Food and Agriculture Organization of the United Nations

The International Workshop and Regional Expert Consultation on Mountain Agriculture Development and Food Security and Nutrition Governance

Summary report

Regional Initiative on Zero Hunger
FAO and UIR
30 October – 1 November 2018
Beijing, China

The International Workshop and Regional Expert Consultation on Mountain Agriculture Development and Food Security and Nutrition Governance

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
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Acronyms

CARD	Council for Agricultural and Rural Developmen
CFS	The Committee on World Food Security
CGIAR	Consultative Group on International Agricultural Research
CHTDB	Chattogram Hill Tracts Development Board
DDG	Deputy Director-General
FAO	Food and Agriculture Organization
FAO HQ	FAO Headquarters
FAO RAP	FAO Regional Office for Asia and the Pacific
GIHAS	Globally Important Agricultural Heritage Systems
HLPE	High Level Panel for Food Security and Nutrition
IARI	Indian Agricultural Research Institute
ICIMOD	International Centre for Integrated Mountain Development
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IDC	ICRISAT Development Center
MAFF	Ministry of Agriculture Forestry and Fisheries
MoAF	Ministry of Agriculture and Forests
NOMAFSI	Northern Mountainous of Agriculture and Forestry Science Institute
RI-ZH	Regional Initiative on Zero Hunger
SDGs	Sustainable Development Goals
SSD	Society for sustainable Development
UIR	University of International Relations, China

Executive Summary

The Regional Initiative on Zero Hunger in Asia and the Pacific has identified the "strengthening of mountain agriculture and food systems" as one of the key programmatic work areas for 2018-2019. Under the leadership of Kundhavi Kadiresan, ADG/RR, FAO RAP, with the guidance from Strategic Programme led by Dr. Daniel Gustafson, Deputy Director-General, Programme, FAO, the "International Workshop and Regional Expert Consultation on Mountain Agriculture Development and Food Security and Nutrition Governance"was held in Beijing, China. This consultation was co-organized by FAO and University of International Relations(UR, China). The objectives for the consultation were to identify challenges, opportunities, entry points and policy mechanisms promoting mountain agriculture development and strengthening food security and nutrition governance for zero hunger and poverty reduction. Leading international experts together with national experts from nine countries (Bhutan, Nepal, Myanmar, Cambodia, Vietnam, Lao PDR, India, Pakistan and Bangladesh) in which the FAO RAP Zero Hunger Initiative has been implemented in their country, shared their constraints, gaps and opportunities on mountain agriculture development for poverty reduction and zero hunger.

Mountain agricultures face multidimensional challenges of biophysical-technical, socio-economic, policy and institutional dimensions, given its vulnerability, inaccessibility and marginality. Typical farming concerns throughout the region include: encroachment of monocultures in response to demands from national, regional, and global markets; overexploitation of land resources due to population pressure and lack of economic alternatives; outmigration, land abandonment and decay of key farm infrastructure such as terraces in other regions, with as yet unknown effects on provision of environmental goods and services. However, mountains are hotspots of global biodiversity including agro-biodiversity. In addition, mountain hosts good condition for sustainable agriculture development because industrialized large-scale production is often not possible due to topography. Moreover, owing to remoteness and difficult access, the use of external inputs such as fossil fuels, mineral fertilizers, and pesticides is typically lower or less widespread than in lowland farming.

It is recommended to introduce integrated and diversified farming system that is suitable to local human-ecological contexts, for instance, under-forestry agriculture development and economy, shifting cultivation; For agro-processing and marketing, the uniqueness of mountain which are the key attractions for consumption, should be enlarged, together with technical interventions in improving accessibility, transportation, and social protection for local indigenous group. Good examples are the GIAHS, branding, certification, landscape approach, etc; for consumption, awareness raising and mountain-urban link is the key. Good experiences can be drawn from the vast development of E-commerce in China. Mountain specific crops that are good for the natural resource conservation and resilient to climate change, as well as that can generate economic advantages, such as the Future Smart Food, should be strategically promoted through the value chain from production to marketing and consumption, in order to maximum the development of mountain agriculture for food security and nutrition.

The workshop was organized by FAO and the University of International Relations in collaboration with the FAO Special Ambassador of the International Year of Pulses 2016, the Mountain Partnership, the International Crops Research Institute for the Semi-Arid Tropics, ICIMOD and the University of Western Australia. The participants included experts, national focal point on zero hunger, government officials, academics and research partners.

Xuan Li

Senior Policy Officer

Delivery Manager

Regional Initiative on Zero Hunger

I. Background

Mountains are home to one tenth of the world population and cover 25 percent of the earth's land surface. Around 40 percent of mountain populations resident in developing and transition countries and about 300 million people, is food insecure with half of them suffering from chronic hunger. This is no exception in the Asia region where mountain ranges are many. On the other hand, mountains host approximately one quarter of all terrestrial biodiversity and nearly half of the world's biodiversity hotspots. In addition, mountains provide precious global goods and services in the form of water, hydroelectricity, timber, niche products, mineral resources and flood management. Mountains are also places of cultural meaning and diversity as well as refuge and tourism. In terms of climate change, mountain ecosystems are fragile and subject to natural drivers of change. Meanwhile, mountains represent unique areas for detecting climate change and assessing climate change impacts. In short, mountain areas have high ecological cultural and socioeconomic significance for sustainable development in the context of climate change.

