

Cereal Systems Initiative for South Asia

Semi-Annual Report October 2022- March 2023



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Aligned with



Transforming
Agrifood Systems
in South Asia

CSISA Covid Response Resilience Activity Partners



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List of Acronyms and Abbreviations

2WT	two-wheel tractor
%DI	percent disease index
%DLA	percent diseased leaf area
A2F	access to finance
AAS	Agricultural Advisory Society
ABLE	agriculturally based light engineering
ACCL	Auto Crop Care Limited
ACDI-VOCA	Agricultural Cooperative Development International and Volunteers in Overseas Cooperative Assistance
ACIAR	Australian Center for International Agricultural Research
AIRN	Agriculture Inputs Retailers' Network
AIS	Agricultural Information Services
AKC	Agriculture Knowledge Center
AMMI	Additive Main Effect and Multiplicative Interaction
APSIM	Agricultural Production Systems Simulator
ATT	average treatment effect on treated
ATU	average treatment on untreated
BADC	Bangladesh Agriculture Development Corporation
BARC	Bangladesh Agricultural Research Council
BARI	Bangladesh Agricultural Research Institute
BMD	Bangladesh Meteorological Department
BpLB	<i>Bipolaris</i> leaf blight
BRRI	Bangladesh Rice Research Institute
BWMRI	Bangladesh Wheat and Maize Research Institute
CABI	Centre for Agriculture and Bioscience International
CBO	community-based organization
CCAFS	Climate Change, Agriculture and Food Security
CEs	choice experiments
CGIAR	<i>formerly the</i> Consultative Group for International Agricultural Research
CHC	custom hiring center
CIMMYT	International Maize and Wheat Improvement Center
CSISA	Cereal Systems Initiative for South Asia
CSISA–MEA	CSISA–Mechanization and Extension Activity
CSRD	Climate Services for Resilient Development
DAE	Department of Agricultural Extension
DSM	digital soil mapping
DSR	direct-seeded rice
Embrapa	Brazilian Agricultural Research Corporation
EWS	early warning system
FAO	Food and Agriculture Organization
FAW	Fall Armyworm
FtF	Feed the Future
GWRDB	Groundwater Resources Development Board

HRS	healthy rice seedlings
HSD	Honestly significant difference (test)
IAL	Ispahani Agro Limited
IARI	Indian Agricultural Research Institute
ICIMOD	International Centre for Integrated Mountain Development
iDE	International Development Enterprises
IFPRI	International Food Policy Research Institute
IGP	Indo-Gangetic Plains
ILSSI	Innovation Lab for Small-Scale Innovation
INGO	international non-governmental organization
IPM	integrated pest management
IRRI	International Rice Research Institute
IVR	interactive voice response
IWM	integrated weed management
IWMI	International Water Management Institute
JRIP	Joint Rice Implementation Program
KISAN	Knowledge-Based Integrated Sustainable Agriculture in Nepal
LSA	Lentil Stemphylium Advisory
LSP	local service provider
ML	machine learning
MoALD	Ministry of Agriculture and Livestock Development
MoLMAC	Ministry of Land Management, Agriculture and Cooperative
MoP	Muriate of potash
MOT	mitigation options tool
NAMEA	Nepal Agricultural Machinery Entrepreneurs' Association
NARC	Nepal Agricultural Research Council
NARES	National Agricultural Research and Extension Systems
NSAE	Nepalese Society of Agricultural Engineers
ODK	Open Data Kit
OFRD	On-farm Research Division
NPR	Nepali rupee
NSAF	Nepal Seed and Fertilizer project
PCFE	per capita food expenditure
PMAMP	Prime Minister Agriculture Modernization Project
PQR	premium quality rice
PSA	public service announcement
pSIM	Parallel System for Integrating Impact Models and Sectors
RDC	Rice and Diversified Crops
SAAO	Sub-Assistant Agricultural Officer
SI	sustainable intensification
SIIL	Sustainable Intensification Innovation Lab
SP	service provider
SRFSI	Sustainable and Resilient Farming Systems Intensification in the Eastern Gangetic Plains
TOT	Training of Trainers
TSP	triple superphosphate

USAID	United States Agency for International Development
WMRI	Wheat and Maize Research Institute
WRF	Weather Research and Forecasting

Background

With the support of the United States Agency for International Development (USAID) and Bill & Melinda Gates Foundation, the Cereal Systems Initiative for South Asia (CSISA) was established in 2009 with the goal of increasing the productivity and resilience of millions of farmers by the end of 2020. CSISA is led by the International Maize and Wheat Improvement Center (CIMMYT) and is implemented jointly with the International Food Policy Research Institute (IFPRI), the International Water Management Institute (IWMI) and the International Rice Research Institute (IRRI), in addition to numerous public and private sector partners. CSISA is about bridging the divide between research and impact. In rural Bangladesh, India and Nepal, CSISA:

- works to increase the adoption of resource-conserving and climate-resilient agricultural technologies, and to improve farmers' access to market information and enterprise development
- supports women farmers by improving their access and exposure to modern and improved technological innovations, knowledge and entrepreneurial skills
- collaborates with numerous strategic public, civil society and private-sector partners, aligning them in synergy with regional and national efforts.

USAID supports CSISA's activities in Nepal and Bangladesh, while Bill & Melinda Gates Foundation supports work ongoing in India. These efforts are made possible through the cooperation of a multidisciplinary team including agronomists, systems analysts, data scientists, behavioral economists, livestock specialists, agricultural engineers, sociologists, and pest and natural resources management experts, among others. Over time, CSISA has developed into a more comprehensive applied research-for-development program, with many additional and synergistic investments by USAID/Washington, the USAID Missions in Nepal and Bangladesh, and the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), in addition to Michigan State University's Borlaug Higher Education for Agricultural Research and Development (BHEARD) program, to deepen the scope and impact of CSISA's work. CSISA's work has also been aligned with the One CGIAR Regional Integrated Initiative Transforming Agrifood Systems in South Asia, or TAFSSA. As such, CSISA has evolved well beyond its origins as a primarily agronomic research initiative to embrace interdisciplinarity as a prerequisite for understanding and efficiently responding to the challenges faced in South Asia's cereal-based farming systems.

This report focuses on the current third phase (2015–2023, CSISA III) of the 'base' or 'original' set of CSISA investments.² This phase focuses on USAID's support to activities in Nepal and Bangladesh, where CSISA supports partners in the public and private sectors to better contribute to sustained change by addressing systemic weaknesses. At the same time, this report also details two CSISA 'buy-in' investments made by USAID/Nepal in CSISA, namely the 'Enabling effective COVID–19 crisis response in Nepal through appropriate agricultural machinery, resilience enhancing irrigation, and entrepreneurship' and 'Russia–Ukraine crisis response: Building food system resilience to global supply chain and climate shocks in Nepal' Activities.

Documenting CSISA's scientific and extension contributions

In addition to the above research into real-world development outcomes and impact, CSISA worked during the reporting period to document its efforts scientifically and to publish a range of technical and extension materials. Within the reporting period, scientists and development professionals working in CSISA have published seven peer reviewed papers on a range of subjects related to CSISA. Details of these publications can be found in [Annex I](#).

² CSISA III is primarily referred to as 'the Activity' throughout this report.

Context, Approach and Theory of Change

Ever since the food price crisis of 2007, agricultural research and development in the Global South has received renewed public sector, private sector and donor investment. In South Asia, attention has shifted to focus on the impoverished areas of the Eastern Indo-Gangetic Plains – particularly Nepal and Bangladesh – where cereals feed well over half a billion people. As time has gone on, interests of governments and international donors have also shifted to embrace more complex agri-food systems issues in an integrated, systems-oriented context. Nevertheless, investments in agriculture have been less adept at supporting transformative change than many development planners had hoped. While progress has been made in addressing some of the systemic weaknesses which contribute to low rates of rural development, many key problems continue to persist:

- Many national **research organizations** narrowly construe their mandates and are only partially oriented towards farmers and the private sector as clients of research outputs. Research tends to still be commodity-specific and focused mainly on production, with less emphasis given to other disciplines that can assist in providing insights crucial for overcoming agricultural development challenges.
- **Resilient** farm practices, nutrition and rural livelihood strategies are insufficiently considered in comparison to technical interventions that focus mainly on yield improvements for singular commodities.
- **Agricultural extension** primarily focuses on single technologies or generalized ‘packages of practices’, which are not always underpinned by rigorous or participatory field evaluations, and that often lack strategic targeting efforts.
- **Livelihood** initiatives do a commendable job of reaching underserved communities, including women farmers, but rarely have the technical competence to extend their reach and to interact comprehensively with farmers as managers of diverse production enterprises.
- The **private sector** – although learning quickly – lacks strategic experience in the emerging markets in the region, along with the types of locational intelligence that can steer engagement and support smallholder farmers’ access to new technologies.
- **Rural and small entrepreneurs** generally lack access to support services, both for business development and technical improvements, in their attempts to serve clients and generate revenue.
- Progressive **policies** ostensibly support farmers, but often impede private investment.
- **Cooperation is still not optimized** in the agricultural research-for-development space. This limits opportunities to leverage skills and harness synergies for development impact.
- Activities aimed at addressing **social equity and gender inclusiveness** are unfortunately more transactional and may lack depth. Initiatives to address social equity and justice in agriculture require integrated sets of action, adequate planning and adaptive management.

Agricultural research and development efforts are complicated by the risks inherent in cropping in areas where weather patterns are erratic, water resources are poorly developed or irrigation is costly, heat stress is a binding constraint, and timely field operations are frequently compromised by rapidly declining diminishing supply and increasing costs for rural labor, due in large part by the out-migration of men to urban areas or abroad as they seek more remunerative employment. Despite these challenges, there is considerable promise that the many individual strengths within the innovation system³ in South Asia can be marshaled and coordinated to spur and sustain transformative change. With support from Bill & Melinda Gates Foundation and USAID, the Cereal Systems Initiative for South Asia (CSISA) has worked as an eco-regional initiative to support agricultural development in South Asia since 2009. The Activity has developed into a program of investments in Bangladesh, India and Nepal, with a number of synergistic side investments provided mainly by USAID’s Missions in Bangladesh and Nepal.

³ Innovation systems can be understood as networks of business, organizations and people – including farmers, researchers, extension agents, policymakers and entrepreneurs – which, through the sum of their actions, bring new technologies, innovations, product processes or policies into use. Efforts to coordinate these groups and actors can accelerate the rate of uptake of technological innovation that can improve the impact of development interventions. CSISA plays a coordinating and facilitating role in South Asia as an agricultural innovation system broker.

I. Bangladesh



Above: A farmer in Bangladesh preparing winter-season *boro* rice seedbeds using tunnels to protect them from the cold. Photo credit: Abdul Momin.

A. Innovation toward impact

A1. Reducing risk to facilitate uptake of sustainable intensification practices

A1.1 Direct-seeded rice to address labor and energy constraints to precision rice establishment

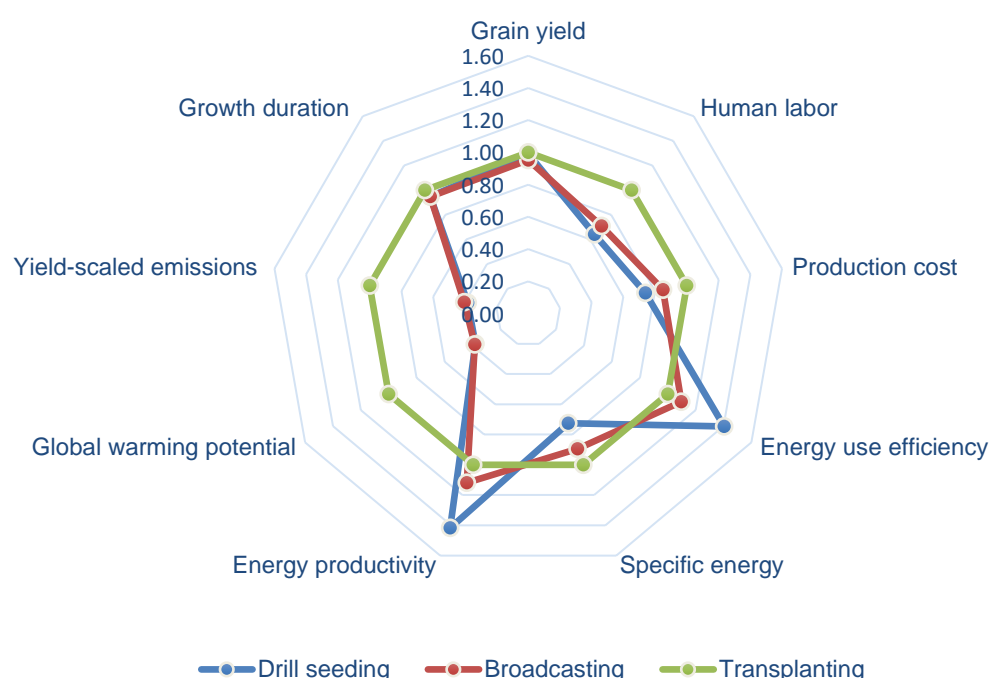
During this reporting period, funding limitations resulted in a restructure of CSISA's field activities to focus on data analytics rather than field work in the form of additional experimentation. However, the Activity's partner the Bangladesh Rice Research Institute (BRRI) collaborated with CSISA scientists and evaluated DSR performance under late *boro* conditions in 2023. CSISA team members assisted BRRI in establishing an experiment that was seeded during the first week of March 2023 and in two locations: Rangpur and Nilphamari. Each location trial was established in six farmers' fields, each field on around 0.4 ha. The trial establishment is important in that BRRI has fully funded this activity without support from CSISA, indicative of increasing interest in testing and adapting DSR to new locations in Bangladesh without direct fund support from the Activity.



Above: Rice cultivated in Dinajpur, Bangladesh, where CSISA has been working on directly sown rice. Photo credit: Abdul Manan

As indicated above, due to funding limitations, CSISA's major DSR activities during the reporting period were data analysis and writing up the previous year's *aus* DSR establishment trials with BRRI in the form of a paper, the draft of which is currently under internal review for publication in a reputed, refereed journal. This paper compares the performance of DSR to puddled transplanted rice in terms of yield, resource use, profitability, energy use and global warming potential. The key findings of this paper are summarized in the figures below.

Using multicriteria analysis assessment approach, data from experiments conducted by CSISA with BRRI showed that compared to puddled transplanted rice, both DSR methods (direct machine drilling and broadcasting) reduced production costs, labor use, specific energy, and total and yield-scaled global warming potential. In addition, DSR had higher energy use efficiency and similar productivity (Figure 2). These data provide evidence that demonstrate that DSR can address labor constraints while increasing profitability and reducing the carbon footprint of rice cultivation. Results such as these will be presented in a planning a nation-level workshop on DSR planned for August of 2023 in which the objective is to formally establish continued governmental support for an ongoing DSR research stream on an annual basis – with indications of willingness to fund DSR research and scaling activities – after the close of CSISA.



Above: Spider diagram representing multi-criteria assessment showing relative values (percentage change relative to transplanting) rice established different techniques in Bangladesh.

A2. Adding value to extension and agricultural advisory systems



Above: A farmer in Rangpur, Bangladesh, who was reached with climate-based advisories for improved farm management through the Department of Agricultural Extension and Agvisely, as a result of CSISA's research and partnerships with the Government of Bangladesh. Photo credit: Abdul Momin.

A.2.1 Strengthening the foundations of agro-advisory through knowledge organization and data integration

Building farmers' resilience using actionable climate services: national partnerships result in large-scale use of the Agvisely decision support tool

[Agvisely](#) is an agrometeorological services tool which provides location-specific advice on nine major crops: three varieties of rice (*aus*, *aman*, *boro*) and winter crops (maize, wheat, potato, lentil, mung bean and mustard), as well as to farmers cultivating a range of fish in ponds. The tool was initiated by the USAID supported Climate Services for Resilient Development (CSRD) project and scaled by CSISA III and now by TAFSSA starting in 2020 and 2022, respectively. It was endorsed by the Government of Bangladesh in 2019 and the app is linked with the Department of Agricultural Extension (DAE) web page, the Bangladesh Agro-Meteorological Information System (BAMIS) portal, and Bangladesh Wheat and Maize Research Institute (BWMRI) websites. Agvisely is also now available on [Google Play Store](#) and a web app.

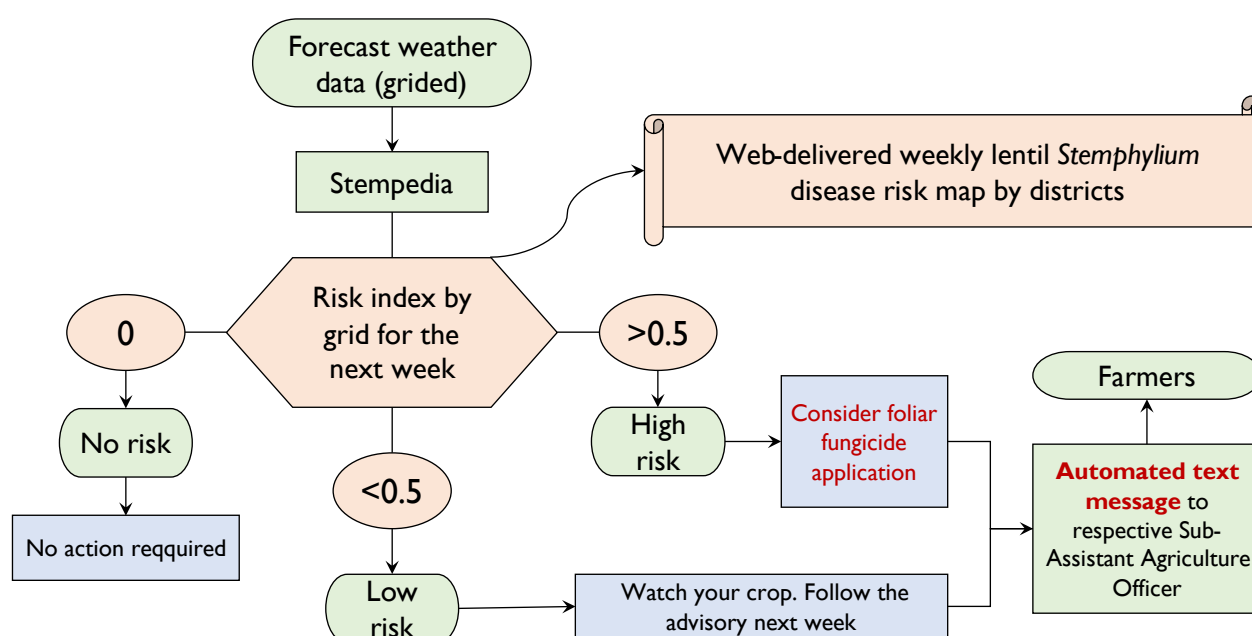
Agvisely provides the phenological stages of these crops and species in each of Bangladesh's 492 sub-districts, providing real-time crop advisories. During the reporting period, 7,266 Sub-Assistant Agriculture Officers (SAAOs) of the Department of Agricultural Extension (DAE) were registered in this system and had installed it on their mobile devices, with 88% having been trained on use of Agvisely by CSISA. CSISA's monitoring and evaluation team conducted a survey that indicates 607,541 farmers have applied advice generated by Agvisely and distributed through DAE using the application in the last season alone. During

the reporting period, livestock and poultry climate advisories were also added to Agvisely with the support of TAFSSA and also CGIAR's Asian Mega Delta Initiative collaboration, with Bangladesh Livestock Research Institute (BLRI).

Stempedia: development of a weather forecast-driven early warning system for lentil crop diseases

In the previous phases of CSISA, the Stempedia model that provides predictions of where bacterial *Stemphylium* blight of lentil might occur was developed, calibrated and validated using large scale field data from Bangladesh and Nepal. During this reporting period the model was applied in farmers' fields to ascertain its validity for forecasting requirements of fungicide application (if, when, and how many), based on forecast weather. In the current phase of CSISA, an attempt was made to develop Stempedia as a weather forecast-driven early warning system specifically for fungicide application advisory deployment for managing lentil *Stemphylium* disease (under a 'Lentil *Stemphylium* Advisory', or LSA).

This effort required (1) consultation to find a suitable body in Bangladesh to undertake a partnership to develop the LSA and disseminate it to key stakeholders, (2) the design and architectural development of the LSA system, and (3) LSA dissemination action plan development. The DAE – Bangladesh's key public extension agency – expressed its interest in entering into a partnership to develop the LSA and disseminating it to key stakeholders. The architecture of the system is developed and undergoing testing, and began being run from the beginning of January 2024 for 36 grids using newly developed R-program-based software. The system, sketched below, indicates a gridded weather data feed into the model which generates risk indices for the following week for each grid. The indices are translated into three risk categories – No, Low and High – and provide three short advisories. The advisories related to low and high risk are passed on to farmers via the respective SAAOs. A risk map presents country-wide risk, which is updated on a weekly basis.



Above: Flow diagram of the Lentil *Stemphylium* Advisory (LSA) system showing forecast weather-based risk estimation through to advisory dissemination.

A.2.2 Building precision nutrient management approaches around scaling pathways

Digital soil mapping and its potential application in fertilizer recommendation

CSISA in collaboration with Bangladesh Agricultural Research Council (BARC), organized a seminar for high-level government officials at BARC (January 16, 2023), where Dr. Zia Ahmed, Research Associate Professor (Data & Visualization), Research and Education in eEnergy, Environment, and Water Institute (RENEW), University at Buffalo, USA, presented the keynote on Digital Soil Mapping (DSM) and its potential application in fertilizer recommendation. The event's objective was to improve knowledge about machine learning and DSM and its potential application in mapping soil properties in Bangladesh.



Above: Dr. Zia Ahmed, Research Associate Professor (Data & Visualization), RENEW Institute, University of Buffalo, USA, presenting the keynote on digital soil mapping, BARC, Dhaka. January 16, 2023. Photo credit: Timothy Krupnik, Project Lead.

Compared to conventional maps, DSM offers improved soil inventories, interpretations, and decision support systems. DSM uses numerical models to understand soil properties' spatial and temporal variations from point observations with spatially corresponding environmental covariates and predict soil properties in unsampled locations. An AI-based DSM approach is vital in a country such as Bangladesh, where high-intensity soil sampling is difficult, time-consuming and expensive. DSM mapping in Bangladesh would provide an improved and detailed version of the legacy soil map of SRDI in high spatial resolution, and also support BARC's current crop zoning initiative. As a decision-support tool, scientists and policymakers can use DSM to plan and implement programs for improving soil fertility and increasing crop productivity for sustainable environmental and agricultural applications.

Overall, DSM training workshops are crucial for developing and disseminating accurate soil maps, leading to better decision-making in various fields related to soil management and conservation. The DSM training using open-source software provides participants with practical skills such as data collection, wrangling, spatial data processing, management, statistical analysis, machine learning, spatial interpolation and visualization. The workshops also promote collaboration and knowledge exchange among experts in the field, leading to a better understanding and application of DSM in different regions and contexts.

Dr. Shaikh Mohammad Bokhtiar, Executive Chairman of BARC, chaired the session. Directors General, Directors and Professors and others from BARC, Bangladesh Agricultural Research Institute (BARI), Bangladesh Rice Research Institute (BRRI), Gazipur, Bangladesh Jute Research Institute (BJRI), Soil Resource Development Institute (SRDI), Krishi Gobeshona Foundation, Crop Zoning Project, BARC,

DAE, Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU), University of Dhaka, and CIMMYT contributed to a total of 28 participants attending the seminar.

Participant feedback on the prospect of digital soil mapping in Bangladesh elicited general praise and the opinion that new methods and approaches could bolster the quality of soil mapping in the country, and that this approach could also be utilized for other mapping purposes. The Director General of SRDI expressed his interest in adopting the approach at his institute and emphasized the need for developing skilled human resources to carry out digital mapping activities. In his concluding remarks, the session chair Dr. Shaikh Mohammad Bokhtiar, Executive Chairman of BARC, thanked CSISA for sponsoring the event, saying that the technology would bring new science into the arena of soil mapping in Bangladesh, and reiterating the need for human resource development. He also assured the seminar of his cooperation in institutionalizing the system within national institutes.

CSISA embarks on trainings for national scientists on digital soil mapping



Above: two-day training workshop for national scientists on digital soil mapping, BARC, Dhaka, January 17–18, 2023. Photo credit: Sk. Ghulam Hussain.

The BARC seminar was followed by a two-day training workshop for national scientists, covering the tools and techniques of digital soil mapping (January 17–18, 2023). Dr. Zia Ahmed conducted the workshop, which was attended by participants with a soil science background and digital mapping and programming knowledge, drawn primarily from BARC, SRDI, BARI, BRRI, the Bangladesh Jute Research Institute (BJRI) and Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU). As it was found to be impossible to cover the vast course content within two days, it was decided to continue the course online.

During a meeting with SRDI and BARC held on January 19, 2023, SRDI in collaboration with CSISA decided to select at least four representatives from each organization to undergo Training of Trainers on DSM techniques. CSISA is also now supporting a longer course in DSM techniques facilitated by Dr Zia Ahmed from February 28 till August 2023. Besides members of BARC and SRDI, all other attendees of the earlier training on DSM have been participating in the online training since February 28, 2023.

B. Systemic change toward impact

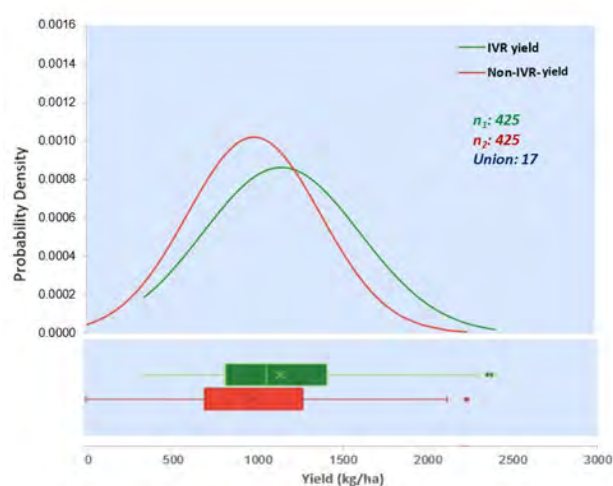
BI. Partnerships for inclusive growth around commercial pockets and neglected niches

BI.1 Deployment of better-bet agronomic messaging through input dealer networks and development partners

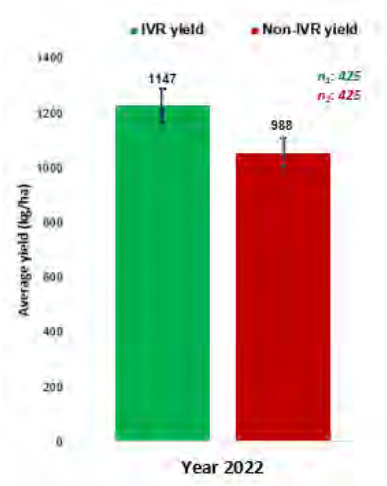
This activity was de-emphasized during the last two quarters of CSISA's implementation due to funding shortfalls. Details on CSISA's work in this area can be found in [previous Activity reports](#).

BI.2 Building farmers' resilience to weather shocks and replacing fallow land with mung bean in Bangladesh: protecting against crop damage with climate services

Bangladesh is experiencing an increase in the cultivation of mung beans as a replacement for fallow land in its central coastal area. Unfortunately, heavy rainfall events can severely impact mung bean production, leading to significant losses of yield and income for farmers. One solution to this problem is to provide climate advisories that integrate weather-forecast information.



Above: density plots of mung bean crop yields comparing IVR and non-IVR groups of farmers for the 2022 mung bean season.



Above: comparison of mung bean yields (kg/ha) of IVR and non-IVR groups of farmers in 2022.

These advisories can guide farmers on the optimal time and method for harvesting mung beans, thereby helping them to mitigate some of the climate-related risks associated with crop production. During the reporting period, the CSISA team analyzed mung bean yields from 850 farmers (n_1 : 425 farmers) and non-IVR (n_2 : 425 farmers) who had received interactive voice response (IVR) alerts to harvest their fields before crop damaging rainfall events for the mung bean harvesting year 2022. Analytical results indicate that IVR group farmers achieved a higher mung bean yield (1,147 kg per hectare) than the non-IVR group (988 kg per hectare) by saving the crop from heavy rain events, underscoring the benefits of this approach.

As CSISA is in the process of scaling back its work, the Activity solicited expressions of interest from private companies that would have an interest in sustaining the use of the IVR system to benefit farmers, and to use for crop product advertisements. After several rounds of negotiation, the Activity determined that the company M-World will take over the mung bean service from 2024. In the interim period, the CSISA team is supporting the company to understand the dynamic system of the mung bean IVR and to deploy IVR outgoing and incoming calls to 10,472 mung bean farmers (684 women, 9788 men), 72 DAE officers and three mung bean millers. At the time of writing this report, the IVR set-up from M-world has been completed, and started deploying IVR calls from March 27, 2023.

BI.3 High-value, premium quality rice expansion in Bangladesh

During the reporting period, CSISA worked consistently with farmers' groups, local seed companies, local traders, auto rice mills, and national-level rice (*chaul*) marketing companies (for example, Krishibid group) for the expansion of premium quality rice (PQR). With the help of local seed companies and DAE, in November 2022 the Activity distributed 5 t of *boro* PQR seeds among 38 new producer groups (a total of 1098 farmers: 917 men, 181 women), while at the same time continuing to provide technical support to the 70 previously established farmers groups. These farmers mostly used their own retained PQR seeds or purchased them from local seed companies.

Also during the reporting period, the CSISA Dinajpur field office organized two workshop/training sessions for local seed companies (for a total of 52 representatives from the companies) on quality PQR seed production and storage. The CSISA Jashore and Dinajpur offices worked continuously with the another 12 = seed companies to encourage PQR seed multiplication, storage, and linkage with the farmers' groups. These local companies sold a total of 225 and 180 t of PQR seeds for the *boro* 2022/23 season in their working areas of Dinapur and Jashore, respectively. In CSISA's working areas, at least six auto rice mills milled and sold PQR *chaul* from last year's *aman* production, mostly harvested between November and December 2022. Importantly, DAE data showed that the expansion of PQR varieties in the CSISA working region to be 0.35 million hectares, producing 1.5 million t of PQR, with the total number of PQR adopters being 1.6 million farmers.

Total PQR production in aman 2022 (harvested from November to December 2022) in CSISA working areas.

Variety	Total land covered (hectares)	Total no. of farmers	Total production (tonnes)
BRR1 dhan34	95,280	473,762	339,704
BRR1 dhan75	103,247	458,798	454,295
BRR1 dhan87	107,735	457,297	495,093
BINA dhan-17	46,214	210,607	197,579
Total	352,476	1,600,464	1,486,671



Above: (left) workshop with local seed companies on PQR seed multiplication and storage, Rangpur, before the *boro* 2022/23 season. Photo credit: Bappy Kumar, Research Technician; (right): PQR seed distribution to a new farmers group, Dinajpur, before the *boro* 2022/23 season. Photo credit: Salim Billah.

B2. Bringing participatory science and technology evaluations to the landscape and back again

B2.1 Increasing the capacity of the National Agriculture Research and Extension System to conduct participatory science and technology evaluations

This activity was de-emphasized during the last two quarters of CSISA's implementation due to funding shortfalls. Details on CSISA's work in this area can be found in [previous Activity reports](#).

C. Achieving impact at scale

C1. Growing the input and service economy for sustainable intensification technologies

C1.1 Integrated weed management to facilitate sustainable intensification transitions in rice

During the reporting period, CSISA's scientists worked to compile and analyze data of on-station and on-farm trials conducted in collaboration with BRRI on weed-competitive rice varieties for publication in a reputed, refereed journal. Weed transact survey study data were also compiled and analyzed. Some of the key findings of these studies so far are:

1. Yield losses due to weed competition in rice in Bangladesh ranged from 10%–45% in the summer *aman* and 40%–65% in the winter *boro* seasons.
2. Newly released varieties produced higher yield under weed-free conditions but not enough yield under weed-competitive conditions. In general, hybrid cultivars had better weed competitiveness than inbred cultivars.
3. Weed diversity greatly varied across sites, cropping systems, and weed management practices, and higher diversity was found in the rice–wheat–jute systems than in the rice–fallow–rice systems. Compared to manual weed management alone, fields where herbicide was followed by manual weed



Above: Right: CSISA-facilitated discussions with farmers groups on the best IWM option before the *boro* 2022/ season. Left: Discussions in Rangpur. Photo credit: Md. Salim Billah. Right: Nilphamari. Photo credit: Bappy Kumar.

management resulted in less weed diversity. The most troublesome weeds (that is, those usually not controlled by herbicide) mentioned by farmers were *Cynodon dactylon*, *Cyperus rotundus*, *Echinochloa crus-galli*, *Paspalum distichum*, and *Scirpus juncoides*.

In addition to this research, CSISA worked through its partners to increase farmers awareness of earlier-identified best integrated weed management (IWM) practices in PQR. To achieve this goal, CSISA developed around 100 farmers groups in the Dinajpur Division producing PQR, and during the reporting period, the CSISA team worked to increase farmers' use of IWM options for *boro* rice, including training on safe handling and use of the herbicide(s).

CI.2 Accelerating the emergence of mechanized solutions for sustainable intensification

CI.2 Commercial expansion of two-wheel tractor-based machinery and associated service provision models for reapers and seeders

CSISA III's synergistic support to the expanding CSISA Manufacturing and Extension Activity (CSISA-MEA)

Building on the successes of the CSISA–Mechanization and Irrigation (CSISA–MI) Activity, which ran from 2013–19 and which emerged from the set of USAID/Washington core investments in CSISA, the FtF Bangladesh Cereal Systems Initiative for South Asia–Mechanization Extension Activity (CSISA–MEA) began on October 1, 2019 and continues to 2024. CSISA–MEA is a five-year project, funded by USAID and implemented by CIMMYT and its partners iDE and Georgia Institute of Technology (Georgia Tech). The Activity supports the growth and expansion of agricultural mechanization in Bangladesh so that smallholder farmers can affordably access cost- and resource-saving sowing, irrigation, harvesting and other types of machinery. CSISA–MEA supports market actors along the entire value chain including machinery manufacturers, agricultural machinery importers and retailers, dealers, mechanics, spare parts vendors, and machinery “local service providers” who provide services directly to farmers. Throughout its tenure, CSISA Phase III has supported CSISA–MEA with critical research, coordination support, and through alignment to the overall approach used by the CSISA team across countries.

