

Agriculture Development Strategy (ADS) Joint Sector Review (JSR) Fifth Annual Report

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Ministry of Agriculture and
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FOREWORD

I am pleased to introduce this fifth annual report of the Agriculture Development Strategy (ADS) Joint Sector Review (JSR). The JSR mechanism, which has been operational since September 2018, was established jointly by the Government of Nepal (GON) as per the provision of ADS, which is led by the Ministry of Agriculture and Livestock Development (MOALD/the Ministry) along with development partners (DPs) supporting Nepal's agriculture sector. This report is prepared in line with the ADS JSR objectives of: (i) jointly conducting strategic reviews to identify issues that affect implementation performance and assessing accountability of key stakeholders to sector development; (ii) contributing to alignment and harmonization of GON and DP priorities in the sector; and (iii) preparing and contributing to the execution of time-bound action plans to address issues for achieving intended sector results.

This report offers a succinct review of the agriculture sector, including progress on recommendations from the third and fourth annual reviews (2022 and 2023) and the resulting JSR annual meeting action plans. It also examines trends and progress towards ADS indicators based on sector data from fiscal year (FY) 2022/23 and extends recommendations for improving sector performance and progress towards institutionalization of the JSR. This report also incorporates feedback from consultations with the private sector, DPs, and provincial stakeholders regarding their perceptions for the JSR and annual program planning. Of interest is the analysis of emerging climate change challenges to the agriculture sector with suggested actions to address the challenges. JSR learnings in Nepal is another interesting area that forms part of the fifth report and provides a way forward for JSR's sustainable adoption in the GON system.

I am pleased that the recommendations of the third and fourth annual sector reviews and the action plan of the third and fourth annual JSR meetings, jointly implemented by MOALD, provincial agriculture ministries (PAM), and DPs, have been either significantly completed or are progressing. Other elements have been incorporated in the recommendations of this fifth annual sector review and action plan of the fifth annual JSR meeting. This demonstrates the commitment to and accountability of the sector and confirms the viability of the JSR mechanism as a continued platform for GON and DPs to jointly identify and discuss sector issues and solutions.

The JSR institutionalization roadmap, approved by MOALD in August 2022, is progressing well. JSR functions have been incorporated in the draft National Agriculture Policy and Agriculture Bill. A draft JSR implementation procedure was prepared, and key content of the procedure forms the fourth chapter of the Federal, Provincial, and Local Level Agriculture Sector Coordination Guidelines approved by MOALD in December 2023. JSR is incorporated in the GON system, although its execution in a coherent way in the three tiers will remain a challenge, and DP collaboration and support will continue to be relevant for its sustainable adoption.

On behalf of MOALD, I would like to thank Mr. Indra Hari Paudel, Chief, ADS Coordination Section, and Mr. Govinda Gewali, ADS-JSR Coordination Expert, for conducting the review and preparing this report. I would also like to thank the USAID KISAN II Project for allocating resources towards the production of this important report.



Dr. Rajendra Prasad Mishra
Joint Secretary, Ministry of Agriculture and Livestock Development
Chair, JSR Technical Committee

ACRONYMS

ADS	Agriculture Development Strategy
AGDP	Agriculture Gross Domestic Product
BMI	Body Mass Indicator
CCDABC	Center for Crop Development and Agro Biodiversity Conservation
CO ₂	carbon dioxide
CSA	Climate-Smart Agriculture
DOC	Department of Customs
DPs	Development Partners
FY	Fiscal Year
GDP	Gross Domestic Product
GON	Government of Nepal
ha	Hectare
JSR	Joint Sector Review
KISAN II	Knowledge-based Integrated Sustainable Agriculture in Nepal
M&E	Monitoring and Evaluation
MOALD	Ministry of Agriculture and Livestock Development
MOF	Ministry of Finance
MOFE	Ministry of Forest and Environment
MT	Metric Tons
NAP	National Agricultural Policy
NARC	National Agriculture Research Council
NPC	National Planning Commission
NRs.	Nepalese rupees
PADS	Provincial Agriculture Development Strategy
PAM	Provincial Agriculture Ministry
PMAMP	Prime Minister Agriculture Modernization Project
TA	Technical Assistance
USAID	United States Agency for International Development

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EXECUTIVE SUMMARY

The Joint Sector Review (JSR) is a policy instrument to promote mutual accountability for Nepal's agriculture sector development. After being implemented for the last five years, the Ministry of Agriculture and Livestock Development (MOALD) acknowledges that the JSR mechanism has proven to be a viable institutional structure for periodic review of agriculture sector performance. The fifth annual sector review, which is also the fifth annual JSR progress review, has assessed progress of the third and fourth annual sector review recommendations and the resulting action plans of the third and fourth annual JSR meetings; initiatives taken to broaden stakeholder consultations for the annual sector review; achievements against Agriculture Development Strategy (ADS) implementation plan and indicators; analysis of issues that are posing challenges to sector performance; and recommendations and actions for MOALD, provincial agriculture ministries, and development partners (DPs) to incorporate in their annual programs for fiscal year (FY)2024/25.

Progress on Previous Review Recommendations and Annual JSR Meeting Action Plans

The third and fourth sector reviews had six recommendations, and resulting action plans from the third and fourth annual JSR meetings were significantly implemented. Provincial agriculture ministries (PAMs) and municipalities were incorporated into the JSR process as recommended. A roadmap was approved for institutionalization of JSR, and JSR has been included in the latest version of the National Agriculture Policy (NAP) and Agriculture Bill. JSR has also been incorporated as Chapter 4 of the Federal, Provincial, and Local Level Agriculture Sector Coordination Guidelines (the Guidelines) approved by MOALD in December 2023. NAP formulation is in the final stage with a target of Government of Nepal (GON) approval in FY2023/24. Preparation of the Agriculture Bill is also underway with a target to approve in FY2024/25. Review and revision of ADS will begin from the last quarter of the current fiscal year and will be completed in FY2024/25, led by MOALD with technical support from DPs. GON and DPs have increased annual program investments in fine rice, industrial maize, tea, and cardamom. However, actual changes brought about by the program are still not well known due to the difficulties in accessing data and information on the progress of relevant programs and activities conducted by concerned units under GON's three tiers, mainly due to the absence of unified monitoring and reporting systems and mechanisms.

ADS Indicators

Of the 16 first five-years indicators of the ADS, 12 are on track, while the remaining four—related to food grain self-sufficiency, agricultural trade, irrigated area development, and Agriculture Gross Domestic Product per hectare (AGDP/ha) growth—continue to lag. The review recommends adopting the ADS actions in annual program planning, simplifying the actions, and improving monitoring and review mechanisms at the forthcoming ADS review and revision exercise.

Consultations with Provincial Stakeholders

MOALD, for the first time after promulgation of the new Constitution of Nepal (2015), organized stakeholder consultations in all the provinces to seek feedback for the annual sector review, combining consultations with its annual program planning exercise for FY2024/25. The review has found that continuous support from JSR, including lessons learned from the JSR observation visit to Senegal in September 2023, contributed to the programmatic shift by MOALD. The provincial stakeholders appreciated MOALD's initiatives and suggested continuing similar practices in the future. The participants suggested the JSR to support MOALD expediting formulation of policies

¹ Although functions and mandates are the same, title of the ministry is different for different provinces. Therefore, for convenience, provincial agriculture ministry (PAM) is used in this report.

and strategies and promote engagements between federal, provincial, and local levels and work to foster collaboration and coordination in implementing national agriculture development policies and programs among the agriculture units under the three tiers of government. The participants also highlighted the need for an orientation program for the Guidelines, to conduct annual JSRs at the subnational level, and to help strengthen the monitoring and evaluation (M&E) system and staff capacity at the subnational level for progress monitoring and reporting.

Consultations with Development Partners

MOALD also organized consultations with DPs to describe recent JSR developments, sought suggestions on the ongoing fifth agriculture sector review, discussed the schedule and agenda for the fifth annual JSR meeting, and shared feedback from the recently completed consultations with stakeholders from all the provinces. DPs appreciated MOALD's approval of the Guidelines and incorporation of JSR in the draft NAP and Agriculture Bill, and agreed to the agenda and schedule for the fifth annual JSR meeting. DPs also supported the feedback from provincial stakeholders, particularly on JSR's future roles to facilitate functional coordination among three tiers for agriculture planning, support orientation and skill development in executing provincial JSRs, establishing an M&E system connecting federal, provincial, and local levels, and facilitating finalization of the NAP and Agriculture Bill. They particularly appreciated MOALD's consultative approach for annual program planning and sharing new JSR developments in the sector. MOALD proposed a periodic review of DPs' agricultural portfolio in Nepal to share their achievements and discuss implementation issues of DP-supported programs and projects.

Consultations with Private Sector

MOALD also organized a consultation meeting with the private sector, particularly to seek their feedback to formulate the annual program for FY2024/25. The private sector appreciated MOALD inviting them for feedback, and their main suggestions were related to improving management of incentives, subsidies, prices, and tax/duties; loans and insurance; quality control and certification; and access to inputs, particularly chemical fertilizers. MOALD confirmed that it would try to address the issues either through its annual program or in coordination with other ministries, particularly with the Ministry of Finance. MOALD committed to conduct similar consultations with the private sector for program planning in the future and to report status of compliance with the feedback.

Analysis of Climate Change and Its Effects on Agriculture in Nepal

The status and challenges posed by climate change on Nepalese agriculture was analyzed to raise awareness and help design responses to address the challenges. Low-income people from rural areas are more vulnerable to climate change because of their high dependence on agriculture for livelihood and weak coping capacity, as their farms are small-scale and rain-fed where productivity is impacted by climate change. Scarcity of surface water for irrigation during non-monsoon combined with flood damages to arable lands in summer reduce winter crop production. In response to the emerging challenges, Nepal has formulated policies and programs for mitigation and adaptation of climate change. However, there are gaps between demand and supply of the climate change focused programs in terms of resource allocation, technology, capacity, quality, and time. Further, there are management issues with the climate change agenda, such as lack of uniformity in understanding the impacts of climate change among the inter-sectoral agencies, poor coordination among stakeholders, and insufficient investment for research and development. Hence, the review has suggested adopting short-term and medium- to long-term measures to mitigate climate change impacts. The review has also suggested formulating a climate change guideline for the agriculture sector.

INTRODUCTION

This is the fifth annual agriculture sector review report prepared through the Joint Sector Review (JSR) mechanism,² which is comprised of the Government of Nepal (GON), represented by the Ministry of Agriculture and Livestock Development (MOALD), and development partners (DPs) supporting Nepal's agriculture sector.³ This review has assessed: (i) implementation status of recommendations by the third and fourth sector reviews,⁴ (ii) progress of the 2022 and 2023 annual JSR meetings' endorsed actions,⁵ including the initiatives taken to broaden stakeholder consultations for annual sector review, (iii) trends and progress of the agriculture sector in FY2022/23, or latest available data, against the ADS' performance indicators,⁶ (iv) analysis of issues that are posing challenges to sector performance, and (v) recommendations and actions for MOALD, provincial agriculture ministries (PAMs), and development partners (DPs) to incorporate in their annual programs for FY2024/25. Findings, discussions, and recommended actions are presented in this report.⁷

PROGRESS ON THIRD AND FOURTH SECTOR REVIEW RECOMMENDATIONS AND ACTIONS

The third and fourth annual sector reviews offered the following recommendations to MOALD and DPs: (A) continue JSR operations with increased involvement of subnational governments and private sector, (B) expedite JSR institutionalization process, (C) accelerate approval of the National Agriculture Policy (NAP) and Agriculture Bill, (D) conduct first five-year review and revision of ADS, (E) increase annual program for fine rice, industrial maize, tea, and cardamom, and (F) establish agriculture sector monitoring and evaluation (M&E) system. The third and fourth annual JSR meetings endorsed the above recommendations as actions for implementation by MOALD, PAMs, and DPs in FY2022/23 and FY2023/24.⁸ Progress of the recommendations and actions was mixed, as summarized below.⁹

A. Continue JSR Operations with Broadened Scope

JSR was initially established as a federal-level mechanism. However, in line with the new Constitution's provision, JSR is being extended to the subnational level starting from the second annual JSR meeting (February-March 2021) and further expanded by the fourth annual JSR meeting (24-25 April 2023). PAMs (secretaries and chiefs of planning, monitoring, and evaluation divisions), representatives from the national association of the rural and urban municipalities and selected municipalities (represented by mayors/deputy mayors and planning/program section chiefs) attended the fifth annual JSR meeting. Almost half of the meeting participants were from PAMs, and their contributions formed a major portion of the resulting action plan endorsed by the meeting. They agreed to take lead roles in

² Mr. Indra Hari Paudel, Chief, ADS Coordination Section, MOALD and Mr. Govinda Gewali, ADS-JSR Coordination Expert, jointly conducted the review and prepared the report. The review is based on secondary information from various sources, and stakeholder consultations at federal and provincial levels, including selected urban and rural municipalities.

³ The JSR mechanism has been operational since October 2018 following preparation and endorsement of its indicative roadmap and guidelines by MOALD and DPs.

⁴ The fifth agriculture sector review was carried out through the JSR mechanism from December 2023 to February 2024.

⁵ The fifth annual JSR meeting was held on 22 March 2024. Hon. Minister, MOALD, chaired the meeting. Secretaries and senior officials from the federal and provincial ministries, chiefs and senior officials from DPs, and representatives from selected urban and rural municipalities and private sector participated in the meeting.

⁶ ADS has performance indicators for the first five years, 10 years, and 20 years. Implementation of ADS was started from the beginning of FY2015/16.

⁷ Findings of the sector review were shared in the 15th Technical Committee meeting held on 29 February 2024 and subsequently updated based on feedback. The review report has been finalized by incorporating outputs of the fifth annual JSR meeting.

⁸ Due to unavailability of the Hon. Minister's time for extensive local elections, MOALD organized the third annual JSR meeting in a small-scale on 8 July 2022 (after GON's annual programming ended) combining with the annual meeting of the Annual National ADS Implementation Committee. Therefore, the meeting adopted/endorsed the third sector review recommendations as actions for MOALD, PAMs, and DPs to implement in FY2022/23.

⁹ This report presents status of the third (2022) and fourth (2023) annual sector review recommendations and the resulting action plans of the third (2022) and fourth (2023) annual JSR meetings. However, for the fourth sector review and annual JSR meeting action plan, the report covers progress as of March 2024 as their implementation is still underway for completion by July 2024. Presenting status combined for two years was justified because the recommendations and actions are of multi-year nature to achieve desired outputs.

implementing the actions in their annual program for FY2024/25 in collaboration with MOALD and DPs. The Provincial Agriculture Development Strategy (PADS), which was already approved by the Cabinet of Sudurpaschim Province and is under formulation at different stages for other provinces, includes JSR as part of the PADS. However, despite important roles played by the private sector in the agriculture sector, their participation remained low in the JSR process. Therefore, consultations were conducted separately with provincial stakeholders (including cooperatives, farmer organizations, and municipalities), the private sector, and DPs for the fifth agriculture sector review. Private sector participation in the fifth annual JSR meeting was encouraging.

B. Expedite Institutionalization of JSR

On 28 August 2022, MOALD approved a roadmap for institutionalization of JSR. The roadmap covered preparation of JSR implementation procedures and formulating the NAP and Agriculture Bill with provision of JSR.

