

Province 2 exposure visit to Chitwan Agri Mechanization fair

BY: Rama Sharma, Assistant Research Associate (social sciences)

Manisha Shrestha, Communications Specialist

REPORT DATE: Nov 26, 2019

WORKSHOP DATE: Nov 22- 25, 2019

TRAVEL FROM: Kathmandu

TRAVEL TO: Chitwan

4th Agri National Mechanization was held in Chitwan from 22nd-25th Nov, 2019. In the events 16 participants were participated from Province 2. The primary purpose of the event was to participation to get exposure to Agri Mechanization from different stakeholders like Government official, Suppliers, farmers group, they represent from different districts from province 2.

In the event province 2 secretary, Chief of Directorate including different stakeholders took part. The whole event was for four days. Most of the participants travelled on 22nd Nov, evening, the first day was mainly inaugurations.

On 23rd Nov, half day participants had a tour of Agri fair in guidance of CIMMYT staff, participants find the fair interesting and attractive. They claimed that they get to know different new machines. They also learn how different machines operate, the cost of machine, and if the specific machine can be use in their Province. They Some private supplier also established a networking with different companies at a fair.

On 23rd afternoon we had a brief meeting regarding Roadmaps projects. This is the second meeting with Province 2 about Roadmaps. However, the first meeting was held in Janakpur in July, but this meeting was in a bigger group, tentative working group for Roadmaps project. Province 2 officials also ensure that even though province 2 has not given the approval for Roadmaps project but team were very open and hopeful for Roadmaps project to be implemented soon. Government official assure that due to some unclarity, and new recruitment in ministry has delayed for approval for Roadmaps.

Directorate of Agriculture Department also take lead to use the platform to discuss among themselves regarding collaboration with CIMMYT through Roadmaps project. All the participants were very open and cooperative towards CIMMYT and looking forward to work together. They also extended sincere thanks to CIMMYT for providing the opportunities.

During the meeting participants were agreed the need of CIMMYT support in the Province 2 for improved mechanization. They also mentioned that Province 2 is potential province for Agri mechanization.

On 24th Nov, Participants also took part in Symposium conducted by CIMMYT at Expo center. At the symposium from province 2 had a short 5 min presentation. During the presentation they also highlight Province 2 are also planning to organize a similar Agri fair next year. So they are looking forward to work together with CIMMYT in coming days.

Participants name list: [Annex 1:](#)

ROADMAPS WORKSHOP II IN PROVINCE 2

BY: Rama Sharma, Assistant Research Associate (social sciences)
Manisha Shrestha, Communications Specialist

REPORT DATE: Feb 23, 2020

WORKSHOP DATE: Feb 18- 20, 2020

TRAVEL FROM: Kathmandu

TRAVEL TO: Janakpur

PURPOSE:

- To take an initial step in Roadmaps project in Province 2: form a declaration; discuss on the roles of working groups
- Review Rabi planting activities and learnings from the working group members.
- To discuss and spot capacity gaps that needs to be addressed in Province 1, including any potential technical training and workshops.

OVERVIEW:

ACIAR funded Roadmaps Project plans to support the representatives from the Roadmaps working group of Province 2 to carry out sustainable agricultural mechanization in the province. The group comprised of participants representing government and non-government stakeholders. The working group gathered in the meeting hall on 18th Feb where the platform was officially opened by Dr. Brendan Brown (Program Leader, Roadmaps), who also briefly summarized previous meeting and encouraged all the participants to come up with common 10-year vision and action plan where MOLMAC, CIMMYT and rest of the group can come together and contribute their bit for a common goal.

The next day (12th Feb, 2020) was a half-day meeting that mainly focused on activities where the members brainstormed about their vision (regarding this Rabi and briefly on long-term), challenges they are facing, solutions for the challenges, actions to resolve the issues and partnership/request which can help in reconciliation of the issues.

Discussions- Day 1:

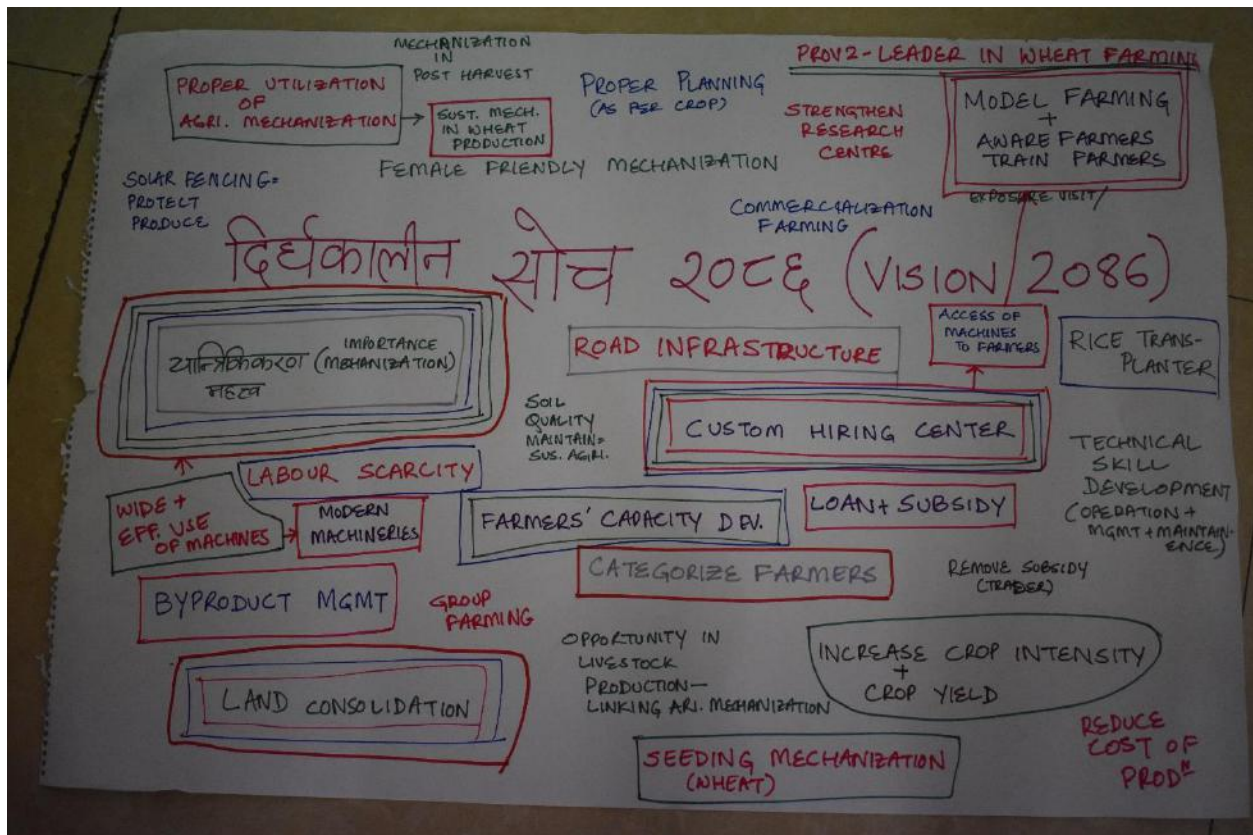
The meeting commenced at 11am on 18th Feb, 2020 at Welcome Hotel meeting hall (Janakpur) with a review of the discussions of the last workshops as well as sharing the objectives of the current meeting.

