuel. The approach of SIFS provides scope for reducing input costs on these aspects. Thus, SIFS helps small and marginal farmers explore the full potential of their farming system and livelihoods.

### Factors influencing Adoption of SIFS

The Sustainable Integrated Farming System (SIFS) approach primarily focuses on the low cost, thougful, and 24x7 approach, which demands continued thoughtful farming. The present conventional farming is more or less industrialized farming in which a large number of activities and components are service-oriented. Many factors shape the choice of farmers, which is also the application of the adoption of SIFS. Given below are some of the specific factors that are important for farmer's choice;

### **Farmers Characteristics**

Since Ryan and Gross (1943) first showed that the adoption of agricultural innovations is typically uneven from farmer to farmer, researchers have directed attention to specific characteristics and attributes of farmers to explain this unevenness. In the case of soil conservation technology adoption, Gould et al. (1989) emphasize awareness of farm operators to soil erosion or other soil problems as an obvious prerequisite to adoption. Indeed, farmer awareness or perception of soil problems is frequently found to correlate with SIFS adoption positively. Similarly, the central place of information and knowledge in SIFS adoption, in terms of being aware of soil problems and potential solutions, should lead the level of education of a farm operator to correlate positively with adoption.

A study of farmer's adopted SIFS in the Anandpuri block showed that more experienced women farmers have raised more concern about the soil problem than their male and younger colleagues. However, they were less likely than their younger colleagues to address the problems once recognized.

### **Farm Characteristics**

Studies of the adoption of conservation tillage and other SIFS-type practices have often given significant attention to farm size (or sometimes planted area). Many studies have found that farm size correlates positively with adoption (Westra and Olson, 1997). However, other studies have shown no significant relationship (Agbamu, 1995; Uri, 1999b) or even a negative correlation (Shortle and Miranowski, 1986). Hence, the overall impact of farm size on adoption is inconclusive.

Some studies have found that soil erosion and other soil problems on the farm correlate

positively with conservation tillage adoption (Stonehouse, 1991). However, farmer awareness of and concern for soil problems is probably the more critical factor affecting adoption. Another important farm characteristic is underlying land productivity. In the case of no-till and mulch tillage, Uri (1997) shows that in the United States, adoption is more likely on farms with low rather than high levels of soil productivity. In addition, a good fit between SIFS and the farm's production goals encourages adoption.

### **Biophysical and Technical Factors**

In technical terms, the characteristics and availability of appropriate SIFS technologies are crucial factors in adoption. However, de Harrera and Sain (1999) note that availability does not imply individual ownership of the necessary machinery as lease/hire arrangements proliferate. Furthermore, potential adopters must believe that the technology will work. Technical factors interact with biophysical factors, e.g., soil type, rainfall, or topography can encourage/facilitate, or discourage/limit SIFS adoption. While some studies have shown that farm operations located within regions of steep slopes and erodible soils have a greater tendency to use SIFS practices, other studies have found these variables to be insignificant.

#### **Social Factors**

SIFS adoption is seldom strictly a function of individual profit maximization alone and can reflect non-individual or societal interests. It usually reflects a compromise between private economic utility and collective utility. A number of farmers from the area indicated that adaptation of specific approach in farming is controlled both by family level drivers and collective drivers. Within the indigenous community farmers, the collective drivers can be seen in cultural norms or peer interest. It is also supported by the pride associated with stewardship of traditional food above the financial rewards.

Most women farmers indicated that collective action can also be important to adopt SIFS on a large scale and stewardship motives. Peer groups, kinship, and significant movement govern numerous activities within agricultural systems. Although the discussion usually focuses on common property resources, even private land use may follow various aspects of farm management. For example, farm-bunding, contours, hedgerow, agro-forestry, contourplowing, stone lines, and other structural works require peer cooperation amongst farmer groups to be effectivestrategies. Many dimensions of SIFS fit the group approach, including the formation and operation of farmers' groups, dissemination of information, following specific practices.