The process for JSR institutionalization is in its final stage. A JSR implementation procedure was prepared; stakeholder feedback from the federal, provincial, and local levels was sought; and MOALD approved JSR as Chapter 4 of the Federal, Provincial, and Local Level Agriculture Sector Coordination Guidelines (the Guidelines) in December 2023. The Guidelines are prepared based on the Federal, Provincial, and Local Level Coordination and Interrelation Management Act, 2020, and incorporates learnings from the JSR observation visit (September 2023) in Senegal, which was attended by senior officials of MOALD directly involved in JSR execution in Nepal.

Following provisions of the Guidelines, for the first time, MOALD organized consultations with provincial stakeholders for the fifth sector review and annual program planning for FY2024/25. JSR is incorporated in the latest version of the NAP and Agriculture Bill, which are also in the advanced stage of formulation. MOALD has a plan to update the Guidelines after approval of the Federal, Provincial, and Local Level Coordination and Interrelation Management Regulation, which is in the final stage of formulation by the Ministry of Federal Affairs and General Administration.¹⁰ Upon approval of the Regulation and the Agriculture Bill, the Ministry will align the Guidelines with those documents and upgrade it into a Directive through a Cabinet approval, which will then be fully binding for agriculture planning, review (JSR), and coordination at federal, provincial, and local levels. Therefore, sustainable implementation of JSR will require timely approval of the Regulation and Bill, upgrading the Guidelines into a Directive, and capacity and skill development to implement the Directive as per the roles defined for federal, provincial, and local levels.

C. Accelerate Approval of National Agriculture Policy and Agriculture Bill

MOALD has prepared a draft final NAP by incorporating feedback from subnational consultations and validated the NAP through a workshop at federal level. The current version has adapted the federalized context, including addressing new challenges, changing roles of stakeholders in the sector, creating an enabling environment for the increased production of the most demanded commodities and varieties, improving access to agricultural inputs, and clarifying roles of the private sector. The document envisions JSR as a strategic mechanism to jointly review and report progress of the sector at the policy level (Clause 13). GON (Cabinet) approval of the NAP is planned by July 2024 (within the current FY). MOALD has also prepared a draft Agriculture Bill (with JSR in Clause 52) incorporating feedback from concerned line ministries and stakeholders at the federal level and suggestions from provincial and local levels. The Bill has been forwarded to the Ministry of Law, Justice, and Federal Affairs for formulation consent. There is a plan to table the Bill to the Parliament

¹⁰ The Regulation is being formulated to operationalize the Federal, Provincial, and Local Level Coordination and Interrelation Management Act, 2020.

for discussion in the next Parliamentary Session for approval in FY2024/25. As both the documents are still works in progress though in advanced stage, DP support to MOALD will be relevant for meeting any gaps that might emerge for finalization of the Regulations and Bill, as these documents will need to be reviewed by key agencies and their feedback needs to be properly incorporated for approval from the respective levels.

D. Conduct Review and Revision of ADS

Preparation for review and revision of ADS was started from December 2022 by drafting a background document agreeable to MOALD and DPs. However, commencement of this work was delayed by about a year to allow findings from the provincial agriculture development strategy to be accommodated in the ADS. The Sudurpaschim PAM prepared PADS with support from DPs coordinated by MOALD and JSR and acquired Cabinet approval in October 2022. Formulation of PADS for other provinces is still underway at different stages. Through coordination by JSR, several DPs committed to provide technical assistance (TA) for review and revision of ADS. However, MOALD required Ministry of Finance (MOF) endorsement to access DP TA, which took time to complete the administrative process. MOALD has recently received MOF's endorsement and has formed a Technical Committee led by the Joint Secretary and Chief of the Agriculture Development Division with representatives from related line ministries and agencies. The Committee will oversee the work, ensure consultations with key stakeholders at local, provincial, and federal levels, and reflect their views in the revised ADS aligning with the federalized context. The background document underlines that the review will involve an objective assessment of progress of all 16 vision indicators, analyze reasons for shortfalls, and suggest revisions to indicators based on federal and subnational feedback. The revised schedule (after MOF clearance) indicates review of ADS progress for the first seven years of implementation is likely to be started from the current fiscal year and complete revision by FY2024/25. The revised ADS will be aligned with the federalized implementation, monitoring, and reporting structures, and provide methods to compute and periodically report progress.

E. Increase Program for Fine Rice and Industrial Maize

The program for fine rice and industrial maize implemented by GON and DPs, particularly through their annual program, has increased compared to previous years. This is consistent with the target of the Fifteenth Plan (30 percent increase in rice production), and the ADS vision indicators that aim to attain food grain self-sufficiency and agriculture trade balance in the medium-term. The Prime Minister Agriculture Modernization Project (PMAMP) and the Center for Crop Development and Agro Biodiversity Conservation (CCDABC) are the key federal entities that implement rice and maize programs through province and local governments. In FY2022/23, PMAMP had rice programs in 231 pockets, 41 blocks, 19 zones, and four super zones although the program covered coarse, medium-course, and fine rice production.¹¹ CCDABC covered 68 municipalities, mostly with the fine rice program in FY2022/23.¹² However, data on total area covered, production, and productivity could not be accessed due to the absence of field monitoring and reporting mechanisms. MOALD has initiated a spring rice program from the current fiscal year, and there is a plan to significantly scale up in FY2024/25, particularly for food security, by producing about 500 metric tons (MT) to meet the national requirement. Similarly, PMAMP had 70 pockets, 38 blocks, 13 zones, and one super zone for the maize program in FY2022/23 for human consumption and industrial purposes, while CCDABC covered 79 municipalities mainly with an industrial maize program. Although provincial and local governments also implement rice and maize programs by mobilizing their own resources, detailed information about their programs could not be available from the respective sources.

¹¹ Source: Prime Minister Agriculture Modernization Project.

¹² Source: Center for Crop Development and Agro Biodiversity Conservation.

Area coverage and total production of fine rice in the KISAN II Project zone of influence have increased in FY2022/23 compared to FY2021/22. Total area coverage of fine rice has increased to 16,837 hectares (ha) in FY2022/23 from 11,706 ha in FY2021/22 and total production has increased to 86,823 MT in FY2022/23 from 60,390 MT in FY2021/22. Similarly, area coverage and production of industrial maize have also increased in FY2022/23 compared to FY2021/22. Total area covered by industrial maize increased to 5,136 ha in FY2022/23 from 1,739 ha in FY2021/22, and total production increased to 28,409 MT in FY2022/23 from 7,359 MT in FY2021/22.¹³ Similarly, MOALD, PAMs, and DPs have increased their annual program for promotion of fine rice and maize in FY2023/24 with plans to further increase in the future based on lessons learned—also an action agreed in the fifth annual JSR meeting. However, in the absence of monitoring and reporting mechanisms from local and provincial to federal levels, actual data on changes from the increased budgetary allocation are not available in terms of area coverage, yield, and total production. Therefore, while it is important to continue increasing program and budgetary allocations on fine rice and industrial maize by GON, DPs, and the private sector, establishing a monitoring system and developing skills of related staff to monitor the program is critical to document changes.

F. Increase Program for Tea and Cardamom

Tea and cardamom are important cash crops grown in Nepal mainly in the eastern region.¹⁴ In FY2022/23, tea plantations covered 20,212 ha with a total production of 26,379 MT (an increase of 4,100 MT compared to FY2021/22) out of which 12,498 MT was exported worth NRs. 3.9 billion.¹⁵ Although data for FY2021/22 was not available, the increasing domestic and international markets for tea and its soaring prices indicate scope for further increasing production, processing, and marketing in collaboration with the private sector, as the current area under cultivation is estimated to be about 60 percent of the potential area.

Nepal is the world's largest producer of cardamom. In FY2021/22, cardamom was cultivated on 18,273 ha and produced 7,954 MT, out of which 80 percent was exported.¹⁶ Producers and processors are benefiting from the increasing price of cardamom in international markets. MOALD is promoting production and processing of cardamom through PMAMP under which there were 15 pockets, six blocks, and seven zones in FY2022/23. However, like with tea, changes could not be compared with previous years due to unavailability of data. Data on changes brought about by the increased budgetary allocation are also not available in terms of area coverage, yield, and total production. Therefore, establishment of a monitoring and reporting system is important to document changes.

G. Establish Sectoral Monitoring and Reporting System

Although a sectoral monitoring and reporting system, encompassing local, provincial, and federal levels, has been a high priority of MOALD and DPs, no measurable progress has occurred. Representatives of selected municipalities, all PAMs, and MOALD were consulted to identify gaps and support needed to establish the monitoring and reporting system. Experiences of selected federal-level projects were gathered and analyzed. Accordingly, a framework was prepared, and it was agreed to organize subnational consultations, prepare a template for monitoring and reporting, orient related staff to effectively perform the work, start actual monitoring and reporting from selected municipalities and provinces, and replicate based on lessons learned. MOALD programmed and

¹³ Source: KISAN II Annual Progress Report of 2021/22 and 2022/23.

¹⁴ Tea is mainly produced in Jhapa, Ilam, Panchthar, Dhankuta, and Teherathum districts while cardamom is produced in Taplejung, Panchthar, Ilam, and Sankhuwasabha districts.

¹⁵ National Tea and Coffee Board, Kathmandu.

¹⁶ Large Cardamom Development Center, Fikkal, Ilam, Nepal.

budgeted this function for FY2022/23 and selected DPs showed interest in providing TA. However, this did not materialize because the activity was dropped from MOALD's annual program at the mid-year budget review exercise due to budgetary constraints. Consequently, this activity could not be meaningfully pursued.

H. Sector Issue, JSR Learnings, and Stakeholder Consultation Feedback

Like with previous sector reviews, this review also identified and analyzed a sector issue suggested by the 14th JSR Technical Committee meeting. Status and challenges of climate change on Nepalese agriculture was analyzed to raise awareness and help design possible responses to address climate change in Nepalese agriculture. Similarly, learning from experiences of agriculture JSR in Nepal has been incorporated in this review to help its sustainable adoption in the GON system. Feedback from consultations with provincial stakeholders in terms of JSR's future roles is also incorporated in this review. The above analysis and feedback are summarized below with details in Appendix I, II, and III, respectively. Summary of consultation feedback for this sector review by DPs and private sector are also presented below.

Climate change and its effects on agriculture in Nepal

Climate change has been one of the challenges faced by the agriculture sector in general with major threats for countries like Nepal because of fragile geography, agriculture-dependent livelihoods, and weak adaptive capacity. The key climate change hazards affecting livelihoods in Nepal are river flooding, landslides, drought, and warming, posing a great risk on the economy. Low-income people from rural areas are more vulnerable to climate change because of their high dependence on agriculture for their livelihood and poor coping capacity with climate induced disasters as their agriculture highly relies on small-scale, rain-fed agriculture and dry-land farming systems where productivity is severely impacted by climate change. Even small and short-period weather extremities significantly affect their food production and supply. The scarcity of surface and sub-surface water for irrigation during non-monsoon seasons combined with flood damages to arable lands in summer reduce winter crop production. Livelihoods are also affected by other anthropogenic factors including deforestation, faulty agricultural practices, and insufficient strategies to cope with climate change. Realizing the seriousness of the problems, Nepal has formulated policies and programs for climate change mitigation and adaptation but there are challenges in implementing them. There is a gap between demand and supply of the climate change focused programs in terms of resource, technology, capacity, quality, and time. There are issues with management of the climate change agenda, which include lack of uniformity in understanding the multi-sectoral issues of climate change among the inter-sectoral agencies, poor coordination among the stakeholders, insufficient investment for research and development, lack of basic data on impacts of climate change, potential loss or damage resulting from climate-induced disasters, and failure to mainstream climate change issues into the overall development process.

The review found an increase in climate change responses in recent years to cope with the challenges and build resilience capacity. However, there is a need to focus on more efficient, effective, and equitable food systems that address challenges in environmental, social, and economic dimensions; and encourage farmers to reduce impacts of climate change and variability by changing cropping patterns, switching crop varieties, adopting riverbed farming, and improving technology and water management practices. The review also recommended to adopt short-term strategies through annual programs such as raising public awareness, capacity building of extension workers, adoption of climate-smart agriculture, cultivating climate-resilient crop varieties, practicing conservation-focused agriculture, promoting future smart crops, and strengthening early warning systems. Similarly, the review has recommended to adopt long-term strategies such as increasing investment in research

and development, promoting protected and precision farming, providing quality extension services, ensuring seed security, building strategic infrastructure, and promoting private sector engagement. The review has suggested to formulate a climate change adaptation guideline for the agriculture sector.

Learnings from agriculture joint sector review in Nepal

Ever since its establishment in September 2018, the JSR mechanism has been jointly assessing sector performance and issues, agreeing to measures that address the issues with a focus on national priorities, and augmenting sector accountability and results. JSR has demonstrated its worth and relevance and its institutionalization process is in the final stage. However, JSR needs to be strengthened by broadening its engagement with line ministries such as MOF to ascertain resource allocation for implementation of JSR recommendations and provide incentives for other actors' engagement for the sector development; foster provincial governments structured involvement in the JSR process that will benefit provinces as well as contribute to the national agenda; and align GON and DP sector priorities by incorporating JSR in their country assistance framework.

JSR could also support analytical works on contemporary issues as part of the annual sector review, including issues faced at the subnational level, by engaging think tanks and broadening scope for analysis and apply credible methodologies to contribute to the sector's planning process in the federalized context. This will also require capacity building of the concerned division/section of MOALD with increased allocation of human and financial resources to carry out the above functions. JSR should strengthen its facilitation roles and promote engagement among stakeholders to discuss and agree on expected results, convincing them why collective efforts are needed to deliver desired results, securing investment commitments, and promoting accountability towards the commitments. The learning also recommends stakeholders' continued commitment, deeper consultations within and outside GON ministries and institutions in identifying issues, agreeing to actions, jointly implementing them, and monitoring the compliance status of stakeholders' commitments to JSR. It has also suggested JSR should be a dynamic process with provision for periodic revisions to suit changing national and international context and relevance, and deeper integration with the subnational level.

Consultations with Provincial Stakeholders

For the first time after promulgation of the new Constitution of Nepal (2015), MOALD organized stakeholder consultations in all the provinces to seek feedback for the fifth annual sector review, combining consultations with its annual program planning exercise for FY2024/25. Continuous support from JSR, including lessons learned from the JSR observation visit to Senegal (in September 2023), contributed to the programmatic shift by MOALD for annual sector review and program planning, which is also required by the Guidelines.

The provincial stakeholders appreciated MOALD seeking feedback for the sector review and annual program, indicated this was an opportunity to know more about JSR, and suggested MOALD organize similar events for future sector reviews. They also appreciated the establishment and operation of JSR, which is relevant in the country's federalized context and will ease communication and information flow between federal, provincial, and local levels. The participants suggested the JSR to facilitate MOALD to expedite formulation of agriculture extension strategy and guidelines, promote engagements between federal, provincial, and local levels, and perform facilitating roles to expedite finalization of the Federal, Provincial, and Local Level Coordination and Interrelation Management Regulations to provide full legitimacy by upgrading the Guidelines into a Directive. It was also suggested that JSR could support MOALD to clarify roles of federal, provincial, and local governments at a functional level to achieve sector objectives, conduct orientation program for implementation of the Guidelines, and conduct annual JSR at the subnational level. Participants also suggested JSR to coordinate/help establish the M&E system, offer staff capacity building, particularly at the subnational

level for progress monitoring and reporting, finalize the NAP and Agriculture Bill, and continue coordination between MOALD, DPs, and PAMs to complete review and revision of ADS.