Since the beginning of the Activity, CSISA-MEA has supported 507 agriculturally based light engineering (ABLE) SMEs to develop and expand their businesses through the provision of training for staff, technical advice, and access to finance. This builds on the 156 ABLE SMEs supported in the first three years of the Activity. In the six months since October 1, 2023, the Activity signed agreements with 351 ABLE SMEs (147 ABLE SMEs in the ZOI (Jashore/Faridpur region), 95 in Bogura, and an impressive 109 in the Cox's Bazar/Bandarban region and Chattogram region). This is out of a total of 422 who responded to a call for expressions of interest (EOIs) published in national and regional newspapers and other media. The business links created between dealers and ABLE SMEs through these meetings resulted in sales worth USD 969,372. In the first six months of this reporting year, these visits and linkage meetings have resulted in sales of spare parts and agricultural machines by ABLE SMEs worth USD 872,244 (USD 465,601 in Bogura, USD 357,073 in the greater Jashore and Faridpur areas, and USD 4,571 in Cox's Bazar and Bandarban districts).

Also since the start of the Activity in October 2019 to the end of this reporting period on 31 March 2023, the Activity has facilitated the training of 1,698 workforce staff members (including 151 ABLE SME managers training in Activity year 3) from 295 ABLE SMEs. This is 37% of the estimated 800 businesses manufacturing and 70 foundries working in the agriculture based light engineering sector in Bangladesh. The Activity also partnered with lead firms and the government's Department of Agriculture Extension (DAE) to promote the use of combine harvesters, rice transplanters, and fodder choppers. Demand creation events included traditional demonstrations and farmers meetings as well as roadshows. During

this reporting period 54,959 farmers bought machinery services worth USD494,631 from the 728 MSPs businesses established as a result of support given by the Activity since the start of CSISA– MEA.



Above: Interest in scale-appropriate farm machinery, like this lightweight combine harvester for wet rice fields, is growing in Bangladesh, partly in response to actions taken by the CSISA–MEA activity. Photo credit: Mahajabin Khan

2. Nepal – Achievements

A. Innovation toward impact

A1. Reducing risk to facilitate uptake of sustainable intensification practices

A1.1 Direct-seeded rice to address labor and energy constraints to precision rice establishment

Because efforts in Nepal during the 2021–22 reporting period pivoted to focus on the accelerated implementation of CSISA's Response and Resilience Activity's Objective III (detailed in subsequent sections of this report), no major activities in directly sown rice were undertaken during the last year in Nepal.

B. Systemic change towards impact

B1. Partnerships for inclusive growth around commercial pockets and neglected niches

Scaling up mechanized maize seeding in Nepal through adoption of precision maize planters

CSISA has been partnering with related stakeholders in western Terai and foothills to expand the scope of commercial maize through the expansion of cost-saving agricultural production technologies. With its ground presence in Dang, the Activity continued its half-decade long collaboration with the Prime Minister Agriculture Modernization Project (PMAMP) in Dang to encourage use of precision planters in maize sowing. During the reporting period, CSISA, jointly with PMAMP Dang, a local custom hiring center run by Banghusri Farmer Group, and Swargadwari Agro Trade Link, organized neglected-niche-targeted strategic demonstrations of the precision maize planter in order to advertise it in the maize-growing areas of Kapilvastu district. This was in close collaboration with three municipalities: Shivaraj, Buddhabhumi and Bijaynagar rural municipalities.



Above: the CSISA team describing how the precision maize planter works at strategic demonstration organized by CSISA in Bankattwa, Shivaraj-I, Kapilvastu February 21, 2023. The representatives of Shivaraj Municipality expressed appreciation of the machine and pledged to put it on their priority list when budgeting for the next fiscal year. Photo credit: Lekh Nath Adhikari.

Buddhabhumi and Bijaynagar rural municipalities.

From 21–23 February, six strategic demonstrations of precision maize planters were conducted in Shivaraj-1, 2 and 9, Buddhabhumi-1, and Bijaynagar-2 and 6. Besides hundreds of informal observers during the campaign, 145 farmers and representatives from related stakeholders (60 women, 85 men) also observed these demonstrations. The Activity helped generate awareness among different stakeholders including local government officials, machinery dealers, agriculture technicians from other projects, and farmers. After observing the performance of the machine, municipality representatives pledged to assign budget for the planters in their future support programs. In the recently restructured political system of Nepal, partnering with local governments is crucial for ensuring effective and efficient agriculture extension services.

B2. Bringing participatory science and technology evaluations to the landscape and back again

B 2.1 Increasing the capacity of the National Agriculture Research and Extension System to conduct participatory science and technology evaluations

Capacity development and backstopping for national partners

Utilizing remote sensing for area and yield estimation in Dang

CSISA continued communication with PMAMP and Ministry of Agriculture and Livestock Development (MoALD) leadership during the reporting period in the use of remote sensing to improve crop identification and yield assessment in Nepal. MoALD's Planning and Development Cooperation Coordination Division is the apex body with the mandate to endorse and implement activities related to crop mapping and establish linkage with development partners. As identified as a key area to work on in the CSISA III Annual Report 2022, CSISA approached the Department of Geosciences, Kathmandu University, to establish linkage with the project and MoALD so that the gap in human resource can be resolved through mutual understanding and cooperation.



Above: CSISA GIS experts delivering a presentation on the overall status of remote sensing work in CIMMYT–CSISA across South Asia, in the consultative workshop, ‘Crop Area Monitoring: Satellite Based Data and use of Remote Sensing’, organized by MoALD at Hotel Park Village, Budhanilkantha, Kathmandu. MoALD leadership has prioritized remote sensing work, insisting on broader collaboration with allied institutions. March 3, 2023. Photo credit: Saral Karki

During the reporting period, the CSISA team regularly communicated with the MoALD's division to share the initial results of the remote sensing initiative in Dang and discuss possible ways of endorsement and scaling. This involved collaborating with other institutions like ICIMOD under a common platform managed by the ministry. The MoALD invited CSISA to consultative meetings to share the remote sensing work done by the activity, and as a result, crop mapping using remote sensing tools has been identified as a priority intervention to improve the current statistical reporting system. As an exit strategy, CSISA aims to achieve two goals by the end of December 2023: to develop human resources and to get the ministry to endorse remote sensing work at a larger scale to operate more independently.

C. Achieving impact at scale

CI. Growing the input and service economy for sustainable intensification technologies

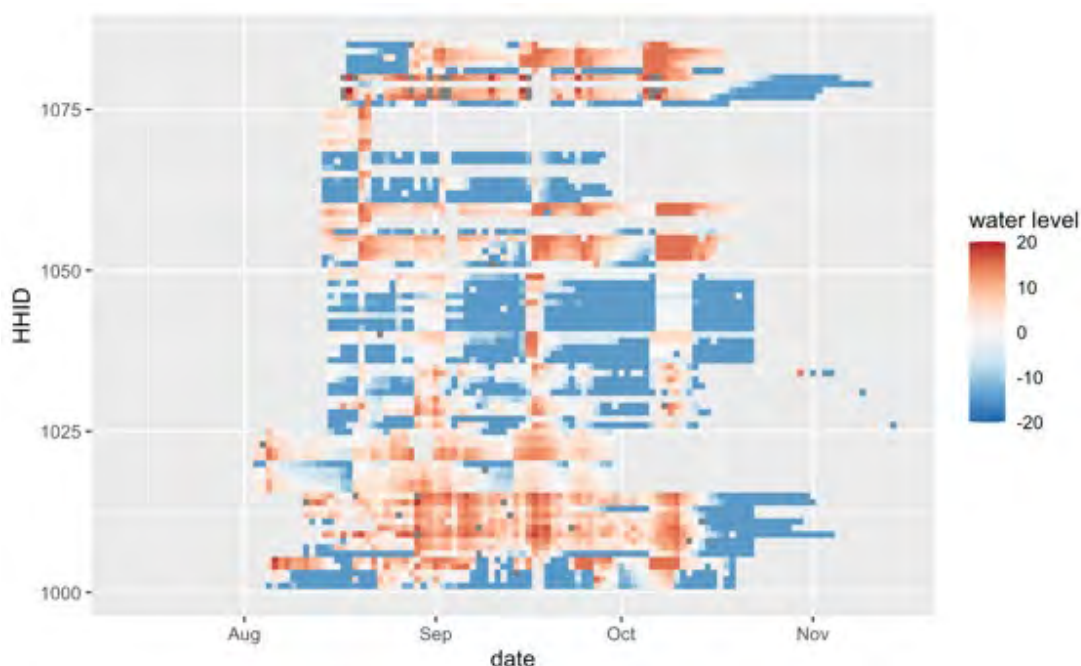
CI.3 Commercial expansion of scale-appropriate machinery and associated service provision models for reapers and seeders in Nepal

Since the start of its third phase, CSISA has been working to expand the use of appropriate-scale machinery and associated service models for reapers and seeders in Nepal. The focus has been on the private sector (suppliers and machinery service providers) and the government. However, the government's approach is still limited to providing subsidies for agricultural machinery as the main strategy for increasing awareness of such machinery and its use in the community. The subsidy program focuses on providing machinery based on farmers' demand, which is currently still limited for seeders, but has greatly increased for reapers.

However, in the fiscal year 2022–23, Barabardiya municipality, a local body of Bardiya district, has highlighted the seeder (the multi-crop seed drill) as a machinery-focused for subsidy, while only naming three types of machinery (see serial number 118, p. 55 of the budget book, [link here](#)). This shows that CSISA's work since 2012 in Barabardiya (in the form of training and support to tractor service providers, to enable them to provide seeder services) has created an increasing impact in the public sector. Such work has laid the foundation for the USAID/Nepal Mission 'buy-in' investments discussed in the latter half of this report.

सि.नं.	कार्यक्रम/आयोजना/क्रियाकलापको नाम	उप क्षेत्र	खर्च शीर्षक	स्रोत	लक्ष्य	इकाई	रकम रू.
११७	कृषि विकास शाखाको अधुरो भवन फिनिशिसङ्ग	भवन, आवास तथा सहरी विकास	३१११३	नेपाल सरकार -नगद अनुदान	१	N/A	१४,००,०००
११८	५० प्रतिशत अनुदानमा कृषि यन्त्र, औजार, उपकरण वितरण (पावर टिलर, रोटाभेटर, मल्टी क्रप्स सिड ड्रिल आदी)	कृषि	३११२२	नेपाल सरकार -नगद अनुदान	१	N/A	११,००,०००

Above: snapshot of the section of the budget book (serial no. 118, page no. 55) of Barabardiya municipality for the fiscal year 2022–23. In S.N. 118 (the second list in the above crop cut), the multi-crop seed drill is listed as a machine subsidy while writing name of three machineries only.



Above: Water levels in fields vary greatly and require targeted irrigation recommendations for rice cultivation on fast- and slow-draining soils. Fast-draining soils are good candidates for landscape-level water-saving and diversification.

C2. Managing risk by coping with climate extremes

CSISA has long supported farmers and decision-makers in Nepal to cope with climate extremes. Previous work has focused on understanding decisions around planting times and irrigation, especially with respect to weather forecasts. While these activities have continued as part of the CSISA–Ukraine crisis response project, CSISA III continued to collect additional data to enable better decision-making. One key aspect that continues to drive decision-making at farmers’ fields but is not captured in policymaking or agro-advisories is the heterogeneity of field hydrology. These are especially important for making better cropping system choices and designing adequate irrigation schedules for any crops grown. However, they depend on a host of different factors including soil types, relative landscape position, and groundwater conditions. To better understand these issues, provide technical support, and to assist the USAID/Nepal ‘buy-in’ investments focused on irrigation in Nepal, CSISA collected detailed field-level data on water levels following irrigation during the reporting period.

Initial analyses of the data show that large differences in field hydrology exist, with some soils draining very slowly and others draining very fast. This suggests that there is substantial scope for geographical targeting of irrigation and diversification interventions. Fast-draining soils are strong candidates for saving water and growing more nutritious crops through monsoon crop diversification. This is in line with calls for food system transformation towards more healthy and sustainable diets. Further research is required on slow- and medium-draining soils and their dynamics to devise irrigation schedules for low-carbon and low-water use pathways for more sustainable rice cropping systems. Additional research and stakeholder engagement will be required to further fine-tune these investments and investigate practical scaling pathways in coordination with local partners.



Above: A training on use of mechanized wheat harvesters in Nepalganj, Nepal. Photo: Subash Adhikari

3. Policy reform – achievements

D1. Seed systems

Bangladesh

As described in the [2018–19 Annual Report](#), activities in Bangladesh around seed system policy reform were phased down due to transitions in the CSISA's leadership within the International Food Policy Research Institute (IFPRI), and Activity funding uncertainties. These are described in the Executive Summary and 'Challenges Faced During the Reporting Period' sections of previous CSISA reports.

Nepal

D2. Scale-appropriate mechanization

Bangladesh and Nepal

Due to budget shortfalls and a shift in prioritization to new buy-in investments buy USAID/Nepal in CSSISA, no new activities were carried out around scale-appropriate mechanization in this reporting period.

D3. Soil fertility management and fertilizer markets

Bangladesh and Nepal

Due to budget shortfalls and a shift in prioritization to new buy-in investments buy USAID/Nepal in CSSISA, soil fertility management and fertilizer markets in this reporting period.

D4. Agricultural risk management

Nepal

Examining risks and extension options for Fall Armyworm mitigation in Nepal

The paper on “Assessing effectiveness of phone-based agriculture extension approaches: the case of maize farmers in Nepal” was presented at the IFPRI Annual Research Day in Washington DC in November 2022, and will also be selected for presentation at the Asian Economic Development Conference to be held in July 2023. Results from the experiment are described in the “D.4 Agricultural Risk Management” section of the [CSISA Annual Report \(October 2021–September 2022\)](#).

Results from this experiment can inform a variety of stakeholders, including the Government of Nepal, research institutions and civil society, on ways to design more effective extension approaches addressing the specific needs of maize farmers, especially smallholder farming households, during periods of crisis when traditional extension approaches are affected. Further results from the study will contribute to communicating to policymakers the impact and feasibility of deploying ICT tools to aid agriculture extension systems in the country.

4. CSISA Response and Resilience in Nepal

The CSISA-COVID–19 Response and Resilience Activity was originally an 18-month (July 2020–December 2021) buy-in from the USAID/Nepal Mission to the wider CSISA program. Its aim is to respond rapidly and effectively to the threats posed by the COVID–19 crisis that undermine the recovery and sustained resilience of farmers in the FtF Zone of Nepal, with two initial objectives:

Objective I: Enable rapid, targeted, and effective agricultural COVID–19 crisis response through scale-appropriate farm mechanization and rural services provision.

Objective II: Break the smallholder irrigation bottleneck and build rural resilience to the COVID–19 crisis.

These objectives were completed in April 2022 and its highlights below included in the semi-annual report (October 2021–April 2022). For the further details on Objective I, the semi-annual report is available [here](#).

Following the second wave of COVID–19 in Nepal during the second and third calendar quarters of 2021, a third objective was added, with activities planned that will span September 2021 through December 2023. This objective is as follows:

Objective III: Support rapid response and resilience-building from Nepal's second COVID–19 wave.

Objectives I and II were finalized by April 2022 and the outcomes were presented in the [CSISA–COVID Response Activity Semi-Annual Report](#). The passages below provide updates on Objective III during the October 2022 to March 2023 reporting period.

Objective III: Support rapid response and build resilience to Nepal's second COVID-19 wave

Background: From April to late September 2021, Nepal experienced its second large and then a third minor wave of COVID-19, resulting in additional and significant threats to agrifood systems and livelihoods. These have occurred due to lockdowns, transportation and marketing disruption, social distancing (which decreased the ability of farmers and value chain actor to interact with each other) and increased infection rates (which significantly reduced crucial farm labor availability, especially among marginal and women farmers). At the same time, small- and medium-scale enterprises throughout the FtF Zone of Influence have suffered economically. National food/nutrition security has been undermined by increased costs for imported staples, the unreliability of cross-border trade, and shortfalls in national production both before and during the crisis. The pandemic and resulting lockdowns have also exacerbated the need for reliable and timely information about input and output market access, crop diseases and pests, and insurance and credit, while recognizing the inequalities which limit women's and marginalized groups' access to information and their disproportionate economic burden.

In response, USAID/Nepal provided an additional USD3 million buy-in as part of the wider CSISA portfolio to support rapid response and continued resilience-building in Nepal's agri-food systems. These activities include, firstly, immediate response activities being put into place from September 2021 until June 2023, and aim to rebuild effectively key elements of Nepal's agri-food systems and marginalized groups in the FtF zone which have been disproportionately affected by the second wave of the COVID-19 crisis. Key areas of intervention focus on provision of access to finance for small- and medium-scale agricultural input and services provision businesses, recovery, and response in the post-harvest value chain, with emphasis on financial products to benefit businesses involved in perishable farm product marketing and distribution, and expansion of digital banking services supporting socially distanced agricultural finance transactions. In addition, interventions focus on scaling-out agricultural mechanization services through geographical expansion to new districts in which CSISA is not currently working in as part of Objective I activities, while also working to increase national food security and bolster agricultural economies in times of crisis. Lastly, Objective III works to focus on ensuring that recovery from the shock of the COVID-19 pandemic is complete, while at the same time building the resilience of key elements of the agri-food system to better withstand future shocks, including but not limited to COVID-19.

Detailed updates on progress towards Activity outcomes can be found in Annex III.

Work package I: Assuring small- and medium-scale input and services provision business recovery and rehabilitation through access to finance

This work package develops customized business models for financing and facilitates rapid access to response and recovery loans from financial institutions from the second and third wave of COVID-19, with emphasis on specialized products for women and marginalized groups. The agreements with banks held on behalf of CSISA developed as part of Objective I are being leveraged to offer quick opportunities to facilitate access to finance for other agricultural businesses, including agrovets, agricultural machinery dealers, and businesses associated with agricultural inputs, or services owned or operated by women or members of marginalized groups that have suffered from lockdown and COVID-19-induced losses. As such, CSISA is deepening these relationships to develop customized COVID-19 response business models, banks providing input business support loans to small- and medium-scale agricultural inputs, machinery-dealing businesses, or agriculturally oriented businesses owned by women or members of marginalized communities (or which employ these groups).

1.1 Develop customized business models for financing and facilitate rapid access to response and recovery loans from the second wave of COVID-19, with emphasis on specialized products for women and marginalized groups

During the reporting period, the Activity successfully facilitated loans for 87 small- and medium- size agricultural input suppliers (popularly known as agrovets) by linking them with the banks and financial institutions; 26.44% of these businesses are owned by women, and 59.77% by marginalized communities (Dalit, disadvantaged Janajati, disadvantaged Madheshi). The total loan amount disbursed has been \$534,017, average loan size being \$6,138. The majority of businesses utilized loan amounts to purchase additional inputs (stocks), including seeds, animal feed/medicine, agriculture tools/equipment, bio-fertilizers, vitamins and pesticides/biopesticides.

Capacity building of MSME for effective business management

The Activity has been providing a range of business development support to micro-, small- and medium-scale enterprises MSMEs. This has included a series of training sessions on business management and financial management, technical training on disease, and pest management of crops.

On February 25, 2023, the Activity organized a one-day training session at Dhangadhi on disease and pest management for 20 agrovet owners of Kailali and Kanchanpur districts. This covered major diseases/pests of cereal and vegetable crops and control majors, IPM technologies for various crops, cereal and vegetable production systems, and sensitization on Nepal government's acts and policies related to seeds and pesticide. Through this training, agrovet owners gained essential technical knowledge for their business, which will enable them to provide improved customer services. The Activity plans to conduct similar training for agrovets of other districts.



Above: introduction to payment receipt management as part of CSISA training in financial management and compliance with Nepal government rules, Dang district. March 30–31, 2023. Photo credit: Om Prakash Chaudhary

The majority of CSISA-affiliated agricultural input MSMEs do not maintain even minimum bookkeeping as part of their business's financial management. To address this, CSISA conducted four two-day training sessions on account/bookkeeping, financial management, and compliance with government regulations. A total of 77 MSMEs took part in four different locations: Kanchanpur (March 23–24), Banke (March 25–26), Surkhet (March 27–28) and Dang (March 30–31). Sessions covered receivable and working capital management, day-book use, bank management and budget management, internal control system management, revenue, expenditure and liabilities management, equity management, cost of goods

calculation, trial balance, profit and loss statement, financial position, and cash flow management. Participants had the opportunity to learn about the various aspects of financial management, government compliance and regulations, and to practice simplified accounting/bookkeeping systems. The expectation is that this will lead to improved business performance, including increased revenue and profitability, ultimately helping them to timely repayment of the loan they have taken through the project facilitations.

1.2 Expand and scale access to recovery and resilience-building loans following the second wave of COVID-19

Develop/strengthen last-mile supply chain actors linking them with agrovet enterprises and demand creation for resource smart agricultural input and technologies

The majority of input retailer outlets (agrovets) are located in Nepal's rural areas, with a considerable supply chain gap between market town retailers and end-user smallholders in remote villages. Part of CSISA's work is to develop and strengthen last-mile supply chain actors as 'community business facilitators' (CBFs), linking them with farm input enterprises to promote access to inputs and finance. CBFs are independent, individual entrepreneurs who travel and work within a designated territory of rural communities, selling agricultural products/inputs and paid commission by the input retailers. The Activity facilitates their training, enabling them to provide private sector extension services, to assist their customers to improve, intensify and expand market-oriented agricultural production smallholders with technical services, ensuring they use the products correctly.



Above: A community business facilitator, Sita BK, selling vegetable seeds to farmers in Chhakhawa, Duduwa Rural Municipality, Banke district. Photo credit: Manisha BK

A total of 198 CBFs (128 women, 70 men) have been trained and linked to the above-mentioned agricultural input suppliers during the reporting period. These CBFs are conducting group sales meetings at the community level, to raise awareness and create demand for various agricultural inputs and improved technologies. A total of 2696 group sales meetings were conducted between October 2022 and March 2023, reaching 33,262 farmers (73.7% women, 24.7% men). Of these, 9209 farmers have been recorded making a purchase from a CBF, with a total turnover of NPR3,832,594 (USD30,661) which has directly contributed to the business volume of agricultural input MSMEs. CBFs not only sell inputs and technologies for agricultural input MSMEs but also provide technical services and consultation to smallholders, by

understanding their needs and aspirations to produce high-value agricultural products that meet market demands: because CBFs live and work close to potential clients, they are able to develop stable, long term and trusting relationships with them. When farmers benefit, so do CBFs.

Develop linkage and network support on promotional activity to expand the business of agrovets

During the reporting period, CSISA visited agricultural input suppliers in Surkhet district (Jan 20, 2023), interacting with 24 agrovets and discussing the challenges/opportunities for agricultural input MSMEs, including the best ways to retain CBFs. Participants expressed such meetings to be very beneficial, providing them with an opportunity to reflect on their business, network with others in a similar business, and learn from their experiences/failures. CSISA is planning to conduct similar interaction in other Activity districts in the coming months.

CSISA has also been providing crop calendars to all of the Activity's agrovets to display in their shops. The calendar takes the form of a signboard that has information on, for example, various seasonal and non-seasonal crops, when and how to plant them, and the inputs required, and when and how to use them. The calendar assists farmers to prepare an optimum cultivation plan to achieve the best results. So far, CSISA has printed and distributed 82 such crop calendars.

Work package 2: Specialty financial products and services to reduce post-harvest losses in at-risk perishable farm product value chains

Background: This work package is designed to increase response to and recovery from the second wave of the COVID-19 crisis for farmers and businesses involved in producing, distributing and selling perishable and healthy commodities. Specifically, it focuses on developing and deploying specialty financial products from banks and lending institutions, suitable for unique perishable value chains. Activities will target at-risk businesses owned by women and/or members of marginalized communities which deal in post-harvest horticultural, drying operations, dairy processing, canneries, essential oil distillers, and packaging operations. An additional sector that may be targeted is dairy marketing cooperatives.

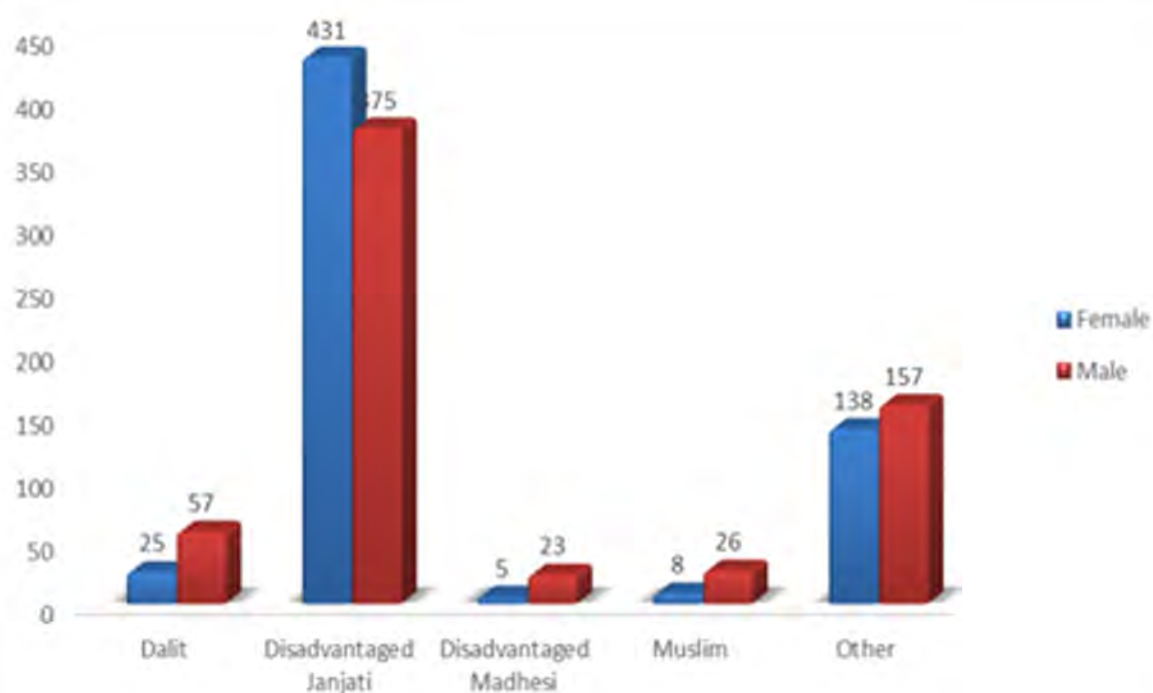
2.1 Increase response and recovery from the second wave of the COVID-19 crisis for farmers and businesses involved in the production, distribution and sale of perishable and healthy commodities

The Activity's next step under this work package is to follow up with the banks and entrepreneurs to ensure the loans are disbursed and utilized as per each applicant's business plan. Various capacity building activities are now underway for these entrepreneurial businesses, such as business management, technical training, and others. Details on outcomes from these trainings will be provided in the CSISA annual report. The Activity also aims to provide initial backstopping for the marketing of these post-harvest enterprises. This will include linking them with the target market in coordination with the district chapter of the Chamber of Commerce, industries and other stakeholders. CSISA is also likely to provide a 1:1 cost-share to support their products' promotion (for example, the printing of promotional materials for advertising). The overall outcomes of these efforts, including quantitative results on impact targets, will be discussed in the CSISA annual report.



Above: CSISA's crop calendar being handed over to Bihani Agrovet Centre, Surkhet. Photo credit: Nisha Malla, Field Supervisor

Resumption and operation of micro, small, and medium enterprises in the post-harvest agribusiness sector: the response of CSISA to COVID-19



Above: A gender and social-inclusion breakdown of farmers and MSME suppliers by number that the Activity assisted during the reporting period.

To support MSMEs that operate post-harvest businesses, CSISA works to facilitate access to finance, assisting with the business registration process, and business plan preparation, before linking them with financial institutions. As of March 31, 2023, 56 MSMEs engaged in post-harvest enterprises in perishable product value chains have been onboarded. These include dairy processing (36), pickle and sauce industries (15), spice and condiments processes (2), cool bot installation (1), and drying and packaging operations (2). The enterprises were linked with banks and cooperatives for easy access to finance, and supported with various business development services and training; 55.36% of the businesses are owned by women and 30.36% are owned/managed by members of marginalized groups (Dalits, Disadvantaged Janajatis, Disadvantaged Madheshis).

The total loan amount disbursed to MSMEs under this work package was \$267,067, with the average loan size being \$4769. The majority of businesses used the loans they secured to purchase machinery and equipment to expand/diversify their product range. These businesses, which are diverse and include dairies, sun-dried product companies, and other types of agricultural business, are providing direct employment (a mixture of full time/part time) to 118 people (55 women and 63 men)⁵, and a further 1,073 farmers (29.36% women, 74.75% from marginalized communities) are directly benefitting from the enterprises, which supply the raw materials they need.



Above: Women workers making sun-dried mushroom balls (*'masyaura'*) for Far-western Agro-Firm, Boradandi, Dhangadi sub-metropolitan city, Kailali district. Sun-dried mushrooms can be a profitable enterprise that CSISA is working to support new entrepreneurs to develop as part of this work package. Photo credit: Lokendra Khadka

More than 80% of dairy MSMEs have diversified their products as a result of technical and marketing assistance from CSISA, from selling just raw milk into items such as butter, curd, paneer and sweets, based on demand. The complete data on the outcomes of each MSME under various value chain commodities will be included in the annual report.

⁵ Result obtained from the draft MSME profile that the Activity is currently preparing.

2.2 Build resilience to the second wave of the COVID-19 crisis for farmers and businesses involved in the production, distribution and sales of perishable and healthy commodities

The Activity also provides backstopping to small and medium post-harvest enterprises in marketing and technical capacity building. It coordinates with the Department of Food Technology and Quality Control to provide services such as technical training and information on the latest directives regarding food safety and compliance. It also coordinates with the public and private sectors (local governments, PMAMP, Regional Agricultural Directorate) to leverage services for these MSMEs.

To contribute to linkage and market creation, CSISA connected a pickle enterprise from Kapilvastu (Budha Batika Pickle Industry) with one of the Activity's lead firms in Kohalpur, Banke district (Pranshu Agri-Processing and Packaging Pvt. Ltd.) to promote its products under the franchise model. CSISA facilitated the connection between the two firms, organized an exposure visit for the members of Budhbatika to Pransu, and contributed to finalizing and signing the agreement.



Above: Buddhavatika Pickle Industry, a small enterprise from Kapilvastu district, and Pranshu Agri-Processing and Packaging Private Ltd., a lead firm from Banke district, exchanging an agreement signed during the reporting period facilitate market expansion of Budhvatika's pickle products under a franchise model of Pranshu. Photo credit: Junga Gurung

Post-harvest enterprises require efficient operations and precise market penetration to be successful. In Nepal, however, the majority of businesses start operation without proper business management knowhow. During the reporting period, CSISA conducted four two-day training courses on efficient business management (March 23–31 2023). A total of 70 MSMEs took part in the training, organized at four different locations: Kanchanpur (March 23–24), Banke (March 25–26), Surkhet (March 27–28) and Dang (March 30–31). The training provided participants with a roadmap on where and how to invest further (either in a new or existing business). The participant post-harvest enterprises are now able to focus their attention on the key aspects of their business, managing it better and increasing the volume of transactions. This enables them to (1) gradually increase the volume of their business, (2) secure a targeted market including the appropriate customer segmentation, and (2) use the branding and marketing channels and strategies appropriately, in order to achieve further expansion, quality product production, and attracting the right customer at the right time.



Above: a CSISA session for MSMEs on 'Enterprise, Entrepreneurs and Entrepreneurship', organized as part of business management training, Surkhet, March 2023. Photo credit: Sudip Bikram Karki



Above: trainees on a field visit facilitated by CSISA to the Nepalgunj Milk Distribution Center in Kohalpur, Banke, for a DDC laboratory practical and observation of milk processes, led by DDC representative Arjun Panthi. January, 2023. Photo credit: Raj Kishor Ray, Program Officer

In addition, CSISA aims to provide the post-harvest MSMEs with technical training/capacity building in production, labeling, branding, packaging and marketing. As part of this effort, a technical training session was conducted for eleven participants from different dairy enterprises from Banke and Bardiya districts

on the various aspects of dairy production and product diversification (January 3–5, 2023), including a field visit to the Nepalgunj Dairy Development Corporations (DDC) laboratory and distribution center. A training need has been identified for other enrolled enterprises, with planning underway to conduct training according to the needs of specific value chain/enterprise.

Work package 3:

Digital banking services to support immediate response to businesses and consumers affected by the covid-19 crisis

Background: Leveraging CSISA's burgeoning partnership with Mega Bank, Nepal's only woman-led banking institution, the Activity is now working to scale a "farmer credit card" product that will capitalize on the context of the existing CSISA COVID-19 Response Activity. This QR-coded, mobile digital card, linked to the buyer's mobile phone, can be used to purchase a range of products related to farming, including small machinery at pre-identified vendors, up to a total of up to USD2000. The card has been designed as part of a business model to provide highly competitive interest rates (currently 5.14% with the government subsidy) and long payback periods. In addition, Nepal's Agricultural Development Bank has been working to support similar digital financial services that could be used as part of the immediate response to COVID-19 by facilitating mechanisms for socially distanced money transfer.

3.1 Rapidly increase agrovet access to digital tools enhancing the sale and purchase of agricultural inputs and commodities in key locations suffering from the economic shock of the second wave of COVID-19 in the Feed the Future Zone



Above: women farmers displaying their Kisan Cards and daybook, secured through CSISA support, Rahapur, Surkhet. Photo credit: Ashta Prajapati

CSISA has been providing technical assistance to build awareness and markets for the Kisan Card, a digital banking tool primarily designed for smallholder farmers without access to a smartphone. The card has a

QR-based payment system enabling farmers to purchase agricultural inputs and farm tools from designated vendors. Other platforms require customers to scan the QR code to carry out payment; here however, it is the merchant who uses a smartphone to scan the code. This means that farmers with a simple phone can use digital banking services, which can contribute significantly to digitizing the entire agriculture value chain. The Activity is carrying out various interventions to facilitate the adoption of this digital banking tool and increase smallholders' access to finance, enabling them to invest in and practice improved agricultural technologies, thus supporting their transition from subsistence to commercial agriculture.