Learning from different pilots indicated that the promotion of SIFS requires collective action or high levels of social organization to help it gather momentum. Widespread adoption may be related to a society's social capital.In the broadest sense, social capital refers to individuals' interconnectedness and considers relationships as a type of asset. Several studies have examined the influence of social capital on technology adoption in either developed or developing countries. For example, kinship, or `connectedness to others, can influence conservation technology adoption. Some studies have shown that the expectation of farmland inheritance can have a bearing on conservation behaviour amongst farmers. However, other studies testing for this have not shown a positive correlation.

Similarly, higher levels of social capital help explain the adoption of SIFS. Interaction with the core group of tribal farmers indicates that the approach of Janjatiya Swaraj Sangathan and Tribal Development Forum may be crucialsocial capital for SIFS adaptation in indigenous communities. Such institutions at the local level have been a significant catalyst

### Information and Knowledge

Adopting adoption is an essential factor in knowing the practices associated with SIFS via some information or communication channel. Indeed, discussions with Swaraj Mitra (Community Resource Persons) and Saksham Samooh (Women Farmers Groups) have indicated that information plays a key role in adapting specific technologies. Harrera and Sain, 1999 have indicated that information availability is typically found to correlate with adoption. Information becomes vital as the degree of complexity of the technology and know-how increases (Nowak, 1987).Information sources that positively influence the adoption of SIFS-type practices can include other farmers, media; meetings; and extension officers. However, scientists from Krishi Vigyan Kendra and the Department of Agriculture share that contact alone is not sufficient for adoption if information dissemination is ineffective, inaccurate, or inappropriate. On the other hand, some women groups also indicated that the ease of obtaining information is sometimes not sufficient for adoption.

#### **Market Factors**

At present, farmers' decisions regarding crops are not only decided somewhat controlled by the market. The slowly-slowly market has become the most critical decision-making factor. The primary decision-making questions affecting the farming system are the type of seeds to procuring, what pesticides are to apply, what variety is to cultivate, where to sale, what can be sold, and what cannot be sold. A market-linked decision cannot be avoided and should not be, but in conventions, farming decisions are not linked to the market; instead, market forces in their favour dictate them.

### Potential of SIFS to address Living Income Gap for Small and Marginal Farmers in the Project Area

As reflected in the section above on components of SIFS and the factors which impact adaptation of SIFS by farmers indicates high potentials over conventions farming which has ultimately pushed small and marginal indigenous farmers to present miserable status.

![](_page_25_Figure_4.jpeg)

Figure 20 SIFS and its Sustainability Outcomes

The components of SIFS outcomes, as reflected in figure-15, establish a clear link with living income and its potential to reduce the gap against the

benchmarkreference. All the above potential outcomes have sustainability returns, i.e., economic, social, and environmental returns.

Reduce input Cost	<ul> <li>Upto 50% reduction in input cost in terms of quality seed, manure, hired labour, harvesting.</li> </ul>
Reduce Production Wastage	•Circularity approach of SIFS converts wastage of one component as input for other component reducing overall production wastage of system
Increased Production Diversity	<ul> <li>Production diversity reduces vulnerability of farmer against market and environmental risks</li> </ul>
Reduce Production Risk	<ul> <li>Application of environment friendly components reduced production risks against weather</li> </ul>
Food Intake Diversity	•Diversity in food intake provides opportunity for various nutrients and help reduce threat of malnutrition
Additional Income for Unique Product	•SIFS provides scope for some unique products creating opportunity to tap nische market for example organic termaric, etc.
Equal Participation of Women in Decision Making	•Most of the activities under SIFS are undertaken by women farmers thuis proving them opportunity to participate equally
Enhanced Bargain Power and increased share in Market	•Pooduction diversity, unique produce, increased production and group approach promtoed under SIFS gives potential for increased share in market with better bargain power

Figure Wider benefits of SIFS approach and its potential for better impact over Living Income

SIFS provides higher scope for promotingfarm economics models, where changes to farming systems and other drivers of household income can be tested (modeled) to see how much specific improvements could move farming households toward a living income. In other words, a living income benchmark could be a target for broader livelihood interventions.

### Conclusion

The interaction with the community at Ghatol and Peepalkhunt blocks gives the potential to promotethe SIFSapproach to achieve living income for small and marginal farmers. Thus, promoting SIFS must identifyvarious factors that impeded adoption, including economic net returns, even in financial terms.