Consultations with Development Partners

MOALD also organized consultations with DPs to describe recent developments on JSR, seek suggestions on the ongoing fifth agriculture sector review, discuss the schedule for the fifth annual JSR meeting, and share feedback from the recently completed consultations with stakeholders from all the provinces. DPs appreciated MOALD's approval of the Guidelines, which outline structure and operating procedures for JSR, and incorporation of JSR in the draft NAP and Agriculture Bill. They also appreciated that the Guidelines provide process and requirements for coherent program planning encompassing federal, province, and local levels, and coordination and feedback mechanisms (including monitoring and evaluation) as required by the federal context. DPs suggested sharing key findings of the sector review that will form an agenda for the annual meeting and agreed on the proposed timing for the annual JSR meeting in the last week of March 2024. The meeting schedule also suits GON's annual program planning time and can incorporate the meeting decisions in the annual program for FY2024/25 to implement in collaboration with DPs and the private sector. DPs also supported the feedback from provincial stakeholders, particularly on JSR's future role to facilitate functional coordination among three tiers for agriculture planning, support orientation and skill development in executing provincial JSRs, establish an M&E system connecting federal, provincial, and local levels, and facilitate finalization of the NAP and Agriculture Bill. They particularly appreciated MOALD's programmatic shift, sharing of new developments with JSR and in the sector, and suggested to continue such information sharing in future.

Consultations with private sector

MOALD also organized a consultation meeting with the private sector, particularly to seek their feedback for formulation of the annual program for FY2024/25. Given the high number of private operators (producers, processors, and traders/exporters) in the agriculture sector, representatives from the respective associations (fruit and vegetable; rice, oil, and pulses; seed; flowers; cardamom; mushroom; coffee and tea; ginger; nuts; vegetable; ghee; agriculture machineries; and cold storage) were invited for the consultation. Participants appreciated MOALD's invitation to the consultations as part of the annual program planning exercise.

The participants' feedback mainly related to improving management of incentives, subsidies, prices, and tax/duties; loans and insurance; quality control and certification; and access to inputs, particularly chemical fertilizers. Representatives from the producer associations suggested to improve supply and management of subsidized chemical fertilizers; continue subsidy on institutional loans; ease the process for crop insurance; reduce import duties for agriculture machineries and greenhouse materials; and exempt taxes for technology development and research items. Similarly, the private sector also suggested to prioritize producing import substituting crops and commodities (fine rice and industrial maize); fixing minimum support price for wheat and maize (like paddy); and expediting farmer registration and of issuance farmer identity cards. Traders, exporters, processors, and importers suggested to control quality of imported machinery, seed, and fertilizer; arrange organic certifications; establish credible laboratories; provide subsidized insurance and loans for post-harvest operations; and rationalize import and export duties. Participants, such as agrovets, suggested that MOALD work to level the playing field for private operators because the cost for similar services from GON sources is less than private services provide, and agrovets' business survival is challenging. MOALD responded that it will try to address the issues either through its annual program or in coordination with other ministries, particularly with MOF. Since MOALD will conduct similar consultations and meetings with the private sector, including for annual program planning, the status of compliance with the feedback will be presented on appropriate occasions.

TRENDS AND PROGRESS TOWARDS ACHIEVING ADS INDICATORS

The ADS has a 10-year action plan, a 20-year vision, and seven vision components to guide agriculture sector indicators, including self-reliance, sustainability, competitiveness, inclusion, agriculture growth, livelihoods, and food and nutrition security—each in five-, 10-, and 20-year increments (medium and long term).¹⁷ ADS implementation has already completed seven fiscal years (2015/16 to 2022/23). Compared to previous annual reviews, this fifth review selected the impact of climate change on agriculture as a theme of the review, emphasizing ADS sustainability indicator. For the remaining indicators, as in previous years, the reviewers found that investments were made and annual outputs were delivered, even if not directly planned as such. However, in the absence of an organized progress monitoring system, the review team encountered difficulties collecting relevant information on yearly trends and progress towards the ADS indicators. Of the 16 indicators, 12 were found generally on track and four—related to food grain self-sufficiency, agriculture trade, irrigated area development, and agriculture productivity growth—continue to lag. The following sections of the report present trends on the ADS first seven-yearly indicators for FY2022/23 (there are no annual targets at this level in the ADS) using relevant data from various sources, and/or the latest available data of all seven vision components and corresponding indicators. These are presented in Table I and explained in subsequent paragraphs.

¹⁷ The ADS intends to accelerate agriculture growth through four strategic components: (i) governance – promoting accountability, participation, predictability, and transparency, (ii) productivity – increasing land and labor productivity, improving efficiency of agriculture extension, research, and inputs, adopting sustainable practices in use of natural resources, and enhancing resilience to climate change and disaster; (iii) profitable commercialization – creating an enabling investment climate and pursuing reforms on contractual management, taxes, and financial services, and (iv) competitiveness – building competent and efficient workforce knowledgeable to the country's comparative advantages on products and processes adaptable to the natural environment.

Table I.ADS Targets and Achievements

Vision Component	Indicator	Baseline (FY2015/16)	Targets (FY2021/22)	Targets (FY2025/26)	Intermediary Achievement/ Trend (FY2022/23 or latest)	Sources of Information
Self-Reliance	Food grains self-sufficiency	16% food grains trade deficit	Reduce to zero deficit	0-5% trade surplus	Food grain trade deficit has decreased slightly to 20.7%. As of Dec/Jan (Paush) of the current fiscal year (2023/24), food grains worth NRs. 22.23 billion have been imported.	Trade and Export Promotion Centre, FY2023/024 http://www.tepc.gov.np
Sustainability	Year-round irrigated area (ha)	25.2% of cultivated land	35% of cultivated land or 52,050 ha irrigated/year	60% of cultivated land	Out of the total cultivable land of 2,640,000 ha, 58% irrigated. But out of the total 1,760,000 ha irrigable land, 87% is irrigated. Of the total 1,512,432 ha cultivated land, 48% is irrigated, out of which 33% land has year-round irrigation. The available record shows that irrigation facilities has covered 1,533,269 ha land area by FY2022/23 through federal level irrigation projects/program. Data on irrigation developed through provincial and local level projects/ programs are not available.	Economic Survey of FY2022/23
	Soil organic matter (%)	Soil fertility at 1.96% organic matter	Soil fertility at 3% organic matter	Soil fertility at 4% organic matter	Soil organic matter content varied across different agroecological zones. Terai and lower valleys show a medium level (1-2.5%), mid-hills show a high level (2.5-5%), whereas some areas in Terai have very low soil organic matter content.	Nepal Digital Soil Map 2021/22 https://soil.narc.gov.np/soil/soilmap/

Vision Component	Indicator	Baseline (FY2015/16)	Targets (FY2021/22)	Targets (FY2025/26)	Intermediary Achievement/ Trend (FY2022/23 or latest)	Sources of Information
	Degraded land (million ha)	3.72	2.88	2.56	Credible data was not available for degraded land in recent years. However, records show 15,460 ha and 20,882 ha degraded land restored in FY2017/18 and FY2018/19, respectively.	Ministry of Forest and Environment Records, 2019 (unpublished) Government of Nepal, Second Nationally Determined Contributions submitted to UNFCCC, 2020.
	Forest coverage (%)	44.7	44.7	44.7	In FY2020/21, 5.9 million ha area is covered by forest and 0.6 million ha by bushes and shrubs (44.8% of total land area).	Economic Survey, FY2022/23.
	Land productivity (AGDP/ha) (\$)	3,278	4,184	5339	Land productivity in terms of AGDP/ha is projected as \$3,497.50 ¹⁸ .	Economic Survey, FY2021/22 (Annex 1.2, Annex Page 2).
	Agribusiness GDP contribution to overall GDP (%)	8	9	11	Agribusiness GDP is estimated to have increased by 9.78% ¹⁹ in 2020/21, given GON's high priority in agribusiness, although no mechanism exists to annually monitor progress.	JSR team estimates based on selected indicators.

¹⁸ Authors calculation based on AGDP at current price as 138,086 crore (includes forestry) (Economic Survey FY2021/22) and land under cultivation as 3,091,000 ha (Selected Indicators of Nepalese Agriculture FY2020/2021) | USD=NRs. 127.73 (15 July 2022).

¹⁹ JSR estimate based on the AGDP share of tea, vegetables, milk, poultry meat, and poultry egg.

Vision Component	Indicator	Baseline (FY2015/16)	Targets (FY2021/22)	Targets (FY2025/26)	Intermediary Achievement/ Trend (FY2022/23 or latest)	Sources of Information
Competitiveness	Agriculture trade balance (\$ m)	1,123	1,073	802	During the first 6 months of FY2023/024, Nepal's trade deficit has decreased by 2.6% compared to the same period of the previous FY and limited to NRs. 693.20 billion. During the period, total foreign trade has decreased by 3.5% compared to the same period of the previous year. During the review period, Nepal's total exports decreased by 7.2% (to NRs. 74.97 billion) and total imports decreased by 3.1% (to NRs. 768.17 billion. Export and import of agricultural products for the FY2022/023 have decreased by 51% and 26.5%, respectively.	Trade and Export Promotion Centre, FY2023/024 http://www.tepc.gov.np Economic Survey FY2022/23
	Agricultural exports (\$ m)	225	456	814	Agricultural export earnings of the first 6 months of FY2023/24 are estimated to be NRs. 6.98 billion. Major export commodities are cardamom (NRs. 3.9 billion), tea (NRs. 2.14 billion), and ginger (NRs.9.4 million).	Trade and Export Promotion Centre, 2023/024 http://www.tepc.gov.np
Inclusiveness	Women or jointly owned agricultural land (%)	16	20	30	Women owned 23.8% of land by FY2022/23.	National Population and Housing Census 2021 (National Report), National Statistics Office.
	Farmers' access to agricultural programs (%)	18.2	22	26	Reached about 20% in FY2017/18. No estimation found for thereafter.	MOALD Progress Report, FY2017/18.

Vision Component	Indicator	Baseline (FY2015/16)	Targets (FY2021/22)	Targets (FY2025/26)	Intermediary Achievement/ Trend (FY2022/23 or latest)	Sources of Information
Agricultural growth	Average agri. GDP growth (%)	2.23	4	5	AGDP was estimated to have grown by 2.7% in FY2022/23.	Economic Survey, FY2022/23.
Livelihood	Agri. GDP/labor (\$)	835	1,029	1,268	AGDP/labor was estimated to reach around USD1,015 in FY2021/22.	Economic Survey, FY2021/22.
	Rural poverty (%)	24.3	19	15	The Fourth Nepal Living Standards Survey 2022-23 report (released by the National Statistics Office on 12 February 2024) revealed that the poverty rate in urban areas stood at 18.34% while it was 24.66% in rural areas. But according to the Economic Survey FY2022/23, absolute poverty has decreased to 15.1% and multidimensional poverty has decreased to 17.4% by FY2022/23.	Nepal Living Standards Survey 2022-23, National Statistics Office. Economic Survey, FY2022/23.
Food and Nutrition Security	Food-based poverty (%)	27.6	19	13	About 10% of the households were severely food insecure and 22% moderately insecure in 2016.	Detailed Household Survey, 2016 (page 18, Table 2.2).

Vision Component	Indicator	Baseline (FY2015/16)	Targets (FY2021/22)	Targets (FY2025/26)	Intermediary Achievement/ Trend (FY2022/23 or latest)	Sources of Information
	Nutrition Stunting -below 5- year-old child (%)	37.4	29	20	Decreased to 25%.	Nepal Demographic and Health Survey, 2022 (page 33-34).
	Underweight - below 5-year-old child (%)	30.1	20	13	Decreased to 19%.	Nepal Multiple Indicator Cluster Survey, 2019 (page 44-45).
	Wasting - below 5- year-old child (%)	11.3	5	2	Decreased to 8%.	Nepal Multiple Indicator Cluster Survey, 2019 (page 44-45).
	BMI – women having 18.5% or less	18.1	15	13	Decreased to 16% in FY2017/18.	Nepal Multiple Indicator Cluster Survey, 2019 (page 44-45).

The progress presented above indicates many of the targets are on track but there are concerns about some targets. Key aspects for each of the vision component indicators are provided below.

Component 1: Self-Reliance

Elimination of the food grain trade deficit by FY2020/21 and achieving 5 percent trade surplus by FY2025/26 are the short- and medium-term indicators for food grains self-sufficiency under this component. Although food grain production has increased in recent years, agriculture trade data for FY2022/23 indicate a food grain deficit of around 14.07 percent against the national requirement. The government’s aspiration to achieve self-sufficiency in food production is hindered by the staggering imports of rice, maize, and wheat. This continues to pose challenges in attaining the ADS-projected food grain self-sufficiency in the medium-term. The import of cereals during FY2020/21, 2021/22, and 2022/23 are presented in Table 2.

Table 2. Import of Food Grain (NRs. '000,000)

S. No.	Food Grain	2020/21	2021/22	2022/23*
1	Rice	5,078.7	4,757.4	2,606.7
2	Maize	1,602.0	1,965.0	1,104.0
3	Wheat	1,197.7	632.6	122.3
4	Other Food Grains	80.8	73.4	50.9

Source: Economic Survey, FY2022/23. *The first eight months only.

The principal reason for this trend is people’s changing food consumption habits from traditional food grains to higher quality rice and food items produced in other countries, mainly due to increased household incomes. Other reasons for increasing food imports include fluctuations in domestic food grain production due to varying rainfall conditions, lack of timely availability of inputs to produce domestically, and the absence of information on food grain sold by farmers to traders who often export unofficially. The reviewers concluded that to reduce the trade deficit, Nepal’s agriculture sector needs to align internal grain production with the changing food habits and restrict unofficial selling of domestic food grains. To reverse the situation as envisaged by ADS, the country must create a conducive policy environment to promote production of high-yielding varieties; ensure farmers’ easy access to inputs and cost-effective technologies; encourage farmers to produce medium-fine and fine rice, which occupy a major share of the imported rice (high demand but low in-country production); encourage private millers to process high quality rice; and increase investments in research and development linked to productivity increases, pest control, and farm management.

Component 2: Sustainability

Irrigation development is a key indicator under this component. The GON has proposed an ambitious plan to extend irrigated agricultural lands in response to rising food demand. The ADS has targets to achieve 60% irrigation coverage by 2025 and 80% by 2030 including about half of the of the area with year-round irrigation. However, available published data indicate only 58 percent of cultivable land (2,640,000 ha) and 87 percent of irrigable land (1,760,000 ha) is irrigated. Of the total cultivated land (1,512,432 ha), 48 percent is irrigated out of which only 33 percent has year-round irrigation in FY2022/23. The main reason for the low percent of irrigated land is because the data reports irrigation developed only by the federal government. Further, many of the ongoing projects have encountered budget shortages and slow implementation progress. Data on small-scale irrigation projects implemented by subnational governments—which occupy a major share of the irrigation development investments and have potential to deliver outputs relatively quickly—are not included due to limited progress reporting mechanisms from subnational to federal levels.