The workshop started with a brief recap about Roadmaps to the participants. Some logistics issues regarding travel and accommodation reimbursement were also discussed by Rama.

The members were officially informed about the extended duration of Roadmaps project up to March 2021 and discussed about project's workplan. Followed by Brendan's review on project's progress focusing on the technical support, Rama distributed and explained about Roadmap manual (informing all the participants that soft copy can be provided if necessary).

Rama then explained in detail about roadmapping process including vision, implementation, action and research.

Workshop started with a group discussion on “the vision for 2030 (Nepali 2086)- next 10 years for Province 2” regarding Nepali agriculture, farmers’ approach (things they are doing differently) and farmers’ livelihood (what do they their livelihood be like). All the seven groups (MOLMAC, Sugarcane Factory, Machinery Research Centre, Farmers, Traders, AKC and Local Government) came up with their own 10-year vision which was then discussed together. The main recurrent themes were then put together to form a declaration which will be later signed by all the working group representing their willingness and intention to work together for a common goal.



Recurrent Themes from Working Groups in P2 Roadmap Workshop

As an output of the discussion, all the participants strongly believed that agricultural mechanization is crucial for Province 2, mainly to solve problems such as:

- Labour scarcity
- Low yield
- Low cropping intensity
- Limited knowledge and overcoming persistence of traditional practices
- High cost of production
- Lack of interest from youth in agriculture

With these current issues, the vision for agriculture in 2030 in Province 2 focuses on:

- Farmers who are trained to enable high performance
- Clear process for obtaining machinery
- Increased presence of custom hire centers
- Improved planning and cooperation of all stakeholders
- Inclusive development including all
- Consolidated farming more prominent
- Increased commercialization of farmer activities
- Province 2 as a leader in wheat production
- Scale appropriate mechanization for all (based on farmer typologies, activities etc.)
- Mechanization throughout the value chain (farm to fork)
- Modernizing and adapting traditional practices in Province 2

After lunch, the group was brought together to discuss on the roles to achieve their vision. They decided that function of this group is:

- Exchange Forum to discuss each partners role and needs, technical advice and other important issues.
- Coordination of efforts and activities towards the vision.
- Connect and share information more widely within the province.
- Link from farmers, groups and cooperatives, local and provincial and federal government bodies (farmer, research, extension, suppliers, traders, manufacturers, policy).
- Advisory for partners such as MOLMAC, NARC.

With further discussion on the role of working group, the team also came up with an idea that who should be in the working group, like:

- Leaders / Experts/ Entrepreneurs
 - One who has used the discussed practices so that they can share their experiences (like, lead farmer/entrepreneur).
 - Influential local service providers who are closely connected with their community.
- Agriculture Cooperatives
 - Need to explore, show no bias (4/5 mid-sized entrepreneurial enterprises)
- NGOs
- Other bodies (like, finance sector representative, service centre representative for repair and maintenance, agro-machinery trader association representative, CHC representative)
- Rotating and permanent

The discussion ended with format of working group including core (or, institutional) members, representatives and invitational members.

Also, another small discussion was on how often the meeting should be held, that is, if this working group meeting should be organized for 1 whole day once a month during off season and once in 1.5 months during season or 2 whole days in every two months. However, the discussion did not lead to any conclusion at that time. However, the topic was dropped to be discussed later.

In order to bring out the best from the little time available, the discussion was quickly directed to more important topic, that is, “Research- figuring out where we are now”, the phase 2 in Road mapping process. Here, the participants were encouraged to put down their impression on:

- History: (history behind agricultural mechanization)
- Current Status: (present situation in agricultural mechanization)
- Context and Changes (Enablers and Disablers): (factors that supports and constraints the vision)
- Research Questions: (what are the research gaps?)
- Policy: (what are the relevant policies and how they are implemented?)

The first day of the workshop then ended with an agreement to have a group discussion on these topics the next day.



Participants of Roadmaps Workshop in Province 2

Discussions- Day 2:

The meeting commenced at 8.30 am on 19th Feb, 2020 in the same meeting hall.

This meeting started with the continuation of phase 2, a recap on what the members' idea on the five topics of history, current status, context, research questions and policy:

History	Current Status	Research Question	Context (Enablers and Disablers)	Policy
<ul style="list-style-type: none"> • Use of traditional farming methods. • Few uses of tractors but not much use of modern agricultural machines. • Consequently, no modern technology training. • According to MOLMAC, there is a history of providing 85% subsidy on several machines. Still farmers are not being able to fully utilize it due to various factors, like: <ul style="list-style-type: none"> * Non-friendly purchase policy. * Farmers' demand of machines do not match with what government provides. * Policy is not clear-unable to address provincial requirements. 	<ul style="list-style-type: none"> • MOLMAC has revised subsidy provided to 50%- working on policies and procedures. • Farmers are interested in agro-mechanization and awareness is gradually growing. • Working on better co-ordination with other government bodies. 	<ul style="list-style-type: none"> • Why have the findings of previously conducted research not reached to correct audiences at farmers' level? • Study needs to focus on feasibility- can a farmer afford it? • Why are farmers not adopting new technology in agriculture? What are the constrains/factors? • How to improve the existing traditional farming equipment? • How to design and develop machines relevant to geography and commercial crop of a 	<p>Enablers:</p> <ul style="list-style-type: none"> • Availability of efficiency tested machines. • Subsidies available • Trainings available • Servicing available <p>Disablers:</p> <ul style="list-style-type: none"> • Lack of coordination • Information and knowledge do not have wide exposure • Unfriendly procurement process • Limited irrigation facilities • Limited knowledge (i.e. soil testing) • Limited linkage research and extension 	<ul style="list-style-type: none"> • Policies not working optimally • Lack of in-depth province specific research • Need more input on rationale for subsidy

<p>* No proper coordination between government bodies.</p> <ul style="list-style-type: none"> MOLMAC and Municipal Government provide subsidy on machines separately. 		<p>particular province?</p> <ul style="list-style-type: none"> How to develop operational and maintenance skills on commonly used agricultural machines? 		
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After a detail discussion, the workshop activity was led to phase 3 (development) of Roadmapping process where Brendan led all the participants to actively participate in all five steps to developing a roadmap for this Rabi 2076 which comprises of 1) immediate vision; 2) challenges to achieve that vision; 3) potential solutions; 4) actions required; and 5) collaboration needed.