Food and nutrition insecurity remains challenging in mountainous areas in Asia affecting a large amount of people especially in remote mountain areas. The causes of food and nutrition insecurity are multifaceted and intertwined. The mountain agriculture is deteriorating and traditional agriculture systems that could reduce nutrition security, dietary diversity and agrobiodiversity in the ecosystems are declining. In addition, due to the inaccessibility, fragility and seasonality of the mountain areas, there are economic opportunities lost, poor market access and weak institutional services. Therefore, special attention and concentrated solutions targeting mountain and hilly areas in Asia are required to address food security and nutrition governance.

With the increasing awareness of the problems as well as the needs for agricultural diversification nutrition-enhancement and climate resilience in mountain areas, FAO and its partners regard it timely to organize this International Workshop and Regional Expert Consultation on Strengthening Mountain Agriculture Development and Food Security and Nutrition Governance for Zero Hunger and poverty reduction, which considers the key issues in mountain areas in the context of sustainable agriculture and food system that draws regional attention, cooperation and policy solutions to enhance the food security and nutrition governance in the mountainous and hilly areas.

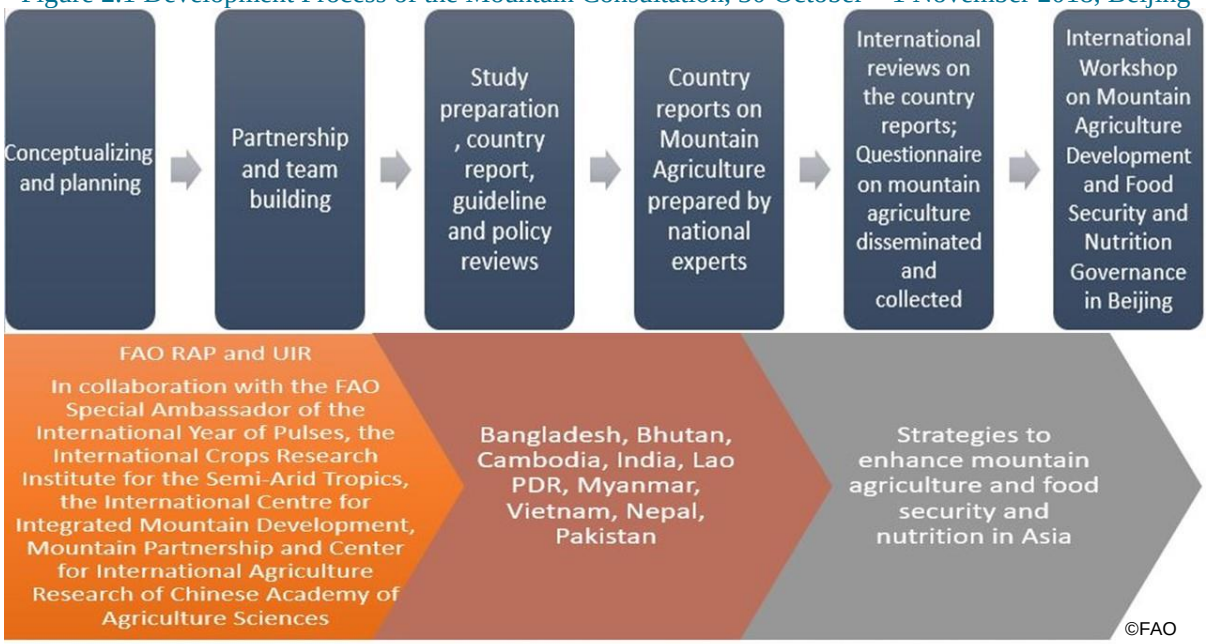
II. About the Workshop

Food security and nutrition are clearly core issues in sustainable mountain development but paradoxically are often ignored in mountain-related discussions and mountain development policies and projects. With the increasing awareness of the problems as well as the needs for agricultural diversification nutrition-enhancement and climate resilience in mountain areas, Regional Initiative on Zero Hunger (RI-ZH) of FAO RAP sets one of its key working areas as tackling sustainable agriculture development in mountain regions. In the second half of 2018, RI-ZH of the FAO and its partners regard it timely to prepare and organize the International Workshop and Regional Expert Consultation on Strengthening Mountain Agriculture Development and Food Security and Nutrition Governance for Zero Hunger and poverty reduction (hereafter 'the Mountain Consultation'), which considers the key issues in mountain areas in the context of sustainable agriculture and food system that draws regional attention, cooperation and policy solutions to enhance the food security and nutrition governance in the mountainous and hilly areas.

Prior to the Mountain Consultation, partnership and team building were consolidated based on strong country desires to have knowledge sharing at the regional level on promoting sustainable mountain agriculture and enhancing food security and nutrition in mountain areas to address Zero Hunger and poverty reduction. The Consultation is co-organized by the FAO and University of International Relations in China, in collaboration with the FAO Special Ambassador of the International Year of Pulses, the International Crops Research Institute for the Semi-Arid Tropics, the International Centre for Integrated Mountain Development, Mountain Partnership and Center for International Agriculture Research of Chinese Academy of Agriculture Sciences.

In addition, national mountain agriculture experts of national authorities/research institutes from nine Asian countries (namely: Chittagong Hill Tracts Development Board in Rangamati of Bangladesh; Ministry of Agriculture and Forests of Bhutan; General Directorate of Agriculture of Cambodia; University of Agricultural Sciences and Technology Jammu in India; Upland Agriculture Research Center under the National Agriculture and Forestry Research Institute in Lao PDR; Department of Agricultural Research in Myanmar; Ministry of Agriculture and Livestock Development in Nepal; Norlhem Mountainous Agriculture & Forestry Science in Viet Nam; and Pakistan Agricultural Research Council, Pakistan) were invited to prepare Country Reports on Mountain Agriculture Development Achieving Zero Hunger and Poverty Reduction, in coordination with their government officials, based on a guideline that FAO provided. The reports were circulated for international reviews before the Mountain Consultations. With the comments received, the national mountain agriculture experts were to give presentations during the Mountain Consultation for more detailed discussions to prepare for this publication. Moreover, a comprehensive set of Questionnaires on Mountain Agriculture in Asia were distributed to all participants to the Consultation for data gathering and deliberative consultation. The analytical results of the Questionnaires are presented in this Introduction chapter.