Agricultural input suppliers have a highly pivotal role in promoting Kisan Cards, and during the reporting period, 175 agricultural input suppliers have been onboarded as Kisan Card vendors; 24.57% are female-owned and 44.57% owned by members of marginalized communities. The Activity has been providing them with training and individual coaching to build their capacity in the proper use of the Kisan Card app for purchases made using the card.

A total of 1245 farmers have taken out a Kisan Card (48.76% women, 76.31% from marginalized communities: Dalits, disadvantaged Janajati, disadvantaged Madheshi and Muslims). CSISA has been engaging with card holders by providing training in business literacy and improved agriculture practices; 278 have taken out loans which have been credited to their card. These are disbursed as per the Nepal government's agriculture sector loans, with interest rebate schemes of 5% and 6% for women and men borrowers, respectively. Loans total USD103,715, with an average loan size of USD373 per farmer, and are being used to purchase a range of agricultural inputs.

It has been observed that after securing a Kisan Card, farmers have greater motivation to be involved in seasonal and off-season vegetable production, with many, especially women, reporting that being able to buy agricultural inputs on their own initiative, using their cards without having to ask others for money or to get inputs for them, has given them a sense of empowerment, while not having to carry cash around frees them from the additional stress of risking losing money.

3.2 Scale-out access to digital tools enhancing the sale and purchase of agricultural inputs and commodities in the Feed the Future Zone

With the increased number of Kisan Card holders, it is very important that transactions are smooth and error-free. As well as reaching out to potential vendors and farmers, the Activity has been providing those already onboarded with training and individual coaching, building their capacity to use the Kisan Card app correctly to make purchases with the Kisan Card.

During the reporting period, CSISA conducted seven half-day orientation events for vendors onboarded to sell the Kisan Card (February 6–17, 2023). A total of 126 input suppliers (18 women, 108 men) were provided with technical knowhow and practical demonstrations on the card's use, as well as sessions facilitating networking and learning/sharing among agricultural input suppliers and machinery dealers in the district provided by a technical expert from the woman-owned agri-business R&D Innovative Solution as key resource person. Post-training, participants were very confident in using their Kisan Card for transactions. A WhatsApp group has also been created with all the Activity's Kisan Card vendors enrolled as members, and with agricultural input suppliers orientated to share any issue with the group. R&D Innovative Solution and NIMB representatives are committed to addressing any issue raised by 11 am next day. Since the rollout of the group, issues appear to be being solved promptly with fewer incidents being reported from the field. The Activity facilitated two municipal level interaction events in Bardiya district (February 23 and 25, 2023) to inform stakeholders from municipalities/rural municipalities about CSISA's promotion of the digital Kisan Card and to discuss a possible collaboration for the best utilization of this platform to benefit farmers. This activity proved informative for participants, and representatives from municipalities expressed their commitment to incorporate/prioritize the Kisan Card in their future work.

To build awareness of the KCC, CSISA has been conducting various activities to generate awareness of among farmers and vendors. Potential vendors (agricultural input suppliers, agriculture machinery dealers and farm MSPs) as well as smallholder and marginal farmer clients, are the target group for this activity.



Above: Sushil Nhemaphuki, manager of R&D Innovative Solution, providing orientation to Kisan Card vendors, Dang district. February 2023. Photo credit: Janga Bahadur Gurung.

During the reporting period, activities were as follows:

- Individual counseling/coaching was carried out by CSISA team members, who visited individual agricultural input suppliers (agrovetts and machinery dealers) to explain the benefits of the Kisan Card and its optimum use.



Above: Banner promoting Kisan Card use, designed and distributed by CSISA, displayed at Shantuti Agor Vet Center, Kailali district. Photo credit: Surya Bahadur Khadka

- 5,000 copies of a brochure were printed in Nepali and circulated to potential customers/farmers as part of promotional activities/campaigns. The brochure discussed the benefits of the Kisan Card and the process for applying for it.
- 150 desk stands displaying the message 'Kisan Cards accepted here' (in Nepali) were produced and distributed to vendors, as well as 194 promotional banners about the benefit and use of Kisan Cards. Both of these are designed to be displayed in the shop where they are visible to customers.

CSISA, in coordination with NIMB and ADBL, is also providing month-long (one day per week) financial literacy training for the farmers who have taken out a Kisan Card. The training is intended to support farmers to adopt best financial management practices and build confidence for using the Kisan Card to purchase agricultural inputs. The training emphasizes the importance of household budget preparation, analyzing expenditure trends, and savings or debt reduction plans. Farmers are provided with *Mero Khata* ('My Book') in which to keep a record of their daily income and expenses for one year. They are also orientated on the use of mobile banking apps, online payments and other digital tools, to enable them to manage their finances conveniently and efficiently.



Above: Farmers participating in financial literacy training, with CSISA field supervisor Tulsi Chaudhary explaining record-keeping, in Sultanpur, Yasodhara-07, Kapilvastu district. Photo credit: Anil Dwivedi, Field Supervisor

To date, 930 farmers (572 women, 358 men) have taken part in this training, exposing the majority to these topics for the first time and providing an opportunity to capacitate them. Without the training, the Kisan Card would run the risk of being incorrectly used, compromising the result envisioned by the Activity.

Facilitating access to finance for farmers would be of no use if the capital was not used to enhance productive activities. To ensure this, CSISA provides its Kisan Card farmers with practical training on improved agriculture practices and technologies, covering resource-smart, improved agriculture practices and technologies (that is, new cropping techniques such as water and nutrient management, integrated pest management, and using agricultural machinery for operations from seeding to harvesting). Participant feedback indicates that training like this motivates farmers to adopt new tools and technologies, and it is hoped that this, coupled with financial literacy training, will enhance farmers' productivity. As of March 31, 2023, seven events with two sessions per event have been completed, in which 548 Kisan Card farmers (427 women, 121 men) took part.

Work package 4: Geographical expansion of socially-distanced and covid-19-safe agricultural mechanization services

4.1 Horizontally expand socially-distanced and COVID-19-safe agricultural mechanization services in the Feed the Future Zone

The reporting period has seen increased participation of the private sector in service delivery and service provision. As of March 31, 2023, 128 farm machine service providers and 68 mechanics are enlisted as service providers for farm mechanization. The Activity is preparing profiles of service providers and mobile mechanics, which, by the end of September 2023, these are expected to be ready for sharing with relevant stakeholders, institutions and government partners in seven CSISA districts.

CSISA collaborated with five machinery suppliers (under the Challenge Fund modality) and facilitated training for 68 local people in agricultural machinery repair and maintenance. The five month-long training was conducted on a cost-sharing basis: CSISA ensured inclusive participation while the machinery supplier provided the venue, ran practical classes, and provided post-training coaching to the trainees. The Activity also supported trainees to expand their business through promotional events, such as running vans with promotional messages, distribution of promotional materials (business cards, signboards, flyers, and brochures), and by connecting them with farmers and individuals who are in need of their services. They are available on an on-call basis, with some of them working as independent providers and others employed by machinery suppliers.

CSISA also organized an experience-sharing workshop during the reporting with 15 female mechanics (out of 68) in Nepalgunj on February 7, 2023. It emerged that not all are providing mechanic services, with some expressing a lack of confidence in carrying out the work on their own and unsure of continuing this as a profession. The machinery suppliers – the Challenge Fund implementers who trained them – said the women need further training and one-to-one coaching, suggesting exclusive training for women participants with a female trainer, scheduled at a time convenient for them. In response to this feedback, the Activity plans to organize a special training and coaching for women; the trainers will be women mechanics trained by CSISA in previous phases, and training will be held in locations convenient for participants. Trainers will aim to motivate them by talking about successful women mechanics in Nepal or from the region.



Above: distribution of advertising boards to machinery services providers, Oct 2022. Photo by: Dipendra Chaudhary

4.2 Deepen socially distanced and COVID-19-safe agricultural mechanization services scaling

The Activity's MSPs are key to the promotion of farm mechanization by providing advisory and mechanization services to farmers. For example, in Surkhet, for the upcoming wheat harvest, 80 farmers with less than 0.33 hectare of land (single women in particular) will receive reaper services from MSPs, by paying only 50% of the total hire cost of the reaper and the remaining 50% contributed by CSISA. This is a one-time investment from the Activity, intended to support MSPs to establish a client network, encouraging MSPs to expand their business and farmers to understand the value of using farm machinery. In an experience-sharing/lessons learning workshops between CSISA and MSPs, the latter identified increased competition among themselves and a resultant reduction in demand; however, some MSPs have addressed this by adding attachments (a truck or other machine) to their power tiller, enabling it to be used in the off-season for other purposes such as transportation. Some MSPs save money and time by doing minor repairs themselves, learned in training conducted by CSISA. Some said they do not get paid after providing a service, and as the majority have an inadequate record-keeping system, CSISA plans to train them in business management skills and digital banking.

Custom hiring centers (CHCs) are potentially useful means of promoting the use of farm machinery to a community. However, during interaction and monitoring visits, CSISA found that some are not functional, with broken down machines and the center having no access to mechanics or repair centers. Further, as many CHCs do not keep records of their transactions, CSISA plans to conduct business management training for them.

The Prime Minister Agriculture Modernization Project (PMAMP) is a key government-led program that CSISA is intensively engaged with. As an example, in Dang, CSISA and the Maize Super Zone program jointly organized three days of basic repair and maintenance training, with participant farmers from agriculture cooperatives, farmers groups and CHCs. Similarly, CSISA, in collaboration with the private sector (Swargadwari Agro Trade Link), CHCs and three Kapilvastu district municipalities (Shivaraj, Buddhabhumi and Bijaynagar), organized six events demonstrating the precision maize planter in various locations in Dang district (February 21–23, 2023). As this machine is new to this region the event proved popular, attracting 145 people (60 women, 85 men). The municipality representatives expressed satisfaction with the planter's performance and made a commitment to allocate funds to support farmers to buy machines in the new fiscal year program and budget.



Above: Terraced fields near Surkhet, Nepal. Photo by: Timothy J. Krupnik

5. Russia–Ukraine Crisis Response: building food system resilience to global supply chain and climate shocks in Nepal

The Russia–Ukraine Crisis Response Activity is a USAID/Nepal buy-in for CSISA III, and responds to the complex and urgent challenges brought about by Russia’s invasion of Ukraine and will be implemented as part of the CSISA Activity. It will deliver a rapid and coordinated response to the effects of global supply chain distortions and their implications for smallholder farming households and poor consumers in Nepal. This activity has two major development objectives:

Objective I. USAID/Nepal and development partners’ ability to respond to agrifood systems crises improved through data-driven insights and strategic guidance:

The outputs of this Objective will provide USAID and policymakers with a solid evidence base, assessing potential agricultural productivity at a seasonal time-step, economic, and national food security consequences of the Russian-Ukrainian conflict and ongoing price volatility on Nepal’s agricultural economy on smallholder farmers and poor consumers. Strategic use of project outputs by USAID and its partners is anticipated to enhance development activities which will contribute to increased agrifood systems resilience in Nepal. This evidence base will be informed by state-of-the-art agricultural and economic forecast modeling, to provide monthly agrifood systems ‘situation reports’ and insights on best bet development investment and policy options to mitigate the effects of global supply chain disruption on smallholder farmers and poor consumers.

Objective II. Smallholder farmers’ resilience to economic shocks and the climate crisis improved through sustainable and inclusive irrigation development:

Irrigation is a cornerstone of efforts to increase yields and build farmers’ resilience to climate variability and economic shocks, such as those associated with the Russia–Ukraine conflict. Building on support provided by USAID/Nepal to foster irrigation development and enhance farmers’ resilience in the face of the COVID–19 crisis, this activity will continue to support the public and private sector in sustainable and inclusive irrigation development including the scaling out of a previously piloted digital groundwater monitoring system for Nepal. Activities in Objective II will develop locally targeted irrigation scaling strategies, management advisories, and gender-equitable business models, including access to finance for irrigation pumps (with a focus on but not limited to solar irrigation). By coordinating and sequencing these actions, CSISA’s efforts in irrigation development will build further resilience in Nepal’s agricultural systems to economic and climatic shocks, including recent fuel and agricultural commodity price volatility.

Objective I: USAID/Nepal and development partners’ ability to respond to agrifood systems crises increased through data-driven insights and strategic guidance

The sudden economic shock resulting from the Russia-Ukraine crisis and its effects on global supply chains, including export restrictions and commodity speculation, are fueling increased food prices for consumers in Nepal. Considerable uncertainty remains regarding the implications and severity of the crisis sparked by the Russia-Ukraine conflict in the short- (the next 18–24 months) and the medium-term (to 2030). Actionable evidence and information are therefore needed to guide appropriate and efficient short-term responsive and medium-term development investments and policy initiatives so that smallholder farming households and poor consumers are not drawn further into poverty.

Work package I: Generate monthly situation reports and forecasts of the implications of global price volatility on poor consumers and smallholder farmers

Agrifood systems situation reports: This Work Package utilizes a range of available data, including from USAID/Nepal's Implementing Partners, Government of Nepal officials, and from surveys conducted at the field level to generate monthly 'situation reports on the state of Nepal's agrifood systems and the implications of current and future price volatility on farmers and consumers. Analyses consider commodity trade prices, domestic production and trade volume, flows of remittances, and other micro and macroeconomic factors that can both positively and negatively affect poor consumers' and smallholder farmers' wellbeing. To date, the Activity has completed five monthly agrifood situation reports for Nepal that detail information on price trends and their potential implications for farmers and consumers in rural and urban settings. These reports can be found in Annex IV. The project is collaborating with the Institute for Integrated Development Studies (IIDS) in Kathmandu, Nepal to set up a price monitoring cell (PMC). The PMC is working closely with the IFPRI and CIMMYT scientists to design data collection and analyze the data on prices and availability of selected products to feed into the monthly situation reports.

Agrifood systems situation dashboard: Preliminary work on development of an Agrifood systems situation dashboard for Nepal commenced during the reporting period, though the Activity struggled to obtain sufficient data from Implementing Partners (as detailed in the 'challenges' section of this report) to populate the initial wireframe being developed. The Activity also focused on the generation of the situation reports during the reporting period, which required more attention than originally envisioned. For this reason, the dashboard is slightly delayed and is anticipated to be completed before the end of the Annual Reporting period.

Agrifood systems policy guidance notes: For this activity, CSISA plans to generate quantitative estimates of the potential subsidy or other market interventions that may be required to mitigate the financial effects of economic shocks on poor consumers and smallholder farmers' well-being. In doing so, the Activity hopes to be able to suggest how both USAID/Nepal and GoN may need to respond to maintain and improve livelihoods and agrifood systems productivity. Due to the data collection challenges articulated above, the Activity has however been delayed in this work. The first policy guidance note draft will be completed by mid-year, with a formal release planned now for September.

Capacity development and improved self-reliance: The Activity has provided a sub-grant to the Institute for Integrated Development Studies (IIDS) to participate in Work Package I and II of this Objective. IIDS is an independent, non-partisan, and not-for-profit think-tank headquartered in Kathmandu, Nepal. Since its inception in 1979, IIDS has demonstrated a strong commitment to evidence-based research and policy advocacy, taking a holistic approach to sustainable development. As part of this sub-grant, two research associates from IIDS have been nominated to learn how to assemble the monthly agrifood systems situation reports generated by the Activity. They are currently receiving on-the-job training in areas such as secondary data acquisition, data management and dashboard maintenance, as well as macroeconomic forecasting tools.

Work package II: Improving policies and programs to mitigate the impacts of price shocks on smallholder farmers and poor consumers

Despite having actionable policy recommendations derived from Work Package I, CSISA anticipates that smallholder farmers and poor households – and especially those headed by women or consisting of marginalized social groups with low market bargaining and purchasing power – will tend to be significantly and disproportionately affected by supply chain disruptions and higher prices. These highly 'at-risk' groups, which include women-headed households, remote communities, and marginalized castes and ethnicities, will likely need focused support actions in the form of improved social safety nets. In response, Work Package II will provide a state-of-the-art summary of social safety net measures in Nepal, with emphasis

on advising immediate and actionable interventions that can improve food and income security for poor and marginalized groups.

Acknowledging these issues, CSISA will develop an action plan for improving social safety nets in Nepal in the form of a policy document describing urgent needs and sequenced actions to strengthen Nepal's agricultural input subsidy and food security safety net plans. This will be informed by evidence to be generated on price transmission for key agricultural commodities as they are traded from Nepal to India, and India to Nepal, respectively. It will also be informed by a desk study of social safety net programs. During the reporting period, the Activity completed contracting to IIDS which will participate in this work. Preliminary discussions have been held with researchers at IIDS and workshops with stakeholders to design this research are planned for May and June of 2023.

This work package involves three steps: i) preparation of various cash transfer, in-kind assistance, and public work programs (also called workfare programs) implemented by Government of Nepal to support poor households and individuals; ii) assess the performance of these programs using available data; and iii) hold consultations with key stakeholders, including government officials, Nepali academics, and leaders of large development programs (like SUHARA) to validate our findings from the review of program documents and analysis of the household survey data. Our ongoing analysis of social safety net programs in Nepal shows that their coverage is quite limited. Less than 10% of all rural households in Nepal were covered under any social safety net program in 2019. Efforts to extend the safety net during the COVID-19 crisis faced challenges due to limited state capacity, challenges in identifying the needy households and financial constraints.

Objective II: Building smallholder farmer resilience to economic shocks and climate change through sustainable and inclusive irrigation development



Above: CSISA-facilitated training of members of Nepal's Groundwater Resources Development Board, nurturing low-cost automated and digital data collection methods for groundwater monitoring. October 2022 and February 2023. Photos: Krishna Kafle.

Work package I: Comprehensive expansion of digital groundwater monitoring in Nepal to guide irrigation intensification that boosts resilient agricultural production especially for staples and edible oils

During the reporting period, CSISA embarked on expanding the piloted digital groundwater monitoring system to cover four additional districts (Kailali, Kanchanpur, Bardiya and Dang). To ensure that the sustainability of increasing groundwater abstraction can be adequately monitored, the Activity has continued work with Nepal's GWRDB, contributing the addition of 35 new wells to the digital groundwater monitoring dashboard. The collaboration has also developed a beta version of the digital dashboard that can display wells across the different districts in which data is collected. This version was presented to the Government of Nepal during a workshop in Kathmandu, where it was received satisfactorily.

The government also requested CSISA support with drafting the National Policy Guidelines for digital groundwater monitoring in Nepal, which are designed to support the country in building sustainable groundwater management policies in the future. Additional automated reporting facilities have also been developed for the dashboard to support GWRDB in generating documents for water resources data quality checking. In addition, trainings for GWRDB staff were held during November and December in Kathmandu, Dhangadhi, Banke and Dang to improve GWRDB's capacity for digitally monitoring its observation wells. These activities were led by GWRDB's staff with CSISA's facilitation and technical backstopping. Lastly and importantly, CSISA is also working strongly to provide technical backstopping and to support irrigation technology targeting for the KISAN-II Activity which is scaling out tube well drilling and pump supply in Nepal.

Work package II: Access to resilience enhancing and inclusive irrigation increased

Given the continued high cost of food, fuel and fertilizer prices, CSISA continued strong awareness-raising and capacity building campaigns aimed at increasing the efficient use of water resources for dry season irrigation across the FtF Zone of Influence, with a focus on the Terai where most agricultural production takes place. CSISA data clearly show that insufficient water application limits farmers yield, indicating that the yield response to those other, increasingly costly inputs (fertilizer, machinery) is substantially compromised by water stress. At the same time, CSISA initiated the development of business models that will make irrigation services available in a more timely, more affordable, and more inclusive fashion to farmers that need it most. Previous CSISA research suggests that increasing irrigation use requires both strong efforts in raising awareness and building capacity for better irrigation scheduling, as well as developing more up-to-date business models that increase the infrastructure penetration of existing and suitable irrigation technologies.

To address the former, CSISA ran several awareness raising campaigns that inform farmers about the value and importance of dry season irrigation for attaining high and stable yields. To do so, CSISA collaborated with local communities and stakeholders from the public and private sector to disseminate irrigation advisory materials. For example, CSISA provided agrovets and machinery dealers with leaflets and banners that highlight and explain key irrigation recommendations for dry season crops along with other critical agronomic practice recommendations. In addition, CSISA trained 106 pump owners for repairing pump sets and providing better irrigation advice in their communities and reaching 253 number of farmers that improved irrigation practices. The Activity supported 379 number of farmers with better irrigation management decision and practices by different campaign programs. Importantly, these advisories focus on improving the fuel efficiencies and capital investment requirement of the most common irrigation systems – showing farmers that options to save on average \$200 per pump and \$50 per season with selecting the right pumps. In addition, CSISA trained partners on the use of more cost-effective well

drilling technologies that can be used in certain geological formations to reduce the time (and thus cost) required for drilling wells by more than 60%.

For developing business models, CSISA organized two irrigation supply chain workshops that brought together stakeholders from the private sector, the public sectors, and farmers to identify key priorities for business model development. These workshops served to build trust amongst different key stakeholders and identify potential pathways forward. While participants agreed that making electric irrigation available to most farmers should be a key policy priority – different business models for irrigation service provision through custom hiring centers and community service providers was considered an important pathway forward. However, most communities rely on informal arrangements that often lead to untimely service and high prices – but can provide flexibility in payments and beneficial access in times of dire need. CSISA is now further developing tailored business models that can be tested during the monsoon season where irrigation needs are lower than in the dry season and thus risks also less. Lastly but importantly, all stakeholders strongly expressed that the existing subsidy models of providing irrigation technologies to farm communities that has been in place (albeit continuously reformed) is not working. Irrigation technology (pumps, wells, pipes) is managed individually at the farm level and policy instruments and market innovation should appreciate and cater towards this reality.

5. Challenges faced during the reporting period

- The largest challenge to CSISA III during the reporting period was the decline in budget allocated. While CSISA had been operating at a >\$2 million per year implementation rate in prior years, in 2022-23, \$0.8 million was awarded by USAID/Washington. For this reason, several activities were stopped and/or transitioned to wind-down. In Nepal, activities focused on the USAID/Nepal buy-ins.
- The liquidity crunch which began to affect the Nepal from August 2021 is still impacting the Nepalese economy, and despite repeated policy measures undertaken by the Nepal Rastra Bank to ease liquidity pressure, the economy continues to feel its prolonged effects. As a short-term pivot to this issue, CSISA worked with cooperatives to facilitate loans for MSMEs at subsidized interest rates. These partnerships with cooperatives provided a short-term solution to manage the funding crunch and may not be sustainable, as the cooperatives' interest rates and those of micro-finance are very high (at an average of 18% compared to a bank rate of 12% at the time, with which farmers get an interest rebate of 5% as per the Nepal government's agriculture sector loans).
- With the issues in the economy that arose concurrently with the liquidity crunch, bank interest rates in Nepal have continued to increase over the past few months. This has affected those MSMEs who have secured a bank loan at a higher interest rate, and also impacts MSMEs considering applying for loans for business expansion. CSISA has planned a number of capacity development and marketing support activities for MSMEs to ensure their incremental sustained business, which will ease their loan repayment.
- Mega Bank Limited and Nepal Investment Bank Limited merged and started joint operations from January 11, 2023. This caused a slowdown in loan approval from the last week of December 2022; this is still not smooth as it needs to be. To address this, CSISA has been meeting regularly with bank officials and in the district. It has been agreed to organize regular meetings between the bank's new (merged) branches and the Activity team to orient new bank team members to the project and Kisan Card activities.
- Retaining community business facilitators (CBFs) is an issue in Nepal, who give reasons for leaving as to marry, migration or a better job offer. CSISA has been discussing with agrovets ways to retain CBFs, one option being to engage them as a staff/helper on a monthly retainer. Another suggestion is that field supervisors spend more time directly engaging and backstopping CBFs, supporting them to increase sales and motivating them to continue their work.

- It is also proving a challenge to identify women who are genuinely committed to becoming mechanics in Nepal, starting with finding those interested in training, after five months of which they continue to need additional months of nurturing and one-to-one coaching to build their confidence. This activity requires a longer timeframe and strategic interventions.
- In Nepal, CSISA has trained 68 mechanics (15 women, 53 men) but has assessed most to be not providing a service. During an interaction meeting with female mechanics organized in Nepalgunj on February 7, the women expressed a lack of confidence in carrying out repairs independently, with some not sure of continuing it as a profession. The machinery suppliers – the Challenge Fund implementers who trained them – shared that the women need special training and one-to-one coaching to be able to be fully functional in a manner comparable with their male counterparts. The suppliers suggested training exclusively for women, with a female trainer and training scheduled at a time convenient for participants. In response, CSISA has planned special training and coaching for women, with trainers who are female mechanics trained by CSISA in the previous phase. The training will be conducted in locations and at times convenient for participants, where trainers will share their success stories and present examples of other exemplary women mechanics in Nepal or the wider region.
- The frequency and quality of data that USAID/Nepal's Implementing Partners are willing to share for monthly agrifood systems reports has been inconsistent and often poor. Unfortunately, most implementing partners do not collect data systematically that can be used for scientifically valid reporting of the economic performance of Nepal's agrifood systems. Most data collection focusses on annual beneficiary base surveys and reporting for Economic Growth Indicators, little of which could actually be used for analyses. Some limited data are useful. But CSISA has been unable to convince other implementing partners to collect consistent and requisite levels of data needed to generate the quality of agrifood systems reports originally envisioned.

Additional Information

Engagement with missions, feed the future partners and project sub-contractors⁶

USAID/Nepal and mission

The Activity continued to engage with the USAID Bangladesh and Nepal Missions during the reporting period, with USAID Nepal Mission providing new investments to the CSISA COVID-19 Response and Resilience Activity; it also supported the Fighting Fall Armyworm Activity and CSISA-MEA (the second phase of the CSISA-MI Activity). The latter was awarded in 2019 by USAID Bangladesh, which works in synergy with CSISA.

Feed the Future partners

The Activity also collaborated directly with the following FtF Activities:

Cereal Systems Initiative for South Asia Mechanization and Extension Activity: Building on the successes of the CSISA-MI Activity, the FtF Bangladesh Cereal Systems Initiative in South Asia Mechanization Extension Activity (CSISA-MEA) began on October 1, 2019. It has three main objectives, namely, to (1) increase the competitiveness and efficiency of domestic and private sector-led agricultural machinery manufacturing, assembly, use and servicing, (2) enhance institutional capacity for agricultural mechanization through the development of a skilled and youth workforce, and (3) facilitate the widespread uptake of sustainable intensification practices in Rohingya refugee-impacted communities in south-eastern Bangladesh. Through activities designed to meet these objectives, the Activity aims to address a number of challenges faced by the light engineering sector involved in the manufacture of agricultural machinery and spare parts. These include poor manufacturing processes, use of old and inefficient manufacturing

⁶ A full list of partners and details can be found in the 'Additional Information' section at the end of this report.

equipment, limited supply of good quality materials, limited access to appropriate financial services, and low levels of workforce skills.

The Nepal Seed and Fertilizer (NSAF) project (2016–24) is a USD15 million USAID–Nepal initiative and a direct outshoot of progress made by CSISA on seed systems and integrated soil fertility management. CSISA staff collaborate frequently and deeply with NSAF on scientific and operational matters.

The KISAN project: The Knowledge-based Integrated Sustainable Agriculture and Nutrition (KISAN) project is part of USAID’s global FtF initiative. A five-year project (2017–22), it facilitates systemic changes in the agricultural sector, including (1) greater climate-smart intensification of staple crops and diversification into higher value commodities, (2) strengthening local market systems to support more competitive and resilient value chains and agricultural related businesses, and (3) improving the enabling environment for agricultural and market systems development. This project reaches of hundreds of thousands of farmers, many of whom have been exposed to CSISA information, materials and technologies through its partnership with CSISA.

The Feed the Future Nutrition Innovation Laboratory: The FtF Nutrition Innovation Lab pursues applied research that supports the goals of USAID’s FtF initiative; it builds institutional capacity for analysis and policy formulation in developing countries and offers scholarships which support individual capacity development through formal degree education in the United States and elsewhere. Tufts University’s Friedman School of Nutrition Science and Policy has served as Management Entity for the Lab since October 2010, managing its activities and conducting research in close partnership with several U.S. university partners. CSISA collaborates with Nutrition Innovation Lab to analyze survey data and model the intrahousehold nutritional status implications of agricultural development interventions in Bangladesh.

The Feed the Future Sustainable Intensification Innovation Laboratory (SIIL): Since 2015, Kansas State University (KSU) and International Rice Research Institute (IRRI) in collaboration with SIIL and other national research and development agencies have been working in the coastal zones of Bangladesh. The FtF SIIL is a USAID-funded program that supports research, knowledge sharing and capacity building in relation to smallholder farming systems, and increasing ecological intensification for the production of food, fiber, and other products in Asia and Africa. From the fourth reporting quarter of the 2019–20 period, CSISA has initiated a collaboration with the SIIL ‘Pathways of scaling agricultural innovations for sustainable intensification in the polders of coastal Bangladesh’ project (SIIL–Polder Project: Phase II) in screening fodder species for tolerance and growth in salt-affected soils in coastal Bangladesh.

Activity sub-contractors

CSISA Phase III maintains three sub-contractual partners in Bangladesh who are essential for scaling-out project-supported technologies and for reaching farmers. This is particularly important as the Activity is coordinated through partnerships between three research institutions, which enable the dissemination of CGIAR research findings to farmers through knowledge products. Details of each partners’ achievements can be found throughout this report, particularly in the sections for Bangladesh and Nepal.

CSISA vets and selects partners based on their alignment with the CSISA approach and their ability to generate impact at scale. In this reporting period, the Activity maintained partnerships with the following three organizations:

Bangladesh Rice Research Institute (BRRI) was founded in 1970 and is the country’s apex rice research body. BRRI assists the Activity with the following:

- implementing on-farm trials of new PQR varieties in six *upazilas* (sub-districts) in three CSISA hubs to identify best-bet premium quality varieties in terms of yield, and farmer, miller and trader preferences
- on-farm performance evaluations of integrated weed management options to increase yield and profits in farmers’ fields
- on-station trials to develop and fine tune the mat nursery method of raising rice seedlings for manual transplanting
- organizing additional on-farm trials.

The Bangladesh Wheat and Maize Research Institute (BWMRI): The Activity's agreement with BWMRI in 2019 has established a cooperative and mutually beneficial relationship for carrying out activities with CIMMYT on the following topics:

- germplasm exchange, development, delivery, intensification and diversification
 - promoting sustainable intensification-based conservation agriculture crop management and improved seed system farm equipment and machinery
 - addressing socio-economic and policy constraints that affect the adoption of new technologies
 - mainstreaming gender concerns in research for development
 - building the capacity of national scientists and partners through training
 - engaging the private sector in value chain and market development to benefit maize and wheat farmers.
- CSISA leverages this agreement and cooperates with BWMRI on all of the Activity's wheat-related work in Bangladesh.

Bangladesh Department of Agricultural Extension (DAE): The vision of DAE, under the Ministry of Agriculture, is to provide eco-friendly, safe, climate resilient and sustainable, productive good agricultural practices while sustaining natural resources, to ensure food security as well as commercial agriculture, with a view to accelerating the country's socioeconomic development. DAE's mission is to provide efficient, effective, decentralized, location-specific, demand-responsive and integrated extension services to all categories of farmer, supporting them to access and utilize better knowhow to increase sustainable and profitable crop production. CSISA collaborates widely with DAE on a range of initiatives and activities in Bangladesh, detailed in this report.

International Water Management Institute (IWMI) is a non-profit research organization with headquarters in Colombo, Sri Lanka and offices across Africa and Asia. Research at the Institute focuses on improving how water and land resources are managed with the aim of underpinning food security and reducing poverty while safeguarding vital environmental processes. With the CSISA Nepal buy-in to the CSISA Activity (through the CSISA COVID-19 Resilience Activity and the CSISA Ukraine Response Activity), the IWMI team in Nepal has been engaged in working towards the development of a sustainable irrigation development strategy for the FtF Zone in Nepal.

International Development Enterprises (iDE) is a global development organization that co-creates with foundations, governments, individuals, for-profits, and nonprofits to develop lasting solutions to poverty ; it is dedicated to creating income and livelihood opportunities for poor, rural households. With the CSISA Nepal buy-in to the CSISA Activity (through the CSISA COVID-19 Resilience Activity and the CSISA Ukraine Response Activity) the iDE team in Nepal has focused on providing expertise for business models and access to finance in Nepal's FtF Zone.

The Institute for Integrated Development Studies (IIDS): IIDS an independent, non-partisan, and not-for-profit think-tank headquartered in Kathmandu, Nepal. Since its inception in 1979, it has proven its commitment to research and policy advocacy based on evidence and a holistic approach to sustainable development. IIDS collaborates in the implementation of Objective I of the CSISA-Ukraine Response Activity.

Annex I: Publications and media produced by CSISA in 2022-2023

- Minoli, S., Jägermeyr, J., Asseng, S. et al. Global crop yields can be lifted by timely adaptation of growing periods to climate change. *Nat Commun* 13, 7079 (2022).
<https://doi.org/10.1038/s41467-022-34411-5>
- Montes, C., Hussain, S.G. & Krupnik, T.J. Variable climate suitability for wheat blast (*Magnaporthe oryzae* pathotype *Triticum*) in Asia: results from a continental-scale modeling approach. *Int J Biometeorol* 66, 2237–2249 (2022).
<https://doi.org/10.1007/s00484-022-02352-9>
- Gokul P. Paudel, Hom Gartaula, Dil Bahadur Rahut, Scott E. Justice, Timothy J. Krupnik, Andrew J. McDonald. The contributions of scale-appropriate farm mechanization to hunger and poverty reduction: evidence from smallholder systems in Nepal. *Journal of Economics and Development* (2023).
<https://doi.org/10.1108/jed-10-2022-0201>
- Mottaleb, K., Hodson, D., Krupnik, T., & Sonder, K. (2023). Quantifying Wheat Blast Disease Induced Yield and Production Losses of Wheat: A Quasi-Natural Experiment. *Journal of Agricultural and Applied Economics*, 1-23.
<https://doi.org/10.1017/aae.2023.2>
- Vishnu Prasad Pandey, Nirman Shrestha, Anton Urfels, Anupama Ray, Manohara Khadka, Paul Pavelic, Andrew J. McDonald, Timothy J. Krupnik, Implementing conjunctive management of water resources for irrigation development: A framework applied to the Southern Plain of Western Nepal, *Agricultural Water Management*, Volume 283, 2023
<https://doi.org/10.1016/j.agwat.2023.108287>
- Reeves NP, Ramadan A, Sal y Rosas Celi VG, Medendorp JW, Ar-Rashid H, Krupnik TJ, et al. (2023) Machine-supported decision-making to improve agricultural training participation and gender inclusivity. *PLoS ONE* 18(5): e0281428.
<https://doi.org/10.1371/journal.pone.0281428>
- Muhammad Arshadul Hoque, Mahesh K. Gathala, Jagadish Timsina, Md.A.T.M. Ziauddin, Mosharraf Hossain, Timothy J. Krupnik, Reduced tillage and crop diversification can improve productivity and profitability of rice-based rotations of the Eastern Gangetic Plains, *Field Crops Research*, Volume 291, 2023, 108791
<https://doi.org/10.1016/j.fcr.2022.108791>

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Annex 3: Weekly and bi-weekly updates on progress in the CSISA Response and Resilience Activity during the Reporting Period

Weekly report

CSISA NEPAL RESPONSE AND RESILIENCE ACTIVITY November 27- December 1, 2022

WP 1: Assuring small- and medium-scale input and services provision business recovery and rehabilitation through access to finance

Group Sales Meetings (GSMs):

In Kailali and Kanchanpur, 30 GSMs were organized by 14 community business facilitators (CBFs) to collect farmers demand for the agriinputs and to raise awareness about new technologies available from their respective agrovet. Total 350 (245 Female; 105 male) farmers had participated in the meeting.