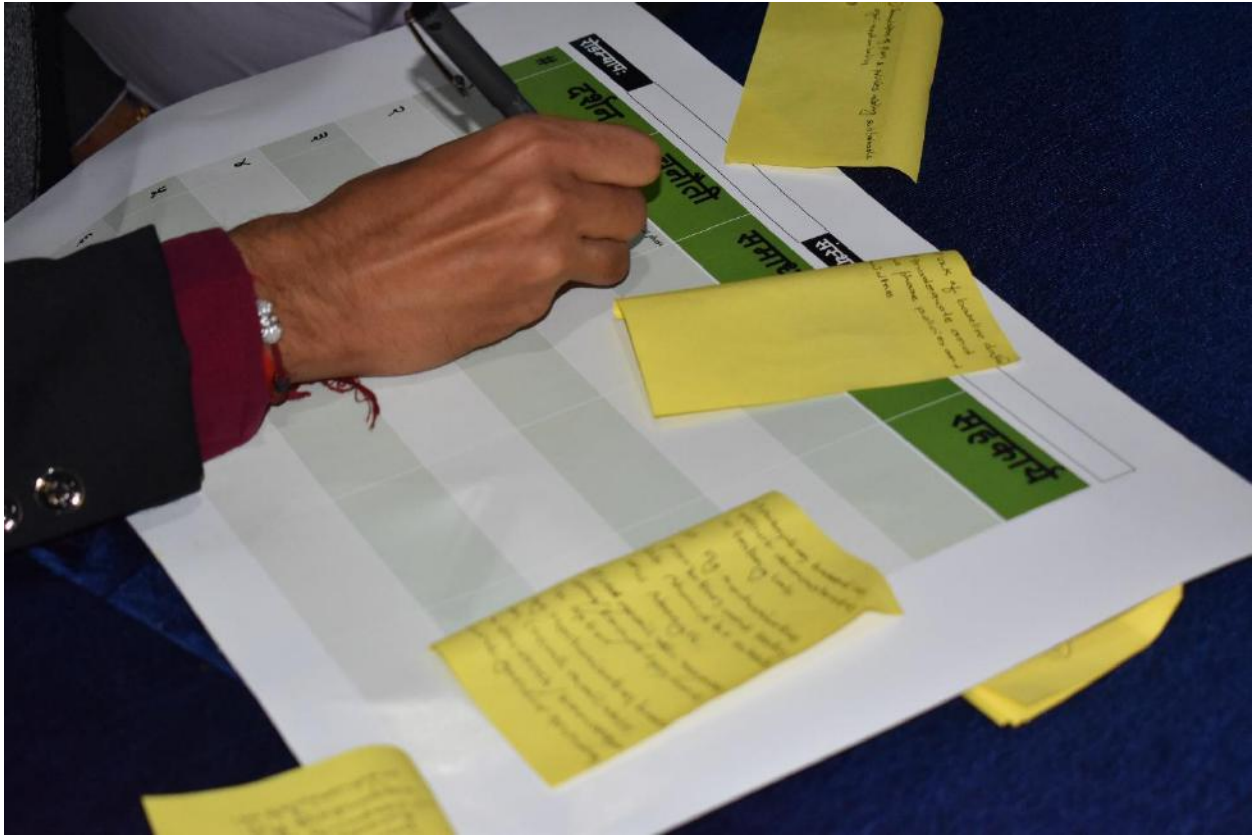
During this activity, Local Government body (Municipalities) representatives expressed:

1. Use of machines in harvesting mustard and pulses this Rabi as their immediate vision.
2. Challenge is that since they sow multi crop (mustard and pulses) in the same plot, they are not being able to use machines to harvest the crops. In addition, there is no skilled technician to share knowledge and skills about machines.
3. Potential solution is to find out if there are any machines available which can help harvest all the crops separately (since the harvesting time of each crop is different) without damaging the crops (i.e. one harvesting machine for all crops).
4. Action: Develop a multicrop harvester which is user-friendly and affordable for farmers.
5. Partnership with Agricultural Machine Testing and Research Centre (NARC), Federal Government and Provincial Government.

Similarly, Er. Ramnath Jha from Agricultural Machines Testing and Research Centre (NARC) stated:

1. The immediate vision for this Rabi is to demonstrate harvesting technology in wheat.
2. Technical know-how is not a challenge but there is a constraint in budget for conducting trainings for operators. NARC has few machines to conduct a demo but not enough for large scale.
3. Potential Solution is to develop proper institutional coordination so that the existing challenges can be sorted in timely manner.
4. Action: Making machines available + Conduct demo + Build capacity via operator training (5-day training)
5. Partnership:
 - a. MOLMAC/ AKCs: for budget preparation + coordinate properly with MOLMAC/ AKCs plan
 - b. Trader/ Supplier: for providing required machines on required time
 - c. Farmers: for providing plots to conduct demo

- d. CIMMYT: for technical support by providing technicians/ technical officer + fund to conduct harvesting demo on wheat.



"Developing a Roadmap" activity during the workshop

The final discussion was on the capacity gaps in completing this Rabi- What capacity gaps need to be addressed? What field trips would you request? What training would you like to take? The participants voiced that an exposure visit to successful CHC (as per CIMMYT's suggestion) will help them learn and encourage them to start on their own. NARC suggested that maybe Bangladesh will be a good option since Nepal shares similar land size and the way Bangladesh assembles and makes their own machines according to their need can be a good study for Nepal too. So, as a result of this discussion, it was proposed that CIMMYT should look into the possibility of arranging an exposure visit to Bangladesh, especially those CHCs that provides whole packages to the farmers.

Wrapping up this Roadmap workshop in Province 2, Brendan informed all the participants about MOOC (Massive Open Online Course) on CASI provided by BAU. He also shared information about VMP (Versatile Multicrop Planter) and checked if Province 2 is interested in such machines. For which the response was positive. Finally, for better communication between the working groups of the Roadmaps in Province 2 and for wider audience, Brendan created a WhatsApp group and announced the plan for launching Roadmaps Facebook Page soon.

For the second-half of this meeting, all the participants visited Agricultural Machines Testing and Research Centre (NARC) at Nawalpur guided by Er. Ramnath Jha, Chief of the Centre around 3pm. This visit started with a briefing on what this center does. Er. Jha narrated how the center was established with the support of CIMMYT in building up the infrastructure and in providing machines such that the center is well-equipped to start basic level of testing up to 25 Horsepower. Now, the centre is taking a step ahead to establish better co-ordination with government, training centre and AKCs.

This short briefing was then followed by exploring labs, workshop, demo-plot and machines available in the center. Er. Jha then led the team to show the available machines like, Rice Transplanter, Seed Drills, Mini Tiller and Weeder, Minimum Tillage Drill, Power tiller operated Reaper, Tractor Operated Reaper, Reaper and Binder, Thrasher, Laser Land Leveler, Drum Seeder and other tillage equipment. Then, he led the team to machine maintenance workshop that included air compressor and various machine repairing devices. The testing lab was equipped with smoke testing device and horsepower testing gear for Mini Tiller and Power Tiller. Finally, the team was led to the demo-plot for wheat.

With this visit to Agricultural Machines Testing and Research Centre (NARC), the Roadmaps Workshop on Province 2 officially came to an end. However, a separate one-on-one meeting with Er. Ramnath Jha after the workshop continued. In this meeting, Brendan mentioned that there is some unused fund with NARC which needs to be reallocated and used within 10 months' time (i.e. Dec 2020). So, what are the areas where Er. Jha has planned and needs support on?

To this question, Er. Jha mentioned few points where the fund can be allocated:

1. Seeding training (on wheat) that can start from October.
2. Add one more technician (because due to budget constraint, he is being able to afford only one technician which is not enough)
3. Purchase of Ratoon Management Device for Sugarcane.
4. Brendan added: Collaboration (technical exchange) with new North Bengal Conservation Agriculture Training and Testing Centre.