Figure 2.1 Development Process of the Mountain Consultation, 30 October – 1 November 2018, Beijing



Evidence-based policies to create an enabling environment for Mountain Agriculture Development and Food Security and Nutrition Governance

The International Workshop and Regional Expert Consultation on Strengthening Mountain Agriculture Development and Food Security and Nutrition Governance for Zero Hunger and poverty reduction was successfully held during 30 October – 1 November 2018 in Beijing. More than 80 participants and audiences from 14 countries attended this Mountain Consultation, attracted major media attentions from China. The objectives and output of the Mountain Consultation are as below.

Table 2.1 Objectives and output of the mountain consultation, 30 October – 1 November 2018, Beijing

Objectives	Output
1. To identify constraints, gaps and opportunities on mountain agriculture development for poverty reduction and Zero Hunger	1. Key challenges and potentials identified that agriculture and food systems face in the mountain areas (production, agro-processing, marketing and consumption)
2. To facilitate knowledge sharing, lessons learnt and good practices on agriculture development and mountain food security and nutrition governance	2. Good experience and practices and solutions on mountain agriculture (e.g. production, agro-processing, marketing and consumption) and mountain food security and nutrition governance.
3. To identify possible entry points and policy recommendations promoting mountain agriculture development and strengthen food security and nutrition governance	3. Recommendations and roadmap on way forward mountain food security and nutrition governance developed

The Consultation was co-organized by University of International Relation (China), in collaboration with FAO Special Ambassador on International Year of Pulses, the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), the International Centre for Integrated Mountain Development (ICIMOD), Mountain Partnership, and Center for International Agriculture Research of Chinese Academy of Agriculture Sciences.

III. Sessions

The three-day event follows an interdisciplinary sustainable food system approach covering the key issues from value chain through the lens of socio-economic, policy, agriculture, nutrition, ecological and environmental (detailed programme/agenda can be found in Annex 1).

Day One

Compromising five sessions, the first day's programme is designed for international experts to share advanced experiences/programmes/lessons learnt and successful stories in mountain agriculture development from a global policy and technical perspective.

Opening Session

Opened by the FAO Representative in China and the President of UIR, the role of China and its experience in poverty/hunger reduction and South-South cooperation was empathized. Dr. Xuan Li, senior policy officer from the FAO and the main organizer for the workshop, set the scene for the discussions to come with an overview of the current gaps and a need for paradigm shift in today's agriculture and food system, particularly given the role of mountain agriculture. She also introduced the main research questions of the workshop which are: (1) What are the key challenges and potentials identified that agriculture and food systems face in the mountain areas (production, agro-processing, marketing and consumption); (2) What are the good experience and practices and solutions on mountain agriculture (e.g. production, agro-processing, marketing and consumption) and mountain food security and nutrition governance.

Dr. Mahmoud El Solh, Vice Chair, High-Level-Panel-Experts, The Committee on World Food Security of the United Nations, then delivered a key note speech on Sustainable Mountain Agriculture Development for Food Security and Improved Livelihoods for Zero Hunger. He the vulnerability to food insecurity and malnutrition of mountain people, compounded by the vicious circle of poverty and exploitation of natural resources. Followed by Prof. Kraisid Tontisirin, M.D., PhD., President of Nutrition Development Foundation, Thailand' s keynote on Institutional framework on Food security and nutrition governance in mountain region of Thailand on Zero Hunger Perspective, and Prof. Dr. Fengying Nie, Deputy Director-General, Center for International Agriculture Research of Chinese Academy of Agriculture Sciences' key note on Strategy and application of Precision Poverty Alleviation in Mountain regions in China: the role and effect of institutional mechanism.

Opening Session

(from left to right, up to down)

- Dr Vincent Martin, FAOR China
- Dr Xuan Li, Senior Policy Officer, FAO RAP
- Conference Room
- Dr Mahmoud Solh, Vice Chair, HLPE, CFS
- Prof. Fengying Nie, DDG, CIAR, CAAS

Session 1 Mountain Agriculture Development and Food Security and Nutrition Governance

The first session was chaired by Dr Suhas Wani, Former Research Program Director – Asia and Director, ICRISAT Development Center, ICRISAT, presenting an overview of the governance and status of mountain agriculture development in Asia.

Dr. Thomas Hofer, Senior Forestry Officer and Natural Resources Management Group Leader, RAP, FAO, provided a bird view on the global and Asian picture of food security and nutrition in Asia. He emphases on the definition of mountains and vulnerability with a precise methodology to study mountain regions. Mountain people have suffered from high rates of micronutrient deficiencies from low dietary diversity. Dr Hofer calls ways forward for a paradigm shift with special attentions to mountain agriculture. It is important to improve value chains of mountain products, to provide compensation of ecosystem services is an interesting approach to enhance local livelihoods, and the effects are required to strengthen the resilience of mountain communities to change.

