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INVESTING IN WOMEN LIVESTOCK ADVISERS AND FARMERS

JHARKHAND OPPORTUNITIES FOR HARNESSING RURAL GROWTH PROGRAMME IN INDIA

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INVESTING IN WOMEN LIVESTOCK ADVISERS AND FARMERS

JHARKHAND OPPORTUNITIES FOR HARNESSING RURAL GROWTH PROGRAMME IN INDIA

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Abstract

This case explores investment into the human capital development of female livestock farmers in the roles of certified Master Trainers (MT) and of community service providers known as *Ajeevika Pashu Sakhi* (APS). Stakeholders, including APSs, MTs, livestock farmers, implementers and donors were consulted using key informant interviews and focus group discussions to understand the capacity enhancement intervention under the livestock subcomponent of the Jharkhand Opportunities for Harnessing Rural Growth (JOHAR) project, its outcomes and its impacts on participants. Secondary literature was also consulted.

At the centre of the intervention were women livestock farmers, who were strategically identified, trained and coached as APSs to provide doorstep technical, marketing and risk reduction support to women livestock farmers. The APSs were supported by certified MTs.

It was found that the APS model is almost unique and offers evidence of capacity enhancement observed in the form of changed practices by livestock farmers. The significant practice changes observed were timely vaccination, deworming, castration, animal cleanliness, and provision of feed supplements and clean drinking water for the livestock. These behavioural changes lead to significant income enhancement.

Support from APSs to livestock farmers resulted in enhanced animal survival rates, reduced production time, recognition of women in families and communities, a supportive network of livestock service providers, increased incomes, future investments in businesses and the education of children and confident APSs and livestock farmers. The APS model enhanced the economic and social wellbeing of rural poor women working as livestock farmers and APSs. This created opportunities for educated women in the villages to use their education, contribute and participate in the livestock value chain.

There are opportunities for scaling up the APS model beyond the state of Jharkhand. It can be replicated in specific regions with livestock farmers where local educated women are willing to be trained and provide veterinary services to livestock farmers. In replicating or implementing similar initiatives, there is a need for structured investment and effort for capacity enhancement and support to the women community service providers. As regards scaling up this model in India, efforts are being made together with the Ministry of Rural Development (MoRD) to develop bridges with national programmes.

Since the health of people and animals is now being seen as a continuum, there is need for strategic interventions and collaboration with ministries in charge of both animal and human health. Animal husbandry departments should provide support in disease diagnosis, since it is a public good and requires considerable investment. Here, APSs can play a critical role in providing animal husbandry departments with support for livestock farmers.

The target audience for this case study are policymakers in governments and public organizations, donors, opinion leaders, nongovernmental organisations and civil society.

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Acknowledgements

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Transforming Rural India Foundation (TRIF) conducted the case study. TRIF is indebted to many people who helped along the way as we interacted with many of them to learn about human capacity improvement interventions in rural Jharkhand. We are immensely thankful to the women livestock farmers and the community service providers who spent hours answering our questions and sharing their perspectives. We recognize the insights we gained from the discussion note on Building Last-Mile Livestock Services for Rural Communities in Jharkhand, India prepared by Helen Leitch, Abhinav Gaurav and Bipin Bihari.

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Abbreviations and acronyms

AHCI	Agriculture Human Capital Investment
APS	*Ajeevika Pashu Sakhi* (livestock service provider)
ASCI	Agriculture Skills Council of India
ASTI	Agricultural Science and Technology Indicator
BMMU	Block Mission Management Unit
CEO	Chief Executive Officer
COVID-19	Coronavirus disease 2019
CSP	community service provider
DMMU	District Mission Management Unit
DSGD	Development Strategy and Governance Division
FAO	Food and Agriculture Organization of the United Nations
FFI	Formal Financial Institution
FGD	focus group discussion
GDP	gross domestic product
GoJ	Government of Jharkhand
HCI	Human Capital Index
HVA	high-value agriculture
ICT	Information and Communication Technology
IFPRI	International Food Policy Research Institute
IRB	Institutional Review Board
JOHAR	Jharkhand Opportunities for Harnessing Rural Growth
JSLPS	Jharkhand State Livelihood Promotion Society
KII	key informant interview
LFPR	labour force participation rate
MD	Managing Director
MIS	market intervention scheme
MSDE	Ministry of Skills Development and Entrepreneurship
MT	master trainer
NGO	non-governmental organization
NRETP	National Rural Economic Transformation Project
NRLM	National Rural Livelihoods Mission
NRLP	National Rural Livelihood Project
NTFP	non-timber forest product
OPHI	Oxford Poverty and Human Development Initiative
PDO	project development objective
PG	producers group
PIM	CGIAR Research Programme on Policies, Institutions and Markets
PO	producer organization
PPP	purchasing power parity

Rs	Indian Rupees
SC	scheduled caste
SHG	self-help group
SMMU	State Mission Management Unit
SSA	seed security assessment
ST	scheduled tribe
ToT	Training of Trainers
TRIF	Transforming Rural India Foundation
TSA	Technical Support Agency
UNDP	United Nations Development Programme
VO	village organization

Introduction

Sustainable agricultural productivity, food security and poverty reduction remain top goals of governments and development institutions around the world. Progress is under threat from a variety of crises, including climate change and public health emergencies and their associated economic shocks. Along with a growing population and increased demand for agricultural goods for food, fuel and fibre, these concerns necessitate investments in agriculture, rural infrastructure, natural resource management and climate resilience.

Agricultural investments often emphasize the physical and financial capital of farming households, for example land, fertilizer or credit. However, agriculture human capital investment (AHCI) is crucial for spurring innovation, farm management decisions and empowering smallholders. Human capital is an economic term that encompasses assets that increase individual productivity, such as education and health. For the purpose of this study, human capital is defined as the stock of habits, knowledge, social and personality attributes (including creativity) embodied in the ability to perform labour so as to produce economic value (Goldin, 2016). Human capital allows people to effectively utilize other types of capital. For example, farmers' education and knowledge influence their ability to make decisions, adopt new technologies, evaluate risks and manage farm resources.

As part of a global study of promising AHCI initiatives, this case study presents evidence from the Jharkhand Opportunities for Harnessing Rural Growth (JOHAR) project in India. The global study commissioned by the Food and Agriculture Organization of the United Nations (FAO) and led by the International Food Policy Research Institute (IFPRI) with support from the CGIAR Research Programme on Policies, Institutions, and Markets (PIM) examines opportunities for both public and private investment in human capital in agriculture. This study aims to fill knowledge gaps about promising investments in programmes that develop agriculture human capital, particularly across different target groups such as smallholders, women and youth.

Case studies were selected according to a set of criteria following a broad assessment using literature reviews and expert input. Criteria included documentation on impact, scalability, replicability and institutionalization, inclusion and empowerment, holistic integration and sustainability. Nine case studies were selected across geographies and a typology of agriculture human capital. The selection process involved a series of workshops during which technical experts discussed potential cases, case study selection and case study teams.[1] This case study adds perspective and evidence on capacity enhancement to human capital involved in providing knowledge and services to livestock farmers in rural India.

1 For more information on this process and for a detailed description of the typology, please see Davis *et al.*, 2020.

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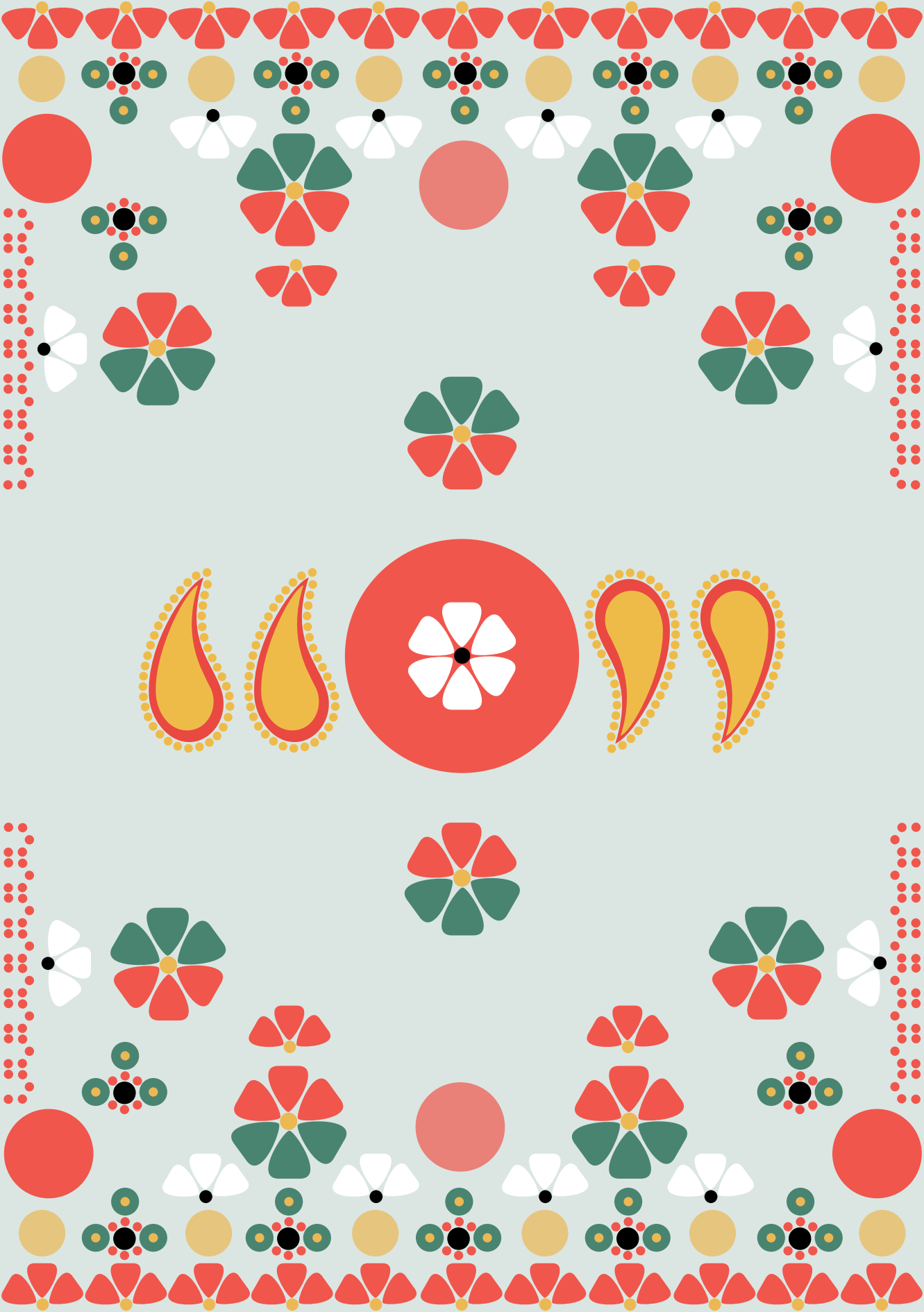


Chapter 1
Background

Despite rapid growth leading to visible signs such as growing numbers of dollar billionaires, India has the largest concentration of global poor. The country is home to more than 40 percent of people living on less than USD 1 a day. The multi-dimensional poverty index developed by the Oxford Poverty and Human Development Initiative (OPHI, 2020) found that eight Indian states are poorer than the 26 poorest African nations.

About Jharkhand Jharkhand is home to nearly a one-tenth of the country's indigenous people, known as "scheduled tribes" (ST), including "primitive tribes". These constitute 28 percent of Jharkhand's population (compared to an all-India average of 8 percent). Another 12 percent of the population is from scheduled castes (SC) (Ministry of Tribal Affairs, 2014). Jharkhand is also mostly rural, with about 78 percent of the state's population living in villages (Kumar, 2018).

Jharkhand State was carved out of Bihar State in 2000. The state is rich in mineral resources and poor in agricultural production. More than 75 percent of the workforce is engaged in agriculture but generates only 20 percent of the state's gross domestic product (GDP). About 45 percent of its land area is under non-agricultural use, and 32 percent consists of culturable wastes unsuitable for agricultural production, and only 23 percent is under cultivation (Singh *et al.,* 2012). Despite the abundance of industrial production, the rural population has not benefited, and a majority continue to earn their livelihoods through agriculture. During the last ten years, agriculture did not grow in the state as had been expected, resulting in higher rural poverty.