Increase in **soil organic** matter is another indicator under this component. Organic matter in soil is found to have increased to 3 percent in 2019²⁰ based on 18,600 soil samples tested in 43 Terai, hill, and mountain districts from all provinces. This already meets the ADS target for the first five years, from the baseline of 1.96 percent in FY2015/16. However, there are regional variations. About 63 percent of the soils from the Terai have less than 2.5 percent organic matter, which is categorized as low, and 37 percent of soils have 2.5-5 percent, categorized as medium, mainly due to the low use of organic inputs for cultivation. While, in the hill and mountain regions, 70 percent of soils have medium organic matter ranging from 2.5-5 percent, mainly due to the higher use of organic inputs for cultivation. It will be difficult to find annual progress on this indicator because there is no mechanism to annually assess organic content in soil.

On the **degraded land** indicator, it is estimated that such land has not increased from the baseline of 3.72 million ha in FY2015/16, although there is no system to annually monitor changes. Further, 15,460 ha and 20,882 ha degraded lands were restored in FY2017/18 and FY2018/19, respectively. Records on **forest coverage** show that 5.9 million ha is covered by forest and 0.6 million ha by bushes and shrubs. In FY2021/2022, 44.8 percent of total land area was covered by forest and shrubs, compared to the baseline of 44.7 percent in FY2015/16. On the **land productivity** indicator, AGDP/ha is estimated at USD3,497.50 in FY2021/22, which is slightly lower than the baseline, mainly due to the continued depreciation of the Nepalese rupee against the U.S. dollar. The productivity of land for food crops is estimated to have decreased slightly by 0.1 percent in FY2020/21 because of obstructions in fertilizer import due to the COVID-19 pandemic. However, there was a positive trend in the **Agribusiness GDP** indicator. Its share of overall GDP has increased to 9.78 percent in FY2020/21 from the baseline of 8 percent in FY2015/16, mostly due to the GON's high priority to develop agribusinesses through its own resources and from development partners' support.

Component 3: Competitiveness

The trend of the **agriculture trade balance** indicator has not been encouraging, as the agriculture trade deficit has continued to increase in recent years. During the first 6 months of FY2023/24, Nepal's trade deficit decreased by 2.6 percent (NRs. 693.2 billion) compared to the same period of the FY2022/23. However, during the review period, Nepal's total exports decreased by 7.2 percent (NRs. 74.97 billion) and total imports decreased by 3.1 percent (to NRs. 768.17 billion). Exports and imports of agricultural products for FY2022/23 decreased by 51 percent and 26.5 percent, respectively.

Component 4: Inclusiveness

Available data indicates that the **land owned by women** indicator is progressing satisfactorily. By FY2022/23, land owned by women increased to 23.8 percent compared to the baseline of 16 percent in FY2015/16, which has exceeded the short-term target of 20 percent (indicating possibility of achieving the medium-term target of 30 percent).

Although there is no mechanism in place to assess farmers' access to **agriculture extension programs** nor to report progress under the federalized system, it is assumed that access has decreased since FY2018/19 mainly because of an acute shortage of agriculture technical staff in municipalities, Agriculture Knowledge Centers, and Veterinary Hospital and Livestock Service Expert Centers through which most farmers are expected to access extension services. Given agriculture operations now fall under the jurisdiction of the provincial and local governments and they face shortages of technical staff, the timely deployment of technical staff to these levels will be critical to restore, achieve, and sustain progress. Access to GON's agriculture extension services was estimated

²⁰ Source: Nepal Seed and Fertilizer Project (USAID-funded), 2019.

to have reached about 20 percent of farmers in FY2017/18 compared to the baseline of 18.2 percent in FY2015/16. However, the current situation is likely to improve only when the provincial and local governments complete the ongoing process of filling vacant agriculture technician positions. This trend suggests there is still the possibility of reaching 22 percent of farmers targeted for the medium-term.

Component 5: AGDP Growth

Agriculture gross domestic product is estimated to have grown by 2.7 percent in FY2022/23, which is far below the short-term target of 4 percent and medium-term target of 5 percent. AGDP was estimated to have grown by 2.64 percent in FY2020/21. The growth rate was 5.1 percent in FY2018/19, following 2.8 percent growth during FY2016/17 and FY2017/18 - at base price. Although AGDP growth was positive until FY2018/19, the rate decreased due to the impact of COVID-19, as agriculture is one of the pandemic's most impacted sectors.

Component 6: Livelihoods

Although there is no mechanism to annually monitor the **agricultural labor productivity** indicator, in terms of AGDP/labor, estimates from available data indicate that labor productivity has reached USD1,015 in FY2021/22 from the baseline of USD835 in FY2015/16, which is slightly lower than the USD1,029 targeted for FY2020/21. The change is attributed to a significant increase in agricultural wages in recent years due to the short supply of labor since many productive youths leave the country to work abroad every year.

There is no mechanism for annual monitoring of the rural poverty indicator. However, the fourth Nepal Living Standards Survey 2022-23 (February 2024) indicates that the poverty rates in urban and rural areas were 18.34 percent and 24.66 percent, respectively. Further, the report also indicates that 20.27 percent of the population lived below the poverty line in 2023 compared to 25.16 percent in 2011. The poverty rate was calculated based on a revised poverty line of NRs. 72,908/person/year that is required to fulfill their basic food and non-food consumption needs. The poverty line in 2010-11 was set at NRs. 19,261/person/year (based on the minimum cost of daily essentials), which came to NRs. 42,845/person/year following the adjustment for inflation. However, the new poverty line was set at NRs. 72,908 considering the changes in consumption patterns that in turn led to increased spending needs.

According to the Economic Survey (MOF, FY2022/23), absolute poverty has decreased to 15.1% and multidimensional poverty has decreased to 17.4 percent in FY2022/23. Hence, it can be expected that rural poverty should also have decreased, even if at a slightly lower rate compared to overall poverty.

Component 7: Food and Nutrition Security

As with several other indicators, there is no mechanism to assess progress on the **food-based poverty** indicator. About 10 percent of households were severely food insecure and 22 percent moderately insecure in 2016. Further, the available data indicates that 17.9 percent of the population was severely food insecure and malnourished in FY2018/19. This provides the basis to assume that food-based poverty should also have decreased from the baseline of 27.6 percent in FY2015/16. This reduction is mainly attributed to increasing remittances. Hence, the review recommends establishing an annual progress monitoring mechanism against this indicator to ascertain if food-based poverty is moving towards achieving the 19 percent targeted for the medium-term.

The Nepal Demographic and Health Survey (2022) shows that **severe stunting** (below 5-year-old children) decreased to 25 percent, **severe underweight** decreased to 19 percent and severe wasting decreased to 8 percent in 2021. The Nepal Multiple Indicator Cluster Survey, 2019 shows the percent of women having a Body Mass Index of 18 percent or less decreased to 16.2 percent in FY2017/18 (HKI, 2019). These figures indicate that the three Food and Nutrition Security indicators were met.

CONCLUSIONS, RECOMMENDATIONS, AND SUBSEQUENT ACTIONS

A. Conclusions

The JSR mechanism has evolved as a viable platform for regular interactions between the GON, DPs, and related stakeholders (including between federal and subnational levels) on agriculture sector performance. Within this platform, participants jointly identify national priority issues, seek measures for resolutions, and promote accountability among key stakeholders for agriculture development.

JSR has also emerged as an effective instrument for improving communications and coordination between the GON and DPs, and for jointly conducting periodic sector reviews in consultation with the private sector, provincial stakeholders, and farmer organizations, identifying key policy and operational issues, and pursuing actions to jointly address them. JSR also contributes to coherent and coordinated sector planning in the federalized context. Therefore, the JSR mechanism should be further strengthened, extended to the subnational level, and institutionalized.

The recommendations of the third and the fourth annual sector reviews endorsed by the third and the fourth annual JSR meetings, as well as the policy and program action plans formulated out of them, were timely and relevant, and their implementation progress was satisfactory. Of the three policy actions, JSR institutionalization is in an advanced stage as it is incorporated in the Federal, Provincial, and Local Level Agriculture Sector Coordination Guidelines approved by MOALD in December 2023, and implementation of its provisions has already started. Formulation of the NAP and Agriculture Bill are also in the advanced stage. Review and revision of ADS has begun with MOALD's leadership and TA from DPs. However, full adoption of the Guideline provisions in terms of sector planning, review, and coordination is critical to institutionalize JSR, and approval of the NAP and Agriculture Bill is essential to provide the legal basis for reforms, incentives, and regulations for agriculture sector development.

MOALD, PAMs, and DPs also implemented the program-related action plan to increase investments in production and processing of fine rice, industrial maize, tea, and cardamom, which directly contributes to the GON's high priority agenda for attaining food and feed self-sufficiency and export promotion. However, to achieve sustainable outcomes, MOALD, PAMs, and DPs should further prioritize increasing production and processing of the above crops in their annual programs for the medium-term, which will also help realize ADS vision indicators for food grain self-sufficiency, increased exports, and a reduced agriculture trade deficit.

Of the ADS' 16 vision indicators, 12 are on track based on FY2022/23 or latest available published data, proxy information, and estimation. The remaining four indicators related to food grain self-sufficiency, trade, irrigated area expansion, and agriculture productivity growth are lagging. Since there is no mechanism to annually assess progress against the indicators, and half of them do not fall under the jurisdiction of MOALD, assessing annual trends and progress towards the indicators may remain a challenge until subnational monitoring and reporting issues are addressed through the proposed review and revision of ADS in FY2024/25.

Although financial data indicate increased investment in specialized programs for priority crops such as rice, maize, tea, and cardamom and their related inputs, the outputs of this investment in terms of increase in area coverage, productivity, and total production are only limitedly available in absence of monitoring and reporting mechanisms from municipal and provincial to federal levels. After the

introduction of the federal governance system, monitoring and reporting responsibilities are unclear, and there are skill gaps at all three levels. Government representatives at all levels recognize this deficit.

B. Recommendations

The JSR mechanism, established jointly by the GON and DPs, should continue its operations, including holding bi-monthly Technical Committee meetings and annual JSR meetings expanded to subnational levels. Representatives from federal and provincial ministries, municipalities, DPs, and the private sector should continue participating in annual JSR meetings. Representatives of farmer associations should also be invited to attend the meetings to get their perspectives.

MOALD should coordinate with the Ministry of Federal Affairs and General Administration to expedite approval of the Federal, Provincial, and Local Level Coordination and Interrelation Management Regulations, and upgrade the Coordination Guidelines into a Directive based upon the authorities stipulated in the Regulations.

MOALD, jointly with DPs, should offer orientation programs to PAMs about the Guidelines to clarify their roles and responsibilities in annual program planning, joint sector review, coordination, and M&E.

There is a growing realization that climate change has been posing various challenges, particularly in rural livelihoods through its adverse effects on agriculture. However, there are no specific guidelines to address the issue through program and policy measures. Therefore, this review suggests that MOALD formulate a climate change adaptation guideline in a consultative way for screening agriculture programs and projects to address the issue through program and policy interventions.

MOALD should also expedite finalization and approval of the NAP and Agriculture Bill, aligning with the federalized context, subnational policies, priorities, and potentials, which are targeted for FY2024/25, and continue conducting annual joint reviews of the agriculture sector against ADS targets, identifying sector issues, agreeing on actions, and executing actions in a coordinated manner to sustainably contribute to enhanced sector performance. MOALD should also expedite formulation of a Nepal Agriculture Extension Strategy and continue aligning other existing policies and directives to the subnational context to ascertain their nation-wide uniform application.

Joint initiatives of MOALD, PAMs, and DPs to increase production of fine rice and industrial maize should continue through annual programs for the medium-term. Priorities should continue to include post-production operations such as milling, branding, and quality control. These actions can help reduce and eventually eliminate imports and contribute to attaining food grain self-sufficiency. Likewise, MOALD, PAMs, and DPs should continue increasing the programs for tea and cardamom production and processing to harness export potential and contribute to an agriculture trade balance. These all are high on the national agenda.

Review and revision of ADS should commence from the third quarter of the current fiscal year and be completed in FY2024/25 following the new schedule under MOALD leadership, with confirmed TA from DPs. This action has been delayed by about two years as ADS implementation has completed seven years against the provision of review and revision after every five years. While the delay was justified primarily to incorporate findings of the provincial agriculture development strategy, this is unlikely to happen because only Sudurpaschim Province has approved its PADS so far and preparation of PADS for other provinces is still in different stages with uncertainty of their rapid completion. Objective assessment of progress for all 16 indicators, analysis of reasons for shortfalls,

and suggestions on changes to indicators will be equally important. Such a comprehensive review should be conducted through a consultative process that also proposes methodologies to compute and report progress annually and at the end of future five-year periods.

The increasing food grain imports, particularly of rice and maize, has been a matter of national concern, yet proper analysis on the principal causes for this growing dependency and mitigation measures is lacking. Therefore, conducting comprehensive, updated rice and maize value chain studies has become more important to help understand the issues and devise policy and program measures to reverse the situation.

The review suggests that MOALD should prioritize the establishment and operationalize a sectoral monitoring and evaluation system. Such a system could connect municipal, provincial, and federal levels, and maintain a national database. Without these mechanisms, sectoral planning, and progress reporting, including properly tracking ADS indicators, will continue to be challenging. Steps must be continued by MOALD to design an IT-based M&E and database system by using initiatives already undertaken by MOALD and DP-financed programs and projects, and by introducing recent applicable best practices within the country and elsewhere.

C. Subsequent Actions

The main purpose of the annual sector reviews is to identify and analyze sector performance and issues and recommend measures to address the issues. The identified issues and recommendations become the agenda for discussions that produce agreed actions in the subsequent annual JSR meeting. Action plans are then incorporated in the annual programs of GON and DPs for execution during the next fiscal year and beyond. Accordingly, MOALD organized the fifth annual JSR meeting jointly with DPs on 22 March 2024 with participation of other related federal ministries/institutions, PAMs, private sector, and municipalities.²¹ Hon. Minister for MOALD chaired the meeting. IFAD presented opening remarks on behalf of DPs. The meeting was divided into three parts – inaugural, technical, and closing. At the inaugural session, MOALD presented an overview of ADS implementation, including progress towards its vision indicators for FY2022/23, which was followed by sharing JSR status covering progress of the 2022 and 2023 sector review recommendations and status of the agreed actions in the 2022 and 2023 annual JSR meetings. MOALD's presentation indicated that progress towards implementation of ADS was mixed primarily due to confusion on its implementation arrangements in the federalized context. Of the 16 vision indicators, 12 were generally on track or slightly below target, while the four indicators related to food grain self-sufficiency, agriculture trade, irrigated area development, and agriculture productivity growth were still lagging (Table 2), justifying some of them to become the agenda for the fifth annual meeting and agree actions to jointly address during the short to medium term for desired results. Most of the recommendations of the third and fourth sector reviews and agreed actions in subsequent annual JSR meetings were implemented but required further work for their completion and final outputs.