Dr Golam Rasul, Chief Economist from ICIMOD, provided the insights on development framework for Mountain agriculture and food security and nutrition governance. After giving the background of the evolving trends in global systems with a narrowing food basket and declining dietary diversity in mountain areas, with its social and economic consequences on increasing hunger and undernourishment, health costs and loss of productivity, mountain with its diversity as a potential should be given priority. These include: a. prioritize policies & programs towards nutrition-sensitive agriculture & food systems; b. promote a location-specific-multi-functional agricultural landscape management; c. encourage dietary diversity – raise awareness to shift diets from staple grains to more diverse diets; d. provide economic incentives for traditional NUS crops, agrobiodiversity, local livestock, agroforestry; e. withdraw subsidies from calorie dense mono-cropping; f. scale up climate smart & nutrition sensitive approaches.

Prof Guoxiang Li, Rural Development Institute, The Chinese Academy of Social Sciences, China, presented the 'rural development strategies for smallholder farmers in mountain areas: China's experience on mountain food security and nutrition governance'. He gave the focus on the smallholders farmer and how the Chinese policies have given them incentives and benefits through community farming, targeted poverty reduction and value chain development for local advantageous agricultural products.

Session 2. Mainstreaming Neglected and Underutilized Species (NUS) for Mountain Agricultural Development: The role of Future Smart Food (FSF)

The second session is chaired by Dr Golam Rasul, Chief Economist, ICIMOD.

Prof. Kadambot Siddique, FAO Special Ambassador for International Year of Pulses and Hackett Professor of Agriculture Chair and Director, The University of Western Australia; Dr. Xuan Li, Senior Policy Officer, FAO RAP, co-presented the 'roles and potentials of FSF for Mountain Agriculture Development: nutrition, climate-resilient, economic and social perspective'. After presenting the concept, main features of the Future Smart Food, it is apparent that Future Smart Food with its characters on nutrition-dense, climate resilient, economical benefit and locally availability, would improve soil and increase water

use efficiency through crop rotation. In addition, Future Smart Food provides potential to develop mountain agriculture for mountain FSN and better livelihoods. Sustainable value chain development of FSF and building equitable highland-lowland economic links.

Dr. Abid Hussain, Food Security Economist, Livelihoods, ICIMOD delivered his presentation via skype on 'Sustainable and integrated farming systems for enhancing productivity and profitability under hill and mountain agro-ecosystems: case study'. He analyzed the factors of declining NUS in mountains are: the protection and promotion of traditional crops is not among the priorities of the government; there is no market incentives for NUS; and trade and market policies rarely reflect nutritional and ecological values of crops. He then gave an example of NUS in Gatlang, Rasuwa district, Nepal. There was no use of chemical in producing such NUS and the soil fertility is maintained by organic manure. In addition, NUS contribute to local food and income and linked to tourism autonomously.

Dr Suhas Wani, Former Research Program Director – Asia and Director, ICRISAT Development Center, ICRISAT presented a case study of mainstreaming FSF for mountain agriculture development. He introduces the ICRISAT's successes of climate change-ready crops. By adopting participatory and integrated approach. Through Convergence, Consortium, Collective action and Capacity building farmers' incomes can be doubled/tripled. He suggested that we need to adopt inclusive market oriented development (IMOD) approach. By harnessing the power of new technologies such as IT, AI, RS, modelling, etc. For enhancing incomes along with agriculture allied sectors also need to be pursued and market linkages need to be developed along with value addition through public private partnerships.

Session 3. Building Sustainable and Integrated Farming Systems for Mountain Agriculture

This session is chaired by Prof. Kadambot Siddique, FAO Special Ambassador for International Year of Pulses

Prof. Prakash C. Tiwari, Professor of Geography at Kumaun University, Nainital, Uttarakhand, India, presented the 'Mountain Farming Systems and Food Security in Asia Under Climate Change: A Case Illustration of Hindu Kush Himalaya'. He presented the high vulnerable to food insecurity in the Himalayas through natural and human induced factors. He also presented the regional agro-ecological zones and farming systems across Himalaya. He mentioned that due to constraints of subsistence economy large proportion of male population out-migrates and this leads to feminization of resource development process and poverty in Himalaya. He proposed several interventions to bring food and nutrition security in Himalaya way forward. These include: agro-climatic regionalization, agricultural resources information system, agricultural diversification, spatial planning of agricultural facilities, watershed based agricultural development and linking agriculture with other sectors of economy.

Prof. Anil K. Choudhary, Senior Scientist (Agronomy), Indian Agriculture Research Institute, introduced 'Sustainable and Integrated farming systems for enhancing productivity and profitability under hill and mountain agro-ecosystems'. Majority of hill farmers (85%) have fragmented marginal and small land holdings with non-remunerative farming not enough to earn sustainable livelihoods. Promotion of IFS approach incorporating different cropping systems, animal husbandry, Dairy, Fishery, poultry etc. in hill and mountain agriculture are essential. In addition, he encouraged the promotion of demand driven production systems rather than production driven systems, to educating farmers about benefit of off-season cultivation, storage and value addition. Formation of farmer's co-operatives, Self Help groups (SHGs), farmer's

producer company, etc. He also highlighted the policy support for promotion of diversification and opening unexplored areas for livelihood promotion.

Prof Liqun Wang, Professor, School of Economics and Management, Beijing Forestry University, China, introduced the 'integrated farming systems for enhancing productivity and profitability under hill and mountain agro-ecosystems: case study on Under-Forestry economy in China'. Developing UFE can promote protection of forest resources to sequester and store carbon, to curb soil erosion(etc.) and to protect ecological environment; and developing UFE can form into a multi-level of green activity on the landscape. The good practice of the UFE in China, to a certain extent, can be a successful, alternative way of addressing poverty, hunger, malnutrition and deterioration of the environment in poor mountain areas. However, the development of the UFE will also face challenges, including: (1) Insufficient labor; (2) Financial and technical constraints; (3) Over-reliance on the able-man effect; (4) Increasing competition in the market. These challenges will bring uncertainty and greater impact to development of the UFE. Therefore, inclusive and relaxed development environment, strong policy support from the government and long-term capacity building will help address these challenges effectively to promote its sustainable development.