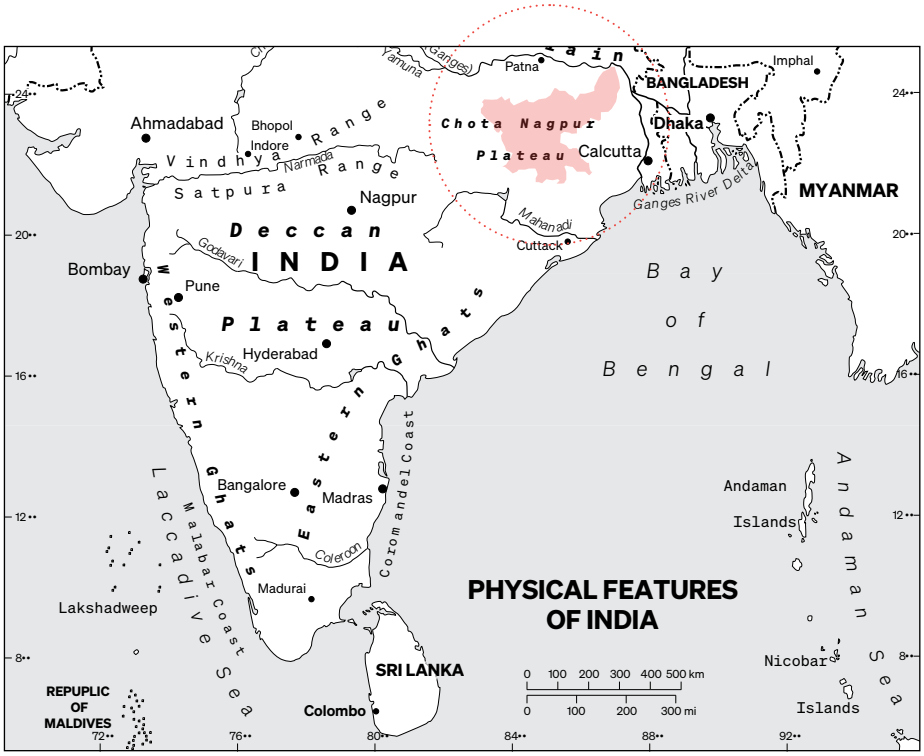
Jharkhand has the second-highest poverty rate in the country Despite having the largest share of the country's mineral resources and delivering impressive economic performance during the 12th Five-Year Plan (2012–2017), the incidence of poverty in Jharkhand remains at 37 percent. Progress across social groups is uneven, with SC, ST and women performing significantly worse than other social groups. Nearly half of all ST households (which account for 27 percent of all households) are poor. The Labour Force Participation Rate

(LFPR) of Jharkhand (31.4 percent) is lower than that of India (36.4 percent), while the LFPR for women is 23.5 percent, lower than India's 27 percent (Chakraborty, 2015).

A majority of rural households depend on agriculture and allied sectors for their livelihood, but the contribution of these sectors to household incomes is limited. More than half the labour force in rural Jharkhand (60 percent) (Mehta and Singh, 2016) depends on agriculture and allied sectors for their livelihood. A large proportion of the farming community includes marginal (63 percent) and small farmers (18 percent) practising rai-fed, single-crop subsistence farming. The agriculture sector is highly vulnerable to climate change: nine districts are classified as having very high or high vulnerability (Rama Rao *et al.,* 2013). Recent droughts resulted in 40 percent crop losses and soil moisture stress annually due to poor monsoons. Incomes from farming contribute to only 31 percent of household income (and only 6 percent of their cash flow) as against income from wages that accounts for 40 percent of household income (and 28 percent of the cash flow) (Tata Trusts, 2016). Livestock accounts for a quarter of the household income and is the primary source of earnings for about one-fifth of agricultural households with very small parcels of land. Several factors such as poor productivity, access to irrigation, skills, markets and finance limit the potential of agriculture and allied sectors to contribute substantially to rural household incomes (Ministry of Statistics and Programme Implementation, 2014).

Livestock rearing and casual wage earning are the two most important economic activities for rural households in India. However, productivity is low due to domestication of local breeds and the poor quality of veterinary services. Livestock productivity there is less than 12 percent of that in leading states (Chand and Parappurathu, 2011). Meanwhile, fisheries development is still nascent and the state ranks 17th in the country in terms of fish production (Department of Animal Husbandry, 2014). Lack of employment opportunities may also cause poverty in the state because only one-third of the population is engaged in economic activity. The skills needed for efficient animal husbandry and to provide effective support services to livestock farmers are also missing from the local area. Thus, there is substantial potential for skills enhancement in farmers and community service providers to enable effective support services.

Skills development in agriculture and allied fields lags behind a growing demand from agricultural production and enterprises. While only about 1 percent of rural households in Jharkhand depend on their own enterprises for their livelihood (Ministry of Rural Development, 2011), there is an emerging positive trend with the state now accounting for the highest number of new mid-sized, small- and micro-enterprises in the agriculture and allied sectors compared to other states in the region (Ministry of Micro, Small and Medium Enterprises, 2014). A national skills development mission has been created to aid convergence across sectors and states in terms of skills training activities. Furthermore, to achieve the vision of "Skilled India," the National Skills Development Mission not only consolidates and coordinates skills-building efforts but also expedites decision-making across sectors to achieve skills-building at scale with speed and to standards. The Jharkhand Skills Development Mission (n.d.) has now identified skills development in the agriculture sector as a priority. Most rural women workers (about 45 percent of the total) are engaged as unskilled agricultural labour (Labour Bureau, 2014). However, skills training opportunities in the state are limited in terms of the sub-sectors covered, the skill sets offered, availability of training providers, etc.



MAP NO. 3665 UNITED NATIONS
JANUARY 1992

Figure 1
Map of India indicating location of Jharkhand

SOURCE: United Nations, Map no. 3665, January 1992.

The boundaries and names shown and the designations used on this/these map(s) do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries.Dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Table 1

Key agricultural, human capital and enabling environment indicators in India

Indicator category	Indicator name	Latest data available	Indicator value
General	Total population	2019	1.4 billion
	Rural population (% of total population)	2019	65.5%
	Number (%) of smallholders or family farmers	-	-
	Poverty headcount ratio at USD 1.90 (%)	2011	21.9%
	Rural poverty headcount ratio (%)	-	-
	Prevalence of undernourishment (%)	2017	14.5%
	Human Capital Index (HCI) score	2017	0.44
Enabling environment: educational attainment	Expected years of schooling, male and female	2018	10.2
	Primary completion rate, total	2018	91.6
	Literacy rate, adult total (% of people aged 15 and above)	2018	73.2%
Enabling environment: funding	National agricultural research expenditure data as share of agricultural GDP (ASTI)	2017	0.3%
	Agriculture expenditure (% of total spending)*	2020	5.08%
Enabling environment: ICT-related indicators	Mobile subscriptions (per 100 people)	2018	86
	Secure internet servers (per million people)	2019	389.2
	Access of electricity (% of population)	2019	95.2%
Enabling environment: policies	National Agriculture Investment Plan or Policy in place National Agricultural Policy in place		

NOTE: Poverty headcount ratio indicates the percentage of the population living on less than USD 1.90 per person per day at 2011 purchasing power parity (PPP). Agriculture expenditure indicator comes from FAOSTAT's Government Expenditure data (share of total outlays).

*https://www.deccanherald.com/business/budget-2020/union-budget-2020-govts-expenditure-in-a-nut-shell-800730.html

SOURCE: World Bank (2020), IFPRI (2020), FAO (2020).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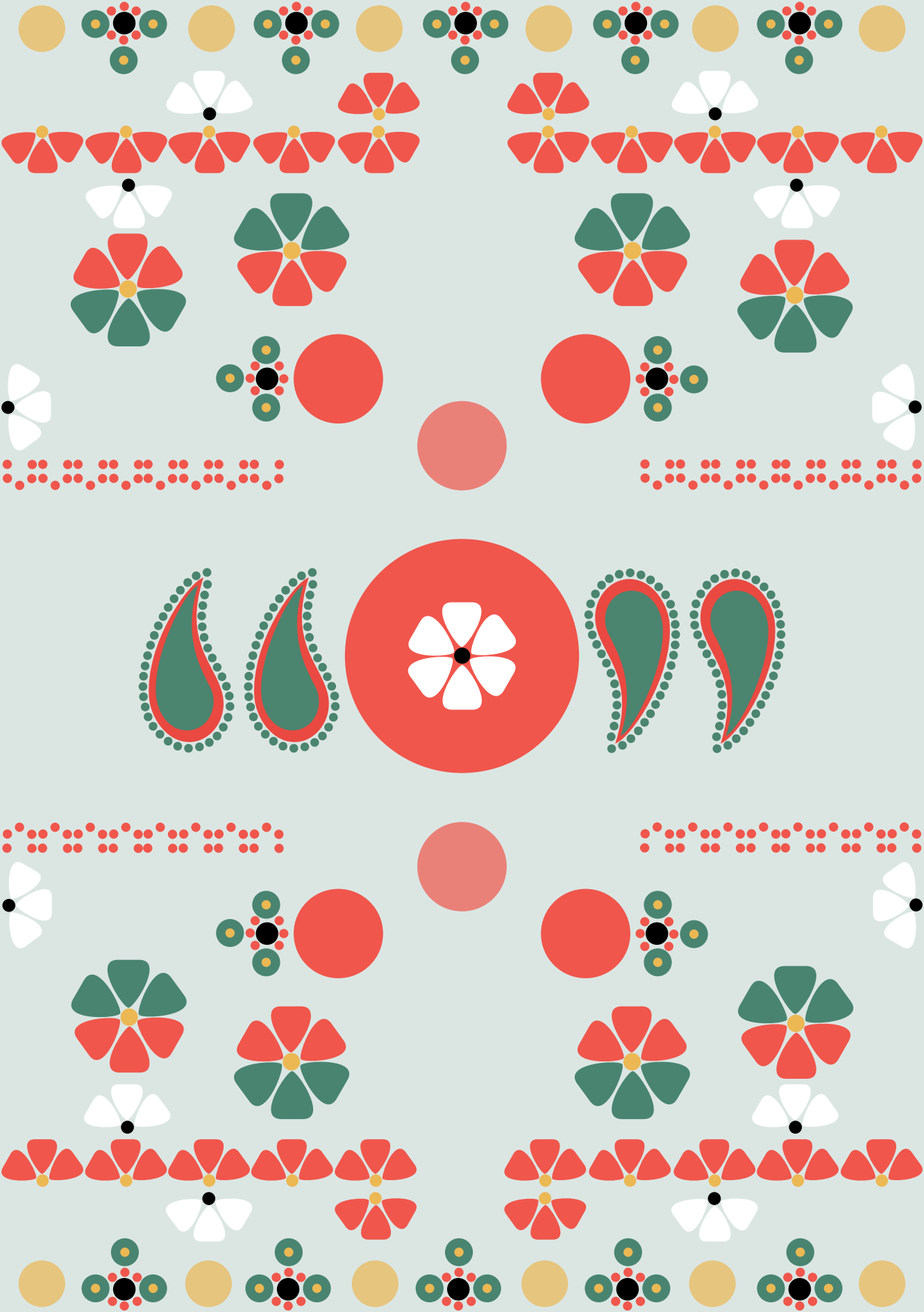

Chapter 2
Case study methodology

Given the expanding universe of initiatives and programmes incorporating aspects of human capital development in their approach to agricultural development, it is difficult to comprehensively assess these types of investments across similar models, including farmer field schools, even in a single country. However, using case studies can facilitate a deep understanding of the complexity of an initiative that seeks to develop human capital and elucidate related processes and phenomena in a given context (Baxter and Jack, 2008). This case study incorporates primary qualitative and secondary data sources in order to elucidate the opportunities and challenges that a particular programme faced in developing human capital among family farmers in a given context.

General demographic human capital indicators for India were extracted from a variety of secondary data sources to contextualize the project environment. Demographic indicators, information and communication technology (ICT) and educational attainment indicators were compiled from the World Bank Open Data website and Human Capital Index (World Bank, 2018, 2020). Agricultural research investment indicators were compiled from the Agricultural Science and Technology Indicators (ASTI) database, which houses datasets on agricultural research expenditures and human resource capacity in low- and middle-income countries (IFPRI, 2020). Information on agriculture expenditure was also downloaded from FAOSTAT (FAO, 2020).

We followed a methodology designed to interact directly with individuals involved in the project, beginning from the human resource created for the purpose and known as *Ajeevika Pashu Sakhi* (APS), or local livelihood livestock friends (i.e. community livestock service providers), livestock farmers, Master Trainers (MTs), implementers and donors. We deliberately started interactions with APSs, MTs, livestock farmers and implementers at district and state levels followed by donors so as not to be biased by the opinions of donors and implementers while interacting with the interviewees.

Introduction to the stakeholders The process started with the aggregation of relevant documents such as the JOHAR project proposal as well as published reports in order to understand the project's scope, objectives, deliverables, geographies and interventions on ground. Simultaneously we also interacted with state-level project staff and the state project manager for livestock regarding the research objectives and support required (IBRD, 2017). An introductory communication was also provided by the IFPRI team.