This one-on-one ended with Brendan's assurance that if the fund is transferred back from NARC, he will happily reallocate it to CIMMYT sponsored 6-month engineering internship based in Agricultural Machines Testing and Research Centre, Nawalpur.

SUMMARY

Annex 1: [Attendance Sheet 1](#) and [Sheet 2](#)

ROADMAPS VIRTUAL WORKSHOP IN PROVINCE 2: PART I

BY: Manisha Shrestha, Communications Specialist, Rama Sharma, Assistant Research Associate (social sciences)

REPORT DATE: April 30, 2020

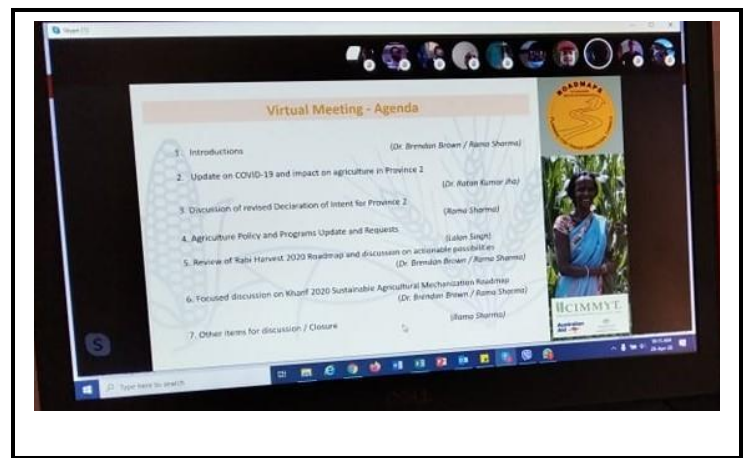
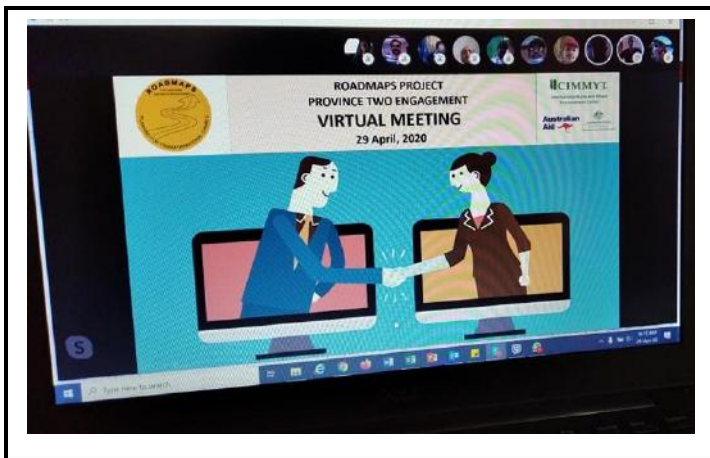
WORKSHOP DATE: 29 April, 2020

CONNECTED FROM: Kathmandu

CONNECTED TO: Province 2

PURPOSE:

- To have an update on COVID-19 and impact on agriculture in Province 2.
- To inform working group about the revised Declaration of Intent for Province 2
- To have an update on agriculture policy and programs from Mr. Lalan Kumar Singh, Chief of ABPST.
- To review Rabi harvest 2020 roadmaps and discuss on actionable possibilities.
- Focus discussion on Kharif 2020 Sustainable Agricultural Mechanization Roadmap



OVERVIEW:

ACIAR funded Roadmaps Project plans to support the representatives from the Roadmaps working group of Province 2 to carry out sustainable agricultural mechanization in the province. Due to a COVID-19 national lockdown since 23rd March (10 Chaitra 2076), there has been disruption in the planned activities. Though the initial period of lockdown was much focused on just figuring out the logistics of working remotely, we could no longer delay getting back to our Provincial partners and try every possibility to continue the support so that we could get agricultural activities going and minimize the adverse effect on food security as much possible.

On 29th April, the working group joined Skype meeting at 10am. Though having some connection problems at the start, the Skype Meeting proceeded smoothly from 10.30 am onwards and lasted till 12.30pm where the participants discussed intensively on the impacts of COVID-19 lockdown in agriculture, especially Rabi harvest and the plans that can be put into immediate action during the

lockdown period to ease farm activities and support smallholder farmers. The two-hour long virtual meeting was wrapped up to continue the meeting again on Monday (4th May) with focused discussion on Kharif roadmaps 2020.

DISCUSSION:

The virtual meeting commenced at 10.30 am on 29th April with Brendan's greeting and Rama introducing all participants who had joined the call. She then moved on to briefly present the agenda of this meeting.

The first discussion was initiated by Dr. Ratan Kumar Jha From Minsot providing general provincial updates on COVID-19 and impact on agriculture in Province 2. Dr. Jha said when all transportation stopped during lockdown, the provincial agriculture ministry tried to address the issue at policy level and do what's needed, especially to take perishable agricultural products like vegetables and fruits to the market and to the consumers but the attempt was not successful. However, the ministry has started the initiation to compensate Nrs. 5000 per day for vehicle and Nrs. 1000 per day for fuel to cooperatives that help farmers to transport their perishable produce to the market.

Dr. Jha also added that the lockdown had minimal effect on wheat harvesting compared to last week's hailstorm because the harvesting and thrashing process was on-going until the hailstorm last week damaged the wheat crops.

Dr. Jha then requested all Agriculture Knowledge Centre (AKC) Chiefs to provide district specific updates. Starting with Dr. Ramchandra Yadav, Chief of AKC from Parsa, who informed that 3 metric tonnes of Wheat was produced in Parsa. There has not been any effect on price of cereal crops in Parsa, but the price of vegetables has decreased because of the COVID-19 lockdown. He believes that the lockdown will affect spring rice plantation because sufficient seed is not being available in the market. He fears that if the lockdown extends, it will lead to food scarcity and unemployment of laborers. He is of the opinion that the government should immediately provide seed to farmers for spring rice plantation and also some compensation to the farmers for their loss of wheat due to hailstorm.

In addition, Ramjanam Chaudhary (a new member in the working group), a farmer (also Agri-Engineer student) from Parsa also mentioned that a lot of damage has been endured by vegetable farmers and the government should coordinate properly to address them. Chaudhary is interested to work in agri-mechanization in Parsa and claims that he brought the zero-tillage machine from Ranighat (Birgunj) and applied it in his district. He believes trained manpower is not available at local level. So, if any training program could be organized in Parsa that would be helpful.

Next was Jeetendra Yadav, AKC Chief from Bara, who stated that now is the season of maize harvesting but due to COVID-19 lockdown which has disrupted the channel to link markets between districts, farmers are facing problems of selling maize. He also emphasized that paddy seed are also not available for spring rice plantation, which normally used to be imported from India but due to lockdown seeds from India is not available in the market. However, the lockdown has not caused

any interruption in the operation of Agri-machinery equipment. Besides, hailstorm has damaged wheat, vegetables and other crops in Bara.