Dr. Dhrupad Choudhury, Chief, Scaling Operations & Regional Programme Manager, ICIMOD, introduced the 'Shifting cultivation: Drawing on past practices to secure the future'. Shifting cultivation is enigmatic and remains a challenge for development planners and Governments, despite all efforts, persists in many parts of South and South East Asia, but without adequate updated information on households involved or area under shifting cultivation. For him, managing transformations in shifting cultivation is not simply an agricultural transformation issue – it is much more, and highly complex, that requires a holistic livelihood security approach – 'agriculture/ forestry/ soil conservation plus'. We must adopt a 'Livelihood Transformation' approach, rather than an 'Agricultural Transformation Approach'.

Prof. John Dixon, Professor, Queensland Alliance for Agriculture and Food Innovation, University of Queensland, presented the 'Main drivers for sustainable and integrated farming systems for mountain agriculture development'. He has provided useful suggestions to improve the farming systems in mountains, including (1) Redefine sustainable agriculture as a dynamic concept – based on farming systems which evolve along sustainable pathways which maintain or improve resources and sustainable development outcomes (SDGs); (2) Diversified farming systems which integrate food and cash crops, livestock and multi-purpose perennials produce better environmental, food security and social outcomes; (3) The analysis of local institutions (common resource management) and value chains must be incorporated with the analysis of the farming system. Ineffective water and grazing practices or single-product markets can limit the resilience of the farming system.

Session 4. Promoting integrated Value Chain and Market Access for Mountain products

This session was chaired by Dr. Thomas Hofer, Senior Forestry Officer and Natural Resources Management Group Leader, RAP, FAO

Ms. Michelle Geringer, APO, Mountain Partnership, presented how to 'Strengthen agro-processing and value-addition on mountain product for poverty reduction and Zero Hunger'. She presented the Mountain Partnership Products Initiative as an approach to tap into the niche market for high-quality mountain products. She mentioned in her presentation that Jumla Mixed Beans in production in Nepal has increased by 40 percent and sale has increased by 25 percent since the labelling in 2016. Nevertheless, she said that is a difficult task to promote an increase in production while guaranteeing environmental sustainability.

Prof. Qingwen Min, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, painted an overview of GIAHS's role and contribution as value addition mechanism for mountain agriculture development with case study of Hani rice terraces in China. Hani Rice Terraces System is a traditional agricultural system, a special socio-economic-natural complex system, a bio-cultural landscape, an agri-cultural landscape. Agriculture is the foundation of any other aspects in the system. Local farmers are the creators of the heritage, main force of conservation and beneficiaries of conservation. The key is that local farmers are willing to engage in agricultural production in the traditional way. Prof Min also gave prioritized attention to farmer's role and their confidence. The designation of GIAHS enhances the confidence and consciousness of local traditional knowledge and culture. The identity of farmer is diversified, they are not only planters and breeders, but also performers, farmhouse receptionists and characteristic products sellers.

Dr. Surendra Raj Joshi, Programme Coordinator - HIMALICA Initiative, ICIMOD, spoke about 'Integrated value chain development for poverty reduction and Zero Hunger in mountain region and Promoting sustainable agriculture and livelihoods through high-value mountain products: case study'. He said that value chain is a part of market system, which is a multi-function and multi-player arrangement comprising the core function of exchange and the supporting functions and rules which are performed and shaped by a variety of market players (value chain actors, supporters and enablers). ICIMOD's approach is to Building resilience of mountain communities, and achieve zero hunger and poverty reduction require multi-disciplinary and cross-sectoral approaches.His key points were on opening portfolios, diversifying opportunities (menu of options) – natural resource management, micro-planning and institutional mechanism that build social capital/network.

Prof. Pongsak Angkasith, Management board member of Royal Project Foundation, and Former President of Chiangmai University, Thailand, presented the 'Institutional and holistic support to promote integrated food value chain from production, processing, distributing, marketing and consumption for mountain products in Thailand'. One of the underlying reasons for the establishment of the Royal Project was humanitarianism: the desire that these people living in remote areas should become self-supporting and more prosperous. Another reason which has received support from all sides, was to solve the problem of illicit crops, namely opium poppy cultivation. In addition, those hill tribes which practice "slash and learn" Methods

cause detrimental impact to the country. He mentioned that if we help hill tribes to improve their living conditions by allowing them to live in the same place instead of abandon their settlement, it is tantamount to the country in general, supporting the policy to conserve the forests and soil, this will be very beneficial and sustainable.

Prof. Bingchuan Hu, Professor, Rural Development Institute, Chinese Academy of Social Sciences, presented the 'E-commerce for mountain product: digital empowerment for rural development'. He said that the benefit of e-commerce to mountain agriculture and livelihoods development are threefold. First, it shifts the traditional seller-buyer relation to modernity through mobile internet, consumer feedback and market perception as well as industrial system construction. Secondly, local mountain community and its products become more easily known and open with promotion of multiculturalism and inclusive growth. Lastly, the e-commerce brings urban-rural integration closer through a shorter value chain and guaranteed infrastructure.