Selection of geographies Following introductions, we asked for details of the geographical outreach of the project so that we could select districts with geographic spread in the state. We identified districts based on the time when the project started in a previous location or if project activities started only recently. We avoided districts where project activities have started only recently. Thus, we identified three districts as well as one block from each of these three districts, where project activities have been operational for about two years or more, ensuring that a few cycles of production had been experienced by all. It should also be noted that these three districts are from the two main agro-climatic regions of Jharkhand (the central north-eastern and western plateaus).

Selection of APSs, MTs, farmers as key informant interviews (KII) and focus group discussion (FGD) participants Once the three districts were identified, we asked for the list and contact details of the APSs active in one block of each of these three districts. We also asked the block manager to group the APSs and farmers into three groups based on best, average and struggling performers. The block and district project managers worked on the list based on their own understanding about the APSs and farmers during project implementation. They segregated the APSs and farmers based on performance, outreach and compliance with project demands. We asked the managers to select one of the oldest villages for FGDs with farmers. All the samples were thus selected through purposive sample selection.

Table 2
Sample size

	Description	Sample Size
1	APSs	9
2	Livestock farmers FGDs	3
3	Livestock farmers	9
4	Implementers (1 district level + 2 state level)	3
5	Donors	2
6	Master Trainers	3

SOURCE: Authors' own elaboration.

Data Collection Primary data were collected through KII interviews and FGDs with livestock farmers. Sampling was done based on the list of all 71 functional APSs in the three selected blocks. Selection was done purposively from the 71 APSs active in the three selected blocks on the basis of best, average and struggling performers. This segregation was done by the local block managers based on their perception of the APSs' outreach, skills acquired and responses to tasks related to the project.

Secondary data were collected from Jharkhand Fact Sheets, UNDP reports, OPHI publications, the JOHAR project proposal and reports, discussion notes and information available in the public domain on the JSLPS website.

Tools Development We used the methodology based on the New World Kirkpatrick Model (Kirkpatrick and Kirkpatrick, 2006, 2019) for formative assessment of capacity enhancement interventions reflected in behaviour changes and the results obtained. The KII questions were designed keeping these considerations in mind. We chose this model because it is widely used for evaluating training and the effectiveness of similar projects and is aligned with the AHCI conceptual framework. KII tools were developed with help from the IFPRI team, and the questions were translated into the local language (Hindi) as the APSs and farmers could not communicate effectively in English, which is not their first language. All tools were therefore bilingual (English & Hindi), and implementers could choose to respond in the language of their preference.

An FGD guide was prepared referring to the FAO Seed Security Assessment (SSA) Training Manual and Facilitators Guide to FGDs (FAO, n.d.), with the guiding questions designed to conduct the FGDs.

Conducting KIIs We conducted KIIs with ASPs, livestock farmers, MTs, implementers and donors. The KIIs were conducted over the phone, in person and online. With the respondents' consent, in-person interviews were conducted with proper protection including physical distancing, masks and sanitizers following the government Coronavirus disease (COVID-19) pandemic guidelines in force at the time.

Conducting FGDs We also conducted FGDs with livestock farmers from three villages from the selected blocks. The block-level team of JOHAR selected the villages for FGDs according to the performance of Producers Groups (PG). Due to network challenges, the FGDs were conducted in person with the participant's consent and following COVID-19 safety guidelines issued by the government.

Data analysis All KIIs, FGD recordings and completed questionnaires were transcribed following the template used for the questionnaire. Excel spreadsheets were used for transcription and analysis of the qualitative data gathered through KIIs and FGDs.

Recording information The KII and FGD interactions were recorded (audio only) with participants' permission using the voice recorder function of smartphones, and the recordings were transcribed in English. The data gathered through studying the transcripts was analysed using Excel spreadsheets.

Reliability and validity of the data and other elements regarding objectivity We carefully read the transcriptions of KII interviews and FGD recordings as well as written information organized in Excel files. We also asked for feedback from the participants on the analysis we arrived at based on our interpretation of the data, cross-verification from other respondents from different locations and reviews from peers.

Ethical approval The International Food Policy Research Institute Institutional Review Board for Social, Behavioural, and Educational Research approved the methods of data collection (IRB Approval Number: DSGD-20-0621).

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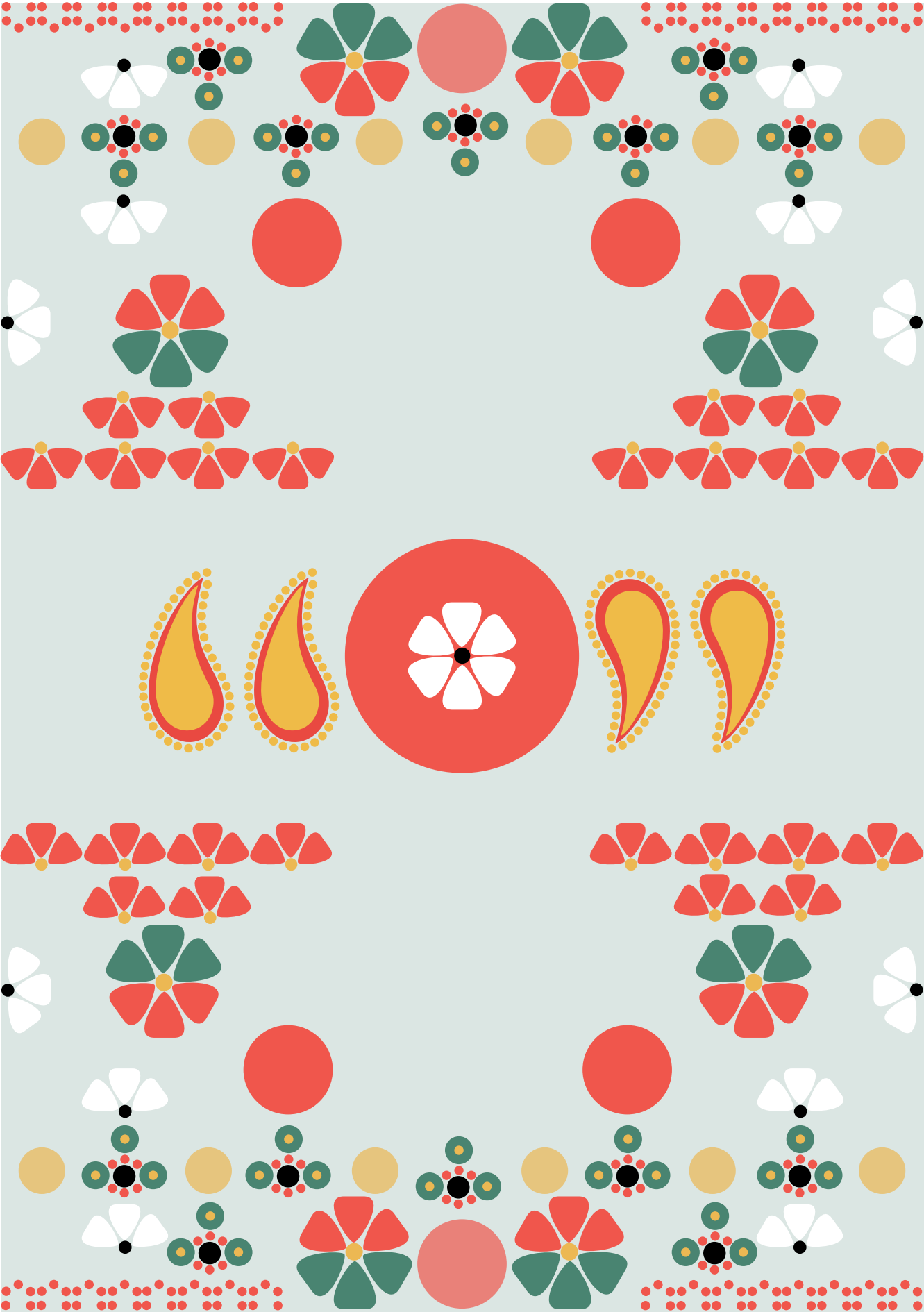

Chapter 3
Overview of case

Jharkhand Opportunity for Harnessing Rural Growth (JOHAR) is an ongoing project (2017–23) supported by the World Bank. Its long-term vision is to enable rural producers to move along a trajectory that will facilitate more rapid income growth while building household resilience and managing risk. This is meant to be done through intensification and diversification in agriculture and in the allied sub-sectors of livestock breeding, fisheries and Non-Timber Forest Products (NTFP). The Project Development Objective (PDO) of JOHAR is:

"To enhance and diversify household incomes in selected farm and non-farm sectors for targeted beneficiaries in project areas."

Interventions across multiple sub-sectors also offer additional opportunities for synergies. Given the poor nutritional status of mothers, adolescent girls and children in Jharkhand, JOHAR will also integrate food and nutrition security enhancing measures, especially targeting rural women. The process of identifying sub-sectors and the commodities within these sub-sectors included consultations with a range of stakeholders including government departments, private sector enterprises, financial institutions,non governmental organizations (NGO), staff of the Jharkhand State Livelihood Promotion Society (JSLPS), etc., community consultations (field visits and FGDs), geo-spatial mapping and referring to market assessments and value chain analysis.

Project activities were grouped under three main components:

- Component 1 – **Diversified and resilient production and value addition.** This involves support for producer collectives and for intensification and diversification across the sub-sectors of high-value agriculture (HVA), livestock, NTFP, fisheries and irrigation.
- Component 2 – **Promoting market access, skills development and pro-poor finance systems.** This involves support for promoting market access and private sector participation, fostering skills development relevant to the focus value chains and facilitating the development of pro-poor agricultural finance systems.
- Component 3 – **Project and knowledge management.**

SUB-COMPONENT OF COMPONENT 1: LIVESTOCK DEVELOPMENT

The objective of this sub-component is to support the targeted households in asset creation, productivity enhancement, risk reduction (including for climate change) through diversification and market access for selected livestock (broilers, layers, pigs, goats and dual-purpose backyard poultry). Given the major role played by women, especially those from marginal and landless households, in the small ruminant sector, this component affects a large number of women livestock farmers as well as community service providers (CSP) working towards improved management practices of goats, pigs and poultry rearing, resulting in climate mitigation benefits.

The focus of this study was to investigate the capacity enhancement of these CSPs and of farmers working in livestock rearing under the sub-component of Component 1. Our focus was also to learn about the investments made under the project for the development of skills and competencies among CSPs and farmers working in livestock.

The CSPs, locally known as *Ajeevika Pashu Sakhi* (APS) or livestock friends, are local community service providers offering inputs, productivity-supporting advice (breeding, feeding, animal health), shed construction, farmer training, market linkage and risk mitigation services to 50–100 farmers on their own doorstep within their village.

Key activities

- Provision of sub-grants to producers groups (PGs) to support procurement of improved stock for the establishment of pig and goat breeding in villages.
- Provision of sub-grants to PGs for demonstration units on livestock housing and improved breeds.
- Provision of sub-grants to PGs for purposes of financing inputs and service costs of livestock rearing.
- Facilitation of the establishment of Livestock Service Centres that will support access to inputs, services and markets through aggregation.
- Capacity-building and technical support to producers in productivity enhancement and marketing. Continued extension support will be provided to producers through CSPs (Pashu Sakhi).

- Partnerships with Technical Support Agencies (TSA) on turnkey operations, capacity building and technical support and with private sector agencies for supply of quality inputs. Support through convergence with existing Government of Jharkhand (GoJ) programmes is envisaged for several activities in this sub-component, including housing for livestock, introduction of improved breeds, establishment of feed plants, etc.

Key outputs

These include supplying poultry birds, bucks and boars of improved breeds, improved housing for livestock, release of sub-grants to PGs, vaccinated animals, trained farmers, etc. The key outcome is a 50 percent increase in the sale volume of selected livestock produce from the targeted households.

Case history

The World Bank has been engaged in Jharkhand through the National Rural Livelihood Project (NRLP) for a decade. The Jharkhand State Livelihood Promotion Society (JSLPS) has long been engaged in implementing the NRLP under the National Rural Livelihood Mission in Jharkhand and has developed into a mature institution rolling out large-scale projects such as JOHAR.

Jharkhand has built a strong institutional platform of over 1.7 million poor women in self-help groups. GoJ came up with the JOHAR proposal, which builds upon these institutional platforms to support small and marginal farmers with intensification, diversification and enhanced market orientation of production systems, with the objective of enhancing and diversifying households. The project initially drew its income from the Finance Department and was later financed by the World Bank.

FAO works in partnership with the World Bank and has had considerable experience of working with livestock farmers, which explains why the World Bank invited FAO to support the JOHAR project.

Investing in Human Capacity Enhancement and specifically in building the scalable and sustainable human capacities of local community service providers are important features of all livestock-related investments the World Bank finances. JOHAR builds upon this with the motivation of developing a scalable and sustainable model of human capacity enhancement of the livestock component as well as other project components.