As recommended by the fifth sector review and endorsed by the 15th JSR Technical Committee meeting, four agenda items were identified²²– (i) increasing area coverage and production of food grain – fine rice (main and spring seasons) and industrial maize and cash crops – ginger, cardamom, and floriculture, and (ii) promoting production and processing of milk and milk products (Chhurpi,

²¹ A total of 124 participants attended the meeting. Of the total, 67 were from MOALD (including departments and centers under it) and related federal ministries and institutions; 13 from provincial agriculture ministries; 13 from DPs; 17 from private sector; and 14 from urban and rural municipalities. The total number of female participants was 30 (24%).

²² The fifth sector review recommended the agenda for the fifth annual JSR meeting based on analysis of relevant published data; topics of high national priority (including the Fifteenth Plan); key ADS indicators lagging that required GON and DP attention for improvement; feedback from consultations with DPs, private sector, provincial stakeholders, and farmer organizations; and requisite process/steps needed to achieve desired outputs of the actions implemented in previous years.

skimmed milk powder, ghee, cheese) and fish to contribute to ADS vision indicators on food grain self-sufficiency (reducing imports), agriculture export, and trade balance. Similarly, formulation of (iii) a Nepal Agriculture Extension Strategy and (iv) Climate Change Adaptation Guideline for agriculture sector were the two agenda identified as policy actions to contribute to the ADS outcome indicator on improved governance.

During the technical session, the above four agenda were discussed in groups, and draft action plans were prepared and presented at the plenary by each group. Outputs of the four working groups were summarized and presented in the beginning of the closing session. Although not discussed as a separate agenda item of the meeting, subnational orientation on the recently approved Federal, Provincial, and Local Level Agriculture Sector Coordination Guidelines, review and revision of ADS, and approval of the National Agriculture Policy have also been included in the action plan to draw continuous attention of GON and DPs, periodically review their progress, and complete the actions on time given their importance for sector development (**Detailed action plans are provided in Appendix IV**). USAID delivered closing remarks on behalf of DPs. The Secretary of Bagmati PAM presented closing remarks on behalf of PAMs and expressed commitments to include relevant actions from the action plans in the annual program for FY2024/25. The Secretary of MOALD closed the session by expressing commitment to incorporate the agreed actions in the annual program for FY2024/25 and to closely monitor during implementation.

Subsequently, the Hon. Minister, MOALD endorsed the decisions of the meeting and concurred with the actions to include in the annual program for FY2024/25. All the program- and policy-related actions have been incorporated in the annual program of MOALD and PAM for implementation in FY2024/25 (with scope for further coordination and consultations with DPs to objectively use their contributions), including the commitment to also include in subsequent annual programs for actions requiring multiple years to complete and deliver results.

APPENDICES

Appendix I: Climate Change and Its Effects on Agriculture in Nepal

Understanding Climate Change

Climate change refers to the gradual change of climate of the Earth, which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.²³ Climate is the long-term regional or global average of temperature, humidity, and rainfall patterns over seasons, years, or decades. Climate change is the significant variation of average weather conditions becoming, for example, warmer, wetter, or drier—over several decades or longer.²⁴ It is the longer-term trend that differentiates climate change from natural weather variability. Exponential growth of carbon dioxide (CO₂) and other greenhouse gases in the atmosphere is causing climate change. The Earth’s climate is changing, and the global climate is projected to continue to change over this century and beyond. With significant reductions in the emissions of greenhouse gases, global annual average temperature rise could be limited to 2°C or less. However, without major reductions in these emissions, the increase in annual average global temperature, relative to preindustrial times, could reach 5°C or more by the end of this century. Trends in globally averaged temperature, sea level rise, upper-ocean heat content, land-based ice melt, arctic sea ice, depth of seasonal permafrost thaw, and other climate variables provide consistent evidence of a warming planet. These observed trends are robust and confirmed by multiple, independent research groups around the world. Figure I shows global average temperature anomalies, since the 1880s global average temperature has warmed approximately 1°C.

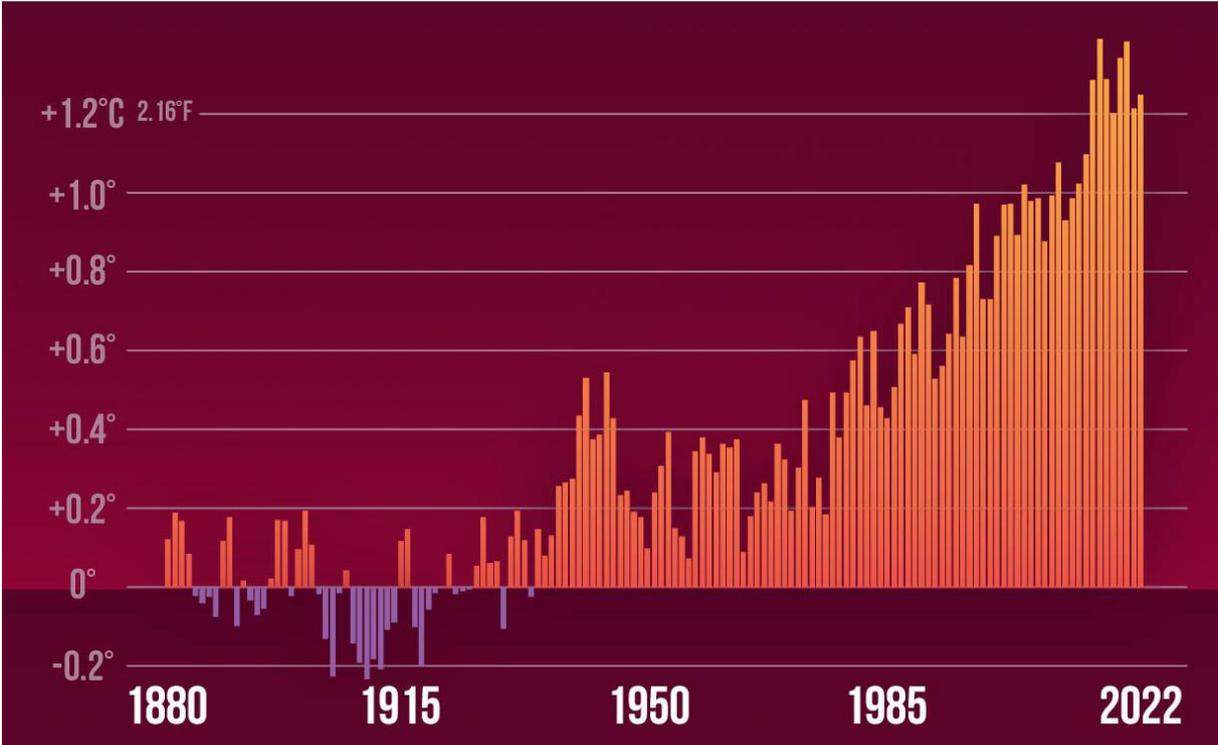


Figure I. Global Average Temperature Anomalies, departure from 1881-1910

The plot shows how much global annual average temperatures for the years 1880-2022 have been above or below the 1881-1910 average.

²³ The Environment Protection Act, 2019 (2076)-2(d), Nepal.
²⁴ Climate Change Knowledge Portal, <https://climateknowledgeportal.worldbank.org/overview>

Relevance of Climate Change in Nepal

Nepal is one of the most vulnerable countries to climate change due to its fragile geography, agriculture-dependent livelihoods, and weak adaptive capacity. Nepal's susceptibility to climate change has several adverse implications on people's socio-economic activities and their livelihoods. It ranks 139th out of 182 countries in terms of its exposure, sensitivity, and ability to adapt to the negative impact of climate change.²⁵ Although Nepal ranks in the bottom 20 percent in terms of greenhouse gas emissions per capita (164th among 190 countries), and 87th in total emissions (out of 194 countries) yet the impact of climate change is severe.²⁶ The key climate change hazards affecting the livelihoods of the country are river flooding, heat exposure, drought, and landslides. While river floods and landslides were the most frequent hazards over the last 40 years, the incidence of drought and heat exposure are increasing. Landslides are more likely to occur in the northern mountain areas and the southern parts are more exposed to river flooding, heat, and drought hazards. Nepal being a part of the Hindu Kush Himalaya region of South Asia, stores more ice than any part of the world outside the poles. Rising temperatures pose additional risks through accelerated glacier melting, which can exacerbate flooding risks above and beyond those caused by variations in precipitation. With rising temperatures across South Asia, Nepal is facing increased climate and disaster risks. The country's temperature is projected to increase by about 1 degree Celsius between (2016-2045).²⁷ These warming scenarios impose a greater risk on Nepal's economy, especially in the sectors of agriculture, land use, energy, biodiversity, health, water resources, snow cover, and aquatic to mountain ecosystems.

Climate change is expected to adversely impact the agriculture sector of the country due to the associated damage and huge adaptation costs. Agriculture contributes to about one-fourth (24.1%) of gross domestic product (GDP) and provides employment to 50.1 percent of the economically active population in Nepal.²⁸ Moreover, low-income people from rural areas of Nepal are more vulnerable to climate change because of their high dependence on the agricultural sector for livelihood and poor coping capacity for climate induced disasters. Nepal's diverse geo-climatic system, which combines heavy monsoons, steep terrain, and remoteness, renders the country vulnerable to natural disasters. The impact of disasters is pronounced in marginal populations, who are already hampered by poverty and disempowerment. By 2050, just three climate hazards, flooded infrastructure, heat stress on labor productivity and health, and heat stress on crops and livestock, are estimated to drag growth 0.27 percent lower each year in the most pessimistic warming scenario. A report from the Intergovernmental Panel on Climate Change indicates a level of warming of 0.3°C per decade in the high mountains of Asia, outpacing the global warming rate and leading to glacier retreat, which has, "decreased the stability of mountain slopes and the integrity of infrastructure."

Impact of Climate Change in Nepalese Agriculture

Nepal's livelihood profile is highly exposed to climate risk, and the economy is particularly vulnerable to shocks affecting the agricultural sector. In the rural areas of Nepal, agriculture is the main source of income which highly relies on small-scale, rain-fed agriculture and dry-land farming systems where productivity is severely impacted by climate change. The nature of agrarian livelihoods, with a high degree of subsistence, smallholder farming, reliant on rain fed crop production and livestock, in the low-lying Terai areas and floodplains in river valleys, is highly exposed to flooding and associated losses in incomes and capital (land and assets). Depending on the weather pattern, even small and short-period weather extremities badly affect food production and supply. The scarcity of surface and sub-surface water for irrigation during non-monsoon seasons combined with flood damages to

²⁵ Notre Dame Global Adaptation Initiative. URL: <https://gain.nd.edu/our-work/countryindex/> Accessed August 8, 2022.

²⁶ Climate risks, exposure, vulnerability and resilience in Nepal. <https://documents1.worldbank.org/curated/en/099062323152517268/pdf/PI7454108d3f440c208af704f01d0a8bb68.pdf>

²⁷ Nepal Climate Change and Development Report, 2022

²⁸ Economic Survey, 2022/023, Ministry of Finance, Government of Nepal

the arable lands in summer adversely affects winter crop production. Livelihoods are also affected by other anthropogenic factors including deforestation, faulty agricultural practices, and insufficient strategies to cope with climate change. Changes in climatic factors like temperature, solar radiation, and precipitation have potential to influence crop production. Despite many efforts possible to combat the impacts of climate change, there are still difficulties in Nepalese agriculture. A 1.8° C rise in temperature from 1975 to 2006 has been recorded in the country.²⁹ Problems of frequent drought, severe floods, landslides, and mixed type of effects in agricultural crops have been experienced in Nepal because of climate change.

A recent report suggests that about 90 percent of crop loss in Nepal can be attributed to weather or meteorological events, increased temperature, and climatic hazards such as erratic rainfall, droughts, and floods triggered by them.³⁰ Climate change induces about 10 to 30 percent losses in the production of crops, livestock, and fisheries combined. The decline in yield and production results in poor availability and access to food, which leads to food insecurity and poverty. Food insecurity and poverty have impacts on the full realization of the right to food. Moreover, the infestation of crops by pests is another concern around food security in Nepal. The Climate Survey carried out by the Central Bureau of Statistics in 2017 revealed that 60.25 percent of households observed the emergence of new plant diseases and 66.09 percent observed the appearance of new insects/pests in crops, while 45.98 percent of households observed the appearance of new diseases in livestock. The invasion of hyacinths in the Beeshazari Lake in Chitwan district and Phewa Lake in Kaski district, created a threat to the tropical and sub-tropical wetlands. The Giant African Land Snail *Lissachatina fulica*, among the first invasive species that entered the Southern part of Nepal in the Eastern Region, is found in high densities in Beltari, Kushma, Pokhara, Damauli, and Bharatpur in the districts of Syangja, Parbat, Kaski, Tanahun, and Chitwan respectively. In Nepal, most farming households have very limited coping strategies in the face of a climate shock. Therefore, adapting to climate change and strengthening household and community resilience is an important priority, while maintaining a low emission footprint.

Initiatives Taken by GON and other Stakeholders in Addressing the Adverse Impacts of Climate Change

Various legal, programmatic, and institutional measures have been initiated to reduce the risks of and vulnerabilities to climate change that hinder the realization of the right to food and food security. The National Climate Change Policy 2019, Environment Protection Act, 2019, Nepal's Long-Term Strategy for Net-Zero Emission, Nepal's Second Nationally Determined Contribution, and National Adaptation Plan for Nepal (2021 -2050) are some of the major policy initiatives undertaken by the Government of Nepal (GON). Similarly, the development partners (DPs) and international and domestic nongovernmental organizations have also been playing crucial roles in raising public awareness, strengthening early warning systems, mitigation, and adaptation, and building climate resilient communities. Some of the initiatives are:

National Climate Change Policy, 2019. Nepal formulated the National Climate Change Policy in 2019 to address climate change impacts and help develop people's coping capacities. It has the policy to improve food security, nutrition, and livelihoods by adopting a climate-friendly agriculture system. It identifies eight thematic and four cross-cutting areas, which are impacted by climate change and agriculture and food security is one of the important sectors.

²⁹ G. Malla, 2008. Climate change and its impact on Nepalese agriculture. *The journal of agriculture and environment* vol.:9, Jun. 2008

³⁰ <https://www.ohchr.org/sites/default/files/documents/issues/climatechange/food/submissions/states/submission-clim>

Environment Protection Act, 2019. The Federal Parliament has issued “Environment Protection Act, 2019” to protect the fundamental right of each citizen to live in a clean and healthy environment, provide the victim with compensation by the polluter for any damage resulting from environmental pollution or degradation, maintain a proper balance between environment and development, mitigate adverse environmental impacts on environment and biodiversity, and face the challenges posed by climate change.

Nepal’s National Adaptation Plan. Nepal launched its first National Adaptation Plan, a comprehensive strategy aimed at bolstering the nation’s resilience against climate change, in November 2023. The plan, having an estimated cost of USD47 billion extending to 2050, was unveiled at the National Climate Summit in Kathmandu.³¹ The National Adaptation Plan outlines 64 specific adaptation interventions across eight key economic sectors. The three most urgent priority sectors were identified as: (i) agriculture and food security; (ii) forests, biodiversity, and watershed conservation; and (iii) disaster risk reduction and management.

