AGRICULTURE DEVELOPMENT STRATEGY

JOINT SECTOR REVIEW

SECOND ANNUAL REPORT

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Government of Nepal

Ministry of Agriculture and Livestock Development

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FOREWORD

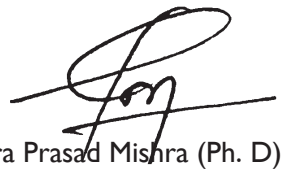
I am pleased to introduce this second annual report of the Agriculture Development Strategy (ADS) Joint Sector Review (JSR) mechanism, which has been operational since October 2018. JSR was established jointly by the Government of Nepal, represented by the Ministry of Agriculture and Livestock Development (MOLAD), and 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 of the agriculture sector identifying issues that affect implementation performance; (ii) contributing to alignment and harmonization of Government and DP priorities in the sector; and (iii) preparing and contributing to execution of time-bound action plans to address issues for achieving intended sector results.

This report offers a comprehensive review of the agriculture sector, including progress on recommendations from the first annual review conducted in 2019 and implementation status of action plans from the first annual JSR meeting held in April 2019. It also examines trends and progress towards ADS's first five-year indicators based on sector data from FY2018/19, and extends useful recommendations for improving sector performance, including rationale for institutionalizing the JSR mechanism. Of particular use are the analysis and methodologies recommended for objectively aligning agricultural projects with ADS outcomes, outputs, and indicators at their design and annual programming. This report also offers suggestions on MOALD's potential role in improving provincial and municipal knowledge, ownership, and contributions to ADS implementation, and in realizing provisions of the Three Tier Interrelations Management Bill, upon its enactment, for coordinated planning, implementation, and monitoring with subnational governments.

I am pleased that the two action plans assigned to MOALD and DPs following the first annual JSR meeting are progressing satisfactorily, demonstrating the commitment to and accountability of the sector, and confirming the viability of the JSR mechanism as a continued platform for the Government and DPs to jointly identify and discuss sector issues and solutions.

As a step towards institutionalizing the JSR mechanism and annual sector reviews within the government system, a shorter version of this report, translated into Nepali, is included as part of MOALD's Annual Report and Monitoring Book for FY2018/19.

On behalf of MOALD, I would like to thank Mr. Sujan Dhungel, Chief, ADS Coordination Section (and Member Secretary, JSR Technical Committee), Dr. Badri Bastakoti, Deputy Team Leader, European Union Technical Cooperation Facility, and Mr. Govinda Gewali, ADS-JSR Coordination Expert (Review Coordinator) for conducting the review and preparing this comprehensive report. I would also like to thank the USAID Feed the Future Nepal Knowledge-based Integrated Sustainable Agriculture in Nepal (KISAN II) Project for allocating resources towards the production of this important report.



Rajendra Prasad Mishra (Ph. D)
Joint Secretary, Ministry of Agriculture and Livestock Development
Chair, JSR Technical Committee

ACRONYMS

ADP	Agriculture Development Plan
ADS	Agriculture Development Strategy
AGDP	Agriculture Gross Domestic Product
AKC	Agriculture Knowledge Center
DCCs	District Coordination Committees
DPs	Development Partners
EUTCF	European Union Technical Cooperation Facility
FY	Fiscal Year
HOR	House of Representative
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
MOLMAC	Ministry of Land Management, Agriculture, and Cooperative
NADSIC	National ADS Implementation Committee
NGOs	Non-Government Organizations
NLSIP	Nepal Livestock Sector Innovation Project
OPMCM	Office of the Prime Minister and Council of Ministers
PMAMP	Prime Minister Agriculture Modernization Project
TTIM	Three Tiers Interrelations Management
USAID	United States Agency for International Development
VHLSEC	Veterinary Hospital and Livestock Expert Service Centers

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EXECUTIVE SUMMARY

The Joint Sector Review (JSR) mechanism is evolving into a viable platform for regular interactions between the Government of Nepal (the Government) and development partners (DPs) on agriculture sector performance and mutual accountability, with potential to be further institutionalized. This second JSR of Nepal's Agriculture Development Strategy (ADS) assessed trends and gaps in the country's agriculture sector against its first five-year implementation plan and progress indicators. This report offers actionable suggestions for the Government, DPs and related stakeholders to jointly take requisite measures for improving sector performance.

Agriculture Project Alignment and Contribution to ADS
In reviewing a selection of three agriculture projects under the Ministry of Agriculture and Livestock Development (MOALD), the JSR found that all contribute to the implementation of Nepal's ADS with varying levels of alignment to specific outcomes and indicators. The JSR recommended that ongoing projects enhance their alignment to ADS through annual program planning with relevant ADS monitoring indicators and reporting mechanisms, while new projects should be aligned from the start, with clear and measurable links to ADS's outcomes, outputs, and indicators.

Improved Subnational-Level ADS Orientation
Familiarity with ADS has significantly improved in Ministry of Land Management, Agriculture, and Cooperative (MOLMAC) and municipalities, following extensive ADS orientations in all seven provinces, as well as planning orientations for all MOLMACs and most municipalities. Now, most subnational governments have introductory knowledge of ADS's priorities, their potential roles in meeting ADS indicators, and confidence to prepare annual programs in alignment with ADS.

Improved Three-Tier Coordination and Information Flow
Coordination between federal and provincial ministries has improved since the 2019 JSR meeting, initially through joint initiatives of ministers, secretaries, and senior ministry officials, and recently, through directives from the Office of the Prime Minister and Council of Ministers (OPMCM). A new Bill initiated by OPMCM will provide legal grounds to prepare working procedures to ease direct communication among the three tiers of government. Once the Bill is endorsed by HOR, MOALD could take the lead role in preparing operational directives.

Progress on JSR Action Plan and ADS Indicators
Sector issues identified in the 2019 annual JSR meeting resulted in action plans for MOALD and DPs, which had been progressing satisfactorily up until February 2020. Progress on action plans is now delayed due to COVID-19 and the extensive national lockdown.

Assessing annual trends is a continued challenge, without a mechanism to annually assess progress against ADS indicators, and with half of the indicators falling outside of MOALD's direct jurisdiction. Of the 16 indicators in ADS's first five-year performance plan, 12 are on track and four (mainly related to food grain self-sufficiency and irrigated area expansion) are lagging.

INTRODUCTION

This is the second annual agriculture sector review report prepared through the JSR mechanism,[1] which is comprised of the Government, represented by MOALD, and DPs supporting Nepal's agriculture sector.[2] The main purpose of the review is to: (i) assess the implementation status of actions recommended by the first JSR,[3] (ii) examine progress of action plans agreed in the 2019 annual JSR meeting,[4] and (iii) appraise trends and progress of the agriculture sector in fiscal year (FY) 2018/19 against the ADS's first five-year performance indicators.[5] Findings and discussions of the review are presented in this report.[6]

PROGRESS ON FIRST REVIEW RECOMMENDATIONS

The first annual JSR offered the following recommendations to MOALD and DPs: (i) assess ongoing agriculture projects' links with ADS and their expected contributions to ADS outcomes, outputs, and indicators—both at project design and during annual program planning; (ii) conduct ADS orientation for provincial stakeholders and selected municipalities to improve their familiarity with ADS priorities and their expected roles; and (iii) help establish communication, coordination, and information flow mechanisms among three tiers of government to support the agriculture sector. Progress on the first review's recommendations is summarized below.

A. Ongoing Agriculture Projects' Alignment and Contributions to ADS

Context: Of more than a dozen ongoing agricultural projects under MOALD, financed by the Government and/or DPs, the JSR team selected three to assess the extent of their alignment with ADS outcomes and outputs, and contributions to ADS indicators. The three selected projects are: (i) Prime Minister Agriculture Modernization Project (PMAMP), a project designed by the Government; (ii) Nepal Livestock Sector Innovation Project (NLSIP), a project designed jointly by the Government and a DP (World Bank); and (iii) Knowledge-based Integrated Sustainable Agriculture in Nepal (KISAN) II Project, a project mainly designed by a DP (United States Agency for International Development - USAID) in consultation with the Government. The JSR team reviewed project documents and FY2019/20 approved annual programs of the above projects. Detailed findings and review methodologies are provided in Appendix 1 and summarized below.