The modular architecture of human capacity development has been integrated through customized capacity development programmes, skill-building, accreditation, certification and delivery of services with an entrepreneurship approach. Key sectoral expertise has been involved since inception in designing the training and skill-building components.

GoJ also took on the task of doubling farmers' incomes and increasing the diversity of livelihood portfolio of farmers by supporting this mission. As JSLPS was in the forefront of fulfilling this mission, the World Bank decided to invest in JOHAR through JSLPS.

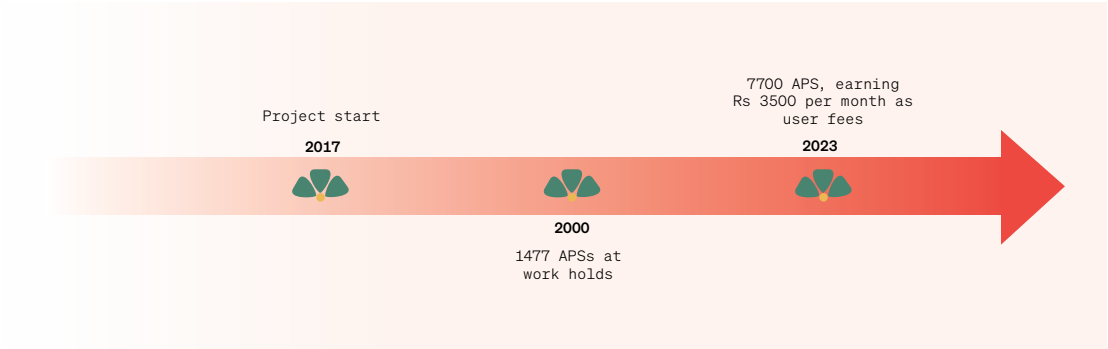

Figure 2
Key progress points

SOURCE: Authors' own elaboration.

IMPLEMENTING ORGANIZATIONS

The JOHAR project is to be implemented by the Rural Development Department of the GoJ. The JSLPS is an autonomous registered society under the aegis of the Rural Development Department and is designated as the special-purpose vehicle for project implementation.

JSLPS is currently implementing the ongoing Word Bank-financed NRLP. JSLPS is responsible for the overall outputs and outcomes of the project, mobilizing co-financing through convergence, sourcing required technical support through partnerships, etc. The key line departments partnering with JSLPS for implementation of the various activities are the Department of Agriculture (encompassing the directorates of horticulture, animal husbandry, fisheries and soil conservation), the Department of Environment, Forest and Climate Change, the Department of Water Resources, the Department of Higher & Technical Education and the Department of Energy. The line departments provide technical support through training and extension services as well as financial support through convergence with government schemes. The project implementation architecture of JSLPS is spread over various levels.

State Level The project is steered by a High-Level Steering Committee headed by the Chief Secretary, co-chaired by the Development Commissioner, and comprising the Principal Secretaries of the relevant departments (Rural Development, Agriculture, Environment, Forest and Climate Change, Water Resources, Energy and Higher and Technical Education). A State Mission Management Unit (SMMU) for JOHAR, headed by the Chief Executive Officer (CEO) of JSLPS, is established within the State Mission Management Unit (SMMU) of JSLPS. The SMMU is largely protected from other implementation arrangements for NRLM and other bilateral projects overseen by JSLPS. JOHAR has a dedicated Project Director who works under the CEO. The SMMU has a multi-disciplinary team of staff and technical consultants working exclusively for JOHAR.

District Level A District Mission Management Unit (DMMU) for JOHAR is established in each of the 17 districts within the existing DMMU of JSLPS. The DMMU is staffed with a multi-disciplinary team of technical consultants whose expertise maps on to the specific sub-sectors that are focused upon in the district and includes experts in HVA, irrigation, livestock, fisheries and NTFP.

Block Level Each of the 68 blocks has a dedicated JOHAR Block Coordinator reporting to the Block Project Manager of JSLPS in the Block Mission Management Unit (BMMU). Three cluste-level field thematic coordinators provide technical support and coordination services to ensure smooth implementation. The field thematic coordinators work closely with CSPs at the village level and senior CSPs at the cluster level. The CSPs in turn are responsible for the formation and functioning of PGs and provide the last-mile link in delivering project services to PGs.

Community Institutions JOHAR works with community institutions supported by the NRLM, including the SHGs and village organizations (VO) and their federations. Small producers are aggregated around key sub-sectors to form PGs and larger producer organizations (PO) such as companies, cooperatives, etc.

APS model
This model is being implemented under JOHAR, and has the following characteristics:

- service on farmers' doorsteps
- focus on small ruminants: pigs, goats and poultry
- focus on prevention, improved practices and management
- full range of services, including comprehensive support for productivity enhancement, improving access to markets, training farmers risk reduction through insurance
- all animals are tagged; an app-based system (still in development) will record all treatments and services rendered
- 30 days training
- MTs specially trained as trainers selected based on skills and experience
- MTs certified through the Agriculture Skills Council of India (ASCI)
- APSs certification through Agriculture Skills Council of India (ASCI)
- Over 95 percent female.

ASCI The Agriculture Skills Council of India (n.d.) is a Section 8 not-for-profit concern working under the aegis of the Ministry of Skills Development and Entrepreneurship (MSDE). ASCI contributes to capacity building by bridging gaps and upgrading the skills of farmers, wage workers, the self-employed and extension workers engaged in both organized and unorganized segments of agriculture and allied sectors. ASCI has taken upon itself the responsibility of transforming Indian agriculture by developing the skills of the country's workforce in emerging areas of agriculture.

Incentives for participation The livestock farmers have adopted new practices for their livestock development with the help of *Ajeevika Pashu Sakhi* (APS). They are constructing proper sheds for their livestock so as to provide clean and separate spaces for the animals. APSs support them in shed construction, vaccination, deworming, medicine and other veterinary services. The animal shed is an important productivity enhancement intervention. Traditionally, the farmers keep cattle and small animals together, which creates a stressful situation for the small animals. Goats like to have a dry floor, while cattle sheds are usually very dark and wet. Dedicated sheds for animals such as goats and pigs provide protected, lighted and well ventilated spaces. Building these sheds requires materials to be purchased from markets. As the targeted livestock farmers lack purchasing power, cash supplements are provided from project resources for shed construction. The livestock farmers earn USD 103 (Rs 7500) for shed construction and have easy access to feed and veterinary care products and services through PGs, while APSs earn USD 12 (Rs 1200) per month from the JOHAR project and some incentives from sales of veterinary supplies through the PGs.

AHCI typology The training for APSs is informal, and participants undergo ASCI certification. The area of human capital includes technical and empowerment components as part of the training to support the livestock farmers in their capacity enhancement for better livestock farming and increased incomes.

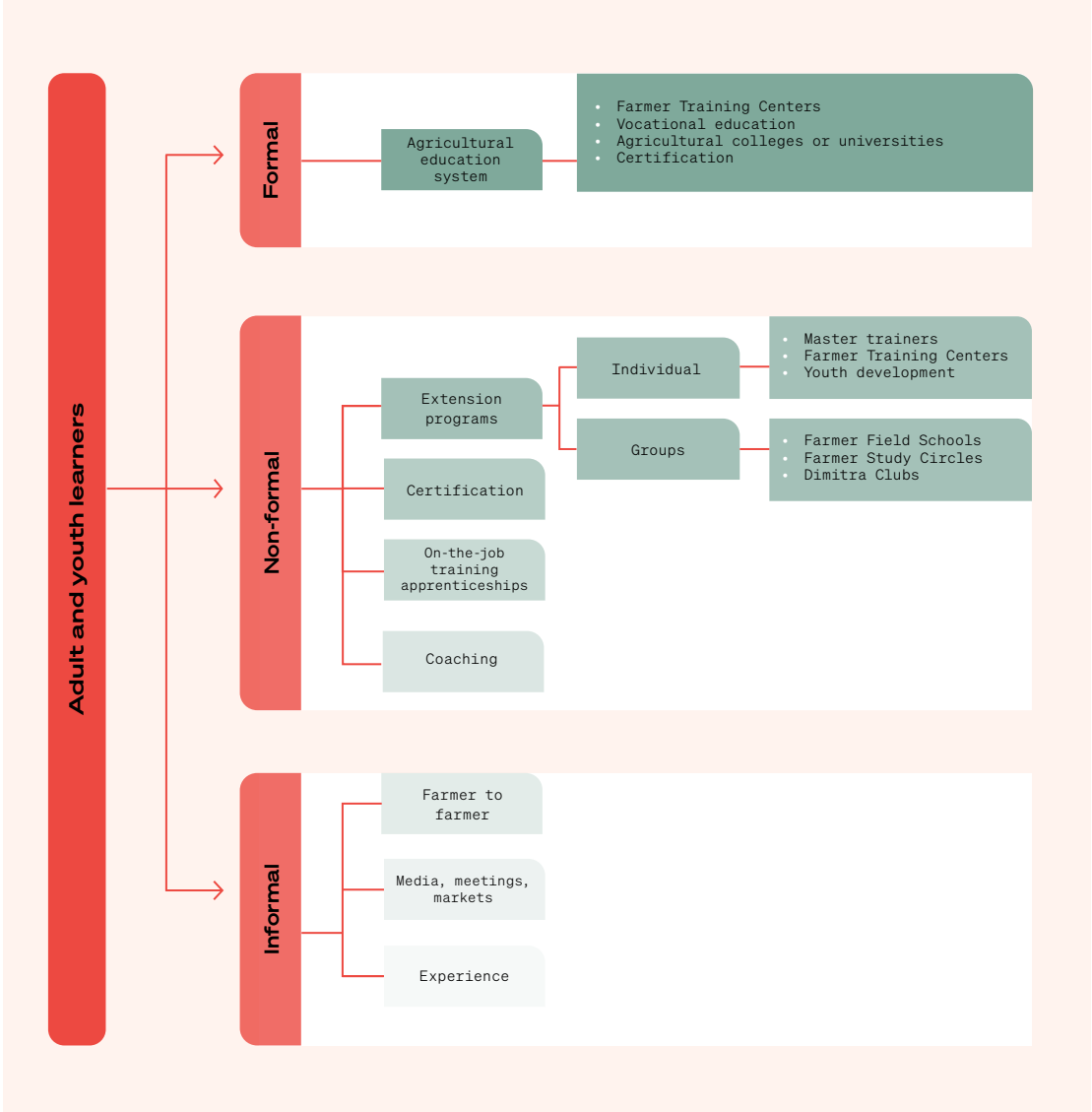

Figure 3
AHCI typology

SOURCE: Authors' own elaboration.

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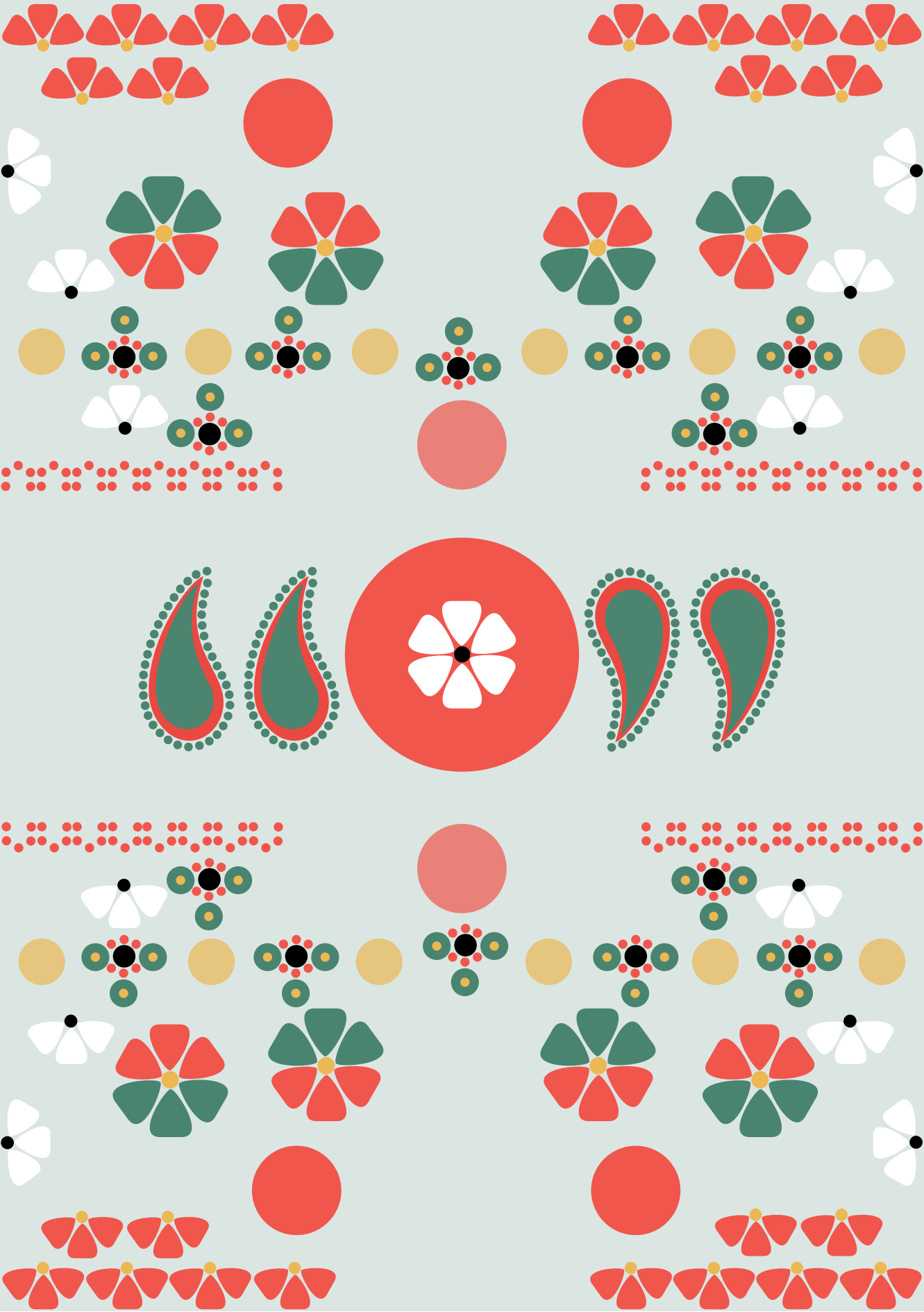