In Surkhet, 4 CBFs working for 3 Agrovet conducted 13 GSMs to inform farmers about what and how to plant winter crops and other seasonal vegetables. In Dang, 7 CBFs working for 5 agrovet organized 15 GSMs with farmers to inform them about agricultural inputs. At the end of the meetings, the CBFs collected the list of items that farmers wanted to buy from them.

In Nepalgunj, the team followed up the loan approval: 45 loan applications of agri-inputs suppliers are pending at Geruwa Branch of Mega Bank in Bardia. Out of them, 12 loan applications are in process and will be approved within 15 days according to the bank's branch manager.



Above: Women actively participating in group sales meeting conducted by CBF-Sabitri Chaudhary, kailari rural unicipality-5, Surminala, Kailali. Photo Credit: Deepak Joshi



Above: GSM in women led Rapti Farmer Group conducted by the community business facilitator of Tejal Agrovet Ms. Uma Chaudhary at Lamahi Municipality, Dang. Photo Credit: Chandrawati Chaudhary/farmer

WP 2: Specialty financial products and services to reduce post-harvest losses in at-risk perishable farm product value chains.

In Dang, CSISA supported Usha Dudh and Dahi Suppliers – a dairy business for collateral valuation to access loan from the Mega bank/Ghorahi branch. A new post-harvest enterprise based on turmeric has been identified in Dang. The Mega Bank has agreed to provide loans; CSISA will support in processing and marketing.

In Dhangadi, CSISA agreed to support *Anandi Pickle Enterprise* to showcase its pickle products in the Sudurpaschim Fair which will be held on 8th December 2022. The project will support in producing brochures and flexes.

The CSISA team in Nepalgunj visited 4 dairy businesses namely, *Sajha Dairy Udhyog*, *Himal Dairy Udhyog*, *Bijay Suppliers* and *Dudh Dairy Pasaal* and *Kapil Dairy Udhyog* which are supported by the project through loan support, summary of observations is below:

- 3 dairies bought deep freeze- Kapil dairy plans to buy.
- Milk collection volume is minimum 75 litre/day (*Sajha dairy*) to maximum 350 (*Himal dairy*). Similarly, 50 to 100 farmers are linked with each dairy business.
- Their sales are good throughout the year, in fact they could not meet demand from April to August (dry season). However, *Sajha dairy* which sells cow milk sourced from their own cow farm shared that his sales are low specially during winter season (November to March), as local people prefer buffalo milk.
- They requested technical skill training on producing milk products such as cheese, sweets, etc.



Above: A turmeric farmer Mr. Amar Chaudhary from Rapti Rural Municipality-3, Khurkhuria showing his products to be marketed through improved market linkage establishment. Photo Credit: Sagar Kafle



Above: Owner of Himal Dairy bought deep freezer with co-operative loan in Kohalpur, Banke. Photo Credit: Salin Acharya



Above: Mrs Risim Budha, wife of the owner of Sudip Chowmein and Sauce Udhyog, Baijanath, Banke. Photo Credit: Salin Acharya

Similarly, the CSISA team in Nepalgunj visited sauce enterprise namely, *Karnali Sudip Chowmein and Sauce Udhyog* in Baijanath rural municipality/Banke – it received a bank loan of NPR 150,000 in discounted interest rate and it has been earning a revenue of NPR 300,00 per month. According to the owner, Mr. Sur Bahadur Budha, he does good business all year round, in fact he will have hard time meeting demands during festival seasons.

WP 3: Digital banking services to support businesses and consumers affected by the COVID-19 crisis.

Mega Bank distributed 20 Kisan Debit Card (KDC) from its Lamahi branch and 5 Kisan Credit Card (KCC) and 16 KDCs from Taulihawa and Chandrauta branches. Similarly request for new KCC approval (4 files) are submitted from the Mega Bank in Ghorahi to the Mega Bank – central office.

In Nepalgunj, 2 agrovets opened their bank account in Mega Bank as the first of his application to become the Vendor for Kisan Credit Card. In Bardia, project supported KCC holders to renew their cards.

In Kailali, interaction meetings were organized between Mega bank and local farmers to motivate farmers to open bank accounts so that they can get Debit cards. 47 farmers (Male-5 and Female-42) in attended the meetings.

13 Kisan Credit Card and 3 Kisan Debit Card were distributed through Mega bank limited Surkhet to the Farmers of Raharpur, Surkhet. All



Above: Kisan Debit Card distribution event organized by Mega Bank Chandrauta Branch on 30th November 2022 to the women farmers of Shivraj Municipality. Photo Credit: Anil Dwivedi

the recipients were women farmers.



Above: Women farmers gathered to open account for debit card in Dhangadhi-19, Fulbari. Photo Credit: Dipak Joshi



Above: Recipients of KCC and KDB of Birendranagar Municipality, Raharpur-10, Surkhet. Photo Credit: Baburam Tiwari

WP 4: Geographical expansion of socially distanced and COVID-19 safe agricultural mechanization services

Challenge fund activities:

Dang:

As a part of demonstration activities, 3 three challenge fund implementing machinery dealers from Dang and Kapilvastu organized field demonstrations with new machinery technologies and machineries promotion campaign of Agri machineries business:

Kusumiya Suppliers based in Tulsipur sub-metropolitan organized 2 demonstrations-cum-practical training on operation and maintenance of women friendly technologies like self-start mini-tiller, power tiller, manual seeder, this was organized in coordination with *Gurubaba Multipurpose Co-operative* and *Bishnupur Agriculture Cooperative Limited*. 83 farmers participated.



Above: Machinery promotion campaign organized by *Kisan Krishi Yantrashala* in Ghorahi Sub-metropolitan. Photo Credit: Anjan Lamichhane



Above: Demonstration of power tiller operated seed drill for wheat seeding organized at Buddhabhumi Municipality Photo Credit: Manish Thakur

Kisan Krishi Yantrashala, another challenge fund implementer completed 2 demonstrations on the use of manual seed planter and power weeder for 50 farmers; a 2-day machinery promotion Van Campaign was organized- this focused on small farm technologies in Ghorahi and Tulsipur sub-metropolitan cities. *Kapilvastu Krishi traders*, another challenge fund implementer conducted 3 demonstrations of power tiller operated seed drill for wheat seeding in minimum tillage condition- 61 farmers participate in 2 municipalities- Banganga and Buddhabhumi.

Dhangadi:

Challenge fund implementor “*Badayak Krishi farm*” completed demonstration of Zero tillage seed cum fertilizer drill machine in wheat in 3 different places of Belaury-6, Kanchanpur to raise awareness about the benefits of seed drill and demand creation of machine. *Garima Janavi traders* completed machinery demonstration that focused on seed drill demonstration in 3 places of Kailari rural municipality.



Above: Demonstration of seed cum fertilizer drill machine by *Garima Janavi traders* in Gaurigana-5, Masuriya, Kailali. Photo Credit: Subarna Limbu

Similarly, *DKAM-Microsystem Pvt. Ltd.* conducted a demonstration on potato planter in Tikapur municipality-8, Suryapur to generate awareness of farmers on its use and to motivate them to buy the machine, government stake holders like Agriculture Knowledge Centre and Ranijamara Irrigation Project also participated.

In Surkhet, 5 demonstrations were completed; Mini tiller operated reaper and brush cutter demonstration were conducted in Barahatal rural municipality, participated by 41 farmers (17 female and 24 male). Similarly, mini tiller operated reaper, brush cutter demonstration and mini paddy thresher demonstration were conducted in Lagam and Salkot village respectively of Panchapuri municipality- 62 participants (24 female and 38 male). 35 people (10 female, 25 male) participated in Mini-tiller operated reaper and brush cutter demonstration conducted in Birendranagar municipality. Demonstration on mini tiller operated

reaper and corn thresher were completed in Lekhbeshi municipality, participants – 32 (12 female and 20 male).



Above: Mini tiller operated reaper demonstration in Lekhbeshi municipality in Surkhet. Photo Credit: Suvakamana Agro enterprises



Above: Brush cutter demonstration in Birendranagar municipality, Photo Credit: Suvakamana Agro Enterprises

Swastik Traders- the Challenge fund implementor in Bardiya conducted “village one program” in Rajapur municipality (two events: on 26th November 2022 and on 1st December 2022). In the program traders displayed their machinery in one spot in the village. In addition, traders also showed how to operate smaller machines, such as milling machines (combine mill), a total of 100 farmers attended the program. The traders are hopeful that farmers will come to their shop to buy machines.



Above: Farmers visiting the Machinery display program organized by Swastik traders Display in Daulatpur, Rajapur-I in Bardiya. Photo Credit: Pradip Kumar Chaudhary

Similarly, Krishi Machinery Solution conducted 12 group interaction programs in 4 municipalities (Baijanath, Kohalpur, Raptisonari and Narainapur) in Banke. The objective of the interaction was to inform farmers about various agricultural machinery they sell in their shop. The traders noticed that people are buying limited machinery for tillage and irrigation- power tiller and pump sets. So, they wanted to make farmers aware of the benefits of other newly available technologies and machinery.

Further, they collected customer feedback on their service and the quality of machinery that they sold, from their existing customers. This was a useful feedback exercise as the customer requested repair service of the machine that they bought from them (2 mini tillers, 1 chaff cutter and 1 maize thresher). The Krishi Solution sent their mechanics for repair service.



Above: Parbati Ghimire, Managing Director of Krishi Machinery Solution providing information of available agricultural machinery to Farmers in Pedari Village of Baijanath Rural Municipality. Photo Credit: Krishi Solution

AOB

Coordination and technical facilitation to PMAMP Dang:

- provided technical training on four-wheeled tractoroperated maize planter for maize seed production in Gadhawa rural municipality.

assisted to establish on-farm evaluation plot to test the efficacy of plastic mulching machine. Supported in preparing technical specification and assessment of seed processing, oil extraction, filtering, and packaging units.



Above: On-farm evaluation of plastic mulching for the first time in Gadhawa rural municipality of Dang, organized by PMAMP. Photo Credit: Jyoti Rai

Weekly report

THE CEREAL SYSTEM & INITIATIVE FOR SOUTH ASIA RESPONSE AND RESILIENCE ACTIVITY IN NEPAL

9-15 December 2022

WP 1: Assuring small- and medium-scale input and services provision business recovery and rehabilitation through access to finance.

Group sales meetings

Three community business facilitators each organized a group sales meeting in Gurbakot Municipality-5, Surkhet district, attended by a total of 36 farmers. The facilitators assessed farmer demand for agricultural inputs and informed them about new technologies and improved crop varieties available from local agrovets. Six community business facilitators in Bardia and Banke districts organized a total of 19 group sales meetings involving 124 participants.



Above: the CSISA team interacting with Ram Bahadur Chaudhary, owner of RBC Agrovets, Belauri Municipality-6, Kanchanpur district, 14 December 2022. Photo credit: Hari Prasad Acharya

Mobilization of community business facilitators

Community business facilitators have been instrumental in expanding the business of agrovets in their districts, thereby increasing their sales, according to Ram Bahadur Chaudhary, owner of RBC Agrovets in Belauri-6, Kanchanpur district.

Mr. Chaudhary earned an additional NPR 75,000 in the past month, compared to the same time last year before he had community business facilitators' support. He plans to mobilize community business facilitators to demonstrate new technologies and products available in his shop, such as improved seed varieties, tools for improved pest management, and small agricultural machinery.

WP 2: Specialty financial products and services to reduce post-harvest losses in at-risk perishable farm product value chains.

Loan approval facilitation

CSISA continued its facilitation with Sunrise Bank in Kohalpur, Banke district for the approval of loans for three established post-harvest enterprises: Quality Chowmein & Sauce Udhog (loan amount: NPR 1 m), Subha Dairy Pasal (loan amount: NPR 1 m) and Acharya Kirana & Dairy Pasal (loan amount: NPR 1.3 m). These enterprises plan to use the loans to increase their production volume so that they can expand their markets. In Kailali district, Shanti Batika Fruit Processing Industry displayed its pickle products in the *Sudurpaschim Mahotsab 2079 Trade Fair* organized in Dhangadhi-2, Kailali district. CSISA contributed by printing communication and information materials, including posters and signboards, that were used to popularize these new products.



Above: women farmers attending a group sales meeting conducted by community business facilitators Dil Kumari Thapa, Gurvaktot Municipality-5, 10 December 2022. Photo credit: Bhumisara Khadka, Community Business Facilitator, CSISA



Above: Chandra Bahadur Tharu (left), owner of Quality Chowmein & Sauce Udyog, outside his factory in Kohalpur, Banke district, 13 December 2022. Photo credit: Raj Kishor Ray



Above: Ram Giri, owner of Shanti Batika Fruit Processing Industry, displaying his pickle products at the *Sudurpaschim Mahotsab 2079 Trade Fair* organized in Dhangadhi-2, Kailali district, 13 December 2022. Photo credit: Dipak Joshi

Krishna Dairy Udhog in Birendranagar, Surkhet district secured a loan of NPR 1.5 m from women's cooperative Shree Pragatisil Mahila Bikash Bachat Tatha Rin Sahakari Sanstha Ltd, facilitated by CSISA at a subsidized rate (13%, compared to existing rate of 14%–18% offered by cooperatives in Surkhet and in neighbouring districts) to be paid back over three years. Dairy owner Nim Prasad Lamichane used the loan to purchase a milk packaging machine.

This will allow him to label and brand his milk, a step up from the dairy's current arrangement of transparent milk bags, which means he can now sell milk outside Surkhet and thus expand the business. Building on the business models CSISA helped him to develop, Nim is now looking for further financial support to add to his own investment, and technical collaboration to facilitate the acquisition of government approval of his dairy's branding and labelling.



Above: Nim Prasad Lamichane, owner of Krishna Dairy Udhog, with the chairperson of loan provider Pragatisil Cooperative, Mrs. Manrupa Acharya and the packaging machine which Nim purchased with the loan. Photo credit: Narendra Niroula,

WP 3: Digital banking services to support businesses and consumers affected by the COVID –19 crisis.

In Dhangadhi, Kailali district, 65 farmers benefited from CSISA's support and applied to open bank accounts at Mega Bank's Attariya branch and a further 18 applied at the Mahendranagar branch. The account holder can then apply for a Kisan debit card. Similarly, in Dangisharan Rural Municipality-4, Dang district, 19 farmers (18 of whom were women) applied to open a bank account. In both districts, the CSISA team coordinated with Mega Bank and supported the farmers in preparing the application documents.



Above: women farmers opening bank accounts, Mega Bank, Ghodaghodi municipality-6, Aamphata, Kailali district, 11 December 2022. Photo credit: Hari Prasad Acharya



Above: women farmers participating in a bank account opening event organized by CSISA in Dangisharan Rural Municipality-4, Dang district, 13 December 2022. Photo credit: Bijay Pokhrel, Field Supervisor, CSISA

In Kapilvastu district, 30 Kisan debit cards were distributed by Mega Bank via its Jeetpur and Chandrauta branches. In Dang district, 13 KCCs and 40 Kisan debit cards were distributed by Mega Bank's Tulsipur branch to farmers of Tulsipur Sub-metropolitan City-16, in the presence of elected Ward Chairman Mr. Shivananda Dangi and the Agriculture Head of the sub-metropolitan city. A further 11 KCC applications received from farmers at the Jeetpur branch were sent to Mega Bank's central unit for approval.

Installation of signboards in Kisan card vendors' shop

CSISA provided advertising with information about the Kisan card to 40 Kisan card vendors in Dang. Written in the Nepali language, they are expected to create general awareness of Kisan cards and how to use them. The signboards also indicate to farmers where they can use their cards.



Above: farmer recipients of the Kisan credit card, along with government officials, elected representatives, Mega Bank representatives and the CSISA team at the Ward Office, Tulsipur Sub-metropolitan City-16, 15 December 2022. Photo credit: Omprakash Chaudhary, Field Supervisor, CSISA



Above: a representative of Kusumia Suppliers, a machinery vendor for Mega Kisan Card based in Tulsipur with the signboard, 10 December 2022. Photo credit: Bijay Pokhrel, Field Supervisor, CSISA

WP 4: Geographical expansion of socially distanced and COVID-19-safe agricultural mechanization services

Challenge Fund activities

The CSISA team, the CSISA agriculture engineers in all the hubs, regularly interact with the Challenge Fund implementors to monitor their progress and support them with any issues they may have.

Developing mobile mechanics and their mobilization

In Nepalgunj, 12 mechanics have completed their training, 10 of whom are ready to provide a mechanical service. Mechanics service provision is integral to CSISA's work to develop Nepal's agricultural mechanization market systems. In Surkhet, three machinery dealers – Sahara Trade Center and Karnali Agriculture Suppliers (both in Birendranagar Municipality), and Laxmi Agriculture Suppliers (Gurvakot Municipality) – are training 16 farmers (4 women, 12 men). The training is ongoing.

In Ghorahi Sub-Metropolitan City-1, Dang district, a machinery promotion and hands-on repair training event was organized by machinery dealer Kisan Krishi Yantrashala. CSISA provided training materials related to the technical aspects of machine operation and maintenance. 28 farmers attended the training that included demonstrations of small-scale machines, followed by interactions on the use of machine and repair techniques.

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related to the technical aspects of machine operation and maintenance. 28 farmers attended the training that included demonstrations of small-scale machines, followed by interactions on the use of machine and repair techniques.



Above: a new mechanic trainee practicing under Sahara Trade Center (machinery dealer) now working in a salaried position at the same machinery dealer, Birendranagar, Surkhet. Photo credit: Narendra Niroula, Market System Coordinator, CSISA



Above: mechanics repairing a power-tiller in Pashupati Traders, Bardiya district, 10 December 2022. Photo credit: Salin Acharya, Assistant Research Associate, CSISA



Above: A machinery promotion campaign organized by Kisan Krishi Yantrashala (machinery dealer), Ghorahi Sub-Metropolitan City-I, Dang district, 9 December 2022. Photo credit: Lekh Nath Adhikari, Field Consultant, CSISA



Above: CSISA team leader Dr. Timothy Krupnik giving an overview of CSISA project interventions, highlighting Kisan credit card usage, during the USAID/US Ambassador visit, Raharpur, Surkhet district, 12 December 2022. Photo credit: Narendra Niroula, Market System Coordinator, CSISA



Above: His Excellency Dean R. Thompson, US Ambassador to Nepal and Ms. Sepideh Keyvanshad, Mission Director of USAID in Nepal observing a farmer making a transaction using a KCC at Sunita Agrovets, Raharpur, Surkhet, 12 December 2022. Photo credit: Narendra Niroula, Market System Coordinator, CSISA

The United States Ambassador to Nepal visits CSISA

A delegation comprising representatives from the United States Embassy and USAID visited the CSISA intervention area in Raharpur, Surkhet district to learn about the CSISA-implemented Kisan credit card ('KCC') intervention. His Excellency Dean R. Thompson asked farmers about their experience with the banking system and their knowledge of digital banking after receiving the KCC. He also

expressed curiosity about their farming extension activities, as well as their experience with market access and its sustainability. CSISA team leader Dr Timothy Krupnik and CSISA's senior leadership team provided an overview of the intervention and its aim to integrate the work of the farmers into a comprehensive market system.

Weekly report

CSISA NEPAL RESPONSE AND RESILIENCE ACTIVITY 16–22 December 2022

WP 1: Assuring small- and medium-scale input and services provision business recovery and rehabilitation through access to finance

Group sales meetings

In Bhulke, Gurdakot Municipality-I, Surkhet district, community business facilitator Ms. Dil Kumari Thapa organized two group sales meetings attended by a total of 35 farmers (29 women, six men). The meetings provided orientation on integrated pest management techniques and planting winter crops (tomato, cabbage, cauliflower and onion), and the facilitator informed farmers about seeds and other agricultural inputs available to buy from her. Similarly, after one such group sales meeting in Kapilvastu district, community business facilitator Ms. Brima Tharu sold inputs from an agro-vet that received a business loan with CSISA's facilitation. These products will be used for integrated pest management techniques.

Similarly, in Banke district, community business facilitators Mina Tharu and Rekha Tharu

conducted eight group sales meetings in Rapti Sonari, Wards No. 6 and 7, with 189 participant farmers (156 women, 33 men). In Bardia district, community business facilitators Bimala Khanal, Pragati Chaudhary and Santoshi Tharu organized 13 group sales meetings in Thakurbaba Municipality and Badhaiyatal for a total of 162 farmers (145 women, 17 men).



Above: farmers in the Bhulke area of Gurdakot Municipality-I, Surkhet district, learning about growing winter and inputs relevant to integrated pest management at a group sales meeting, 16 December, 2022. Photo credit: Yamaraj Adhikari, Field Supervisor, CSISA

Follow-up for loans approval

The field team in Banke and Bardia districts held follow-up meetings with Mega Bank to approve the loan applications of four agrovet businesses. According to the bank, and given their internal procedures, it will take another three weeks for the loans to be finalized. The loans applied for include:

- Sijal Agrovet in Rajapur, Bardia district (loan amount NPR 500,000)
- Pashupati Agrovet in Madhuban, Bardia district (loan amount: NPR 500,000)
- Rupakheti Enterprise in Nepalgunj, Banke district (loan amount: NPR 20,000)
- Srijana Agrovet in Nepalgunj, Banke district (loan amount: NPR 700,000)



Above: community business facilitator Brima Tharu (right) selling seeds to a farmer after a group sales meeting in Shivaraj Municipality-1, Sonpur, Kapilvastu district, 21 December 2022. Photo credit: Tulsi Prasad Chaudhary, Field Supervisor, CSISA

Capacity building of community business facilitators

CSISA trained 22 new community business facilitators (15 women, seven men) in sales and marketing in Sukkad, Ghodaghodi Municipality-10, Kailali district (18–20 December, 2022); in the same district, 17 community business facilitators (seven women, 10 men) participated in similar training in Dhangadhi Sub-metropolitan city-3 (21–23 December, 2022). These community business facilitators will support sales from agro-vets that received loans with CSISA's facilitation.

WP 2: Specialty financial products and services to reduce post-harvest losses in at-risk perishable farm product value chains

Support to post-harvest MSMEs

The CSISA team in Dang met with 14 women farmers of Durga Swasthya Mahila Samuha in Banganga Municipality-1, Kapilvastu district, to assess their interest in post-harvest enterprises and to offer to support them with their business planning and to access loans.

In Nepalgunj, CSISA supported Pranshu Agro-Processing and Packaging Private Ltd, Kohalpur to access a loan of NPR 2.2 m from the Agriculture Development Bank, Kohalpur. Pranshu plans to utilize the loan to expand its pickle business.



Above: in conversation with women pickle entrepreneurs in Chure-5, Khanidanda, Kailali district, discuss potential post-harvest enterprises, 15 December, 2022. Photo credit: Dipak Joshi, Field Supervisor, CSISA

Meeting with pickle entrepreneurs

On 15 December, 2022, the CSISA team in Dhangadi interacted with five women entrepreneurs in Chure Rural Municipality 5, Khanidada, Kailali district to explore their interest in scaling up their pickle businesses. One expressed interest in acquiring machinery for sealing and packaging and for mixing spices, and asked CSISA for support facilitate access to a loan. Other participants asked instead for support to enhance their skills and knowledge to make pickles from mushroom, meat, and the dried and fermented green leafy vegetable commonly known as *gundruk*. As a next step CSISA will meet the women in the first week of January 2023 and support them to develop business plans.

WP 3: Digital banking services to support businesses and consumers affected by the COVID-19 crisis

Climate-smart agriculture training for Kisan credit card recipient farmers

Two one-day training events on improved agricultural practices were organized by CSISA in Kerunia and Sonpur, Lamahi Municipality-2, Dang district (21 and 22 December, 2022 respectively) for two groups of Kisan Credit Card (KCC) recipient farmers. The training covered climate change and its impact on agriculture, and potential mitigation and adaptation measures that can be adopted at local level by farming communities. A total of 35 farmers (33 women, two men) participated.

A similar training was organized in Harrey, Bheriganga Municipality-4 in Surkhet district (20 December, 2022) with 23 farmer participants (18 women, five men).



Above: climate-resilient agriculture training for Kisan Credit Card farmers facilitated by CSISA, Kerunia, Lamahi Municipality 2, Dang district, 21 December, 2022. Photo credit: Om Prakash Chaudhary, Field Supervisor, CSISA

There were also two training events (15 and 21 December 2022) in Barbardiya Rural Municipality, Khuntipur, Bardiya district, and Khajura Rural Municipality, Khajura, Banke district, with a total of 43 farmer participants (21 women, 22 men).

Kisan card distribution to farmers

Nine farmers (five women, four men) received Kisan Credit Cards in Dhangadhi Sub-Metropolitan city-II Ghodsuwa in Kailali district. The cards were distributed in the presence of Ward Chairman Mr. Rup Bahadur Kunwar, who encouraged farmers to use the cards and explained his plans to promote them to vegetable farmers in his constituency.



Above: Kisan card holders training in improved agricultural practices, in Harrey, Bheriganga



Above: training for farmers in improved agricultural practices, Khajura Rural Municipality-6, Banke district,

Municipality-4, Surkhet district, 20 December, 2022. Photo credit: Narendra Niroula, Market System Coordinator, CSISA



December, 2022. Picture credit: Khadga Bahadur P. lead farmer



Above: a practical/demonstration session on polytunnel cultivation and improved pest management practices as part of a training event, Khajura Rural Municipality-6, Banke district, 21 December 2022. Photo credit: Raj Kishor Ray, Program Officer, CSISA

Above: farmer Sunita Chaudhary (left), Dhangadhi Sub Metroplitan city-II, Ghodsuwa, Kailali district, receive a Kisan debit card from Ward Chairman, Rup Bahadur Kunwar, 16 December, 2022. Photo credit: Dipak Joshi, Field Supervisor, CSISA

WP 4: Geographical expansion of socially distanced and COVID-19 safe agricultural mechanization services

Challenge Fund activities

Developing mobile mechanics and their mobilization through private partners and the Challenge Fund

Based in Bardia district, Challenge Fund implementer Madhuwan Trade and Suppliers is training three mobile mechanics in petrol engine mechanic services, starting on 21 December and continuing for 10 days. This consolidates training in diesel engines that Madhuwan is providing for the same three mechanics and which has been ongoing for the last five months.



Follow-up training and toolkit distribution for mobile mechanics

The CSISA project team organized a follow-up meeting (21 December, 2022) at Kusumia suppliers' shop in Rapti Sonari Rural Municipality with five trainee mobile mechanics, including two women. Participants received toolkits from the supplier and CSISA handed over training materials related to machinery operation, repair and maintenance (rice/wheat harvesting reaper and pump set repair manuals), a machinery catalogue, and videos on repair techniques.

Above: Avoiding farm machinery breakdowns is key. Here, mechanics learn about petrol engines as part of training offered by Madhuwan Trade & Suppliers, Bardia district, 21 December, 2022. Photo credit: Pradip Kumar Chaudhary, Field Research Technician, CSISA

Participants received toolkits from the supplier and CSISA handed over training materials related to machinery operation, repair and maintenance (rice/wheat harvesting reaper and pump set repair manuals), a machinery catalogue, and videos on repair techniques.

During follow-up meetings, the Activity observed that the male participants had retained more information than the women. As a result, the CSISA team is placing additional emphasis prioritizing female mechanics for regular follow-up in future to reinforce their learning about the specifics of machinery repair.

Coordination with other stakeholders



Above: CSISA's Field Supervisor Yamaraj Adhikari explaining the function of various machine parts during repair and maintenance training, Birendranagar Municipality-6, Surkhet district, 17 December, 2022. Photo credit: Baburam Tiwari, Consultant, CSISA



Above: the CSISA team assessing the knowledge and skills of mobile mechanic trainees at Garima Janavi Traders, Ghodaghodi Municipality-10, Phalamanpur, Kailali district, 21 December, 2022. Photo credit: Subarna Limbu, Agriculture Engineer, CSISA

CSISA supported Agriculture and Livestock Business Promotion Training Center to deliver a six-day training course on Agri-machinery Repair and Maintenance in Birendranagar Municipality-6, Surkhet. The 21 participant farmers (all male) from Karnali province acquired basic knowledge of the operation of agricultural machinery and its basic repair and maintenance.

On 21 December 2022, the CSISA team in Dhangadhi assessed the skills and performance of mobile mechanic trainees at Garima Janavi Traders, Ghodaghodi Municipality-10, Phalamanpur, Kailali district. Trainees were found to have sound knowledge of power tiller and pump set parts and their function, and can carry out basic servicing and repairs. Their next step is to learn how to open and fix the main engine of the machines.



Above: mobile mechanic trainees receiving toolkits and communication products at Kusumia Suppliers, Rapti Sonari Rural Municipality-1, 21 December, 2022. Photo credit: Lekh Nath Adhikari, Field Consultant, CSISA

Weekly report

CSISA Nepal response and resilience activity 2-5 January 2023

WP 1: Assuring small- and medium-scale input and services provision business recovery and rehabilitation through access to finance

Group sales meetings

In Surkhet district, a group sales meeting was organized by community business facilitator (CBF) Dil Kumari Thapa in Bhulke, Gurvakot Municipality-I, attended by 30 farmers (25 women, five men). Ms. Thapa oriented participants to intercultural operation in cabbage and cauliflower farming, with farmers learning ways of removing unwanted plants/weeds.

Baijanath Rural Municipality, Banke district, attended by a total of 162 farmers (145 women, 17 men). In Bardiya district, three CBFs conducted a total of eight group sales meetings in Thakurbaba and Badhaiyatal municipalities, with 135 farmers (116 women, 19 men) participating.

In Nepalgunj, community business facilitator Bishnu Oli conducted 14 group sales meetings in



Above: farmers putting into practice new crop management techniques operation as part of a CSISA-facilitated group sales meeting, Bhulke, Gurvakot Municipality-I, Surkhet district, 30 December, 2022. Photo credit: Yamaraj Adhikari, Field supervisor, CSISA



Above: members of Chhimeki Women Farmers' Group in Pipari, Rapti Rural Municipality-8, Dang district, learning about the use of hermetic bags to package seed at a group sales meeting, 29 December, 2022. Photo credit: Gayatri Chaudhary, farmer, Chhimeki Women Farmer Group

Community business facilitators Bishnu Maya Joshi, Kamal Saud and Susmita Singh also organized a total of 16 group sales meetings in Kailali and Kanchanpur districts, attended by 211 farmers (184 women, 37 men).

Review meeting with community business facilitators and agro-vets

In Dang district, CSISA held a review meeting with eight CBFs and two agro-vets. Participants shared their sales records, and challenges related to managing new pests and diseases. In response, it was decided that CSISA will consult with the relevant agencies to arrange training in pest and disease management.

Follow-up meeting with agro-vets

The CSISA team visited Jaya Kisan Agrovet and RBC Agrovet in Belauru, Belauri Municipality-4, Kanchanpur district to ascertain how they are utilizing the loan received from Udayadev Multipurpose Cooperatives: 60% of the loans they received has been invested in purchasing improved/hybrid vegetable seed for resale to farmers and the remainder in other inputs such as micronutrients and sprayers.

Both agrovets secured their loan from Udayadev Multipurpose Cooperatives with CSISA's loan facilitation support. Jaya Kisan Agrovet has recently hired two CBFs who are working with farmers groups to create demand for agricultural inputs.



Above: CBF Bimala Khanal conducting a group sales meeting in Thakurbaba municipality, Bardiya district, 4 January, 2023. Photo credit: Roshan Bhandari, Field Supervisor, CSISA

WP 2: Specialty financial products and services to reduce post-harvest losses in at-risk perishable farm product value chains

Dairy enterprises

The CSISA team visited dairy entrepreneurs in Kailali and Kanchanpur districts to assess their business status, how they plan to ensure business sustainability, and any issues they might be facing. Some of these small business owners expressed an interest in learning about product diversification and improving product quality while others plan to expand their business, for which they need to upgrade their knowledge and skills in new technologies and purchase new equipment. This includes a chilling vat to store milk, a milk churner to produce *khuwa* (a semi-liquid form of evaporated milk used in making sweets), a packaging machine, and packaging materials with government-approved registered branding and labeling.

Facilitation in loan application processes

CSISA continued its facilitation support to Munal Bachat Tatha Rin Sahakari Sanstha Ltd in Gorkhatole, Ghorahi Sub-municipality-14, Dang district to enable loan approval for an established post-harvest enterprise, Sagarmatha Chowmein & Sauce Udhyog (loan amount: NPR 100,000). The enterprise plans to expand its business by using the loan to increase its volume of sauce production.

Similarly, the CSISA team in Dang supported Mega Bank to conduct field verification of Amar Chaudhary, a small producer who has applied for a loan to establish a turmeric production and processing enterprise. CSISA also supported Mr. Chaudhary to explore the business viability of purchasing a turmeric chopping and powder-making machine.

In Kapilvastu district, CSISA supported Buddha Batika Pickle Enterprise to prepare the documents required to apply for a Mega Bank loan. The enterprise plans to use the loan to scale up its pickle

production which it will then sell through Pransu Agro Processing Industry in Kohalpur, Banke district.

