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R2017-0114/1

May 9, 2017

Closing Date: Friday, May 26, 2017
at 6:00 p.m.

FROM: Acting Vice President and Corporate Secretary

India - Jharkhand Opportunities for Harnessing Rural Growth (JOHAR) Project

Project Appraisal Document

Attached is the Project Appraisal Document regarding a proposed loan to India for a Jharkhand Opportunities for Harnessing Rural Growth (JOHAR) Project (R2017-0114), which is being processed on an absence-of-objection basis.

Distribution:
Executive Directors and Alternates
President
Bank Group Senior Management
Vice Presidents, Bank, IFC and MIGA
Directors and Department Heads, Bank, IFC and MIGA

Document of
The World Bank

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Report No: PAD2273

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF US$100 MLLION

TO THE

REPUBLIC OF INDIA

FOR A

JHARKHAND OPPORTUNITIES FOR HARNESSING RURAL GROWTH (JOHAR) PROJECT

May 3, 2017

Agriculture Global Practice
South Asia Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective {Jan 18, 2017})

Currency Unit =	Indian Rupees
Rs 67.0 =	US$1
US$ =	SDR 1

FISCAL YEAR

April 1 – March 31

ABBREVIATIONS AND ACRONYMS

AAA	Aid, Accounts and Audit Division
AKM	Ajeevika Krishi Mitra
AMM	Ajeevika Matsya Mitra
APMC	Agricultural Produce Market Committee
APS	Ajeevika Pashu Sakhi
AVM	Ajeevika Vanopaj Mitra
BMMU	Block Mission Management Unit
CEO	Chief Executive Officer
CLF	Cluster-Level Federation
CPS	Country Partnership Strategy
CSP	Community Service Provider
CQS	Selection based on Consultant's Qualification
CRP	Community Resource Person
DAY-NRLM	Deen Dayal Antyodaya Yojana-National Rural Livelihoods Mission
DGS&D	Directorate General of Supplies & Disposals
DMMU	District Mission Management Unit
EA	Environment Assessment
EIRR	Economic Internal Rate of Return
EMF	Environment Management Framework
EMP	Environment Management Plan
F&C	Fraud and Corruption
FA	Framework Agreement
FBS	Selection under a Fixed Budget
FFI	Formal Financial Institution
FISC	Farmer Producers Organization Incubation and Support Cell
FMM	Financial Management Manual
GDP	Gross Domestic Product
GIS	Geographic Information System
GoI	Government of India
GoJ	Government of Jharkhand

GSDP	Gross State Domestic Product
HVA	High-Value Agriculture
HVC	High-Value Crop
ICB	International Competitive Bidding
ICT	Information and Communications Technology
ILRI	International Livestock Research Institute
INDC	Intended Nationally Determined Contribution
IRRI	International Rice Research Institute
IUFR	Interim Unaudited Financial Report
JLG	Joint Liability Group
JOHAR	Jharkhand Opportunities for Harnessing Rural Growth
JSAMB	Jharkhand State Agricultural Marketing Board
JSLPS	Jharkhand State Livelihood Promotion Society
KCC	Kisan Credit Card
LCS	Least-Cost Selection
LFPR	Labor Force Participation Rate
LWE	left wing extremism
M&E	Monitoring and Evaluation
MEDSP	Micro-Enterprise Development Service Provider
MFI-NBFC	Micro Finance Institutions-Non Banking Financial Company
MIDH	Mission for Integrated Development of Horticulture
MIS	Management Information System
MoUs	Memoranda of Understanding
NABARD	National Bank for Agriculture and Rural Development
NAIS	National Agricultural Insurance Scheme
NCIP	National Crop Insurance Programme
NGO	Non-Governmental Organization
NICRA	National Initiative on Climate Resilient Agriculture
NMSA	National Mission on Sustainable Agriculture
NPV	Net Present Value
NRLM	National Rural Livelihoods Mission
NRLP	National Rural Livelihoods Project
NSDM	National Skill Development Mission
NTFP	Non-Timber Forest Produce
PDO	Project Development Objective
PFS	Project Financial Statement
PG	Producer Group
PIE	Para Irrigation Engineer
PIP	Project Implementation Plan
PMKSY	Pradhan Mantri Krishi Sinchayee Yojana
PMKVY	Pradhan Mantri Kaushal Vikas Yojana
PO	Producer Organization
PPCP	Public–Private–Community Partnership
PRADAN	Professional Assistance for Development Action
PVTG	Particularly Vulnerable Tribal Group
QBS	Quality-Based Selection
QCBS	Quality- and Cost-Based Selection
RKVY	Rashtriya Krishi Vikas Yojana

SA	Social Assessment
SC	Scheduled Caste
SFAC	Small Farmers Agribusiness Consortium
SHG	Self-Help Group
SMF	Social Management Framework
SMMU	State Mission Management Unit
SSS	Single-Source Selection
STEP	Systematic Tracking of Exchanges in Procurement
ST	Scheduled Tribe
TDF	Tribal Development Framework
TDP	Tribal Development Plan
TO	Technical Operator
ToR	Terms of Reference
TSA	Technical Support Agency
VEGFED	Jharkhand State Adivasi Co-operative Vegetable Marketing Federation Ltd.
VO	Village Organization

Vice President:	Annette Dixon
Country Director:	Junaid Kamal Ahmad
Senior Global Practice Director:	Juergen Voegele
Practice Manager/Manager:	Shobha Shetty
Task Team Leaders:	Priti Kumar, Grant Milne

BASIC INFORMATION

Is this a regionally tagged project?	Country(ies)	Financing Instrument
No		Investment Project Financing

[ ] Situations of Urgent Need of Assistance or Capacity Constraints

[ ] Financial Intermediaries

[ ] Series of Projects

Approval Date	Closing Date	Environmental Assessment Category
26-May-2017	30-Jun-2023	B - Partial Assessment

Bank/IFC Collaboration
No

Proposed Development Objective(s)

The PDO is to enhance and diversify household income in select farm and non-farm sectors for targeted beneficiaries in project areas.

Components

Component Name	Cost (US$, millions)
Diversified and Resilient Production and Value Addition	110.72
Promoting Market Access, Skill Development and Pro-Poor Finance Systems	13.46
Project and Knowledge Management	18.82

Organizations

Borrower :	Department of Economic Affairs, Ministry of Finance, Government of India
Implementing Agency :	Department of Rural Development, Government of Jharkhand

Safeguards Deferral

Will the review of safeguards be deferred?

[ ] Yes [ ] No

PROJECT FINANCING DATA (IN USD MILLION)

[✓] Counterpart Funding	[✓] IBRD	[ ] IDA Credit [ ] Crisis Response Window [ ] Regional Projects Window	[ ] IDA Grant [ ] Crisis Response Window [ ] Regional Projects Window	[ ] Trust Funds	[ ] Parallel Financing

Total Project Cost: 143.00	Total Financing: 143.00 Of Which Bank Financing (IBRD/IDA): 100.00	Financing Gap: 0.00

Financing (in US$, millions)

Financing Source	Amount
Borrower	43.00
International Bank for Reconstruction and Development	100.00
Total	**143.00**

Expected Disbursements (in US$, millions)

Fiscal Year	2017	2018	2019	2020	2021	2022	2023
Annual	0.00	10.00	5.00	25.00	25.00	20.00	15.00
Cumulative	0.00	10.00	15.00	40.00	65.00	85.00	100.00

INSTITUTIONAL DATA

Practice Area (Lead)

Agriculture

Contributing Practice Areas

Finance & Markets
Trade & Competitiveness
Social, Urban, Rural and Resilience Global Practice
Water

Gender Tag

Does the project plan to undertake any of the following?

a. Analysis to identify Project-relevant gaps between males and females, especially in light of country gaps identified through SCD and CPF

Yes

b. Specific action(s) to address the gender gaps identified in (a) and/or to improve women or men's empowerment

Yes

c. Include Indicators in results framework to monitor outcomes from actions identified in (b)

Yes

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	Low
2. Macroeconomic	Low
3. Sector Strategies and Policies	Low
4. Technical Design of Project or Program	Substantial
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	Moderate
7. Environment and Social	Moderate

8. Stakeholders	Moderate
9. Other	Low
10. Overall	Moderate

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	✓	
Natural Habitats OP/BP 4.04		✓
Forests OP/BP 4.36		✓
Pest Management OP 4.09	✓	
Physical Cultural Resources OP/BP 4.11		✓
Indigenous Peoples OP/BP 4.10	✓	
Involuntary Resettlement OP/BP 4.12		✓
Safety of Dams OP/BP 4.37		✓
Projects on International Waterways OP/BP 7.50		✓
Projects in Disputed Areas OP/BP 7.60		✓

Legal Covenants

Sections and Description

The Project Implementing Entity shall be responsible for the management and coordination of the implementation of the Project and, for these purposes, shall:

(a) maintain the State Mission Management Unit within the JSLPS;

(b) designate a full-time Project Director for the Project by four (4) months after the Effective Date;

(c) maintain staff within JSLPS with adequate skills, qualifications and experience and in sufficient number, as

set forth in the PIP; and
(d) establish, within three (3) months after the Effective Date, and thereafter maintain throughout the implementation of the Project, the District Project management Unit within JSLPS.

Sections and Description
The Project Implementing Entity shall:
(a) prepare and furnish to the Bank, not later than February 28 of each year, commencing in February 28, 2018, an annual work plan, budget and procurement plan for implementation of the Project in such form and detail as theBank shall request, and finalize, not later than March 31 of each year, such plans taking into account the Bank's comments thereon; and
(b) maintain throughout the duration of the project, staff with responsibilities as outlined in the PIP, at the SMMU, DMMUs and BMMU.

Sections and Description
The Project Implementing Entity shall ensure that its government departments and agencies implementing the Project, including JSLPS, SMMU, DMMU, BMMU, WUGs and Sub-grant Recipients shall carry out the Project in accordance with: (i) the EMF and the SMF/TDF; and (ii) EMP(s) and/or TDP(s) to be prepared, pursuant to paragraph 3 of this sub-section, in accordance with the objectives, policies, procedures, time schedules and other provisions set forth in the EMF, the SMF/TDF (the EMF, SMF/TDF, PMP, EMP(s) and TDP(s) collectively referred to as the "Safeguard Documents"), in each case in a manner and in substance satisfactory to the Bank.

Sections and Description
The Project Implementing Entity shall cause JSLPS to maintain and operate throughout the period of Project implementation, grievance redress cells and grievance processing protocol for the handling of any stakeholder complaints arising out of the implementation of Project activities, in a manner and substance agreed with the Bank.

Sections and Description
The Project Implementing Entity shall: (a) ensure that any civil works, technical assistance, studies, Business Plans or Community Plans to be supported under the Project are carried out under terms of reference satisfactory to the Bank following the review thereof and, to that end, said activities shall duly incorporate the requirements of the Bank's Safeguard Policies; and (b) exclude from financing any activity that involves water use or potential pollution of International Waterways (including detailed design and engineering studies of such investments) from the following Blocks: Shikaripara, Dumka, Masaliya, Ramgarh, Gandey, Deori, Tisri, Ghaghra, Bishnupur, Barwadih, Chandwa, Garu, Manika, Kisko, Senha, Pakuria, Pakur, Maheshpur, Amarpara, Chhatarpur, Patan, Chainpur.

Sections and Description
No withdrawal shall be made for payments made prior to the date of the Loan Agreement except that withdrawals up to an aggregate amount not to exceed US$5,000,000 may be made for payments made prior to said date but

on or after July 1, 2016, for Eligible Expenditures under Category (1).

Conditions

Type	Description
Disbursement	No withdrawal shall be made for PG/PO Sub-grants under Category (2)(a), unless and until the Project Implementing Entity through JSLPS adopts the PG/PO Sub-grants Operational Manual, in form and substance satisfactory to the Bank.
Disbursement	No withdrawal shall be made for Innovation Marketplace Sub-Grants under Category (2)(b), unless and until the Project Implementing Entity through JSLPS adopts the Innovation Marketplace Sub-grants Operational Manual, in form and substance satisfactory to the Bank

PROJECT TEAM

Bank Staff

Name	Role	Specialization	Unit
Priti Kumar	Team Leader(ADM Responsible)	Senior Agriculture Specialist	GFA06
Grant Milne	Team Leader	Senior Natural Resources Management Specialist	GFA12
Balagopal Senapati	Procurement Specialist(ADM Responsible)	Procurement Specialist	GGO06
Manvinder Mamak	Financial Management Specialist	Senior Financial Management Specialist	GGO24
Abimbola Adubi	Team Member	Peer Reviewer	GFA01
Adarsh Kumar	Team Member	Senior Agribusiness Specialist	GFA06
Albert Sole Canut	Team Member	Senior Economist	GTC06
Anju Gaur	Team Member	Senior Water Resources Specialist	GWA06
Anupam Joshi	Safeguards Specialist	Senior Environmental Specialist	GEN06
Christopher Ian Brett	Team Member	Reviewer	GFAGE
Jacqueline Julian	Team Member	Operations Analyst	GFA06

Junko Funahashi	Team Member	Lead Counsel	LEGES
Manivannan Pathy	Team Member	Senior Agriculture Specialist	GFA12
Matthew Stephens	Team Member	Senior Social Development Specialist	GSU02
Natasha Hayward	Team Member	Peer Reviewer	GFAGE
Nathan M. Belete	Team Member	Peer Reviewer	GFA02
Panayotis N. Varangis	Team Member	Reviewer	GFM3A
Parmesh Shah	Team Member	Reviewer	GFA06
Randall Brummett	Team Member	Senior Fisheries Specialist	GENGE
Rohan G. Selvaratnam	Team Member	Operations Analyst	GFA12
Sandra Ursula Sousa	Team Member	Program Assistant	SACIN
Sarita Rana	Team Member	Senior Program Assistant	SACIN
Toshiaki Ono	Team Member	Reviewer	GFM3A
Varun Singh	Safeguards Specialist	Senior Social Development Specialist	GSU06
Venkatakrishnan Ramachandran	Team Member	Operations Support	GFA12
Victor Manuel Ordonez Conde	Team Member	Finance Officer	WFALA
Vinay Kumar Vutukuru	Team Member	Senior Agriculture Specialist	GFA06
Vinayak Narayan Ghatate	Team Member	Senior Rural Development Specialist	GFA06

Extended Team

Name	Title	Organization	Location
Abhishek Gupta	Consultant - Monitoring and Evaluation	FAO	Delhi,India
Amit Arora	Consultant - Financial Inclusion	World Bank	Delhi,India
Helen Leitch	Senior Livestock Specialist	FAO	Rome,Italy
Kalyani Kandula	Consultant - Community Driven Development & NRM	FAO	Hyderabad,India
Raghvendra Singh	Consultant - Agriculture Finance	World Bank	Vadodara,India
S. C. Rajshekhar	Consultant - Agriculture and Irrigation	World Bank	Banglaore,India

Shouvik Mitra	Consultant - Producer Organizations	FAO	Delhi,India
Simon FungeSmith	Senior Fisheries Officer	FAO	Rome,Italy
Thomas Muenzel	Senior Economist	FAO	Rome,Italy
Uwe Grewer	Climate Change Mitigation Specialist	FAO	Rome,Italy
Vanitha Kommu	Consultant - Environmental Safeguards	World Bank	Hyderabad,India
Vivek Prasad	Consultant - GIS and Climate Change	World Bank	Washington DC,United States

CONTENTS

I. STRATEGIC CONTEXT

A. Country Context

1. **India is on the path to becoming an economic powerhouse, but it continues to have a high level of poverty.** India is among the fastest-growing economies of the world with a growth rate of 7.6 percent in 2015–16. The Indian economy has the potential to double its 2009 size by 2019. Much of this growth story is to be scripted by the one billion strong working age population – the largest labor force in the world[i]. However, a poorly skilled and under-productive population trapped in poverty could compromise this potential. India still has 21.9 percent of its population living in poverty[ii], with most of them concentrated in rural areas (80 percent)[iii] and in 'low-income states' (62 percent)[iv]. In addition, inequalities across social groups (such as Scheduled Castes (SCs), Scheduled Tribes (STs) and women) cause these groups to lag behind the general population.

2. **Agriculture and allied sectors are vital to rural household incomes.** While the share of agriculture and allied sectors (including agriculture, livestock, forestry and fisheries) is only 14 percent of the national Gross Domestic Product (GDP) (2015–16), it still supports about 55 percent of the country's workforce[v] and contributes to about 60 percent of the total household income of 58 percent of rural households[vi]. However, the situation of agriculture-dependent households is grim with 22.5 percent of cultivator households and 36 percent of agriculture labor households being poor[vii].

3. **Government of India (GoI) is laying emphasis on enhancing farmer incomes in agriculture and allied sectors**. The agriculture development strategy in the past half century focused primarily on raising output for food security and helped food production multiply by 3.7 times while the population multiplied by 2.55 times. However, farmers' incomes remained low at just one-third of the income of non-agricultural workers and have shown a deteriorating trend[viii]. The GoI in the Union Budget 2016–17 articulated its resolve to double farmer incomes by 2022[ix]. The issues that it seeks to address include optimal utilization of water resources, creation of new infrastructure for irrigation, conservation of soil fertility and balanced use of fertilizers, provision of value addition, and connectivity from farm to markets. In addition, India is: promoting diversification into fruits and vegetables (through the national Mission for Integrated Development of Horticulture (MIDH)); improving livestock production systems including poultry, small ruminants and piggery (through the National Livestock Mission); supporting the adoption of sustainable farming practices (through the National Mission on Sustainable Agriculture (NMSA) and Paramparagat Krishi Vikas Yojana (PKVY)); enabling access to soil testing services (through the Soil Health Card scheme); promoting improved soil and water conservation, irrigation access and water use efficiency (through the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)); building resilience against extreme weather events and climate change (through the National Crop Insurance Programme (NCIP), National Agricultural Insurance Scheme (NAIS), National Initiative on Climate Resilient Agriculture (NICRA) and Intended Nationally Determined Contributions (INDCs)); supporting the creation of Producer Organizations (POs) as economic units at the farm level and their linkages with markets and trade (through the Small Farmers Agribusiness Consortium (SFAC)); and focusing on skill development through the National Skill Development Mission (NSDM) (and its constituent schemes such as the Pradhan Mantri Kaushal Vikas Yojana - PMKVY). The GoI is also implementing the Deen Dayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM) for creating strong community institutions with an emphasis on

financial inclusion as a foundational strategy for poverty reduction.

4. This provides an opportunity to build on the existing conducive environment and enhance incomes of rural households reliant on agriculture and allied sectors.

B. Sectoral and Institutional Context

5. **Jharkhand has the second-highest poverty rate in the country.** Despite having the largest share of the country's mineral resources and impressive economic performance during the 12th Five Year Plan (2012–17), poverty incidence in Jharkhand remains at 37 percent. Progress across social groups is uneven, with SC/STs and women performing significantly worse than other social groups. Nearly half of the ST households (which account for 27 percent of all households) are poor. The Labor Force Participation Rate (LFPR) of Jharkhand (31.4 percent) is lower than that of India (36.4 percent); the LFPR for women is 23.5 percent, lower than India's 27 percent[x]. Jharkhand also scores significantly lower than the country average in most human development indicators. The presence of Left Wing Extremism (LWE) in majority of the 24 districts[xi] hinders public and private investments as well as service delivery, especially in the forested and mining areas.

6. **A majority of rural households depend on agriculture and allied sectors for their livelihood, but the contribution of these sectors to household income is limited.** More than half the labor force in rural Jharkhand (60 percent[xii]) depends on agriculture and allied sectors for their livelihood. A large proportion of the farming community includes marginal[1] (63 percent) and small[2] farmers (18 percent)[xiii] practicing rain-fed, single-cropped subsistence farming. The agriculture sector is highly vulnerable to climate change (nine districts are classified as having very high or high vulnerability)[xiv]. Recent droughts resulted in 40 percent crop losses and soil moisture stress annually due to poor monsoons. Income from farming contributes to only 31 percent of the household income (and only 6 percent of the cash flow[xv]) as against income from wages that accounts for 40 percent of household income[xvi] (and 28 percent of the cash flow[xvii]). 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[xviii]. Non-Timber Forest Produce (NTFP) and related artisanal products contribute to about a quarter of the annual household income in forest and forest-fringe villages[xix]. Several factors (such as poor productivity, access to irrigation, skills, markets and finances) limit the potential of agriculture and allied sectors to contribute substantially to rural household incomes. Vegetable productivity in Jharkhand is less than that in the comparable states of Bihar and West Bengal for most vegetables (brinjal, cabbage, cauliflower, potato, tomato). Livestock productivity is less than 12 percent of that in leading states[xx]. Fisheries development is still nascent and the state ranks 17th in the country in terms of fish production[xxi].

7. **Access to irrigation is a critical limiting factor affecting crop choice, yield, cropping intensity and ultimately income.** Just 13.5 percent of the net sown area in Jharkhand has access to irrigation. Inadequate development and poor maintenance of irrigation infrastructure has led to only 12 percent of the state's irrigation potential being utilized. Progress in the state has been slow due to the unimodal nature of rainfall and complexities in acquiring land in forests and tribal areas. The Government of Jharkhand (GoJ) is focusing on augmenting available resources through rainwater harvesting and

[1] Average land holding of 0.52 ha.
[2] Average land holding of 1.52 ha.

watershed management, and scaling up water-use efficiency through micro-irrigation. With only 5.72 percent of rural households owning any irrigation equipment (such as pump sets, sprinklers or drip irrigation systems), much needs to be done[xxii].

8. **Poor market access and an underdeveloped financial sector limit the options and incomes of small producers.** Lack of aggregated production volumes limits the outreach and bargaining power of rural producers, who end up trading through intermediaries or in small un-organized rural markets at lower prices, thus reducing incomes. The majority of tie-ups of retailers/processers are with medium and large farmers because of the high transaction costs of dealing with a large number of small producers. Jharkhand's existing POs are limited to the fisheries and poultry sub-sectors. The National Bank for Agriculture and Rural Development (NABARD) is in the process of registering 65 POs in agriculture. The focus of the existing POs on post-harvest activities and market linkages is weak. The financial sector is not sufficiently developed to benefit POs for market-based operations. Only about 47 percent of rural households have access to banking services[xxiii]. Jharkhand's credit–deposit ratio in the banking sector is 45 percent[xxiv] compared to 59 percent for West Bengal – the best performing state in eastern India[xxv]. The share of the agriculture sector in the total credit portfolio of the banking sector is 17.6 percent and its contribution to non-performing assets is slightly higher at 20.1 percent[xxvi]. Women Self-Help Groups (SHGs) have become an increasingly important source of credit for rural households in the state (providing 31 percent of loans accounting for 18 percent of the loan volume)[xxvii]. However, though 107,955 SHGs have savings bank accounts, 44 percent are yet to be financed by banks[xxviii].

9. **Persistent gender gaps in agriculture limit women's access and control.** Majority of the women in rural Jharkhand work in agriculture, livestock and forestry activities and do major part of the work. Their burden is further intensified due to factors such as men moving away from farming activities, low and variable farm yield and income, poor food security and nutrition status, and gender gap in wages. Women's presence and participation is mostly in pre-production and production activities, and they are less involved in post-harvest activities, especially in value addition, accessing markets and controlling cash income. Women continue to lack ownership and control of productive resources (such as land, irrigation), as well as access to skill training, extension and advisory services.