Chapter 4
Details of case

Target group, value chain and commodities

- **Gender:** over 95 percent are women
- **Age Range:** 22–55; average age: 36
- **Type of producer:** (subsistence, pastoralist, etc.): most are subsistence farmers with a mixed livestock portfolio, including farmers willing to have livestock.
- **Value chain, commodity, and agro-ecological zone:** Goat/pig rearing and sale of live animals to traders. The area belongs to Agro-climatic Zone VII of India (for broad agricultural planning and developing future strategies, the Planning Commission of India divides the country into 15 agro-climatic zones based on physiography, soils, geological formation, climate, cropping patterns, irrigation development and mineral resources). Zone VII comprises the eastern plateaus and hills, and features rolling topography, high annual rainfall (about 1000 mm), and forests.
- **Education level and literacy prerequisites:** the required literacy results from a minimum of nine years of education, though some APSs are university graduates.
- The project target groups are those APSs and livestock farmers who have gained capacities due to project interventions.

Funding model

- Sources of funding – World Bank support for project: six years duration.
- Costs of intervention (livestock sub-component) Project budget: USD 15.6 million.

APSs: Enhanced Skills and Capabilities
The livestock sub-component of the JOHAR project has as its objective to:

"support the targeted households in asset creation, productivity enhancement, risk (including climate change) reduction due to diversification and market access for selected livestock (broilers, layers, pigs, goats and dual-purpose backyard poultry)." One of the key activities under this sub-activity is the "development of a cadre of CSPs."

As part of this process of cadre development and engagement of cadres with livestock farmers, significant capacity enhancement is observed across individuals engaged in the process, including MTs, APS and livestock farmers within producer groups.

The intervention is focused on 60 000 women livestock farmers. Almost all of the farmers, APSs and MTs are women. The reasons for this are that:

- women look after livestock
- women are quick to pick up skills
- women are more dedicated
- the project offers financial supplements to the entrepreneurs to help them establish their enterprise
- men stop working when supplements stop
- men are more likely to migrate.

Master Trainers (MTs): MTs are those CSPs who have acquired higher skills and graduated as Trainers. They travel within the state and stay overnight for several nights at village training sites. MTs are certified by the ASCI with the same test used to certify vets or para-vets. The most effective MTs are *Pashu Sakhi* with two or three years of experience and ideally are women who also have experience in livestock rearing. MTs also enable sustainable expansion of the *Pashu Sakhi* programme after the project ends.


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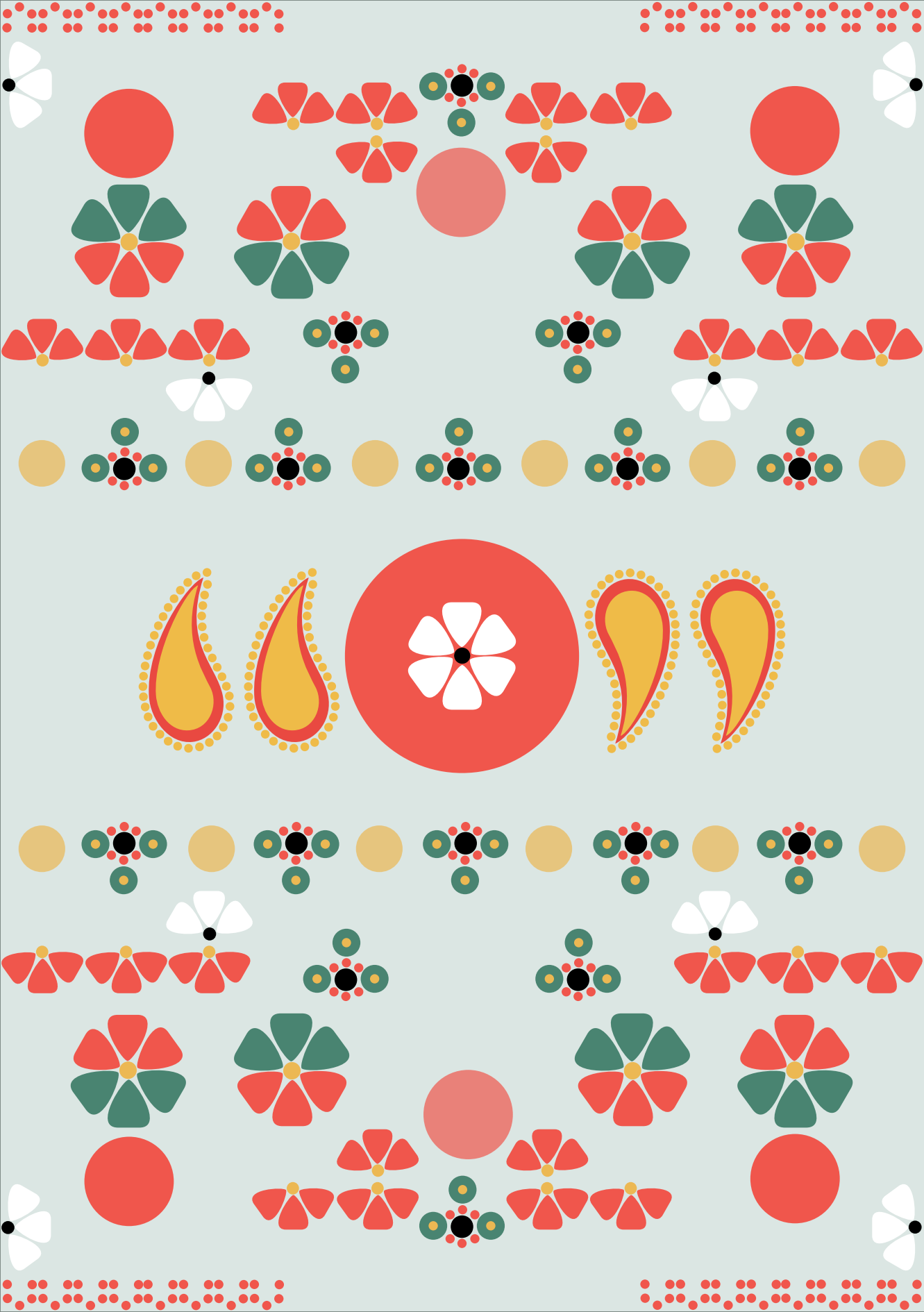

Chapter 5
Evidence base for success of case in human capital development

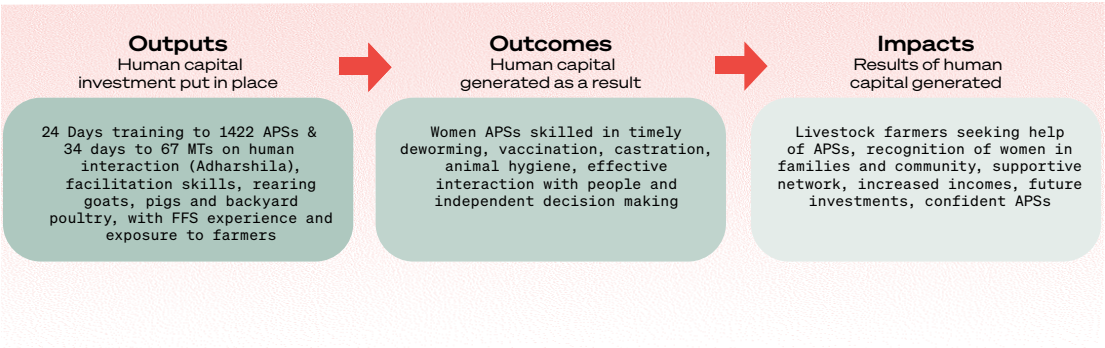

Figure 4
AHCI conceptual map: APSs and MTs

SOURCE: Authors' own elaboration.

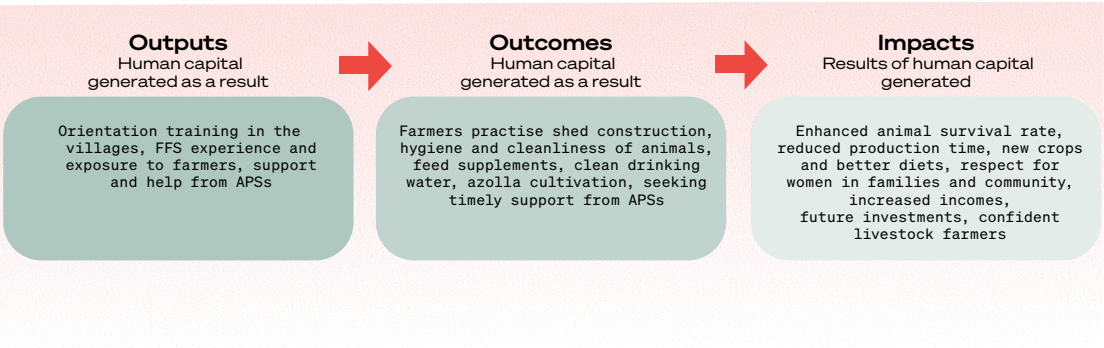

Figure 5
AHCI conceptual map: livestock farmers

SOURCE: Authors' own elaboration.

The APSs are being developed under the JOHAR project as a cadre to support the livestock farmers covered under the project. Women from the community are selected to join as APSs, get trained and support the livestock farmers. Their incentives come in the form of enhanced skills, recognition in the community, and economic returns – part as fixed payments and part from rendering services to the livestock farmers. The APSs are also livestock farmers and members of PGs.

During the process of interactions with APSs and MTs, various forms of capacity enhancement were articulated by the respondents. In particular, capacity enhancement seen as arising from the development of human skills and capacities, confidence to deal with the external world, technical abilities and financial competencies.

All the APSs reported increased abilities, including leaving their house freely, talking to the public and expressing themselves, associating with people, gaining skills for listening to others and trying to understand their concerns, ways to stay together despite differences, and enhanced exposure to the outside world beyond their villages.

The confidence to interact with other people is now being appreciated by family members and other villagers, with APSs sometimes affectionately called "Doctor Didi" (elder sister). These are significant capacity enhancements in the context of rural India, where gender-based discrimination is widespread. Women are seldom allowed to go out freely or interact and work with strangers. Since almost all APSs are women, these changes represent a very substantial outcome, with the six-day motivational training known as *Adharshila* (foundation stone) contributing significantly to this change. All the APSs praised the *Adharshil*a training and its positive impact on them.

Adharshila training: This is a six-day residential human capacity enhancement training with multiple modules covering adult learning and human values. The experiential learning methodology covers values such as gifts as social capital, responsibility, sharing and caring, stability and self-reliance, the importance of animal care, nutrition and income, gender equity and family welfare, environmental care, participation, teaching, training and communications and spirituality.