After AKC Chief from Bara, it was Jeetendra Jha, Chief of AKC from Rautahat, who provided the update. He said that the situation in Rautahat was not different from Bara and Parsa. Rautahat already faces scarcity in manual labour and adaption to Agri-mechanization is also low in this district. In this situation, the lockdown has mostly affected perishable agricultural produce like vegetables and fruits that are facing loss rather than wheat. Farmers are not getting appropriate price for their vegetables and brokers are taking undue advantage of this situation. But if the lockdown extends, he is certain that the situation in Rautahat will get worse.

Finally, AKC Chief from Dhanusha, Shankar Prasad Shah describe the situation in his district. He mentioned that during the initial period of the lockdown, police had forbidden to operate any Agri-machinery equipment, which had also caused some conflict between operators and police. But later, they allowed the operators to use the machines. So, to some level, the farm activities were disrupted, and the harvesting of wheat got delayed. On top of that, when 30% of wheat remained to be harvested, the hailstorm damaged the crop. But it is mostly vegetable farmers who had to bear most loss. Though some selling-channel was established via cooperatives that helped farmers transport their vegetables to Janakpur market, it was not as efficient because the cross-district market remained closed due to the lockdown.

After this district-wise detail updates from AKC Chiefs and Dr. Ratan Kumar Jha, Rama present the revised declaration of the Province 2 Sustainable Agriculture Mechanization working group (which still needs few minor edits). Rama informed all that the final edited version will be shared to the group such that in the future face-to-face meeting it will be ready to be signed by all the members.

Next presentation was on 'Agriculture Policy and Programs Updates' by Mr. Lalan Kumar Singh, Chief of Agribusiness Promotion Support and training Centre (ABPSTC) under Ministry of Land Management Agriculture and Cooperatives (MoLMAC). He reflected on the initiations taken by government at policy level like- establishment of Custom Hiring Centre with partnership with local level, developing foundation for the establishment of large plot mechanized model farm, organizing upcoming AgriMech Fair etc.

The presentation for Mr. Lalan Kumar Singh was followed Rama's brief review on the Rabi Roadmap 2020 which was discussed in our previous Roadmaps meeting held on 18th and 19th Feb. Rama and Brendan listed out the points we discussed on the previous meeting and requested the members to go through them to sort out which activities are achievable considering the lockdown and time left for Rabi season. The members decided to move on to early rice harvesting and Kharif plantation as Rabi harvest is over now.

During this discussion, Ramjanam Chaudhary (farmer from Parsa) asked if there is any solution to dry and store crops like Chillies and Onions. Er. Ramnath Jha informed that machines (specially for Chilli and Onions) are not available, it can be developed but the availability of manpower could be a constrain. Lalan Singh however was positive about the availability of solar drying training and

fabrication of dryer technique which can restore perishable agricultural produce through drying technology. During this discussion, the main requests were made for solar drying for banana, dryer for onion and chilli, and dry drum seeder for kharif paddy.

Considering the needs and requests from the working group, Brendan decided to collect all the ideas systematically in details. So, he created and shared a Goole sheet (https://bit.ly/P2_Kharif_RM) where all the members can add their ideas, which will be discussed in detail in the next virtual meeting scheduled for Monday, 4th May at 11am.

With all the members agreeing to reconnect on Monday, the first virtual Province 2 Roadmap meeting concluded.

List of participants:

1. Dr. Ratan Kumar Jha (Chief, ADD)
2. Mr. Lalan Kumar Singh (Chief, ABPSTC)
3. Dr. Ramchandra Yadav (Chief, AKC Parsa)
4. Mr. Jeetendra Jha (Chief, AKC Rautahat)
5. Mr. Jeetendra Yadav (Chief, AKC Bara)
6. Er. Ramnath Jha (Chief, Agricultural Machinery Training and Research Centre)
7. Mr. Ramjanam Chaudhary (Farmer/ Agri-Engineer Student, Parsa)
8. Mr. Manish Kumar Pal (Planning Officer, MoLMAC)
9. Mr. Devananda Ray Yadav
10. Mr. Jiban Bhujel
11. Mr. Rajanish Mishra (Technical officer- Planning, MoLMAC)
12. Dr. Madhav Karki (ED, Centre for Green Economy Development)
13. Mr. Shankar Prasad Sah (Chief, AKC Dhanusha)
14. Dr. Tamara Jackson (Program Manager, ACIAR SDIP)
15. Dr. Brendan Brown (Program Leader, CIMMYT)
16. Ms. Rama Sharma (Social Researcher, CIMMYT)
17. Ms. Manisha Shrestha (Communications Specialist, CIMMYT)

ROADMAPS VIRTUAL WORKSHOP IN PROVINCE 2: PART TWO

BY: Manisha Shrestha (Communications Specialist) and Rama Sharma (Social Researcher)

REPORT DATE: May 04, 2020

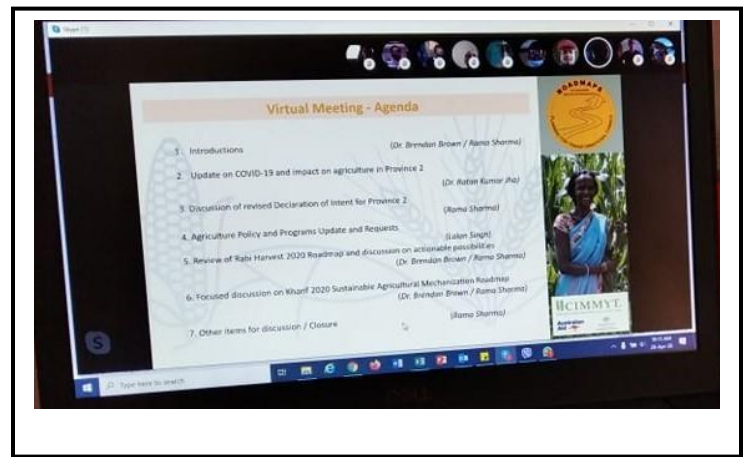
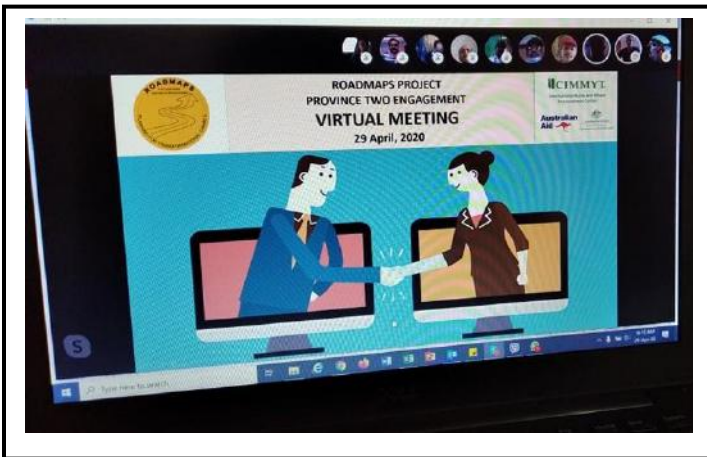
WORKSHOP DATE: May 04, 2020

CONNECTED FROM: Kathmandu

CONNECTED TO: Province 2

PURPOSE:

- Focus discussion on Kharif 2020 Sustainable Agricultural Mechanization Roadmap



OVERVIEW:

ACIAR funded Roadmaps Project plans to support the representatives from the Roadmaps working group of Province 2 to carry out sustainable agricultural mechanization in the province. Due to a COVID-19 national lockdown since 23rd March (10 Chaitra 2076), there has been disruption in the planned activities.