10. **Skill development in agriculture and allied areas is lagging behind the growing demand from agriculture production and enterprise**. While only about 1 percent of rural households in Jharkhand depend on own enterprises for their livelihood[xxix], there is an emerging positive trend with the state now accounting for the highest number of new medium-, small- and micro-enterprises in the agriculture and allied sectors compared to other states in the region[xxx]. These enterprises and their growing diversification into high-value production require a skilled workforce. There is an estimated incremental need of about 347,400 people in the unorganized agriculture sector and about 4,000 people (skilled, semi-skilled and low skilled) in the organized agriculture sector during 2017–2022[xxxi]. The state Skill Development Mission has also identified skill development in the agriculture sector as a priority[xxxii]. However, the rural workforce, especially women, face both demand and supply side constraints in availing this emerging opportunity. Most rural women workers (about 45 percent) are engaged as unskilled agricultural labor[xxxiii]. Skill training opportunities in the state are limited in terms of the sub-sectors covered, the skill sets offered, availability of training providers, etc.[xxxiv].

11. **Government of Jharkhand requested the World Bank to support a transformative approach to**

enhance rural household incomes by developing diversified agriculture and allied sector livelihoods while also addressing the critical challenges described above. Jharkhand has the lowest average monthly expenses (Rs 571) and receipts (Rs 2,049) for crop production per agricultural household among all the major states[xxxv]. Moving from this low-productivity/low-income situation onto a high-productivity/high-income trajectory will require building upon the competitive advantages of the state as well as risk mitigation. Diversification into higher value crops presents a significant opportunity. The state has already made rapid progress in horticulture with around 4.27 lakh hectares under vegetables and fruits (out of the net sown area of 23.62 lakh hectares) and an all-India ranking within 10 for several vegetable crops. Livestock is one of fastest growing sectors and is a promising high-value option for landless households. Market prices for meat and eggs have increased by 70–100 percent in the past decade in local markets and have also pushed up farm gate prices[xxxvi]. Fish production has maintained a high growth rate of 17.23 percent over the past 11 years, despite limitations such as dependence on seasonal water bodies and recurrent droughts. Among the NTFP, Jharkhand already contributes to around 57 percent of India's lac production[xxxvii] and around 63 percent of its tassar production[xxxviii]. There is also emerging small private enterprise activity in the agro-based sector.

12. **Government of Jharkhand's policies in rural development, agriculture and allied sectors provide a conducive environment for implementing the proposed approach.** GoJ's commitment to strengthening value chains and market orientation in agriculture and allied sectors is reflected in the state's food and feed processing industry policies, and in the amendments to the Agricultural Produce Marketing Committee Act which permit establishment of private market yards, direct purchase by bulk buyers from producers, e-trading and contract farming[xxxix] Jharkhand recently joined the 'National Agriculture Market' digital trading platform. The state strategy on agriculture emphasizes greater access of women to land, credit, seeds and fertilizers. The GoJ also aims to promote drudgery reduction measures, on farm and non-farm income generating activities, and processing and marketing agro-enterprises for women. Through adoption of the National Rural Livelihoods Mission (NRLM)[xl] guiding principles on SHG development, and the emphasis on farmers' participation in irrigation management in its water policy,[xli] the GoJ has articulated its support for community-led approaches and women's empowerment. To give greater focus and visibility to gender outcomes, the GoJ has recently initiated a 'Gender Budget'.

13. **World Bank's engagement in Jharkhand through the National Rural Livelihoods Project (NRLP) has built a strong institutional platform of women's self-help groups who can spearhead the proposed approach.** The NRLP, which is part of the NRLM, has a strong focus on inclusive targeting of the poor, community empowerment and women's social as well as financial inclusion. Its current outreach is to all the 24 districts of the state covering about 80124, women-led SHGs[xlii]. The 1,000,000 women members of SHGs have cumulatively leveraged Rs 1400 million through internal savings and bank credit. The NRLM has demonstrated that community-managed institutions of the poor can function as efficient partners for livelihood enhancement interventions. It has created a large cadre of women community leaders, community mobilizers and resource persons, and has facilitated greater participation of women in decision making. An associated program, the Mahila Kisan Sashaktikaran Pariyojana (MKSP), has built the productive and managerial capacity of about 66,000 women and enhanced their access and control over better inputs and farm practices. The proposed project will build upon this institutional platform of rural women, targeting a subset of households that are ready to move towards intensification, diversification and enhanced market orientation of production systems. While the Jharkhand Opportunities for Harnessing Rural Growth (JOHAR) project will intervene in several of the sectors that NRLM is also

engaged in, the key difference would be its emphasis on aggregation and market linkages, financial interventions and skill development to support high-value production for augmenting cash incomes.

C. Higher Level Objectives to which the Project Contributes

14. The proposed World Bank support to the JOHAR project is consistent with the Country Partnership Strategy (CPS) for India (2013–17) (Report 76176) and fits within two of the main engagement areas – transformation and inclusion. Under transformation, the key thrust will be on enhancing agricultural incomes through increased productivity, improved market linkages and value addition; supported by strengthening extension services and improving access to credit; with a focus on sustainable natural resource management and appropriate technology. Under inclusion, the emphasis will be on economic integration and enhancing rural livelihood opportunities of the most disadvantaged groups including women. The project will support climate-resilient agriculture, agricultural markets, water and natural resources management (CPS outcome 2.4). It will also support enhancement of rural livelihood opportunities through encouraging diversification, lowering production costs, strengthening market linkages, skill development and self-employment (CPS outcome 3.6), and increased access to financial services (CPS outcome 3.7).

15. The project activities will contribute to meeting the goals of the National Policy for Farmers 2007 (such as increasing net income of farmers, conserving natural resources for sustained agriculture growth, developing agriculture support services, managing risk, as well as enhancing opportunities for farm and non-farm skills and employment). The project is also closely aligned with the focus areas for agriculture outlined in the 12th Five Year Plan (2013–17) of the GoI (i.e. bringing scale through development of POs, initiating a shift towards sustainable and climate-resilient agriculture, and preparing for faster growth through more diversified agriculture). Farm profitability, especially in rain-fed areas, is viewed as central to achieving rapid and inclusive agricultural growth. Given that women producers will be significant beneficiaries of the project, JOHAR will contribute to reduction of gender gaps in agriculture, financial inclusion, and food and nutrition security.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

16. The Project Development Objective (PDO) is to enhance and diversify household income in select farm and non-farm sectors for targeted beneficiaries in project areas.

17. The project would achieve the PDO by: (a) mobilizing and aggregating rural producers including women and men from SC/ST and smallholder households into Producer Groups (PGs) and POs, with focus on diversification and/or intensification of their current production system, and improving their participation higher up in the value chain; (b) strengthening the competitive advantage of target rural producers by transfer of climate-resilient production techniques, enhanced opportunities for value addition and effective market linkages; (c) improving access to financing, including innovative financial products, through the community institution platform and formal financial institutions (FFIs); (d)

establishing partnerships with the private sector, including rural entrepreneurs, for effective forward and backward linkages with producers; and (e) supporting skill development and financing modalities to facilitate jobs and entrepreneurship with a focus on the value chain and agribusiness.

B. Project Beneficiaries

18. The primary project beneficiaries are from rural households, the majority of whom will be women SHG members, including from SC, ST, and smallholder and landless households in selected blocks of rural Jharkhand. The beneficiary households will be largely from the SHG households supported by NRLM and will be selected for inclusion in the project through a participatory, community-driven process that will employ well-defined criteria including their actual/potential ability to generate marketable surplus production.

19. The 68 blocks in 17 districts for inclusion in the project were identified based on the geographical spread, poverty incidence, inclusion of marginalized groups (STs). A significant number of these blocks are in LWE areas. Out of these, in about 15 percent of the blocks, the community mobilization and capitalization through the NRLM is at very early stages. The project entry into the blocks is through a phased approach which takes into consideration the presence of mature community institutions, so that the 15 percent blocks (mentioned above) are entered only by year 3. The identification of the specific interventions in the blocks was done taking into consideration the existing production base, the intensity of production in selected sub-sectors (High-Value Agriculture (HVA), fisheries, livestock, NTFP), the potential for future growth, etc. The project will focus interventions on identified key sub-sectors reaching about 200,800 households. The sub-sector-wise outreach will be about 150,900 households for HVA and irrigation, about 51,000 households for livestock, 34,500 households for fisheries, and 29,200 households for NTFP interventions. The target numbers of households will overlap across the sub-sectors as most households will be mapped to at least two sub-sectors that are most optimal in terms of potential for achieving significant impact on income[xliii].

C. PDO-Level Results Indicators

20. The key project indicators are:

1. Percent increase in average annual household income (real) of the targeted households
2. Percent increase in the proportion of income (real) from select livelihoods sources
3. Number of project beneficiaries that belong to SC/ST categories
   3.1 Percent of female beneficiaries
4. Number of farmers reached with agricultural assets or services
   4.1 Number of female farmers

III. PROJECT DESCRIPTION

A. Project Components

21. The JOHAR project has a long-term vision to enable rural producers to move onto a trajectory that will facilitate quicker income growth while building household resilience and managing risk. This will be done through intensification and diversification in agriculture and in the allied sub-sectors of livestock, fisheries and NTFP. Interventions across multiple sub-sectors also offer additional opportunities for synergy. 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 identification of sub-sectors and the commodities within these sub-sectors included consultations with a range of stakeholders (government departments, private sector enterprises, financial institutions, Non-Governmental Organizations (NGOs), staff of the Jharkhand State Livelihood Promotion Society (JSLPS), etc.), community consultations (field visits and focus group discussions), geo-spatial mapping and referring to market assessments and value chain analyses. A detailed note on the project strategy for layering of multi-sectoral interventions and their sequencing over the six-year project duration is presented in Annex 1.

22. Project activities are grouped under three main components: (a) Component 1 – Diversified and resilient production and value addition. This will involve support for producer collectives and for intensification and diversification across the sub-sectors of HVA, livestock, NTFP, fisheries and irrigation. (b) Component 2 – Promoting market access, skill development and pro-poor finance systems. This will involve support for promoting market access and private sector participation; fostering skill development relevant to the focus value chains; and facilitating the development of pro-poor agricultural finance systems. (c) Component 3 – Project and knowledge management. This will involve support for project and knowledge management, including Monitoring and Evaluation (M&E).

Component 1: Diversified and Resilient Production and Value Addition

23. This component will support collectives of small producers and interventions for diversification, intensification and value-addition in the selected sub-sectors of HVA, livestock, NTFP, fisheries and irrigation. The project will provide Sub-grants to producer groups for their establishment and operations. The Sub-grants will be carried out in accordance with specified procedures and eligibility criteria that have been described in the Project Implementation Plan. Detailed operational and fund flow guidelines to enable district and block officials to channel these Sub-grants to communities will be documented in the Operational Manual which is under preparation by JSLPS.

Sub-component 1.1 Rural Producer Collectives

24. The objective of this sub-component is to promote collectives of small producers with significant participation of women producers from SHGs. The key strategy adopted will be to build on the work of the existing NRLM where the mobilized households have developed first-level of assets/resources and are significant economic actors in specific sub-sectors/commodities. In addition, the project may also explore building on similar community institutions formed by other programs after ensuring they meet NRLM’s quality parameters. Close alignment with the institutional structure of SHGs, whose membership base is women from poor households, will ensure that the producer collectives are socially inclusive.

25. The key activities under the sub-component are: (a) Formation and strengthening of PGs and provision of sub-grants for their establishment and operating costs. The PGs will focus on production, aggregation, first level of value addition, marketing in specific sub-sectors/commodities across HVA, livestock, fisheries and NTFP. (b) Development of a cadre of Community Service Providers (CSPs) who will form and build capacity of the PGs, provide grassroots level extension services, facilitate linkages with markets and financial institutions, and assist in data management. The CSPs include Ajeevika Krishi Mitra (AKM) for HVA, Ajeevika Pashu Sakhi (APS) for livestock, Ajeevika Matsya Mitra (AMM) for fisheries, Ajeevika Vanopaj Mitra (AVM) for NTFP, Micro-Enterprise Development Service Provider (MEDSP), Para Irrigation Engineers (PIE), Technical Operators (TO) as well as PG facilitators and bookkeepers[3]. (c) Capacity building of project staff, PGs and POs. Capacity building of CSPs is described under Component 2. A large number of women from SHGs will be mobilized under this sub-component as members and leaders of PGs, POs, CSPs and entrepreneurs. Through ongoing and new partnerships with resource agencies on implementing more engendered production and agribusiness models, the project will focus on providing greater visibility and formal recognition to women producers.

26. The key outputs include: formation of 3,500 PGs and about 25 POs, release of sub-grants to PGs, cadre of CSPs, training modules and materials, training and exposure visits for project staff, PGs and POs. The key outcomes would be: 60 percent of PGs assessed as grade A, and 50 percent of project-supported POs are viable and sustainable.

Sub-component 1.2 High-Value Agriculture Development

27. The objective of this sub-component is to promote the adoption of market-led HVA systems by the targeted households. HVA will mainly focus on year-round cultivation of vegetables in the midland. In addition, to help provide better food and nutrition security to households, it will also demonstrate technologies for improving productivity and reducing climate risk in paddy. In the uplands it will demonstrate new high-yielding varieties of pulses and oilseeds. Thus, in combination, while vegetable cultivation will provide a quantum jump in income, other measures will enhance food and nutrition security and help reduce climate change and other risk by diversifying the cropping portfolio. Also, innovations piloted under other Bank-supported projects, such as community based soil testing, increasing organic content of soils, Information and Communications Technology (ICT)-based crop extension and weather forecasting will be scaled up through this sub-component. A reduction in non-CO2, greenhouse gas (GHG) emissions from agricultural practices (reduced paddy area), improved land management practices, and plantations of fruit plants on previously unused land is estimated from this component.

28. The key activities under this sub-component are: (a) Facilitation of participatory planning for HVA crop selection and production by farmers. This will be through training on utilization of multiple information inputs (including market information, feedback from crop trials, etc.). Crops thus chosen would help households earn an income of Rs 25,000–100,000 and bring at least 0.3 acres of land under HVA (examples include capsicum, chilli, cole crops, cucurbits, tomato, watermelon, etc.). Most households will be able to set aside this parcel of land as the average landholding is about 1.17 ha. Facilitation of

[3] The requirement of JOHAR is 11350 CSPs. There are 2100 existing AKMs, APSs and AVMs from whom selection will be done based on specific criteria. In addition, new CSPs will be identified. The CSPs will receive skill based training on production practices, processing, market orientation and entrepreneurship. The CSPs will be paid an honorarium linked to performance.

community-based planning such that each PG will undertake coordinated cultivation of 1–2 crops in a season and achieve sufficient production volume for effective technology transfer and efficient input–output marketing. (b) Provision of sub-grants to PGs for purposes of financing of inputs costs of HVA crop cultivation. (c) Provision of sub-grants to PGs for demonstration of HVA crop cultivation. (d) Capacity building and technical support to farmers through trained CSPs (AKMs and senior AKMs) on aspects including production of high quality planting materials through nurseries, soil-testing based crop fertilizer management, pest surveillance, integrated pest management, etc. ICT-based on-time 'crop advisory services' will be provided for selected HVA crops to CSPs/PGs/POs. The ICT-based crop advisory service will also provide information to POs on crop status that can help in planning for marketing. (e) Provision of sub-grants to PGs for the establishment of Village Resource Centers to provide need-based services and products to farmers such as production of quality planting material, management of small agri-machinery hiring centers, value addition through facilities for cleaning, sorting, grading, etc. (f) Provision of sub-grants to POs for establishment of Rural Business Hubs for providing need-based facilities and services to enable higher-order value addition such as facilities for drying, soil testing, custom hiring centers, etc. (g) Partnerships with Technical Support Agencies (TSAs) to develop standardized package of practices for chosen HVA crops, deliver training and provide ICT-based crop advisory services, marketing, etc. (h) Provision of sub-grants for innovative pilots through an Innovation Marketplace program. Convergence with existing GoJ programs is envisaged for several activities in this sub-component including the establishment of soil testing laboratories, nurseries, vermicompost units, agri-machinery banks, sorting and grading facilities, and solar drying units.

29. The key outputs include: community crop plans; release of sub-grants to PGs and POs; trained farmers; Village Resource Centers; Rural Business Hubs; partnerships for technical and implementation support; release of sub-grants to innovative pilots. The key outcomes are: 160,000 farmers adopt improved agricultural technology promoted by the project, and 50 percent increase in sale volume of select HVA crops of targeted households.

Sub-component 1.3 Livestock Development

30. The objective of this sub-component is to support the targeted households in asset creation, productivity enhancement, risk (including climate change) reductions due to diversification, and market access of selected livestock (broilers, layers, pigs, goats and dual purpose backyard poultry). Given the major role of women, especially from marginal and landless households, in the small ruminant sector, this component will have a large number of women beneficiaries as well as CSPs. Improved management practices of goats, pigs and poultry with resulting climate mitigation benefits.

31. The key activities are: (a) Provision of sub-grants to PGs to support procurement of improved stock for establishment of pig and goat breeding in villages. (b) Provision of sub-grants to PGs for demonstration units on livestock housing and improved breeds. (c) Providing sub-grants to PGs for purposes of financing input and service costs of livestock rearing. (d) Facilitation of establishment of Livestock Service Centres that will support access to inputs, services and markets through aggregation. (e) Capacity building and technical support to producers on productivity enhancement and marketing. Continued extension support will be provided to producers through CSPs (Pashu Sakhis). (f) Partnerships with TSAs on turnkey operations, capacity building and technical support, and with private sector agencies for supply of quality inputs. Support through convergence with existing GoJ programs is envisaged for several activities in this sub-component including housing for livestock, introduction of improved breed

animals, establishment of feed plants, etc.

32. The key outputs are: supply poultry birds, bucks and boars of improved breeds, improved housing for livestock, release of sub-grants to PGs, vaccinated animals, trained farmers. The key outcome is 50 percent increase in the sale volume of select livestock produce of the targeted households.

Sub-component 1.4 Fishery Development

33. The objective of this sub-component is to enhance fish production and marketing by the targeted households. The sub-component will focus on private pond production, farm pond production, fish seed production and fish production in cages in reservoirs.

34. The key activities to be supported are: (a) Provision of sub-grants to PGs for demonstrations and pilots on improved technologies including short production cycle models involving fast growing fish varieties, cage culture of *Pangasius* in reservoirs, improved stocking, intensification of fish seed production in small ponds, improved fish culture in farm ponds/Dobhas, introduction of formulated fish feeds that use locally available ingredients, etc. (b) Provision of sub-grants to PGs for purposes of financing of pond improvements, equipment and input costs. (c) Provision of sub-grants to POs for establishment and operation of Rural Business Hubs for primary and advanced harvesting and marketing. (d) Capacity building and technical support to fish farmers including training, exposure visits, etc. (e) Augmentation of state hatchery infrastructure. (f) Studies on governance and policy reforms including leasing of water bodies for fisheries, aquaculture insurance, information management to support stocking programs and subsidy schemes. (g) Development and deployment of ICT applications for communication, extension and marketing. Convergence support is foreseen for several activities in this sub-component including training, provision of aquaculture equipment, hatchery development, fish production, etc.

35. The key outputs are: demonstrations and pilots on improved production technology; release of sub-grants to PGs and POs; trained fish farmers; improved state hatcheries; study recommendations on governance and policy reform; ICT application to support extension, marketing and monitoring. The key outcome is 50 percent increase in the sale volume of select fish of the targeted households.

Sub-component 1.5 Non-Timber Forest Produce Development

36. The objective of this sub-component is to supplement household earnings through enhanced value addition of NTFPs for the targeted households, including the Particularly Vulnerable Tribal Groups (PVTGs). Like other components on income diversification, this will allow some mitigation of climate change and other risks. NTFPs can be gathered from natural forests or in some cases (lac for example) through cultivation. For most NTFPs, production is viewed as a supplementary livelihood activity and therefore, the sub-component will focus on blocks with high potential for NTFP production as well as other primary income sources, such as HVA and livestock. The NTFPs selected for the intervention are: tamarind fruit, sal seeds, mahua, moringa leaves, lemon grass, chironji fruit, tulsi leaves, honey; and lac production on semialata, ber and kusum trees. The sub-component will also explore potential value-addition of select NTFP through creation of artisanal crafts (such as, bamboo craft, lac jewelry). Plantations of moringa, lemon grass and tulsi on previously unused land will contribute to climate change mitigation co-benefits.

37. The key activities under the sub-component are: (a) Analytical studies on value chains of selected NTFPs. (b) Provision of sub-grants to PGs for purposes of financing of production inputs including timely

supply of quality seed material (brood lac, semialata saplings, etc.), equipment, etc. (c) Provision of sub-grants to POs for establishment and operation of Rural Business Hubs for primary and advanced processing. (d) Provision of sub-grants to POs for establishment and operation of centers for quality control. (e) Capacity building and technical support including training and exposure visits for producers on scientific production/collection, post-harvest management, processing and marketing. (f) Provision of sub-grants to PGs for pilot interventions, such as on artisanal products. Convergence with existing GoJ programs is foreseen for activities including input supply, establishment of processing units and support services.

38. The key outputs include: analytical reports on value chains, release of sub-grants to PGs and POs, supply of critical high quality inputs to producers, Rural Business Hubs, quality control centers, and trained producers, pilot interventions on artisanal products. The key outcome is 50 percent increase in the sale volume of select NTFPs of the targeted households.

Sub-component 1.6 Irrigation System Development

39. The objective of this sub-component is to provide improved access to water through development of irrigation structures and introduction of water management practices. This will be provided to the targeted households practicing HVA cropping system through a community-based approach. The new irrigation structures would include construction of farm ponds, lift irrigation schemes, shallow wells, etc. The irrigation would be critical and lifesaving during Kharif and Rabi season for HVA and would increase resilience to climate change.

40. Given the smallholdings of farmers and their relative inability to make large investments individually, the project will support micro-scale irrigation schemes that are community owned, operated and maintained.

41. The activities supported under the sub-component are: (a) Preparation of community irrigation plans through a TSA who will carry out site survey, design, estimation and plan preparation. The plan will include details of existing water sources, proposed structures for development including lifting devices, distribution systems, command area and irrigation schedule. It will also provide detailed specifications of materials, their costs and an implementation schedule. (b) Provision of sub-grants to PGs for creation of micro-scale irrigation infrastructure[4] that will involve: gravity-based diversion of hill streams to lower areas; solar-, electric- and diesel-based lifting devices with GPRS-enabled starter connected to a mobile application that will help track usage of micro-irrigation sub-projects; distribution systems that enable operation of drip irrigation systems; small irrigation pump sets for use with farm ponds, wells, etc. The TSA will provide technical supervision during procurement and execution by the PG. (c) Provision of sub-grants to PGs for demonstration of low-cost drip irrigation, alternate row flooding, etc., to reduce water usage. (d) Formation and strengthening of water user groups with membership of all HVA farmers in the command area for planning, development, operation and maintenance of the micro-irrigation infrastructure. The user group members will pay user charges to cover costs of operation and maintenance. (e) Equipping irrigation operators on operation, repair and maintenance of irrigation equipment. The irrigation infrastructure will be part-financed through convergence with existing schemes of the GoJ's departments of Energy, Agriculture, Rural Development (i.e. MGNREGS) that support seepage

[4] Gravity flow irrigation (USD 8761 each); Solar lift irrigation (USD 17925 each); Electricity/Diesel operated lift irrigation (USD 11955 each); Solar and Electricity pump sets (USD 373 each); Drip irrigation (USD 112 each).

wells, solar powered pumps, drip irrigation, etc.