- The benefits of SIFS are support biodiversity and living income for small and marginal families of the indigenous community. This community assessment about the benefits of SIFS suggests that its expansion in tribaldominated agro-ecological zones makes good sense from a social perspective.
- The social capital benefits of Saksham Samooh, SHGs, farmer's club, peer group learning, farmers field school, participatory learning, and action are probably under-appreciated towards promoting SIFS. VAAGDHARA has demonstrated the importance of these groupbased PLA in the successful diffusion of SIFS, efforts to strengthen the enabling conditions that foster these activities can pay significant dividends.
- In devising appropriate policies relating to SIFS and, more generally, sustainable agriculture, there is a need for improved policy analysis and information for decision making. Economizing the benefits incurred from the SIFS approach against the living income concept

demonstrates the long-term benefits of SIFS over its alternatives.

- The study also hints towards possible economic returns, but detailed studies are required. It will demand including indicators like depletion of the natural capital.
- They facilitate income growth for the economically disadvantaged by developing agriculture infrastructure and support services, creating productive assets, and developing skills and entrepreneurship. Social protection measures and mitigation of risks from natural and other disasters aim to ensure that unforeseen exigencies do not disrupt the poverty reduction efforts.
- Adopting the principles of reducing the living income gap establishes the importance of SIFS to address nutrition and food security with economically viable options. It helps farmers make appropriate farming choices, something impossible in a simple comparison of conventional farming and SIFS.
- There is a wide-scale lack of in-depth studies on economic analysis of different organic and natural farming, including the approach of SIFS. There is a need to take up proper studies. Although there appears to be some cost advantage in general terms, results can fluctuate widely from farmer to farmer. Evidence towards the cost advantage isprimarily insufficient for large-scale adoption from a social perspective.

Finally, the study proves the worthiness of using living income to promote the adoption of SIFS on one side of the coin. In contrast, the adoption of SIFS lay the foundation for small and marginal farmers to achieve living income targets for families.

![](_page_28_Figure_1.jpeg)

Figure Participatory Format for understanding farmers' livelihood scenario

### Table Potential of SIFS in Financial Terms

Sl	Particulars	Quantity	Rate	Total	Particulars	Quantity	Rate	Total
Α	Food Items			98900				130700
A.1	Cereals	500	25	12500	Cereals	400	30	12000
A.2	Pulses	60	100	6000	Pulses	100	100	10000
A.3	Milk	380	40	15200	Milk	500	40	20000
A.4	Oil/Butter	40	220	8800	Oil Seed	100	80	8000
A.5	Vegetables & Fruits	52	400	20800	Vegetables	300	40	12000
A.6	Meat/Egg/Fish/Chicken	20	800	16000	Eggs	100	20	2000
A.7	??? /Coffee	12	400	4800	Goat	2	5000	10000
A.10	Processed items	12	400	4800	Chicken	20	1000	20000
A.11	Spices	12	400	4800	Turmeric	50	200	10000
A.12	Sugar/Jaggary	52	100	5200	Chili	10	50	500
B	Decent Housing			13400	Fruits			
B.1	Maintenance	2	1500	3000	Banana	50	30	1500
B.2	Electricity	12	400	4800	Papaya	100	30	3000
B.3	Furnishing etc	2	1000	2000	Guava	20	60	1200
B.3	Water	12	300	3600	Lamon	10	50	500
С	Clothing			8000	Other fruits	100	40	4000
C.1	Clothing's	10	500	5000	Fodder	600	10	6000
C.2	Shoes etc	10	200	2000				0
C.3	Gifts	2	500	1000	Amchuretc	100	100	10000
D	Education & Health			16400	Non-Farm			32000
D.1	Health	5	1000	5000	MGNREGA	100	200	20000
D.2	School	2	4000	8000	Labour	40	300	12000
D.3	education material	12	200	2400				0
D.4	Toys etc	2	500	1000				0
E	Communication			6000				0
E.1	Net & Mobile Recharge	12	500	6000				0
F	Social Expenses			44000	Other			6000
F.1	Notra	10	1000	10000	Sanman			6000
F.2	Gifts	10	800	8000				0
F.3	Insurance	5	400	2000				0
F.4	Savings for Capital	12	2000	24000				0
Total Expenses			186700				168700	

![](_page_31_Picture_0.jpeg)

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