On 29th April, the working group joined Skype meeting where the participants discussed intensively on the impacts of COVID-19 lockdown in agriculture. However, the previous virtual meeting was wrapped up to continue the meeting again to discussion on Kharif roadmaps 2020. So, on 4th May the virtual meeting resumed at 11am to have a focused discussion on Kharif Roadmaps 2020 and develop a plan that can be put into immediate action during the lockdown period to ease farm activities and support smallholder farmers.

DISCUSSION:

The virtual meeting resumed at 11 am with 13 online participants.

The discussion started with the list of ideas presented by the working group in the google sheet shared by Brendan. On our previous meeting on 29th April, considering the needs and requests from the

working group, Brendan had decided to collect all the ideas systematically in details. So, he created and shared a Google sheet (https://bit.ly/P2_Kharif_RM) where all the members can add their ideas.

Based on the ideas presented on the sheet, the focus of today's meeting were 1) DSR Activities, 2) Mechanical Rice Transplanting Activities, 3) Agri-Mech Fair and 4) Solar Dryer and storage.

Beginning the discussion, Brendan informed all participants that CIMMYT can offer 5 ZT drills (which are in Hardinath currently) and some funds to support but need to know where (which location) should it be allocated.

Under DSR activities, Dr. Ramchandra Yadav (Chief, AKC Parsa) mentioned that there are four on-going programs (training and demo on rice Transplanter, Drum Seeder, Zero Tillage and Minimum Tillage for Rice) at Ranighat, Bigunj. Dr. Yadav proposed to organize such demo at Parsa for which he is seeking funds. CIMMYT can also help bring drill from Janakpur to Parsa. Here, Devsagar Das (farmer from Janakpur) also added that they started zero till in rice last year and it went so well that they are planning to extend the plot area from 1 Bigha to 3 Hectare this year.

Er. Ramnath Jha elaborating his point from the google sheet mentioned that Drum Seeder, ZT drills, PTD Drills are available at the Training Centre, Nawalpur. So, he intends to carry out a large-scale demonstration either at the Training Centre or/and at farmers field too. For this, he requested CIMMYT to cover operational cost. Here, Lalan Singh (Chief, ABPSTC) added that there is a farmer at Manara municipality named Anil Singh who requested for a demo. Lalan Singh also suggested for a collaboration with farmer and municipality.

Next discussion was on Mechanical Rice Transplanting Activities. Dr. Ratan Kumar Jha (Chief, ADD) brought to light that due to COVID-19 pandemic all the program budget of Province 2 has been blocked and there are very little chances of releasing those funds in this situation. Dr. Jha mentioned that scaling up activities are required in mechanical rice transplanter and requested CIMMYT to undertake the whole demo package.

Brendan here clarified that CIMMYT can make NRs 4 lakh fund available for DSR and Mechanical Rice Transplanter. But CIMMYT is unable to provide any technical support at Province 2 due to unavailability of technical officer.

Jeetendra Yadav- AKC Chief- Bara clarified that they have been using Rice Transplanter through two cooperatives in Bara. Both the cooperatives are fully equipped but some of the equipment of one of the cooperatives are damaged. In this case, he requested for some technical support from CIMMYT. Brendan suggested that there can be a liaison with NARC.

Brendan also requested all the members of the working group to send in an official proposal so that the fund can be made available.

Ramjanam Chaudhary, a farmer from Parsa (also an agri- engineer student) shared his intention to use DSR and Drum Seeder for Rice on 5-10 bigha land.

On the topic of Agri- Mech Fair, Lalan Singh (Chief, ABPSTC) informed that he has planned to host the upcoming Agri Mech Fair in Province 2. Though the fair will be organized at the end of the year, he needs to prepare the budget now and start working on the plan.

Finally, on the last topic of discussion – Solar Dryer and Storage, Lalan Singh mentioned that he wants to conduct trial on tunnel dryer (where poly-house can be customized as dryer) and commercial scale trial on cabinet storage (for which he has no resources yet).

After this discussion on the list of requests made by the participants, Brendan shared a detail Kharif Funding Proposal form (<https://forms.gle/zXdBofpkJ5s9UwtD7>) to all the participants where they can list out the details of the activities, which can further help CIMMYT to plan the budget and implement accordingly as soon as possible, bringing this focused discussion to an end at around 12.30 pm.

List of participants:

1. Dr. Ratan Kumar Jha (Chief, ADD)
2. Mr. Lalan Kumar Singh (Chief, ABPSTC)
3. Dr. Ramchandra Yadav (Chief, AKC Parsa)
4. Mr. Jeetendra Jha (Chief, AKC Rautahat)
5. Mr. Jeetendra Yadav (Chief, AKC Bara)
6. Er. Ramnath Jha (Chief, Agricultural Machinery Training and Research Centre)
7. Mr. Ramjanam Chaudhary (Farmer/ Agri-Engineer Student, Parsa)
8. Mr. Devananda Ray Yadav
9. Mr. Jiban Bhujel
10. Mr. Devsagar Das (Farmer, Janakpur)
11. Dr. Brendan Brown (Program Leader, CIMMYT)
12. Ms. Rama Sharma (Social Researcher, CIMMYT)
13. Ms. Manisha Shrestha (Communications Specialist, CIMMYT)

ROADMAPS SECOND VIRTUAL MEETING WITH PROVINCE 2

BY: Rama Sharma (Social Researcher) and Manisha Shrestha (Communications Specialist)

REPORT DATE: November 10, 2020

MEETING DATE: November 9, 2020

CONNECTED FROM: Kathmandu

CONNECTED TO: Province 2

PURPOSE:

Updates on Province 2; Review of supported Kharif Activities and Discussion of supported Rabi possibilities

OVERVIEW:

ACIAR funded Roadmaps Project plans to support the representatives from the Roadmaps working group of Province 2 to carry out sustainable agricultural mechanization in the province. Due to a COVID-19 national lockdown since 23rd March (10 Chaitra 2076), there has been disruption in the planned activities.

On 29th April and 4th May 2020, the working group joined Skype meeting where the participants discussed intensively on the impacts of COVID-19 lockdown in agriculture and on Kharif Roadmaps 2020 to develop a plan that can be put into immediate action during the lockdown period to ease farm activities and support smallholder farmers.

Since then, to get an overall update and review of Kharif activities, the second virtual meeting with Province 2 is scheduled for 10th November 2020.

DISCUSSION:

The virtual meeting started at around 11 am (Nepali Time) with 12 online participants.

The meeting started with an update from Dr. Ratan Kumar Jha (Chief, ADD) who mentioned that there has not been any major effect of COVID-19 in Province 2 except some movement issues which has impacted markets and supplies like (pesticides and machines) are not reaching to farmers on time. Also due to COVID and having to maintain social distancing, there was labor. Despite COVID situation, provincial government has decided to allocate a huge budget (8 crore) for Custom Hiring Center. However, a clear work plan is required for Custom Hiring Center so that the budget can be utilized properly.