Alignment at Project Design: The review concluded that all three projects are designed broadly within the ADS framework and have links with ADS outcomes and outputs to varying extents. The JSR noted that PMAMP was designed to support ADS implementation and contributes to the transformation of agriculture by establishing specialized areas for production of major crops, enhancing competitiveness of exportable commodities, creating employment opportunities, and ensuring effective service delivery. PMAMP has the closest link with ADS's higher productivity

1 Mr. Sujan Dhungel, Chief, ADS Coordination Section, MOALD; Dr. Badri Bastakoti, Deputy Team Leader, European Union Technical Cooperation Facility (EUTCF); and Mr. Govinda Gewali, JSR Coordinator jointly conducted the review and prepared the report. The review is based on secondary information from various sources, stakeholder consultations, and interactions with staff of MOLMACs and selected urban and rural municipalities.

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

3 The first sector review was carried out through the JSR mechanism from November 2018 to February 2019.

4 The 2019 annual JSR meeting was held on 22 April 2019, combining with the annual meeting of the National ADS Implementation Committee (NADSIC). Hon. Minister, MOALD chaired the meeting. Secretaries and senior officials from the federal and provincial ministries, and representatives from DPs, district coordination committees (DCCs) and selected rural and urban municipalities, private sector, and non-government organizations (NGOs) participated in the meeting.

5 ADS has performance indicators only for the first five-years, ten-years, and twenty-years. Implementation of ADS was started from the beginning of FY2015/16.

6 The review was conducted during November 2019 to February 2020. However, sharing of its findings and recommendations in the JSR Technical Committee meeting planned for March 2020 could not happen due to onset of COVID-19 followed by the extended national lockdown. Hence, the report has been finalized by seeking feedbacks from the Chair, Cochair and selected members of the Committee, and status of the 2019 annual JSR action plan covers progress as of February 2020.

outcome and corresponding outputs, and a lesser link with the other three outcomes (improved governance, profitable commercialization, and enhanced competitiveness) and their outputs. The JSR observed that NLSIP contributes to implementation of ADS, mainly through the promotion of livestock-based agribusinesses and value chain development, improving access to livestock services and related inputs, animal breeds, and developing market infrastructure. The project has a strong link with ADS's higher productivity outcome, and a modest link to the increased competitiveness outcome and corresponding outputs. The KISAN II project was found to contribute to ADS implementation by promoting resilience, inclusiveness, and sustainability of income growth, and creating enabling environments and business opportunities. The project has the closest link with ADS's improved governance and profitable commercialization outcomes and outputs, with lesser links to the other two outcomes and their outputs. Across all three projects, the review found little indication of expected direct annual or overall contributions to ADS, given that project activities are not grouped specifically by ADS outcomes, outputs and indicators.

Alignment through Annual Programming: Review of the three projects' FY2019/20 annual programs indicate that they are significantly guided by their own design, with limited evidence of attempts to enhance direct alignment with ADS through annual programming exercises. Less direct project linkages to ADS outcomes were still apparent. PMAMP showed a link with the ADS outcome on higher productivity by supporting irrigation development, agriculture mechanization (through establishment of custom hiring centers), and increased access to improved seeds and other inputs. NLSIP was mostly linked to ADS's higher productivity outcome by supporting improvements in livestock extension and delivering quality laboratory services. KISAN II was also linked to ADS's improved governance outcome by supporting monitoring and evaluation, human resource development, coordination, policy reforms, gender and social inclusion, and participation and accountability within government structures. KISAN II's annual program is modestly linked to ADS's profitable commercialization outcome by supporting improved access to credit and other inputs, and by promoting new irrigation technologies, farm mechanization, and market infrastructure development. However, the projects' annual programs lack specification on exactly how and to what extent these activities will contribute to ADS, as their monitoring and reporting parameters do not align with ADS's outcomes, outputs, and indicators.

Summary: The review found that all three projects recognize ADS as a guiding strategy, with justifications that each project supports ADS implementation in some way. Their annual programs are linked to ADS outcomes and outputs to varying degrees, although their expected annual and overall contributions to ADS outcomes, outputs, and indicators were less apparent. Similarly, from the FY2019/20 approved annual programs, there was no evidence of significant attempts to better align projects with ADS through annual programming. Therefore, the JSR recommends that future projects are designed with direct ADS alignment that clearly shows how and to what extent they will contribute to meeting ADS outcomes, outputs, and indicators, and with objective monitoring and reporting parameters. Ongoing agriculture projects should group activities under respective ADS outcomes and outputs during annual programming and should demonstrate how and to what extent programs will be monitored in order to meet ADS indicators.

B. Subnational-Level ADS Orientation

MOALD organized introductory ADS orientations for MOLMAC offices in all seven provinces, and also to officials from Agriculture Knowledge Centers (AKCs), Veterinary Hospital and Livestock Expert Service Centers (VHLSECs), NGOs, private sector, and representatives from selected municipalities. Building on the introductory orientation, with support from European Union Technical Cooperation Facility (EUTCF), planning officials from all seven MOLMACs were further oriented on ADS, including practical exercises on how to fit their draft FY2020/21 annual program

into MOALD-prepared ADS planning and monitoring frameworks. Subsequently, key officials from nearly 90% of urban and rural municipalities have been provided with introductory ADS orientations, of which about 10% of municipalities are being trained and supported on preparing FY2020/21 annual programs in alignment with ADS. Nepali version of ADS document was distributed to all participating entities for reference. Most subnational governments are now familiar with the main priorities of ADS, their potential roles in meeting ADS indicators, and aligning annual programs with ADS. Familiarity with ADS and contribution to ADS outcomes is expected to further improve in the coming years, as MOALD plans to continue providing follow-up support for the next about two years, with EUTCF support.

C. Three-Tier Communication, Coordination, and Information Flow

Following the adoption of a federalized governance system, Nepal's agriculture sector has struggled to effectively coordinate and directly communicate among its federal, provincial, and local governments. Following discussions at the 2019 annual JSR meeting, MOALD was tasked with addressing this constraint. Subsequently, MOALD increased the frequency of meetings and interactions with MOLMACs, both at the minister, and secretary, and senior officer levels. This helped ease some direct communication between the federal and provincial ministries. In April 2019, realizing the need for formal steps, the Office of the Prime Minister and Council of Ministers (OPMCM) issued directives as an interim measure to allow direct communication and coordination between federal and provincial ministries. Subsequently, as per the constitutional provision, the OPMCM initiated the Three Tiers Interrelations Management (TTIM) Bill to manage functional relations among federal, provincial, and local governments. The JSR team, including senior officials from MOALD, coordinated with the Legislation Management Committee of the National Assembly, and provided feedback on the draft Bill. In January 2020, the National Assembly forwarded the Bill to the House of Representative (HOR) for endorsement. Once endorsed, it will provide legal grounds to prepare working procedures and directives by concerned entities, which will further ease direct communication, coordination, and information flow among the three tiers of government.

PROGRESS ON 2019 JSR ACTION PLAN

JSR Action Plan: Following discussions and prioritization through a number of bimonthly JSR Technical Committee meetings, the Government and DPs identified three overriding sector issues in the 2019 annual JSR meeting. They included the need to: (i) reestablish ADS implementation and coordination mechanisms; (ii) restore coherence in agriculture program planning connecting all three tiers of government; and (iii) reinstate proper sector monitoring for nationwide progress reporting, including to prepare framework for web-based national agriculture database. Discussions from the annual meeting resulted in two action plans with 11 time-bound actions to address the above issues. Progress on these actions are summarized in Tables 1 and 2 below.