42. The key outputs of this sub-component are: community irrigation plans prepared, implemented and operational; water user groups; release of sub-grants to PGs; operators trained in operations and maintenance of irrigation systems; demonstrations on efficient irrigation systems. The key outcome is 18,000 ha area provided with improved irrigation or drainage services.

Component 2: Promoting Market Access, Skill Development and Pro-poor Finance Systems

43. This component will involve support for promoting market access and private sector participation, fostering skill development relevant to the focus value chains and facilitating the development of pro-poor agricultural finance systems. The project will provide Sub-grants to producer organizations for their establishment, operations and investment costs. The Sub-grants will be carried out in accordance with specified procedures and eligibility criteria that have been described in the Project Implementation Plan. Detailed operational and fund flow guidelines for the provision of these Sub-grants will be elaborated in the Operational Manual which is under preparation by JSLPS.

Sub-component 2.1 Market Access and Private Sector Participation

44. The objective of this sub-component is to improve market access for rural producers in the HVA, livestock, fisheries and NTFP sectors.

45. In order to achieve the objective, the project will support the following activities: (a) Provision of market information and intelligence wherein (i) product-based market assessment studies will be commissioned to identify opportunities to increase participation in value chains and constraints to market access and information, and provide a better understanding of market prices, volumes and channels. The studies will inform the preparation of PO-level business plans, and will also cover the role and contribution of women across the value chains, and provide a better understanding of the constraints and opportunities for strengthening women's participation in selected commodities. (ii) A technology-based market information platform will be supported for providing senior AKMs, PG leaders, PO members with real-time market price information to facilitate informed market decisions, ensure transparency and reduce the role of intermediaries. The platform will equip PG/PO members, mostly women producers, with the tools to engage and negotiate with the local and regional markets more profitably. Training will be provided to subscribers to enable full adoption of this technology. (b) Forward market linkages wherein partnerships will be built with private sector agencies for implementing turnkey projects on scaling up existing and new models that successfully link markets with producers through various market-led strategies. (c) Capacity building of senior AKMs to function at the cluster level as market champions to match market information with local capabilities to effectively promote linkages of PGs and POs with the markets. (d) Farmer Producer Organization Incubation and Support Cell (FISC) will be established in JSLPS to facilitate (i) capacity building of POs, (ii) preparation of bankable business plans for the POs, (iii) provision of advisory to entrepreneurs in establishing enterprises (proof of concept and scale-up models), (iv) private sector investment, (v) formalizing private sector partnerships, (vi) dissemination of market information and intelligence, (vii) market linkages, and (vii) managing information to ensure coordination with the stakeholders.

46. The key outputs include: market assessment studies for select commodity/product categories, technology-enabled market information platform, implementation of turnkey projects (for scaling up of

existing and new models), functional market champions and FISC in JSLPS. The key outcomes are at least 50 percent of total production sold by targeted households is through producer collectives, and at least three private sector partnerships are operationalized.

Sub-component 2.2 Skill, Jobs and Enterprise Development

47. The objective of this sub-component is to upgrade the skills of CSPs, individual entrepreneurs and producers in order to build their capacity for training/technical service delivery for enterprise development and productivity enhancement respectively. This sub-component will service the skill development needs of the producers across the sub-sectors through developing and delivery of skills training programs in coordination with the activities in Component 1.

48. The specific activities financed will include: (a) technical evaluations of focus value chains across HVA, livestock, fisheries and NTFP sub-sectors to identify skill gaps and opportunities for skills up-gradation; (b) hiring TSAs and resource people to develop curricula for skill training to address these gaps; (c) developing training delivery systems (including pre- and post-training services) through partnerships with TSAs and developing a pool of master trainers within the state; and (d) holding training programs for CSPs including AKM for HVA, para-vets and APS for livestock, AMM for fisheries, AVM for NTFP, and Micro-Enterprise Development Service Providers (MEDSP). These training programs will include specific skills such as soil sample collection, soil testing analysis, nursery raising, irrigation operation and repair, hatchery operation, feed plant operation; (f) delivering training for entrepreneurs; (g) liaising with the National Skills Development Corporation and the relevant Sector Skills Council for accreditation of training providers and certification of trainees. The project will seek to converge financing from relevant national and state skills training schemes towards training of CSPs and entrepreneurs.

49. The key outputs include: technical evaluation study reports on skill gaps and opportunities; curricula for skill training for all the sub-sectors; training and refresher training programs for CSPs, service providers and entrepreneurs; accreditation from agriculture and other relevant skill councils. The key outcomes are: 11,000 CSPs trained and earning at least Rs 3,500 per month through user fees in the last two years, and 3,000 entrepreneurs trained.

Sub-component 2.3 Pro-poor Agricultural Finance Systems

50. The objective of this sub-component is to support producer collectives (PGs and POs) and their enterprises in accessing financial services, especially credit and insurance, to support production and resilience. This will help reduce the gender gap in access to credit. The project shall follow three major pathways for channelizing credit: (a) credit from CBOs to the producers individually and collectively as PGs/POs (b) partnerships with FFIs for credit targeted at producers individually and collectively as PGs (c) credit from FFIs for POs by leveraging their equity capital base. Details of the three pathways are elaborated in Annex 2.

51. The sub-component will work on both the demand side and supply side for enabling effective and sustainable linkages between providers and users of financial services. The major activities proposed on the demand side are: (a) needs assessment; (b) customer segmentation; and (c) financial education of the producers covered by the project. The major activities proposed on the supply side are: (a) landscape mapping; (b) risk profiling; (c) technical assistance to build capacities and enable service delivery by FFIs; (d) demand-driven design of credit and insurance products; and (e) financial services delivery. The sub-

component will also include provision of sub-grants to POs for their establishment, operations and investment costs. This sub-component shall be managed by an dedicated team in the FISC which will be responsible for expanding access to financial services through multiple pathways outlined above and supporting risk management on both the supply side and demand side through measures such as financial education; coverage of individual producers under credit bureau; and effective management of data related to financial services to individual producers covered under the project.

52. The key outputs are: reports of demand and supply side assessments and studies; financial education campaign; workshops and exposure visits for FFIs; and context-driven financial products and services. The key outcome is 150,000 beneficiaries reached with financial services.

Component 3: Project and Knowledge Management

53. The objective of this component is to establish effective project management and facilitate strong knowledge management. The project will support the following activities: (a) Project management: This sub-component will support project coordination, implementation, financial management, environmental and social safeguards management, and monitoring at the state and district levels. It will include establishment of state- and district-level MMUs in JSLPS, staff and consultant expenses, procurement of resource/support agencies and service providers, office infrastructure, logistics support, Management Information System (MIS), Geographic Information System (GIS), ICT-mediated citizen engagement systems, and other operational expenses. The sub-component will also invest in capacity building of human resources in the JSLPS. (b) Knowledge management: This sub-component will support project monitoring, learning and evaluation systems. Knowledge products in the form of policy papers and experience sharing seminars will also be supported.

54. The key outputs include: state and district PMUs in JSLPS; capacity building programs for staff; MIS; analytical studies; evaluation reports; policy papers and experience sharing seminars. The key outcomes are: project management has satisfactorily addressed statutory audit findings (cases) according to agreed JOHAR business standards; 100 percent of grievances registered related to delivery of project benefits are addressed; and at least 20 percent of the project investments are mobilized through convergence.

B. Project Cost and Financing

55. The total project cost excluding beneficiary contribution and convergence is US$143 million. The IBRD loan is US$100 million while the GoJ’s share is US$43 million. Table 3.1 presents the summary of project costs.

Table 3.1: Summary of Project Costs (US$ million)

Project components	Project cost	IBRD financing	Counterpart funding
1. Diversified and Resilient Production and Value Addition	**110.62**	**77.41**	**33.21**
1.1 Rural producer collectives	6.21	4.35	1.86
1.2 High value agriculture development	34.01	23.78	10.23
1.3 Livestock development	15.60	10.92	4.68
1.4 Fishery development	18.65	13.05	5.59
1.5 Non-timber forest produce development	12.95	9.07	3.89
1.6 Irrigation system development	23.19	16.23	6.96
2. Promoting Market Access, Skill Development and Pro-Poor Finance Systems	**13.36**	**9.35**	**4.01**
2.1 Market access and private sector participation	5.62	3.94	1.69
2.2 Skill, jobs and enterprise development	1.08	0.76	0.33
2.3 Pro-poor agricultural finance systems	6.65	4.65	1.99
3. Project and Knowledge Management	18.77	12.99	5.78
Total costs	**142.75**	**99.75**	**43.00**
Front end fees	0.25	0.25	
Total financing required	**143.00**	**100.00**	**43.00**

C. Lessons Learned and Reflected in the Project Design

56. The project builds on the experiences and key lessons gained from previous Bank-funded projects and analytical work in rural livelihoods, agriculture competitiveness, community-based forestry, and watershed management (see below), as well as those documented in the relevant literature.

57. **Livelihood programs while having strong social inclusion aspects have often encountered the issue of weak impacts on agriculture competitiveness** because of inadequate emphasis on spatial dynamics at project design stages, low investment per household, and lack of interventions that address binding constraints to rural competitiveness, such as poor infrastructure. A calibrated approach has been adopted in the JOHAR project ensuring equal focus on technical and value chain interventions to enhance agriculture competitiveness and resiliency, as well as on community-based approaches to ensure inclusion of poor households. Further, the project has emphasized spatial analyses for locating project interventions in geographical clusters that have the strongest potential for income impacts as enabling conditions already exist or can be achieved through planned government investments (such as access to irrigation and markets).

58. **Social inclusion, community participation and transparency are key strategies, especially in left wing extremism areas.** Lessons learned from a range of rural livelihood initiatives in Jharkhand

demonstrate that to avoid exacerbating the LWE situation, it is important to ensure that projects: (a) include the poor, women and tribal community members in all aspects of implementation; (b) are relatively small in scale/have low visibility; (c) utilize local community members in project implementation; (d) are highly transparent with respect to targeting and finances; and (e) train and orient project staff on how to effectively operate in areas affected by LWE groups.

59. **Diversification toward high-value agriculture and allied areas offers a great scope to increase farmers' incomes**. Diversification aimed at increasing the area under cultivation of High-Value Crops (HVCs) combined with better infrastructure and supply chain coordination for smallholders is positively correlated with higher average net returns and the probability of escaping poverty. In JOHAR, HVA with the provision of a technical package of practices, irrigation and market linkage will be one of the primary pathways for helping beneficiary households make a quantum jump in their annual incomes. It will consist of a bouquet of interventions, primarily vegetables in the midlands; fruits, pulses and oilseeds in the uplands; and paddy in the lowlands. Diversification into high yielding and resilient species and varieties is also the focus in the other sub-sectors (livestock, fisheries and NTFP) (Annex 3).

60. **Producer organizations need strong agribusiness orientation and emphasis on innovative financing options to overcome working capital constraints**. JOHAR will promote business institutions at various levels from village to district level or higher. PGs at the village level will be federated to form POs at the appropriate level and will function as a platform for financial support and market access, in addition to technical support, for shareholders and for a broader base of beneficiaries. Through the project's capacity building program and through handholding support from a Lead Technical Support Agency, the POs will be helped to prepare and implement business plans and access innovative financing options.

61. **Customized financial products and doorstep service delivery models are needed, as rural consumers tend to exhibit greater heterogeneity in their needs and livelihood systems**. JOHAR will invest in studies to understand the supply and demand sides of the financial context in rural Jharkhand including a landscape mapping and needs assessment study, and a risk profiling and customer segmentation exercise. Based on this understanding and that of select commodity value chains, financial products and services for rural producers would be designed through a participatory process involving close engagement between both the providers and users of financial products and services.

62. **Partnerships are critical for innovative solutions and transformational impacts**. Several investment projects highlight the importance of strong partnerships between research, extension and policy institutions as well as between public, private and community players for developing contextualized solutions, and scaling up innovation and augmenting resources. JOHAR will be collaborating with several renowned institutions including Tata Trusts, Transforming Rural India Foundation, Professional Assistance for Development Action (PRADAN), World Vegetable Center, Heifer International and the National Skill Development Corporation. JOHAR will also establish an FISC in JSLPS that will continue identifying and building partnerships with private sector companies, technology solution providers and social enterprises to develop forward and backward market linkages for PGs and POs.

63. **Well-designed monitoring and evaluation systems in projects often get compromised due to inadequate expertise and institutional capacities for implementation and analysis**. JOHAR will build in-house capacity in JSLPS for M&E activities. A TSA would also be hired to help strengthen JSLPS's capacity

to commission and use evaluations. The agency will be the technical lead of all M&E related activities, reinforce the culture of result-based management and provide the basis for evidence-based decision-making in the project.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

64. The JOHAR project will be implemented by GoJ's Rural Development Department. The JSLPS, an autonomous registered society under the aegis of the Rural Development Department, is designated as the special purpose vehicle for project implementation. JSLPS has a Governing Council headed by the Minister for Rural Development with participation from the line departments and NABARD. JSLPS is presently implementing the ongoing Bank-financed NRLP. JSLPS has a progressive human resources policy that governs all its projects which enables hiring of high quality human resources. The JSLPS will be responsible for overall outputs and outcomes of the project, for mobilizing co-financing through convergence, for sourcing required technical support through partnerships, etc. The key line departments that the JSLPS will partner with for implementation of the various activities are: Department of Agriculture (encompassing the directorates of horticulture, animal husbandry, fisheries, soil conservation), the Department of Forest, Environment and Climate Change, Department of Water Resources, Department of Higher & Technical Education and Department of Energy. The line departments will provide technical support through training and extension services, and financial support through convergence with government schemes. However, financing of implementation will not go through any of the departments other than the Rural Development Department.

65. State level: The project would be 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 Department, Department of Agriculture, the Department of Forest, Environment 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 would be established within the State Mission Management Unit (SMMU) JSLPS. The SMMU will be ring-fenced, to a large extent, from the other implementation arrangements in JSLPS for NRLM and for other bilateral projects being overseen by JSLPS. JOHAR will also have a dedicated Project Director who works under the CEO. The SMMU will have a multi-disciplinary team of staff and technical consultants who will work exclusively for JOHAR. The team will include thematic leads (equivalent to state program managers) in the areas of HVA, livestock, fisheries, NTFP, irrigation and skills and jobs. For systems-related functions (human resources, M&E, finance, procurement and safeguards), the SMMU will include leads (equivalent to program managers) that will work under the state program managers already existing in JSLPS. Each line department will also designate nodal officers within their departments/directorates to coordinate with the SMMU. The SMMU along with the nodal officers in the line departments will work with the District Mission Management Units (DMMUs) of the JSLPS to implement the project in the field. A FISC at the state level will be headed by a State Project Coordinator and will include managers for Public-Private-Community Partnerships (PPCPs) and agribusiness/value chain development.

66. District Level: The DMMU for JOHAR will be established in each of the 17 districts within the existing DMMU of JSLPS. The DMMU will be staffed with a multi-disciplinary team of technical consultants

whose expertise will be mapped to the specific sub-sectors being focused upon in the district and could include experts in HVA, irrigation, livestock, fisheries and NTFP. Depending on the degree of support needed from line departments, a dedicated JOHAR technical extension officer will be placed in the district units of the line departments to work the DMMU. These officers would be responsible for ensuring smooth convergence with the department (including access to government grant schemes, training and technical support, etc.). The FISC regional hub will be staffed by managers for agribusiness/value chain development.

67. Block Level: Each of the 68 blocks would have a dedicated JOHAR Block Coordinator reporting to the Block Project Manager of JSLPS in the Block Mission Management Unit (BMMU). Three cluster-level field thematic coordinators (with academic background in agriculture or allied sciences) per block will provide technical support and coordination services to ensure smooth implementation. The field thematic coordinators will work closely with community service providers (CSPs) at the village level and senior CSP 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.

68. Community Institutions: JOHAR will work with community institutions that are supported by the NRLM including the SHGs and their federations. Small producers will be aggregated around key sub-sectors to form PGs and larger POs (companies, cooperatives). About 3,500 PGs and 25 POs are expected to be formed/supported across the various sub-sectors.

69. Partnerships: The project will be implemented in close association with the NRLM and will enter into partnerships with select national missions such as the National Skill Development Mission and the National Mission for Sustainable Agriculture. Technical and research institution partners such as the International Rice Research Institute (IRRI), Directorate of Oil Seeds Research, Pulse Research Institute, Horticulture Research Institute, International Livestock Research Institute (ILRI), etc. for the provision of technical support through the development of package of practices, training of trainers for extension, etc. TSAs will support field implementation in specific thematic and geographical areas. Partnerships with financial institutions are planned to enhance access to relevant financial services by producers. Partnerships with agencies working on models for linking markets with producers are envisaged and turnkey initiatives will be designed and implemented by the selected agencies.

B. Results Monitoring and Evaluation

70. JOHAR will be underpinned by a solid monitoring, learning and evaluation system, which will feed into decision support systems, business analytics and rigorous studies. The monitoring, evaluation and learning systems will be designed to provide concurrent feedback to key stakeholders about progress towards achieving the project’s key results. The project will strengthen the overall M&E capacity of the implementing agency by investing in technological infrastructure, capacity and evaluation systems. The key activities to be supported are as follows:

- ICT-based MIS: JSLPS already has a tablet-based MIS system (soon to be fully Aadhar enabled), which is administered by community members and the data is directly uploaded to the central server. The project MIS will build on the existing system, limiting duplication. The project will invest in systems and capacity so that data from MIS can support decision-making based on a more in-depth analysis. Efforts will also be made to build dashboards to regularly track the progress that can feed into decision-making at all levels, including the community.

- Geographical Information System (GIS)-based MIS: Project will leverage the latest innovations in remote sensing to build a cutting-edge GIS system to track the progress of the HVA and irrigation sub-component. It will be piloted in project areas with the existing ICT-based MIS and expanded based on learnings from the pilot.
- Analytics-based learning systems: Data from MIS will be used to conduct more in-depth analysis, going beyond auto-generated progress and exception reports, especially where systems identify persistent problems. Capacity building as well as collaborations with outside institutions will be supported to enable this type of data analysis.
- Project evaluation: The project will also have a rigorous mixed-methods impact evaluation with a robust counterfactual to assess its impact, which will exploit the phased rollout of the project (randomized if possible). Key innovative agriculture and livelihoods interventions could also be evaluated using small, quick turn-around and rigorous evaluations.
- Process monitoring: The analytical work on quantitative data from MIS and project evaluation will be complemented by process monitoring and qualitative evaluations.
- Community-based monitoring: JSLPS already has ongoing community-based monitoring and JOHAR will build on that. Members from the community institutions under the project will be trained on the use of participatory monitoring methods to conduct this monitoring and regular dissemination events of the results will be held.
- Capacity building for M&E: Implementing these M&E activities will require building in-house M&E capacity in the implementing agency. To help strengthen JSLPS's capacity to commission and use evaluations, a technical support agency would be hired. The agency will be the technical lead of all M&E related activities, and reinforce the culture of result-based management and evaluation in the project, and provide the basis for evidence-based decision-making processes.
- Other activities: The project will also have other activities such as thematic evaluations, internal reviews, dissemination events, and south-south learning events.

C. Sustainability

71. The key design elements that contribute to project sustainability are: (a) The project objective resonates with the strong commitment of the GoI and GoJ towards sustainable productivity growth and diversification towards HVCs articulated in the national and state policies on farmers, agriculture, water, food and feed processing industry, etc. (b) Project implementation will be anchored in the Rural Development Department through partnerships with relevant departments/directorates (such as agriculture, horticulture, animal husbandry, fisheries, water resources, forests and climate change); the project will also build capacity within these departments/directorates for better service delivery. (c) The project will build on the existing social capital of SHGs and their federations, and through these institutions develop PGs and higher order POs to facilitate collective action, increase bargaining power and bring in economies of scale. (d) The POs will function as business entities that will continue to operate through business activities supported by linkages to FFIs. (e) The project design emphasizes building community capacity through developing CSPs who will be paid based on their service delivery and thus are primed to work with POs as business associates. (f) The project builds sustainability of production systems through investments in community capacity as well as infrastructure for diversification, productivity enhancement, climate resilience and market responsiveness. (g) Finally, the project has a strong element of stakeholder contribution – the sub-grants under the project are to be part-financed by the Government and through

beneficiary contribution.

D. Role of Partners

72. The project is not financed by any other international agency (including bilateral donors).

V. KEY RISKS

A. Overall Risk Rating and Explanation of Key Risks

73. The overall risk rating for the proposed project at the appraisal stage is considered as 'moderate' with low or moderate risk for most risk factors while technical design and institutional capacity have substantial risk. The main technical design related risks are associated with: (a) inclusion of blocks (about 15 percent of total blocks under the project) where community institution development through the NRLM is yet to begin; (b) low ability of NRLM beneficiaries to generate marketable surplus that is needed for adoption of market-led approaches; (c) uncertainties on whether convergence with government schemes on irrigation will materialize in the project areas; and (d) inadequate or slow pace of support from community groups and/or reluctance of the private sector to invest in LWE-affected areas. The main institutional capacity related risks are associated with: (a) coordination challenges of multiple partnering agencies; and (b) gaps in the capacity of the key implementing agency (i.e. JSLPS) linked to transformative aspects of the project, in particular, strengthening commodity value chains and enhancing farmers' access to the market.

74. The risks associated with the technical design have been addressed through the following approaches:

- Phasing project entry: The blocks where there are existing mature community institutions (SHGs) have been prioritized for entry in the first and second years of the project. The JSLPS will undertake intensive community institution development in all the project blocks from 2017-18. This will include 10 blocks where NRLM interventions are planned to start in 2017-18. This phasing strategy will ensure that the project will reach areas where there are strong community institutions, and will achieve coverage of all blocks, by the end of the third year of the project.
- A two-tier selection approach for identifying geography and beneficiaries: Selection of blocks for specific commodity-focused interventions has been based on the growth potential. Selection of beneficiary households will be based on pre-determined criteria that include the ability to generate marketable surplus and not be limited to NRLM households. Furthermore, commercial market risks are not expected to be significant as the project is focusing on sub-sectors in which the state has a clear comparative advantage and demand is unmet.
- Substantial support from the project through investments in technology delivery and infrastructure creation as well as risk sharing by producer collectives (PGs and POs): will enable households with little marketable surplus to build capacity and benefit from the project.
- Finances earmarked to cover about 80 percent of the investment required for irrigation infrastructure: and, an agreement has been reached with the rural development and agriculture departments on convergence on irrigation development and farm mechanization schemes.
- Impact of the extremist situation on project implementation examined as part of the Social Safeguards Assessment: and suitable measures for risk mitigation have been built into the project

(described under the section 'VI E. Social (including Safeguards)'). JOHAR will develop an action plan on public–private partnerships taking into consideration the LWE context. No large infrastructure investments with the government or private participation are planned under JOHAR.