Day Two

Eight Asian countries (Bhutan, Nepal, Myanmar, Cambodia, Vietnam, Lao PDR, India, Pakistan and Bangladesh) in which the FAO RAP Zero Hunger Initiative has been implemented in their country studies, shared their constraints, gaps and opportunities on mountain agriculture development for poverty reduction and zero hunger. The reports revealed that despite positive development of reducing poverty nation-wide the countries are suffering with similar problems such as the disinterest of youth in agriculture, feminization of agriculture and out-migration as well as changing climate which impacts the natural resources management. A summary on key points raised by each country is presented in the table in the Annex 3.

Day Three

The debate and deliberation continues to day three with the format of three policy dialogues.

Policy Dialogue 1 Gaps and challenges in mountain agriculture development within national policies, techniques and institutions

In this policy dialogue, the focus of debate was on the Lack of targeted mountain-specific strategies or policy at national level. Suggested solutions for this issue are to (i) assess the situation in mountain areas including farming systems and ecosystems through research to provide foresight and influence policy decisions, (ii) a comprehensive strategy and development program through national and provincial strategic planning, (iii) developing a synergy between state policies from mountainous areas at national level and develop common policy at national level, and (iv) improving awareness at national and grassroot level through advocacy and scaling up successful cases.

Policy Dialogue 2 Strategies for mountain agriculture development: policy, socio-economical, institutional, environmental and technical aspect

It is well noted by all participants that the balance between agriculture and conservation of biodiversity of mountain ecosystem is key to an integrated and sustainable development of mountain. The suggested solutions for this issue are (i) conducting research on diversification and proper agricultural production systems combined with productivity-enhancing technology packages to take comparative advantages of mountain agro-ecological systems, (ii) conservation laws need to be reformed that allows flexibility in trickling the benefits of conservations to the community, (iii) agriculture system must be developed conserving the mountain ecosystem to preserve ecological balance.

Policy Dialogue 3 Strategies for food security and nutrition governance in mountain region.

The key strategies to improve governance lay in (i) power decentralization of empowering local governments, and a (ii) comprehensive value chains development. The details of value chains development includes (i) understanding value chains and finding ways to improve efficiencies; (ii) organizing smallholder farmers involved in value chains; (iii) promotion and marketing of products; (iv) developing coordination mechanisms among value chain actors through formation of industry and trade associations; (v) financing value chains through competitive funding, tax incentives and PPP; and (vi) enhancing skills of smallholder farmers including youth, women and disadvantaged groups regions through agro-entrepreneurship training.

The national government representatives joint with international experts shared their concerns and opinions to move towards sustainable mountain food security and nutrition governance. As an outcome of the

workshop Dr. Mahmoud El Solh presented 'Recommendations for Policy Makers for Sustainable Development of Mountain Agriculture.' He highlighted that it is crucial to raise awareness internationally about ecosystem services provided by mountains.

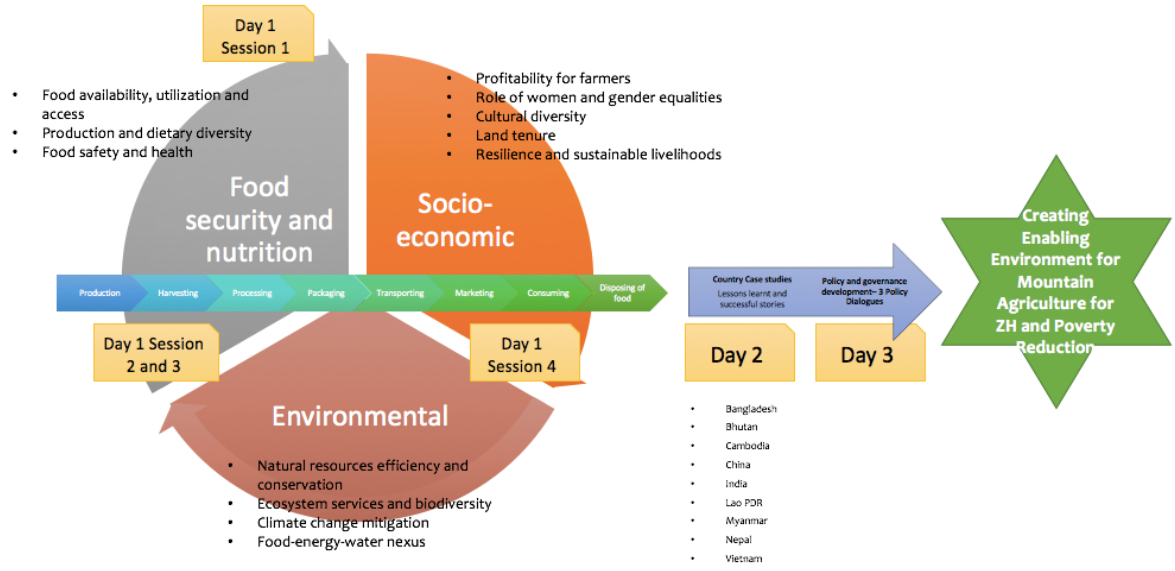
In the special remark, Dr. David Molden, Director of the International Centre for Integrated Mountain Development (ICIMOD) highlighted the need to stand up collectively for mountain issues and raise the voice of mountain people not only nationally but internationally, as mountains are hotspots for Sustainable Development Goals (SDGs), climate change and migration.