Table 1. Status of Government-Led Actions

SN	Actions	Timeline	Responsibility	Status
1	Conduct ADS orientation to all MOLMACs with multi-stakeholder participation	June 2019	MOALD and JSR Team	Introductory orientation completed, with detailed orientation planned for current FY
2	Distribute ADS document (Nepali version) to all MOLMACs, related entities, and municipalities	October 2019	MOALD and JSR Team	Distributed to almost all related entities
3	Facilitate establishing mechanisms for direct communication between federal, provincial, and local governments on technical and operational matters	December 2019	MOALD and JSR Team	Federal and province minister and secretary level coordination committees formed and meeting bimonthly. In April 2019, OPMCM issued directives to facilitate federal and provincial coordination and communication. Subsequently, OPMCM initiated TTIM Bill to manage functional relations among federal, provincial, and local governments, and the Bill is in HOR for endorsement
4	Revise TOR of ADSCS reflecting its roles in changed context	March 2020	MOALD	TOR revised for finalization along with new O&M conducted for MOALD by MOFAGA
5	Establish ADS desk in all MOLMACs to facilitate ADS implementation, monitoring, and reporting	July 2020	MOALD and MOLMACs	ADS desk established in Province 5 MOLMAC and being replicated to other MOLMACs
6	Establish ADS coordination, implementation, and monitoring mechanism	31 August 2020	MOALD	The mechanism establishment is contingent upon HOR endorsement of TTIM Bill

The six actions led by the Government are either completed or progressing at different stages. Following completion of the introductory ADS orientation to MOLMACs, detailed ADS orientations, combined with support for program planning in line with ADS, were conducted for MOLMACs and municipalities. The Government plans to provide follow-up support through EUTCF for the next two years. Resources provided by JSR enabled the ADS document to be printed in Nepali, which was especially useful for MOLMACs, related entities, and municipalities. Legal mechanisms for functional interrelations between federal, provincial, and local governments are being established, while new TORs for ADSCS are already drafted in line with anticipated roles in the changed context. Preparatory work to establish ADS desks in the remaining six MOLMACs in underway, based on lessons learned from the Province 5 MOLMAC. Reestablishment of ADS implementation and coordination mechanisms will be finalized after HOR endorsement of the TTIM Bill. However, completion of the last three actions is likely to be delayed due to the COVID-19 crisis and the extended national lockdown.

Table 2. Status of DPs-Led Actions

SN	Actions	Timeline	Responsibility	Status
1	Prepare draft annual program planning guidelines for federal, provincial, and local governments	February 2020	EU, USAID, JSR Team	Draft guidelines prepared based on federal, provincial, and local consultations
2	Prepare agriculture development plan (ADP) aligning with ADS for MOLMACs and municipalities	April 2020	EU, USAID, ADB, SDC	Provincial and local consultations completed; preparation of ADPs underway
3	Prepare planning capacity development plan, and train concerned staff of federal and provincial ministries and municipalities	June 2020	EU, USAID, ADB	Planning capacity assessed, and draft plan prepared
4	Develop ADS/agriculture progress monitoring and reporting framework for federal, provincial, and local governments	August 2020	EU, FAO, WFP, USAID, SDC, GIZ, WB	Progress monitoring and reporting framework document preparation initiated
5	Support establish ADS/ agriculture national web-based agriculture database	August 2020	EU	Framework document preparation for establishing web-based database underway

MOALD has begun using the completed planning guidelines to prepare its annual program for FY2020/21. Translation of the guidelines into Nepali language, and new materials on planning methodologies are underway. Based on provincial and local consultations, review of relevant official documents is ongoing for preparation of ADPs. Curriculum for program planning training has been drafted based on capacity assessment at all three tiers of government. Draft framework documents for ADS/agriculture progress monitoring and establishing a national web-based database are underway. However, progress of actions 2-5 has been stalled due to COVID-19 and the extensive national lockdown.

TRENDS AND PROGRESS TOWARDS ACHIEVING ADS INDICATORS

The approved 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, livelihood, and food and nutrition security—each in 5, 10 and 20-year increments (medium and long-term). ADS implementation has already spanned three fiscal years, with the fourth underway. This review found limited considerations given to ADS's first five-year indicators in annual planning exercises of agriculture projects and programs. As a result, the review team encountered difficulties collecting relevant annual information on yearly trends and progress towards ADS indicators. Nonetheless, the reviewers found that investments were made, and annual outputs were delivered around many ADS indicators over the past three fiscal years, even if not directly planned and intended as such. The following report sections present trends on the ADS's first five-year indicators using relevant data from various sources, and/or latest available data of all seven vision components and corresponding indicators. These are presented in Table 3 and explained in subsequent paragraphs.

Table 3. ADS Targets and Achievement Trends

Vision Component	Indicator	Baseline (FY2015/16)	Targets (FY2020/21)	Intermediary Achievement/ Trend (FY2018/19 or latest)	Sources of Information
Self-Reliance	Food grains self-sufficiency	16% food grains trade deficit	Reduce to zero deficit	Food grains trade deficit has not decreased with 16.03% food deficit in FY2018/19. NRs51.8 billion imports and NRs254 million exports.	MOALD 2019; Dept. of Customs, 2019; Trade and Export Promotion Center, 2019
Sustainability	Year-round irrigated area (ha)	25.2% of cultivated land	35% cultivated land or 52,050 ha irrigated/year	6,225 ha irrigated area developed in first 8 months of FY2018/19, out of annual target of 56,880 ha	Ministry of Energy, Water Resource, and Irrigation, 2019.
	Nutrient content in soil (%)	1.96	3	3	USAID-financed Nepal Seed and Fertilizer Project, 2019 (unpublished)
	Degraded land (m ha)	3.72	2.88	Degraded land area decreased in recent years, although credible data not available. 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)
	Forest coverage (%)	44.7	44.7	44.8% land is covered by forests in FY2018/19.	Economic Survey FY2018/19 (page 59, para. 8.52)
	Land productivity (AGDP/ ha) ($)	3,278	4,184	Land productivity in terms of AGDP/ ha is estimated 2,946. However, productivity of land for food crops is expected to increase by 7.2% in FY2018/19 compared to FY2017/18.	Economic Survey, FY2018/19 (page 52, para. 8.11), and National Sample Survey of Agriculture FY2011/12.
	Agribusiness GDP contribution to overall GDP (%)	8	9	Agribusiness GDP contribution projected to have increased to 9.98% in FY2017/18, given govt.'s high priority in agribusiness investments.	JSR team estimate based on selected indicators of Nepalese Agriculture and Population, MOALD, 2019
Competitiveness	Agriculture trade balance ($ m)	1,123	1,073	Ag. trade deficit has been widening and registered $1,637 m for FY2018/19.	Dept. of Customs, 2019

	Agricultural exports ($ m)	225	456	Ag. export earnings are estimated to have increased to $302 million in FY2018/19.	Dept. of Customs, 2019.
Inclusiveness	Women or jointly owned agricultural land (%)	16	20	Women owned 19.5% of land in FY2018/19.	MOLMCPA Records, 2019.
	Farmers' access to agricultural programs (%)	18.2	22	Had reached about 20% in FY2017/18. No estimation found for FY2018/19.	MOALD Progress Report, FY2017/18
Agricultural growth	Average agri. GDP growth (%)	2.23	4	AGDP is estimated to have grown by 5.1% in FY2018/19.	Economic Survey, FY2018/19 (page 51, para. 8.2)
Livelihood	Agri. GDP/labor ($)	835	1,029	AGDP/labor is estimated to have increased to $978 in FY2018/19.	JSR team's estimate based on Economic Survey FY2018/19 and National Labor Force Survey 2008/09-2017/18 (projections)
	Rural poverty (%)	24.3	19	Rural poverty estimated to have decreased to 18.7% by FY2018/19	Economic Survey, FY2018/19 (page 45, para. 7.1)
Food and Nutrition Security	Food-based poverty (%)	27.6	19	No information available on food-based poverty. 17.9% population is estimated to be severely food insecure and undernourished in FY2018/19.	Approach Paper to Fifteenth Plan, 2019 .
	• Nutrition • Stunting -below 5-year child (%) • Underweight - below 5-year child (%) • Wasting - below 5-year child (%) • BMI – women having 18.5% or less	 37.4 30.1 11.3 18.1	 29 20 5 15	 Decreased to 28% in FY2017/18 (latest available) Decreased to 10% in FY2017/18 (latest available) Decreased to 7.2 in FY2017/18 (latest available) Decreased to 16 in FY2017/18 (latest available)	Annual Survey Report of USAID-financed Suaahara II Good Nutrition Program, 2018.