Additional post-harvest enterprises



Above: Laxman Singh Bista, owner of Bista Dairy, Bhasi, Bhimdutta Municipality-I, Kanchanpur district, explaining the *khuwa*-making machine, which he plans to use to expand his business by making sweets, 5 January, 2023. Photo credit: Lokendra Khadka, Assistant Research Associate, CSISA



Above: CSISA team members meeting with woman pickle entrepreneurs, 5 January, 2023, in Khanidanda, Chure-5, Kailali district, to discuss how to strengthen and scale up their business. Photo credit: Hari Prasad Acharya, Field Research Technician, CSISA

The CSISA team in Nepalgunj met with officials of the Cottage & Small Industry office in Gulariya, Bardiya district, and agreed to collaborate to support 15 potential post-harvest entrepreneurs to scale up their businesses.



Above: CSISA team members meeting with woman pickle entrepreneurs, 5 January, 2023, in Khanidanda, Chure-5, Kailali district, to discuss how to strengthen and scale up their business. Photo credit: Hari Prasad Acharya, Field Research Technician, CSISA



Above: meeting between CSISA and Bishwa Lal Khadka (Industrial Officer) and Keshab Sigdel (Accounts Officer) at the Cottage & Small Industry office, as part of a collaboration to support small businesses, Gulariya, Bardiya district, 4 January, 2023. Photo credit: Pashupati Ghimire, Office Helper, Cottage & Small Industry office, Bardiya.

WP 3: Digital banking services to support businesses and consumers affected by the COVID-19 crisis

Kisan debit cards, Kisan credit cards and capacity building of vendors

As part of its ongoing support of the adoption of digital banking services, CSISA provided real-time hands-on training to 10 vendors in Dang district on the use of the Mega Kisan Card app.

In Dang district, 74 new Kisan debit cards are now ready for distribution, and the Lamahi and Tulsipur branches of Mega Bank plan to hand them over to farmers during the week commencing 6 January, 2023. Similarly, Mega Bank in Kathmandu has approved 11 Kisan credit cards for farmers in Kapilvastu district, which will be distributed in the coming months. In Kanchanpur district, 32 Kisan credit cards have been approved by Mega Bank, also to be distributed to farmers next week. In Nepalgunj, Banke district, CSISA supported 77 farmers from Baijanath Rural Municipality through the application process for the Mega Bank Kisan debit card, 27 (21 women, six men) of whom applied via the Kohalpur branch and the remaining 50 (21 women, 29 men) via Karkando branch.

WP 4: Geographical expansion of socially distanced and COVID-19 safe agricultural mechanization services



Above: Laxmi Chaudhary, proprietor of Laxmi Agro-Center, Chaubato, Rapti Rural Municipality-6, practicing using the Mega Kisan Card app with the support of the CSISA team, 2 January, 2023. Photo credit: Bijay Pokhrel, Field Supervisor, CSISA



Above: farmers applying to open a bank account with Mega Bank, Baijnath Rural Municipality-6, Banke district, 3 January, 2023. Having a bank account is a pre-requisite for applying for a Kisan credit card. Photo credit: Pankaj Maurya, Field Supervisor, CSISA

Challenge Fund activities: Developing mobile mechanics and their mobilization through private partners and the Challenge Fund

Sahara Trade Center in Birendranagar, Municipality-6, Surkhet district is providing training/learning experience to six local people (two women, four men) in the repair and maintenance of agricultural machinery.

In Nepalgunj, Banke district, CSISA met with the owners of Madhuwan Trade & Suppliers and the company's trainees, who reported having repaired more than 50 agricultural machines during their training period (21–30 December, 2022), mainly power tillers and water pumps.

Coordination with other stakeholders

The CSISA team in Dang advised mechanics and dealers in and developed technical specification leaflets of various farm machines: four-wheel and two-wheel tractors and their attachments, the mini-tiller,

harvesting equipment including the rice/wheat thresher, post-harvest equipment such as the combine rice mill, a refrigerant unit for use in a cold room, and irrigation equipment including pump sets and the electric motor pump. These technical specifications will be utilized as reference material by the Prime Minister Agriculture Modernization Project and the Agriculture Office of Ghorahi Municipality to support smallholder farmers in purchasing quality machinery items.



Above: practicing repairing a mini-tiller as part of training provided by Sahara Trade Center, Birendranagar, Municipality-6, Surkhet district, 3 January, 2023. Photo credit: Lokendra Chalise, trainee, CSISA



Above: trainees Abinash Chaudhary and Himlal Chaudhary repairing a petrol engine at Madhuwan Trade & Suppliers, 5 January, 2023. Photo credit: Pradip Kumar Chaudhary, Field Research Technician, CSISA

Weekly report

CSISA NEPAL RESPONSE AND RESILIENCE ACTIVITY 6–12 January 2023

WP 1: Assuring small- and medium-scale input and services provision business recovery and rehabilitation through access to finance

Group sales meetings

In Dang and Kapilvastu districts, eight CBFs organized a total of 23 group sales meetings for 275 farmers (255 women, 20 men). The purpose of the meetings was twofold: to assess farmer demand for agriculture inputs and to raise awareness about best technologies available from local agrovets.

In Kailali district, CBFs Rabina Chaudhary, Gita Chaudhary, Sadhana Kathariya, Rabina Kathariya and Sujata Dangaura conducted a total of 48 group sales meetings attended by 810 farmers, in different wards of Bardagoriya Rural Municipality, Lamki, Chuha Municipality and Joshipur Rural Municipality. The CBFs oriented farmers on integrated disease and pest management in winter vegetables.



Above: progress review meeting held with CBFs and agrovets in Gulariya, Bardiya district. 10 January 2023. Photo credit: Sachin Meghanath, Field Supervisor, CSISA



Above: a group sales meeting organized by Mamta Chadhary, CBF, in Jigina, Maharajgunj Municipality-6, Kapilvastu district. 10 January 2023. Photo credit: Anil Dwivedi, Field Supervisor, CSISA

WP 2: Specialty financial products and services to reduce post-harvest losses in at-risk perishable farm product value chains

Capacitating dairy enterprises

In Banke district, CSISA conducted training for 11 dairy owners (nine women, two men) (3–5 January). Sessions covered business management skills including Government of Nepal policies on dairy management and technical training in dairy management. It also addressed clean and safe handling practices, how to identify adulterated milk, and processing and preparation techniques of milk products such as curd, *paneer* (cottage cheese), ice-cream, *churpi* (hard cheese), sweets, *khuwa* (evaporated milk) and milk powder. The dairy owners visited the Dairy Development Corporation (DDC) to observe its ways of processing.

The CSISA team in Dhangadi hub met with dairy entrepreneur Mr. Ghanshyam Bhatta in Jhalari, Suklaphata Municipality-10 (6 January). Mr. Bhatta is the recipient of a loan from a local cooperative, secured with CSISA's loan facilitation support, which together with his own money he invested to upgrade his production capacity. He bought a milk analyzer to assess the quality of milk and a chilling vat for storing it, which together cost approximately NPR 260,000.

Mr. Bhatta's business is now flourishing and he has become a noted supplier of evaporated milk

(*khuwa*), the key ingredient of foods used for celebrations in Nepal. For him, good quality milk is key to his business: however, he expressed concern that milk quality is degrading because of a lack of farmer knowledge about quality fodder and proper nutrition for cattle. He is interested in collaborating with CSISA to train dairy farmers in good husbandry practices.



Above: dairy enterprise owners after completing business management training facilitated by CSISA in Kohalpur, Banke district. 5 January 2023. Photo credit: Sachin Meghanath, Field Supervisor, CSISA



Above: Mr Ghanshyam Bhatta, owner of Gayatri Bhageshwor Dairy, Jhalari, Suklaphata-10, Kanchanpur district with his chilling vat, purchased with a loan secured with CSISA's support. 6 January 2023. Photo credit: Lokendra Khadka, Assistant Research Associate, CSISA

WP 3: Digital banking services to support businesses and consumers affected by the COVID-19 crisis

Improved agriculture training for farmers

In Dang district, CSISA facilitated training in improved agricultural technologies for 29 participants (28 women, one man) from Dhanpurwa, Lamahi Municipality-8 (11 January). These farmers are Kisan credit cards holders, and the training included discussion of agricultural technologies that can enhance the productivity and profitability of farms.



Above: participant farmers of the improved agriculture training facilitated by CSISA in Dhanpurwa, Lamahi Municipality-8, Dang district. 11 January 2023. Photo credit: Omprakash Chaudhary, Field Supervisor, CSISA

Kisan debit cards, Kisan credit cards and capacity building of vendors

Thirty-one farmers (28 women, three men) from Piplaadi, Suklaphata-3, Kanchanpur district took receipt of Kisan debit cards, released by Mega Bank.

As part of its ongoing support of the adoption of digital banking services, CSISA provided financial literacy training to 24 farmers (seven women, 17 men) in Khajura Municipality, Banke district, to orient them on financial management (12 January).

In Bardiya district, 85 Kisan debit cards were distributed to farmers by Mr. Bupendra Sharma, Branch Manager of Mega Bank at an event organized in Bihani Bajar, Geruwa Rural Municipality (9 January).



Above: farmers displaying their new Kisan debit cards at a distribution event in Piplaadi, Suklaphata Municipality-3, Kanchanpur district. 9 January 2023. Photo credit: Dharendra Chand, Field Supervisor, CSISA



Above: farmers collecting their Kisan debit card, distributed by Mega Bank, Geruwa Municipality, Bardiya district. 9 January 2023. Photo credit: Roshan Bhandari, Field Supervisor, CSISA

WP 4: Geographical expansion of socially distanced and COVID-19 safe agricultural mechanization services

Challenge Fund activities

Mr. Aasare Ram Badayak, proprietor of Badayak Krishi Farm, Hattibojha, Belauri Municipality-6, Kanchanpur district has completed the activities facilitated by his CSISA Challenge Fund award. His demonstration events for farmers provided them with up-to-date information about different agricultural machinery for alternative cultivation techniques in rice and wheat, such as direct seeded rice instead of puddled transplanted rice and minimum tillage in wheat instead of intensive tillage. Both these technologies are proven to reduce cultivation costs and provide higher profits than traditional practices.

Mr. Badayak met with the CSISA team in Dhangadhi (10 January) and explained that he expects demand among farmers for the farm machine he hires out as a service provider to be to grow dramatically. He is pleased that the provincial government has expressed an interest in promoting this technology through their subsidy programs.

CSISA followed up another Challenge Fund implementor, Lax Group Company Pvt. Ltd, in Sukkhad, Ghodaghodi Municipality-I, Kailali district. Lax Group has trained seven mobile mechanics and afterwards taken on two of them as members of staff; the remaining five are providing a mobile service in their own villages on an on-call request basis. CSISA's technical support has also helped to expand the business of machinery dealers and suppliers and generated local employment opportunities.

Lastly, D-KAM microsystems Pvt. Ltd in Tikapur Municipality-I, Kailali district has also completed its Challenge Fund activities, under which it trained three trainees, afterwards engaging two of them as staff.



Above: Mr. Aasare Ram Badayak, recipient of a Challenge Fund award, demonstrating the success of zero tillage wheat production on his farm in Hattibojha, Kanchanpur district. 10 January 2023. Photo credit: Lokendra Khadka, Assistant Research Associate, CSISA



Above: Mr. Balkrishna Chaudhary in his new workplace, machinery dealership Lax Group Company Pvt. Ltd. He completed repair and maintenance training facilitated by the CSISA Challenge Fund award and provided by Lax Group, where he is now a staff member, in Sukkhad, Ghodaghodi-I, Kailali district. 6 January 2023. Photo credit: Lokendra Khadka, Assistant Research Associate, CSISA

Weekly report

CSISA NEPAL RESPONSE AND RESILIENCE ACTIVITY 13–19 January, 2023

WP 1: Assuring small- and medium-scale input and services provision business recovery and rehabilitation through access to finance

Technical training for community business facilitators in Kanchanpur

Seventeen community business facilitators (CBFs) (eight men, nine women) working for 12 agrovets in Kanchanpur district took part in technical training organized by CSISA on improved agriculture practices in Bhimdutta-I, Mahendranagar (17 January). They learned about integrated pest management practices, micro irrigation technologies and post-harvest technologies, and heard about different agricultural machinery available in the market.

Group sales meetings

Group sales meetings organized by CBFs have been useful in generating demand for agriculture inputs like seed and tools. A preliminary estimate based on reports of CBFs located in Dang and Kapilvastu districts shows they have been receiving demands for inputs from 30 percent of the farmers they interact with in these meetings.



Above: CBFs participating in technical training organized by CSISA in Bhimdutta Municipality-I, Mahendranagar, Kanchanpur district. 17 January 2023. Photo credit: Hari Prasad Acharya, Field Research Technician, CSISA

In Kapilvastu district, 18 group sales meetings organized by CBFs were attended by a total of 245 farmers (55 women, 190 men).

WP 2: Specialty financial products and services to reduce post-harvest losses in at-risk perishable farm product value chains

Post-harvest enterprises

The CSISA Dhangadhi team, through a series of meetings with women pickle entrepreneurs in Khaanidanda, Kailali district, has motivated them to register their businesses with the Nepal government's Department of Cottage and Small Industries in the district. The women are now eligible to apply for a subsidized government loan from the bank.

The key issue affecting dairy and pickle enterprise owners is the lack of access to up-to-date knowledge about quality product development. To address this, the CSISA team met with the Department of Food Technology and Quality Control Office in Dhangadhi and agreed to organize technical training on proper handling and manufacturing technologies, and compliance with government rules and regulations.

WP 3: Digital banking services to support businesses and consumers affected by the COVID-19 crisis

Kisan credit card

Through CSISA's facilitation with Agriculture Development Bank Limited (ADBL), the members of Munuwa Beej Briddi Cooperative in Munuwa, Janaki Rural Municipality-4, Kailali district, have been issued with Kisan credit cards. The cooperative serves as a cashpoint and as a merchant for ADBL, where farmers can either purchase inputs such as fertilizer or withdraw money.

CSISA trained cooperative members how to use the Kisan credit card, which 32 members then used to buy fertilizer and to deposit and withdraw money. Using a card in this way saves a great amount of travel time; the seller is also happy as it makes transactions more efficient.



Above: farmers learning how to conduct digital transactions using the Kisan credit card at Munuwa Beej Briddi Cooperative, Munuwa, Janaki Rural Municipality-4, Kailali district. 17 January 2023. Photo credit: Hari Prasad Acharya, Field Research Technician, CSISA.

The CSISA team in Surkhet has been following up with the Surkhet branch of Mega Bank in an attempt to speed up the distribution of Kisan debit cards, which is reportedly slow due to the merger process of Mega Bank with Nepal Investment Bank.

Improved agricultural technology training for Kisan cardholder farmers

The CSISA team in Dang hub conducted training in improved agricultural practices for 30 Kisan cardholder farmers (eight women, 22 men) (17 January). Trainees learned about sustainable agriculture practices: new cropping techniques such as water and nutrient management, integrated pest management, and using agricultural machinery for operations from seeding to harvesting. Participants say that training like this motivates farmers to adopt new tools and technologies, and it is hoped that this, coupled with training on using the Kisan credit card, will enhance farmers' productivity.



Above: participants of improved agricultural technology training in Jagadishpur, Kapilvastu Municipality-9, Kapilvastu district. 17 January 2023. Photo credit: Anil Dwivedi, Field Supervisor, CSISA

Orientation on financial literacy

Nineteen farmers (six women, 13 men) took part in financial literacy training in Khajura Municipality, Banke district (18 January), facilitated by CSISA. The training is intended to support them in the proper planning and utilization of the loan they have recently secured.



Above: loanee farmers after attending financial literacy training in Khajura Rural Municipality, Banke district. 18 January 2023. Photo credit: Pankaj Maurya, Field Supervisor, CSISA

WP 4: Geographical expansion of socially distanced and COVID-19 safe agricultural mechanization services

Promotion of machinery and adoption of technology

Mr. Aasare Ram Badayak, proprietor of Badayak Krishi Farm, Hattibojha, Belauri Municipality-6, Kanchanpur district, who has been using a Challenge Fund award to promote agricultural machinery and the adoption of technology, has embraced an innovative method of applying fertilizer using a power tiller. He attaches to the tiller a bucket (as shown in the picture to the right), into which he puts a mixture of inorganic fertilizer and farmyard manure. Then he runs the machine in a field of sugarcane, and potato and fertilizer is released from the bucket. Prior this initiative Mr. Badayak had been using the power tiller merely for ploughing. As a service provider, he is hopeful that this will create more demand for his services.



Above: a modified power tiller with bucket attached, adapted by Mr. Aasare Ram Badayak, Challenge Fund implementor and service provider in Hattibojha, Belauri-6, Kanchanpur district. With this he can use the power tiller to apply fertilizer. 15 January 2023. Photo credit: Lokendra Khadka, Assistant Research Associate, CSISA

According to machinery dealers in Dang and Kapilvastu districts, CSISA's machinery demonstration program has helped in expanding their business, with an increased number of farmers visiting their shop and/or phoning with enquiries. Local machinery dealer *Kisan Krishi Yantrashala* reports farmers coming into his shop looking for machines such as combine mills, chaff cutters and mini tillers, and anticipates demand increasing in the coming summer season cropping cycle.

Promotion of mobile mechanics

Seventeen mobile mechanics recently completed repair and maintenance training under the traineeship of three machinery dealers in Dang and Kapilvastu. Of these, nine can now provide machinery servicing with just light backstopping support. In the first two weeks of January they provided mechanic services including power tiller fitting to 21 farmers, general servicing to 25 farmers, and repair and maintenance services to 15 farmers.

Building capacity of machinery service providers

Mr. Basudev Tharu, a service provider in Dang district, has been providing power tiller rental services to 25 farmers in his locality since buying a power tiller in July 2022 with loan facilitation support from CSISA. CSISA also provided him with visiting cards to attract new clients. In a recent monitoring visit, CSISA staff oriented Mr. Tharu on record-keeping for his rental business.



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Above: Mr. Basudev Tharu (left), a machinery service provider from Buddhabhumi Municipality, Kapilvastu district, being oriented on record-keeping by Jyoti Rai (right), Field Research Technician, CSISA. 18 January 2023. Photo credit: Sagar Kafle, Assistant Research Associate, CSISA

Interaction program with machinery service providers

The CSISA team in Nepalgunj hub organized an interaction meeting with 23 machinery service providers (two women, 21 men) from Banke district (13 January). Participants shared issues such as the reduced number of customers and inadequate income as a result of there being so many service providers available, meaning that they need to be highly competitive for their business to survive. Some also mentioned that they do not get paid for their services, and CSISA also found that many were not keeping proper business records. The next step is for CSISA to provide them with training to improve their business management skills.



Above: meeting with machinery service providers in Nepalgunj Sub-Metropolitan City, Banke district. 13 January 2023. Photo credit: Rajendra Kunjeda, Field Research Technician, CSISA

AOB

Since last week, the project has started preparing profiles of all medium, small and medium enterprises (MSMEs) who have received its support, and CSISA field staff have been mobilized to collect the relevant information to achieve this. The first draft profiles of all MSMEs are expected to be ready by the end of March 2023.

Weekly report

CSISA NEPAL RESPONSE AND RESILIENCE ACTIVITY February 2- February 8, 2023

WP 1: Assuring small- and medium-scale input and services provision business recovery and rehabilitation through access to finance.

Agrovet business promotion through community business facilitators

Community business facilitators (CBFs) act as sales agents for the agrovet with which they are affiliated. This reporting period in Banke district, 24 group sales meetings were organized in Rapti Sonari, Baijnath, Janaki, and Duduwa rural municipalities by five of CSISA's CBFs: Sita BK, Sova Kumari Tharu, Mina Kumari Tharu, Priyanka Singh, Taradevi Harijan and Rupa Shahi. A total of 332 farmers (234 women, 98 men) attended. At such meetings, CBFs facilitate sales of agricultural inputs by the agrovet they represent. The above five CBFs sold vegetable and maize seed worth NPR18550 (USD140).

Another CBF, Srijana Chaudhary, joined Sudur Kisaan Vet agrovet in Attariya, Kailali in January 2023, and has already conducted 15 group sales meetings and sold new brands of vegetable seeds worth NPR15,000 (USD114). Ms. Chaudhary is a highly motivated CBF who has taken up the challenge of traveling to remote areas – Singhapur, Baluwafata and Krishnapur, in Krishnapur municipality – to sell agricultural inputs to farmers. According to them she is a godsend, as through her they are getting agrovet services delivered to their doorstep.

In Nepal, farmers in remote areas do not have easy access to agrovet, having to travel long distances to reach one – and in times of austerity they prefer to leave their land fallow, as traveling to get seed is often more expensive than the cost of seed itself. Srijana is determined to utilize this situation as an opportunity to generate additional income for the agrovet she represents by reaching out to more farmers in the coming days. With her excellent facilitation skills and technical knowledge acquired through training conducted by CSISA, Sudur Kisaan Vet is flourishing, while at the same time she can be the role model for other CBFs.

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Above: CBF Field Supervisor Priyanka Singh (middle, right), selling her seeds to farmers as part of a sales meeting in Baijanath Rural Municipality-3, Banke District. 4 February 2023. Photo credit: Sachin Meghanath, CSISA



Above: Srijana Chaudhary (right) displaying and explaining the uses of seeds in a group sales meeting, in Baluwafata, Gulariya, Krishnapur Municipality-5, Kanchanpur district. 2 February 2023. Photo credit: Dipak Joshi, Field Supervisor, CSISA

reach one – and in times of austerity they prefer to leave their land fallow, as traveling to get seed is often more expensive than the cost of seed itself. Srijana is determined to utilize this situation as an opportunity to generate additional income for the agrovet she represents by reaching out to more farmers in the coming days. With her excellent facilitation skills and technical knowledge acquired through training conducted by CSISA, Sudur Kisaan Vet is flourishing, while at the same time she can be the role model for other CBFs.

WP 2: Specialty financial products and services to reduce post-harvest losses in at-risk perishable farm product value chains

Managing post-harvest loss through product diversification:

As a part of its follow-up business expansion support, CSISA organized a meeting (6 February) between pickle entrepreneur Ram Bahadur Giri and Manoj Padal who grows mushrooms, who have both benefited from CSISA's loan facilitation support program by securing business expansion loans. CSISA had recognized that as supply chain actors' they could provide each other with mutual support and help each other to sustain business: in addition to his regular business of dry mushroom production, Manoj can sell any surplus to Ram for his pickle production business.



Above: mushroom grower Manoj Padal taking notes on the mushroom pickle business, in discussion with Ram Bahadur Giri, pickle entrepreneur. 2 February 2023. Photo credit: Dipak Joshi, Field Research Technician, CSISA

The meeting took place at Manoj's mushroom farm in Boradadi, Dhangadhi-3, Kailali district, where Ram explained the process of making pickle from mushrooms and Manoj agreeing to supply him with his surplus crop. Manoj has reported that this deal helps him in product diversification, thus reducing post-harvest mushroom loss.

The CSISA team in Nepalgunj met with Chandra Bir Bohora (4 February), proprietor of Bohara Sauce and *Sinki* Udyog, in Shivrajpur, Duduwa-5, Banke district. Mr Bohora produces *sinki* from fermented dried radish.

Sinki is made from fermented vegetables and mostly sold in Duduwa in local markets. A traditional Nepali food item, *sinki* used to be prepared by most middle and low income households; however, modern lifestyles mean this tradition has declined and for the farmers who still make it, it is a highly prized business. *Sinki* is also quite a popular food item among the international Nepali diaspora, and CSISA has thus identified the benefit in supporting this post-harvest activity for its export value. Radish is also low cost and low maintenance. Together, these factors mean *sinki* production can be a profitable business for farmers if the correct marketing channels are tapped.

Chandra has been making *sinki* for years and at the end of 2022 reached out to CSISA for support to scale up production and expand market outreach. After observing how he processes the raw radish, CSISA has decided to provide Chandra with training on improved techniques of fermented vegetable production, particularly in the areas of hygiene and sanitation during processing, preservation techniques, packaging and branding, as well as to bring him up to speed inform about government rules and regulation on quality control and policies regarding marketing and export. CSISA will also provide Chandra with business management training to support him to organize his business in the most efficient way.

CSISA has also been meeting with various government and non-government agencies to further refine the project's support package to post-harvest enterprises, mainly covering areas of quality control and market expansion. The Dhangadi hub team met with the Nepal government's Food Technology and Quality Control Office, Dairy Development Corporation, Dairy Development Association, Veterinary Expert Center and some leading Dhangdi dairy industries (6 February) discussed the Activity's plan for supporting post-harvest enterprises. As a next step, the CSISA team will meet with these actors separately and draft action plans for collaboration in promoting post-harvest businesses. As these agencies are key players in the local business environment, their early engagement (and in some cases their leadership) in CSISA interventions is essential.



Above: Chandra Bir Bohara preparing radish to make sinki. 4 February 2023. Photo credit: Sachin Meghanath, Field Supervisor, CSISA

Capacity building of Kisan card holders and vendors

In Kailali and Kanchanpur districts, 38 vendors (two women and 36 men) were oriented on the using the Kisan card, including the process of making transactions using the app.

Similarly, CSISA conducted training on financial literacy, Kisan card use, and improved agricultural practices for farmers who have secured Kisan (credit and debit) cards and those whose cards are under application, across its seven activity districts. As the planting season approaches, CSISA has prioritized this training so that farmers can use their Kisan cards to purchase agriculture inputs in time to maximize their productivity as soon as possible. During agriculture training farmers are also taught about improved farming practices including integrated pest management, mulching, and various items of farm machinery that they can use on their farms to increase efficiencies and reduce costs.



Above: a farmer (left) receiving a Kisan debit card after training on financial literacy in Manikapur, Birendranagar-10, Surkhet district. 8 February 2023. Photo credit: Lokendra Chalise, Trainee, CSISA



Above: participants in financial literacy training conducted in Hararhawa, Shivaraj-02, Dang district. Photo credit: Anil Dwivedi, Field Supervisor, CSISA

WP 4: Geographical expansion of socially distanced and COVID-19 safe agricultural mechanization services

Monitoring and follow-up of machinery service providers and mobile mechanics (Challenge Fund scheme) In Kailali, seven people (one woman, six men) have completed six months of machinery repair and maintenance training, organized by CSISA partner Lax Group Company Private Ltd in Sukkhad, Ghodaghodi Municipality-I, Kailali district. Two of the seven trainees have been

retained by Lax as staff members at a monthly salary of NPR15,000 (USD113)⁷. The other five trainees have returned to their villages where they provide a mechanics services to farmers. They also work as sales agents for Lax Group, acquiring spare parts from Lax and selling them to farmers on commission.



Above: participants receiving a certificate and toolbox after completing mobile mechanics training at Lax Group Company Private Ltd in Sukkhad, Ghodaghodi Municipality-1, Kailali district. 3 February 2023. Photo credit: Azmir Singh Rana, Driver, CSISA

Weekly report

CSISA NEPAL RESPONSE AND RESILIENCE ACTIVITY 9–15 February, 2023

WP 1: Assuring small- and medium-scale input and services provision business recovery and rehabilitation through access to finance

Agrovets

In 2022 with CSISA's support, Brij Narayan Chaudhary secured a loan of NPR300,000 (USD2300) from Udayadev Multipurpose Cooperative, Belaure, Kanchanpur district, at half the usual interest rate of 16%. Before meeting CSISA he had reached out to various banks for loan support, only to have his requests denied due to Nepal's liquidity crisis. He needed money to purchase seeds and other agriculture tools for his business, Jaya Kisan Agrovets, in Belaure.

During this reporting period, CSISA met Mr. Chaudhary to obtain updated results about his business



Above: Brij Narayan Chaudhary, owner of Jaya Kisan Agrovets, sharing with a CSISA staff member his learning from CSISA business management training, and the investment from the CSISA-facilitated loan, 12 February 2023. Photo credit: Dipak Joshi, Field Supervisor, CSISA



Above: Gopi Lal Chaudhary, proprietor of Chaudhary Vet centre in his agrovets business at a CSISA meeting, 14 February 2023. Photo credit: Pankaj Kumar Maurya, Field Supervisor, CSISA

progress. He said, "If I hadn't got the loan from the cooperative I'd have had to borrow money from relatives or microfinances, which would have cost me double the interest rate." Data from the meeting also shows he currently earns NPR70,000 per month (USD530) from the business.

⁷ Nepal's minimum wage for 2023 is approximately NPR8000 (USD74) a month <https://www.minimum-wage.org>.

CSISA also provided Brij with training in business management, enabling him to be more organized in maintaining transaction records. He now reports that, “I keep daily records, so it’s easier for me to track the business’s profit and loss.” He also recently hired two community business facilitators, who sell agriproducts in remote villages. The next step is for CSISA to train Mr. Chaudhary in new varieties of seed and methods of disease and pest management for cereals and vegetables.

The Nepalgunj hub CSISA team met with Gopi Lal Chaudhary, owner of Chaudhary Vet Centre, Mohanpur, Rapti Sonari Rural Municipality-6, Banke district, who similarly had received a cooperative loan during the liquidity crisis. In 2022 as part of its interest subsidy program, CSISA connected Gopi Lal with Sakar Cooperative, resulting in him securing NPR300,000 (USD2200) at half the usual interest rate. He used the loan to buy seeds, micronutrients and pesticides, and also hired two community business facilitators who act as outreach workers to help him to sell agriculture inputs to farmers.

Technical capacity building of community business facilitators

Community business facilitators are important actors in the expansion of agrovets’ business, conducting group sales meetings and selling agriculture inputs to participant farmers. This reporting period, 18 community business facilitators (12 women, six men) who have been working with agrovets in Dang and Kapilvastu districts participated in training (12–14 February) in Ghorahi, Dang district, which successfully equipped them with basic knowledge of technical agriculture practices.



Above: Khageshwori Tiwari, owner of Tiwari Mistanna & Dairy, and her new freezer display counter, purchased with a CSISA-facilitated loan, 14 February 2023. Photo credit: Lokendra Khadka, Assistant Research Associate, CSISA



Above: community business facilitators attending technical agriculture training facilitated by CSISA, 14 February 2023. Photo credit: Om Prakash Chaudhary, Field Supervisor, CSISA



Above: a group sales meeting organized by community business facilitator Parwati Tharu (centre, seated) with CSISA support, 10 February 2023. Photo credit: Tulsi Chaudhary, Field Supervisor, CSISA

WP 2: Specialty financial products and services to reduce post-harvest losses in at-risk perishable farm product value chains

Support to agribusiness

Khageshwori Tiwari is a dairy entrepreneur living in Pahalmanpur, Ghodaghodi Municipality-10, Kailali district. From her shop, Tiwari Mistanna & Dairy, she sells milk and milk products including sweets, *paneer* (cottage cheese), yogurt and bakery items. She has been in this business for 16 years, each day purchasing 100–120 liters of milk.

In late 2022 with CSISA's support, Ms. Tiwari secured a loan of NPR291,000 (USD2200) from Tila Karnali Saving & Credit Cooperative Ltd, Pahalmanpur and used it to buy a glass display and storage counter with refrigeration and air conditioner features. This replaced a non-refrigerated wooden counter where her sweets and milk products would go off after a short time. Since then, CSISA has continued to provide ongoing support to Ms. Tiwari by advising on business strategies and assuring the loan is repaid.

Ms. Tiwari secured the loan at a reduced interest rate of 8% instead of the standard bank rate of 16%. The current update from this week's visit is that the upgrade to her business facilities has enabled her to pay back 50% of the loan within six months, meaning that she is now in a position to apply for a further loan to buy additional dairy equipment, namely a refrigerator/freezer and a milk analyzer. This will support Ms. Tiwari to secure her business further by enabling her to assess the quality of the milk she buys from farmers and to pay them commensurately.

The Nepalgunj hub CSISA team met with Dhan Prasad Adhikari, proprietor of Himal Milk Dairy Industry, in Dasbigha, Kohalpur Municipality-11, Banke district (14 February). In 2022, CSISA supported Mr. Prasad to secure a loan of NPR200,000 (USD1500) from Mega Cooperative at a 50% discounted interest rate. With the loan he bought a refrigerator, six milk cans and a cream separator machine, and engaged in business management training and technical training on product diversification, provided by CSISA.

The increased refrigeration capacity has enabled Dhan to buy and store milk, and to start selling yogurt and *paneer* (cottage cheese). Before the loan, he had 10–15 customers per day, securing him a monthly income of NPR25,000–35,000 (USD189–265). With his diversified range of dairy products he now has 150–300 customers per day and a monthly income of NPR90,000–110,000 (USD680–839).



Above: Bhagawati Pariyar, proprietor of Alfa Pickle House, supported by CSISA to sell pickle at the government trade fair, 10 February 2023. Photo credit: Mohan Raskoti, Trainee, CSISA.



Above: Dhan Prasad Adhikari, proprietor of Himal Dairy, and his newly purchased refrigerator obtained with CSISA loan support, 14 February 2023. Photo credit: Salin Acharya, Assistant Research Associate, CSISA

Promotional activities

CSISA supported *Sanjiwani Acchar Udhyog* ('Pickle Enterprise'), Banganga Municipality-9, Kapilvastu to put up a stall at the Banganga Agri & Industrial Fair, organized in Jeetpur, Banganga-4, Kapilvastu district (31 January–12 February). The enterprise sold pickles worth NPR60,000 (USD 452) in just about a week which. Similarly, in Surkhet district CSISA supported Alfa Pickle House to participate in the fair organized by the Department of Cottage & Small Industries and the District Chamber of Commerce & Industry. Alfa's records show that 90 people visited its stall during the eight-day exhibition, where it sold pickles worth NPR40,000 (around USD307), indicative of a quick and commendable profit. For MSMEs, fairs and exhibitions such as this are key platforms by which to expand their customer/client network, as well as earn decent money within a short space of time.



Above: participants of digital financial literacy training organized by Bishwas Agriculture Cooperative and facilitated by CSISA, 9 February 2023. Photo credit: Lokendra Khadka, Assistant Research Associate, CSISA

WP 3: Digital banking services to support businesses and consumers affected by the COVID-19 crisis

Capacity building of Kisan cardholders

Bishwas Agriculture Cooperative in coordination with Agriculture Development Bank Ltd (ADBL) conducted jointly organized training in digital financial literacy in Jhalaari, Suklaphata Municipality-10, Kanchanpur district (9 February). Fifty farmers (48 women, two men) participated and the program was opened by Mr. Khagraj Joshi, manager of ADBL, who contributed to CSISA's drive to motivate farmers to use digital banking by emphasizing the importance of the Kisan credit card. The bank also handed out four signboards to their merchants to help raise awareness of digital banking.