Policy Dialogue and Dr David Molden from ICIMOD's special remark

In the conclusion session, FAO's Deputy Director-General, Programme, Dr. Daniel Gustafson, raised his concerns for the very large imbalance between the importance of the topic and the attention on the mountain population and mountain food system. He advocated for increased joint efforts to turn the value of the specific mountain products into the benefit to the mountain people, not only in terms of production, but also processing, transportation, distribution, tourism, marketing. He emphasized that we need to continue raising the flag for mountains and mountain peoples in Asia region, and we need to reach further, communicating globally to those audiences, including policy-makers, for whom the global importance of mountains and the linkages between upland and lowland areas are still invisible. He stressed the need to target pro-poor policy, infrastructure, human capital and social protection policies, among other things. He advised to better use agro-territorial approach like GIAHS model as a way that is beyond production but bring more value addition, employment and on-farm and related non-farm livelihoods improvement. He highly appreciated the Recommendations presented by Dr Solh on behalf of Panel of Experts and considered it very outstanding and would be inspiring for other regions such as Africa. Prof. Hui Wu, Vice-President of UIR also delivered a closing remark on behalf of UIR.

Conclusion remarks from Prof Hui Wu (Vice-President of UIR) and Dr Daniel Gustafson (DDG of FAO); and Dr Mahmoud Solh (Vice Chair, HLPE-CFS) presenting the Recommendations

Figure 3.1 Summary and rational of the Mountain Consultation, 30 October – 1 November 2018, Beijing



IV. Conclusions and Recommendations

In a nutshell, the three-day Consultation covered various key issues of current development of mountain agriculture and the potential solutions that are specific to the countries and integratable for policy and governance reference in the region. To answer the research questions are proposed at the beginning of the Consultation, this will constitute the major part of the consultation of the report.

In terms of the key challenges and opportunities, mountain agricultures face three-folded difficulties given its vulnerability, inaccessibility and marginality. Typical farming concerns throughout the region include: encroachment of monocultures in response to demands from national, regional, and global markets; overexploitation of land resources due to population pressure and lack of economic alternatives; outmigration, land abandonment and decay of key farm infrastructure such as terraces in other regions, with as yet unknown effects on provision of environmental goods and services. However, mountains are hotspots of global biodiversity including agro-biodiversity. A large fraction of the world's most precious gene pools for agriculture and medicine are preserved in mountains. In addition, mountain hosts good condition for sustainable agriculture development because industrialized large-scale production is often not possible due to topography. Moreover, owing to remoteness and difficult access, the use of external inputs such as fossil fuels, mineral fertilizers, and pesticides is typically lower or less widespread than in lowland farming.

In terms of the good experience and practices and solutions on mountain agriculture, some successful and productive intervention were identified during the Consultation along the food systems. For production, it is recommended to introduce integrated and diversified farming system that is suitable to local human-ecological contexts, for instance, under-forestry agriculture development and economy, shifting cultivation; For agro-processing and marketing, the uniqueness of mountain which are the key attractions for consumption, should be enlarged, together with technical interventions in improving accessibility, transportation, and social protection for local indigenous group. Good examples are the GIAHS, branding, certification, community farming, landscape approach, etc; for consumption, awareness raising and mountain-urban link is the key. Good experiences can be drawn from the vast development of E-commerce in China. Mountain specific crops that are good for the natural resource conservation and resilient to climate change, as well as that are able to generate economic advantages, such as the Future Smart Food, should be strategically promoted through the value chain from production to marketing and consumption, in order to maximum the development of mountain agriculture for food security and nutrition.

As a concrete outcome of the workshop, Dr. Mahmoud El Solh has leading the process together with other experts during to Consultation to develop the 'Recommendations for Policy Makers for Sustainable Development of Mountain Agriculture.' It is presented below, or to be downloaded here: http://www.fao.org/3/CA2939EN/ca2939en.pdf

Recommendations for Sustainable Development of Mountain Agriculture to enhance food security and nutrition

Mahmoud El Solh, Ph. D. Vice Chair, HLPE-CFS

Recommendations are based on the outcome of the deliberations of the Panel of Experts at International Workshop and Regional Expert Consultation on Mountain Agriculture Development and Food Security and Nutrition Governance, co-organized by FAO and UIR, in collaboration with the FAO Special Ambassador of the International Year of Pulses, the International Crops Research Institute for the Semi-Arid Tropics, the International Centre for Integrated Mountain Development, Mountain Partnership and Center for International Agriculture Research of Chinese Academy of Agriculture Sciences, Under Regional Initiative on Zero Hunger

30 October – 1 November 2018
Beijing, China

Mountains occupy 24% of the terrestrial surface of the earth and are the home of about one billion people. The livelihood of large segment of mountain population substantially depends on mountain agriculture. However, the challenges facing mountain agriculture are different than those facing plain agriculture and they require integrated multidisciplinary and holistic approaches to be resolved in order to improve the livelihoods of mountain women, men and children. Urgent attention is required to reverse the declining trend in traditional mountain agriculture systems and loss of biodiversity in the mountain ecosystem so that they could contribute effectively to global food and nutrition security as well as to mountain ecosystem health which would be important to those living upstream and downstream in mountain area.

The challenges facing mountain agriculture in Asia include variable harsh environment conditions, poor infrastructure and lack of services that prevail in the mountains areas and natural disasters which have tremendous impact. Poverty, food and nutrition insecurity pose other challenge in mountainous areas affecting a large amount of people especially in remote mountain areas. In addition, due to the inaccessibility, fragility and seasonality of the mountain areas, there are lost economic opportunities, poor market access and weak institutional services. With the increasing awareness of the problems as well as the needs for agricultural diversification nutrition-enhancement and climate resilience in mountain areas, FAO and its partners timely organized an International Workshop and Regional Expert Consultation on Strengthening Mountain Agriculture Development and Food Security and Nutrition Governance for Zero Hunger and poverty reduction to review the key issues in mountain areas in the context of sustainable agriculture and food system in the mountainous and hilly areas.