Component 1: Self-Reliance

The only indicator for **food grains self-sufficiency** under this component is the elimination of food grains trade deficit by FY2020/21. Although there has been an increase in food grain production in recent years, current agriculture trade data indicates a food grains deficit, registering NRs51.8 billion in imports and NRs254 million in exports in FY2018/19. Nepal produced 8.2 million MT of edible cereals in FY2018/19 and experienced about 16% (1.3 million MT) deficit against its national requirement. 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 inputs, and absence of information on food grains sold by farmers to traders who unofficially export. The reviewers concluded that, in order to reduce the trade deficit, Nepal's agriculture sector needs to align its internal production with the changing food habits, in addition to restricting the unofficial sale of domestic food grains. Given that the country's food grain import surge has drawn national attention and concern, the following section (and **Appendix 2**) provides an overview of import and export trends from recent years, with a focus on the rice sub-sector, as well as a sub-sector outlook and possible mitigation strategies

Food Grain Trade Deficit and Share of Rice: Nepal's cereal trade deficit has been rapidly increasing in recent years. In FY2009/10, Nepal exported cereals worth NRs319.2 million and imported cereals worth NRs4,194.8 million, with a trade deficit of NRs4,162.9 million. The deficit significantly increased by FY2018/19 with NRs254 million in exports and NRs518,024 million in imports, with 38% annual growth of trade deficit (**Appendix 2, Table 5)**. This poses challenges in attaining the ADS-projected food gain self-sufficiency in the medium-term. Among the cereals imported, rice imports alone increased by 39% per annum. Rice constituted 63% of the total 769,567.6 MT of cereal (NRs32.59 billion) imported in FY2018/19. FY2015/16 was an exception when rice import decreased by 25% probably due to trade disruptions with India and grant food aid received for 2015 earthquake relief **(Appendix 2, Table 6)**.

Rice Imports, Share of India, and Potential Mitigation Measures: Almost all rice imported during FY2014/15 to FY2018/19 came from India.[7] In FY2018/19 alone, 763,364.53 MT of rice (NRs321,756.6 million) was imported from India (**Appendix 2, Tables 7 and 8)**. One of the main reasons for high imports from India is low tariffs (5% with husk and 8% without husk), compared to 10% tariff for imports from other countries. If the production pattern of FY2018/19 continues (3.47 million MT husked or 5.6 million MT unhusked rice), almost 3.54 million MT of milled rice will be required to meet the domestic demand, which means 0.5 million MT of rice (NRs20 billion) will have to be imported to meet the annual per capita rice consumption of 122 kg in Nepal.[8] To reverse the situation as envisaged by ADS, the country must create a conducive policy environment to promote the 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 major share of the imported rice (high demand but low in-country production); encourage private millers to process high quality rice; and increase investment in research and development linked to productivity increases, pest control, and farm management.

Component 2: Sustainability

Under this component, **irrigation development** is one of the key indicators. Available published data indicate only 6,225 ha of irrigated area developed in FY2018/19, against the national annual target of 56,880 ha, and ADS target of 52,050 ha. There are two main reasons for the shortfall.

7 Nepal imports rice in husk, husked brown rice, semi-milled or wholly milled rice; and, broken rice.

8 https://reliefweb.int/sites/reliefweb.int/files/resources/CRAFT_Paddy_2018_final_estimate.pdf)

First, the available data only covers irrigation developed for the first eight months of FY2018/19 through medium and large irrigation projects implemented by the federal government, and many of the ongoing projects are in early stages of construction and have encountered budget shortages and slow implementation progress. Second, data on small irrigation projects implemented by subnational governments which occupy a major share of irrigation development investments and also have the potential to deliver outputs relatively quickly, are not included in absence of progress reporting mechanisms from subnational to federal level.

Increase in **soil organic matter** is another indicator under this component. Organic matter in soil is found to have increased to 3% in 2019[9] 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% in FY2015/16. However, there are regional variations to note. About 63% of the soils from the Terai have less than 2.5% organic matter, which is categorized as low. Yet 37% of Terai soils have 2.5-5.0%, categorized as medium, mainly due to low use of organic inputs for cultivation. While, in the hills and mountain, 70% of soils have medium organic matter ranging from 2.5-5%, mainly due to 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, it was reported that 15,460 ha and 20,882 ha of degraded lands were restored in FY2017/18 and FY2018/19, respectively. Records on the **forest coverage** indicator show that 44.8% of land is covered by forest and shrubs, indicating an increase in forest area compared to the baseline of 44.7 m ha in FY2015/16. On the **land productivity** indicator, AGDP/ha is estimated USD2,946 in FY2018/19, which is slightly lower than the baseline, mainly due to depreciation of Nepalese rupee against US dollar. Productivity of land for food crops has increased by 7.25% in FY2018/19 compared to FY2017/18. There was positive trend in the **Agribusiness GDP** indicator. Its share of overall GDP is estimated to have increased to 9.98% in FY2018/19 from the baseline of 8% in FY2015/16, mostly due to the Government's high priority to develop agribusinesses through its own resources and from DP support.

Component 3: Competitiveness

The trend against the **agriculture trade balance** indicator has not been encouraging, as the agriculture trade deficit has increased in recent years, from the baseline of USD1,123 million in FY2015/16, to an estimated USD1,637 million in FY2018/19. This significant increase indicates that fully eliminating the agricultural trade deficit by FY2020/21 will be a huge challenge. Progress under the **agricultural export** indicator target also exhibits challenges in achieving the annual export earnings of USD456 million by FY2020/21, as the export earnings is estimated to have increased to USD302 million in FY2018/19 from the baseline of USD255 million in FY2015/16. The review recommends a careful assessment of type of agricultural commodities imported, consumers' changing preferences, and encouragement to farmers and agro-processors to produce by providing incentives, technologies, and facilitating access to other inputs, including finance.

Component 4: Inclusiveness

Available data indicates that the **land owned by women** indicator is progressing satisfactorily. By FY2018/19, land owned by women increased to 19.5% compared to the baseline of 16% in FY2015/16, which indicates the possibility of meeting the 20% targeted for FY2020/21. Although there is no mechanism in place to assess farmers' access to **agriculture extension program** and report progress under the federalized system, it is assumed that the access has decreased

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

in FY2018/19, mainly because of acute shortage of agriculture technical staff in municipalities, AKCs, and VHLSECs from where farmers are expected to access extension services. Given that agriculture operations now fall under the jurisdiction of provincial and local governments, the timely deployment of technical staff to these levels will be critical to restore, achieve, and sustain progress. Access to government's agriculture extension services was estimated to have reached about 20% farmers in FY2017/18 compared to the baseline of 18.2% in FY2015/16. The current situation is likely to improve only when provincial and local governments complete the ongoing process of filling vacant agriculture technician positions. Thus, it is still possible to reach the targeted 22% farmers by FY2020/21.

Component 5: AGDP Growth

Agriculture gross domestic product (AGDP) grew by 5.1% in FY2018/19 (following 2.8% growth during FY2016/17 FY2017/18 - at base price). These figures indicate a positive trend for achieving the 4% annual growth targeted for FY2020/21, although this would be contingent upon favorable weather conditions, timely availability of inputs, and an enabling policy environment in the sector.

Component 6: Livelihood

Although there is no mechanism to annually monitor the **agricultural labor productivity** indicator, in terms of AGDP/labor, estimates from the available data indicate that labor productivity has increased to USD978 in FY2018/19 from the baseline of USD835 in FY2015/16, which points to the possibility of meeting the targeted USD1,029 by FY2020/21. Nepal has experienced a significant increase in agricultural wages in recent years due to short supply of labor since many productive youths leaving the country for remittances every year. There is no mechanism for annual monitoring of the **rural poverty** indicator. Absolute poverty is assumed to have decreased to 17% by FY2018/19 from 21.6% in FY2015/16. Hence, it can be expected that rural poverty should have also decreased, even if at a slightly lower rate compared to overall poverty. The Multisector Poverty Indicators published by the National Planning Commission estimated rural poverty at 33.2% in 2018, although it considered several indicators related to health, education, and living standard.