Followed by Lalan Singh who accepted that due to COVID situation, they could not do much on Rice as planned but the rice harvest has not been that bad. He explained that Province 2 is divided into two belts, northern side (where the sugarcane is grown) and southern side. In the northern side, the harvesting has already started and soon they will start planting too. While in southern side, the

harvesting will start in a week's time. He believes that if machines are not made available on time, farmers will start sowing in traditional way. And if the roadside fields are planted, then there will be difficulty in getting the machine in the middle part of the field. Same thing happened in Kharif because of which he was unable to do DSR even though the land was allocated.

Ramjanam Chaudhary, farmer from Parsa (also an agri- engineer student) shared his experience that due to COVID, the farmers could not get fertilizers on time- price was double and triple due to lockdown and also due to excessive rain, paddy could not dry properly which effected farmers economically. He believes that along with mechanization the focus should also be on better storage and drying of rice. He emphasized on the requirement of Dryers.

In the next session on “Belachapi, Dhanusha- DSR in farmer field- Dev Sagar”, the farmer (Dev Sagar) shared his experience of using DSR in 5 bigha land that produced 3 metric tons per hectare. He mentioned the problem of unavailability of fertilizer and how he had to depend upon India's black market. However, the yield turned out to be good and so the farmers are happy. Compared to Kharif paddy which were planted in July/Aug, Chaite Dhaan (April Cultivation Paddy) are good in upland- that was his experience. Another issue he focused on is that though he has got two machines (one from Er. Ramnath Jha and another from CIMMYT), it is not enough because many farmers are demanding for the machine and there is a lack of trained operators.

In another session on “NARC DSR demonstration in Province 2”, Er. Ramnath Jha shared his experience of using ZT drill in 6-hectare land for DSR. He said he used 3 varieties of rice out of which Hardinath 1 turned out to be a good one. He also mentioned that the research center is ready to provide machine if any farmer requires, but unable to provide other inputs. As per Dev Sagar's request, Er. Jha is ready to train operators regarding the calibration and other technical aspects of ZT machine.

Lalan added that if we are unable to provide machines on time, the farmers will start sowing (traditional method). Farmers trust on ZT will diminish. So, we need to act fast. The issues with timely availability of fertilizers and good quality seed already continues.

On the topic regarding the possibilities for Rabi 2020, Brendan asked what can be achieved this Rabi season? Any trainings or demonstrations or local expert? Policy support for Custom Hiring Center? Rama will also be personally calling all the members to list out ideas in the group. To this, Er. Ramnath Jha mentioned that there has been very little COVID effect so far because everything is running smoothly, and he has been conducting different trainings as regular. He also mentioned that if we want to organize any trainings, it needs to be done after Chaath (i.e 20th November) but before 10th December.

Lalan Singh also added that experts are available at testing and research center and CIMMYT can easily coordinate with them to conduct any trainings. He further mentioned that he is planning to take the idea of establishing Custom Hiring Centre in collaboration with Gaun Palika, and for this purpose they have allocated some budget around 8 crores, and they are also in the process of

making some action plan. He stressed on carrying out any trainings or demonstrations without any delay so that this Rabi season is not missed.

Finally, Dr. Ratan Kumar Jha requested CIMMYT to support for a qualified and sound technical person for around 4/5 months to establish custom hiring center. He also requested Ramjanam Chaudhary and rest of the members to refer any name who can do the job properly and he will look in to it asap so that CIMMYT can help hire the technical consultant for certain months as per the requirement.

After this meeting, it is decided that Brendan will hold separate calls with Er. Ramnath Jha and Lalan Singh to discuss in detail about the activities and plan accordingly.

List of participants:

1. Dr. Ratan Kumar Jha (Chief, ADD)
2. Mr. Lalan Kumar Singh (Chief, ABPSTC)
3. Dr. Ramchandra Yadav (Chief, AKC Parsa)
4. Mr. Rajnish Mishra (Technical officer- Planning, MoLMAC)
5. Mr. Manish Kumar Pal (Planning Officer, MoLMAC)
6. Er. Ramnath Jha (Chief, Agricultural Machinery Training and Research Centre)
7. Mr. Ramjanam Chaudhary (Farmer/ Agri-Engineer Student, Parsa)
8. Mr. Devsagar Das (Farmer, Janakpur)
9. Dr. Brendan Brown (Program Leader, CIMMYT)
10. Ms. Rama Sharma (Social Researcher, CIMMYT)
11. Ms. Anjana Chaudhary (Social Researcher, CIMMYT)
12. Ms. Manisha Shrestha (Communications Specialist, CIMMYT)

Notes on follow-up separate Skype calls with Er. Ramnath Jha and Lalan Singh on 10th Nov, 2020

Er. Ramnath Jha (10 am Nepali time)

- Can select and train 8 operators from 8 districts on Zero Till Seed drill and Power Till Seed Drill for 3 days.
- 3 days training will be enough. And after that they will go back to the field and even then, if they need any support, we will provide technical support.
- No need of outside expert to provide operator training in training centre.
- Requirements: Travel expenses + DA + Lodging expenses (at hotel due to COVID, for a week) + Food + hire a local nurse for a week (for medical issues) + other expenses for training (like, Mobile etc.)
- He, together with Lalan Singh and Dr. Ratan Kumar Jha, will identify the people to be trained.
- He will send in an estimation of a rough value of the resources required—need to decide how much area needs to be covered for wheat (10 hecter?20 hectare?). Also need to work on the contribution like, 50 % will be supported by NARC and remaining 50% will be farmers' contribution. Also need to think about the districts that doesn't have a drill (to this Brendan clarified there are 4 drills at Hardinath which will be released once Brendan will provide an official letter to do so and then Er. Ramnath Jha can take to any location where required).
- Appropriate time for this operator training: from 29 November to 1st December...should complete the training within the first week of December. Every event (training and seeding) should complete from 30th November to 15th December.
- Some part of training will take place in station as well.
- He will provide a resource estimate today – Anjana asked him to clarify a breakdown calculation- she will also provide him a sample format if required.
- DSR demonstration has been harvested, except for 2 hectare which is required for harvesting training purpose. He will provide pictures and contents for 1) ACIAR communication purpose for website and 2) Policy information (such as, it is done in Hardinath...these are the learnings...these are the results etc.) to share with AKCs and MoLMAC.... Manisha will coordinate with Er. Ramnath.
- NARC has returned the remaining fund to CIMMYT which will be used for testing training purposes that will be done in coordination with the experts from Assam, India testing and training center. The Indian experts will visit Nepal to train and work in our centers. He will email the name of Indian Testing Center and the names and details of the concerned experts with Brendan to make the process easier because the funds need to be spent by March, 2021.