National Adaptation Program of Action. In 2010, the GON approved the National Adaptation Program of Action, which identified the following national adaptation priority areas:³²

- I. Promoting community-based adaptation through integrated management of agriculture, water, forest and biodiversity sector
- II. Building and enhancing adaptive capacity of vulnerable communities through improved system and access to services related to agriculture development
- III. Community-based disaster management for facilitating climate adaptation
- IV. Glacial lake outburst floods monitoring and disaster risk reduction, and forest and ecosystem management for supporting climate-led adaptation innovations
- V. Adapting to climate challenges in public health and ecosystem management for climate adaptation
- VI. Empowering vulnerable communities through sustainable management of water resource and clean energy support, and promoting climate smart urban settlement

Local Adaptation Plans for Action. The Local Adaptation Plan for Action was developed in 2011, which has facilitated development of adaptation plans by local governments across the country.

Research and Development. NARC has recommended several technologies to mitigate and adapt to the impact of climate change, such as resource conservation technologies (e.g., zero tillage, bed planting, minimum tillage, surface seeding, crop residue management, etc.), rainwater harvesting, soil moisture conservation (e.g., mulching), slope stabilization and management, management of high/low temperature stress, crop diversification, community-based seed production, and cultivation of stress tolerant crop varieties. NARC has released more than 295 (286 open pollinated and nine hybrid) crop varieties, among them some can resist drought, water logging, diseases, and weather adversities.³³ For example, rice varieties such as Lalka Basmati, Ghaiya 1 & 2, B-6144, Sukhha Dhan-1, 2, and 3, and IR-44535-5 have been developed for cultivation in drought stress condition. Similarly, rice varieties such as Sworna, IR-64, Sanwa Mansuli, and Sworna Sub-I are submergence tolerant. A wheat variety of Aditya (BL-3264) has been recommended for high temperature and hot wind tolerance and leaf rust and yellow rust resistance. Similarly, wheat variety NL-971 is resistant to leaf rust, moderately resistant to yellow rust and Helminthosporium leaf blight, and tolerant to high temperatures. Likewise, variety WK1204, Pasang Lahmu, and Gautam are tolerant to yellow rust that caused serious losses to wheat in the mid-hills.

³³ <https://www.unep.org/gan/news/press-release/nepal-unveils-historic-climate-adaptation-plan>

³⁴ Climate change in Nepal. https://en.wikipedia.org/wiki/Climate_change_in_Nepal

³⁵ Mina Nath Paudel. Adaptation Mechanisms in Agriculture for Climate Change in Nepal. <https://nepjol.info/index.php/HN/article/view/7219/5846>.

Major Gaps in Climate Change Policies, Programs, and Practices

Nepal has formulated policies and programs for climate change mitigation and adaptation but there are challenges in implementing them. There is a gap between demand and supply of the climate change focused programs in terms of resource, technology, capacity, quality, and time. Challenges include the lack of uniformity in understanding the multi-sectoral issues of climate change among the inter-sectoral agencies, poor coordination among the stakeholders, insufficient investment for research and development, lack of basic data on impacts of climate change and potential loss or damage resulting from climate-induced disasters, and failure to mainstream climate change issues into the overall development process. Similarly, Nepal has poor access to global climate finance mechanisms such as Green Climate Fund and Climate Compensation Fund. The climate change mitigation and adaptation programs are not prioritized by subnational governments in terms of resources and focus. There are issues of ownership and sustainability of climate change programs implemented by DPs in the field. Early warning systems are not strong enough to provide reliable, timely weather-related information to farmers so that they could be better prepared earlier for potential climate hazards. Farmers have poor access to climate resilient agricultural technologies due to insufficient extension workers, lack of resources, and poor extension services. There are threats of extinction of indigenous underutilized crops, land races, and genetic resources, which may be the potential future smart crops to be adopted easily in a changed climate.

Potential Measures for Improvement

Response to climate change in Nepal has been growing in recent years with an effort to cope with the changing situation and build resilience capacity into adaptation to climate change. In this context, national priorities should be focused to achieve more efficient, effective, and equitable food systems that address challenges in environmental, social, and economic dimensions across productive landscapes. Farmers are trying to reduce the impacts of climate change and variability by changing cropping patterns, switching crop varieties, riverbed farming, and improving technology and water management practices. However, these practices are autonomous and are unlikely to build long-term adaptation and resilient food production systems. Therefore, there is a need for short-term and long-term strategies for planned adaptation practices.

Short-term Strategies. Understanding and addressing the climate change impacts and its integration into the planning and budgeting system at all levels of the government in the agriculture sector is a crucial task to be implemented with high priority in Nepal. In the short term, adaptation is needed, so the focus should be on the following strategies:

- i. **Raising Public Awareness:** Awareness raising increases the knowledge of individuals, business and industry managers, organizations, and decision makers. It aims to ensure that all relevant stakeholders understand the impacts of climate change and take action to respond to certain impacts.
- ii. **Capacity Building of Extension Workers:** Climate-resilient capacity building for extension workers and farmers is essential for sustainable agriculture development and food security. It enables individuals, organizations, and societies to mitigate and adapt to climate change. Therefore, GON and DPs should introduce innovative capacity building mechanisms such as training, technology demonstrations, field visits, and workshops for extension workers and farmers, which encourage strengthening capacity of researchers, extension personnel, and farmers in dealing with climate change issues in agriculture.

Adoption of Climate-Smart Agriculture (CSA). Adoption of the CSA concept would be the best strategy to improve the integration of agriculture development and climate responsiveness. It helps to achieve food security and broader development goals under a changing climate and increasing food demand. CSA initiatives sustainably increase productivity, enhance resilience, and reduce/remove greenhouse gases, and require planning to address tradeoffs and synergies between these three pillars: productivity, adaptation, and mitigation.³⁴ Mainstreaming CSA requires critical stocktaking of ongoing and promising practices for the future, and of institutional and financial enablers for CSA adoption. For example:

- Cultivating Climate-Resilient Crop Varieties
- Conservation Agriculture
- Agroforestry
- Water Management and Soil Moisture Conservation
- Integrated Pest Management
- Integrated Plant Nutrient Management
- Integrated Farming

Promotion of Future Smart Crops. Conservation, development, improvement, and promotion of neglected and underutilized species should be initiated in policy, program, and resources as future smart crops. They have important roles in sustaining farming systems, human nutrition, food security, and socioeconomic importance.³⁵ They can flourish in areas where rainfall is low and erratic, offer greater and more stable yields, and have a higher tolerance to stress factors such as diseases, pests, drought, and extreme temperatures. The potential future smart crops for Nepal are: Foxtail Millet (*Setaria italica* L.), Proso Millet (*Panicum miliaceum* L.), Pearl Millet (*Pennisetum glaucum* L.), Buckwheat (*Fagopyrum tataricum* Gaertn.), Sorghum (*Sorghum bicolor* L.), Rice Bean (*Vigna umbellata* Thunb.), Horse Gram (*Macrotyloma uniflorum* Lam.), Butter Tree (*Bassia latifolia* Roxb.), Taro (*Colocasia esculenta* L.), Red Amaranth (*Amaranthus cruentus* L.), Yam (*Dioscorea alata* L.), Chayote (*Sechium edule* Jacq.), Drumstick (*Moringa oleifera* Lam.), Indian Gooseberry (*Emblica officinalis* Gaertn.), Linseed (*Linum usitatissimum* L.), Perilla (*Perilla frutescens* L.), and others.

Strengthen Early Warning System. An early warning system is an adaptive measure for climate change, using integrated communication systems to help communities prepare for hazardous climate-related events. It enables early action before disasters and mitigation of their impact.

Long-term Strategies. Stable, long-term livelihood strategies resilient to climate change are useful to address food security and agricultural livelihood related challenges that people of Nepal have been facing. Cutting carbon is the only long-term solution for avoiding climate impacts. Ways to mitigate climate change that are compatible with long-term sustainable development goals must be initiated. These include transforming and integrating food, water, and energy systems, promoting sustainable agricultural practices, protecting, and developing carbon sinks, and promoting carbon dioxide capture, use, and storage. Long-term management and preservation of soil carbon is critical for agricultural productivity because it increases soil fertility. Some of the potential intervention in long-term strategies will be:

Increase Investment in Research and Development. Well-funded agricultural research and development systems play an important role in transforming agrifood systems and helping countries to achieve the Sustainable Development Goals. It will help to develop low-cost, sustainable, and climate-resilient agricultural technologies suitable to Nepalese farming systems.

³⁵ Joshi et al., 2019. Future smart food crops in Nepal: A necessity for future food and nutritional security. <https://www.researchgate.net/publication/341902896>

Develop Pest Forecasting System. Pest forecasting refers to the accurate monitoring of pests and predicting pest outbreaks through analyzing relevant data based on biology, mathematics, and statistics. It is important for farmers to achieve good pest control. Accurate and timely pest forecasting can help farmers take timely measures to effectively control agricultural pests and reduce the detrimental effects of pesticide abuse on the environment and the human body.

Promote Protected and Precision Farming. Precision agriculture aims at increasing productivity, decreasing production costs, and minimizing the environmental impact on farming. Horticultural crops production under protected conditions can increase productivity three- to five-folds over open field conditions.³⁶ This technology has high potential especially in urban and peri-urban areas of Nepal with ever growing markets for fresh produce. Examples include farming in high-tech greenhouses and farming in simple plastic tunnels.

Provide Quality Extension Services. Extension services can strengthen the resilience of farmers by improving access to knowledge and inputs. Provision of quality extension services has been demonstrated to improve agricultural productivity and farm income. Institutional capacity building of agricultural extension agencies is very important for dissemination, adoption, and diffusion of agricultural technologies into the farming system.

Ensure Seed Security. Seed is the foundation of the entire food system and the core of agroecology in the world. About 90 percent of the food we eat begins with seeds - which speaks to the heavy dependence of humans on plants for food.³⁷ Therefore, seed security by extension is food security. In-situ conservations, community seed banks, and gene banks are the crucial infrastructure for seed preservation in Nepal. Development and maintenance of superior inbred lines and pure lines by NARC are also a critical success factor for seed chain maintenance in the country.

Build Strategic Infrastructure. Storage infrastructure, including grain silos, warehouses, and cold storage, is essential to the agricultural sector. It reduces post-harvest losses, enables year-round availability of seasonal goods, safeguards the cash flow of agricultural businesses, and contributes to food security. Warehouses help in price stabilization of agricultural commodities by checking the tendency to making post-harvest sales among the farmers. Warehouses also offer the facility of market information to persons who hold their produce in them.

Promote Private Sector Engagement. The private sector plays a critical role in bolstering national food security, increasing economic growth, and creating transformative change in the country's agricultural sector so it can be more commercial, competitive, and inclusive.

Link Farms with Industry. Initiate contract farming to link agriculture with industry. Contract farming can contribute to both increased income for farmers and higher profitability for industry. When efficiently organized and managed, contract farming reduces risk and uncertainty for both parties as compared to buying and selling crops on the open market.³⁸

Alignment to Advance Climate-Resilient Development. Alignment of country-level policy processes under the 2030 Agenda for Sustainable Development, the Paris Agreement, and the Sendai Framework for Disaster Risk Reduction can help to advance climate-resilient development. Alignment can increase coherence, efficiency, and effectiveness in country policy processes for improved outcomes.

³⁶ Precision and Protected Horticulture in Nepal.

https://www.researchgate.net/publication/330797680_Precision_and_Protected_Horticulture_in_Nepal

³⁷ Seed Security, a Means to Food Security. <https://www.linkedin.com/pulse/seed-security-means-food-adebusola-deborah-oyenuga-mfre>

³⁸ Advantages and problems of contract farming. <https://www.fao.org/3/Y0937E/y0937e03.htm>

Appendix II: Learnings of Agriculture Joint Sector Review in Nepal

Introduction

Background: The Government of Nepal (GON) established an Agriculture Development Strategy (ADS) Joint Sector Review (JSR) mechanism in 2018 led by the Ministry of Agriculture and Livestock Development (MOALD) jointly with development partners (DPs). It was established primarily to support implementation of the Agriculture Development Strategy, which was formulated by GON in collaboration with DPs, and approved in 2015 as a 20-year strategy having 16 vision indicators; defined roles of stakeholders (GON, DPs, and private sector); and a provision of setting-up a structure to jointly assess ADS progress. Thus, the ADS JSR mechanism's role is envisaged to periodically assess progress of ADS and its vision indicators; promote coordination among key stakeholders and enhance their mutual ownership and accountability to ADS implementation; and analyze overall sector issues to support improving the enabling environment for agriculture transformation.

Purpose: The main purpose of JSR is to provide a platform to support successful implementation of ADS and analyze the performance of the agriculture sector. It will regularly bring together MOALD and DPs to discuss their activities and issues, help identify strengths and limitations, and recommend actions for increased effectiveness and efficiency of the sector. JSR is also aimed to support enhanced mutual accountability and harmonize resources in ADS implementation, provide a forum for dialogue and coordination between GON and DPs on ADS and program and projects supported by them, and promote their successful implementation through joint priority setting, effective and efficient resource mobilization, adoption of purposeful management, and timely monitoring and reporting progress and achievements.

Stakeholders: JSR was initially established as a federal structure with MOALD as the lead agency alongside other relevant line ministries (finance, irrigation, forest and environment, land management, and women development) and institutions, DPs, and private sector. Aligning with the federalized governance structure and given major agriculture development roles devolved to subnational governments, the JSR operation has been gradually extended to subnational levels securing participation of provincial agriculture ministries (PAMs) and municipalities, incorporating JSR actions in their annual program, and implementing at respective levels. While involvement of subnational stakeholders has gradually broadened the scope of JSR, integration of the private sector and farmer organizations at federal and subnational levels is deemed necessary to further strengthen JSR's roles in the sector and objectively contribute to accelerate agriculture transformation.

Institutional Structure

The institutional structure envisaged for execution of JSR both at policy and operational levels seems adequate for the original scope of JSR. A **JSR Committee** led by the Minister, MOALD and represented by senior government officials from federal and province level, DPs, and selected municipalities is the policy level structure constituted at national level. At the operational level, there is a **JSR Technical Committee**, chaired by a Joint Secretary of MOALD with selected senior officials under MOALD and DPs as members. However, with extension of JSR to the subnational level, and prospect for further broadening its scope based on lessons learned, it is important to restructure the Committee, establish committees at province and local levels with mandatory representation of private sector and farmer organizations, and work towards building their trust in JSR as a mechanism to raise their issues and seek solutions to better contribute to the sector.

Accomplishments

Technical Committee Meetings: Organized every 2-3 months, the Technical Committee meetings have proven to be a credible source for identifying policy and operational issues – creating an enabling environment (policy and institutions) for ADS implementation; developing and devising innovative approaches to improve sector performance and results; improving effectiveness of coordination mechanisms; and managing critical operational matters. The above issues could be identified, and actions could be taken for resolutions through a total of 15 Technical Committee meetings, although the meetings could not be regular from 2019-2021 due to COVID-19, and monitoring of actions was also constrained during the period. However, experiences have shown that flexibility could be applied in terms of frequency and interval of the meetings and still play key roles - contributing to the annual sector review by determining scope and methodology; mobilizing resources to collect/analyze data and synthesize findings; building stakeholders' ownership; recommending agenda for the annual JSR meeting; and documenting the annual meeting outputs.