Component 7: Food and Nutrition Security

As with some other indicators, there is no mechanism to assess progress on the **food-based poverty** indicator. However, available information indicates that 17.9% of the population was severely food insecure and malnourished in FY2018/19, which provides the basis to assume that food-based poverty should have also decreased from the baseline of 27.6% in FY2015/16. The 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 the 19% target for FY2020/21. Although there is no mechanism for annual monitoring of **stunting** (below 5-year children), data collected from a field survey of 16 districts indicates stunting decreased to 28% in FY2017/18.[10] The same source also indicated that **underweight** (below 5-year children) has decreased to 10%, **wasting** (below 5-year children) decreased to 7.2%, and **BMI** (women having 18% or less) 16% in FY2017/18. These figures indicate the possibility of meeting all four indicators under this component by FY2020/21.

Rural Connectivity: Although rural road development is not a core indicator of ADS, the review team attempted to assess progress, given rural roads play an important role for agriculture commercialization and marketing. ADS targets 3,750 km rural road developed per year (50 km/district). In FY2016/17, 5,586 km rural roads were developed (new construction 1,913 km; maintenance 3,556 km and rehabilitation 117 km), almost 50% higher than the ADS target. A total of 2,194 km rural roads (new construction 194 km; maintenance 2,000 km) were developed in

10 Source: Helen Keller International, SUAAHARA II, Annual Survey Report Year Two, 2018.

FY2017/18, which is about 33% less than the target. The achievement for FY2018/19 has been 2,549 km (new construction 524 km; rehabilitation 25 km; and maintenance 2,000), which is 32% less than the ADS target. However, this does not include information on rural roads constructed by provincial entities and municipalities in absence of reporting mechanism to federal ministry. Other reasons for the shortfall include the exclusion of non-engineered roads and shortage of fund allocation for construction of engineered roads.[11]

Dairy Products, Technician Deployment, and Policy Reforms: The JSR team also assessed progress on: (i) increases in **total value of processed dairy products**, (ii) **deployment of agriculture technicians to local level,** and (iii) **status on land management and agribusinesses policy reforms** by FY2018/19. Including a progress assessment on the above areas in this report is intended to present the compliance status of conditions for the second tranche budget release under the EU-financed, "Contribution to Agriculture and Rural Development in Nepal."

The total value of processed dairy products has increased to NRs32.86 billion in FY2018/19,[12] which exceeds the targeted NRs28.8 billion for FY2018/19. MOALD created 7,724 local-level agriculture technician positions, out of which 2,135 have already been filled through federal level staff adjustments. The remaining positions will be filled through public service commissions at federal or province levels. Once the recruitment process is completed, almost 100% of the vacant agriculture technician positions will be filled at municipal level. The Federal Parliament approved the Land Use Act on 10 March 2019. The Agribusiness Promotion Bill, covering agribusiness promotion and market management, is in the process of resubmitting to the Cabinet for forwarding to the Federal Parliament for discussions.[13]

11 Source: Department of Local Infrastructure Records, 2019.

12 Sources: National Dairy Development Board, 2019; Nepal Dairy Association, 2019; and Dairy Development Corporation, 2019.

13 Progress of the other three CARD indicators (also for release of the second tranche budget support) relating to (i) year-round irrigated area development, (ii) stunting of children below five years age, and (iii) increase in land owned by women (three of 16 core indicators of ADS) are covered in Table 1, and explained in relevant paragraphs.

CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

The JSR mechanism is evolving as a viable platform for regular interactions between the Government and DPs on agriculture sector performance, issues, and mutual accountability. It is also emerging as an effective mechanism for improving coordination between the Government and DPs, and for jointly conducting periodic sector reviews, identifying key operational issues, and seeking actions to address them jointly. Hence, the JSR mechanism has potential to further grow and be institutionalized.

The agricultural projects assessed under this review were found to be aligned with ADS outcomes and outputs in varying degrees at their design and through annual programming. However, their quantifiable annual and overall contributions to ADS outcomes, outputs, and indicators are lacking, partly due to the absence of objectively monitoring and reporting mechanisms envisaged at the project design stage, and partly due to limited efforts to align their annual programs with ADS outcomes, outputs, and indicators, and monitor and report progress accordingly.

Familiarity with ADS has increased in MOLMACs and municipalities through ADS orientations conducted by MOALD and DPs. The subsequent planning orientation provided to all MOLMACs and almost all municipalities, as well as follow-on assistance provided to help adjust their draft FY2020/21 annual programs in line with ADS outcomes, outputs, and indicators, have significantly improved their familiarity with ADS.

Communication and coordination between federal and provincial ministries have improved, initially through joint initiatives of ministers, secretaries, and senior officials from respective ministries, and recently through OPMCM's directives as interim measure. Further improvement is expected upon endorsement of the TTIM Bill by the HOR, which has mandatory provisions for communication and coordination among three tiers of governments on technical, operational, and national priority matters, in line with the constitutional principles of coexistence, coordination, and cooperation among the three tiers.

Sector issues identified in the 2019 annual JSR meeting (combined with annual NADSIC meeting) were relevant and timely, and progress of the action plan for MOALD and DPs has been satisfactory. However, because of the COVID-19 crisis and associated extensive national lockdown, there will be delays in completing actions planned for March 2020 onwards.

Of the ADS's 16 first five-years indicators, 12 are on track based on FY2018/19 annual progress or latest available published data, proxy information and estimation. The remaining four indicators, mainly related to food grain self-sufficiency and trade, and irrigated area expansion 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 five-year indicators may continue to remain a challenge.

Despite an increase in rice production in recent years, the importation of rice has been increasing every year, which poses challenges in attaining self-sufficiency in food grain in the medium-term. Almost all imported rice is coming from India. Policy and program measures need to be devised to reverse the situation.

B. Recommendations

The JSR mechanism established jointly by the Government and DPs should continue its operations, including holding bimonthly Technical Committee meetings, and an annual JSR meeting combined with

NADSIC. Representatives from federal and provincial ministries, DCCs, and urban and rural municipalities should continue participating in the annual JSR meeting. Efforts should be made to include representatives from the private sector and NGOs in the annual meeting. The JSR mechanism should continue conducting an annual joint review of the agriculture sector against ADS targets to identify sector issues, agree upon actions, and execute actions in a coordinated manner to enhance sector performance.

Ongoing agriculture projects should enhance their alignment with ADS through annual program planning by grouping activities in line with ADS outcomes, outputs, and indicators and by setting relevant monitoring indicators and progress reporting arrangements to directly measure contributions to ADS. This practice should also be applied for the MOALD's regular program and replicated to MOLMAC and municipalities based on lessons learned. However, new agriculture projects should be aligned with ADS from the start by identifying and grouping activities in line with ADS outcomes, outputs, and indicators and by setting proper monitoring parameters to objectively assess and report annual and overall project contributions to ADS.

ADS is due for first five-yearly review in FY2021/22. The review should objectively assess progress on all 16 indicators, analyze reasons for any shortfalls, and suggest any revisions or additions to indicators. The review should also suggest methodology to compute and report progress annually and at the end of next five-year period.

Increasing the importation of food grain, particularly rice, has been a matter of national concern, yet proper analysis on the principal causes for this growing dependency and mitigation measures are lacking. The review recommends an analysis of causes and effects of the ever-increasing importation of rice in order to identify and devise potential policy and program measures to reverse the situation.

ADSCS is the focal office to coordinate ADS-related operations. ADS targets will continue to be used to review agriculture sector performance, mainly due to the absence of other credible long-term strategies with short and medium-term indicators. Now that much of the agriculture operations have been devolved to the subnational level, the role of ADSCS goes beyond coordinating at the federal level. Therefore, ADSCS needs to be strengthened, in terms of staffing and functional capacity, and the revised draft TOR that reflects the envisaged roles should be finalized.