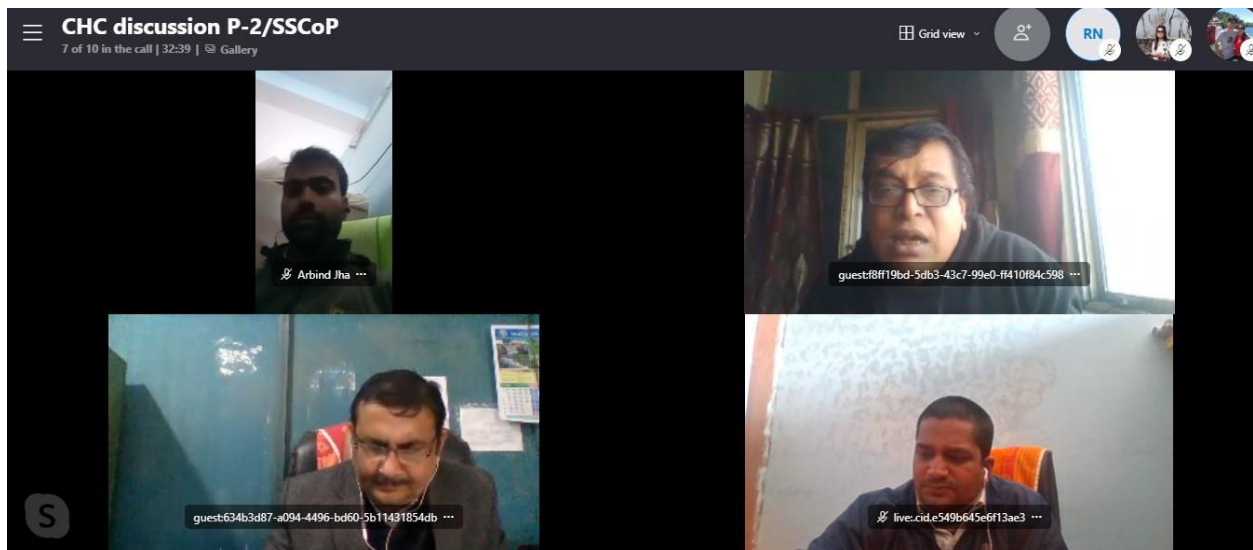
Lalan Singh (11 am Nepali time)

- He thinks that the operator training that Er. Ramnath Jha scheduled for 29th November till 1st December is too late because the Northern side has already started harvesting and soon, they will start sowing too. However, it is ok for Southern side.
- Is it possible to arrange training between Tihar and Chhath? Brendan said we will have to go back to Er. Ramnath to check the dates.
- Er. Ramnath Jha will be able to identify the person to get the training. He knows some as well.
- CIMMYT can make some funding available. Along with it, Lalan Singh also mentioned that some budget has been allocated for Custom Hiring Centre only, that is solely for purchase of machinery not for trainings.
- CIMMYT will try to cover the travel, lodging and training of 8 operators. Lalan thinks this idea of training is a good idea.
- Hardinath Rice Resource Station might also have some technical staff for the backup.
- Rama suggested- can coordinate with Chief of Belachapi as he was interested in using ZT and he also has some operators that can be helpful.
- It is decided to have 2 CHC per district, that is 16 CHCs in total in the entire province. So, from ADD there is a provision of 5 million per district and an equal amount will be contributed by interested municipalities. Lalan confirmed that they are working on formulating the guidelines and planning to organize a national agri-mechanization fair which he thinks can be a good platform to introduce and promote machines. He said they have already allocated the 2.5 million budget for the fair but not sure if it is possible to conduct due to COVID (depends upon a stakeholder meeting scheduled after Chaath) .
- Lalan thinks that if every CHC in the district has ZT machine and trained operator, it will be really helpful. Dhanusha, Sarlahi, Bara and Parsa districts already have required support. But districts like Rautahat, Mahottari, Siraha and Saptari lack ZT machine and operators. If at least one machine (even rental) could be managed with well-trained operator that would be helpful. Also, in new areas, it will be a new technology for farmers so they will expect some input support as they might have doubts regarding the performance of the machine. If we could cover at least half (50%) of the gross cultivation cost of the farmer that might boost up the confidence of new farmers.
- Role of AKC in this training program is very crucial. From this year onwards, two more AKCs have been added so now there are 1 AKC in each 8 districts. They are responsible to look after their own district and farmers from the respective district will approach the AKC for agriculture related technical support.

Custom Hiring Center: A Top Agenda for Provincial Government

With increasing human agri-labor scarcity, agriculture in Nepal is rapidly moving towards the use of machines. But majority of farmers in Nepal are also smallholder marginal farmers who lack financial capacity to own expensive farm machines. Realizing a strong need to enhance farm mechanization and provide access to smallholder farmers, the government of Province 2 has set aside funds for the establishment and operation of Custom Hiring Center (CHC) for the first time.

As initial step of developing protocols for establishing CHC is taking place, ACIAR funded Roadmaps Project that aims to create an enabling environment for Nepali farmers to access and utilize sustainable agricultural mechanization, helped connect Agriculture Development Directorate (ADD) of Province 2 with Satmile Satish Club of Pathagar (SSCOP) from Coochbehar, West Bengal, India. Since 2014, SSCOP has partnered with another ACIAR funded SRFSI project in scaling Conservation Agriculture based Sustainable Intensification (CASI) beyond the lifespan of the project by reaching out to more than 70,000 farmers directly and indirectly in Coochbehar.



Starting humbly as a small custom hiring Centre, SSCOP is now a center of excellence for rural entrepreneurship as well as Conservation Agriculture in North Bengal. They are now a one stop shop for technical support and also a training hub for CA and various associated sectors. SSCOP is now focused on moving CA to wider areas and connecting it with new economic opportunities in agriculture and other allied sectors, like fish farming and poultry production.

The main purpose of this virtual meeting was to share learnings and firsthand experiences from SSCOP regarding the establishment of CHC. Considering that this knowledge-sharing session will help Province 2 government guide through the process of establishing CHC, Roadmaps project created a platform for both parties to discuss and ask questions openly.

On 3 February 2021, participants from ADD- Dr. Ratna Kumar Jha, (Chief), Bikash Kumar Sah (Agriculture Economic Expert), and Arbind Jha (Agriculture Engineer) along with Er. Ramnath Jha

(Chief of Agriculture Machinery Testing and Research Center) came together with Tapan Chowdhury (Senior Advisor, SSCOP) and Amal Roy (Secretary, SSCOP) on a virtual platform for an hour-long discussion. Amal Roy, Secretary of SSCOP initiated the discussion from a brief history of SSCOP followed by Tapan Chowdhury, Senior Advisor of SSCOP, who elaborated on how SSCOP started the first CHC in 2014.

Chowdhury also clarified on the main purpose of the establishment of CHC and where should it be located. Emphasizing that the preliminary step in establishing CHC should begin with few farm machines and gradually moving on to adding more machinery and equipment, Chowdhury also stressed on focusing on business model. He also highlighted how the government of West Bengal have promoted CASI at policy level by making CASI machinery mandatory in Custom Hiring Centers.

Clarifying all the queries, Chowdhury also shared some official documents like, to help Province 2 in developing and delivering the Custom Hiring Center.

Contented with the information and experiences shared from SSCOP, ADD participants from Province 2 thanked Roadmaps project and remarked the interaction to be very fruitful and strongly expressed the need to have an exposure visit to West Bengal to observe CHC activities being implemented by SSCOP and to explore new learnings related to agricultural mechanization which can be successfully adopted in Province 2.

The ACIAR funded Roadmaps Project aims to develop capacity for sustainable agricultural mechanization in Nepal. Led by CIMMYT, this project targets Provinces 1 and 2 of Nepal, where the SRFISI project has been working since 2012.