Two training events in financial literacy were organized by CSISA in Padampur Birendranagar-10 and Charkune, Birendranagar-11, both in Surkhet district (14, 15 February). In Padampur, all 18 trainees were women, while in Charkune the 30 participants comprised 29 women and one man. Participants were farmers who have already received a Kisan credit card and/or Kisan debit card, or whose applications are being processed. Each participant was given an expenses record book – *Mero Khata* ('My Book') – in which to record their daily domestic and business-related expenses.

Similarly, 25 women farmers from Chaurase, Lekbeshi-9, Surkhet district who are also Kisan cardholders, were trained in the use of integrated pest management (IPM) tools including traps, lures, mulching, vermi-compost, *Trichoderma*. The expectation is that using IPM technology will enable them to improve their agriculture production.



Above: the *Sanjiwani Acchar Udhyog* stall at Banganga Agri & Industrial Fair, facilitated by CSISA, 9 February 2023. Photo credit: Tulsi Chaudhary, Field Supervisor, CSISA

Two training events in financial literacy were organized by CSISA in Padampur Birendranagar-10 and Charkune, Birendranagar-II, both in Surkhet district (14, 15 February). In Padampur, all 18 trainees were women, while in Charkune the 30 participants comprised 29 women and one man. Participants were farmers who have already received a Kisan credit card and/or Kisan debit card, or whose applications are being processed. Each participant was given an expenses record book – *Mero Khata* ('My Book') – in which to record their daily domestic and business-related expenses.

Similarly, 25 women farmers from Chaurase, Lekbeshi-9, Surkhet district who are also Kisan cardholders, were trained in the use of integrated pest management (IPM) tools including traps, lures, mulching, vermi-compost, Trichoderma. The expectation is that using IPM technology will enable them to improve their agriculture production.

Scaling out CSISA's interventions through local government

There is increased interest among local governments and private stakeholders – agrovets, machine suppliers and dealers – in adopting digital banking. To support the scaling out of digital banking therefore, into areas where CSISA is not working, the CSISA team in Dang have prepared a guideline in consultation with the Tulsipur Sub-Metropolitan City branch of Agriculture Development Bank Ltd, Dang. The draft guideline will be shared with relevant stakeholders in the last week of February.

The CSISA team has successfully completed first-year project agreements with cooperatives in all of Nepal's seven districts. Partnerships with cooperatives are highly appreciated by MSMEs and farmers, as these eased the constraint of lack of funds during Nepal's liquidity crisis, when banks declined their loan requests. Local stakeholders – local government and cooperatives – have also expressed appreciation for CSISA's efforts to motivate farmers to approach cooperatives for loans. In one local level all-stakeholder meeting, the cooperative shared their commitment to expand this as a successful financial model with other partners.



Above: trainees learning improved agriculture practices as part of CSISA business support, 10 Feb 2023. Photo by: Dipendra Chaudhari, Field Supervisor, CSISA



Above: agrovet owners and farmers participating in CSISA capacity building training in digital banking, 11 February 2023. Photo credit: Raj Kishor Ray, Program Officer, CSISA



Above: financial literacy trainees with their *Mero Khata* expense record book supplied by CSISA as part of ongoing support, 2 February 2023. Photo credit: Yamraj Adhikari, Field Supervisor, CSISA

Capacity building of digital banking vendors

The CSISA team in Banke trained vendors of the Kisan credit card (who are agrovet owners) and Kisan cardholder farmers in digital banking, at Hotel Max, Kohalpur Municipality-II, Banke district (11 February). The 29 participants (four women, 25 men) comprised 26 vendors and three Kisan credit cardholder farmers.

Similarly, in Surkhet district CSISA orientated 16 Kisan card vendors on digital banking using the Mega Kisan card (13 February). The training was held at Bagaicha Restaurant, Birendranagar-6, Surkhet district.



Above: CSISA building the capacity of vendors in digital banking, 13 Feb 2023. Photo credit: Bina Bista, Program Officer, CSISA

WP 4: Geographical expansion of socially distanced and COVID-19 safe agricultural mechanization services

Monitoring and follow-up of machinery service providers and mobile mechanics (Challenge Fund scheme)

CSISA has successfully brought private sector investment and commitment into the promotion of agriculture mechanization. In 2022, Rajendra Kathariya, proprietor of Garima Janavi Traders in Pahalamanpur, Ghodaghodi-10, Kailali district, completed the Challenge Fund scheme for machinery promotion. Under this program, CSISA bore 50% of total costs while the machinery suppliers and traders invested the remaining 50%. Mr Kathariya demonstrated the machinery, and produced and distributed brochures and leaflets. As part of his business plan, he also conducted a limited number of free power tiller servicing camps, charging just for the replaced parts.

He used to repair 150 power tillers each season but this year he expects this to increase. “My customers have increased because of the opportunity to advertise my shop to a large number of farmers through the Challenge Fund,” he said. Mr. Kathariya is highly impressed by the scheme, recognizing the importance

of demonstration programs to maximize profits. “Next season I’m planning to organize free service camps like this myself,” he said.

Follow-up with machinery service providers

CSISA organized a meeting with 16 machinery service providers (two women, 14 men) in Dang district (15 February), providing participants with the opportunity to discuss challenges and opportunities they face in service provision. The Activity invited the manager of the Ghorahi branch of Muktinath Bank to address their concerns regarding increased interest rates and credit availability.

Results obtained from the meeting show that most machinery dealers (more than two-thirds) have utilized their machines and increased their income through service provision.

Performance assessment of women mechanics after traineeship program

As part of follow-up to a five-month traineeship program facilitated by the Activity, CSISA met seven women mechanics who attended it to assess their progress. As part of the program they learned to operate and repair three types of machine – pump sets, mini tillers and power tillers – and during their internship they repaired a total of 104 machines, with five of the seven reporting having earned money as a result of CSISA’s business tactical support.

Two of the trained mechanics plan to start their own machine servicing and repair business, while four say they need more training; one has no plans. Interestingly, all of them expressed their interest in becoming trainers.

Weekly report

CSISA NEPAL COVID RESPONSE AND RESILIENCE ACTIVITY 16 February -1 March 2023

WP 1: Assuring small- and medium-scale input and services provision business recovery and rehabilitation through access to finance.

Agrovets

The CSISA team in Dhangadhi provided training on improved agriculture practices to 20 agrovets owners (one women, 19 men), as well as information to participants about recent changes to the provincial government's fertilizer and pesticide management policy. Last year in Banke district, Lok Nath Chaudhary, proprietor of Samrat Agrovets Center, secured a loan of NPR1 million (USD7570) from Mega Bank and used it to buy additional supplies for his agrovets business, including seeds, poultry feed, farm tools, micronutrients, and pesticides in response to farmer demand. He now earns NPR35,000 (USD265) each month serving up to 150 farmers daily, compared to the NPR20,000 (USD151) he earned monthly before the loan, with 20 farmers served each day.



Above: mechanic trainees sharing their experience with a CSISA facilitator during post-training assessment, 7 February 2023. Photo credit: Rajendra Kunjeda, Field Research Technician, CSISA



Above: Lok Nath Chaudhary's Samrat Agrovets Center has increased its customers since he used a CSISA-facilitated loan to invest in additional supplies, in Hawaldapur, Kohalpur municipality-14, Banke district. 20 February 2023. Photo credit: Rajendra Kunjeda, Field Research Technician, CSISA



Above: agrovets participating in technical training on crop disease and pest management, at Hotel Sitar, Dhangadhi. 25 February 2023. Photo credit: Hari Prasad Acharya, Field Research Technician, CSISA.

WP 2: Specialty financial products and services to reduce post-harvest losses in at-risk perishable farm product value chains

Mobile marketing of pickle

Ram Bahadur Giri owns Anandi Pickle in Bangrakatan, Dhangadhi sub-metropolitan city-9, Kailali district, and produces a wide variety of pickles from mango, radish, lemon, ginger and bitter gourd. His business thrives on the stable supply chain he established through his farmer and supplier network; he himself owns a horticulture farm. However, before his involvement with CSISA he followed a traditional way of marketing, asking local shops in Dhangadi to sell his pickles, and found sales dissatisfactory. CSISA offered him advisory and business expansion support to prepare a business plan for the mobile sale of pickles, and he then applied for a loan from the Dhangadhi branch of Nepal Bank Ltd, securing NPR1500,000 (USD11,300) at a subsidized interest rate of 4.5% per annum.

Mr. Giri used the loan to buy an auto rickshaw, which he drives around and sells pickles from.

To attract customers, he has attached an eye-catching banner to the rickshaw and plays a continuous announcement advertising his pickles as he drives along. This has been very productive for his business, which now sells 50% more than when he sold pickles through the local shops. He earns at least NPR2000 (USD15) per day and has also started home deliveries. Next, CSISA will provide him with business management training to support him in efficient financial management. Ram Giri's ambition is to increase production volume, and he plans to construct another house to use for processing and storing the finished products.

Sauce enterprise

Laxmi Devi Rampali Magar's business, Jayabuddha Chowmein and Sauce Udhyog, produces tomato sauce using tomato, chili and soyabeans, in Babyachaur, Panchapuri rural municipality-5, Surkhet district. According to Ms. Magar, during the COVID crisis she was unable to operate the business due to lack of raw materials. Recently she used her own funds to invest in a grinding machine, which has increased the rate of production as well as reducing the drudgery involved in preparing the raw materials manually. She considers her business a profitable one, with a monthly net income ranging from NPR15,000 (USD113) to NPR25,000 (USD189). Next, CSISA plans to train her in safe handling and quality control and provide support to explore additional marketing channels.

Cold storage

Farmers in Nepal have been troubled by the market fluctuation of their farm produce because of a mismatch in demand and supply. To enable them to store perishable vegetables and have confidence in their farm business, certain technologies are available. One viable option could be a small-scale cold chamber, more suitable for smallholder farmers than large cold storage units, which involve high costs and a large degree of technical and management skills. Through CSISA's facilitative support enabling him to secure a loan of NPR700,000 from the Taulihawa branch of Mega Bank in 2022, Krishna Mohan



Above: an employee of Anandi Pickle ready to go to market and sell pickle. 25 February 2023. Photo credit: Lokendra Khadka, Assistant Research Associate, CSISA.

Kewat has installed a small-scale cold chamber which he operates under the business name of Cool Bot as a new post-harvest enterprise. The CSISA team has met regularly with Mr. Kewat to ensure the cold chamber is fully functional and to support him to turn it into a lucrative business. Krishna Kewat has already started collecting perishable vegetables from other farmers to store in the chamber to supply to the nearby haat bazaar.



Above: Laxmi Devi Rampali Magar, proprietor of Jayabuddha Chowmein Tatha Sauce Udhyog, with the grinding machine, and sauce bottles ready to be dispatched to local markets in Panchaphuri municipality, Surkhet district. 28 February 2023. Photo credit: Mohan Raskoti, Trainee, CSISA.



Above: the CSISA team, meeting with Krishna Kewat, proprietor of Cool Bot Facility, purchased with a CSISA-facilitated loan, in Chetaradehi, Buddhabhumi Municipality, Kapilvastu. 26 February 2023. Photo credit: Anil Dwivedi, Field Supervisor, CSISA.

WP 3: Digital banking services to support businesses and consumers affected by the COVID-19 crisis

Digital banking in farm mechanization

Hiralal Chaudhary is a smallholder farmer in Jaali, Dhangadhi Sub-metropolitan city-6, Kailali district. He cultivates vegetables on 0.2 hectare of land, and rice and wheat on 1.6 hectares. However, his application for a loan to buy a power tiller was declined. His land is not registered in accordance with the government system, and this lack of proof of ownership meant he could not provide sufficient collateral to be considered.

To support Mr. Chaudhary becoming part of Mega Bank's Kisan credit card scheme, CSISA facilitated him obtaining the necessary documents from the Dhangadhi ward offices, resulting in him securing a Kisan credit card and a loan of NPR250,000 (USD1892). He used the card to buy a power tiller machine, saying, "I feel blessed to get the Kisan credit card, because it meant I could buy the power tiller machine at a very low interest rate without collateral."

Hiralal Chaudhary now uses the power tiller to plough his own field, as well as to provide plowing services to other farmers, and in the first wheat season after he bought it, earned a net profit of NPR28,000 (USD212). Before that, he was obliged to pay NPR30,000 (USD227) just to hire a tractor to prepare his fields, money he has saved by using his own power tiller. He now plans to buy additional attachments, such as a trolley and a reaper, and generate extra income.

Mr. Chaudhary has become an effective user of digital banking facilities, invested the money secured as a result in the machinery he most needed, enabling efficient field operation and increasing his income.

Promotion of digital banking through the *palika*

In Bardia district, the CSISA team organized coordination meetings with two *palikas*, in Badhaiyatal rural municipality (23 February) and Barabardiya rural municipality (25 February). The key item on the agenda was to disseminate information about CSISA's digital banking program for farm mechanization. Participants included the *palika* president, vice president, ward presidents, chief of the enterprise and agriculture section, *palika* members, journalists, agriculture input suppliers and Kisan credit card holder farmers.

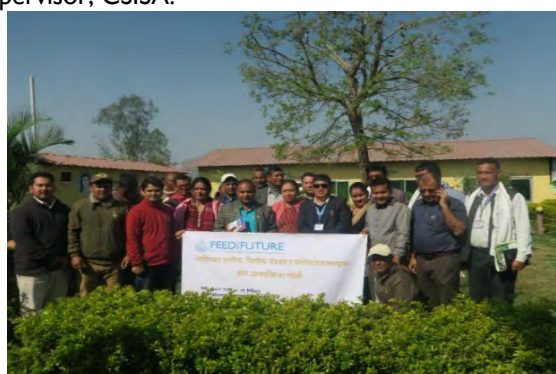
Key points of discussion were:

- Participants expressed appreciation of the Kisan credit card scheme and its provision of loans at a discounted interest rate.
-
- They also expressed doubts about reaching out to poor and marginalized farmers and entrepreneurs with mere technical support. However, they are confident about the CSISA's multi-pronged approach of building technical capacity, and of supporting farmers and entrepreneurs with business development services.
- Participants want to collaborate with CSISA in areas of advisory and extension services to machine suppliers/dealers and farmers about purchasing appropriate machinery, as well as training them in machine operation, basic repair and maintenance. Specifically, they requested CSISA's support to raise awareness among farmers about rice transplanters, and training in the use of pumpsets, which *palikas* have distributed under their subsidy program.
- The chief of the agriculture section expressed appreciation for CSISA's valuable inputs into the annual planning process, for which a joint meeting is planned in June 2023.

Mr. Chabi Lal Tharu, Mayor of Barabardiya municipality, emphasized the need for a regular exchange of information between CSISA and the *palikas*, requesting CSISA to share its annual plan at the start of each fiscal year. Similarly, the CSISA team in Surkhet district organized three *palika* coordination meetings in Gurbhakot Bheriganga, Birendranagar and Panchapuri.



Above: representatives attending a *palika*-level coordination meeting to exchange views and information about CSISA's work, especially in digital banking, in Babiyachor, Panchapuri-5, Surkhet district. 1 March 2023. Photo credit: Krishan Bogati, Field Supervisor, CSISA.



Above: participants of a *palika* coordination meeting to facilitate effective implementation of digital banking schemes in Mainapokhar, Badhaiyataal rural municipality-6, Bardiya district. 23 February 2023. Photo credit: Subash Adhikari, Journalist.

Financial literacy training for Kisan card holders:

In Surkhet district, CSISA organized two training events on financial literacy for Kisan card holder farmers, including 21 women in Manikapur, Birendranagar-10 (27 February) and 23 farmers (22 women, 1 man) in Bayalkanda, Birendranagar-14 (28 February). During this reporting period, 18 new women farmers received Kisan debit cards.

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Supporting Kisan card recipient farmers to achieve enhanced entrepreneurial skills:

Since 20xx with the support of CSISA, in Dang and Kapilvastu more than 350 farmers have secured Kisan cards and started using them. Dan Bahadur Chaudhary bought a walk-behind reaper in August 2022 using a Kisan credit card and now provides machinery harvesting services to other farmers. In the rice season, he earned NPR102,000 (USD777) in a month, which is more than 50 percent of the cost of the reaper. Mr. Chaudhary aims to pay back the loan this year, after the March–April wheat harvesting season.

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Above: CSISA Field Supervisor Dipendra Chaudhary orientating Kisan card holders in financial literacy, in Manikapur, Birendranagar municipality-10, Surkhet . 27 February 2023. Photo credit: Mohan Raskoti, Trainee, CSISA.



Above: Kisan credit card vendors, all agrovets, in a training session about digital banking schemes, in Ghorahi, Dang district. 16 February 2023. Photo credit: Janga Bahadur Gurung, Program Officer, CSISA.

WP 4: Geographical expansion of socially distanced and COVID-19 safe agricultural mechanization services

Service provision through mobile mechanics

Goluram Chaudhary is a mobile mechanic from Belaar, Ghodaghodi Municipality-I, Kailali district. With CSISA's support he learned about the repair and maintenance of power tillers, pump engines, threshers and reapers, and received a set of tools from the Activity to initiate his repair business. He is now proficient in repairing these machines, and earns NPR 90,000 (USD681) per month, which is 25 percent more.

WP 3: Digital banking services to support businesses and consumers affected by the COVID-19 crisis

Capacity building of Kisan cardholders

Bishwas Agriculture Cooperative in coordination with Agriculture Development Bank Ltd (ADBL) conducted jointly organized training in digital financial literacy in Jhalaari, Suklaphata Municipality-10, Kanchanpur district (9 February). Fifty farmers (48 women, two men) participated and the program was opened by Mr. Khagraj Joshi, manager of ADBL, who contributed to CSISA's drive to motivate farmers to use digital banking by emphasizing the importance of the Kisan credit card. The bank also handed out four signboards to their merchants to help raise awareness of digital banking.



Above: participants of digital financial literacy training organized by Bishwas Agriculture Cooperative and facilitated by CSISA, 9 February 2023. Photo credit: Lokendra Khadka, Assistant Research Associate, CSISA

Two training events in financial literacy were organized by CSISA in Padampur Birendranagar-10 and Charkune, Birendranagar-II, both in Surkhet district (14, 15 February). In Padampur, all 18 trainees were women, while in Charkune the 30 participants comprised 29 women and one man. Participants were farmers who have already received a Kisan credit card and/or Kisan debit card, or whose applications are being processed. Each participant was given an expenses record book – *Mero Khata* ('My Book') – in which to record their daily domestic and business-related expenses.

Similarly, 25 women farmers from Chaurase, Lekbeshi-9, Surkhet district who are also Kisan cardholders, were trained in the use of integrated pest management (IPM) tools including traps, lures, mulching, vermi-compost, Trichoderma. The expectation is that using IPM technology will enable them to improve their agriculture production.



Above: trainees learning improved agriculture practices as part of CSISA business support, 10 Feb 2023. Photo by: Dipendra Chaudhari, Field Supervisor, CSISA

Two training events in financial literacy were organized by CSISA in Padampur Birendranagar-10 and Charkune, Birendranagar-11, both in Surkhet district (14, 15 February). In Padampur, all 18 trainees were women, while in Charkune the 30 participants comprised 29 women and one man. Participants were farmers who have already received a Kisan credit card and/or Kisan debit card, or whose applications are being processed. Each participant was given an expenses record book – *Mero Khata* ('My Book') – in which to record their daily domestic and business-related expenses. Similarly, 25 women farmers from Chaurase, Lekbeshi-9, Surkhet district who are also Kisan cardholders, were trained in the use of integrated pest management (IPM) tools including traps, lures, mulching, vermi-compost, Trichoderma. The expectation is that using IPM technology will enable them to improve their agriculture production.

Scaling out CSISA's interventions through local government

There is increased interest among local governments and private stakeholders – agrovets, machine suppliers and dealers – in adopting digital banking. To support the scaling out of digital banking therefore, into areas where CSISA is not working, the CSISA team in Dang have prepared a guideline in consultation with the Tulsipur Sub-Metropolitan City branch of Agriculture Development Bank Ltd, Dang. The draft guideline will be shared with relevant stakeholders in the last week of February.



Above: CSISA building the capacity of vendors in digital banking, 13 Feb 2023. Photo credit: Bina Bista, Program Officer, CSISA

The CSISA team has successfully completed first-year project agreements with cooperatives in all of Nepal's seven districts. Partnerships with cooperatives are highly appreciated by MSMEs and farmers, as these eased the constraint of lack of funds during Nepal's liquidity crisis, when banks declined their loan requests. Local stakeholders – local government and cooperatives – have also expressed appreciation for CSISA's efforts to motivate farmers to approach cooperatives for loans. In one local level all-stakeholder meeting, the cooperative shared their commitment to expand this as a successful financial model with other partners.

Capacity building of digital banking vendors

The CSISA team in Banke trained vendors of the Kisan credit card (who are agrovets owners) and Kisan cardholder farmers in digital banking, at Hotel Max, Kohalpur Municipality-11, Banke district (11 February). The 29 participants (four women, 25 men) comprised 26 vendors and three Kisan credit cardholder farmers.

Similarly, in Surkhet district CSISA orientated 16 Kisan card vendors on digital banking using the Mega Kisan card (13 February). The training was held at Bagaicha Restaurant, Birendranagar-6, Surkhet district.

WP 4: Geographical expansion of socially distanced and COVID-19 safe agricultural mechanization services

Monitoring and follow-up of machinery service providers and mobile mechanics (Challenge Fund scheme)

CSISA has successfully brought private sector investment and commitment into the promotion of agriculture mechanization. In 2022, Rajendra Kathariya, proprietor of Garima Janavi Traders in Pahalamanpur, Ghodaghodi-10, Kailali district, completed the Challenge Fund scheme for machinery promotion. Under this program, CSISA bore 50% of total costs while the machinery suppliers and traders invested the remaining 50%. Mr Kathariya demonstrated the machinery, and produced and distributed brochures and leaflets. As part of his business plan, he also conducted a limited number of free power tiller servicing camps, charging just for the replaced parts.

He used to repair 150 power tillers each season but this year he expects this to increase. “My customers have increased because of the opportunity to advertise my shop to a large number of farmers through the Challenge Fund,” he said. Mr. Kathariya is highly impressed by the scheme, recognizing the importance

of demonstration programs to maximize profits. “Next season I’m planning to organize free service camps like this myself,” he said.

Follow-up with machinery service providers

CSISA organized a meeting with 16 machinery service providers (two women, 14 men) in Dang district (15 February), providing participants with the opportunity to discuss challenges and opportunities they face in service provision. The Activity invited the manager of the Ghorahi branch of Muktinath Bank to address their concerns regarding increased interest rates and credit availability.

Results obtained from the meeting show that most machinery dealers (more than two-thirds) have utilized their machines and increased their income through service provision.

Performance assessment of women mechanics after traineeship program

As part of follow-up to a five-month traineeship program facilitated by the Activity, CSISA met seven women mechanics who attended it to assess their progress. As part of the program they learned to operate and repair three types of machine – pump sets, mini tillers and power tillers – and during their internship they repaired a total of 104 machines, with five of the seven reporting having earned money as a result of CSISA’s business tactical support two of the trained mechanics plan to start their own machine servicing and repair business, while four say they need more training; one has no plans. Interestingly, all of them expressed their interest in becoming trainers.



Above: agrovet owners and farmers participating in CSISA capacity building training in digital banking, 11 February 2023.



Above: mechanic trainees sharing their experience with a CSISA facilitator during post-training assessment, 7 February 2023. Photo credit: Rajendra Kunjeda, Field Research Technician, CSISA

Bi-Weekly report

CSISA-NEPAL COVID RESPONSE AND RESILIENCE ACTIVITY 2 March – 15 March 2023

WP 1: Assuring small- and medium-scale input and services provision business recovery and rehabilitation through access to finance

Business extension and recovery of agrovet through access to finance

Part of CSISA's work is to facilitate agro-dealers to take out loans for business extension, and to get back on track those businesses impacted by COVID-19. In July 2022, Sahani Agrovet Centre in Bijaynagar-04, Kapilvastu district, owned by Harishankar Malah, secured a business loan of NPR4.5 million (USD34,000) from Mega Bank with CSISA's support. Mr. Malah used the loan to pay off his debts and then purchased agri-inputs including fertilizer, seeds, pesticides and veterinary items, ensuring a good stock was maintained in his shop.



Above: Harishankar Mala at work in his business, Sahani Agrovet Centre. Bijayanagar, Kapilvastu district. 10 March 2023. Photo credit: Sagar Kafle, Assistant Research Associate, CSISA.

The negative effects of COVID-19 meant that without the loan he would have had to cease trading, but in an update during CSISA's visit (10 March) he reported that his business is revitalized, with the increased stock attracting an average of about 1100–1200 customers annually, around 30 percent more than that indicated by last year's data. The support CSISA provided to Sahani Agrovet Centre has contributed to Mr. Malah's recovery from the post-COVID economic crisis, to the extent that he is now planning to start a machinery business.

The CSISA team in Nepalgunj met with Dil Kumari Tharu, owner of Sahara Agrovet Center in Bangsadhi, Bangsadhi municipality 5, Bardiya district (9 March). In 2022 with CSISA's facilitation, Mrs Tharu secured a loan of NPR1.0 million (USD7570) from Mega Bank at a 50 percent discounted interest rate, and used it to buy seeds, micronutrients and pesticides that enable her to meet farmers' demands. CSISA also provided business management training, and hired two community business facilitators who act as agents for the business and have contributed to expanding her business. She used to have 30–35 farmer customers each day and earn NPR25,000–30,000 (USD189–277) per month: this has increased to 100–150 farmers per day and a monthly income of NPR40,000–50,000 (USD302–378).



Above: a CSISA crop calendar being handed over to Bihani Agrovet Centre, Surkhet district. Photo credit: Nisha Malla, Field Supervisor, CSISA

CSISA has been providing crop calendars to all agrovets to be hung in their shops. The crop calendar is a signboard which displays information including various seasonal and non-seasonal crops, when and how to plant them, the inputs required, and when and how to use them. The guidance it provides supports farmers to prepare an optimum cultivation plan.

WP 2: Specialty financial products and services to reduce post-harvest losses in at-risk perishable farm product value chains

Product diversification to minimize post-harvest loss:

Manoj Padaal owns Far-western Agro Firm, located in Boradaadi, Dhangadhi Sub-metropolitan city-3, Kailali district. He has been growing and selling fresh mushrooms for 10 years, with daily sales of 400–900 kg his primary source of income. During the COVID–19 lockdown Mr. Padaal lost about NPR1.0 million (USD7570) worth of mushrooms, which he was unable to harvest due to labor scarcity and market disruptions. This has made him determined to adopt measures (like product diversification through processing) to ensure his business is resilient. CSISA connected Manoj with pickle entrepreneur, from whom he learnt about making pickle from mushrooms. These days, in addition to selling fresh mushroom he produces mushroom pickle, *sukuti* (dried mushroom), and a dried mixture of mushroom and black lentil called *asyauraa*.

“If I’d known I could produce multiple products from mushroom, I wouldn’t have faced the losses during the COVID–19 pandemic”, Manoj said, adding that he can earn more from processed products than from selling fresh mushrooms, especially when he has surplus production.

With CSISA’s facilitation in the loan application process, Mr. Padaal secured NPR4.0 million from Sanima Bank, Dhangadhi, Kailali district at a subsidized interest rate of 6 percent, compared to the 10 percent normally demanded by the bank. He used the loan to buy a dryer machine and a mixer. He also added another production facility and is now producing 100 quintals of fresh mushroom per year. He has also employed seven female staff members.

Manoj Padaal supplies both seed and mushroom to nearby cities and rural areas of Kailali and Kanchanpur districts, as well as the hilly districts of Doti and Dadeldhura. He now plans to sell his products through departmental stores in nearby cities such as Dhangadhi and Mahendranagar.

CSISA has thus enhanced the knowledge and skills of Mr. Padaal to diversify mushroom



Above: Manoj Padaal and CSISA staff observing women employees engaged in the procedure of making *masauaraa* inside Far-western Agro’s dry house. 10 March 2023. Photo credit: Lokendra Khadka, Assistant research Associate, CSISA



Above: pickle, *masyauraa* and *sukuti* made from mushroom, produced by Manoj Padaal. 10 March 2023. Photo credit: Sutyah Bahadur Khadka, Program Officer, CSISA

into different products, contributing to increasing the profitability and sustainability of his business. The Activity's support in loan facilitation has also enabled him to secure a loan and thereby expand his business.

WP 3: Digital banking services to support businesses and consumers affected by the COVID-19 crisis

Capacity building of vendors in digital banking

Monika Chaudhary is a smallholder farmer from Ujelisimaar, Kailari rural municipality 2, Kailali district, and lives with her family of four. On her 0.8 hectare of land she primarily grows rice and wheat which provide her main source of income. She used to hire a power tiller to plough her field, but the limited number available in her area meant she had to wait, resulting in the delayed sowing/transplanting of crops and consequent reduced yields.

In 2022, CSISA connected Monika with the Dhangadhi branch office of Nepal Investment Mega Bank, guided her through the documentation process to obtain a Kisan credit card, and then supported her to use the card efficiently. The NPR2.5 lakh (USD1892) she secured on the Kisan credit card enabled her to purchase her own power tiller. She says, "Once it starts, I can easily handle it to plough the field". Using her own machine saves her NPR12,000 (USD91), compared to the hire cost of NPR20,000 (USD151). She also provides ploughing services to her neighbors, which last season earned her an additional NPR20,000 (USD151). CSISA's next step is to support Monika to strengthen her operating skills, so she can increase the number of farmers she provides services to and earn more.



Above: Monika Chaudhary, plowing her field for wheat sowing. 6 March 2023. Photo credit: Hari Prasad Acharya, Field Research Technician, CSISA

Building the capacity of Kisan cardholders

a. Financial literacy

In Dang district, CSISA organized three financial literacy training sessions during the reporting period, with the participation of a total of 72 farmers (39 women, 33 male). One was arranged in Pipari, Rapti-08 (3 March, 2023) and one each in Rautgaun (13 March) and Namunatole villages, Tulsipur-16 (14 March). Farmers learned how to use the Kisan card to purchase agri-inputs and how to record expenses in special registers which CSISA distributed.

b. Improved agriculture practices

Part of CSISA's work is to motivate Kisan card recipient farmers to use the card regularly for multiple transactions, which can happen when farmers are involved in commercial farming. One-day technical training sessions on improved agriculture practices have been organized in all the Activity districts to increase the technical capacity of those who want to become commercial farmers. In Dang, two of these technical trainings were held in Pipari (5 March) and Pipara villages, Rapti-08 (10 March) involving a total of 36 Kisan cardholders (16 women, 20 men) who learned about various aspects of improved agriculture management. Similar training was also conducted in Kapilvastu district, in Umari village, Shivaraj-01 (14 March) and Baijalpur village, Banganga-02 (15 March).

WP 4: Geographical expansion of socially distanced and COVID-19 safe agricultural mechanization services

Service provision: machinery service provider

The CSISA team in Nepalgunj met with machine service provider Suraj Lal Tharu, in Chhotki Daulatpur, Rajapur Municipality-I, Bardiya district (15 March). Mr. Tharu returned from India in 2020 after working there for three years and bought a four-wheeled tractor with a loan of NPR150,000 (USD1135) from Karnali Development Bank, Bardiya. CSISA had supported him through the loan application process and also provided business management training, and training in machine repair and maintenance. In one season, Mr. Tharu now provides plowing and threshing services to over 200 farmers and earns NPR400,000 (USD3028), allowing him to pay the interest on his loan on time, as well as his children's school fees. His future plan is to purchase a combine harvester and continue working as a machine service provider.



Above: four-wheeled tractor service provider Suraj Lal Tharu, providing a materials transportation service for local people in Chhotki Daulatpur, Bardia district. 15 March. Photo credit: Santosh Tharu, Trainee, CSISA.

Weekly report

CSISA NEPAL COVID RESPONSE AND RESILIENCE ACTIVITY

March 16–30, 2023

WP 1: Assuring small- and medium-scale input and services provision business recovery and rehabilitation through access to finance

Recovering from Covid-19

Like so many small businesses, Buddhi Kumari Acharya encountered difficulties during COVID-19. “Before the pandemic, we didn’t have any capital crisis and agri-input sales were quite satisfactory,” she says, “but during lockdown, sales of commodities went down drastically.”

Lack of funds also made it impossible to buy essentials like seed, fertilizer and equipment.” Pageni Agrovet Center slowly resumed business and with CSISA support, connected to financial institutions such as cooperatives, securing a loan to get back on its feet and extend the business.

Its monthly net revenue can now exceed NPR48,000 (USD365), up from NPR36,000 (USD274) before the pandemic, and the agrovet now provides jobs to two people, who, as service providers, supply inputs and technical knowhow to farmers on a commission basis. CSISA’s post-COVID–19 Activity has supported the agrovet to provide services to 350+ farmers.

Another small business which has benefitted from CSISA’s support under the Activity’s COVID–19 Response Activity is Laxmi Agrovet Center in Patthargadhawa, Rapti Rural Municipality-6, Dang district. Laxmi Kumari Chaudhary (33) started her agrovet business nine years ago after finishing her community agriculture assistant training, but when the pandemic restricted farmers’ mobility she was unable to make sales. With CSISA’s support, in August 2022 she secured a loan of NPR20,000 (USD152) from Jaya Gurubaba Agriculture Cooperative and stocked up on supplies. Maintaining a good stock means her sales have increased, plus she acts as a Kisan card vendor for farmers, again facilitated by CSISA.



Above: Kumari Acharya, owner of Pageni Agrovet Center, waiting confidently for customers at Itram chowk, Birendranagar Municipality-7, Surkhet, 25 March 2023. Photo credit: Mohan Raskoti, Trainee, CSISA



Above: Laxmi Chaudhary selling agri-inputs in her shop, Laxmi Agrovet, Rapti Municipality, Dang district, 22 March 2023. Photo credit: Lekh Nath Adhikari, Field Consultant, CSISA

CSISA also provides technical training in improved agricultural practices, and business management training to agri-input suppliers, and during the reporting period organized two days of training in account-keeping, financial management and compliance (25–26 March) in Kohalpur, Banke district. This was attended by 21 MSMEs (five women, 16 men).