The TTIM Bill is already in the HOR for discussions. Upon endorsement of the Bill, MOALD could take the lead role in preparing operational documents, like regulations and directives, to apply the mandatory legal provisions for establishing sectoral coordination and communications among the three tires of governments.

The National Agriculture Policy 2004 has been the guiding policy for the preparation of ADS and many sub-sector policies. The policy needs to be revised to suit the changed context, including to address new challenges, and changing roles of stakeholders in the sector. The revised policy could create an enabling environment for increasing production of the most demanded commodities and varieties, improving access to agriculture inputs, clarifying roles of the private sector, and guiding proposed adjustments in the ADS document.

The review suggests that the establishment of a sector-wide monitoring and evaluation (M&E) system be given a high priority. 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, have suffered. Steps should be taken to design an IT-based M&E and database system by utilizing initiatives already undertaken by MOALD and DP-financed projects, and by introducing recent applicable best practices.

APPENDIXES

Appendix 1: Assessment of Agricultural Projects' Alignment with ADS Outcomes, Outputs, and Indicators

Background: The first agriculture sector review, conducted during November 2018 to February 2019, had recommended MOALD and DPs to assess ongoing agriculture projects' links at their design and annual program planning with ADS outcomes and outputs, and contribution to meeting ADS indicators. To serve this purpose, from among about 12 ongoing agricultural projects under MOALD financed by the Government and/or DPs designed after approval of ADS, three sample projects with different features were assessed. The three projects are (i) Prime Minister Agriculture Modernization Project (PMAMP), a project designed by the Government; (ii) Nepal Livestock Sector Innovation Project (NLISP), a project designed jointly by the Government and DP (World Bank): and (iii) Knowledge-based Integrated Sustainable Agriculture in Nepal (KISAN) II Project, a project mainly designed by DP (USAID) in consultation with the Government. Methodology of assessing links with ADS at project design and FY2019/20 annual program, results, conclusion, and recommendations are provided below.

Methodology: The above three projects' documents and their FY2019/20 budgeted program were reviewed to assess their link with ADS outcomes, outputs, and indicators. Project staffs were also consulted to acquire their perceptions, seek clarity on content of annual program, and learn any attempts they made to further align the projects with ADS during annual programing. For PMAMP and NLISP, alignment of their annual program has been assessed based on allocated budget for activities that are linked to ADS outcomes and outputs. However, for KISAN II project, budget was not available and hence the alignment was assessed based on proportion of number of activities linked to ADS outcomes and outputs against the total activities in the annual program. Dummy variables (1 = aligned and 0 = non-aligned) were used for computing proportions and deriving extent of alignment with ADS. Scores on alignment of the projects' annual program with ADS outcomes and outputs are in Table 4.

Table 4. Scores for FY2019/20 Annual Programs' Link with ADS Outcomes and Outputs

Outcomes	Outputs	Projects		
		PMAMP	NLSIP	KISAN II
Improved Governance	Policy credibility	0.00	2.41	3.16
	Coordination	0.58	0.00	3.16
	Planning	0.33	0.00	1.05
	Implementation support	0.00	0.00	0.00
	Gender equity and social inclusion	0.00	0.00	2.11
	Monitoring and evaluation	1.10	1.57	17.89
	Participation and accountability	0.00	0.00	1.05
	HRD and capacity building	2.59	5.18	10.53
	Food and nutrition Security	0.00	0.00	0.00
	Performance-based management system	3.07	0.00	0.00
	Sub-total	**7.67**	**9.16**	**38.95**

Outcomes	Outputs	Projects		
		PMAMP	NLSIP	KISAN II
Higher Productivity	Extension	2.81	15.28	3.16
	Research	0.63	0.00	0.00
	Education	1.37	0.00	0.00
	Land	1.00	0.00	0.00
	Irrigation	28.46	0.49	1.05
	Agriculture inputs	2.98	13.70	1.05
	Seeds	4.43	1.46	0.00
	Fertilizer	1.56	0.00	0.00
	Animal breeds	0.44	7.28	0.00
	Mechanization	7.52	0.49	1.05
	Farmers resilience	0.00	0.00	1.05
	Sustainable agriculture and GAP	0.00	0.00	1.05
	Forestry	0.03	0.00	0.00
	Sub-total	**51.23**	**38.7**	**8.41**
Profitable Commercialization	Investment climate	2.80	0.00	3.16
	Contracts	0.00	0.00	1.05
	Taxes	0.00	0.00	0.00
	Finance and insurance	0.00	0.00	3.16
	Value chains	2.79	7.77	1.05
	Roads	0.00	0.00	0.00
	Market intelligence	0.00	0.00	2.11
	Rural electrification	0.00	0.00	0.00
	Sub-total	**5.59**	**7.77**	**10.53**
Increased Competitiveness	Market infrastructures	3.30	10.63	4.21
	Innovation	0.60	0.00	0.00
	Export promotion	0.79	0.00	1.05
	Quality and safety	0.68	17.59	2.11
	Sub-total	**5.37**	**28.22**	**7.37**
	Total	**69.86**	**83.85**	**65.26**

Results and Analysis: Results and analysis on the three projects' alignment with ADS outcomes, outputs, and indicators, based on review of their project documents and FY2019/20 budgeted annual program, are provided separately below.

1. Prime Minister Agriculture Modernization Project (PMAMP)

Project Design	Annual Program (FY2019/20)
This is a 10-year project designed in 2016 by the Government for financing and implementation by mobilizing own resources. The project document states that it has been designed to support implementation of ADS, with a vision of transforming the agriculture sector by establishing specialized areas for production of major agriculture commodities; enhancing competitiveness of exportable commodities; creating employment opportunities; and ensuring effective agriculture service deliveries. It envisages voluntary land consolidation for creating large production clusters and providing improved technologies and mechanization to pockets, blocks, zones, and super-zones to contribute to agriculture-based industrialization. There is a provision for linking research-extension-education through related institutions working as a unit for effective service delivery at zone and super-zone levels. The project also envisages close coordination among related line agencies (like irrigation, forest), which are among the ADS indicators. It also intends to achieve self-sufficiency in major agricultural commodities within specified timeframe and has programs for food safety and quality control. There is a separate section in the project document which explains interrelations between ADS and PMAMP and how it will support implementation of ADS agship programs. By design, the project has close link with ADS higher productivity outcome and associated outputs with limited links with other three outcomes (improved governance, profitable commercialization, and enhanced competitiveness) and their outputs. However, the project document does not specify how and to what extent the project outcome and output targets will be monitored and reported to assess its contribution to ADS outcomes, outputs, and indicators annually and at its completion.	Based on PMAMP's FY2019/20 budgeted program, almost 70% of its activities have links with ADS outcomes and outputs. About 73% of the program activities are linked with the higher productivity outcome alone followed by 11% with the improved governance outcome, and 8% each with profitable commercialization and enhanced competitiveness outcomes. At output level, highest (41%) alignment was found on investing in irrigation development and modest alignment (11%) with agricultural mechanization by establishing custom hiring centers. Of the total budget, about 6% has been allocated for increasing access to seed and 4% for other agricultural inputs in the project's 10 zone and 16 super-zone areas. About 4% of the budgeted program is planned for providing output-based incentives to motivate farmers cultivating high priority crops, which is consistent with the approaches envisaged by ADS. However, given the track record of low budget utilization, it is not certain if the budgeted programs, though linked w ith ADS, will be implemented and contribute to meeting ADS outcomes, outputs and indicators, which will need a careful review and further analysis. Closer alignment of the project's annual program with the higher productivity outcome and its outputs, and limited links with the other outcomes and outputs indicates that there were meaningful attempts to enhance the project's links with ADS through annual program planning. However, it was not clear how and to what extent the annual program will contribute to meeting the ADS outcomes, outputs and indicators, which means that adequate attention was not paid in monitoring and progress reporting in line with ADS, which otherwise would have been helpful in judging the project's contribution to ADS annually, and formed basis for assessing contributions by the end of the project.