75. The risks related to institutional capacities have been minimized through the following approaches:

- A high-level steering committee consisting of senior officials from various departments has been formed under the aegis of the chief secretary to oversee inter-departmental coordination for project implementation.
- A capacity building strategy and plan has been detailed in the Project Implementation Plan (PIP) for strengthening the capacity of JSLPS and associated line departments before TSA engagement.
- Absorption capacity of JSLPS particularly in taking on additional fiduciary, M&E, human resources and safeguards responsibilities is high. For JOHAR, institutional arrangements in JSLPS will be ring-fenced and significantly bolstered in areas where JSLPS lacks functional expertise. An institutional strengthening program will be included for staff. A capacity building strategy and plan has been detailed in the PIP for strengthening the capacity of JSLPS and associated line departments.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analysis

76. *Project benefits.* The main benefits of the project are: (a) increased and more diversified incomes of the targeted beneficiaries in the project area from profitable, and (b) resilient production systems that are adapted to climate change. Specifically, these benefits will result from: (a) diversification from food grains into HVA, livestock, fisheries and NTFP activities; (b) increase in area under irrigation resulting in increased cropping intensity and productivity; (c) improved marketing, post-harvest management and value-addition; and (d) increased opportunities for farm and non-farm employment including self-employment. In addition, there will be significant benefits coming from improved resilience to climate change and positive nutritional effects associated with the diversification of production systems towards HVA crops, livestock and fisheries activities. It is expected that substantial employment will be generated due to the increased area under crop production and the resulting opportunities for on-farm labor, particularly for the landless poor who are mainly employed in agriculture as wage workers, as well as increased employment in handling, processing and marketing of incremental production.

77. *Economic viability and sensitivity analysis.* The Economic Internal Rate of Return (EIRR) of the project over a 20-year period for the base case, excluding benefits from GHG emission reduction, is 26.0 percent with a Net Present Value (NPV) of 1,223 crore (US$182.6 million) at a discount rate of 12 percent. Placing a monetary value on potential GHG mitigation benefits in terms of reductions in GHG emissions and increased carbon sequestration (estimated at 870,300 tons of CO2 equivalent (tCO2e) over the project life of 20 years), the base case EIRR increases to 26.6 percent. This assumes a price per ton CO2e of US$30 as suggested for the analysis of other World Bank funded projects. On this basis, at full development, annual GHG benefits are valued at US$1.3 million. A sensitivity analysis was conducted to assess the impact of changes in main parameters affecting the economic outcome of the project as a result of: (a) changes in project costs; (b) changes in the expected benefits from the production systems

promoted by the project (crop, livestock, fisheries and NTFP); and (c) delays in project execution due to the risks that have been identified in the project's risk analysis. The results show that the project remains economically viable even in the case of adverse changes in project costs and benefits. A reduction in project benefits by 20 percent results in an EIRR of 21.9 percent. A 20 percent increase in project costs combined with a 20 percent reduction in project benefits, coupled to a two-year delay of benefits, reduces the EIRR to 13.5 percent. Further details are provided in Annex 5.

78. *Financial analysis* has been carried out for the main productive activities supported by the project. Detailed crop budgets were prepared for 13 crops and typical smallholder plot sizes, providing an overview of the production system including the key production parameters, farmer organizations, investments and marketing channels. Similar analyses were prepared for six livestock production models (for goats, pigs and poultry) and four fish production systems (private pond, seed production, cage culture and subsistence pond). Furthermore, nine NTFP production models were analyzed. The results show considerable increase in gross margin, net profit, and return to family and total labor for all production systems. The financial analysis suggests that the PDO indicator of a 50 percent increase in average real annual household income of the targeted households is achievable due to diversified or intensified economic activities promoted by the project. Table 6.1 shows the estimated incremental annual net income per household as well as the initial investment costs and the incremental annual costs of intermediate inputs (variable costs) for the main productive activities supported by the project. It is expected that the financial analysis will be periodically updated as an integral part of the project's M&E system and as an input into the project evaluation at mid-term and completion stages.

Table 6.1: Overview of Financial Analysis of Productive Activities Supported by the Project

Activity	No. of households with the project	**Annual net income per household (Rs)**				Incremental intermediate inputs / household (Rs)/e	Investment costs/ household (Rs)/f
		Future without the project	Future with the project	Increment			
High-value agriculture/a	**150,884**						
Kharif	60,354	32,789	46,227	13,438	*41%*	1,062	0
Kharif+Rabi	67,898	63,936	90,267	26,332	*41%*	2,452	0
Kharif+Rabi+late Rabi	19,615	88,655	135,311	46,656	*53%*	1,587	0
Kharif+Rabi+late Rabi+fruit	3,018	88,655	314,565	225,910	*255%*	138,807	0
Livestock	**50,992**						
Goat production	15,000	9,552	59,522	49,970	*523%*	13,360	20,000
Pig production	5,000	49,357	76,300	26,943	*55%*	32,208	35,000
Poultry (broiler)	300	59,907	90,226	30,319	*51%*	-1,000	0
Poultry (layers)	500	13,742	33,782	20,040	*146%*	-5,840	0
Poultry (backyard rearer)	29,600	5,966	16,208	10,243	*172%*	10,813	7,000
Poultry (backyard mother farm)	592	0	107,864	107,864	*na*	181,200	65,000
Fisheries	**34,500**						
Pond culture	25,000	11,400	58,491	47,091	*413%*	36,965	3,000
Seed production	3,000	4,415	74,020	69,605	*1577%*	30,568	9,000
Cage culture	500	5,238	16,968	11,730	*224%*	60,102	0
MNREGA Dhoba	6,000	576	2,454	1,878	*326%*	2,201	0
Non-timber forest produce/b	**58,400**						
Lac/c	24,000	3,778	11,322	7,544	*200%*	1,685	620
Other/d	34,400	0	20,157	20,157	*na*	6,262	4,036

\a Area 0.3 acre for vegetables, 1 acre for fruits. In comparison, 1 acre of paddy generates a net income between around Rs 11,500 (traditional) and Rs 20,000 (System of Rice Intensification) Kharif: tomato, brinjal, chilli, cabbage, cauliflower. Rabi: tomato, brinjal, french bean, chilli, capsicum, peas, cabbage, cauliflower. Late Rabi: cucurbits, okra. Fruits: papaya, banana.
\b While in total 58,400 NTFP activities will be supported, it is expected that each household will be engaged, on average, in two activities under lac and/or other, therefore the estimated number of households will be 29,200.
\c Semialata, ber, kusum and ber.
\d Chiraunji, lemon grass, moringa, tulsi, tamarind, honey.
\e Per annum.
\f In year 1.

79. *Fiscal impact.* GoJ's contribution to the project amounts to Rs 286.7 crore (US$42.8 million) or 18.8 percent of total project costs (including beneficiary contribution and convergence). This corresponds to an average annual GoJ contribution over the project life of Rs 47.8 crore, representing only around 1.3 percent of the average annual Government budget for the main departments involved in the project (agriculture, animal husbandry, fisheries, cooperatives, water resources, rural development) over the period 2015/16–2017/18 (Rs 3,690.4 crore/US$550.8 million). In the medium- to long-term, a substantial positive fiscal impact of the project is expected, mainly due to: increased output, income and employment, also resulting in increased tax revenues; and multiplier effects due to increased disposable income of project beneficiaries, resulting in increased demand for goods and services.

B. Technical

80. The technical design of the project that was developed based on experiences from World Bank-supported livelihood projects in the country, and confirmed by empirical evidence, responds to the borrower's needs and conforms to international good practice (World Bank 2004[xliv]):

- JOHAR focuses on achieving transformative increase in rural household incomes through diversification and intensification of production systems across a range of sub-sectors. This stems from acknowledging that the rural poor have a portfolio of livelihood activities and a clear focus on income augmentation, which will help identify and invest in sub-sectors and commodities that have most potential to propel households out of poverty.
- The Bank-promoted livelihood projects in several states across India have demonstrated that community driven development approaches are viable and effective options for catalyzing socio-economic change at the grassroots level[xlv, xlvi]. The experience of the National Dairy Project has also shown that cooperatives formed from groups (in particular SHGs) are more successful and gender inclusive than those formed from individuals. The proposed project builds on the existing social capital developed in NRLM districts focusing on producers from SHG households.
- The project's approach for mobilizing and aggregating rural producers into POs is based on evidence that such market- and business-oriented farmer organizations can help smallholders benefit from economies of scale with lower transaction costs, linkages to high-value markets, technical help in production, etc.[xlvii, xlviii]. The project provides for strong agribusiness orientation and innovative financing support for the growth and business sustainability of these organizations[xlix, l].
- The project's focus on diversification and/or intensification of current production systems (emphasizing horticulture, fisheries, small livestock and NTFP) is in tune with the recommendations of a livelihood systems assessment[li] of Jharkhand which includes: land typology based agriculture and irrigation planning, crop diversification and production intensification to take advantage of demand–supply gaps, emphasis on water use efficiency and promotion of NTFP. The approach involves identifying the most important constraints to productivity and addressing them through tested, simple technical solutions supported by improved extension services and rural infrastructure[lii]. The community based extension approach of the project moves beyond dissemination of new agricultural technologies and extends to promoting agricultural commercialization and value chain development, with extension services tailored to farmer organizations and agribusinesses[liii].
- The emphasis on HVCs is supported by empirical research, which establishes that households diversifying toward HVCs are less likely to be poor, with the biggest impact being for smallholders.

Also, for HVCs there is a distinct inverse relationship between farm size and productivity[liv].

- Recognizing that integrated management of water resources is an important element of agriculture-focused interventions, the project lays emphasis on conservation and optimum utilization of rainfall, surface water, ground water and soil moisture[lv].
- The project's approach to facilitating collective action for market access integrates key recommendations from academic/research literature including creating incentives for cooperation beyond higher price realization (infrastructure, extension, credit access), providing a facilitator to help access profitable markets, address equity issues to enable access by poorer famers, and strategically plan for sustainability through ownership by farmer institutions[lvi].
- The project design encourages PPCPs that are seen as having a significant role in promoting the inclusion of smallholders in high-value markets[lvii]. Such strategic partnerships with government departments, commercial banks, public and private sector institutions, and social entrepreneurs are to be supported not only to provide smooth and preferential access to services by the poor but also to capture growth opportunities[lviii].
- The project's emphasis on skill development responds to the need for skill building in improved farming methods[lix]. Also, by aligning skill development with the skill gaps identified in the agriculture and allied sectors, the project ensures relevance and mutual reinforcement.

C. Financial Management

81. The JSLPS is presently implementing several center- and state-funded projects, including the Bank-funded NRLP. A JSLPS assessment indicates that the project's financial management arrangements can be predicated on JSLPS's existing systems to provide reasonable assurance over the use of project funds, with modifications and enhancements related to the new activities, departments and entities which are proposed to be included in JOHAR.

82. *Financial management institutional arrangements:* The functional responsibilities of financial management will be carried out at the State Mission Management Unit [SMMU] and designated District Mission Management Units (DMMUs). The responsibility will be vested in SPM-Finance of JSLPS who is supported by contractual staff comprising the project finance manager and accountants. At the DMMUs, the district finance manager will be responsible for the financial management function, supported by the accounts officer, district accountants and block accounts assistants.

83. *Planning and budgeting:* JSLPS will prepare an annual work plan for the project. Project funding requirements will be budgeted in the demand for grants of the Rural Development Department, for which a separate budget head for JOHAR through demand no. 42, major head 2501, scheme code 1557 has been approved. For FY17-18, the State has approved an allocation of Rs 40 crores for the project. On a year to year basis, the Finance Department will ensure adequate budget provision for project activities (both Bank share and counterpart funding) through the extant budget preparation system of the state.

84. *Flow of funds:* Project funds flow arrangements will be as follows.

- From GoI to GoJ: The initial advance of USD 5 million will be withdrawn by GoI from the Loan and passed on to GoJ on a back to back basis. Thereafter, based on the project expenditure reported by the project, the Office of the Controller, Aid, Accounts and Audit Division (AAA) will submit withdrawal applications to the Bank for disbursement. Bank funds will be disbursed to GoI, which will pass these funds on to GoJ into its Consolidated Fund, in accordance with its standard arrangements for development assistance to the state. The Consolidated Fund will then provide funds to the state.

- From GoJ to JSLPS: Funds will be drawn by the designated drawing officer from GoJ's Consolidated Fund through a designated treasury and deposited into a separate project bank account of JSLPS. GoJ has assured that the necessary approvals required for such an arrangement will be obtained.
- From JSLPS State Mission Management Unit (SMMUs) to DMMUs and BMMUs: It has been agreed that JSLPS will operate for the project, a single state level bank account, with zero balance linked [or child accounts] accounts at the district/block level(s). Such arrangements are successfully operating in other state- and center-funded projects/programs in Jharkhand and other states and will help to make financial management simple and efficient.

85. *Accounting*: JSLPS follows the double entry system of accounting on cash basis. Project transactions will be recorded following the extant accounting system of JSLPS. Separate project books will be maintained in accordance with a chart of accounts included in the Supplementary Project Financial Management Manual (FMM). SMMU and DMMUs will be the primary accounting centers; BMMUs will be provided with imprest fund and the expend will be accounted for at the DMMU level The books of accounts for the project will be maintained in TALLY and a separate chart of accounts (in line with the project components and activities) developed to track project expend. The arrangements, including the accounting, fund flow, internal control mechanisms, financial and administrative powers, financial reporting and external and internal audit will be documented as a supplementary to the existing FMM.

86. *Internal controls including internal audit:* The existing project FMM is being updated to reflect new activities and implementing agencies, as well as responsibilities for financial management. The chart of accounts in the existing accounting system will also need to be updated to reflect the proposed project components/sub-components and activities.

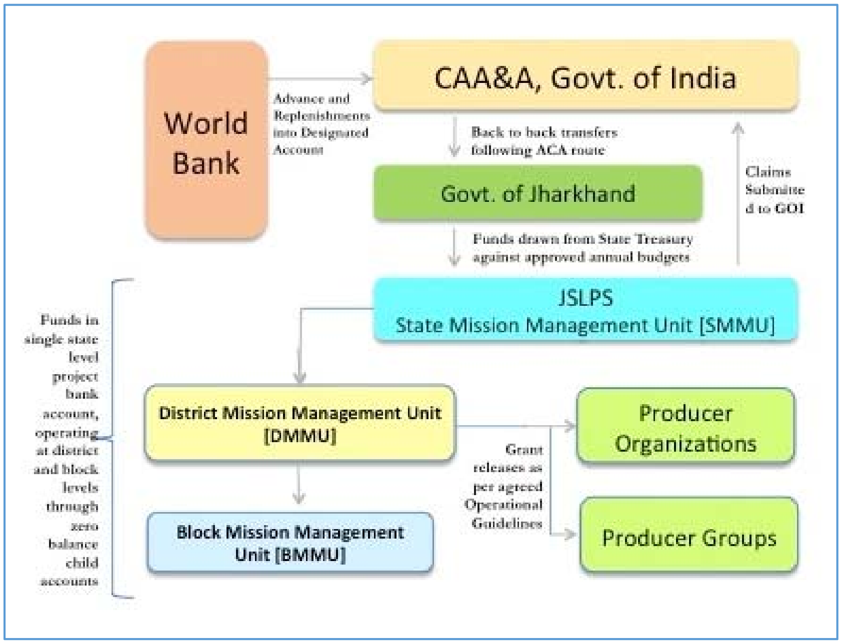
87. The project will primarily finance[5]: (a) small civil works, including water augmentation schemes, housing for livestock, etc.; (b) agricultural implements, small equipment, etc., as part of tool kits for CSPs; (c) working capital grants, including honorarium to CSPs. All the above will be in the form of grants to producer collectives (Producer Groups and Producer Organizations). While Producer Organizations [POs] will be registered legally constituted bodies, the Producer Groups [PGs] are expected to be smaller informal groups of individuals. In addition, the project will finance: (a) technical support services through

[5] Additional details on activities financed by the project:

- Grants including: (a) Grants to PGs for establishment & operating costs, demonstrations, village resource centers (nursery, vermin-compost units, sorting-grading unit), livestock housing, pond improvement, irrigation infrastructure, to producers for production cycle costs, etc. (b) Grants to producers for fish seed production, cage/pen fish culture, livestock breeding, etc. (c) Grants to POs for start-up, soil testing kits, solar drying units, agri-machinery centres, rural business hubs for processing, etc. (d) Grants to agencies selected through the Innovation Market Place to undertake innovative pilots.
- Goods, Equipment & Materials including: office equipment, tools for cluster level managers and CSPs, print materials, etc.
- Training and Technical Assistance including: capacity building of producers, CSPs, trainers and master trainers; training module and material development; training events and exposure visits; buyer-seller meets and investor meets; knowledge dissemination events; etc.
- Incremental Operating Costs including: honorarium and incentives for CSPs; SMMU and DMMU staff and operating costs; block staff and operating costs; etc.
- Consultancies including: TSPs and technical experts; studies; implementation of M&E and MIS (process monitoring, community based monitoring, thematic studies); pilot initiative on insurance; etc.

partnerships and service contracts; (b) training, workshops, exposure visits, etc.; (c) salaries of staff and contractual personnel; (d) development of training material, printed and other media; and (e) establishment and office operating costs.

Figure 6.1: Fund Flow Arrangements in the JOHAR Project



88. In the design of financial management arrangements illustrated in Figure 6.1, the following key principles will apply across all project components and sub-components:

- All project funds provided to producer collectives (PGs and POs) will be made in accordance with sub-project grant agreements against approved and appraised sub-project proposals. All fund releases will be made electronically directly into the bank accounts of the PG/POs and will be accounted for as expend in JSLPS and considered as eligible expend for the purposes of disbursement from the World Bank loan.
- JSLPS will monitor actual utilization of funds and track closing balances at CBO level through parallel MIS systems or memorandum registers and the same will be predicated on periodic financial reports obtained from CBOs. For the purpose, the project will invest in providing handholding accounting technical assistance (book-keepers, accounting hubs, etc.) to the CBOs to help maintain accounting records and prepare monthly/annual financial statements. Unspent balances with CBOs at the close of the project will be recovered/refunded to the project.
- Partnership with TSAs: The project also intends to partner with international and national level agencies. Such partners are being considered as implementing partners, with whom the project will sign Memoranda of Understanding (MoUs). Funds flow to such partners will be based on the annual work plan. Such agencies will also provide quarterly expenditure reports for the purpose of consolidation and be subject to audit arrangements established under the project.
- All funds released by the state to the district- and block-level units will be treated as inter-unit

transfers until expenditures are incurred at these levels.

- Rules for sharing of common costs [for example, SMMU and DMMU establishment and operating expend etc.] have been clearly documented in the Supplementary FMM.
- Financial controls including delegation of financial powers and financial rules as documented in the FMM/Administrative rules will be followed.

89. *Internal audit:* JSLPS has instituted a system of internal audit through a panel of private firms under defined Terms of Reference (ToR). The internal auditors report to the CEO every quarter who then seeks explanations and follows up on actions undertaken to resolve the issues. There is, however, no audit committee but there is opportunity to strengthen this function. JSLPS's internal audit system will be extended to cover project transactions and the Bank will review the internal audit reports findings. The ToR will be revised accordingly and included in the FMM.

90. *Financial reporting:* JSLPS will prepare Interim Unaudited Financial Reports (IUFRs) based on its books of account, at least on a quarterly basis, and submit to the Bank within 45 days from the close of the quarter. The format and contents of the IUFR will be finalized at negotiations and included in the FMM and the Bank's Disbursement Letter. JSLPS will prepare separate annual Project Financial Statements (PFS), whose format and contents have been included in the FMM.

91. *External audit:* JSLPS's annual financial statements are audited by a firm of chartered accountants appointed by the Governing Board of JSLPS. The auditor (selected through competitive bidding) carries out the audit in accordance with the ToR covering all the programs of JSLPS. Audit of JSLPS has been completed up to financial year 2015–16; and audit reports issued and adopted in the Governing Body meeting of JSLPS.

92. External audit of the PFS will be conducted by a firm of chartered accountants, acceptable to the Bank, on ToR agreed with the Bank and included in the FMM. JSLPS will share the annual audited report within nine months from the end of each financial year, i.e. December 31st, starting with the year in which the first disbursement is made. The Bank will continue to review the entity audit report for any major audit qualifications or accountability issues. The audit reports specified in Table 6.2 will be monitored through the Bank's systems.

Table 6.2: Audit Reports Monitoring

Audit report	Audited by	Due date
Annual project financial statements	Private audit firm acceptable to the bank	December 31

93. Disclosure: Under the Access to Information Policy of the Bank, the annual project audit report and the financial statements will be disclosed on the websites of the Bank and JSLPS.

94. *Disbursements:* GoJ has sought an advance from the IBRD Loan to pre-finance the project expenditures. JSLPS will incur the expenditure through budgetary funds and then seek replenishment of the advance from the Bank as described in Table 6.3. The project will submit claims, supported by IUFRs, through the Office of the Controller AAA for seeking reimbursement/replenishment. Supporting documents required for Bank disbursement will be according to the Bank's Disbursement Handbook and will be documented in the Disbursement Letter.

- Eligible expenditures will comprise: works, consulting and non-consulting services, goods and equipment, workshops, training and PG/PO sub grants.
- Ineligible expenditure will include: cost of land acquisition, expenditure on rehabilitation and reconstruction, retention money unless actually paid, and expenditure considered ineligible by the auditors/Bank.

Table 6.3: Disbursement

Category	Amount of loan allocated (US$)	Percentage of eligible expenditures to be financed (inclusive of taxes)
(1) Goods, works, non-consulting services, consultants' services, and training and operating costs under the project	53,630,000	70%
(2) Sub-grants (a) PG/PO sub-grants (b) Innovation marketplace sub-grants	 44,620,000 1,500,000	70%
(3) Front-end fee	250,000	Amount payable pursuant to Section 2.03 of this Agreement in accordance with Section 2.07 (b) of the General Conditions
[(4)] Interest Rate Cap or Interest Rate Collar premium/a	[0]	Amount due pursuant to Section [2.08(c)] of this Agreement]
Total amount	100,000,000	

a/ To be confirmed by the borrower prior to or during negotiations through the submission of Loan Choice Sheet.

95. *Retroactive Financing:* Expenditures incurred up to one year before the expected date of signing of legal agreements, subject to 20 percent of total financing, can be claimed as retroactive expenditure, subject to compliance with the Bank's procurement procedures. JSLPS will submit a separate stand-alone IUFR certifying the actual expenditure incurred on the project, and this will be subject to audit by the project auditors.

96. *Disbursement Condition*: There are two disbursement conditions in the project. The project will not make any disbursements: (i) for PG/PO sub-grants unless JSLPS adopts the PG/PO Sub-grants Operational Manual and (ii) for Innovation marketplace sub-grants unless JSLPS adopts the Innovation Marketplace Sub-grants Operational Manual. The manuals will be prepared within three months and 18 months, respectively, from the effectiveness date of the project and will be agreed with the Bank.

D. Procurement

97. **Procurement risk assessment.** JSLPS is the nodal agency for implementation of the NRLP in Jharkhand and will also be the implementing agency for the JOHAR project. The procurement unit of JSLPS has prior experience is managing Bank/donor-funded projects like the NRLP and in supervising community level procurement. The PMU is adequately staffed with a Procurement Manager and officers who are likely to continue during the implementation of JOHAR. JSLPS is now becoming eProcurement compliant, and the Grievance Redress Mechanism and Standard Procurement Committee are also in place. The procurement risk rating at project appraisal is moderate.