As well as learning the best tools and techniques to employ to effectively manage business operations, participants covered important aspects of compliance, including tax regulations, legal requirements, and ethical considerations. Similar training was organized in Kanchanpur (25–26 March).



Above: agri-input suppliers participating in business management skills training organized by CSISA at Hotel Atithi, Kohalpur, Banke district, 25–26 March 2023. Photo credit: Raj Kishor Raya, Program Officer, CSISA



Above: agrovet owners participating in financial management and compliance training in Bhimdutta Municipality-I, Kanchanpur district, 26 March 2023. Photo credit: Dipak Joshi, Field Supervisor, CSISA

WP 2: Specialty financial products and services to reduce post-harvest losses in at-risk perishable farm product value chains

a. Product diversification to increase revenue

Dairy enterprise owner Bhagwati Chalise found that her sales of raw milk slowed during the COVID–19 pandemic, and by the time CSISA started its work in Surkhet in 2022, she had decided to add to her equipment to enable the production of ghee (clarified butter) and yoghurt. CSISA's support enabled Ms. Chalise to secure a subsidy loan of NPR300,000 (USD2280) from Pioneer Multipurpose Cooperative Limited, Birendranagar-6, in Surkhet at an interest rate of 16%, to which CSISA contributed 8% for the first year.

Ms. Chalise now collects 160 liters of milk from farmers each day, compared to 60 liters before the loan. Her business- Lekali Dudhdahi Sangkalan Tata Bikri Kendra now earns NPR51,000 (USD388) per year, almost double the NPR27,000 (USD205) before expansion.

Bhagwati Chalise says, “We pay an instalment of around NPR30,000 (USD288) – on time – each month and manage our life more comfortably. If we hadn't got financial support, we'd have ended up in a very arduous situation, struggling because of the residual effects of the pandemic.”



Above: Ms. Bhagwati Chalise in her dairy at Birendranagar Municipality-6, Surkhet district, 28 March 2023. Photo credit: Shibaji Mahato, Assistant Research Associate, CSISA

b. Business management skills training for post-harvest enterprises, including financial and office management, customer management and data management:

The training was aimed at improving financial management (maintaining a cash book, daily transaction records and income statements) and credit management. It also covered important aspects of customer management (customer relationship management, marketing strategies, and effective communication techniques).



Above: post-harvest entrepreneurs during CSISA-facilitated business management skills training in Mahendranagar, Bhimdutta Municipality-I, Kanchanpur, 26 March 2023. Photo credit: Jagat BK, Field Supervisor, CSISA



Above: post-harvest enterprise owners participating in a two-day business management skills training course facilitated by CSISA at De Namaste Hotel, Birendranagar Municipality-6, Surkhet district, 28 March 2023. Photo credit: Shibaji Mahato, Assistant Research Associate, CSISA

WP 3: Digital banking services to support businesses and consumers affected by the COVID-19 crisis

a. Kisan credit card holders engage in improved agriculture practices

In Manikapur-II, Birendranagar Municipality, Surkhet district, women farmers are involved in seasonal and off-season vegetable production, and report that receiving a Kisan credit card has increased their motivation and sense of involvement in vegetable production. Being able to buy agri-inputs on their own initiative, using their cards without having to ask others for money or to get inputs for them has given them a sense of empowerment, while not having to carry cash around frees them from the additional stress of risking losing money.



Above: Kisan cardholder farmers learning integrated pest management for improved control of pests in their fields in Manikapur, Birendranagar Municipality-II, Surkhet district, 24 March 2023. Photo credit: Nisha Malla, Field Supervisor, CSISA

During the reporting period, CSISA ran training for the women on using improved agricultural practices to manage pests. They have now started to use pheromone lures, yellow sticky traps and botanical pesticides to control fruit fly, moth, tomato leafminer and other harmful insects, practices which they report have increased their optimism of better harvests.

An additional 11 women farmers in Surkhet received the Kisan credit card and plan to use it to purchase agri-inputs for their homestead farm/kitchen garden.



Above: Kisan cardholder farmers participating in financial literacy training organized by CSISA in D-Gaun, Khajura Municipality-4, Banke district, 20 March 2023. Photo credit: Pankaj Kumar Maurya, Field Supervisor, CSISA



Above: a CSISA farmer receiving her Kisan debit card in Sotkhola, Barahatal Rural Municipality-14, Surkhet district, 2 March 2023. Photo credit: Mohan Raskoti, trainee, CSISA

b. Financial literacy training for Kisan cardholders

CSISA organized a financial literacy orientation program in D-Gaun, Khajura Municipality-4, Banke district, for 14 Kisan cardholder farmers (seven women, seven men) (20 March). Participants learned about financial management, including the use of mobile banking apps, online payments and other digital tools to manage their finances conveniently and efficiently.

Similarly, in Rapti and Lamahi municipalities in Dang district, CSISA facilitated two financial literacy training sessions attended by a total of 28 farmers (14 women, 14 men), and two similar training events in Kapilvastu and Yashodhara municipalities, Kapilvastu district with a total of 49 farmers (32 women and 17 men).



Above: farmers taking part in financial literacy training, with CSISA field supervisor Tulsi Chaudhary explaining record-keeping, in Sultanpur, Yasodhara-7, Kapilvastu district, 16 March 2023. Photo credit: Anil Dwivedi, Field Supervisor, CSISA

WP 4: Geographical expansion of socially distanced and COVID-19 safe agricultural mechanization services

Interaction meetings with machinery service providers and mobile mechanics

CSISA conducted two interaction meetings during the reporting period, in Gurvakot Municipality-8 (21 March) and Birendranagar Municipality (23 March), Surkhet district, with 23 MSPs (seven women, 16 men) in Gurvakot and 16 MSPs (seven women, 15 men) in Birendranagar sharing their experiences of working as MSPs. The key issue to emerge was that although they can now carry out general servicing, the MSPs lack confidence in machine repair and maintenance. The CSISA team ran practical sessions to address participant queries.

An interaction meeting was also held in Kapilvastu district (28 March) where 12 (male) participants shared their experiences. Those MSPs owning power tillers reported having around 15–20 farmers as regular customers. The mobile mechanics – who completed mobile mechanic training organized by CSISA in partnership with machinery dealers – have provided mechanics services to 20–25 farmers since December 2022.



Above: MSPs learning about different mini tiller parts, in Mehelkuna, Gurdakott Municipality-8, Surkhet district, 23 March 2023. Photo credit: Amrit Gurung, Consultant, CSISA

Participants also discussed increasing the multiple use of available machines so as to increase their income from machinery services and reduce the loan payback period. They agreed that new marketing and advertising strategies should be developed to increase customer numbers. As an example, Basudev Tharu, MSP and power tiller owner, reported that CSISA's support in marketing his machinery service business through printing visiting cards has helped him enormously to reach out to new customers. The interaction meeting also brought MSPs and mobile mechanics together, contributing to establishing linkage among them



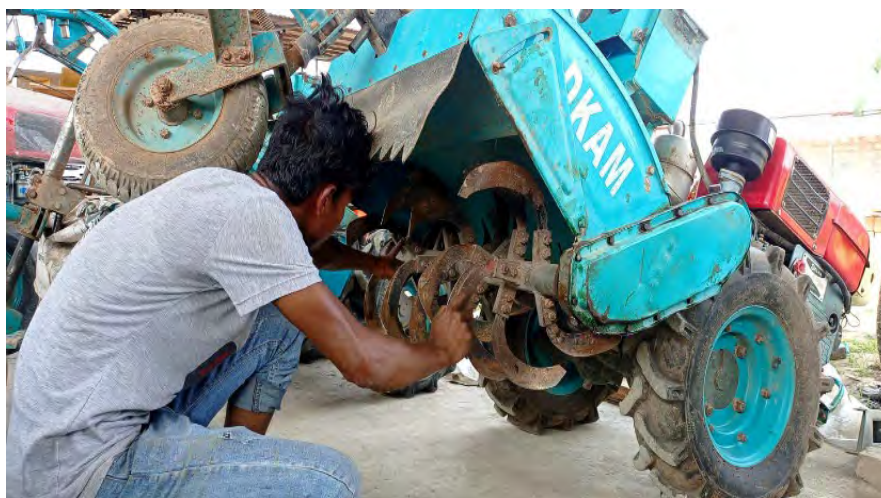
Above: participants of the interaction meeting in Kapilvastu, 28 March 2023. Photo credit: Anil Dwivedi, Field Supervisor, CSISA

Bishnu Prasad Chaudhary (30) is a mobile mechanic in Dongpur, Bhajani Municipality-9, Kailali district. His previous work as a seasonal laborer in India failed to earn enough to fulfill his family's basic needs and he decided to diversify into machinery repair and maintenance. However, he was unable to find an opportunity to get the skills he needed, until, supported by CSISA and a machinery dealer (the

Lax Group Company) in Sukkhad, Kailali district, he was selected for training. After six months at Lax he was ready to start work as an agriculture machinery mobile mechanic.

Bishnu gained practical knowledge of repair and maintenance of power tillers, pump sets and reapers, and established verbal contracts with around 35 local farmers with power tillers and pump sets to provide them with seasonal servicing and secure a regular income. He also provides services to other farmers.

When Mr. Chaudhary worked in India, he would send home NPR10,000 (USD76) a month to his wife and two young daughters. As a mobile mechanic he can now earn up to NPR25,000 (USD190) and is building his client network to increase the number of farmers on his books.



Above: Bishnu Prasad Chaudhary repairing a power tiller at Lax Group Company, 25 March 2023. Photo credit: Subarna Limbu, Field research technician, CSISA

Capacity building for custom hiring center

CSISA trained two key members of two custom hiring centers (CHCs) - Smart Krishak and Siddhibinayak Krishi Sahakari, Banke district, in account- and record-keeping and smart management of data of services provided, as well as how to calculate the per-hour cost of running a machine and its various attachments. The two CHCs supply machines like power tillers, four-



Above: Jahir Khan, proprietor of Smart Krishak custom hiring center in Halbaldoli, Duduwa Municipality-3, Banke district, 22 March 2023. Photo credit: Rashmi Gyawali, Consultant, CSISA

wheeled tractors and reapers to farmers, and are expected to improve their business operations as a result of the training, by maintaining transparent records of demand and income, thereby serving farmers more efficiently.

Annex 4: Monthly Situation Reports on Nepal's agrifood systems

Situation Report on Nepal's Agrifood Systems

December 2022 | Bulletin Number 1

Concerns regarding agricultural input and output prices have been growing since early 2022. Price changes affect value chain actors – from farmers to food transporters, retailers and consumers – within agrifood systems differently. These brief agrifood systems updates provide information on the effects of price variability in Nepal in particular, with emphasis on potential welfare consequences for different household types.

Key take-home messages

- Retail market prices for rice in Nepal have remained broadly stable in urban Nepal since mid-2022, though moderate increases in the retail price of wheat flour in both urban and rural areas that have significant and negative effects on the rural and urban poor have been observedⁱ.
- Increased competitiveness of rice imports from India was observed in Nepal's Feed the Future (FtF) Zone of Influence (Zol) since May, though recently completed rice harvests may restore prices for domestically produced rice.
- Retail prices of wheat flour in Kathmandu rose sharply in July despite a decline in the estimated cost of wheat imported from India. Prices however returned to similar levels by September.
- Observed medium-term moderate increases in rice prices have a negative effect on welfare for rural and urban households, regardless of their level of poverty.
- A 10 percent increase rice prices implies a 0.2 percent reduction in average household welfare in Nepal.
- The urban poor are particularly vulnerable and experience a 0.9 percent reduction in household welfare for each 10 percent increase in rice price.

Recent price fluctuation in food commodities

Recent changes in market prices are consistent with expectations of a normal cereal harvest from mid-October to mid-December in Nepal and northern India.

Rice

Retail prices of coarse rice in Kathmandu were stable at 50 NPR kg⁻¹ (0.38 USD kg⁻¹)ⁱⁱ from April through September 2022, even though estimated import parity prices of rice from India declined from 57.0 NPR kg⁻¹ in May to 52.8 NPR kg⁻¹ (0.40 USD kg⁻¹) in September (Figure 1). The gap between Kathmandu's market and import parity prices rose in October, however. This was associated with the increased price of

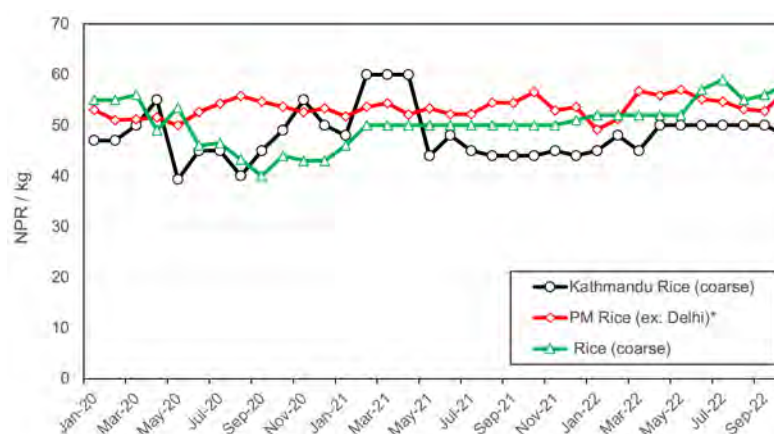


Figure 1. Recent market prices for rice in Nepal.

coarse rice in Kathmandu which increased to 56.8 NPR kg⁻¹ (0.43 USD kg⁻¹), while the import parity price fell slightly.

Coarse rice prices within Birendranagar Municipality located in Surkhet District, Karnali Province (within Nepal's FtF Zol in western Nepal), however, have increased by 8 percent from 52 NPR kg⁻¹ to 56 NPR kg⁻¹ (0.39 to 0.42 USD kg⁻¹) percent since May. This reflects a significant increase in the competitiveness of rice imports from India. Data currently being collected on Nepal's domestic paddy harvest from mid-October to early December is could potentially restore the competitiveness of domestic rice.

Information on the implications of the domestic harvest will be provided in subsequent Situation Reports.

Wheat

Wheat is Nepal's third most widely produced cereal commodity after rice and maize. It represents an important source of calories and protein, particularly for smallholder farming and poor rural households. Reflecting global price trends, retail prices of wheat flour in Kathmandu rose sharply in July despite a decline in the estimated cost of wheat imported from India. Prices in Kathmandu returned to similar levels as during the first half of 2022 by September, before rising to 70 NPR kg⁻¹ (0.53 USD kg⁻¹) in October (Figure 2). Retail prices of wheat flour in Birendranagar Municipality within the FtF zone have trended upwards and were 10 percent higher in October than in May.

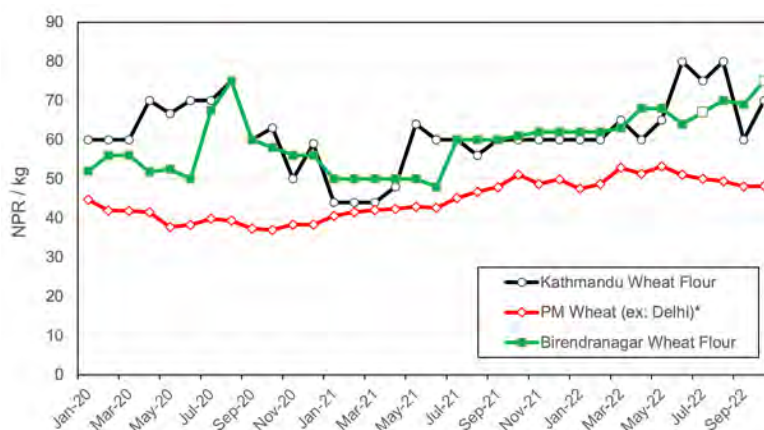


Figure 2. Recent market prices for wheat in Nepal.

Implications for household economic welfare

Observed medium-term moderate increases in rice prices have a negative effect on welfare for rural and urban households, regales of their level of poverty. Rice consumption as a share of total expenditures is 8 to 9 percent for both the urban and rural poor, but only 3 to 5 percent for the nonpoor (Figure 3) Many rural households

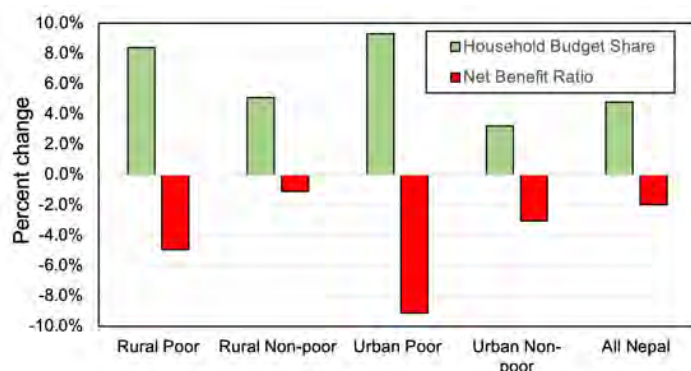


Figure 3. Rice Budget Shares and the Impact of Rice Price Changes on Household Welfare. Calculated using 2018 Nepal Household Risk and Vulnerability Survey and WFP data from 2002.

also produce rice, though, and as such can also reap additional benefits from higher prices for rice sold. This is however contingent on their ability to negotiate a satisfactory farm gate price. Thus, the net benefit ratio (NBR, the value of production less consumption, divided by total income) is close to zero on average in Nepal. With a net benefit ratio of -2.0 percent for the average household in Nepal, a 10 percent increase in the price of rice implies a 0.2 percent reduction in household welfare. The urban poor are especially vulnerable to rice price increases, however, and suffer a 0.9 percent reduction in welfare due to the same rice price increase.

Situation Report on Nepal's Agrifood Systems

January 2023 | Bulletin Number 2

Key take-home messages

- **Overall assessment:** The macroeconomic situation of Nepal remains largely stable. In the absence of new shocks, price fluctuations are likely to remain relatively small.
- **Moderate increases in rice prices have a slight negative effect on consumer welfare but may benefit farmers:** Although rice farmers who produce a surplus for sale gain from higher prices, urban households and net buyers in rural areas are more numerous and lose from higher prices.
- **Wheat prices are increasing:** In November 2022, food prices were generally stable (rice, pulses, and edible oils) or declining (potatoes and tomatoes). The exception was wheat flour, whose price continued its upward trend since mid-2022 into January. This will adversely affect consumers of wheat products, but the availability and stable price of rice will mute the impact on consumers.
- **The urban poor feel the consequences of price changes most acutely:** The most adverse effect of higher rice prices is on the urban poor, who spend a relatively large share of their budget on rice and other staples.

Macroeconomic trends and implications for household economic welfare

- **Key message:** Nepal's macro-economic indicators remained relatively stable in January of 2023 despite volatility in grain and edible oil markets that may be attributed in part to the war in Ukraine.
- **Inflation:** Year-on-year inflation was 7.4 percent in December, somewhat higher than in India, China, and Bhutan, but lower than in Bangladesh, Pakistan, and Myanmar.
- **Exchange rates:** The exchange rate, which is pegged to the India rupee, depreciated slightly against the US dollar in mid-2022 but has remained in the range of 128-131 NPR/USD since October.
- **Foreign exchange:** Nepal's foreign exchange reserves can be described as moderately healthy with 9.82 billion US dollars in December, which is sufficient to cover 8.7 months of merchandise and services imports.

Recent price fluctuation in food commodities

Rice

- **Key messages:** Rice represents 30 percent of caloric intake Nepali diets, 27% of the value of food consumption, and 7 percent of gross rural income. The effect of observed higher rice prices on household well-being mixed: rice farmers who produce a surplus benefit while net buyers of rice lose. Higher rice prices reduce income and increase poverty because net buyers are more widespread and tend to be poorer than surplus rice farmers. The urban poor are the most adversely affected, but a surprising number of the rural poor are net buyers of rice as well.
- **National prices:** The national average price of coarse rice declined by 1 percent between October and November. This is expected given that October-December is the harvest season. More surprisingly, the national average price in November was virtually the same as in November 2021, probably because the 2022 harvest was higher than the year before.
- **Prices in Karnali:** The average price in Karnali was essentially stable over the last few months, while in Karnali the average rice price was 11 percent below the level a year before. This is probably because the 2022 harvest was 7 percent higher than the previous year.

Wheat

- **Key message:** Wheat products are the second-most-important source of calories in the Nepalese diet, accounting for 14 percent of the total. Higher prices of wheat and wheat products have a similar but smaller effect compared to higher observed rice prices: surplus wheat farmers gain, but net buyers lose.
- **National prices:** At the national level, wheat flour prices increased 2 percent from October to November and 21 percent since November 2021.
- **Prices in Karnali:** In Karnali, wheat flour prices were more stable, with no change between October and November and a mere 3 percent increase since November 2021.

Pulses

- **Key messages:** Lentils, black beans, chickpeas, and other pulses are an important source of protein in the Nepali diet. Prices for pulses are relatively stable, benefiting consumers, but potentially compromising farmers' interest in future cultivation.

- **Lentil prices:** Nationally and in Karnali, lentil prices showed almost no change (less than 1 percent) between October and November 2022. Lentil prices did however very slightly 4-5 percent over the previous year, less than the rate of inflation.
- **Black gram prices:** The average price of black beans did not change much between October and November, either nationally or in Karnali. Compared to 12 months before, black bean prices are about 2 percent lower.

Horticultural products

- **Key messages:** Horticultural products include a range of vegetables and fruit. In general, horticultural prices show greater seasonality and more spatial variation than the prices of grains and pulses. This is likely due to their perishability and the difficulty of long-distance transport.
- **Potato prices:** Potatoes are the ranked fourth in terms of their contribution to caloric intake in Nepal, although other horticultural products tend to be important suppliers of nutrients in diets. Potato prices dropped sharply between October and November, 14 percent nationally and 19% in Karnali. This is the beginning of the monsoon harvest season when potato prices begin to fall, but this is an unusually large drop for November. The price reductions bring benefits to consumers but may discourage horticultural producers.
- **Tomato prices:** Similarly, tomato prices fell 12 percent nationally and 3 percent in Karnali. Seasonal patterns show that prices tend to fall 5 percent in November, but the drop in the national average is more than usual.
- **Banana prices:** And November banana prices fell 11% nationally and 15% in Karnali compared to the previous month. The normal seasonal pattern is for banana prices to fall 2-3 percent in November, so this is larger than usual.

Edible oils

- **Key messages:** Edible oil prices are relatively stable.
- **Soybean oil prices:** Soybean oil is both imported and exported in significant quantities, supplementing domestic production. The price of soybean oil is generally almost 20 percent lower than the price of mustard oil, so soybean oil is more widely used among low-income households. Yet compared to one year before, the national average price of soybean oil and mustard oil rose by 4-5 percent (somewhat less than the rate of inflation), while these prices rose 12 percent in Karnali over the year.
- **Mustard oil prices:** Mustard oil is produced in Nepal for domestic consumption with little international trade. Both nationally and in Karnali, soybean oil and mustard oil prices changed by less than 1 percent between October and November 2022.

Fuel prices

- **Key messages:** Diesel and petrol prices were stable in October-November 2022.
- **Diesel prices:** The price of diesel fuel remained at 178 NPR/litre in October and November. This is low compared to the international average price, which is the equivalent of 243 NPR/litre.
- **Petrol prices:** The price of petrol was stable at 181 NPR/litre over these months. In contrast, the international average price is the equivalent of 245 NPR/litre.

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Data sources

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Situation Report on Nepal's Agrifood Systems

February 2023 | Bulletin Number 3

Key messages

- **Overall assessment:** Our assessment of the status of the agrifood system in Nepal during February of 2023 is 'green', with data suggesting that prices have remained relatively stable or have followed expected seasonal trends that are unlikely to have caused unusual challenges for smallholder farmers and poor consumers.
- **Rice and wheat prices show opposite trends:** In December and January of 2022, food prices were generally stable (rice, pulses, and edible oils) or declining (potatoes and tomatoes). The exception was wheat flour, whose price continued its upward trend since mid-2022. This will adversely affect consumers of wheat products, but the availability and stable price of rice as a cereal substitute could to some extent reduce the negative economic impact consumers.
- **Pulses, horticulture, and edible oil prices are variable:** The price of lentils and black gram have remained stable, while the prices of potatoes and tomatoes have declined, following an expected seasonal pattern. Edible oil prices have also been stable.
- **Remote areas experience more acute challenges.** As a result of high transport costs, prices for foods generally remain higher in remote areas of the mid-hills, negatively affecting poor consumers that lack significant opportunity for production and marketing.

Macroeconomic trends and implications for household economic welfare

- **Key message:** Declining inflation rates and healthy 5 percent growth in real gross domestic product (GDP) could have a positive effect on household well-being over the mid-term, although urban and rural poor households are expected to benefit the least.
- **Inflation:** The Consumer Price Index (CPI) of Nepal declined 1 percent from 156.9 in December to 155.4 in January (2010 = 100). The year-on-year inflation rate was 7.3 percent in January, declining marginally from 7.4 percent in December.
- **Food inflation:** The rate of year-on-year inflation in food prices declined slightly from 5.4 percent in December to 5.2 percent in January.
- **GDP:** Nepal's 2022 gross domestic product (GDP) has not yet been released, but the IMF forecasts that real GDP will increase by 5.0 percent in 2023.
- **Financial interest rates:** Interest rates offered to farmers and small entrepreneurs in Western Nepal have remained the same since January, at roughly 10.5 percent. In many cases, loan applicants continue to wait for unexpectedly long periods before banks approve and disperse funds. Data from USAID implementing partners suggest that some banks may be raising inflation rates to even higher levels to account for the current risk of lending to customers without robust capital. Data also suggest that district level governments are observing this situation and have requested reports from banks on how to improve financial liquidity and loan repayment rates.
- **Labor prices:** Observed prices for daily farm labor in the Terai of Western Nepal are 500 and 600 NPR/day for women, and men, respectively. This compares to the price for skilled trade labor of 100-1200 NPR/day.
- **Exchange rates:** Since October 2022, the US Dollar to Nepali Rupee exchange rate has remained stable, fluctuating only in the range of 128 NPR/USD to 131 NPR/USD. Large additional declines in the exchange rate are not at this time anticipated for the future.

Recent price fluctuation in food commodities and agricultural inputs

Rice

- **Key message:** Exempting Karnali, rice consumers in Western Nepal remain relatively unaffected by price changes between November and December 2022.
- **National prices:** Based on an analysis of rice price seasonality over the last 10 years, a slight decline from November to December not uncommon. Rice prices have however remained largely stable with essentially no change from November forward. Compared to December 2021 (the last period in which national rice price data are fully available at an annual interval), rice prices are up 2.5 percent nationally.
- **Price information for Western Nepal:** In the Terai, data suggest that fine and coarse grain rice prices have both increased from 27 to 20.7 and 35 to 40 NPR/kg compared to mid-December. Average rice prices are higher in Karnali (69 NPR/kg) than nationally (55 NPR/kg) due to the high cost of transport. The highest prices are in Simikot, Karnali, where the average was 95 NPR/kg. Simikot has no road connection with the rest of Nepal.

Wheat

- **Key message:** Exempting remote parts of the mid-hills, higher wheat flour prices in Nepal hurt consumers (including rural households who purchase most of the wheat they consume), but benefit wheat producers, assuming that they are connected to markets and that they receive higher farm-gate prices.
- **National prices:** Wheat flour prices jumped significantly between November and December 2022, the national average rising four percent. This is part of a trend in which the average wheat flour price has increased 14 percent since August and 26 percent since December of 2022. Wheat flour prices generally do not show any seasonality in Nepal, so this is not part of a normal pattern.
- **Price information for Western Nepal:** In Karnali, wheat price has been more stable, with no increase from November-December and just a 4 percent increase since December 2021. Current available data suggest that wheat grain prices may be decreasing, though very slightly (from 54 to 47 NPR/kg in the Terai, although this information should be interpreted cautiously due to limited data).

Pulses

- **Key messages:** Pulse price trends are generally favorable for consumers, particularly given the importance of pulses as a source of protein in the Nepalese diet. However, the falling prices of black gram prices means reduced incentives for farmers and may affect cultivation choices in the following year.

Lentil

- **National prices for lentil:** Nationally, lentil prices showed virtually no change (less than one percent) in the last three months. Over the last year, national lentil prices increased about 8 percent, roughly in line with inflation.
- **Prices of lentils in Western Nepal:** National patterns were also repeated in the Terai at around 5%.

Black gram

- **National prices:** Black gram prices were either stable or falling in February of 2022. At the national level, they fell two percent since December and three percent compared to the previous year.
- **Price information for Western Nepal:** Similarly, black gram prices fell in in Karnali (1 percent and 7 percent, respectively).

Horticultural and select fruit products

- **Key messages:** Horticultural product prices are, as expected, more volatile over time and more varied across Nepal than cereals and pulses. National average prices of potatoes and tomatoes fell over the course of 2022, which is good for consumers but adversely affects farmers. Evidence suggests that in the remote mid-hills, potato prices increased over 2022, with the opposite effect. Banana prices have slightly increased compared to the past months, and compared to last year, though this is unlikely to benefit farmers significantly as banana is not a primary commercial crop.

Potato

- **National prices:** Following normal seasonal patterns, national potato and tomato prices dropped sharply since December. The national average price of red potatoes fell 17 percent between November and December. Although this seems dramatic, the drop is only slightly greater the seasonal normal decline of 14 percent. Since December 2021, potato prices fell 7 percent.
- **Price information for Western Nepal:** In Karnali, potato prices showed a surprising increase. In December potato prices were 14 percent above those observed in November and 16 percent higher than in the previous December. In general, potato prices in Karnali (50-75 NPR/kg) are higher than the national average (45-65 NPR/kg).

Tomato

- **National prices:** Nationally, tomato prices fell 20 percent between November and December 2022, but this is a normal seasonal decline. Because tomatoes are perishable, their prices vary widely by season. Tomato prices in December were 20 percent below the level the previous December.
- **Price information for Western Nepal:** In the Terai, tomato prices declined from 65 to 30 NPR/kg since mid-December. Conversely in Karnali, tomato prices only fell 2 percent compared to November, but they were down 16 percent compared to the previous December. Tomato prices in Karnali (130-200 NPR/kg) are significantly higher than the national average (75-120 NPR/kg). It is interesting to note that the decline in tomato prices is mirrored by a reported 54 and 20% decline in cauliflower and fresh onion prices in the Terai.

Banana

- **National prices:** National average banana price increased only 3 percent between November and December and 8 percent over the 12 months ending in December. Banana price changes are in-line with inflation.
- **Sub-national prices:** In Karnali, banana prices rose 11 percent from November, but November prices were unusually low. Over the previous 12 months, banana prices rose 6 percent, in line with general inflation. Banana prices in Karnali (200-250 NPR/kg) are considerably higher than the national average (130-150 NPR/kg).

Edible oils

- **Key messages:** Edible oil prices rose substantially in the first half of 2022 and then fell almost as much in the second half, ending up 3-10 percent above the price in December 2021.
- Although the edible oil prices cut into consumer purchasing power in mid-2022, with a particularly negative effect on rural and urban consumers, they have since returned to the level of December 2021 and have remained relatively stable, after adjusting for inflation.

Soybean oil

- **National prices:** Soybean oil prices in Nepal rose substantially in the first half of 2022 and have declined in the second half. From November to December, this trend continued with a 1 percent decline. Compared to December 2021, the national average price was 8 percent higher, roughly in line with inflation.
- **Sub-national prices:** Soybean prices in Karnali followed a similar pattern, falling 1 percent from November to December but rising 10 percent over the course of the year. Prices in remote parts of the mid-hills of western Nepal are about 20 percent higher than the national average.

Mustard oil

- **National prices:** The price of mustard oil is higher than that of soybean, but the patterns over 2022 were similar. Prices rose significantly in the first half of the year, then declined in the second half.
- **Price information for Western Nepal:** Over the year, price rose 3 percent nationally but 11 percent in Karnali.

Agricultural inputs

- **Key messages:** Slight increases in fertilizer prices have been observed since December, with urea being available but market scarcity of diammonium phosphate (DAP) and Muriate of Potash (MoP) reported. Exempting hybrid rice, only small changes in seed prices were observed. Slight increases and scarcity may compromise farmers' productivity in the winter season, although this determination can only be made towards the end of the season and by accounting for prevailing weather conditions.
- **Fertilizer prices:** Compared to mid-December, urea, DAP and MoP in western Nepal have increased 3 percent, one percent, and three percent respectively.
- **Seed prices:** Compared to December 2022, seed prices have generally increased or stayed the same in Western Nepal. Rice hybrid seed costs have increased 5 percent, while open pollinated (OP) and hybrid maize prices have increased four and three percent. Wheat and lentil seeds are not generally found in the market due to the seasonality of their trade. OP cauliflower seed price increased one percent while hybrid remained stable. Conversely, tomato OP remained stable while a one percent decrease in hybrid seed was observed. Onion seed prices were unchanged.

Energy

- **Key messages:** Fuel prices have declined slightly over the last three months, benefiting agricultural goods transporters and households purchasing energy, although overall prices remain high and cost reductions may not be transmitted to farmers purchasing inputs or to food consumers.
- **Diesel prices:** Diesel fuel prices eased slightly in December, falling from 178 NPR/liter to 175 NPR/liter or about 2 percent.
- **Gasoline prices:** Gasoline prices also fell around 2 percent in December, dropping from 181 NPR/liter to 178 NPR/liter.

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Data sources

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Situation Report on Nepal's Agrifood Systems

March 2023 | Bulletin Number 4

Key messages

Overall assessment: As in the previous month, available data suggest Nepal's agrifood system remained economically stable during March of 2023. Prices largely followed anticipated trends. Despite minor challenges that are likely to have been caused by other factors such as credit access problems for small businesses, no major threats to food or economic security were observed during the last month.

- **Inflation in food and beverage prices is marginally higher than the previous year:** The cost of food and beverages increased by 6.2 percent in February 2023 compared to the same period in 2022. This was marginally higher than the 5.6 percent annual inflation in January 2023 and 5.9 percent in December 2022.
- **Cereal prices remain high even after a decent paddy harvest:** Annual inflation in the price of cereals and their products increased from 9.6 percent in January 2023 to 12.4 percent in February 2023. This is despite a 7 percent increase domestic paddy production compared to the last year. The continuing embargo on the export of broken rice and quotas on wheat exports by India may contribute to high prices for cereals in Nepal. Rice growers, especially those with larger landholdings who are net sellers of the crop, are likely to gain from high prices.
- **High cereal prices will affect poor households.** The average household in Nepal spends one-fourth of its food budget on cereal-based products. Poor households spend a larger share of their food budget on cereals. Persistently high prices of cereals will hurt them more.