Another significant capacity enhancement reported concerns the technical skills needed to handle preventive and curative primary animal healthcare. After training with small animals such as goats, pigs and poultry, the APSs reported that new skills were acquired, including timeliness of vaccination, deworming, teeth clipping, castration, feed supplements and mineral mixtures. They recognized the importance of having separate animal sheds, e.g. separating cattle and goats, male and female pigs and piglets, and kids and adult goats. The APSs learnt about the layout of sheds, home production of green fodder such as azolla, proper spacing for pigs and goats, and helping livestock farmers to adopt these practices. Cleanliness and good animal hygiene, such as daily baths for pigs and the need for clean drinking water for animals just as for humans, are among the new skills acquired by APSs trained under the JOHAR project. The APSs also expressed their ability to diagnose ailments by measuring fever and looking at the animal's eyes as well as other symptoms. Based on their diagnosis they suggest appropriate medicines and in case of doubt immediately contact the veterinary doctor or a similar resource so as to provide proper treatment on time. Some of them

even use WhatsApp for consultation and reporting. The APSs also use smartphones for peer support and for sharing videos of good practices. In particular, WhatsApp is very effective in the field when they are not sure about a case, as they can discuss it with the veterinarians. It is a very compelling mechanism as APSs are linked with veterinarians in providing emergency support. "The APS is the nurse of goats," an APS claimed proudly regarding her newly acquired skills.

Financial awareness and the economic importance of the livestock-related activities have also increased significantly among the APS after participating in this project. They have learnt to sell animals by weight, whereas traders used to announce the price based on visual estimations. Now they have a marketing committee equipped with electronic scales and information about the prevalent price in the market. They also have the estimated value of the animal to be sold and therefore generally negotiate better prices. They also expressed their understanding that livestock rearing is economically more rewarding and less labour-intensive than other local opportunities available to them. The incomes from providing their animal care services and from rearing animals also contribute to the economic wellbeing of APSs. Many of them report annual incomes of Rs 18 000 (USD 240) to Rs 20 000 (USD 267) from animal rearing and about Rs 8500 (USD 113) to Rs 12 000 (USD 160) from providing APS services. This is a significant contribution to family incomes and gives a great deal of pride to the APS as a woman. APSs are becoming increasingly confident about making themselves and other members of their group economically independent through this livestock rearing activity.

Master Trainers (MT)

The MTs working in the JOHAR project are almost all women in the 28–34 year-old group. All of them are smallholder farmers, holding around 1.5 acres of land and having 10–15 years of formal education. They have been associated with the JOHAR project for about three years, i.e. from the beginning of the project. The MTs received 34 days of training, covering *Adharshila,* rearing practices for goat, pigs and poultry, and a special 10-day module covering facilitation skills. They also need to pass ASCI certification exams and on success receive a certificate from ASCI. In the last three years, 63 MTs were trained and 22 are now active in the project.

With their engagement in the JOHAR project, the MTs report enhanced capacities for conducting training along with new technical knowledge and skills. They report technical abilities such as detailed knowledge of animal-rearing practices for goats, pigs and poultry, including anatomy, major diseases, preventive and curative measures, vaccination, deworming, castration, teeth clipping etc. "Earlier I was afraid of animal death during castration, but now there is almost zero percent animal mortality during castration," one MT proudly announced. Some of the MTs graduated from APS to MT, and this gave them an immense sense of pride and achievement. Before being part of the training programme, they were afraid of taking training sessions for APSs, but after *Adharshila* training, they felt more confident. The training helped them to present themselves during training, dress and prepare properly for the training event, and operate laptops for presentations. They see themselves as teachers of APSs and not as mere trainers.

"I am an educated person, but I could not use my education in the village; now I read a lot about animal rearing and treatments, keeping account of income and expenses, training the APSs and operating laptops"

Statement from an MT in Jharkhand.

Thus, JOHAR has created an opportunity for educated women to use their education along with added skills and knowledge in the village itself. One MT has started a successful poultry enterprise along with conducting training, and with the enhanced earnings and knowledge she is now the major decision-maker in her house.

In addition to these enhanced skills and income, they are no longer afraid of going out of their villages to the block and even the districts, sometimes staying overnight in other places. Exposure and the training are making them more confident, and their families now understand their importance and give them space. The MTs take full responsibility for training the APSs by preparing the venue, detailed plans of the six or seven days, the training content, sub-group activities, tests during training, feedback forms, field assignments, logistics, handling urgent needs of participants, etc. This shows the enhanced managerial capabilities they have acquired.

The extra earning from MT work and livestock rearing is reinvested in improved agriculture such as cultivating pigeon peas and yam, and also for the education of their children. These MTs are well known among block-level government officials, and the APSs and livestock farmers reach out to them for suggestions. This is a matter of immense pride for these women. For them the MT component is very exciting, and they use it to graduate from APS to MT by going through extended training and separate certification.

These MTs are highly impressive, and with their certification, they can work anywhere in India. "Goats are the poor woman's cow, and if an APS is there, the poor woman's cow is safe" remarks an MT, showing confidence in the APSs.

Risks The risk most commonly identified by APSs was the possible consequences of inappropriate treatment. They are greatly afraid of the death of animals due to wrong treatment, since this would erode the hard-earned trust of the livestock farmers.

Farmers

Livestock farmers supported by the JOHAR project are all women, ranging in age from 20 to 53 (and averaging 36), and having education levels ranging from unschooled to graduate. They joined the programme in the hope of improving their livestock-rearing practices, learning new skills and securing some project support. The programme is open to all women who are members of a self-help group (SHG) and are willing to invest in livestock farming. All are small or marginal farmers owning land from 0.25 to 3 acres. The households have an average of five members, and the head of the household is a male, generally the husband of the woman livestock farmer. All the participating farmers are traditional livestock farmers, with a system that includes a combination of domestic animals and farming, except for a few who started animal rearing

after participating in the JOHAR project. These traditional animal farmers have herds consisting of a few goats, cattle, pigs, chickens and ducks in various combinations. These farmers have been participating in the JOHAR project for the last two to three years.

The farmers acknowledged their enhanced awareness and appreciation of practising proper feed, mineral mixtures and azolla supplements, and of maintaining animal cleanliness and hygiene with proper animal sheds. They also mentioned the importance of adopting good practices such as timely vaccination, deworming, teeth clipping, provision of clean drinking water for the animals, timely castration, and daily bathing of pigs. These are highly significant changes, as small ruminants such as goats as well as pigs traditionally get far less attention and care. Instead, they are left to roam around, scavenging and grazing on field bunds or forest, and on returning home are tied to a tree or pole. They do not usually have a separate shed or get nutrient supplements or preventive healthcare. When these traditional farmers now talk about the importance of following these animal care practices, this is an indicator of significant capacity enhancement.

Owing to these changed practices there has been a significant reduction in animal mortality and large improvements in animal growth. APSs are playing a significant role in bringing about these practice changes through training, regular follow-ups and doorstep delivery of inputs and services. Another significant practice change reported by the farmers was the cultivation of crops such as radish and maize for animal feed along with azolla cultivation in plastic-lined pits. They also reported their plans for investing in cement-lined tanks for azolla cultivation for animal feed supplement. The farmers stated that while they traditionally reared goats there was generally no proper shed for the animals; now they have learnt about the need for a shed and how to prepare a proper one. Participation in training and meetings has enabled them to come forward, interact with others, take quick decisions, lodge requests with JOHAR officials, express their views in meetings and facilitate others to participate in livestock-related activities.

Table 3
Economic gains by livestock farmers

	Indicator	Changes
1	Increase in herd size	From 1–2 goats to a herd of 12–45 goats From 2 pigs to a herd of 21 pigs
2	Additional income from pig rearing	Rs 45 000 (USD 600)
3	Reduction in marketing time for goats and pigs	From 12 months to 6 months
4	Weight gain of pigs	25% more in the same time period
5	Enhanced survival	Almost 100 percent survival
6	Income enhancement from goat rearing	From Rs 20 000 (USD 267) to Rs 50 000 (USD 667)
7	New crops for animal feed	Azolla, maize, radish
8	Rearing goats for investment in daughters' education	From 3 goats to 47 goats

SOURCE: Authors' own elaboration.

The farmers are also adopting new agricultural practices such as cultivating crops (maize, radish) as feed for pigs, and the husbands are discussing crop decisions over different plots with their wives. Some women farmers also reported their decision to reinvest in these activities – despite initial losses – once they and their husbands had gained confidence in the activity and the support system created in the village through the APSs. Improved living standards and better diets are also reported by the farmers.

The women livestock farmers have gained respect in the local community: other farmers visit their sheds to look at their example, their children go to better schools, they have increased participation and decision-making in the local village council (*Gram Sabha*) meetings, and this contributes to their increased self-confidence.

When asked if they will continue these practices even after JOHAR stops providing support, all the farmers responded that they will continue the practices and seek help from APSs and local veterinarians, and they expressed their willingness to pay the APS for her services.

Though participation in training was not uniform for the livestock farmers, exposure to nearby villages and the fortnightly PG meetings provide a space for peer learning and sharing experiences. The farmers look forward to the PG meetings, where a great deal of discussion, experience sharing and learning takes place, an ongoing process of capacity enhancement for the participants. While considering the future, the farmers expressed their desire to be successful in livestock farming, increase their herd size, include broiler poultry, start a shop, and continue investing in agriculture and enhancing their children's education.

Producer Groups (PGs)

These are informal groups formed by mobilizing and aggregating local rural producers, including women and men from SCs and STs and smallholder households into PGs, with a focus on:

- diversification or intensification of their current production system and improving their participation higher up in the value chain;
- strengthening the competitive advantage of target rural producers by transferring climate-resilient production techniques, enhanced opportunities for value addition and effective market linkages;
- improving access to financing, including innovative financial products through the community institution platform and formal financial institutions (FFI);
- establishing partnerships with the private sector, including rural entrepreneurs, for effective forward and backward linkages with producers; and,
- supporting skills development and financing modalities to facilitate jobs and entrepreneurship with a focus on the value chain and agribusiness.

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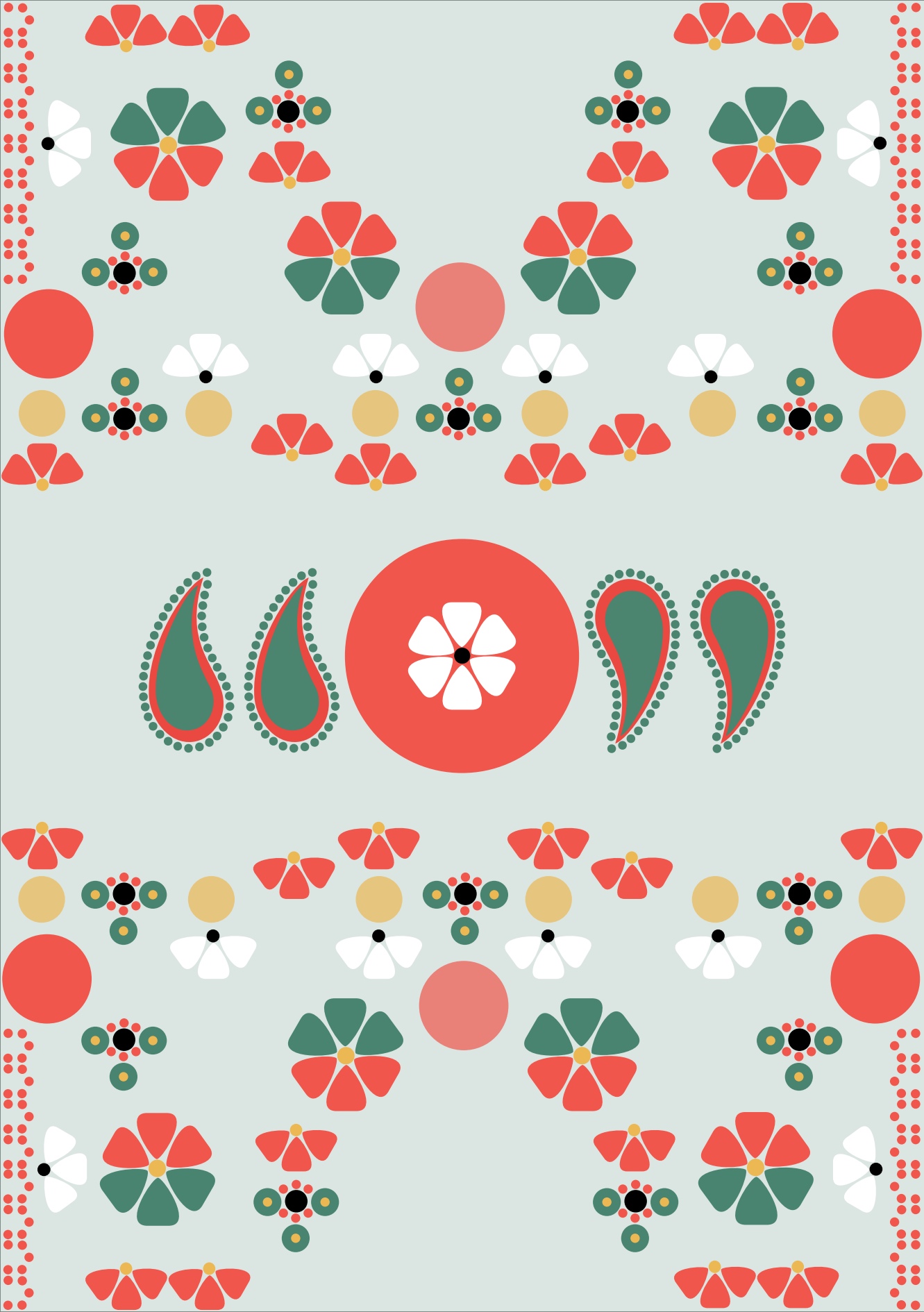

Chapter 6
Implementers and donors

The interactions with the implementation team provided insights into the capacity enhancement interventions as outputs of the project and its impacts. Most team members have engaged with the project for 1.5 to 3 years. The uniqueness of the AHCI model in JOHAR when compared with conventional programmes is that the JOHAR project is comprehensive as well as successful thanks to:

- bringing in professionalism at local level;
- standardization of the training programme, with detailed content and modules to be followed in each training;
- recognition for participating women;
- the programme's ability to work anywhere, with no boundaries
- its door-to-door service;
- targeting small ruminants, since the small and marginal farmers and the landless are heavily engaged in rearing these animals;
- addressing the preventative side of risk management;
- providing separate certification of the cadres, including MTs and APSs; and,
- the app-based monitoring system (though some challenges still exist).