98. All procurements under the project will be carried out in accordance with the World Bank's 'Guidelines: Procurement of Goods, Works and Non-consulting Services under IBRD Loans and IDA Credits and Grants by World Bank Borrowers', dated January 2011 and updated in July 2014 (Procurement Guidelines); and 'Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits and Grants by World Bank Borrowers', dated January 2011 and updated in July 2014 (Consultant Guidelines); and any additional provisions mentioned in the Financing Agreement. The project will be subject to the Bank's Anticorruption Guidelines, dated October 15, 2006, and revised in January 2011 and as of July 1, 2016.

99. **Procurement arrangements and staffing.** At the state level, the JSLPS will be responsible for managing the procurements under the project. The JSLPS will continue to have a dedicated procurement cell that will handle all types of procurement (goods, works, non-consulting services, and consulting services). The procurement cell will be led by the mission manager (procurement) and will add additional professional dedicated procurement staff when the need arises, either with appointment or as project management consultants. All procurement activities under this project shall be processed through this cell. The revised procurement manual of the Ministry of Rural Development (MoRD), GoI for implementation of NRLP across the county will be used after the Bank's prior review thresholds are applied.

100. **Procurement planning.** For each contract to be financed under the project, the different procurement methods or consultant selection methods, the need for prequalification, estimated costs, prior review requirements, and timeframes for all key procurement activities will be reflected in the Procurement Plan to be agreed to between the borrower and the World Bank. The procurement plan will also reflect what was agreed to in the prior review thresholds, procurement method thresholds and the NCB provisions and any other provisions that govern the procurement methods and processes.

101. The JSLPS has prepared a Procurement Plan covering the first 18 months of project implementation. Prior review thresholds will also be indicated in the Procurement Plan. The Procurement Plan shall be agreed to between the borrower and the World Bank before negotiations and shall be subsequently updated annually (or earlier/later, if required) and will reflect the changes in prior review thresholds, if any. All Procurement Plans, their updates, or modifications shall be subject to the World Bank's prior review and 'no objection' before implementation.

102. **Selection of consultants.** The SMMU shall use the standard request for proposal for selection of consultants. The following methods will be adopted depending upon the size and complexity of assignments and as agreed in the Procurement Plan: Quality- and Cost-Based Selection (QCBS), Quality-Based Selection (QBS), Selection under a Fixed Budget (FBS), Least-Cost Selection (LCS), Selection based on Consultant's Qualification (CQS), Single-Source Selection (SSS), Individual Consultants.

103. A short list of consultants for services estimated to cost less than US$800,000 equivalent per contract may be composed entirely of national consultants in accordance with the provision of paragraph 2.7 of the Consultant Guidelines.

Procurement of Goods, Works and Non-consulting Services

104. **International Competitive Bidding (ICB).** There are no ICB contracts for the project.

105. **National Competitive Bidding.** Procurement of goods, works and non-consulting services shall be conducted in accordance with paragraphs 3.3 and 3.4 of the Procurement Guidelines. For the procurement of goods, works and non-consulting services, the SMMU will use the World Bank's standard bidding documents and the additional provisions indicated in the Procurement Plan. The Community-level Procurements will be in accordance with the provisions indicated in the Procurement Plan.

106. **Shopping.** The shopping method in accordance with paragraph 3.5 of the Procurement Guidelines may be adopted for procuring readily available off-the-shelf goods of value less than US$100,000. For the shopping procedure, the list of vendors/contractors already registered with government departments may be used for inviting quotations. The Procurement Plan should determine the cost estimate of each contract and the aggregate total amount. The borrower should solicit at least three price quotations for the purchase of goods, materials or services (non-consulting), to formulate a cost comparison report.

107. **Direct contracting.** Goods, works and non-consulting services, which meet the requirement of paragraph 3.6 of the Procurement Guidelines, may be procured following the direct contracting method. Direct Contracts with an estimated value exceeding US$100,000 will be prior reviewed by the Bank.

108. Table 6.4 (see next page) describes the various procurement methods to be used for activities financed by the proposed loan. These methods along with agreed thresholds will be reflected in the Procurement Plan. The thresholds indicated in the table apply to the initial 18-month implementation period and are based on the procurement performance of the project; these thresholds will be modified as required.

109. **Prior review by the Bank.** The Bank will prior review the following contracts (Table 6.4):

- Goods, services (other than consultancies), and information technology systems: All contracts more than US$4.0 million equivalent.
- Works: All contracts more than US$15.0 million equivalent.
- Consultancy services: All contracts more than US$2.0 million equivalent for firms and more than US$400,000 equivalent for individuals.

Table 6.4: Procurement Methods

Category	Method of procurement	Threshold (US$ equivalent)
Goods, works, and non-consultant services	Limited International Bidding	Wherever agreed by the Bank
	National Competitive Bidding (NCB)	Up to 4,000,000 (with NCB conditions)
	Shopping/a	Up to 100,000
	Direct contracting	According to paragraph 3.7 of Procurement Guidelines
	Force account	According to paragraph 3.9 of Procurement Guidelines
	Framework Agreement (FA)/b	According to paragraph 3.6 of Procurement Guidelines

Category	Method of procurement	Threshold (US$ equivalent)
	Procurement from United Nations agencies	According to paragraph 3.10 of Procurement Guidelines
Consultant services	Single-Source Selection (SSS)	According to paragraphs 3.8–3.11 of Consultant Guidelines
	Individuals	According to Section V of Consultant Guidelines
	Particular types of consultants	According to paragraphs 3.15–3.21 of Consultant Guidelines
	Selection Based on Consultants' Qualifications (CQS)	Up to 300,000
	Quality- and Cost-Based Selection (QCBS)/Quality-Based Selection (QBS)/Selection under a Fixed Budget (FBS)/Least-Cost Selection (LCS)	For all other cases
	(a) International short list (b) Short list may comprise national consultants only	>800,000 Up to 800,000

a/ Use of Government e-Market place (GeM) in lieu of shopping up to a contract ceiling of US$30,000, provided the Borrower records reasonableness of price while taking the decision. However, GeM should not be used as a replacement of NCB irrespective of value.

b/ Directorate General of Supplies & Disposals (DGS&D) rate contracts may be used as the FA, subject to the following conditions:

- Use of DGS&D rate contracts as the FA must be reflected on the Procurement Plan agreed by the Bank for particular goods.
- Before issuing the purchasing order, the implementing agency will carry out a price analysis on the specific goods that are intended to be purchased. If after this due diligence the implementing agency concludes (and the Bank agrees) that the DGS&D rate contracts are more advantageous, DGS&D rate contracts may be used as the FA.
- To meet the Bank's requirements for right to audit and Fraud and Corruption (F&C), these clauses may be included in the Purchase Orders (in case the purchasers are directly placing the purchase orders to DGS&D rate contract holders). On the other hand, if an indent is placed through the DGS&D, the purchaser has the option to sign a separate undertaking with the DGS&D rate contract holder, where the Bank's right to audit and F&C clauses could be mentioned.

110. In addition, the justifications for all contracts to be issued on the basis of Limited International Bidding or Single-Source or Direct Contracting (except for contracts less than US$100,000 in value) will be subject to prior review. The above thresholds are for the initial 18-month implementation period; and based on the procurement performance of the project, these thresholds may be subsequently modified. The prior review thresholds will also be indicated in the Procurement Plan. The Procurement Plan will be subsequently updated annually (or at any other time if required) and will reflect any change in prior review thresholds as well as changes in thresholds for procurement methods. The Bank will carry out an annual ex post procurement review of the procurement falling below the prior review thresholds provided above.

111. **STEP.** An online Systematic Tracking of Exchanges in Procurement (STEP) shall be used.

112. **Complaint handling mechanism.** The State Mission Management Unit (SMMU) shall continue to retain the complaint handling mechanism to address complaints/grievances from contractors/suppliers more effectively. On receipt of complaints, immediate action will be initiated to acknowledge the complaint and redress it within a reasonable timeframe. All complaints during the bidding/award stage as well as complaints during the contract execution along with the analysis and response of the SMMU shall

invariably be submitted to the Bank for review.

113. **Disclosure requirements.** The project shall comply with the disclosure requirements stipulated in the World Bank's Procurement Guidelines and Consultant Guidelines, January 2011 and updated in July 2014. The project will be subject to the Bank's Anticorruption Guidelines, dated October 15, 2006 and revised in January 2011 and as of July 1, 2016. Accordingly, the following documents shall be disclosed on the project's website: (i) Procurement Plan and all subsequent updates; (ii) invitations for bids for goods, works and non-consulting services; (iii) requests for expression of interest for selection/hiring of consulting services; (iv) short-list of consultants; (v) contract awards; (vi) lists of contracts following direct contracting, CQS or SSS on a quarterly basis; and (vii) action-taken reports on complaints received on a quarterly basis.

E. Social (including Safeguards)

114. **Social Assessment**. JOHAR builds on the significant social, institutional and financial inclusion and empowerment of rural poor households and producers, under the Bank-supported NRLP. The primary project beneficiaries will be rural households, especially women SHG members who have already accessed and utilized credit for strengthening their productive asset base and livelihoods. Women and men from SC, ST, small/marginal and landless households will also benefit from the project interventions in agriculture, livestock, fishery, NTFP, skills and agri-enterprises. Participation of women and SC/ST households is a key results indicator of JOHAR.

115. JSLPS has undertaken a Social Assessment (SA) exercise to assess the key social impacts/risks and mitigation measures, applicability of Bank's social safeguard policies, as well as opportunities for benefit enhancement under JOHAR interventions. Extensive stakeholder consultations were held in Dumka, Gumla, Khunti, Palamu, Ranchi and West Singhbhum districts involving rural producers and producer collectives, women's SHGs and their higher federations, Panchayati Raj representatives, leading NGOs, government departments, district administration, and private sector foundations/bodies. Specially planned, prior informed consultations were also held in tribal and LWE areas. The main social issues identified by the SA are: (a) ensuring the participation of STs, including PVTGs, in project activities and benefits; (b) promoting livelihood opportunities for landless, marginal and smallholder producers across project components; (c) ensuring equal access to project benefits for women and men, particularly in light of relatively low levels of literacy and education among women, and prevailing gender gaps in agriculture; (d) mitigating social and implementation risks arising from the LWE context of JOHAR; and (e) mitigating potential small scale impacts from community-managed infrastructure.

116. **Social management framework**. Findings of the SA and stakeholder feedback has informed the formulation of the Social Management Framework (SMF) of JOHAR that includes the Tribal Development Framework (TDF) and project strategies on social inclusion, consultation and participation, gender, citizen's engagement and LWE risk mitigation.

117. **Consultation, participation and social inclusion**. JOHAR has strong consultation, participation and inclusion mechanisms and processes that include: (a) participatory beneficiary identification based on technical as well as gender/social criteria; (b) inclusion and tracking of women, SC, ST beneficiaries in PGs/POs, CSPs, entrepreneurs and other project beneficiaries; (c) community based planning for

production and agribusiness operations; and (d) financing for PGs/POs based on gender and inclusion criteria. JOHAR will also promote inclusion of the landless, women headed and other excluded households especially through skills, enterprise and off-farm interventions. The market and value-chain studies would include consultations with women and excluded households, and identify opportunities and options to strengthen their participation. The project will use information, education and communication materials to reach out and consult with project beneficiaries.

118. **Indigenous Peoples (Scheduled Tribes (ST)) Planning Framework**. The social safeguard policy on Indigenous Peoples (OP 4.10) is applicable as a sizable number of project districts/blocks have a high percentage of tribal population, and thus a significant portion of project beneficiaries will be tribals. The Indigenous Peoples Planning Framework (IPPF) or TDF, includes: (a) screening and inclusion of tribal beneficiaries in project interventions; (b) meaningful and culturally compatible consultations with tribal communities and leaders; (c) documentation of broad community support for JOHAR interventions; (d) targeted support through interventions on forest produce, livestock, high value crops and other suitable livelihood interventions in tribal blocks/clusters, including PVTG areas; (e) engagement of tribal youth as CSPs and in jobs, skills and enterprises; and (f) support for tribals to access land and forest rights. In selected clusters, area specific Tribal Development Plan (TDP) will be prepared to identify issues and implement additional measures needed to ensure tribal participation and equal access to project benefits.

119. **Gender and women's economic empowerment**. JOHAR will leverage, and significantly advance, the existing central role of women SHG members and rural producers under the ongoing NRLM. Women SHG members, community leaders and rural producers are the primary stakeholder and significant beneficiaries of the project. The key gender strategies mainstreamed in the project are: mobilization of women SHG members and producers in PGs/POs membership and leadership, and, as CSPs; their capacity building on production and post-harvest operations; women's participation in production and agribusiness planning; providing agribusiness financing to women producers; and training on financial products, services and agri-markets. JOHAR will also support interventions to build women's awareness and capacity to improve their food and nutrition practices and security. The results framework and the MIS will track and report on gender disaggregated beneficiary indicators across project components. Process monitoring and thematic studies will cover the impact on and constraints faced by women beneficiaries in rural value chains.

120. **Left wing extremism.** The social and implementation risks from LWE are mitigated by the core JOHAR design that promotes community-based producer collectives with significant leadership from women and STs, community owned and managed agri-enterprises and value chains (with minimum external presence), training/skilling of local youth as CSPs and entrepreneurs, financial accountability and transparency measures, and partnerships with locally credible NGOs. The project design also addresses some of the underlying causes of the LWE phenomenon by expanding state support into remote tribal and excluded communities, providing significant financial resources in the hands of the communities, supporting access to land and forest rights, and prioritizing tribal youth for skill and agri-enterprise development. Specific interventions will include LWE sensitization training for staff and partners, periodic reviews and risk screening of selected sub-projects.

121. **Citizen engagement and grievance redress**. As a community based, demand driven project, JOHAR includes specific provisions for meaningful and continuous engagement of rural producers

throughout the project cycle. These include: (a) extensive consultations with project beneficiaries during preparation and implementation; (b) promotion and capacity building of PGs and POs; (c) community led planning for crops/production, irrigation, infrastructure and business needs; (d) community led procurement and management of agribusiness infrastructure and services; and (e) participatory monitoring and ICT-mediated beneficiary feedback system. Grievances related to delivery of project benefits will be recorded and resolved through a practical and accessible system managed by CSPs, PO members and project staff. Indicators on grievance redress and beneficiary outreach are included in the results framework.

122. **Social impact screening**. The OP 4.12 is not applicable, as JOHAR will not involve any involuntary acquisition of land. The land needed for small scale village structures for storage, processing, micro-irrigation/wells will be met primarily through private lease or memorandum of understanding (MoU), supported by adequate documentation. The SMF includes a screening checklist for identifying and mitigating any minor, local-level, adverse social impacts related with such community sub-projects and PG/PO business plans, including any issues related to labor influx and welfare.

123. The SMF/TDF implementation will be led by the State Program Manager (institution and capacity building) of JSLPS. A dedicated project coordinator (social development/safeguards) will be engaged to implement the SMF/TDF in close collaboration with other thematic specialists in state, district, and block JOHAR units. External consultants and resource persons/agencies will be engaged to support the thematic capacity of project staff, conduct training programs and prepare TDPs. The SMF also includes a capacity-building program for project staff, CSPs and PGs/POs. Selected partner/resource agencies will be engaged to implement specific pilot interventions in selected clusters. Dedicated budget has been set aside to cover the costs of staff, training, preparation of TDP and selected thematic studies and interventions. Implementation and performance of the SMF/TDF will be reviewed through a review done twice during the project period. The results and implementation monitoring system includes disaggregated social indicators to track the participation of SC, ST and women beneficiaries. The draft SMF/TDF was disclosed on the JSLPS website as well as in the Bank's portal on 13 February and the final version was similarly disclosed on 28 February 2017. A safeguard disclosure workshop was held on 15 February 2017 in Ranchi with representatives of relevant government agencies, community organizations, and NGOs.

F. Environment (including Safeguards)

124. The project is classified as Category 'B' as the project interventions in production diversification and value addition are likely to have adverse environmental impacts if not executed and managed appropriately. Consequently, environmental safeguard policies on Environmental Assessment (OP 4.01) and Pest Management (OP 4.09) are triggered. The client has conducted an Environment Assessment (EA) study based on which an Environment Management Framework (EMF) is developed to guide the project teams in avoidance and mitigation of negative impacts due to project interventions.

125. The EA has identified the applicable legal and regulatory framework, potential impacts of proposed interventions, as well as assessed the existing institutional arrangements and capacities for implementation of environmental safeguards. The project is expected to have several positive environmental impacts due to interventions such as crop advisory services, capacity building of producers, provision of quality inputs, etc. Some of the potential positive impacts include water conservation due to

irrigation efficiency, reduction in overuse/misuse of agro-chemicals due to soil testing and integrated pest management, reduced grazing pressure due to improved feed management, sustainable extraction of NTFP, etc. The potential negative impacts include: promotion of hybrid/high-yielding varieties with increased irrigation inputs and increased use of agro chemicals may have negative impacts on local biodiversity, soil and water resources; introduction of new species and increase in chemical inputs in fisheries may threaten aquatic biodiversity and lead to eutrophication; poor livestock management practices may affect local fodder resources; improper manure management that may lead to pollution; food and feed processing activities may result in excessive resource use (energy and water) and release of waste into the environment; value chain infrastructure may result in issues related to site selection, construction, operation and management.

126. Based on the EA, an EMF is developed which identified measures required to mitigate the adverse impacts and suggests an implementation plan. The EMF document provides the following: list of legal and regulatory compliance requirements for project-supported activities; environmental management guidelines for project-supported activities under different sub-sectors; system of environmental appraisal of the community plans, micro irrigation plans and business plans; activities with potential adverse impacts that require detailed environmental appraisal and preparation of Environment Management Plans (EMPs); procedure for integration, implementation and monitoring of environment guidelines and EMPs; details of implementation arrangements including human resource requirement, capacity building, monitoring, costs, etc. A Pest Management Plan is also prepared for the project. The draft EMF was disclosed on the JSLPS website as well as in the Bank's portal on 13 February and a final version was similarly disclosed on 28 February 2017. A safeguard disclosure workshop was held on 15 February 2017 in Ranchi with representatives of relevant government agencies, community organizations, and NGOs.

127. The objective of the EMF is to ensure the environmental sustainability of the project interventions under the component 'diversified and resilient production and value addition'.
The strategy is to conduct environmental appraisal for the Agri Business Plans of POs, Community Crop Plans of PGs and Micro Irrigation Plans of WUGs which is a 2 step process:

1. screening the community plans, micro-irrigation plans and business plans activities for compliance with legal and regulatory framework (Compliance List, provided in Annexure 1 of EMF report)
2. appraisal of the community plans, micro-irrigation plans and business plans for identifying the potential impacts and mitigation measures

128. The overall responsibility of EMF implementation will be with the JSLPS. HVA specialists at State and districts level will be the anchor persons for the environmental safeguards. An environment consultant will be positioned at the state level for supporting EMF implementation throughout the project period. In addition to this, provision will be made to acquire additional human resources to meet any specific technical and/or operational requirements that may arise from time to time. The CSPs will conduct the environmental appraisal for the PG community plans and PG/entrepreneur business plans. At the Block level the thematic coordinators will verify and ensure the integration of environmental safeguards. The environmental appraisal of micro irrigation plans (infrastructure) will be conducted by TSA. The environmental appraisal of the PO business plans will be done by the Environment Consultant and will be verified and approved by the SPM-HVA in the SMMU.

129. A GHG appraisal of JOHAR was carried out using the FAO Ex-Ante Carbon balance Tool (EX-ACT)

which quantifies the net carbon balance in terms of tons of CO_2 equivalent (tCO_2e), resulting from GHGs emitted or sequestered, due to project implementation compared to the without-project scenario. In a preliminary assessment the project was estimated to lead to annual climate change mitigation benefits of –43,516 tCO_2e when compared to a business-as-usual baseline scenario. This is equivalent to annually reduced GHG emissions per hectare of –2.1 tCO_2e. After 20 years (a time frame commonly used for project GHG accounting in agriculture), GHG mitigation benefits will cause a reduction of –870,326 tCO_2e (see Annex 4). Consequently, in addition to the achievement of the directly targeted PDOs, JOHAR provides moderate GHG co-benefits.

G. Other Safeguard Policies (if applicable)

Sub-section on Projects in International Waterways and Projects in Disputed Areas

130. The project area includes administrative units ("blocks") that are fully or partially within sub-catchments of the Ganges River basin (such as the Sone and Gandak sub-basins), which are considered part of an international waterway as defined in OP 7.50. In these areas, project activities that involve water use or potential pollution (fisheries and HVA) would be excluded. The remainder of the project area is within coastal drainage basins including the Brahmani, Baitarani, Subernarekha and Damodar. These are not considered to be international waterways and thus no exclusion of water-using interventions would be required under the project. The Damodar basin, while sometimes considered a part of the Ganges basin, joins the Hooghly River (a distributary of the Ganges that leaves the Ganges at Farakka, upstream of the Bangladesh border) just upstream of the mouth at Haldia. The Damodar–Hooghly junction in the lower tidal estuarine areas stretches within the final few kilometers of the Hooghly's 560 km course to the sea from Farakka. Given the salinity levels, there will be no consumptive use or prospective consumptive use of estuarine water of the Hooghly under the project. Thus, OP 7.50 considerations do not arise for the Damodar basin. Given the above, OP 7.50 is therefore not applicable to the project.

H. World Bank Grievance Redress

131. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel, which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit *http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service*. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

VII. RESULTS FRAMEWORK AND MONITORING

Results Framework
COUNTRY : India
Jharkhand Opportunities for Harnessing Rural Growth Project

Project Development Objectives

The PDO is to enhance and diversify household income in select farm and non-farm sectors for targeted beneficiaries in project areas.