Ongoing liquidity challenges and access to finance: A range of challenges related to lending, purchase of agricultural inputs, purchase of agricultural products, repayment of loans, and were reported during the last month, although they do not appear to be usually intense compared to previous months. Although farmers seem to be on track for maize and vegetable planting in the spring, these issues loom and are could affect farmers' ability to reliably profit from the upcoming wheat crop and potentially the spring maize and vegetable crops. This could in turn negatively affect loan repayment rates.

Macroeconomic trends and implications for household economic welfare

- **Key message:** Compared to the previous month, inflation rates have remained stable. As reported last month, the continued healthy 5 percent growth in the real gross domestic product (GDP) could have a mid-term positive effect on household well-being. Concern however remains that rural poor and urban households may not experience significant benefits from this trend.
- **General inflation:** Inflation in the Consumer Price Index (CPI) of Nepal reached 7.9 percent in February 2023 (up 0.6 percent from the previous month). Increased inflation can erode households purchasing power make it more expensive for farmers and agrovets to borrow money for their businesses.
- **Food inflation:** The rate of year-on-year food price inflation increased from 5.6 percent in January 2023 to 6.2 percent in February 2023. This appears to be driven primarily by persistently high cereals and cereal product prices. High prices of staples can compel poor households who are net buyers of food to economize on the quantity and the quality of their diets. Rural non-farm households and the urban poor are the most vulnerable to the negative effects of the high and rising price of staples.
- **Remittances:** Remittances from citizens working abroad accounts for more than 20 percent of Nepal's GDP. The total remittance flow from July 2022 to January 2023 was 24.3 percent more than the total inflow between July 2021 to January 2022 in Nepali Rupees and 13.9 percent higher in US Dollars. An increase in remittance income is likely to cushion recipient families against inflation and raise their disposable income. It could also help improve Nepal's foreign exchange reserves and the government's revenue collection.
- **Labor prices:** Nepal's 'salary & wage rate' index increased by 10.27 percent from February 2022 to February 2023 compared to the 7.3 percent increase in the consumer price index (CPI) over this period. Therefore, workers engaged in salaried or wage employment would have experienced an increase in their real incomes. More disposable incomes in the hands of workers can boost consumer spending and stimulate economic growth. However, persistent wage inflation can also lead to higher unemployment because of the increased costs of labor. Workers in labor-intensive industries are more vulnerable to rising wage rates.
- **Exchange rates:** Since October 2022, the US Dollar to Nepali Rupee exchange rate has remained stable. Observed changes are between 128 NPR/USD to 133 NPR/USD only, nearly the same as reported last month. These data back from last month's Situation Report which suggested that large additional declines are not likely in the near future.

Recent price fluctuation in food commodities and agricultural inputs

Rice and wheat

- Key messages:** Rice prices during February were higher than in January, and also compared to January of the previous year. Estimated rice production was marginally (7%) higher this year compared to 2021, but it was still lower than the average production over the past 5 years and Nepal's domestic needs. The embargo on the export of broken rice and the imposition of 20% duty on the export of non-boiled and half-steamed rice by India may also have led to higher prices of rice in Nepal even in the months immediately after the harvest.⁸ Much higher wheat flour prices observed this month in Nepal negatively affect consumers but could benefit farmers harvesting commences. Record high prices have incentivized increased wheat area in India and Nepal, and a bumper crop is expected in 2023. India is therefore considering easing or removing both rice and wheat export restrictions. Anecdotal field observations suggest also that poor urban households are responding by looking for ways to increase and/or diversify their income to account for higher food prices.

National prices for rice: Normally, the consumer price of rice falls after harvest. Prices are generally lower in January when compared to November and December. However, this year, the rice price is marginally (2.7%) more expensive in January (2023) compared to November (2022). Compared to January 2022, (the last period in which an annual interval of national data are available), rice prices are up 6.9 percent (Figure 1). Globally, prices for food commodities remain high by historical standards and market for staple foods like rice remain tight (in which storage to demand ratios are low) with prices remaining vulnerable to supply shocks.

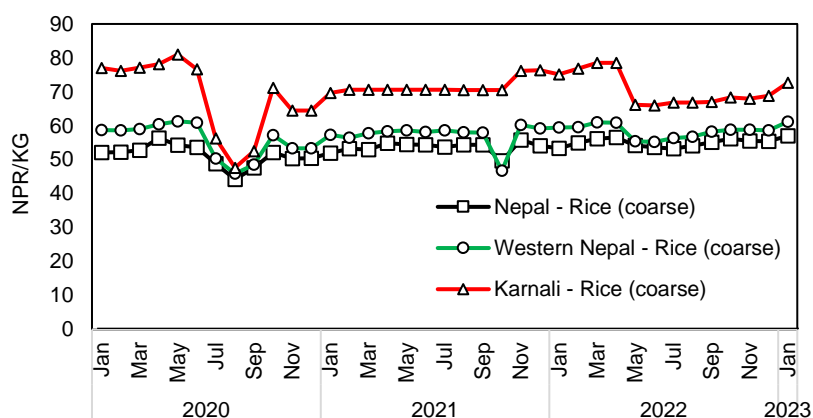


Figure 1. Recent market prices for rice in Nepal.

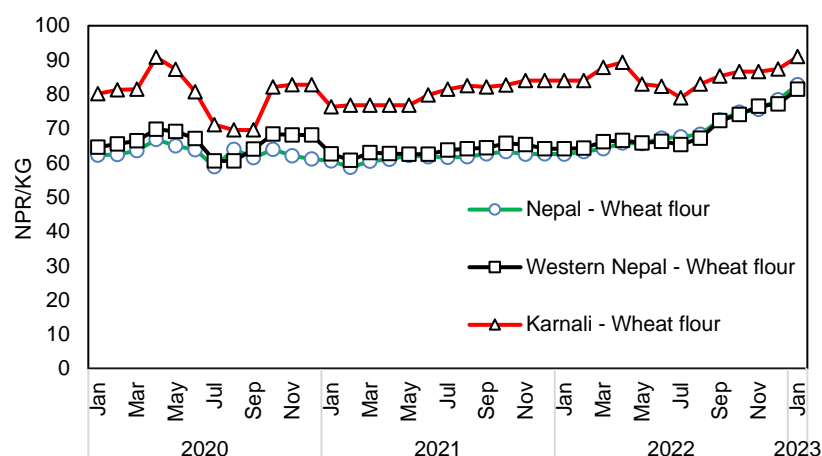


Figure 2. Recent market prices for wheat flour in Nepal.

National prices for wheat: Normally, the price of wheat flour is somewhat higher in November and in December. Prices then tend to decline 6-7 percent in the first

quarter of the next year as harvests are anticipated. Nonetheless, there was an increase of 6 percent between December 2022 and January 2023 (Figure 2), possibly because of restrictions on the export of wheat from India and tight staple markets globally. Wheat flour was 32 percent more expensive in January 2023 compared to the previous year. National data for February 2023 are not yet available, but wheat prices have gone down by 3.4 percent from January to February 2023 in India — Nepal's main source of wheat imports. International export prices for wheat also registered a modest decline in January. Early estimates suggest that the area under wheat has gone up in both Nepal and India. If the weather remains

⁸ Sub-national rice and wheat price data were not yet available at the time of writing this month's report. They will be addressed in future Situation Reports.

conductive, a good wheat harvest is expected. The FAO has also predicted global wheat production to be the highest in 2023 compared to the past 6 years. Higher domestic and global production of wheat may help lower prices in Nepal, but could also reduce profits for smallholder wheat farmers.

Horticultural and select fruit products

- **Key messages:** The price of vegetables is lower in March 2023 compared to a year ago. Field reports suggest that the surplus production of winter vegetables is responsible for the decline in their prices. This benefits consumers but not vegetable growers.
- **Vegetables:** An average Nepali household spends 12.6% of its food budget on vegetables. Falling vegetable prices help mitigate the impact of the high and rising prices of cereals and cereal products on food budgets. It could also increase consumption of vegetables. Price changes have bigger impacts on the consumption of vegetables than staple grains like rice, wheat, or corn.
- **Fruit:** The average price of fruits has not changed more than 1 percent since December 2022. Only a marginal decline of 1.8% was observed compared to the same period a year ago.

Potato

- **National prices:** Following the normal seasonal patterns following harvests and increased supply, the price of red potato declined 17 percent between November and December 2022. After dropping sharply in December, the national average price of red potato rebounded and registered an increase of 8 percent in January 2023. The rebound in the price may be a part of the usual volatility seen in the markets for perishable foods in Nepal. The area and production of potato is going up in Nepal (and the dependence on imports is going down), but the lack of cold storage capacity makes prices more volatile.
- **Prices in Western Nepal:** Unlike the rest of Nepal, there was no noticeable increase in the price of potatoes Nepal's three westernmost provinces between December 2022 and January 2023. Potatoes in this region were, however, 5 percent more expensive in January 2023 compared to 2022.
- **Household consumption:** Normally, potato is considered the most consumed "vegetable" in Nepal. An increase in its price at a time when other vegetables were becoming cheaper could lead to substitution from potatoes to other vegetables.

Tomato

- **National prices:** Nationally, tomato prices fell 3 percent between December 2022 and January 2023 following a normal seasonal decline. Because tomatoes are perishable, their prices vary widely by season. Tomato prices in January 2023 were 11 percent below those observed in January 2022.
- **Price information for Western Nepal:** Tomato prices remained unchanged in Western Nepal between December 2022 and January 2023, but were down 7 percent compared to January 2022. Tomato prices in Western Nepal (98-106 NPR/kg) are significantly higher than the national average (70-80 NPR/kg). The decline in tomato prices is mirrored by a reported 54 and 20 percent decline, respectively, in cauliflower and fresh onion prices in the Terai.
- **Consequences for farmers:** The sharp decline in prices of vegetables is likely to hurt poor farmers who grow tomatoes on small farms, but it could also lead to an increase in household vegetable consumption in this season.

Banana

- **National prices:** National average banana prices remained unchanged between December 2022 and January 2023. They were however 6 percent higher in January of 2023 than 2022. This increase is in line with the overall food price inflation in Nepal.
- **Price information for Western Nepal:** In Western Nepal, banana prices rose 7 percent compared to December 2022 when prices were unusually low. This could be because of a small increase in local production. Over the previous 12 months, banana prices rose by 15 percent in Western Nepal. This is much higher than the food price inflation (6.2 %) or the inflation in the price of fruits (1.8 %). Due to poor transport and market infrastructure, prices of perishable foods is even more volatile in the westernmost provinces of Nepal and can rise or drop sharply with just a small change in production.

Edible oils

- **Key messages:** Nepal is a big importer of edible oils. The price of edible oils rose substantially in the first half of 2022 and then fell almost as much in the second half, ending up 6.6 percent above the price in December 2021/January 2022. The decline in the price of edible oil from the first half of 2022 has helped moderate food price inflation.

- **National markets are affected by international price trends:** The large price changes over past one year were caused partly by changes in Indonesia's export policies for palm oil. Indonesia is the source of nearly half of the world's supply of palm oil and more than 80% of Nepal's imports. The sharp decline in the world price of palm oil has helped improve Nepal's trade balance.

Soybean oil

- **National prices:** Soybean oil prices in Nepal rose substantially in the first half of 2022 and declined in the second half. From December 2022 to January 2023, this trend continued with a 3 percent decline. Compared to January 2023, the national average price was 3 percent higher, roughly in line with inflation.
- **Sub-national prices:** Soybean prices in Western Nepal followed a similar pattern, falling 5 percent from December 2022 to January 2023 but rising 4 percent over the year. Observed prices in the mid-hills of western Nepal are conversely 5 percent higher than the national average.

Mustard oil

- **National prices:** Mustard oil prices are higher than soybean, though the price patterns for both commodities in 2022 were similar. Prices rose significantly in the first half of the year and declined thereafter.
- **Price information for Western Nepal:** Nationally, the price rose by 5 percent from 2022 to 2023, but it increased by 10 percent in Western Nepal.
- Rapeseed is the most commonly grown oilseed in Nepal. Reportedly, the area sown under rapeseed increased in response to the sharp rise in the price of edible oils in 2021-22. The area under rapeseed (and other oilseeds) is likely to go down in 2023-24 from its current level.

Recent price fluctuation agricultural inputs, access to finance, and logistical challenges

- **Key messages:** Field observations during the last month highlight a range of credit and logistical problems encountered by farmers and agricultural businesses, although these do not appear to be more severe than the previous month or general conditions in Nepal.
- **Agrovets:** Some Agrovets reported a slowing of business in March. This could be partly due to slightly reduced purchasing capacity among farmers, and/or due to March being a month of low input purchase requirements.
- **Cooperatives:** Qualitative data from farmer cooperatives suggests that loan repayments for input purchase remains low and irregular, due in part to challenges loan recipients have in saving funds to repay loans given the higher costs of some food products.
- **Formal banking institutions:** Observations from Western Nepal suggest that lending remains low as a result of ongoing liquidity challenges.
- **Informal lending:** Some farmers have had to resort to informal lending to access finance, although recent national protests against loan sharks highlight the precarious nature of this strategy.
- **Farmers' plans for the next season:** Observations of farmers' purchasing behavior suggest that despite the slight increase in prices of seeds, there has been little change in farmers' decisions to plant particular varieties of maize and vegetables for the spring season. Some farmers, particularly those well linked to markets and who are able to negotiate for good prices at the farm gate, have commented that the slightly increased prices of rice and wheat have actually helped them to cope with the inflation. Anecdotal evidence suggests that these farmers feel encouraged to pursue the cultivation of maize and vegetables to fetch higher prices in the upcoming spring season.

Energy costs and their implications

- **Key messages:** The price of diesel and petrol remained unchanged between February and March 2023. Diesel can be bought at NPR 175/liter and petrol at NPR 178/liter, and is generally available on the market. Both diesel and petrol were cheaper by NPR 3 in January 2023.
- **Implications:** This modest (1.7%) increase in the price of diesel may have led to a small increase in rental rates of mechanized farm equipment like tractors, threshers, irrigation pumps, as well as the cost of taking the produce to the market. Rising costs of fuel may also lead to an increase in efficiency of farm and marketing operations, but further data are required to confirm these hypotheses.

Acknowledgements

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[Agrifood Systems in South Asia](#) (TAFSSA). The project is led by [CIMMYT](#) and implemented jointly with [IFPRI](#), [IRRI](#), and [IWMI](#). [International Development Enterprises](#) (iDE) is another key partner of CSISA in Nepal and Bangladesh.

Data sources

The source for this brief includes the World Food Program WFP for food prices, [globalpetrolprice.com](#) for fuel prices, the Nepal Rastra Bank for the CPI and remittance information, budget shares, remittance flows, and other macroeconomic data, and the International Monetary Fund (IMF) for projected GDP growth. These are addition to price information and field reports provided by USAID/Nepal's Implementing partners, notably the Nepal Seed and Fertilizer (NSAF) Project and KISAN II, and FAO global agricultural production data.

Disclaimer

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Situation Report on Nepal's Agrifood Systems

April 2023 | Bulletin Number 5

Key messages

Overall assessment: Nepal's agrifood system remained economically stable during March of 2023. The year-on-year inflation in food and beverage prices has cooled down to 5.6% compared to 7.5% in Feb/March 2022. Field reports however suggest that this downward movement in prices have not yet translated to substantial changes in the cost of consumer and agricultural market goods.

- **Inflation in food and beverage prices is marginally lower than the previous year:** The cost of food and beverages increased by 5.6 percent from March 2022 to March 2023. A sharp 8.8 percent decline in the price of vegetables compared to last year helped lower the inflation in food prices. Food inflation was the highest in the mid-hills and mountains (8.8 percent) and the lowest in the Kathmandu Valley (4.5 percent).
- **Cereal prices remain high even after decent harvests of paddy, maize, and wheat:** Annual inflation in the price of cereals and cereal-based processed foods increased from 9.6 percent in January 2023 and 12.4 percent in February 2023 to 14.4 percent in March despite a small increase in the domestic production of paddy and negligible changes in the projected outputs of wheat and maize compared to the last year. The continuing embargo on the export of broken rice and quotas and on wheat exports by India is partly responsible for the persistently high prices of cereals in Nepal.
- **Agricultural laborers experienced a decline in their real wages:** Wage rates of agricultural laborers increased by 4.7 percent over the 12 months leading up to March 2023, less than the 7.4 percent increase in the overall consumer price index (CPI) and the 5.6 percent increase in food prices. In effect, real wages of agricultural laborers in rural areas have declined. In many areas, the poorest Nepali families may depend on agricultural labor and spend a larger share of their household budget on cereals and cereal products whose prices have increased by 9-14 percent over the past 12 months. The recent rise in consumer prices—the highest since 2016-17— will have the largest negative effect on these households.
- **Stable production despite fertilizer shortages:** Favorable weather conditions and the availability of quality seeds allowed farmers to increase production of paddy and maintain wheat and maize production despite inconsistent chemical fertilizers.
- **Reductions in fertilizer subsidies:** In March of 2023, the Government of Nepal announced a reduction in nitrogen, phosphorous, and potassium fertilizer subsidies alongside a large increase in import of fertilizers from abroad. While farmers already tend to pay higher than subsidized prices for farmers, the dramatic reduction in subsidies could increase prices and potentially introduce further instability in fertilizer markets in the short term. This is anticipated to hurt cash-strapped smallholder farmers the most, with potential negative implications for agrovets who may have insufficiently stocked fertilizers for sale prior to the decreases in subsidy. In the long-term, however, reduced subsidies may be an advantage as world prices for fertilizers slowly decline.
- **Little growth in agricultural GDP:** Growth in Nepal's agricultural GDP has slowed down after COVID-19 to 2-3 percent per year—barely keeping up with the growth in its population. Even before the pandemic agricultural growth was volatile (Figure 1). The agrarian stagnation and volatility in Nepal have negative consequences for both farmers and consumers.

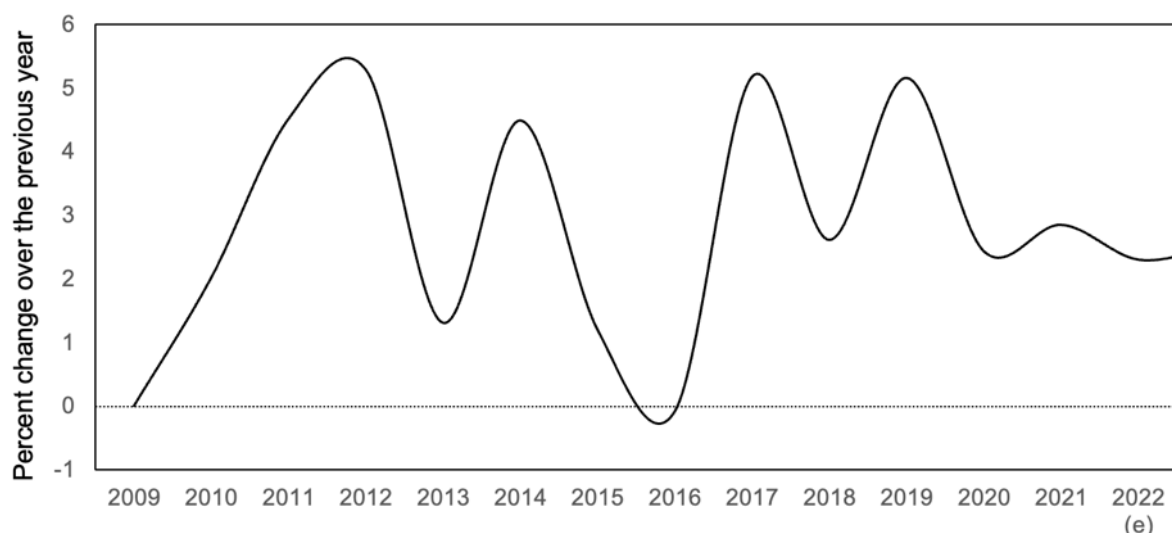


Figure 1. Growth (%) in value-added in Agriculture, Forestry, and Fishing in Nepal [2010-2023]. (e) indicates 'estimated' ; (f) indicates 'forecasted.' Note: The growth is measured in constant Nepali Rupees. The growth figure for the year 2022 is based on the advanced estimate and for 2023 is on a forecast by the World Bank.

Macroeconomic trends and implications for household economic welfare

- **Key message:** As with last month, consumer price index in Nepal continued above the 7 percent target put in place by the Nepal Rastriya Bank Limited (RBL) for 2022-23. High cereal prices continue to be a concern. As with the previous month, export restrictions imposed by India and high costs for fuel, which affect transportation of agricultural goods, continue to be key challenges
- **Import restrictions and high interest rates:** Tightening of monetary policy, restrictions on imports that were in effect till January 2023, and high international prices led to a deceleration in the GDP growth in the first half of the financial year 2022-23. The sharp increase in the interest rate by 350 basis points (3.5 percentage points) in 2022 led to slower credit growth for the private sector. Higher cost of funds can discourage new investments
- **Remittance flows:** The total remittance flow from July 2022 to February 2023 was 25.3 percent more than the total inflow between July 2021 to February 2022 in Nepali Rupees and 14.8 percent higher in US Dollars. According to a World Bank survey in 2019, one-third households in Nepal (36%) reported receiving some remittance income. Robust growth in remittance flows should help families sustain their consumption despite higher prices that have been recently observed
- **Salaries & Wage Rates:** On average, salaries and wage rates in Nepal have been growing faster than the consumer price index (CPI). However, this is not true for all types of workers. For example, wages for female and male agricultural laborers grew more slowly than inflation, indicating potential challenges for rural families that rely primarily on selling their labor to neighboring farmers to sustain household food security. 11.5 percent of rural households in Nepal (22.3 percent in the Terai region) rely in some way on the sale of agricultural labor for their livelihoods. These are often among the poorest households in the country, and their real income from wage labor has declined.
- **Current account deficit and foreign exchange reserves:** Recent increase in remittance flows combined with lower imports have helped reduce Nepal's current account deficit to 0.5 percent of its GDP—down from 12.8 percent in the financial year 2022-23. Nepal's foreign exchange reserves of Nepal increased to 10.7 billion USD in March 2023, enough to cover nearly 9.4 months of imports.

Recent price fluctuation in food commodities and agricultural inputs

Rice and wheat

- **Key message:** According to the World Bank's latest Nepal Development Update, Nepal recorded an 8.6 percent increase in the production of rice compared to the previous year. This contrasts with early season concerns that variable rainfall patterns and inconsistent supply of fertilizers could have lowered production. At the time of writing, however, rice prices continue to remain high as markets have not yet adjusted for increased supply. The national average price of coarse rice was 7.6 percent higher than the previous month and it was 4.4 percent higher than the year before. Rice consumers will therefore continue to experience challenges in purchasing rice this month, with potential implications on overall household expenditure.
- **National prices for rice:** Though a cooling down of the price of rice is usually seen in the first few months after the harvest, changes in rice price have not yet occurred in Nepal. This is counterintuitive and may be caused by speculation among rice traders that ultimately affects poor consumers. Rice prices in February 2023 were 7.6 percent higher than in the previous month and 4.4 percent higher than the year before (February 2022), despite the 8.6 percent increase in production in 2022. In February 2023, the Government of India decided against lifting the ban on exports of broken rice and lowering the 20% export tax on white rice. India's decision to extend the curbs on exports of rice and consequent speculation among traders and industry may be a reason for the continuing high prices of rice in Nepal even in the months after the harvest.
- **National prices for wheat:** In 2023, wheat production in Nepal is projected to be 2.2 million tons, as assessed by the Government of Nepal, and 2.1 million tons as assessed by the USDA. Both projections are close to the country's 5-year average production of wheat of 2.07 million tons and indicate some degree of stagnation in wheat production. Currently, the domestic output of wheat is enough to meet the household demand for wheat flour. Nepal nonetheless relies on imports of durum wheat used to produce noodles, bread, and biscuits which contribute to high costs for consumers purchasing these goods. Export restrictions by India — Nepal's main source of wheat imports — continue to keep prices high throughout the country. Recently, Nepal has made an official request to India to increase the export quota by another 300 thousand tons to ensure adequate availability of wheat flour in the country, though India has not yet formally responded.

Horticultural and select fruit products

- **Key messages:** Nepal's vegetable price index has decreased over the last month, while prices for fruits have increased.
- **Vegetables:** The index of vegetable prices in February/March 2023 was 8.8 percent below the level a year ago and 3.7 percent lower than the previous month. Sharp falls in the prices of potatoes and tomatoes contributed to the decline in the vegetable price index. The availability of cheaper vegetables may to some extent help to mitigate the impact of high and rising prices of cereals and cereal products and milk on household food budgets, although these products are not perfect substitutes and households will likely continue to place their main focus on meeting caloric needs through cereals.
- **Fruit:** Unlike vegetables, the average price of fruits increased by 2.4 percent compared to the previous month and by 7.9 percent compared to the same period in 2022. Among fruits, the price of bananas went up compared to the previous month while apples became somewhat cheaper. The

price of fruits and vegetables fluctuates a lot in Nepal due to weak markets and high perishability, underscoring the need for investments in cold storage if price stabilization is a goal.

Potato

- **National prices:** As expected, the price of red potato declined 17 percent between November and December 2022 following harvests but then increased by 8 percent in January. The rebound, however, was short-lived and prices declined again in February by 13.9 percent at the national level and 15.5 percent in the western provinces in February. The instability in prices could discourage farmers from cultivating potatoes in the subsequent season. Nepal produces 3.3 million tons of potato against the annual demand of 3.7 million tons (91 percent) and imports the rest from India. A bumper harvest and a crash in the price of potatoes in the bordering states of India may have helped bring down prices in Nepal in the early part of the year.

Tomato

- **National prices:** Across Nepal, tomato prices declined 22.6 percent between January and February 2023. In western Nepal, tomato prices crashed by 24.5 percent. Because tomatoes are highly perishable and difficult to transport, their prices vary widely by season and across different parts of Nepal. As with other higher-value perishables, this also underscores the need for investments in cold chains to extend the period over which tomatoes produced by farmers in Nepal can be sold. Tomato prices in February 2023 were 25.3 percent below the level in February 2022 at the national level and 27.6 percent lower in western provinces.
- **Implications:** Without comprehensive price information and efforts to improve farm management and production planning, farmers often respond to such seasonal gluts and crashes in the prices of vegetables like tomatoes by allocating less area to the crop in the next season. This can lead to lower output at the overall market level and a sharp increase in consumer prices. Without adjustments in cold chain transport and storage, and improved farm production and market planning – both of which may require policy level interventions – this high volatility in prices hurts both farmers and consumers.

Banana

- **National prices:** National average banana prices were 5.5 percent higher in February of 2023 than a year ago and 11.2 percent higher than the previous month. Among major food groups, fruits saw the biggest jump in their prices (7.9 percent) after cereals and cereal products (14.4 percent) in February 2023. Despite being crucial for improved human nutrition, fruits are, however, a relatively small component of the Nepali diet. An average Nepali family spends only 2.1 percent of its monthly household budget and 4.7 percent of its food budget on fruits. As a result, even a sharp increase in their prices has a relatively small impact on overall inflation and inflation in food prices.
- **Price information for Western Nepal:** In Western Nepal, banana prices were 11.4 percent compared to January 2023 and nearly 20 percent higher compared to December 2022. At the end of 2022, prices were unusually low probably because of a small increase in local production. Over the previous 12 months, banana prices rose by 7.8 percent in Western Nepal. This is much higher than the food price inflation (5.6 percent) or the inflation in the price of fruits (7.9 percent), though as indicated for fruits generally, the relatively low share of banana in household consumption baskets indicates that sharp prices will not overly affect poverty levels.

Edible oils

- **Key messages:** There was a marginal (3.7 percent) decline in the price of edible oils and *ghee* (clarified butter) in Nepal in February/March compared to a year ago. Dropping world prices of edible oils has helped lower their prices in Nepal too. Nepal's data systems report the price index of animal fat and edible oils as one group. This can obscure insights on both edible oil and animal fat markets. While edible oil is becoming cheaper, the global prices of animal fat (*ghee* or clarified butter) are increasing, with potential ramifications for the supply of key nutrients in household diets.

Soybean oil

- **National prices:** Soybean oil prices in Nepal went down by 3.6 percent in February compared to the year before. Nepal is almost entirely dependent on imports of soybean oil, and imports much larger quantities of soybean (and palm) oil than its domestic requirements. The bulk of the imported oil (80 percent) is re-exported to India after some light processing or refinement. Importantly, Nepal's export of refined oil attracts zero import duty in India, meaning that processors and exporters can gain substantially from trade. In 2021, India lowered tariffs on the import of raw edible oils to bring domestic prices down for consumers. This change in India's trade policy – which opened India up to imports from many different countries in addition to Nepal – led to a sharp drop in Nepal's exports, and compromised income for oil traders, processors, and exporters. In 2021, edible oils accounted for 53 percent of the total value of Nepal's exports.

Mustard oil

- **National prices:** The price of mustard oil is down by 3.6 percent compared to the previous month and is currently 9.5 percent below the price in February 2022. As the harvest approaches, the price of mustard and rapeseed oil is expected to decrease, which is of benefit to consumers but may lower income for farmers strongly reliant on oilseed production for income.
- **Price information for Western Nepal:** From January to February, the price of mustard oil went up by 2.2 percent in the western provinces of the country. Mustard oil was 2.2 percent cheaper in this region compared to last year. The remoteness of the western provinces can sometimes slow down the price transmission of commodities imported into the region from other parts of Nepal and the rest of the world.

Agricultural inputs and access to finance

- **Key messages:** High increases and variation in fertilizer prices among markets in Nepal are expected in Nepal as markets react to the March 2023 announcement that the Government of Nepal will reduce fertilizer subsidy rates. This could hurt cash-strapped smallholder farmers significantly over the coming months.
- **Fertilizers:** Farmers had to pay higher prices for lower quality and informally imported fertilizers from India over the last winter season. The government of Nepal has allocated significantly more resources (NPR 49 billion compared to NPR 38.5 billion in 2022-23) for the purchase of chemical fertilizer in the coming financial year. How this will balance announcements of subsidy reductions remains unclear at this time.
- **Subsidy reduction:** As announced by government, subsidy reduction for nitrogen (urea) will go down from 80 percent to 64.5 percent of its price while the subsidy on diammonium phosphate (DAP) will be reduced 52.4 percent from 60 percent and on muriate of potash (MoP) from 59 percent to 46.1 percent. As a result of this decision, the official price of urea is expected to increase from Rs. 14 to Rs. 25 per kg. DAP's price will rise from Rs. 43 to Rs. 50 per kg and Potash will sell at Rs. 40/kg compared to Rs. 31 per kg before the policy change. Markets are reacting quickly. Official prices of

fertilizers are going up in Nepal even as prices of Urea, DAP, and MoP are showing a steady downward trend in the international market.

- **Implications of subsidy reduction:** Field reports from USAID's Implementing Partners suggest that chemical fertilizers were already selling at higher than official prices in Nepal even before the reduction in the subsidy levels was announced. In March 2023, urea was being sold at NPR 27.5 per kg in the local markets, DAP at Rs. 57 per kg, and MoP at Rs. 44 per kg. The availability of DAP and MoP was limited even at these high prices. The government's decision to import more fertilizers may help reduce the scarcity during June-August (the main season for paddy cultivation when the demand for chemical fertilizers is at its peak in Nepal), though the changes in subsidy are still expected to increase prices across markets more generally, with potentially significant consequences for cash-strapped farmers.
- **Agrovets and input suppliers:** There was no observed change in the price of agricultural inputs and planting materials this month except for hybrid maize seeds whose prices increased from NPR 512 per kg in February to NPR 527 per kg in March. Field observations suggest that most agrovets have sufficiently stocked seed required to operate their business normally. Wholesale agrovets supply goods to retailers only after payment and have largely stopped selling agricultural inputs to farmers on credit. Cash flow is an issue, as farmers and agrovets have experienced a decrease in their savings due to inflation and they seek loans from banks, cooperative, microfinance institutions, and individuals, despite high interest rate. The machinery suppliers and dealers have also complained about the reduction in their sales of farm machines.
- **Cooperatives:** As with previous months, most cooperatives are still struggling to repay loans as scheduled due to a decrease in their savings resulting from inflation over the past months.
- **Formal banking institutions:** Private companies still experience challenges getting loans from banks and other financial institutions. Credit growth to the private sector has slowed from 2.8 percent in July 2022 - February 2023 compared to the same period of the previous year. The credit squeeze is a direct outcome of the tighter monetary policy adopted by Nepal's Central Bank (The Nepal Rastra Bank) to bring inflation under control. While well intentioned, this policy also squeezes parts of the economy and has added extra burden to entrepreneurs and aspiring entrepreneurs in agricultural markets.
- **Coping mechanisms of rural households:** Observations from the field continued to suggest that Most households are cutting back their purchases and increasing the consumption of home-grown products. The poorest farmers remain engaged in more off-farm employment – buttressed by recent increases in remittance flows – to help them cope with the increased cost of commodities and meet their livelihood needs.

Energy

Key messages: The price of diesel went down from NPR 175 per liter in February 2023 to NPR 165 in March. The lower price of diesel may help cool down inflation. Petroleum products are the largest imports of Nepal and are linked to the cost of agricultural production (for land preparation, irrigation, and mechanized harvesting) and transport of agricultural goods, particularly in the Terai. Their falling prices in the world market will could help improve Nepal's trade balance, but it may take time until agricultural markets adjust accordingly

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Data sources

The source for this brief includes the World Food Program WFP for food prices, [globalpetrolprice.com](#) for fuel prices, the Nepal Rastra Bank for the CPI, budget shares, remittance flows, and other macroeconomic data, the World Bank Nepal Development Update (April 2023) for trends in credit flow, USDA reports for projections of wheat production, and the World Bank Household Risk and Vulnerability Survey (HRVS) for household occupations and reliance on remittance income in addition to price information and field reports provided by USAID/Nepal’s Implementing partners, notably the Nepal Seed and Fertilizer (NSAF) Project and KISAN II.

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