2. Nepal Livestock Sector Innovation Project (NLSIP)

Project Design	Annual Program (FY2019/20)
NLSIP was designed in 2017 as a six-year project. The project document mentions its significant links with ADS, and intends to contribute to implementation of ADS, particularly by promoting livestock-based agribusiness. The project document states consistency between the objectives of NLISP and ADS because both aim at increasing productivity, enhancing value addition, and improving climate resilience of smallholder farms and agro-enterprises in selected value chains. The project document further states that it is aligned with all four ADS outcomes including improved governance, higher productivity, profitable commercialization, and enhanced competitiveness, thus supporting the country's priorities. Furthermore, 3 of 4 project performance indicators are closely linked with ADS indicators. Of the four project components, the first component on strengthening critical regulatory and institutional capacity is linked to ADS improved governance outcome. Similarly, component two for support to producers' organizations, modernize animal breeding services and strengthening farmers training and extension services are linked with ADS higher productivity outcome. Component three intends to promote inclusive value chain for selected livestock commodities, including goat value chain, is linked to high priority value chain under flagship programs, to contribute to ADS profitable commercialization outcome. However, in overall, the project seems closely linked to ADS higher productivity outcome and associated outputs and less aligned with the other three outcomes and their outputs. However, the project document does not specify its link in terms of quantifiable contributions to ADS annually and at completion, as the monitoring and reporting mechanisms are not consistent and difficult to generate information to ascertain contribution to ADS outcomes, outputs and indicators.	Around 84% of the project's budgeted program for FY2019/20 have links with ADS. Like PMAMP, a significant portion (46%) of the budgeted program activities are linked with ADS higher productivity outcome and related outputs followed by increased competitiveness (34%), improved governance (11%) and profitable commercialization (9%) outcomes. Construction of well-equipped laboratories has been planned out of which activities related to maintaining quality has been given high (21%) priority. Similarly, construction of service center has been planned (18% of total aligned budget) to improve livestock extension services at local level. Priority has also been given in distributing livestock inputs and equipment (16%) to veterinary hospitals at provincial level and constructing livestock markets, collection centers and slaughterhouses (13%) at municipal level. However, despite potential of enhancing the project alignment with ADS through annual planning, the budgeted program for FY2019/20 remain significantly within the scope defined at the project design, which indicates lack of considerations to further linking the project with ADS during implementation. Like at project design, the annual program does not specify how and to what extent the programmed activities will contribute to meeting the ADS indicators, partly because of differences in parameters chosen for monitoring and reporting progress of the planned program and those envisaged by ADS. The lack of consideration for aligning the parameters with ADS and accordingly monitoring and reporting progress causes difficulties in judging the project's contribution to ADS outcomes, outputs, and indicators annually and by the end of the project.

3. Knowledge-based, Sustainable Agriculture in Nepal (KISAN) II Project

Project Design	Annual Program (FY2019/20)
This is an USAID-financed project designed in 2016 and implemented by Winrock International from 2017 for five years. As per the project document, KISAN II objective is to increase resilience, inclusiveness, and sustainability of income growth through agriculture development. Under Section C of the project document made available for review, it is stated that the project will contribute to implementation of ADS through support for improved agriculture productivity, competitiveness, resilience, and inclusiveness, and creating enabling environment and business opportunities of selected market systems. It has further stated that the project intends to achieve the objectives through three of five components such as improved productivity of selected agricultural market systems; strengthened competitiveness and resilience; and inclusiveness of selected agricultural market, which have links to ADS outcomes. To increase market competitiveness, the project intends to facilitate sustainable value chain relationships focusing on five commodities - vegetables, rice, maize, lentil, and goats, most of which are priority value chain commodities of ADS. Similarly, the project has a separate component on gender and social inclusion. Further, KISAN II alignment with ADS is further justified for its support to profitable commercialization and enhanced competitiveness through programs for value chain development, access to finance, and market-driven and private sector-led interventions. From the project document, the project is aligned with ADS's higher productivity outcome and associated outputs, modestly aligned with improved governance outcome and related outputs and lesser alignment with the remaining two outcomes and associated outputs. However, the project document does not specify how and to what extent the project outcome and output targets will contribute to meeting the ADS outcomes, outputs, and indicators in quantifiable terms.	Around two-third of the KISAN II annual program activities for FY2019/20 were found linked with ADS. The highest alignment was with improved governance outcome and related outputs such as monitoring and evaluation (18%) and capacity building (11%). The project's annual program that intend to contribute to resilience, sustainable farming, good agriculture practices, and market intelligence services are also linked to the improved governance outcome and outputs. The annual program is also linked to the higher productivity outcome and outputs as about 4% of the program was for market infrastructure development and 3% for improving access to credit through coordinated programs with different banks. More than 70% of the project beneficiaries are expected to be women, youth, and marginalized groups, which will contribute to meeting 20% of ADS social inclusion output. The annual program also aims to promote proven irrigation technologies (1.05%), mechanization (1.05%) and agriculture inputs (1.05%), which are in line with the ADS outputs. However, as the above percent in parenthesis indicate share out of total number of program activities rather than allocated budget, contribution to ADS outcome and outputs would have been higher if there were fewer activities and bigger investments. Like with PMAMP and NLISP, KISAN II annual program also sticks to the scope at project design and there is dearth of evidence on considerations for enhancing the project's links with ADS through annual programming, although there was ample potential. The lack of consideration for aligning the parameters with ADS indicators and accordingly monitoring and reporting progress causes difficulties in judging the project's contribution to ADS indicators annually and by the end of the project.

Conclusion: All three project documents recognize ADS as the guiding strategy, and the projects are justified for supporting implementation of ADS, and their project design and annual program have links in varying degree with the ADS outcomes, outputs, and indicators. PMAMP and NLISP have closer alignment with the ADS higher productivity outcomes and related outputs whereas KISAN II project has higher link with the improved governance outcome and outputs. However, project activities have been identified and grouped in conventional ways both at project design and annual programming, making it difficult to assess their contributions to ADS in quantifiable terms annually and at the end of the projects. There was dearth of evidence on attempts made during annual programming to enhance alignment of the projects with ADS outcomes, outputs and indicators and assess project achievements and report accordingly.

Recommendations: For ongoing projects, it should be made mandatory to improve their links with ADS during their annual programming by identifying relevant activities and grouping them in line with ADS outcomes, outputs and indicators and setting monitoring and reporting mechanisms accordingly, which can be done within the existing project design framework. The same requirement should apply for annual programming of MOALD's regular program. However, for new projects, relevant activities should be identified and grouped according to ADS outcomes, outputs and indicators and set consistent monitoring and reporting mechanisms, which will make it easier to assess their contributions to ADS annually and at completion.

Appendix 2: Food Grain Self-Sufficiency Analysis with Specific Reference to Rice

Background: For the last couple of decades, Nepal has been importing cereals to meet domestic demand for food, including for mitigating food insecurity and animal feeds. This is a turn around from the situation when Nepal exported agricultural commodities, particularly rice until the mid-1980s. Evidences suggest that the country annually exported about $45 million worth rice to India during the 1960s. Of the cereals imported in recent years, rice has been the principal item followed by maize and wheat. While paddy is still grown in over 80% of the cultivated area, its productivity and total production has been lower than potentials mainly due to lack of irrigation, erratic supply of inputs, and limited application of improved technologies. Other reasons for impelling importation of rice include (i) population growth; (ii) increasing urbanization; (iii) increased household income, mainly form remittances; (iv) people's preference to premium rice (mostly produced in other countries) vis-à-vis domestically produced traditional varieties; (v) outmigration, leading to shortage of labors in pick agricultural seasons: and (vi) increasing number of food and feed processing companies. It is also argued that policy constraints have impeded growth opportunity for cereals, particularly of the type of rice whose demand has steadily increased in recent years. Although ADS has projected to attain food grain self-sufficiency in the medium-term, there are indications that the country may continue experiencing deficit and increasing dependency.