There are about 16 000 APSs in India and about 6500 in Jharkhand, with about 1500 currently working under JOHAR.

The results framework of this programme is very strong, focusing on scale and sustainability. Participants are experiencing good outcomes, and over the coming two years or so, the APSs should be earning more and be independent.

The original conceptualization of the APS role was done under the NRLM, where the APS was supposed to provide scientific knowledge and skills that would then percolate to every livestock farmer through proper training and coaching. Farmers Field Schools (FFS) are used as a training methodology for livestock farmers. APSs are expected to acquire relevant knowledge and skills through structured training, exposure and experience to provide doorstep availability of animal healthcare, nutrition, insurance and marketing services.

JOHAR APS intervention focuses on capacity building among the APSs from the very beginning so that they can continue working and sustain their earnings. In addition, they are helped to realize their duty towards society. This self-realization and the enhanced capacity of the APSs through JOHAR are signs of a promising intervention. Similar developments were reported by MTs, who also noted that APSs whose motives are solely about earning do not sustain their efforts for very long, while those with learning and helping attitudes are more successful.

There are many examples of the APS model in Jharkhand and other states, but none on this scale or using this approach.

The APS intervention under JOHAR is very different from other *Pashu Sakhi* interventions elsewhere because of the scale and technical training seen in the approach. The unique JOHAR approach includes ensuring women-only participation, social orientation and standardized technical content, while other models have had a technology focus and a dominance of men as CSPs, with entrepreneurship and doorstep delivery generally missing.

In JOHAR, the APS has to undergo four modules of training for a total of 24 days. These modules comprise: cornerstone and facilitation training; technical training on goat rearing; technical training on pig rearing; and technical training on backyard poultry.

In addition, this training offers exposure to learning and knowledge sharing. APSs are certified by ASCI as Animal Health Workers and can sustain their work even after the project ends, as they have been groomed to be ready for all major livestock-related activities found in a village.

The community selects their own APSs based on eligibility criteria as shown below:

- to have passed standard 8th year schooling
- be from the same village
- be a member of a PG
- be a goat breeder with at least two goats
- be willing to go out for training and exposure purposes
- be actively looking for cash income.

The implementation team reports that, after only three years of this intervention, they feel that it is going well and does not need any major changes. If the initiative ever needs to be implemented in JOHAR, its features would be the same as in this current APS intervention.

The APS intervention under JOHAR can be replicated in other parts of India as this approach is one of a kind and its level of success is worth scaling up, not only through JOHAR but as part of any livestock project. While some are of the opinion that, as the APS intervention under JOHAR has completed only three years, it is too early for the intervention to be adopted in situations outside the JOHAR area, others still feel that it has set an example and should be adopted elsewhere.

Convergence with government departments and schemes is an important consideration for the sustainability of a project. The implementation team reported little difference of opinion regarding government convergence. Under JOHAR the livestock farmers construct sheds for their animals either through the project support or through convergence. In most cases low-cost sheds have been constructed from local materials available in the village. Some do believe that without government convergence, assets such as animal sheds and subsidized vaccines may become difficult to obtain, as well as expensive for the livestock farmers. The APSs therefore need to leverage the government system and access the resources available for livestock farmers. This may call for training and equipping the APSs to connect with government systems, as well as acceptance of the APSs by the government systems.

For capacity building in APSs, four modules of training are given covering both theory and practice; the exposure of APSs is also organized. Occasional refresher training is provided, and regular monthly review meetings are in progress to assess and support the APSs. Hand-holding support by the Technical Support Agency (TSA) also helps them in their capacity building.

Imparting training relies on a cascading model. In order to train the APSs, a pool of MTs was identified and trained. The MTs receive Training of Trainers (ToT) in four modules over 24 days delivered by the national trainers from Heifer International. They also receive ToT from ASCI and are subjected to assessment, before receiving certification by ASCI as Animal Health Workers. They are then given training in batches of 20–30 in all four modules over 24 days. They are not recognized as trainers without certification.

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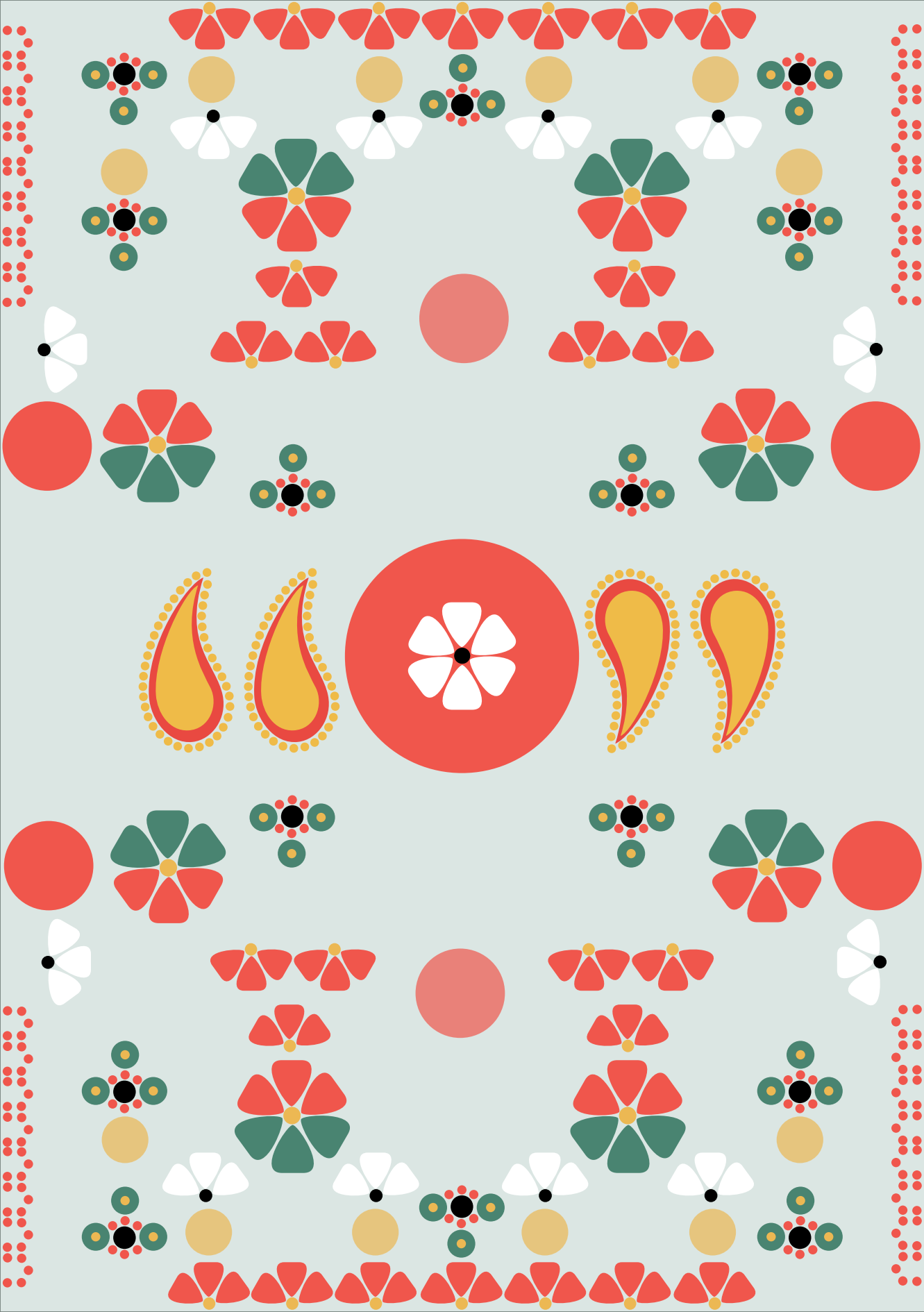

Chapter 7
Analysis of case

The case of the APSs under the JOHAR project gives confidence that it is possible to enhance human capacities even in the most poor and marginal groups, such as the women who raise livestock on small farms in remote villages. This was made possible by:

- engaging only local people as APSs;
- direct involvement in the activities, as all the APSs are also livestock farmers belonging to PG so that there is a peer pressure to ensure support;
- structured training and coaching by the best in the industry
- effectiveness of training with an independent evaluating agency such as ASCI;
- training in both human skills and values as well as technical training;
- opportunities for growth from APS to MT;
- provision of supplementary income and earnings from services rendered;
- opportunities to work anywhere as a certified APS or MT;
- development of a supporting network with MTs and external experts;
- ongoing support in the form of regular reviews and PG meetings;
- structured intervention in the activities along the entire value chain from shed construction, veterinary services, feed supplements up to marketing; and,
- APS and MT interventions provide opportunities for educated individuals in the village to apply their education for the well-being of livestock farmers and themselves.

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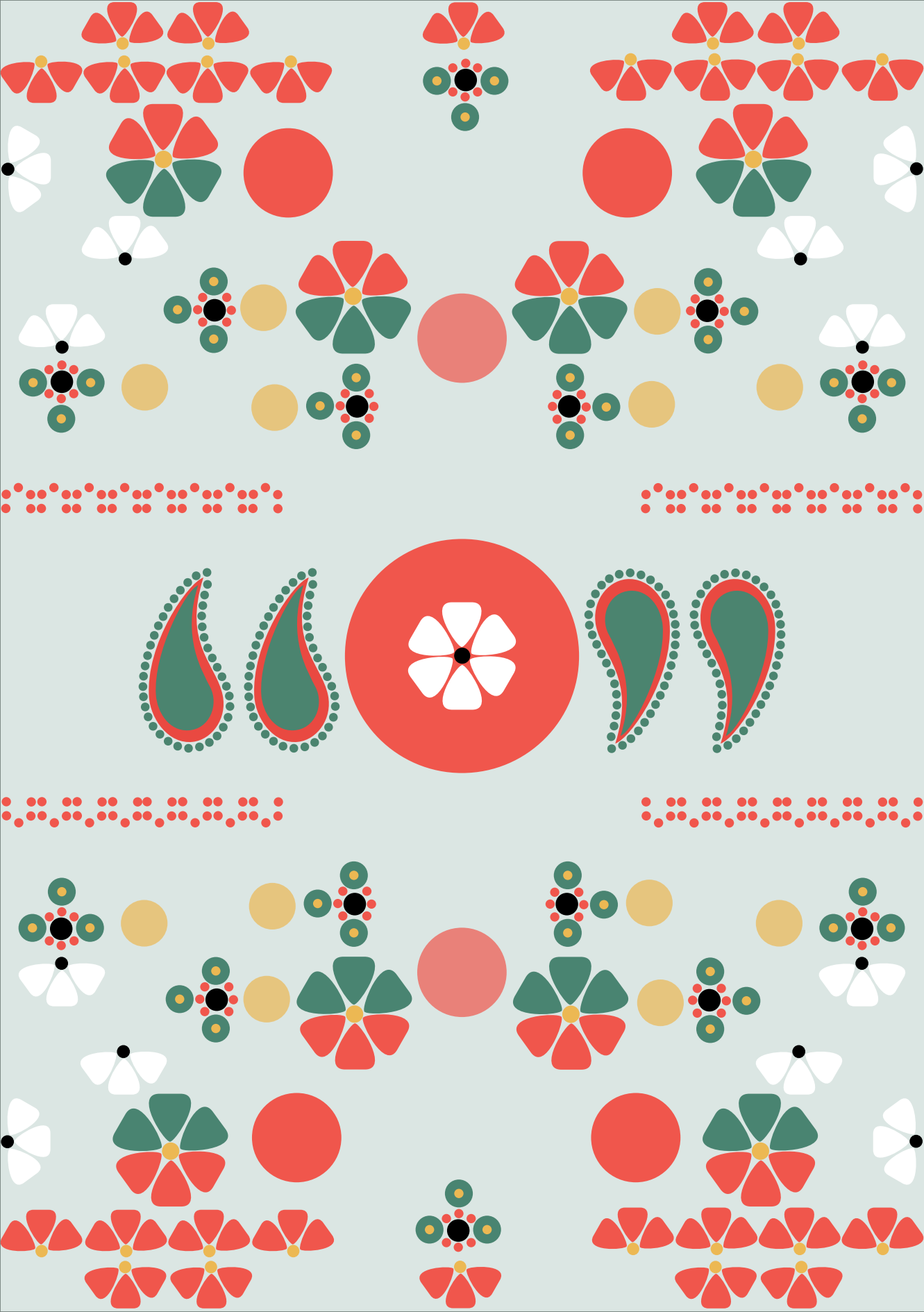

Chapter 8
Challenges and struggles

To train and sustain large numbers of APSs there is an urgent need for an adequate number of capable trainers and human resources. Supporting project staff such as supervisors are also needed for handling and managing the corps of APSs. Initially, the APSs need regular coaching support during their settling period.