Sector Reviews/Analysis: As the core function of JSR, five annual sector reviews (2019-2023) have been conducted by organizing stakeholder consultations, assessing progress trends towards ADS vision indicators, analyzing contemporary sector priorities and issues, monitoring agreed actions from previous annual meetings, and recommending actions for MOALD, DPs, and PAMs. These reviews served as source for identifying pertinent sector issues and recommending actions for their resolution such as: (i) restructuring ADS implementation arrangements, reformulating agriculture program planning process, and establishing a nation-wide progress monitoring mechanism aligning with the federalized context; (ii) agreeing to actions in addressing the short-falls in ADS vision indicators (foodgrain self-sufficiency, agriculture trade balance); and (iii) creating an enabling policy environment by formulating the National Agriculture Policy, Agriculture Bill, and Federal, Provincial, and Local Level Agriculture Sector Coordination Guidelines (the Guidelines) 2023. However, there is room to strengthen roles of JSR by objectively conducting sector/sub-sector analysis, increasing investment in short-fallen ADS vision indicators, and enhancing engagements with potential stakeholder groups that could be useful for policy decisions and addressing operational constraints.

Annual Meetings: Findings and recommendations of the sector reviews formed agendas for annual JSR meetings organized before GON's annual program planning cycle. Outputs of the annual meetings served as a credible source for annual program planning for MOALD, DPs, and PAMs. The timing and process adopted for the annual meetings and utilization of their outputs were found practical and served the intended purposes. Experiences show that flexible methodologies can be applied for annual meetings based on situations and still serve the purpose in varying degrees provided that the meetings are held on time with rigorous joint exercises in identifying priority actions and agreeing to measures for resolutions. The first, fourth and fifth meetings were conducted in-person. Due to COVID-19, the second meeting was organized virtually connecting stakeholders from all three tiers and the third meeting was conducted on a small scale with participation of federal-level stakeholders due to local elections.

Exposure to International Experiences: JSR implementation began by preparing an operational guideline blending experience of other countries with national context. Guided by its original objectives, over time, the JSR functions were adjusted based on changing domestic needs and following the principle of learning by doing. The recently organized observation visits to learn Senegal's experience of agriculture JSR for senior staff of MOALD who have been involved in formulating Nepal's agriculture policy, act, and guidelines was timely and helped building their confidence in institutionalizing JSR in the GON system. Learnings from the visit have been useful to strengthen the annual sector review process by broadening stakeholder consultations, taking

measures in widening acceptance of JSR as a mechanism that helps addressing the stakeholders' concerns, expediting the process to institutionalize JSR in the GON system, and enhancing effectiveness of JSR implementation. Therefore, learning from other country experiences and strengthening Nepal JSR should be a continuous process to help properly implement JSR and expedite its institutionalization.

Results

JSR in GON System: Based on learnings from JSR experiences, particularly its contributions to jointly assessing sector performance and issues, agreeing to measures to address them with a focus on national priorities, and augmenting sector results, GON is in the advanced stage to institutionalize JSR by incorporating it in the National Agriculture Policy, Agriculture Bill, and the Guidelines. Upon approval of these policy and operational documents, JSR will gain legal status and key JSR activities will be financed as part of the GON's annual program, with DP financing in decreasing proportion to fill gaps in conducting JSR functions or financing a specific activity to support JSR operations thereafter. This is significant progress towards institutionalization of JSR, which will need further support to logically conclude the process. However, there is a need to strengthen engagement and consultations with the Ministry of Finance to ascertain resource allocation for implementation of JSR recommendations and provisioning incentives for other actors' engagement for the sector development.

Integration of Provinces: During initial years, involvement of PAMs and provincial stakeholders in the JSR process remained limited to their participation in annual JSR meetings, providing feedback on prior identified agendas, and agreeing to co-finance selected actions agreed to in annual meetings. While involvement of provincial stakeholders in the above activities helped familiarize them with JSR thrusts, it also created a foundation to plan for their structured involvement in the JSR process that will benefit themselves as well as contribute to the national agenda and priorities by being part of the national JSR process. Chapter four of the Guidelines, which is an operational document, contains concept, implementation process, and roles of federal, provincial, and local governments with timeframe in conducting national JSR by using information from provincial and local level JSRs, which should be strictly implemented.

Strengthening Sector Coordination, Mutual Ownership, and Accountability: Ever since its establishment, JSR has been coordinating between MOALD and DPs in the implementation of ADS, including for conducting its first five-yearly review and revision. This JSR function has positively contributed to enhancing stakeholders' mutual ownership of ADS and clarifying roles and responsibilities of GON, DPs, and other actors in ADS implementation. The revised ADS is expected to provide methodologies for its periodic progress review and reporting and checking stakeholders' accountability, which has been constrained due to lack of clear provisions in the existing document. The JSR's current contributions to promoting coordination with provincial governments needs to be strengthened for them to play greater roles in the national JSR and contribute to the country's high-level agenda, which should be meaningfully implemented. MOALD has recently approved the Guidelines, which specifies mandates and responsibilities to federal and subnational governments and requires their commitment and corresponding accountability to JSR implementation and development of the overall sector.

Aligning Priorities: One of the advantages of JSR has been its role as a platform for interactions between GON, DPs, and other actors on their programs, and to set priorities aligning with national priorities, which is the main reason for the growing joint ownership of JSR. There have been concerns about frequent changes in GON priorities and DPs' difficulties in adjusting their priorities accordingly,

which are guided by their country assistance framework for the medium term (five years for most DPs). While JSR's current contributions to bringing GON and DPs together, discussing their short- and medium-term priorities, and coordinating with DPs to apply flexibilities for the short-run and align their medium-term priorities with GON's periodic national development plan could continue, JSR should play more proactive roles in accommodating JSR provision with requisite resource allocation in DPs' country assistance framework and aligning GON and DP sector priorities based on the lessons learned and gradually decrease and eliminate the current ad hoc and case-by-case collaboration practices.

Learnings

Joint Review/Analysis of Sector Issues: JSR has been the only mechanism that conducts annual progress review of the agriculture sector keeping ADS at the center, identifies and analyzes pertinent sector issues, and recommends measures for the short and medium term with suggested roles of stakeholders. This way, JSR has been able to contribute to more organized annual program planning and help mitigate short-fallen areas in the sector. Analysis of topical issues such as agriculture projects' alignment with ADS, rice import-export situation, annual budget allocation and utilization in the three tiers, and the situation of technical staff capacity (federal, provincial, and local levels) as part of the annual sector review have contributed to plan and implement mitigating measures through the annual program and budgeting process. While the sector review could continue the above practices, JSR could carry out analytical works on contemporary topical areas as part of annual sector review, including the issues being faced at the subnational level by engaging think tanks by increasing scope for analysis and applying credible methodologies to contribute to strengthen the sector's planning process in the federalized context. This will also require capacity building of the concerned division/section of MOALD with increased allocation of human and financial resources to carry out the above functions.

Harmonizing Role of Actors: Although GON sets annual, medium, and long-term priorities for the sector, addressing them requires involvement of other stakeholders such as DPs and the private sector, which is an area where JSR can improve its contributions. JSR can coordinate interactions between the stakeholders, presenting rationales for working together and incorporating priorities in their periodic programs and plans. While DPs' involvement in the sector is satisfactorily harmonized with GON's but has scope for further improvement, involvement of the private sector needs greater attention. JSR could facilitate communications between GON and the private sector and create an environment to set priorities in a consultative way through which roles and priorities of GON, DPs, and private sector can be better harmonized.

Source for Learning Best Practices: JSR can serve as a source to learn and apply best practices in planning, implementation, and monitoring for improved sector results. This can be done through promotion of coordination and experience sharing events among government, DPs, and the private sector, and identifying areas to complement efforts of each stakeholder through constructive communications and collaboration. JSR can also bring best practices through networking with similar initiatives elsewhere that could be applied in Nepal by adapting with the national context. This is an area in which Nepal JSR can be better involved, enhance skills, and improve competence in various aspects of the agriculture sector.

Collective Efforts for Sector Results: JSR has contributed towards creating a favorable environment for working together for desired sector results. Periodic meetings between GON, DPs, and stakeholders at planning, implementation, and progress review have contributed to developing mutual understanding about expected results and the need for collective efforts for achievement.

However, there is still scope for JSR to strengthen its facilitation roles and promote engagement among stakeholders to discuss and agree on expected results, convincing them why collective efforts are needed to deliver desired results, secure investment commitments, and promote accountability towards the commitments.

Recommendations

Stakeholder's Continued Commitment: Although Nepal's experience with JSR is proven to be in right direction, its successful implementation requires involvement and commitment of several state and non-state stakeholders from federal to subnational levels. Compliance with their commitments is critical for sustainable execution of JSR and to attain desired sector results, which will require deeper consultations within and outside GON ministries and institutions in identifying issues, agreeing to actions, and jointly implement them.

Monitoring of Adoption: Implementation of JSR needs close monitoring, particularly to ensure envisaged process is followed, serving as a trusted mechanism to present stakeholders' concerns to decision-makers and to realize benefits of being a JSR stakeholder. There is also a need to monitor the compliance status of stakeholders' commitment to JSR. MOALD has recently approved the Guidelines, a critical step towards institutionalization of JSR in the GON system. It is important to monitor if the JSR-related provisions in the Guidelines are implemented thoroughly and according to schedule.

Periodic Adjustments: JSR should be a dynamic process with provision for periodic revisions to suit changing national and international contexts. The changes should be for increasing effectiveness and efficiency, addressing new challenges and national priorities, and contributing to expeditious agriculture transformation.

Deeper Integration with Subnational Level: It is important to continue increasingly integrating JSR with provincial and municipal levels. A comprehensive review at the national level requires information from provincial and local levels, and the ultimate beneficiary of JSR are farmers and agro-enterprises at the subnational level. Therefore, JSR success will largely depend on its adoption at local and provincial levels that will contribute to execution of JSR at the national level.

Appendix III: Summary of Feedback from Provincial Stakeholder Consultations

The Ministry of Agriculture and Livestock Development (MOALD/the Ministry) organized stakeholder consultations in all the provinces to seek feedback for the fifth annual joint agriculture sector review (JSR). The Ministry organized the consultations for the first time based on learnings from the recent JSR observation visits (September 2023) in Senegal, which was attended by senior officials of MOALD directly involved in JSR execution in Nepal. The JSR consultations were combined with the Ministry's provincial consultations for annual program planning for fiscal year 2024/25. Ever since adoption of the federalized governance system following promulgation of the new Constitution of Nepal (2015), MOALD probably is the first federal ministry that has started organizing consultations from provincial stakeholders to formulate its annual program. This programmatic shift by MOALD has been possible through continuous support from JSR to conduct annual review of the sector and strengthen the annual program planning in consultations with key provincial stakeholders. Subnational consultations for the annual sector review through JSR and annual program planning by MOALD is now required by the Federal, Provincial, and Local Level Agriculture Sector Coordination Guidelines (the Guidelines) approved by the Government in December 2023 incorporating lessons learned from the JSR observation visit to Senegal.

A total of 402 participants (95 female) attended the consultations in all the provinces out of which 282 were from government agencies (PAM, Agriculture Knowledge Centers, Veterinary Hospital and Livestock Service Expert Centers, NARC, GON's horticulture and vegetable farms, Provincial Policy and Planning Commissions), 44 from municipalities, 32 from private sector, and 22 each from cooperatives and farmer organizations. Organized for two days in each province between the fourth week of January to the first week of March, the key areas covered in the consultations were background, rationale, institutional structure, and expected outputs of the federal JSR, including the lessons learned so far followed by presentation of summary on Chapter 4 of the Guidelines which feature the JSR mechanism, including operations and responsibilities for federal, provincial, and local levels and their interrelations to achieve sector results. Subsequently, participants' views were sought on how the role of the federal JSR can be strengthened and in what way it can support the Provincial Agriculture Ministries (PAMs) in executing provincial JSR as required by the Guidelines. The following specific questions were asked to feed into the fifth sector review in relation to the federal JSR's future roles, including its possible contributions to establish and operationalize JSR at province level and address sector issues.

- i. Are provincial stakeholders familiar with the existence and operations of JSR mechanism at federal level?
- ii. What roles the federal JSR could play in addressing issues of agriculture development in the province?
- iii. How the federal JSR can contribute to narrowing down the gaps between federal, provincial, and local levels in program planning, monitoring, and coordination?
- iv. What could be the possible challenges and requirements to execute provincial JSR as required by the Guidelines, and how the federal JSR could support/facilitate the process?
- v. Would there be shortage of human resources and skill to execute provincial JSR? If yes, how the federal JSR could help address these gaps?
- vi. What are suggestions to improve effectiveness of federal JSR in the federalized context?

Although the participants responses did not directly address the above questions in all the cases, their feedback in terms of familiarity with federal JSR's current functions and future roles can be organized and summarized below.

Familiarity and General Suggestions:

- Selected participants, particularly from PAMs, knew of the existence and operations of the federal JSR because some of them, mainly secretaries and division chiefs, had attended annual JSR meetings (virtually and/or in-person) as invitee participants in previous years, although they only vaguely knew details about its functions and outputs. Therefore, the participants found the provincial consultations as opportunities to know more about the federal JSR and they suggested organizing similar events for future sector reviews.
- They appreciated establishment and operation of JSR, which is relevant in the country's federalized context, and communication and information flow between federal, provincial, and local levels are constrained due to lack of a functional monitoring and reporting system. As GON has already approved the Guidelines, which requires coherent planning, monitoring, and conducting JSR at all three levels, the provisions of the Guidelines should be institutionalized and practiced.

Suggested Future Roles:

- The federal JSR could facilitate formulation of agriculture extension strategy and guidelines at federal level that creates a conducive environment for preparation and execution of the provisions in provincial and local levels. The lack of sufficient extension services to farmers and agro-enterprises has significantly constrained sector development while demand for such services is increasing from farms and agribusinesses.
- JSR could support promoting engagements between federal, provincial, and local levels, which could help the federal level prepare policy and programs according to subnational adaptability and at the same time contribute to meeting national priorities and promoting functional coordination between the three tiers of government. The federal JSR could also perform facilitating roles to expedite finalization of the Federal, Provincial and Local Level Coordination and Interrelation Management Regulations under formulation by the Ministry of Federal Affairs and General Administration (basing upon the Federal, Provincial, and Local Level Coordination and Interrelations Management Act, 2020), which will provide full legitimacy of the Guidelines and make it binding.
- Support clarifying roles of federal, provincial, and local governments at the functional level to achieve sector objectives, as the roles defined by the Constitution are vague, general, and many of them are concurrent responsibilities among the three tiers.
- Conduct orientation program for implementation of the Coordination Guidelines at federal, provincial, and local levels, and support conducting the annual JSR at local and provincial levels as per the Guidelines and feed the information to the federal level for national JSR.
- Coordinate/help establish a monitoring and evaluation system, and staff capacity building, particularly at local and provincial levels so that progress of agriculture programs can be monitored, data processed and reported to respective provinces, and sent to the federal level for compilation and publication of national data, which is critical but still a big gap for effective sector planning.
- Support MOALD to finalize the National Agriculture Policy and Agriculture Bill, clearly defining roles of the private sector with level playing fields, particularly in the fields of extension services, agro-processing, and marketing.
- Continue coordination between MOALD, DPs, and PAMs to complete review and revision of ADS and formulate provincial agriculture development strategies in the remaining provinces.
- Support MOALD in preparing the strategy to utilize cultivable fallow lands and prepare a vision document for GON's "Agriculture Investment Decade."