Cereal Export and Import: Nepal exported cereals worth NRs319.2 million and imported worth NRs4,194.8 million in FY2009/10 with a trade deficit of NRs4,162.9 million. The trade deficit significantly surged by FY2018/19 with worth NRs254 million exports and NRs518,024 million imports. Annual growth rate of cereal deficit during the period under review was 38% on average **(Table 5)**.

Table 5. Cereal Trade Situation during FY2009/10 - 2018/19

Fiscal Year	Export (NRs' million)	Import (NRs' million)	Trade Balance (NR' million)	% Change in Trade Deficit
2009/10	319.20	41,948.10	-4,162,8.90	
2010/11	239.50	50,304.78	-50,065.31	20%
2011/12	96.37	134,133.62	-134,037.25	168%
2012/13	441.05	209,234.44	-208,793.39	56%
2013/14	195.55	286,155.02	-285,959.47	37%
2014/15	166.28	351,214.50	-351,048.22	23%
2015/16	164.16	393,413.99	-393,249.83	12%
2016/17	298.70	401,702.97	-401,404.26	2%
2017/18	165.22	445,842.21	-445676.99	11%
2018/19	253.96	518,023.97	-517,770.00	16%
Average annual growth rate of imports				38%
Compound annual growth rate of imports				29%

Source: Trade and Export Promotion Center, 2019

Exports and Imports of Rice: Among the cereals imported in FY2018/19, rice holds the major share of 63% with 769,567.5 mt worth NRs32.59 billion. Importation of rice has significantly increased during the review period with an exception for FY2015/16 when there was a decrease by 25%, which can be ascribed to the trade disruptions with India, and some food aid following

the 2015 earthquake (which might not have been accounted as traded goods). Annual increase of rice imports during the period under review was 39% on average with no significant increase in exports (**Table 6)**.

Table 6. Rice Trade Situation during FY2009/10 – 2018/19

Fiscal Year	Export Qty (mt)	Amount (NRs' million)	Import Qty (mt)	Amount (NRs' million)	% Increase in Import Qty/Year
2009/10	363. 83	121.32	102,846.90	26,358.25	
2010/11	305. 20	65.15	133,489.86	24,086.34	30%
2011/12	0.34	0.47	398,482.90	92,881.22	199%
2012/13	919.25	292.17	529,913.58	143,375.81	33%
2013/14	123.15	82.97	502,233.30	172,547.64	-5%
2014/15	0	0	723,241.03	248,347.19	44%
2015/16	0.65	1.20	545,982.80	230,055.41	-25%
2016/17	6.04	6.51	590,015.40	238,671.95	8%
2017/18	1.60	3.09	739,207.94	294,094.07	25%
2018/19	11.90	4.48	769,567.55	325,950.52	4%
Average annual growth rate of imports					34.8%
Compound annual growth rate of imports					22.3%

Source: Trade and Export Promotion Center, 2019

Rice Imports from India: Rice imported from India in quantity and cost for the last five years show a significant increase, with an exception of decrease in FY2015/16 for the reasons stated in the above paragraph. There has been a sudden import surge of 763.364.53 mt worth NRs290,426.24 million in FY2017/18, mainly due to unfavorable weather conditions in FY2016/17 leading to low yield and decrease in total production of rice. However, despite increase in rice production in FY2017/18, imports of rice from India further increased by 4% to 763,364.53 mt worth NRs321,756.6 million in FY2018/19. Details on rice imports and cost during FY2014/15 to FY2018/19 are in **Table 7.**

Table 7. Rice Imports from India

Fiscal Year (FY)	Quantity (mt)	Amount (NRs' million)	% Increase in Qty
2014/15	723,099.83	248,160.81	
2015/16	541,573.65	227,516.43	-25.10%
2016/17	582,297.204	234,497.41	7.52%
2017/18	733,868.88	290,426.24	26.03%
2018/19	763,364.53	321,765.50	4.02%

Source: Trade and Export Promotion Center, 2019

Of the total rice imported during FY2014/15 to FY2018/19, it shows that almost all the rice was imported from India.[14] The share of rice imported from other countries such as China, Vietnam, Thailand, and Republic of Korea was insignificant (**Table 8**). Low tariff (5% with husk and 8% without husk) on rice import has been explained as the main reason for high dominance of imports from India compared to 10% import tariff from other countries.

Table 8. Share of Total Rice Imports from India

Fiscal Year	Total Rice Import (mt)	Import from Indi (mt)	% Share of India
2014/15	723,241.03	723,099.82	99.98%
2015/16	545,982.80	541,573.65	99.19%
2016/17	590,015.39	582,297.20	98.69%
2017/18	739,207.94	733,868.88	99.28%
2018/19	769,567.55	763,364.53	99.19%

Source: Trade and Export Promotion Center, 2019

Rice Demand and Supply Analysis: In Nepal, annual per capita rice consumption is estimated at 122 kg. Assuming the population of 29 million by 2020, about 3.54 mt milled rice is required to meet the domestic demand. However, the domestic production was about 3.47 mt (5.6 million mt of rice in husk) in FY2018/19. If the same production pattern continues, almost 0.5 million mt rice costing about NRs20 billion will have to be imported.[15] As demand for rice largely depends on population growth, income and access to commodity due to connectivity, and all three variables are on the rise, there is high possibility of further increase in demand for rice in future (Tripathi, et al, 2018).

Domestic Rice Cultivation: Rice is cultivated in about 1.5 million ha with 4.5 to 5 million mt annual production at 2.94 mt/ha on average. For 29 million (estimated for 2020) people, about 5.8 million mt of rice is needed to meet domestic demand. This suggests that the current rice production in the country is insufficient to meet demand for domestic consumption. Also, there is less possibility of increasing rice cultivation area. Therefore, introducing policies and programs for increasing productivity of rice is the main option for which conducive policies and options needs to be considered. Further, cost of production for rice/ha is estimated NRs 63,073 with net profit of NRs18,255 (Bhandari et, al, 2015). Share of labor cost (human and animal) is estimated to have increased to about 60% of the total production cost due to increased wage rates because of labor shortage during the pick agricultural season. Therefore, cost effective technologies should be promoted for rice cultivation.

Implications: Both production and importation of rice have increased in recent years. However, the rate of importation has significantly exceeded the rate of increase in domestic production, which is likely to continue. To reverse the situation as envisaged by ADS, Nepal's production capacity needs to be enhanced to offset the import by devising concrete policies, programs, activities, and budgetary provisions.

Way Forward: In Nepal, rice yields are low, and there is big gap between productivity in farmers' field and research stations. Furthermore, extension services for rice cultivation and post-

14 Nepal mainly imports rice in husk, husked brown rice, semi milled, or wholly milled rice; and, broken rice.

15 https://reliefweb.int/sites/reliefweb.int/files/resources/CRAFT_Paddy_2018_final_estimate.pdf)

harvest operations have not meaningfully reached farmers to fill the gaps between research and action. Hence, increased investment in research and development for productivity increase, pest control and farm management are critical, which is currently less than 1% of the total value of rice produced (Tripathi et al, 2018).

Non-Tariff and Tariff Measures: Preference of rice over other staples is one of reasons for the rapid surge of rice imports. Among the rice, importation of medium fine and fine rice has been increasing while the country is producing coarse rice. To offset the imports, it is important to launch supportive policies and programs to increase production of high-quality rice and milling to address the market demand. Alongside, to discourage importation of rice and encourage consumption of domestic production, Nepal could increase import tariff from India at par with the other countries.

Input Supply, Infrastructure and Technology: Increasing productivity of rice depends on access to inputs and complementary infrastructure. Inadequate supply of fertilizers is often cited as one of the principal reasons for low production of rice, which can be increased by overcoming the supply constraints. Rapid increase of irrigation infrastructure both for ground and surface water irrigation and dissemination of water use efficiency methods; promotion and adoption of climate smart technology; and dissemination and adoption of innovative cultivation methods could help increase rice production and alleviate the country's dependency on rice.

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