Project Development Objective Indicators

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Percent increase in average annual household income (real) of the targeted households		Percentage	0.00	50.00	Baseline / Midterm / EOP	Household Survey	Implementing agency with technical partners
Description: This indicator will capture the full household (with a detailed agriculture module) income in real terms during the project period. The change in overall agriculture household income will be measured over the non-zero value that will be recorded in the baseline household survey, and the midterm and the endline survey will report the progress. The baseline value of this indicator is zero.							
Name: Percent increase in the proportion of income (real) from select livelihoods		Percentage	0.00	70.00	Baseline / Midterm / EOP	Household Survey	Implementing agency with technical partners

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
sources							
Description: This indicator will capture income diversification away from subsistence livelihoods at aggregate levels. It will measure the aggregate shift of households from low productivity livelihoods activities (such as casual labor and paddy farming) to more productive agriculture and allied livelihoods. Livelihoods supported under the project are: self-employed high value agriculture, self-employed livestock, self-employed fisheries, self-employed non-farm timber produce, other non-farm business and formal labor. The change in diversification of income will measured through a comprehensive livelihoods and income module in the baseline household survey; the midterm and the end-line household surveys will repeat this module to report the progress. The baseline value of this indicator is zero.							
Name: Number of project beneficiaries that belong to SC/ST categories		Number	0.00	100000.00	Yearly	Project MIS	Implementing agency
Number of project beneficiaries that belong to SC/ST categories - female		Number	0.00	70000.00	Yearly	Project MIS	Implementing Agency
Description: Number of SC/ST beneficiaries who have directly benefited from the intervention. The baseline value of this indicator is zero.							
Name: Farmers reached with agricultural assets or services		Number	0.00	200000.00	Yearly	MIS	Implementing Agency
Farmers reached with agricultural assets or services - female		Number	0.00	140000.00	Yearly	MIS	Implementing Partner
Description: This indicator will capture the beneficiaries that directly derive benefits from project interventions (HVA, livestock, NTFP and fisheries) in terms of assets and services. This indicator will require supplemental information on the number of female beneficiaries. The baseline value of the indicator is zero							

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection

Intermediate Results Indicators

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Percent of Producer Groups that have been assessed as grade A		Percentage	0.00	60.00	Yearly	Project MIS	Implementing agency and technical partners
Description: This indicator captures the livelihoods focused institution building efforts of the project. It will be measured through an index(with A as the highest grade) that will measure performance on financial management, governance, group management, financial performance etc. The baseline value of this indicator is zero.							
Name: Percent of project-supported Producer Organizations that are viable and sustainable		Percentage	0.00	50.00	Yearly	Project MIS	Implementing agency with technical partners
Description: This indicator captures the livelihoods-focused institution building efforts of the project. A PO will be considered viable and sustainable based on agreed criteria such as, organizational capacity, repayment, governance structure, operating profit etc. The baseline value of this indicator is zero.							
Name: Farmers adopting improved agricultural technology	✓	Number	0.00	160000.00	Yearly	Project MIS	Implementing agency with technical partners

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Clients who adopted an improved agr. technology promoted by project – female		Number	0.00	112000.00	Yearly	Project MIS	Implementing agency with technical partners
Description: This indicator measures the number of clients of the project who have adopted an improved agricultural technology promoted by the project.							
Name: Percent increase in the sale volume of select HVA crops of targeted households		Percentage	0.00	50.00	Baseline / Midterm / EOP / Yearly	Household Survey / Project MIS	Implementing agency with technical partners
Description: This indicator will capture the marketed surplus of the HVA crops by measuring the percentage increase in the sales volume of high value crops (examples include tomato, chilli, watermelon, cucurbits, cole crops etc.) across all seasons in a year. The baseline value of this indicator is zero.							
Name: Percent increase in the sale volume of select livestock produce		Percentage	0.00	50.00	Yearly	Project MIS / Thematic studies	Implementing agency with technical partners
Description: This indicator will able to capture the marketed surplus by measuring the percentage increase in the sales volume of livestock related livelihoods and value chain interventions of the project. The baseline value of this indicator is zero.							
Name: Percent increase in the sale volume of select fish		Percentage	0.00	50.00	Yearly	Project MIS / Thematic	Implementing agency with

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
of the targeted households						studies	technical partners
Description: The adoption of new fish species, scientific production, sustainable collection/ harvesting and post-harvest management of fish production will result in increased volume of production. This indicator will capture the marketed surplus of fishieries produce by measuring the percentage increase in sales volume. The baseline value of this indicator is zero.							
Name: Percent increase in sale volume of select NTFPs of the targeted households		Percentage	0.00	50.00	Yearly	Project MIS / Thematic studies	Implementing agency with technical partners
Description: The adoption of new NTFPs, scientific production, sustainable collection/ harvesting and post-harvest management of NTFPs will result in increased volume of production. This will be tracked through the project MIS as well as thematic studies. The baseline value of this indicator is zero.							
Name: Area provided with irrigation or drainage services		Hectare(Ha)	0.00	18000.00	Yearly	Project MIS	Implementing agency with technical partners
Description: This indicator measures the total area of land provided with new irrigation or drainage services under the project. It will measure the area provided with improved irrigation or drainage services, expressed in hectares(ha). The baseline value for this indicator will be zero.							
Name: Proportion of total production sold by targeted households through		Percentage	0.00	50.00	Yearly / Baseline / Mid-term / Endline	Project MIS / Household Survey	Implementing agency with technical partners

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
producer collectives							
Description: This indicator captures if the project beneficiaries have started selling produce through producer collectives such as producer groups, and producer organizations. It will be measured as the proportion of total production sold through these marketing channels. This will be tracked through the project MIS as well as the project evaluation and the baseline value of this indicator is zero.							
Name: Number of beneficiaries reached with financial services		Number	0.00	150000.00	Yearly	Project MIS	Implementing agency
Description: This indicator captures the number of beneficiaries that have been reached with new financial services promoted under the project. The baseline value of this indicator is zero.							
Name: Number of community service providers trained and earning at least Rs 3,500 per month through user fees in the last two years		Number	0.00	11000.00	Yearly	Project MIS	Implementing agency with technical partners
Description: This indicator aims to measure the sustainability of the training system created under the project. It is the proportion of their project related revenue stream that is earned through user fees, and should be a minimum of Rs 3,500 per month in the last two years of the project. The income from user fees will be additional income for the community service provider. The baseline value of this indicator is zero.							
Name: Number of entrepreneurs trained		Number	0.00	3000.00	Yearly	Project MIS	Implementing agency

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Description: This indicator captures the number of self-employed households or entrepreneurs being trained under the project. The baseline value of this indicator is zero.							
Name: Percent of registered grievances addressed		Percentage	0.00	100.00	Yearly	Project MIS and project correspondence	Implementing agency
Description: This indicator measures the transparency and accountability mechanisms established by the project so the target beneficiaries have trust in the process and are willing to participate, and feel that their grievances are attended to promptly.							
Name: Proportion of project investments mobilized through convergence		Percentage	0.00	20.00	Yearly	Project MIS	Implementing agency
Description: This indicator captures the resources that have been mobilized from other related departments and centrally sponsored schemes. It will be measured as a proportion of the cumulative project expenditure. The baseline value of this indicator is zero.							
Name: Percent increase in average dietary diversity score in target households		Percentage	0.00	10.00	Baseline / Midline / Endline	Household Survey	Technical Agency with implementing partners
Description: This indicator captures nutrition impact of the project due to increased income and higher production of more nutritious crops such as vegetables, pulses and poultry. The dietary diversity would a composite score of recall of consumption habits. The baseline value of this indicator is zero.							

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Number of private sector partnerships operationalized		Number	0.00	3.00	Yearly	Project MIS	Implementing Agency
Description: This indicator captures the number of partnerships that have been operationalized. A partnership would be considered operational when a commercial transaction has taken place between producer collectives and private sector partner. The baseline value of the indicator is zero.							
Name: Project management has satisfactorily addressed statutory audit findings (cases) according to agreed business standards		Percentage	0.00	100.00	Yearly	Project MIS and project correspondence	Implementing agency
Description: This is a qualitative monitoring indicator where the resolution of audit findings will be recorded.							

Target Values

Project Development Objective Indicators

Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	YR6	End Target
Percent increase in average annual household income (real) of the targeted households	0.00	0.00	0.00	20.00	20.00	20.00	50.00	50.00
Percent increase in the proportion of income (real) from select livelihoods sources	0.00	0.00	10.00	20.00	40.00	60.00	70.00	70.00
Number of project beneficiaries that belong to SC/ST categories	0.00	12388.00	37026.00	55026.00	66633.00	75928.00	100000.00	100000.00
Number of project beneficiaries that belong to SC/ST categories - female	0.00	8671.00	25918.00	38518.00	46643.00	53149.00	70000.00	70000.00
Farmers reached with agricultural assets or services	0.00	49552.00	123420.00	171955.00	190379.00	199809.00	200000.00	200000.00
Farmers reached with agricultural assets or services - female	0.00	34686.00	86394.00	120368.00	133266.00	139867.00	140000.00	140000.00

Intermediate Results Indicators

Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	YR6	End Target
Percent of Producer Groups that have	0.00	0.00	0.00	20.00	40.00	50.00	60.00	60.00

Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	YR6	End Target
been assessed as grade A								
Percent of project-supported Producer Organizations that are viable and sustainable	0.00	0.00	0.00	10.00	20.00	40.00	50.00	50.00
Farmers adopting improved agricultural technology	0.00	39641.00	98736.00	137564.00	152303.00	159848.00	160000.00	160000.00
Clients who adopted an improved agr. technology promoted by project – female	0.00	27749.00	69115.00	96295.00	106612.00	111893.00	112000.00	112000.00
Percent increase in the sale volume of select HVA crops of targeted households	0.00	0.00	10.00	20.00	30.00	40.00	50.00	50.00
Percent increase in the sale volume of select livestock produce	0.00	0.00	10.00	20.00	30.00	40.00	50.00	50.00
Percent increase in the sale volume of select fish of the targeted households	0.00	0.00	10.00	20.00	30.00	40.00	50.00	50.00
Percent increase in sale volume of select NTFPs of the targeted households	0.00	0.00	10.00	20.00	30.00	40.00	50.00	50.00
Area provided with irrigation or drainage services	0.00	5844.00	13875.00	18000.00	18000.00	18000.00	18000.00	18000.00
Proportion of total production sold by targeted households through	0.00	0.00	10.00	20.00	30.00	40.00	50.00	50.00

Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	YR6	End Target
producer collectives								
Number of beneficiaries reached with financial services	0.00	7500.00	30000.00	60000.00	110000.00	130000.00	150000.00	150000.00
Number of community service providers trained and earning at least Rs 3,500 per month through user fees in the last two years	0.00	0.00	1000.00	3000.00	6000.00	9000.00	11000.00	11000.00
Number of entrepreneurs trained	0.00	0.00	250.00	500.00	1500.00	2500.00	3000.00	3000.00
Percent of registered grievances addressed	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Proportion of project investments mobilized through convergence	0.00	10.00	10.00	15.00	15.00	20.00	20.00	20.00
Percent increase in average dietary diversity score in target households	0.00	0.00	0.00	0.00	0.00	5.00	10.00	10.00
Number of private sector partnerships operationalized	0.00	0.00	0.00	1.00	3.00	3.00	3.00	3.00
Project management has satisfactorily addressed statutory audit findings (cases) according to agreed business standards	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

ANNEXURES

Annex 1: Layering and Phasing of JOHAR Interventions

1. Getting a large number of households (about 200,800) to move from subsistence to market-surplus levels is a challenging exercise. JOHAR's strategy for addressing this challenge has two key features: (a) layering and (b) phasing.

Layering of interventions

2. JOHAR interventions will be focused on the sub-sectors of HVA, livestock (small stock – pigs, goats, and poultry), NTFP and fisheries. Although the project will work across these sub-sectors, the typology of the interventions reaching each geographic cluster of households will be limited to a pre-determined set of key sub-sectors. The key sub-sectors have been identified for each of the project blocks considering the comparative advantage of the block in these sub-sectors (i.e. local resources, production capability, and market access). Another important consideration in the selection of sub-sectors is the potential for household income augmentation, cash flow generation and risk mitigation.

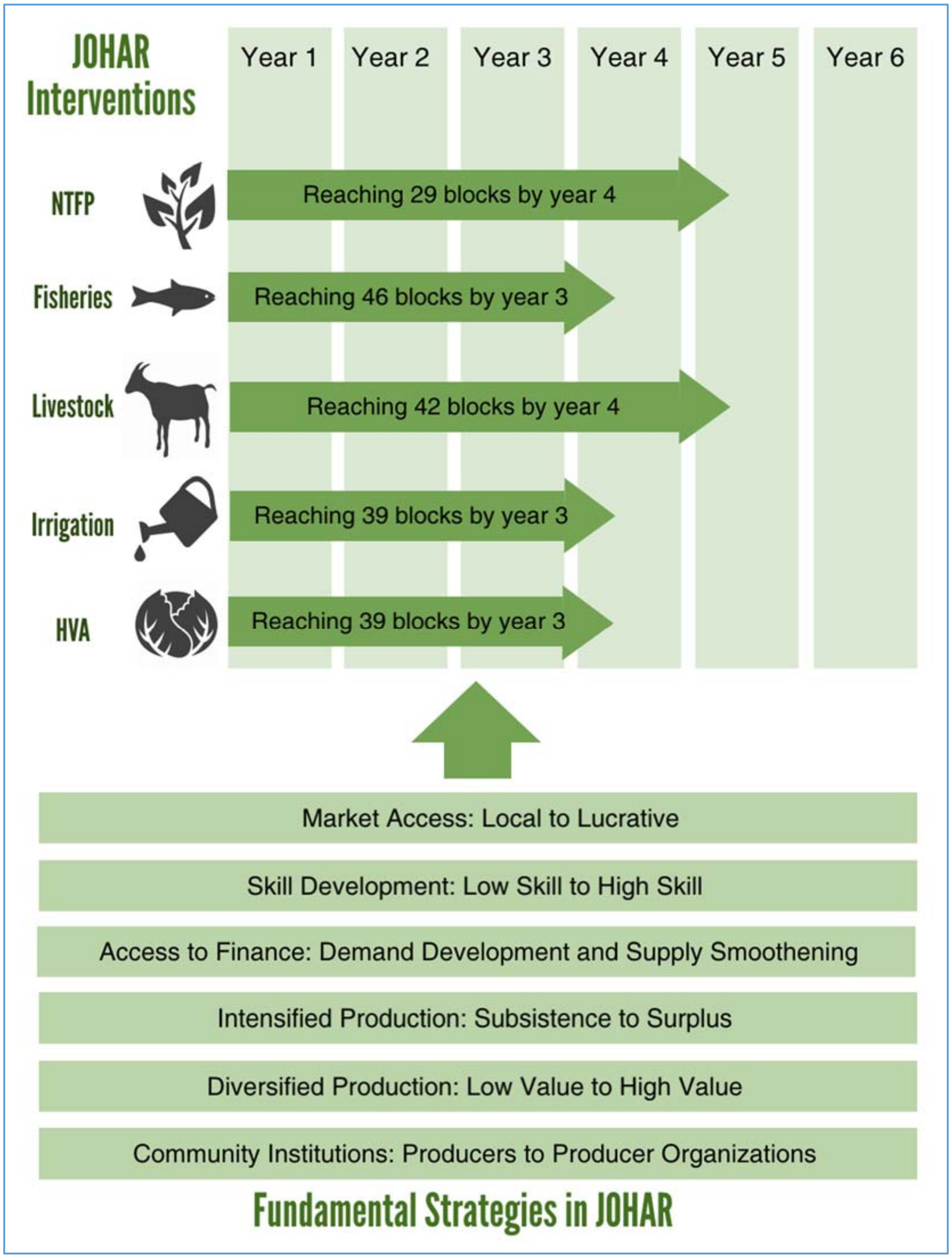
3. Implementation of multiple interventions across several thousand households demands high levels of technical capacity and coordination – and hence, phasing of the project activities is necessary.

Phasing of interventions

4. JOHAR will cover the project blocks in a staggered manner. In the first year, the project interventions will focus on blocks where the NRLM has been implemented for more than one year and there are mature SHGs. From the second year onwards, the project interventions will be intensified to reach more producers in the existing blocks and also expand to additional blocks covering all blocks from the third year onwards. Also, within each block, the project will initially target early adopters and gradually expand outreach to other households. The broad phases in the project rollout are described below and illustrated in Figure A1.1. However, it must be noted that the phases do not have firm demarcations and overlap is expected (for example, formation of POs, an activity slotted for Phase 2, may start earlier in certain blocks if PGs demonstrate readiness).

- ***Phase 1 – Years 1 and 2:*** The primary focus in the first two years will be on three key aspects: (a) mobilization of producer households into PGs; (b) generating a marketable production surplus through interventions in HVA and irrigation which are viewed as the primary sectors with potential for transformational impacts on income; (c) introducing interventions in livestock, fishery or NTFP which are viewed as primary or secondary sectors with regard to potential for income augmentation. Focus on skill development, access to financial services and market linkages will start in this phase and continue throughout the project duration.
- ***Phase 2 – Years 3 and 4:*** The focus during the third and fourth years of the project will be on: (a) expansion of marketing interventions – moving up the value chain, and moving from local to more lucrative markets; (b) higher-order skilling for service delivery and enterprise development in the focus sectors; (c) formation and strengthening of higher order POs.
- ***Phase 3 – Years 5 and 6:*** The last two years of the project will essentially focus on consolidation and post-project sustainability. The emphasis will be on stabilization of the POs.

Figure A1.1: Layering and phasing of JOHAR interventions



Annex 2: Financing of Producer Collectives and Enterprises under Sub-component Pro-poor Agriculture Finance Systems

1. Producer collectives to be supported by JOHAR include PGs at the village level and POs at higher levels. PGs (i.e. the primary-level informal collectives), shall focus on production, aggregation and primary value addition of production outputs generated across HVA, livestock, fisheries and NTFP sub-sectors. POs shall function as business enterprises dealing with agri-input supplies, higher-level value addition, marketing and any other business services to enhance the economic interests of its member-shareholders. PGs shall receive financial support from the project, which may be utilized either for acquiring assets or equipment for the collective use of its members, or for meeting small operational expenses during the initial years. Over time, PGs should strive to recover operating costs through user/service charges. As member-owned social enterprises, POs have diverse financial requirements which have to be met till they start earning profits from business operations and are able to get stabilized as business organizations with potential for long-term sustenance. JOHAR's indicative financing strategy for POs is given Tables A2.1 and A2.2.

Table A2.1: Financing Alternative to POs (figures are indicative)

Equity/ share capital	Economic interests of individual producers would be represented in POs by their respective PGs. Each PG shall mobilize funds from each of its member-producers and pass on the same to POs as its contribution towards the share capital of POs. Depending on the underlying operating and business conditions that may differ across sub-sectors, POs across sub-sectors are likely to have different number of PGs as shareholders. These PGs will in turn represent the economic interest of primary member-producers.	Equity or share capital of each PO with member contribution in the range of Rs 500– 1,000.
Grants	Contributions from the project towards the financing of POs shall be channelized mainly in the form of matching grants and performance grants. The total grant to a PO will range from 1 time to 2.5 times the paid-up share capital, subject to performance	The matching grant to a PO will be equal to the amount of paid up share capital at the end of two years from the date of registration of the PO. The matching grant will be released to PO based on the business plans and investment plans of the PO, which are approved by the FISC. From a pre-defined corpus of INR 30 crore for grant to POs, the amount remaining after provisioning of matching grants shall be allocated for performance grants. Based on performance against defined criteria, POs may

		also be eligible to receive performance grants of various types.
Debt	After provisioning for expenditure on human capital and organizational overheads, each PO shall collateralize the funds remaining out of the total volume received in the form of paid up share capital and matching grant.	The debt to equity ratio may start with a value of 1:1 or 2:1 during the first credit cycle but can easily exceed 4:1 after two to three credit cycles subject to satisfactory repayment by POs.

Table A2.2: Indicative Financing Structure for POs

Financial requirement: Expenditure on human capital and organizational overheads. Source of financing: Portion of Matching Grant
Financial requirement: Working capital for sale/supply of production inputs to member-producers. Source of financing: Portion of Paid up Share Capital of PO received from shareholders and Debt (credit) from Formal Financial Institutions (FFIs).
Financial requirement: Working capital for purchase of primary produce and maintaining stocks of primary produce, semi-finished products and finished products for sale to external buyers (market players). Source of financing: Portion of Matching Grant and Debt (credit) from FFIs.
Financial requirement: Investment for long-term assets and infrastructure. Source of financing: Portion of Paid up Share Capital of PO, Portion of Matching Grant, Portion of Performance Grant, Subsidy (from relevant government schemes, such as Mission for Integration Development of Horticulture (MIDH)) and Debt (credit) from FFIs.
Financial requirement: Risk capital to cover viability gaps and learning costs in early stages of business. Source of financing: Portion of Performance grant.

Pathways for channelizing credit to producers

2. JOHAR will follow three major pathways for channelizing credit to producers. The **first pathway** draws upon the institutional infrastructure developed in Jharkhand for financial inclusion under NRLM. The project shall synergize its efforts with those of JSLPS for enabling financial inclusion of individual producers covered under JOHAR by utilizing the on-lending route available through formal financial institutions, Cluster Level Federations (CLFs) and Village Organizations (VOs) to SHG members. Producers may also be mobilized into Joint Liability Groups (JLGs) for enabling access to credit from FFIs including NBFC-MFIs and banks. JOHAR shall supplement and leverage the efforts of JSLPS towards: (a) sensitization of FFI officials especially public sector banks through workshops and exposure visits to such JLGs; (b) partnerships with FFIs, especially public sector banks, for financial inclusion of producer communities; (c) devising, testing and fine-tuning other models for financial inclusion of producer communities covering

existing approaches of JSLPS under alternative delivery channels and new products and methodologies (like digital lending); (d) engaging with JSLPS's community cadres like Community Resource Persons (CRPs), Bank Sakhis, Bank Correspondent (BC)-Bank Sakhis, Tablet Didis for effective delivery of financial education, credit counselling and financial service delivery to producer communities. Financial education is a key intervention that will go beyond mere one-time dissemination and is expected to lead to an increase in demand for suitable financial services and an understanding of the need to build the right credit history. Safeguards and risk management measures for the first pathway include: (a) social capital inherent in community institutions (such as CLFs, VOs, SHGs, JLGs); and (b) exclusion of delinquent beneficiary from development interventions of JSLPS and other agencies of the GoJ.

3. The **second pathway** for channelizing credit is made possible by partnering FFIs to enable provision of credit offerings targeted at individual producers. These FFIs include banks (such as Bandhan Bank), loan NBFCs (such as Avanti Finance and Ananya Finance), and Micro-Finance Institutions – Non Banking Financial Companies (MFI-NBFCs) (such as Vedika). These FFIs may follow group-based or direct-to-beneficiary approaches for providing credit to individual producers. Individual producer financing under this pathway will also be done through Kisan Credit Card (KCC), Stand up India scheme, PMJDYs overdraft facility and producer-oriented credit offerings from NABARD, and its subsidiary NBFCs (NABFINS and Nabkisan) and other relevant FFIs. Alternative bank channels such as the, Bank Correspondent network will be leveraged for availing credit services, like KCC, and overdraft under PMJDY besides loan recovery initiatives. Safeguards and risk management measures for the second pathway include: (a) credit bureau; (b) borrower-screening (or risk profiling); and (c) social capital inherent in PGs.

4. Under the **third pathway**, POs shall access credit from FFIs by leveraging their equity capital base and will consist of: (a) share capital contribution from member PGs; and (b) proportionate matching grant from the project. The cumulative equity base of the PO shall be put to use strategically by the PO to meet its essential financial requirements towards: (a) working capital for sale of production inputs to member-producers; (b) working capital for inventory of primary produce, semi-finished and finished products for sale to external buyers (market players); and (c) expenditure on human capital and organizational overheads during the first three years. The portion of equity capital base of POs allocated for financial requirements (i.e. (a) and (b)) shall be leveraged to raise credit (debt financing) from FFIs. Details of the financial alternatives that will be available to the POs are provided in Table A2.1. Details of the financing structure for the POs are summarized in Table A2.2. Safeguards and risk management measures for the third pathway include: (a) lien by FFIs on the portion of equity capital of the POs converted into a cash collateral (as a fixed deposit) for the purpose of leveraging it for raising credit (debt); (b) trapping of the cash flow of individual producers by POs; (c) insurance coverage for production credit wherever possible; and (d) interlocking of credit provided by POs in the form of agri-inputs supplied to an individual producer with the harvested produce of the same producer.