Appendix IV: Decisions and Action Plan Endorsed by Hon. Minister of MOALD

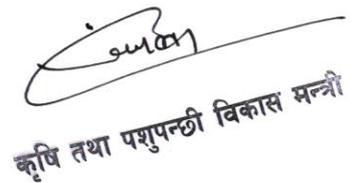
माननीय कृषि तथा पशुपन्छी विकास मन्त्रीज्यूको अध्यक्षतामा २०८० चैत्र ९ गते सम्पन्न कृषि विकास रणनीति कृषि क्षेत्र संयुक्त समीक्षा पाँचौं वार्षिक बैठकका निर्णयहरू

१. खाद्यान्नमा आत्मनिर्भरता हाँसिल गर्ने सम्बन्धी कृषि विकास रणनीतिको परिकल्पना सूचक (ADS Vision Indicator) को लक्ष्यमा योगदान पुर्याउनका लागि मसिना तथा वास्नादार धान (वर्षे र चैते सिजन दुवै), औद्योगिक प्रयोजनमा खपत हुने मकै, लगायतका बालीहरूको उत्पादन प्रवर्द्धन गर्ने सम्बन्धी कार्यक्रमहरू वृद्धि गर्ने। त्यसैगरी पशुपन्छी तर्फ दूध तथा दुग्धजन्य पदार्थ (छुर्पी, स्किमड मिल्क पाउडर, घिउ, चीज) र मत्स्य उत्पादन प्रवर्द्धन एवं प्रशोधन सम्बन्धी कार्यक्रमहरू प्राथमिकताका साथ सञ्चालन गर्ने।
२. कृषिजन्य वस्तुको निर्यात वृद्धि एवं कृषि व्यापार सन्तुलनमा सुधार गर्ने सम्बन्धी कृषि विकास रणनीतिको परिकल्पना सूचक (ADS Vision Indicator) को लक्ष्यमा योगदान पुर्याउनका लागि नगदे बालीहरू चिया, अलैंची, अदुवा, पुष्प र पशुपन्छी तर्फ छुर्पीको उत्पादन प्रवर्द्धन गरी आयात प्रतिस्थापन र निर्यात प्रवर्द्धन गर्ने सम्बन्धी कार्यक्रमहरू सञ्चालन गर्ने।
३. नेपालको कृषि क्षेत्रमा जलवायु परिवर्तनबाट पर्न सक्ने प्रभावलाई न्यूनीकरण गर्दै उत्थानशिल र दिगो खेती प्रणालीको विकास तथा प्रवर्द्धन गर्न कृषिमा जलवायु परिवर्तन अनुकूलन राष्ट्रिय निर्देशिका तर्जुमा गर्ने।
४. सुशासन सम्बन्धी कृषि विकास रणनीतिको प्रतिफल सूचक(Outcome Indicator) को लक्ष्यमा योगदान पुर्याउनका लागि कृषि क्षेत्रका प्रमुख नीति तथा रणनीतिहरूको समयानुकूल परिमार्जन गर्ने। यसको लागि राष्ट्रिय कृषि नीति, २०६१ र नेपाल कृषि प्रसार रणनीति, २०६३ लाई सरोकारवाला निकायहरू बीच छलफल एवं समन्वयमा आवश्यक प्रकृया पुरागरी परिमार्जन गर्ने।
५. कृषि विकास रणनीति (२०१५-३५) को हालसम्मको कार्यान्वयन अवस्थाको समीक्षा गरी मुलुकको संघीय संरचना एवं राष्ट्रिय अन्तराष्ट्रिय परिवेश अनुकूल हुनेगरी उक्त रणनीतिलाई समयानुकूल परिमार्जन गर्ने।
६. त्यसै गरी तीनै तहका सरकारहरू बीच संयुक्त योजना तर्जुमा, अनुगमन, समीक्षा र समन्वयलाई सुदृढ बनाउनका लागि कृषि तथा पशुपन्छी विकास मन्त्रालयबाट स्वीकृत भएको संघ, प्रदेश र स्थानीय तह कृषि क्षेत्र समन्वय कार्यप्रकृया, २०८० सम्बन्धी प्रादेशिक अभिमूखिकरण कार्यक्रम सञ्चालन गरी अन्तर सरकार समन्वयलाई थप प्रभावकारी बनाउने।
७. माथिका निर्णयहरूमा उल्लेख भएका विषयवस्तुहरूलाई कार्यान्वयनमा लैजान आवश्यक कार्ययोजना (Action Plan) तयार गर्ने। कार्ययोजनामा समावेश भएका क्रियाकलापहरूलाई कार्यान्वयनमा लैजान संघीय तहमा कृषि तथा पशुपन्छी विकास मन्त्रालय र मातहतका सम्बन्धित विभाग एवं निकायहरूको साथै प्रदेश तहमा पनि कृषि क्षेत्र हेर्ने सम्बन्धित मन्त्रालय र अन्तरगतका निकायहरूको आगामी आ.ब. २०८१/८२ को वार्षिक कार्यक्रममा उच्च प्राथमिकताका साथ समावेश गरी विकास साझेदार एवम् सरोकारवालाहरूको सहयोग तथा समन्वयमा कार्यान्वयन, अनुगमन, रिपोर्टिङ तथा समीक्षा गर्ने।


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कृषि तथा पशुपन्छी विकास मन्त्री

**Action Plan of 5th Annual Meeting of Agriculture Development Strategy (ADS) Joint Sector Review (JSR)
(22 March 2024)**

Agenda I: Contribution to ADS Vision Indicators on Food Grain Self-Sufficiency and Export Promotion

Action I: Promotion of Cereal Crop Production – Fine Rice and Industrial Maize

S. No.	Actions	Indicators	Target	Timeframe	Main Responsibility	Supporting Responsibility	Remarks
1.	Increase annual program for fine rice production	Reflected in annual program for FY2024/25	7 million MT fine rice produced annually.	July 2024	CCDABC; DOA; MOALD; PAM	DPs; Private Sector	Promotion of these crops needs to be prioritized for medium to long-term (with assured access to inputs and market) for significant impact on domestic production.
2.	Increase annual program for industrial maize production	Reflected in annual program for FY2024/25	3 million MT industrial maize produced annually.	July 2024	CCDABC; DOA; MOALD; PAM	DPs; Private Sector	

CCDABC = Center for Crop Development and Agro Biodiversity Conservation; DOA = Department of Agriculture; DP = Development Partner; FY = Fiscal Year; PAM = Provincial Agriculture Ministry; MOALD = Ministry of Agriculture and Livestock Development; MT = Metric Ton.

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**Action Plan of 5th Annual Meeting of Agriculture Development Strategy (ADS) Joint Sector Review (JSR)
(22 March 2024)**

Action 2: Promotion of Cash Crop Production – Cardamom, Ginger, and Floriculture

S. No.	Actions	Indicators	Target	Timeframe	Main Responsibility	Supporting Responsibility	Remarks
1.	Increase annual program for cardamom production and processing	Reflected in annual program for FY2024/25	Increase cultivated areato 45,000 ha (from the current 18,000 ha) and 3 MT/ha yield (from 2 MT/ha)	July 2024	NCPVS; DOA;MOALD; PAM	DPs; Private Sector	Production of these cash crops should be given high priority for medium-term by enhancing access to inputs, finance, market, and incentives to producers, processors, and exporters.
2.	Increase annual program for ginger production and processing	Reflected in annual program for FY2024/25	Increase yieldto 15 MT/ha(from the current 9 MT/ha)	July 2024	NCPVS; DOA;MOALD; PAM	Private Sector	
3.	Increase annual program for floriculture production	Reflected in annual program for FY2024/25	Increase yield/ha to 6 MT/ha(from the current 3 MT/ha)	July 2024	FDC; PAM	Private Sector	

CCDABC = Center for Crop Development and Agro Biodiversity Conservation; DOA = Department of Agriculture; DP = Development Partner; FDC = Floriculture Development Center; FY = Fiscal Year; MOALD = Ministry of Agriculture and Livestock Development; MT = Metric Ton; NCPVS = National Center for Potato, Vegetable and Spice Crops; PAM = Provincial Agriculture Ministry.

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**Action Plan of 5th Annual Meeting of Agriculture Development Strategy (ADS) Joint Sector Review (JSR)
(22 March 2024)**

Agenda 2: Contribution to ADS Vision Indicators on Food Grain Self-Sufficiency and Export Promotion

Action I: Promotion of Milk and Milk Products – Chhurpi, Skimmed Milk Powder, Ghee, and Cheese

S. No.	Actions	Indicators	Target	Timeframe	Main Responsibility	Supporting Responsibility	Remarks
1.	Chhurpi	Increased annual program for FY2024/25	Increased production and export	July 2024	DLS;MOALD; PAM	Private Sector	Focused and mission programs needed for medium to long-term with improved policy support, quality assurance arrangements and level playing field for private sector.
2.	Skimmed Milk Powder (SMP)	Increased annual program for FY2024/25	Reduced imports of SMP	July 2024	DLS;MOALD; PAM	Private Sector	
3.	Ghee	Increased annual program for FY2024/25	Reduced import of ghee and increased production and per capita availability	July 2024	DLS;MOALD; PAM	Private Sector	
4.	Cheese	Increased annual program for FY2024/25	Reduced import of cheese and increased production and per capita availability	July 2024	DLS;MOALD; PAM	Private Sector	

DLS = Department of Livestock Services; FY = Fiscal Year; MOALD = Ministry of Agriculture and Livestock Development; PAM = Provincial Agriculture Ministry.

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**Action Plan of 5th Annual Meeting of Agriculture Development Strategy (ADS) Joint Sector Review (JSR)
(22 March 2024)**

Action 2: Promotion of Fish Production

S. No.	Actions	Indicators	Target	Timeframe	Main Responsibility	Supporting Responsibility	Remarks
1.	Increased program for fish production and marketing	Incorporated in annual program for FY2024/25	Production increased to 0.3 million MT per annum (from the current 0.13 million MT) and increased per capita consumption to 10 kg/year (from the current 3.7 kg.)	July 2024	CFPCC; DLS;MOALD; PAM	Private Sector	These targets are based on potential estimated by FAO for 2030. This indicates that medium to long-term priorities are needed to realize the potential and achieve targets.

CFPCC = Central Fisheries Promotion and Conservation Center; DLS = Department of Livestock Services; FY = Fiscal Year; MOALD = Ministry of Agriculture and Livestock Development; MT = Metric Ton; PAM = Provincial Agriculture Ministry.

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**Action Plan of 5th Annual Meeting of Agriculture Development Strategy (ADS) Joint Sector Review (JSR)
(22 March 2024)**

Agenda 3: Contribution to ADS Outcome Indicator on Improved Governance

Action: Formulation of National Agriculture Extension Strategy

S. No.	Action/Activities	Indicators	Target	Timeframe	Main Responsibility	Supporting Responsibility	Remarks
1.	Prepare draft National Agriculture Extension Strategy	Draft document prepared	I	August 2024	MOALD	DPs	This document should address issues related to extension functions, linkages among three tiers, human resource, categorization, and try to accommodate CAESC approach envisaged by ADS.
2.	Collect feedback on the draft document from local, provincial, and federal level stakeholders	Feedback collected	At least one consultation in each province with participation of municipalities	January 2025	MOALD	DPs	
3.	Revised the draft document	Revised draft available	Revised draft incorporates key feedback from subnational stakeholders	April 2025	MOALD	DPs	
4.	Conduct validation workshop	Validated document available	This version incorporates feedback from the validation workshop	May 2025	MOALD	DPs	
5.	Final document prepared	Document ready for approval available	Final document reaches to concerned entity for approval	June 2025	MOALD; OPMCM		

CAESC = Community Agriculture Extension Services Center; DP = Development Partner; MOALD = Ministry of Agriculture and Livestock Development; OPMCM = Office of the Prime Minister and Council of Ministers.

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**Action Plan of 5th Annual Meeting of Agriculture Development Strategy (ADS) Joint Sector Review (JSR)
(22 March 2024)**

Agenda 4: Contribution to ADS Outcome Indicator on Improved Governance

Action 1: Formulation of Climate Change Adaptation Guideline for the Agriculture Sector

S. No.	Actions	Indicators	Target	Timeframe	Main Responsibility	Supporting Responsibility	Remarks
1.	Formulate a climate change adaptation guideline for agriculture sector	Guideline formulated	1	FY2024/25	MOALD; PAM	DPs	This guideline should address promotion of climate resilient crop technologies, crops, infrastructure, and breeds. It should also address ground water, agroforestry, integrated farming, weather-based insurance, IPM, varietal development, soil nutrient management, and agro-biodiversity preservation. Proper institutions should be established at local and provincial levels with a steering committee at federal level. The guideline should be formulated in a consultative way with provision of requisite research, coordination, monitoring and reporting arrangements, which should guide annual/short and medium-term program planning.

DP = Development Partner; FY = Fiscal Year; MOALD = Ministry of Agriculture and Livestock Development; PAM = Provincial Agriculture Ministry.



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Action 2: Subnational Orientation on Federal, Provincial and Local Level Agriculture Sector Coordination Guidelines

S. No.	Action	Indicators	Target	Timeframe	Main Responsibility	Supporting Responsibility	Remarks
I.	Conduct orientation to provincial and local level stakeholders on the Federal, Provincial and Local Level Agriculture Sector Coordination Guidelines	Reflected in annual program from FY2024/25	7	July 2024	MOALD; PAM	DPs	This guideline provides roles, responsibilities, and timeframe for conducting annual JSR and program planning at respective levels. It is important that key actors are orientated for proper implementation.

DP = Development Partner; FY = Fiscal year; MOALD = Ministry of Agriculture and Livestock Development; PAM = Provincial Agriculture Ministry.

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Action 3: Complete Review and Revision of ADS

S. No.	Actions	Indicators	Target	Timeframe	Main Responsibility	Supporting Responsibility	Remarks
I.	Complete review and revision of ADS	ADS progress reviewed and document revised	I	FY2024/25	MOALD; PAM	DPs	With some initial delays, the process for review and revision of ADS is certain to be started from the last third quarter of 2024 for completion in FY2024/25. This exercise should be done in a consultative way as envisaged in the background document, and the revised ADS should address implementation, coordination, and periodic progress review in federalized context.

DP = Development Partner; FY = Fiscal year; MOALD = Ministry of Agriculture and Livestock Development; PAM = Provincial Agriculture Ministry.

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**Action Plan of 5th Annual Meeting of Agriculture Development Strategy (ADS) Joint Sector Review (JSR)
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Agenda 4: Contribution to ADS Outcome Indicator on Improved Governance

Action 4: Approval of National Agriculture Policy

S. No.	Actions	Indicator	Target	Timeframe	Main Responsibility	Supporting Responsibility	Remarks
1	Approve National Agriculture Policy (NAP)	NAP approved	1	FY2023/24	MOALD		The latest draft version of NAP is already in final shape, which incorporates feedback from subnational consultations and national validation workshop. Timely approval of NAP is critical to guide the ADS revision and Agriculture Bill formulation.

FY = Fiscal Year; MOALD = Ministry of Agriculture and Livestock Development.

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