Convergence and long-term collaboration are needed with state and central partners such as state skills councils, and national skills councils need to be more active to sustain the intervention after the project's duration.

Animal husbandry professionals working in the same area may be associated with different institutions and may find that the APSs are not qualified for vaccination or administering injectable drugs.

Standardized formats or a Market Intervention Scheme (MIS) need to be adopted by APSs and MTs for better decision making and data keeping.

The drop-out rate of trained APSs needs watching, particularly if this may be due to delayed payments of supplementary income from the project.

The APSs show various levels of skills and competencies because regular refresher training is missing.

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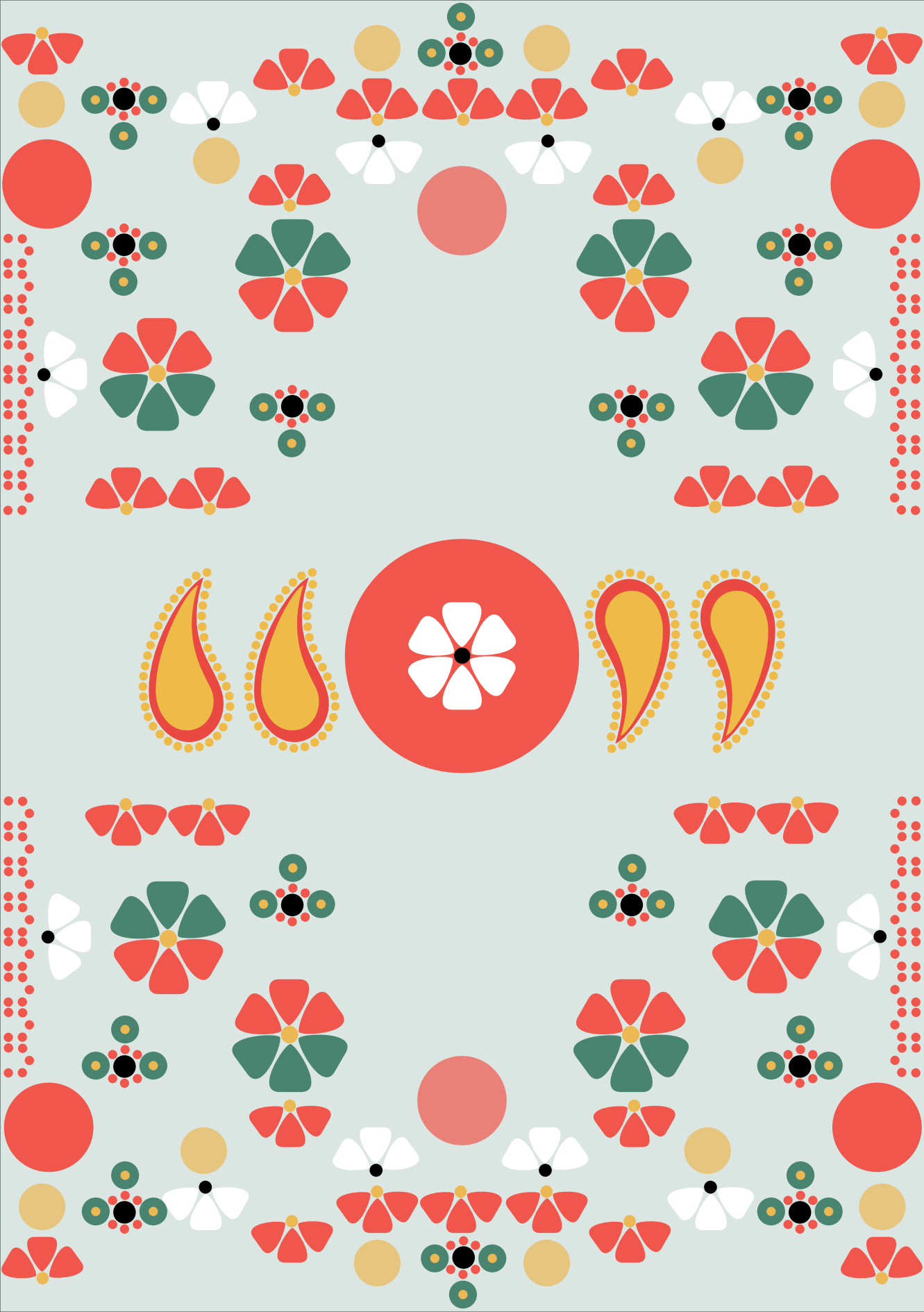

Chapter 9
Recommendations

- The impact of capacity enhancement interventions in the JOHAR project needs to be scaled out. There is an opportunity to share detailed concepts and learning notes with the Ministry of Rural Development to build bridges with national programmes such as NRLM. JSLPS can scale up the project in Jharkhand since it already has a large livestock-based livelihood programme in place.
- Since the COVID-19 pandemic is linked to animals, the health of people and animals is now seen in a continuum. There is a need for strategic intervention and collaboration between animal and human health ministries.
- Disease diagnosis is a challenge across the country. Animal husbandry departments should provide this support since it is a public good and requires greater investment in buildings, infrastructure, equipment, consumables and systems that can collect samples from the field, conduct testing and send results back to the farmers on time.
- APSs do not currently have multiple disease diagnosis capabilities, and lack the ability to use testing kits. A simple test is available which APSs could be trained to use. A colour-coded paper strip corresponding to the colour of the animal's eyes reveals how anaemic the animal is and indicates the endoparasite load and suggests corresponding deworming treatment by the APSs. It is very simple to administer in the absence of blood or faecal sample analysis facilities.
- While the diagnostic dimension is beyond the project, its presence would be a positive development.
- A digital MIS would enhance the monitoring and support system for APSs as the data will be available almost in real-time.
- A target-based reward system may be introduced, whereby an APS would be rewarded every time she achieves her target, which may contribute to the desired outcomes.

- Timely capacity-building with APSs will enable them to understand what is expected of them. Systematic review and monitoring of their work also need to be ensured.
- A needs assessment for conducting refresher training should be introduced so as to bring uniformity to the capacities of APSs.
- Building a cadre of highly trained APSs requires comprehensive teaching and coaching support, as very few organizations have these capabilities.
- APSs should also be provided with a certificate entitling them to administer vaccination and injectable medicines to animals.
- As regards "last-mile" service delivery through the APS programme (Leitch *et al.*, 2020), Jharkhand faces extra challenges as it has the least capacity in animal husbandry departments, despite a need for APSs based in the community, with hands-on experience, skilled and connected to input support. The JOHAR model is unique in many ways. Though it is highly successful, we always strive to do things better.

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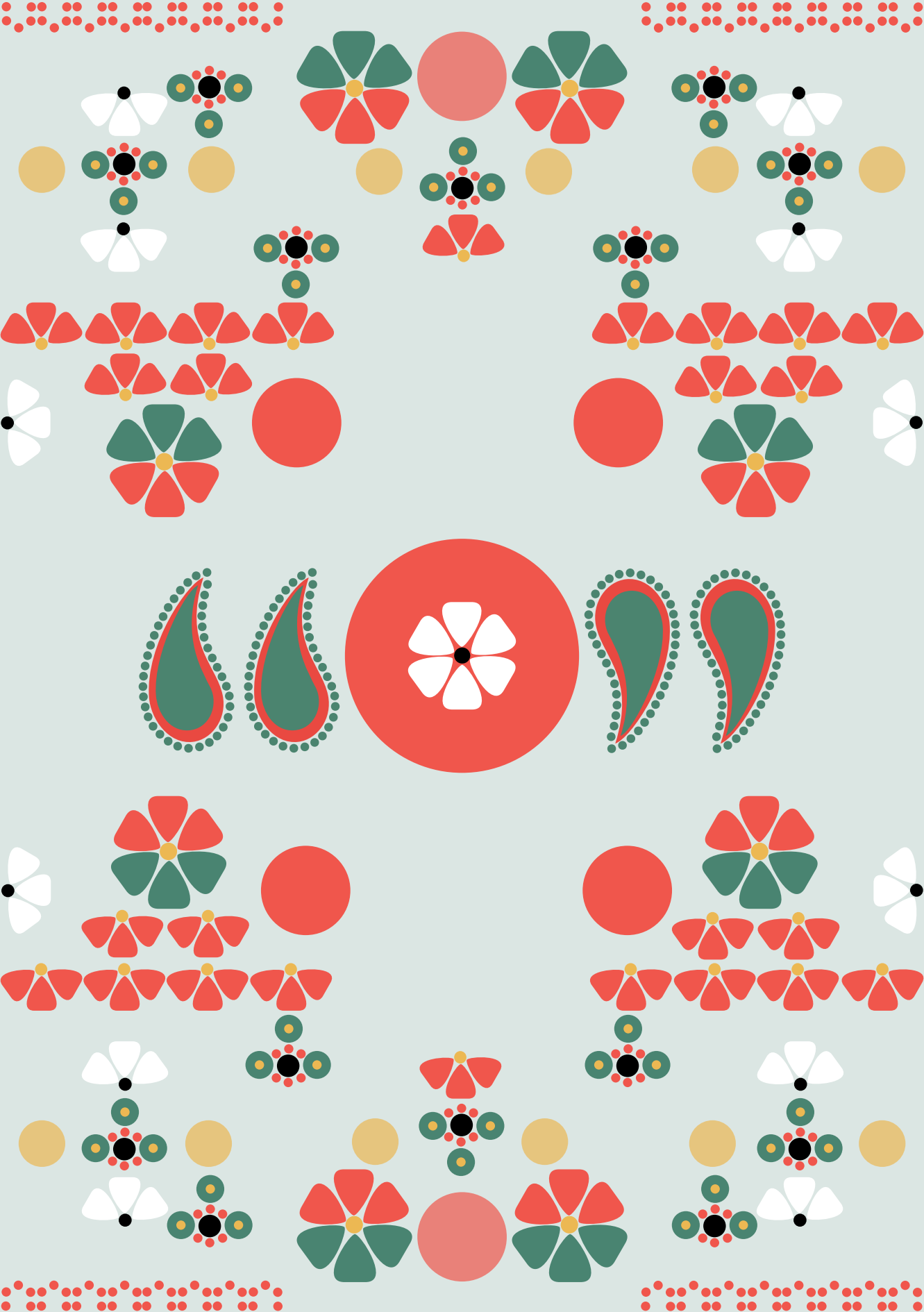

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Investing in farmers – or agriculture human capital – is crucial to addressing challenges in our agri-food systems. A global study carried out by the FAO Investment Centre and the International Food Policy Research Institute, with support from the CGIAR Research Programme on Policies, Institutions and Markets and the FAO Research and Extension Unit, looks at agriculture human capital investments, from trends to promising initiatives. One of the nine featured case studies is the Jharkhand Opportunities for Harnessing Rural Growth Programme in India. This case explores investment in developing the human capital of women livestock farmers as certified master trainers and community service providers known as Ajeevika Pashu Sakhi (APS). The livestock farmers were strategically identified, trained and coached as APSs to provide doorstep technical, marketing and risk reduction support to women livestock farmers. The APSs were supported by certified master trainers. The APS model enhanced the economic and social well-being of rural poor women working as livestock farmers and APSs. This publication is part of the Country Investment Highlights series under the FAO Investment Centre's Knowledge for Investment (K4I) programme.

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