Annex 3: Technical Note on the HVA Market Scenario in Jharkhand

Main economic trends in Jharkhand

1. The Gross State Domestic Product (GSDP)[6] of the state is projected to increase by 8.83 percent during the financial year 2015–16. This is the fourth consecutive year when the real income of the state has recorded an impressive growth and is the third year in succession when the growth rate has crossed 8 percent. The percentage growth in GSDP[7] over the past five years has shown positive trends.[8] The per capita income[9] of the state was Rs 18,510 in 2004–05 and is projected to be Rs 33,260 in 2015–16. GSDP has grown by 5.47 percent per annum[10] in the past 11 years and the per capita income has grown at 7.18 percent[11] since 2012–13. The growth rate in this period not only remained reasonably high, but also almost stable. If the Jharkhand economy maintains this growth rate, the per capita real income of the state will get doubled every ten years.[3]

2. Jharkhand has a LFPR[12] of 31.4 percent that is lower than the national average of 36.4 percent. It also has a higher unemployment rate (UR)[13] (3.1 percent) compared to the all-India level (UR 2.7 percent). Notably, about half of Jharkhand's population is engaged in agriculture and primary sector. In Jharkhand, only 9.2 percent women participate in the labor force. In the urban areas the LFPR for women is only 6 percent compared to 10.1 percent in rural areas. The UR of urban women is 11 percent compared to 6.2 percent for women in rural areas. This indicates that the state needs to do a lot in terms of encouraging women to participate in the labor force and also reduce their high level of unemployment in order to enhance the productive capacity of the state.[14]

Historical background on the importance of agriculture in Jharkhand's development

3. Agriculture is the mainstay of the Indian economy and its importance in the economy of Jharkhand cannot be overlooked. Given the relatively high contribution of other sectors, the contribution of agriculture may seem low, at around 17 percent (2014–15) of the GSDP, but it accounts for a substantially high share in creating employment and livelihoods in the economy of the state. In Jharkhand, 59.5 percent of rural households are agriculture households, which is marginally greater than the national average of 57.8 percent.

4. Agriculture and allied sector production in value terms has shown consistent growth over the past five years. The value of the output of agriculture and allied sector at constant prices has increased from Rs 12,549.6 crore in 2010–11 to Rs 19,764.5 crores in 2014–15. It is expected to grow further to Rs 21,459.3 crore in 2015–16. The contribution of agriculture to GSDP increased from 14.02 percent in 2010–11 to 16.94 percent in 2011–12, and has remained around 16.6 percent from 2012–13 onwards.

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[6] $GSDP_{FC}$: at factor cost, at constant (2004-05) prices
[7] at factor cost at constant and current prices
[8] Source: Economic Survey of Jharkhand.
[9] at constant prices (NSDP at factor cost)
[10] CAGR basis
[11] CAGR basis
[12] LFPR is defined as the proportion of persons/person-days in the labour-force to the total persons/person-days. It is an indicator reflecting the amount of labour supply in an economy.
[13] UR is the ratio of number of unemployed persons/person-days to the number of persons/person-days in the labour force, demonstrating the overall employment situation of an economy.
[14] Source: Economic Survey of Jharkhand / NSSO 68th round; Jharkhand sample size of 12,922.

Status of market structures and infrastructure in Jharkhand

5. There are 631 rural markets and haats in addition to 28 Agricultural Produce Market Committee (APMC) mandis and 192 secondary APMCs in the state. The development and regulation of these markets is vested with Jharkhand State Agricultural Marketing Board (JSAMB). JSAMB was established to provide marketing facilities to different stakeholders and remunerative price to growers through APMCs of the state. In Jharkhand, haat bazaars[15] (rural periodic markets) play an important role in the marketing of agricultural produce.

6. The JSAMB has paid special attention to the integrated development of all haats in the state and a scheme is in place to modernize the infrastructure in the haats. On the other hand, APMCs under the Model APMC Act may enter into a joint venture or public-private partnership mode for the development of accredited warehouse facilities/quality warehouse/cold storage/grading, sorting, packing facilities for the farmers in their market yards/land. Private investment on private land for this purpose, will be given an assistance of 25 percent of the capital cost of facilities up to a maximum of Rs 5 million. However, this policy provision has not yet been put into action.

7. The Jharkhand State Adivasi Co-operative Vegetable Marketing Federation Ltd. (VEGFED) is a state level apex body of fruit and vegetable growers engaged in the production of vegetables, and provides farmers with technical knowledge in marketing. Its shares are held by primary co-operative societies and the GoJ. VEGFED has 200 exclusive vegetable primary societies (Phal Evam Sabji Utpadak Sangh) and around 200 multi-purpose societies (LAMPS) across the state with a membership of about 200,000 farmers. It gets funds from central and state sponsored schemes and annually expends nearly Rs 50 crores for the development of the sector. Under Rashtriya Krishi Vikas Yojana (RKVY), apart from providing a subsidy of Rs 0.99 million to set up aggregation centers in the societies, it also provides working capital of Rs 0.2 million to these societies for conducting the business. Around 50 such societies have been identified as beneficiaries.

8. The state has a total cold store capacity of about 1.70 lakh MT of which 1.41 lakh MT belongs to the private sector. However, the existing capacity utilization for most of the cold stores falls in the range of 50–70 percent, which is mainly for storage of potato. The state has a dry warehousing capacity of around 1.50 lakh MT.

Status of production of fruits and vegetables

9. Jharkhand produced about 5.128 million MT of fruits (0.89 million MT) and vegetables (4.238 million MT) from an area of 0.4 million ha and accounted for 2.98 percent of total fruits and vegetables production in the country.[16] The major share of horticulture production is from vegetables (82.1 percent). Nearly, 0.02 million MT of fruits have been traded in organized markets at an average price of Rs 56.62/kg and 0.2 million MT of vegetables have been traded in organized markets at an average price of Rs 20.12/kg. The rest of the fruits and vegetables are self-consumed and traded in unorganized markets.[11]

Existing supply chains for fruits and vegetables in Jharkhand

10. Vegetables and fruits move through various market players to reach consumers both within and outside the state. In the illustration below (Table A3.1), each column represents movement of fruits and

[15] Haat bazaar: A place where hundreds of persons from nearby villages assemble to meet their day-to-day requirements.
[16] Source: Indian Horticulture Database-2014.

vegetables through various market players. The second column is the most prevalent supply chain in Jharkhand. While the established market players play conventional roles to facilitate the movement of produce between markets, the market linkage framework under JOHAR is designed to provide greater access to these markets.

Table A3.1: Supply Chains for High Value Agriculture in Jharkhand

7	Consumer	Consumer	Consumer	Consumer
6	Retailer	Retailer	Retailer	
5	Wholesaler	Wholesaler	Wholesaler	
4	Local Consumer	Big Trader (Outside state)	Big Trader	Retail Outlets
3	Reseller at haat / Big Trader	Trader at APMC or outside / Trader's Commission Agent	Big Trader / Big Trader's Commission Agent	Organized Retail Central Hub
2	Commission Agent at Haat	Aggregator - appointed by a trader / VEG FED led Aggregation	Aggregation - done by Farmers themselves	Aggregator - appointed by an organized retailer
1	Farmer 1	Farmer 2	Group of Farmers 3	Farmer 4

Policy and regulatory framework for markets in Jharkhand

11. Jharkhand has adopted the majority of reforms proposed under the Model APMC Act. These include: (a) initiative for setting up of new market by any person, local authority or grower; (b) setting up of special markets and special commodity markets; (c) registering a contract farming sponsor with the marketing committee or with a prescribed officer; (d) recording the contract farming sponsor's agreement with the prescribed officer; (e) ensuring that title, rights, ownership or possession are not transferred, alienated or vested in the contract farming sponsor or his successor or his agent due to the contract farming agreement; (f) ensuring that dispute settlement mechanisms are in place; (g) specifying model agreement for contract farming; (h) initiating single point levy of market fee; (i) registering (not licensing) market functionaries and single registration for trade/transaction in more than one market; (j) establishing private market yards and direct purchase from farmers; and (k) establishing consumer/farmer market, single registration/license for trade/transaction in more than one market.

Private sector investments in the food sector

12. Currently, major food processing units in the state are grain and dairy based; with rice mills being most prominent. Small scale processing around fruits and vegetables is negligible.

13. The immense agricultural potential of the state together with the gaps in food processing offers huge scope for the development of a vibrant food processing industry. The Jharkhand Food Processing Policy 2015 supports the creation of an enabling environment for the same. The objective of the Policy is to create a favorable atmosphere for setting-up of food processing units by creation of infrastructure facilities, and encouraging capital investments and technology up-gradation through grants and concessions to the private investor. While, Mother Dairy (National Dairy Development Board), is setting

up a vegetable and fruits processing unit at a project cost of Rs 76 crore near Ranchi, the SFAC-APEDA[17] plans to set up a plant (with pack house and individual quick freezing) with an investment of Rs 30 crore at Hotwar, Ranchi.

14. Major food and feed processing units that are proposed to be set up are M/s. L L Logistics, Crystal Logistics, Keventer (cold chain and frozen food – Rs 100 crore, Rs 35 crore, 30 crore), Xitix SFT Technologies (biscuits – Rs 200 crore), Acuity Cold System (cold chain– Rs 20 crore), Madan Mohan Grains (flour milling – Rs 50 crore), Anup Kumar (tomato powdering – Rs 5 crore), Anmol Feeds (aqua feed– Rs 5 crore), Sun Juices (fruit juices and dairy – Rs 100 crore), and NCL (herbal processing – Rs 50 crore). The total project cost of these proposals is around Rs 595 crore.

15. Units that are proposed to be set up in the Mega Food Park, near Getalsud, Ranchi include: M/s Kitchen Mate (puree and paste), Eastern Manufacturing (food park), Raha Enterprises (cold chain, IQF and frozen food), Vijay Cashew Processing (food park in Bokaro over 12 acres), and Vadilal (food park in Ranchi over 10 acres). The total project cost of these proposals is around Rs 78.7 crore.

16. Some of the private players who have proposed to set up their units in their own land include: M.R. Food (skimmed milk), Triveni Mega Food Park (food park), Prasad Nutriments Pvt. Ltd. (cold chain, IQF and frozen food), Jharkhand Realty Food Park (food park in Bokaro over 12 acres), Logistics Park (logistic park in Ranchi over 10 acres), and Makhan Chor Dairy (dairy processing).

17. Under the Jharkhand Export Policy, MoUs with the following business houses have been signed: M/s Kansal & Kansal Agro Farms Co. for the production of herbal organic value-added products (proposed investment – Rs 70 crore), M/s M.R. Food Processing Industries for milk powder plant (proposed investment – Rs 55 crore), M/s L.L. Logistic Pvt. Ltd. for agro product storage and preservation (proposed investment – Rs 200 crore), M/s Triveni Mega Food Park (P) Ltd. for setting up food parks, (proposed investment – Rs 180 crore), M/s Crystal Logistic Cool Chain Ltd. for agro food processing (proposed investment – Rs 100 crore), M/s Kwality Ltd. for milk and milk products (proposed investment – Rs 100 crore).[18]

Future production trends and impact of HVA component of JOHAR

18. The demand for fruits and vegetables in the state by 2022 is expected to be 6.44 million MT, and the projected supply of fruits and vegetables in the state in 2022 would be 7.96 million MT. While the state would be deficient in fruits, it would have surplus vegetables to be linked to other markets. It is expected that 0.43 million MT of fruits and vegetables would be produced as a result of JOHAR interventions. This is only 5 percent of the projected production by 2022 and by virtue of its insignificant magnitude it cannot create an excess situation. Moreover, with seasonal and spatial production planned under JOHAR and the focus on multiple marketing channels to market the produce through an informed marketing process, there is no overdependence on a single market and therefore no envisaged commercial market risk.

[17] Small Farmers Agribusiness Consortium (SFAC: *www.sfacindia.com*) and Agriculture and Processed Foods Export Development Authority (APEDA: *www.apeda.gov.in*) have proposed this in collaboration.
[18] Source: Economic Survey of Jharkhand / Dept. of Industries, GoJ.

Annex 4: Greenhouse Gas Appraisal

1. A greenhouse gas (GHG) appraisal of JOHAR was carried out using the FAO Ex-Ante Carbon balance Tool (EX-ACT) which quantifies the net carbon balance in terms of tons of CO2 equivalent (tCO2e), resulting from GHGs emitted or sequestered, as a result of project implementation compared to the without-project scenario. It is estimated that the project would result in annual climate change mitigation benefits of –43,516 tCO2e when compared to a business-as-usual baseline scenario. This is equivalent to annually reduced GHG emissions per hectare of –2.1 tCO2e. After 20 years (a timeframe commonly used for project GHG accounting in agriculture), GHG mitigation benefits amounting to a reduction of –870,326 tCO2e will be generated. Thus, in addition to the achievement of the directly targeted project development objectives, JOHAR provides moderate total GHG co-benefits. However, while practices with GHG benefits are not extended over a very large area, the project is characterized by a significant GHG impact strength per hectare.

2. **GHG impacts by project intervention.** The most sizeable GHG mitigation benefits are generated by the diversification away from paddy to high-value agriculture, resulting in a reduction of methane emissions equivalent to an estimated –57,400 tCO2e per year.

3. The adoption of improved land management practices on annual cropland results in carbon sequestration of –34,550 tCO_2e per year while newly established fruit tree and moringa plantations on previously set-aside areas lead to reductions of –13,596 tCO_2e per year.

4. Increased fertilizer and pesticide consumption, however, leads to augmented GHG emissions of 6,547 tCO_2e per year. The project increases total consumed quantities of fertilizers due to increases in both the physically cropped area as well as the cropping intensity, defined as the number of cropping seasons per year. The application rates of fertilizer products per cultivated hectare do not significantly increase due to project interventions.

5. The increase in aquaculture production is a small contributor to increased GHG emissions from augmented ammonia excretion of fish stocks in ponds (18,500 tCO_2e/year).

6. The construction of new irrigation systems leads to insignificant GHG impacts, while improved management practices of goats, pigs and poultry cannot be assessed in a direct manner with the available methodology and are preliminarily estimated at smaller scale.

7. Estimated GHG benefits from plantations of lemon grass and tulsi – on previously unused land amount to -1,297 tCO_2e per year.

8. Overall JOHAR can thus be characterized as achieving moderate benefits in terms of total net GHG emissions in the project area, when compared to the GHG emissions in the without-project scenario. Following the 2014 World Bank guidance and applying a social value of carbon of US$30 per tCO2e, annual benefits are estimated to be US$1.3 million at full development.

Annex 5: Economic and Financial Analysis

Introduction

1. An Economic and Financial Analysis (EFA) of the project was undertaken to assess the economic soundness of the project and its likely impact on the target beneficiaries. The economic and financial impacts were estimated at two levels: (i) Societal economic impacts of the project resulting from the overall project investment; and (ii) Direct economic and financial impacts of the project's productivity and income enhancing interventions on primary beneficiaries (small and marginal farmers).

2. The analysis takes into account the project costs and project outreach assumptions at the time of appraisal (February 2017). The assumptions for the Economic Analysis (EA) are linked to the project's Results Framework and its Project Development Objective (PDO) indicator 1 [19].

3. The EA is informed by the results of the Financial Analysis (FA) which has been carried out for the main productive activities supported by the project. A sensitivity analysis was conducted to assess the impact of changes in the main parameters affecting the economic outcome of the project as a result of: (a) changes in project costs; (b) changes in expected benefits from the production systems promoted by the project (crop, livestock, fisheries and non-timber forest produce); and (c) delays in project execution due to the risks that have been identified in the project's risk analysis.

4. The findings of the EFA are summarized below. More details are provided in the EFA Appendix in the Project File. It is expected that the EFA will be periodically updated as an integral part of the project's M&E System and as an input into the project evaluation at mid-term and completion stage. Consequently, the Technical Support Agency for M&E will also conduct the EFA during implementation as appropriate.

Project Area and Beneficiaries

5. The project will be implemented in 68 blocks in 17 districts with a total rural population of 6.1 million (1.18 million households). The primary project beneficiaries are from rural households, the majority of whom will be women, SC, ST, smallholder and landless households in selected blocks of rural Jharkhand. The beneficiary households will be a sub-set of the SHG households supported by NRLM and will be selected for inclusion in the project through a participatory, community-driven process that will employ well-defined criteria including their actual/potential ability to generate marketable surplus production. It is expected that the project will reach around 200,000 households. The project blocks were selected based on a set of criteria that take into consideration the existing production base, potential for future growth, and the following factors: the presence of mature community institutions; intensity of production in selected sub-sectors (HVA, fisheries, livestock, NTFP); proximity to markets; access to public infrastructure, such as irrigation, water bodies and roads; and presence of community professionals. The target districts and blocks cover areas that have highest poverty incidence and density and majority ST population. The sub-sector-wise outreach will be about 150,000 households for HVA and irrigation, 51,000 households for livestock, 34,500 households for fisheries, and 29,200 households for NTFP interventions. The target numbers of households overlap across the sub-sectors, as most households will be mapped to at least two sub-sectoral interventions, in order to achieve the expected increase in household income. Table A5.1 provides an overview of project costs, outreach and phasing assumptions, including estimated

[19] PDO indicator 1 states that the average annual real household income of the targeted households will be increased by 50 percent at the end of the project.

costs per main unit of output (e.g. farm household reached). This allows the assessment of the project's efficiency at completion in terms of actual costs vis-à-vis the planned costs per unit of output, as well as comparison with similar projects.

Table A5.1: Outreach and Phasing of JOHAR

Description		Unit	PY1	PY2	PY3	PY4	PY5	PY6	Total
			2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	
Number of districts	cumulative	District	9	17	17	17	17	17	**17**
Number of blocks	cumulative	Block	21	49	68	68	68	68	**68**
Total project costs		Rs cr.	327.51	453.46	410.65	170.19	83.55	81.28	
		US$ M	48.88	67.68	61.29	25.40	12.47	12.13	227.86
Farmers reached with agricultural assets or services	cumulative	HHs	**49,764**	**130,638**	**187,217**	**200,776**	**200,776**	**200,776**	**200,776**
	cumulative	people	248,821	653,191	936,086	1,003,880	1,003,880	1,003,880	1,003,880
Total project costs per farm household (HH) reached with agricultural assets or services		Rs lakh							**0.76**
		US$							**1,135**
1.1 Rural Producer Collectives									
Total sub-component costs		Rs cr.	15.66	7.92	7.48	4.21	3.55	2.82	41.63
		US$ M	2.34	1.18	1.12	0.63	0.53	0.42	6.21
Number of producer groups formed	cumulative	PG	1,500	2,700	3,500	3,500	3,500	3,500	**3,500**
Number of producer organizations formed	cumulative	PO	5	15	25	30	30	30	**30**
Cost per producer group formed		Rs lakh							**1.2**
		US$							**1,783**
1.2 High Value Agriculture Development									
Total sub-component costs		Rs cr.	182.34	237.84	143.80	24.50	23.97	24.42	636.86
		US$ M	27.22	35.50	21.46	3.66	3.58	3.64	95.05
Number of farmers supported in HVA	cumulative	HHs	48,122	114,473	150,884	150,884	150,884	150,884	**150,884**
Cost per farm HH supported (not		Rs lakh							**0.422**
including support under sub-component 1.1)		US$							**630**
1.3 Livestock Development									
Total sub-component costs		Rs cr.	6.25	24.99	67.39	69.01	5.84	5.32	178.79
		US$ M	0.93	3.73	10.06	10.30	0.87	0.79	26.69
No. of livestock farmers supported	cumulative	HHs	370	5,550	26,300	50,992	50,992	50,992	**50,992**
Cost per farm HH supported (not including support under sub-component 1.1)		Rs lakh							**0.351**
		US$							**523**
1.4 Fishery Development									
Total sub-component costs		Rs cr.	6.76	59.34	70.63	10.99	10.51	9.60	167.83
		US$ M	1.01	8.86	10.54	1.64	1.57	1.43	25.05
No. of fish farmers supported	cumulative	HHs	1,800	16,750	34,500	34,500	34,500	34,500	**34,500**
Cost per farm household supported (not including support under sub-component 1.1)		Rs lakh							**0.486**
		US$							**726**

Description		Unit	PY1 2017/18	PY2 2018/19	PY3 2019/20	PY4 2020/21	PY5 2021/22	PY6 2022/23	Total
1.5 Non-Timber Forest Produce (NTFP) Development									
Total sub-component costs		Rs cr.	19.33	16.94	19.15	18.00	7.46	5.91	86.80
		US$ M	2.88	2.53	2.86	2.69	1.11	0.88	12.95
No. of farmers supported in NTFP production	cumulative	HHs	2,150	10,340	21,920	29,200	29,200	29,200	**29,200**
Cost per farm HH supported (not including support under sub-component 1.1)		Rs lakh							**0.297**
		US$							**444**
1.6 Irrigation System Development									
Total sub-component costs		Rs cr.	65.71	69.95	62.45	2.80	0.00	0.00	200.91
		US$ M	9.81	10.44	9.32	0.42	0.00	0.00	29.99
Area provided with improved irrigation or drainage services	cumulative	Ha	5,844	13,875	18,000	18,000	18,000	18,000	18,000
Cost per Ha provided with improved irrigation and drainage services (not including support under sub-component 1.1)		Rs lakh							**1.116**
		US$							**1,666**
2.1 Market Access and Private Sector Participation									
Total sub-component costs		Rs cr.	3.86	7.30	7.35	6.79	6.62	5.77	37.68
		US$ M	0.58	1.09	1.10	1.01	0.99	0.86	5.62
Farmers benefiting from market access and private sector participation support	cumulative	HHs	30,000	90,000	150,000	180,000	180,000	180,000	180,000
Cost per farmer benefiting from market access and private sector participation support		Rs lakh							**0.021**
		US$							**31**
2.2 Skills, Jobs and Enterprise Development									
Total sub-component costs		Rs cr.	2.46	1.88	1.56	1.26	0.10	0.00	7.26
		US$ M	0.37	0.28	0.23	0.19	0.01	0.00	1.08
Service providers trained /a	cumulative	No.	0	1,000	3,000	6,000	9,000	11,000	11,000
Entrepreneurs trained	cumulative	No.	0	250	500	1,500	2,500	3,000	3,000
Cost per service provider / entrepreneur trained	cumulative	Rs lakh							**0.061**
		US$							**90**
2.3 Pro-poor Agricultural Finance Systems									
Total sub-component costs		Rs cr.	3.86	9.68	10.81	11.89	5.11	3.20	44.54
		US$ M	0.58	1.45	1.61	1.77	0.76	0.48	6.65
Beneficiaries reached with financial services	cumulative	HHs	0	37,164	92,565	128,966	142,784	149,857	149,919
Cost per beneficiary reached with financial services		Rs lakh							**0.030**
		US$							**44**

\a Earning at least Rs 3,500 per month through user fees in the last two years.

Economic Analysis

6. **Project benefits.** The project will contribute to the twin goals of the World Bank Group; to eliminate extreme poverty by 2030 and boost shared prosperity by directly benefiting rural poor producers, rural youth and rural entrepreneurs engaged in farm and non-farm activities. The main benefit of the project is increased and more diversified incomes of the targeted beneficiaries in the project area from profitable and resilient production systems that are adapted to climate change. Specifically, this will result from: (a) diversification from food grains into HVA, livestock, fisheries and NTFP activities; (b) increase in area under irrigation resulting in increased cropping intensity and productivity; (c) improved marketing, post-harvest management and processing; and (d) increased opportunities for farm and non-farm employment including self-employment.

7. In addition, there will be significant benefits coming from improved resilience to climate change and positive nutritional effects associated with the diversification of production systems towards HVA crops, livestock, fisheries and NTFP activities. It is expected that substantial employment will be generated due to the increased area under crop production and the resulting opportunities for on-farm labor, particularly for the landless poor who are mainly employed in agriculture as wage workers, as well as increased employment in handling, processing and marketing of incremental production.

8. **Assumptions.** The economic analysis is based on the assumption that the PDO indicator 1 – a 50 percent increase in average real annual household income of the targeted households – will be achieved at the end of the project. This assumption is considered realistic and is supported by the financial analysis (see below). Current estimates of average annual income of rural households in Jharkhand range from Rs 40,453[20] to Rs 60,000[21]. Assuming (a) a present average annual household income of Rs 50,000 (to be verified by the project's baseline study); (b) an average annual inflation of 4.5 percent; and (c) an average annual real household income increase of 3 percent over the project period that would take place without the project; a 50 percent increase in average annual real household income of the targeted households would result in an annual household income of Rs 117,000 by the end of the project (compared to around Rs 78,000 without the project). However, the economic analysis is based on constant prices both for the benefits and the costs. It was assumed that targeted household would achieve the 50 percent increase in income in year 4 after project support with incremental increases in income from year 1 to year 3 after project support (10–30 percent).

9. The total financial project costs have been converted to economic costs (which exclude taxes and duties and price contingencies), using the Costab software. The analysis was carried out for a 20-year period, which is the estimated project life including the six-year project implementation period. It is based on 2017 constant prices, and a discount rate of 12 percent was assumed. The Indian Rupee (Rs) was used as the unit of account and the official exchange rate of Rs 67 to US$1 (February 2017) was applied when converting to US$.

10. **Economic viability.** The economic internal rate of return (EIRR) of the project over a 20-year period for the base case, excluding benefits from greenhouse gas (GHG) emission reduction, is 26.0 percent with a net present value (NPV) of 1,223 crore (US$182.6 million) at a discount rate of 12 percent. Placing a monetary value on potential GHG mitigation benefits in terms of reductions in GHG emissions and increased carbon sequestration (estimated at 870,300 tons of CO2 equivalent (tCO2e) over the project

[20] Annual mean gross cash income from different sources of livelihood. Rural Cash Flow Study – Jharkhand. CINI. Tata Trusts, 2016.
[21] JSLPS baseline survey, 2016.

life of 20 years), the base case EIRR increases to 26.6 percent. This assumes a price per ton CO2e of US$30 as suggested for the analysis of other World Bank-funded projects. On this basis, at full development, annual GHG benefits are valued at US$1.3 million.

11. **Sensitivity analysis.** A sensitivity analysis was conducted to assess the impact of changes in main parameters affecting the economic outcome of the project as a result of: (a) changes in project costs; (b) changes in the expected benefits from the production systems promoted by the project (crop, livestock, fisheries and NTFP); and (c) delays in project execution due to the risks that have been identified in the project's risk analysis. The results show that the project remains economically viable even in the case of adverse changes in project costs and benefits. A reduction in project benefits by 20 percent results in an EIRR of 21.9 percent. A 20 percent increase in project costs combined with a 20 percent reduction in project benefits, coupled to a two-year delay of benefits, reduces the EIRR to 13.5 percent. The EIRR will become 12 percent (including GHG benefits) if the average increase of annual real household income of targeted households is reduced from 50 percent to 17 percent. Table A5.2 presents an overview of the sensitivity analysis including further scenarios.

Table A5.2: Economic Rate of Return and Sensitivity Analysis

Scenario			**EIRR**	**NPV (US$'000)**	**NPV (Rs crore)**
Base case (without GHG)			26.0%	182,624	1,223.6
Base case (with GHG) /a			26.6%	190,948	1,279.4
Changes (Base case with GHG)					
Project Costs	**Incremental Benefits**	**Benefits delayed by**			
+ 20%			22.7%	159,683	1,069.9
+ 40%			19.7%	128,418	860.4
	- 20%		21.9%	121,493	814.0
	- 40%		16.6%	52,039	348.7
+ 20%	- 20%		18.4%	90,228	604.5
+ 40%	- 40%		11.3%	-10,492	-70.3
Base Case (with GHG)		1 year	22.2%	146,670	982.7
		2 years	19.0%	107,137	717.8
		3 years	16.5%	71,839	481.3
		1 year	15.6%	54,806	367.2
+ 20%	- 20%	2 years	13.5%	23,179	155.3
		3 years	11.7%	-5,059	-33.9
Switching values/b					
Costs	+	122%			
Benefits	-	55%			

EIRR = economic internal rate of return. NPV = net present value.
\a GHG mitigation benefits valued at US$30/ton CO2e.
\b Percentage change in cost and/or benefit streams to obtain an EIRR of 12 percent, i.e., economic viability threshold.

12. **Impact on production and nutrition.** As shown in Table A5.3, the project will result in considerable increases in production of vegetables, fruits, livestock produce, fish and NTFP. The expected increase for fruits is nine percent above present annual State production. The expected production increases for vegetables, meat and fish are considerably higher at around 25 percent of present annual state

production, and this reaches almost 90 percent for eggs. A specific market analysis for the different produce is still to be carried out under the project. Given the ever-increasing demand, particularly in urban areas as a result of population increase and increases in income, it is safe to assume that incremental production resulting from the project will not depress producer prices. It is estimated that more than 15,000 tonnes of fish are currently imported from Andhra Pradesh and the expected increase in annual fish production of around 30,000 tonnes resulting from the project, would both substitute imported fish (with better quality local fish) and also contribute to reaching the GoJ projected annual demand for fish of 140,000 tonnes. It is expected that the project will not only contribute to overall improved incomes and food security in Jharkhand but also to improved nutrition mainly through increased production and availability of nutrient-rich products, in particular vegetables, meat, fish and eggs. This incremental production will reach consumers in Jharkhand and neighboring states, thereby contributing to reduction of some micronutrient deficiencies.

Table A5.3: Estimated Project Impact on Production

Activity	Unit	Total Annual Production /a		Incremental Annual Production /a		Total Annual State Production /d	Incremental Annual Project Production /e
		Without Project	With Project /b		(%) /c		
Vegetable production	MT	222,227	1,403,221	1,180,994	531%	4,196,700	28%
Fruit production	MT	0	66,811	66, 811	NA	757,979	9%
Meat production	MT	3,175	15,489	12,314	388%	50,710	24%
Egg production	Egg	61,360,000	103,968,000	42,608,000	69%	48,320,000	88%
Fish production	MT	6,650	36,897	30,247	455%	106,430	28%
Lac production	MT	572	1,792	1,220	213%	NA	NA
Other NTFP /f	MT	0	2,117	2,117	NA	NA	NA
Honey production	MT	0	4,000	4,000	NA	NA	NA

See details in EFA Appendix in Project File.
\a By target households.
\b At the end of the project.
\c As percentage of Without Project production.
\d FY 2014/15 for fruits, vegetables and fisheries; FY 2015/16 for livestock.
\e At full development, as percentage of annual State production.
\f Chiraunji, Lemon Grass, Moringa, Tulsi, Tamarind.

13. **Impact on employment.** Agricultural employment on the target farms is estimated to rise by about 300 percent or about 19.5 million person days per annum at the end of the project. This is equivalent to around 81,000 additional full time jobs (at 240 person days per year). As can be seen from Table A5.4, the largest overall increase is expected in HVA production. The estimated increase corresponds to average annual incremental labor requirement per target household of 97 person days. It should be noted that all productive activities promoted by the project are expected to result in returns to labor per person day that exceed the daily rate of Rs 167 under the MNREGA scheme (see EFA Appendix in the Project File for details). However, as availability of additional family labor on many farms may be limited, there would be employment opportunities for the landless poor who are mainly employed in agriculture as wage workers. In addition, it can be expected that substantial employment will also be generated for handling incremental production, processing and marketing as well as project implementation for rehabilitation of ponds and minor irrigation structures.

Table A5.4: Estimated Project Impact on Employment

Activity	Unit	Total Annual Labor/a		Incremental Annual Labor/a	
		Without Project	With Project /b		(%) /c
HVA production	pers. day	2,882,881	18,856,351	**15,973,470**	554%
	jobs	12,012	78,568	**66,556**	554%
Livestock production	pers. day	2,200,000	4,050,440	**1,850,440**	46%
	jobs /d	9,167	16,877	**7,710**	84%
Fishery production	pers. day	1,062,500	1,357,500	**295,000**	28%
	jobs /d	4,427	5,656	**1,229**	28%
NTFP production	pers. day	286,004	1,693,561	**1,407,557**	492%
	jobs /d	1,192	7,057	**5,865**	492%
Total project	pers. day	6,431,385	25,957,852	**19,526,467**	304%
	jobs /d	26,797	108,158	**81,360**	304%

See details in EFA Appendix in Project File.
\a By target households.
\b At the end of the project.
\c As percentage of Without Project production.
\d At an average of 240 person days per year per job.

14. **Fiscal impact.** GoJ's contribution to the project amounts to Rs 286.7 crore (US$42.8 million) or 18.8 percent of total project costs (including beneficiary contribution and convergence). This corresponds to an average annual GoJ contribution over the project life of Rs 47.8 crore, representing only around 1.3 percent of the average annual Government budget for the main departments involved in the project (Agriculture, Animal Husbandry, Fisheries, Cooperatives, Water Resources, Rural Development) over the period 2015/16–2017/18 (Rs 3,690.4 crore/US$550.8 million). In the medium- to long-term, a substantial positive fiscal impact of the project is expected, mainly due to: increased output, income and employment, also resulting in increased tax revenues; and multiplier effects due to increased disposable income of project beneficiaries, resulting in increased demand for goods and services.

Financial Analysis

15. The financial analysis has been carried out for the main productive activities supported by the project. Detailed crop budgets were prepared for 13 crops and typical smallholder plot sizes, providing an overview of the production system including the key production parameters, farmer organizations, investments and marketing channels. Similar analyses were prepared for six livestock production models (for goats, pigs and poultry) and four fish production systems (private pond, seed production, cage culture and subsistence pond). Furthermore, nine NTFP production models were analyzed. The main financial performance measures, including gross margin, net profit, return to family and total labor, and the return on investment are calculated for the Present (P) [as applicable], Future Without Project (FWOP) and Future With Project (FWP) scenarios. If applicable, the Investment Costs including required Working Capital and Annual Depreciation were calculated. Detailed results are provided in the EFA Appendix in the Project File.

16. The results show considerable increase in gross margin, net profit, and return to family and total labor for all production systems. The financial analysis suggests that the PDO indicator of a 50 percent increase in average real annual household income of the targeted households is achievable due to

diversified or intensified economic activities promoted by the project. Table A5.5 below shows the estimated incremental annual net income per household as well as the initial investment costs and the incremental annual costs of intermediate inputs (working capital requirements) for the main productive activities supported by the project. It is expected that the financial analysis will be periodically updated as an integral part of the project's M&E system and as an input into the project evaluation at mid-term and completion stages.

Table A5.5: Overview of Financial Analysis of Productive Activities Supported by the Project

Activity	No. of households with the project	Annual net income per household (Rs)				Incremental intermediate inputs/ household (Rs)/e	Investment costs/ household (Rs)/f
		Future without the project	Future with the project	Increment			
High-value agriculture/a	**150,884**						
Kharif	60,354	32,789	46,227	13,438	*41%*	1,062	0
Kharif+Rabi	67,898	63,936	90,267	26,332	*41%*	2,452	0
Kharif+Rabi+late Rabi	19,615	88,655	135,311	46,656	*53%*	1,587	0
Kharif+Rabi+late Rabi+fruit	3,018	88,655	314,565	225,910	*255%*	138,807	0
Livestock	**50,992**						
Goat production	15,000	9,552	59,522	49,970	*523%*	13,360	20,000
Pig production	5,000	49,357	76,300	26,943	*55%*	32,208	35,000
Poultry (broiler)	300	59,907	90,226	30,319	*51%*	-1,000	0
Poultry (layers)	500	13,742	33,782	20,040	*146%*	-5,840	0
Poultry (backyard rearer)	29,600	5,966	16,208	10,243	*172%*	10,813	7,000
Poultry (backy. mother farm)	592	0	107,864	107,864	*na*	181,200	65,000
Fisheries	**34,500**						
Pond culture	25,000	11,400	58,491	47,091	*413%*	36,965	3,000
Seed production	3,000	4,415	74,020	69,605	*1577%*	30,568	9,000
Cage culture	500	5,238	16,968	11,730	*224%*	60,102	0
MNREGA Dhoba	6,000	576	2,454	1,878	*326%*	2,201	0
Non-timber forest produce/b	**58,400**						
Lac /c	24,000	3,778	11,322	7,544	*200%*	1,685	620
Other /d	34,400	0	20,157	20,157	*na*	6,262	4,036

\a Area 0.3 acre for vegetables, 1 acre for fruits. In comparison, 1 acre of paddy generates a net income between around Rs 11,500 (traditional) and Rs 20,000 (System of Rice Intensification) Kharif: Tomato, brinjal, chilli, cabbage, cauliflower. Rabi: Tomato, brinjal, french bean, chilli, capsicum, peas, cabbage, cauliflower. Late Rabi: Cucurbits, okra. Fruits: Papaya, banana.
\b While in total 58,400 NTFP activities will be supported, it is expected that each household will be engaged, on average, in two activities under lac and/or other, therefore the estimated number of households will be 29,200.
\c Semialata, ber, kusum and ber.
\d Chiraunji, lemon grass, moringa, tulsi, tamarind, honey.
\e Per annum.
\f In year 1.

[i] Lagarde C. Speech. *Seizing India's Moment*. 2015. *https://www.imf.org/en/News/Articles/2015/09/28/04/53/sp031615* viewed on 26 December 2016.
[ii] *Press Note on Poverty Estimates, 2011-12*. Planning Commission, Government of India. July 2013.

[iii] Planning Commission, Government of India. 2014. *Report of the Expert Group to Review the Methodology for Measurement of Poverty*. Viewed at *http://planningcommission.nic.in/reports/genrep/pov_rep0707.pdf* on 9 January 2017.
[iv] World Bank, 2016. *India States Briefs*. Viewed at *http://www.worldbank.org/en/news/feature/2016/05/26/india-states-briefs* on 4 October 2016.
[v] *State of Indian Agriculture 2015-16*. Ministry of Agriculture & Farmers Welfare, Government of India.
[vi] Sharma AK. *Transformation in Indian Agriculture, Allied Sectors, and Rural India: Is there less krishi in Bharat?* NCAER. 2015.
[vii] Chand R and Singh J. *Study Report on Agricultural Marketing and Farmer Friendly Reforms across Indian States and UTs*. NITI Aayog. 2016.
[viii] Chand R. *Doubling Farmers' Income: Strategy and Prospects*. NITI Aayog. 2016.
[ix] Budget 2016-2017. February, 2016. Government of India. Viewed at *http://indiabudget.nic.in/ub2016-17/bs/bs.pdf* on 26 December 2016.
[x] Chakraborty, Sonali. Employment Situation in Jharkhand. *Journal of Economic and Social Development*. Vol XI. No. 1. June 2015.
[xi] LWE affected districts, Ministry of Home Affairs, Government of India. Viewed at *http://pib.nic.in/newsite/PrintRelease.aspx?relid=136706* on 9 January 2017.
[xii] Mehta BS and Singh B. *Employment and Poverty in Jharkhand and India*. IJHSSS. Volume II, Issue V, March 2016. Pages 311-323.
[xiii] Vision 2030. Bisra Agricultural University. *www.baujharkhand.org*.
[xiv] Rama Rao CA, et al. *Atlas on Vulnerability of Indian Agriculture to Climate Change*. CRIDA. 2013.
[xv] *Rural Cash Flow Study – Jharkhand*. CINI. Tata Trusts; 2016.
[xvi] NSS 70th round. *Key Indicators of Situation of Agricultural Households in India*. MoSPI, Government of India. 2014.
[xvii] *Rural Cash Flow Study – Jharkhand*. CINI. Tata Trusts; 2016.
[xviii] NSS 70th round. As reported in *State of Indian Agriculture 2015-16*. Ministry of Agriculture & Farmers Welfare, Government of India.
[xix] Ajaz-ul-Islam M, et al. *Livelihood Contributions of Forest Resources to the Tribal Communities of Jharkhand*. Indian Journal of Fundamental and Applied Life Sciences. 2013. Vol (3) 2.
[xx] Chand R and Parappurathu S. *Historical and Spatial Trends in Agriculture: Growth Analysis at National and State Level in India*. IGIDR Proceedings Series, National Centre for Agricultural Economics and Policy Research, NewDelhi. 2011.
[xxi] *Handbook on Fisheries Statistics 2014*. Department of Animal Husbandry, Dairying and Fisheries. Government of India. Viewed on 28 December 2016 at *http://dahd.nic.in/documents/handbook-fisheries-statistics-2014*.
[xxii] *Socio-Economic and Caste Census 2011*, Ministry of Rural Development, Government of India. Viewed on 28 December 2016 at *http://www.secc.gov.in*.
[xxiii] Census of India 2011. Viewed on 27 December 2016 at *http://www.censusindia.gov.in/2011census/Hlo-series/HH12.html*.
[xxiv] Jharkhand State Level Banker's Committee. *Bank-wise Achievement in Key Parameters*. June 2016. Viewed on 27 December 2016 at http://www.slbcjharkhand.org/pdf/keyjune16.pdf.
[xxv] West Bengal State Level Banker's Committee. *Banking System in West Bengal*. Viewed on 10 January 2017 at *http://www.slbcbengal.com/pdf/CD_RATIO_Sep16.pdf*.
[xxvi] *Jharkhand Economic Survey 2015-16*. Planning cum Finance Department, Government of Jharkhand.
[xxvii] *Rural Cash Flow Study – Jharkhand*. CINI. Tata Trusts; 2016.
[xxviii] *Jharkhand Economic Survey 2015-16*. Planning cum Finance Department, Government of Jharkhand.
[xxix] *Socio-Economic and Caste Census 2011*, Ministry of Rural Development, Government of India.
[xxx] Indicated by the number of Entrepreneurs Memorandum (II) filed by MSMEs. Data on MSME sector. Ministry of MSME, Government of India. Viewed at *http://www.dcmsme.gov.in/publications/EMII-2014-15.pdf* on 8 February 2017.
[xxxi] Jharkhand Skill Development Mission. Viewed at *http://www.skilljharkhand.org/wp-content/uploads/2014/11/NSDC-Presentation-for-Jharkhand.pdf* on 7 February 2017.
[xxxii] Jharkhand Skill Development Mission. Viewed at *http://www.skilljharkhand.org/wp-content/uploads/2014/11/Jharkhand-skill-mission-Five-year-Plan.pdf* on 7 February 2017.

[xxxiii] Statistical Profile on Women Labour 2012-13. Labour Bureau, Ministry of Labour and Employment, Government of India.
[xxxiv] Jharkhand Skill Development Mission. Viewed at *http://www.skilljharkhand.org/wp-content/uploads/2014/11/NSDC-Presentation-for-Jharkhand.pdf* on 7 February 2017.
[xxxv] *Key Indicators of Situation of Agricultural Households in India*. NSS 70th Round. 2013.
[xxxvi] *Potential for livelihood improvement through livestock development in Jharkhand*. ILRI. 2011.
[xxxvii] Viewed at *http://jharkhandindustry.gov.in/Investment%20Opportunities%20Lac%20Development%20in%20Jharkhand.pdf*
[xxxviii] *Documentation of the bio-resource based industries in Jharkhand and the bio-resource utilized*. IFP, ICFRE.
[xxxix] *Progress of Market Reforms under APMC Act – Status Report of States*. Viewed on 9 January 2017 at *http://sfacindia.com/PDFs/Progress-of-Market-Reforms-under-APMC-Act.pdf*.
[xl] National Rural Livelihood Mission.
[xli] *Jharkhand State Water Policy*. Water Resources Department, Government of Jharkhand. 2011.
[xlii] *DAY-NRLM. Progress Report*. FY 2016–17 (up to August 2016). JSLPS. SHGs = 27,493 + 18,503 = 45,996. Families outreach = 347,725 + 222,029 = 569,754.
[xliii] Figures are rounded off and are from: Layering_Blocks_JOHAR.xlsx
[xliv] Barghouti S, et al. *Agricultural Diversification for the Poor: Guidelines for Practitioners*. World Bank. 2004.
[xlv] IEG, World Bank 2015. *Ten Million Women and Counting: An Assessment of World Bank Support for Rural Livelihood Development in Andhra Pradesh, India*. Report No. 95274.
[xlvi] Datta U. *Socio-Economic Effects of a Self-Help Group Intervention: Evidence from Bihar, India*. 2013
[xlvii] Trebbin A and Hassler M. *Farmers' Producer Companies in India: A new concept for collective action?* Environment and Planning. 2012.
[xlviii] Singh S and Singh T. *Producer Companies in India: A study of organization and performance*. CMA Publication No. 246. IIM, Ahmedabad.
[xlix] Implementation Completion and Results Report. Orissa Rural Livelihoods 'Tripti' Project. Viewed at *http://documents.worldbank.org/curated/en/346201468197633295/pdf/ICR3538-P093478-Box394866B-PUBLIC-disclosed-3-8-16.pdf*.
[l] Implementation Completion and Results Report. Second Madhya Pradesh District Poverty Initiatives Project. Viewed at *http://documents.worldbank.org/curated/en/930261467992517222/pdf/ICR3630-ICR-P102331-PUBLIC-Box394828B.pdf*.
[li] Petare KJ, et al. *Livelihood System Assessment and Planning for Poverty Alleviation: a case of rainfed agriculture in Jharkhand*. Current Science. Vol 110. No 9. May 2016.
[lii] Implementation Completion and Results Report. Assam Agricultural Competitiveness Project. Viewed at *http://documents.worldbank.org/curated/en/207981468180231455/pdf/ICR3454-P084792-Box393264B-OUO-9.pdf*.
[liii] Implementation Completion and Results Report. Assam Agricultural Competitiveness Project. Viewed at *http://documents.worldbank.org/curated/en/207981468180231455/pdf/ICR3454-P084792-Box393264B-OUO-9.pdf*.
[liv] Birthal PS, et al. *Agricultural Diversification and Poverty in India*. IFPRI Discussion Paper 01446. June 2015.
[lv] Aide Memoir. 4th Implementation Review & Support Mission. Rajasthan Agricultural Competitiveness Project. Viewed at *http://documents.worldbank.org/curated/en/408261468185044638/pdf/99512-AM-P120836-P124614-OUO-9-Box393204B.pdf*.
[lvi] Markelova H and Mienzen-Dick R. *Collective Action for Smallholder Market Access*. CAPRi, CGIAR. Policy Brief No. 6, April 2009.
[lvii] Narrod C, et al. *Public-Private Partnerships and Collective Action in High Value Fruit and Vegetable Supply Chains*. Food Policy 34 (2009) 8-15.
[lviii] Implementation Completion and Results Report. Andhra Pradesh Rural Poverty Reduction Project. 2012. Viewed at *http://documents.worldbank.org/curated/en/215991468042848956/pdf/ICR22970P071270Official0Use0Only090.pdf*.
[lix] Grossman M and Poston M. *Skill Needs and Policies for Agriculture-led Pro-poor Development*. Working Paper No. 112. QEH Working Paper Series.