Special attention and concentrated solutions targeting mountain and hilly areas in Asia are required to address poverty, food security and nutrition governance. As mountains play critical role in providing eco-system services for sustainable development of downstream areas, however, large segment of the mountain people remains poor. Mounatin ecosystem and mountain agriculture are interrelated and are interdependent. Therefore, sustainable development of mountain ecosystem and mounatain agriculture requires long-term investment in a holistic and integrated approach involving policy, socio-economic and institutional aspects; natural resource management and crop and livestock improvement. It is important to address economic, social, environmental, cultural and political issues in a holistic approach taking into account the contrasting situation of different farming system to ensure sustainable development of mountain ecosystem and mountain agriculture that benefits both the mountain and lowland population.

In order to address the various challenges facing mountain ecosystem and mountain agriculture, the International Workshop and Regional Expert Consultation event offered a set of policy and programming recommendations for sustainable development of mountain agriculture to enhance food security and nutrition governance in Asia to contribute to the zero-hunger initiative.

The Workshop and Regional Expert Consultation event provided various approaches/ modalities for the way forward for sustainable mountain agriculture to enhance food security and nutrition governance as well as improve livelihoods in the region. This will contribute to the eradication of poverty and hunger which are

global and regional priority as specified in SDG 1 and SDG 2. It is therefore, an essential component of the FAO Regional Initiative on Zero Hunger Challenge, based on the country needs and regional priority, as well as all Strategic Programmes. It is important to fulfill the strong desire from countries to have knowledge sharing and lessons learned at the regional level in promoting sustainable mountain agriculture in practice for enhancing food security and nutrition in mountain areas to contribute to Zero Hunger Challenge and poverty reduction.

Workshop and the Expert Consultation concluded its deliberations by the following recommendations which are important to be implemented at the national and regional levels to contribute to the sustainable development of mountain ecosystem and mountain agriculture:

Policy, Socio-Economic and Institutional consideration

- Develop and implement policies, strategies and programs to address the challenges including socio-economic and eco-system focused facing different farming system and zones of sustainable mountain agriculture development;
- Increase attention to risk management and develop policies for prevention, mitigation and relief to cope with natural disasters;
- Strengthen existing and establish new national institutions to provide public services including extension and micro-credit to support sustainable mountain agricultural development;
- Involve representatives of mountain communities in decision-making and implementation processes of policies and in initiatives taken to support mountain agricultural development;
- Increase enabling environment for land tenure to consolidate land holdings to ensure investment in long term appropriate land management. Attention to be provided to develop farmers' cooperative to transfer subsistence agriculture to commercial agriculture for agricultural productivity and income;
- Develop infrastructure of mountain areas to support agricultural development and improve livelihoods;
- Increase the level of investment and financial support for sustainable development of mountain agriculture at national, regional and international levels;
- Increase resilience of mountain farmers and small agro-industrial enterprisers by linking them with markets, and providing subsidies for added values to mountain products especially Future Smart Food (FSF), other non-food products, to diversify income of mountain communities particularly women;
- Establish a mountain agriculture fund and a funding mechanism for both replenishment and support of agricultural services, activities, and added-value products in mountain areas.

Natural Resource Management

- Promote the conservation and sustainable use of natural resources of regional and global importance which are also important to mountain agriculture namely water, biodiversity, soil, natural pastures and forests;
- Ensure the adaptation and mitigation measures to cope with natural hazards because of climate change and their pressure on natural resources;
- <u>Preventing Land Degradation and Building up Soil Fertility through:</u>
    - Considering different types of terracing for efficient farming. Planting along contour lines for better water catchment and more effective in reducing erosion;
    - Controlling grazing and conserving biodiversity;
    - Diversifying cropping system (including legumes), mixed and intercropping;
    - Promote conservation agriculture;
    - Promote/ increase rain water harvesting, conservation and its efficient use;

- Promote agro-ecological practices;
- Promote agroforestry landscape model.

Crop and Livestock Improvement and Integration

- Ensure the development of integrated livestock/crops/rangelands farming system for effective utilization of natural resources;
- Develop improved varieties of crop plants adapted for the diverse mountain environments and climate change such as FSF;
- Promote cultivation of traditional crop varieties such as FSF and highlight the crucial role of mountain people as custodians of these varieties;
- Establish livestock community breeding with herders and pastoralists whereby unproductive animals are culled out to keep only productive animals which would improve livestock populations and herds;
- Diversify agriculture production and encourage the production of high-value crops including fruit trees, vegetable ornaments as well as value-added products in both crop and livestock production to improve nutrition, income and livelihoods;
- Promote protected agriculture (mulches, row covers, shade structures, greenhouses, etc.,) to intensify production of high-value crops and increase water use efficiency and production efficiency per unit areas in mountain agriculture.

Research and Capacity Development

- Increase long term investment for research programs in national research institutions and universities to enhance capacities and address the specific challenges facing sustainable development of mountain agriculture;
- Develop and support capacity building (mountain agriculture curriculum and web-based technology in relevant universities) and extension targeting different stakeholders including farmer's programs to promote sustainable development of mountain agriculture;
- Establish farmers and pastoralists field schools as well as women empowerment programs to transfer/ exchange technologies and skills to address the challenges facing these important stakeholders;
- Develop and implement communication programs and audiovisual aids to promote advanced technologies and knowledge on sustainable mountain agriculture development;
- Make use of the opportunity of the International Mountain Day on 11 December to organize events and workshops to promote sustainable development of mountain agriculture.

Regional and International Cooperation

- The challenges and problems facing mountain ecosystems and mountain agriculture are often complex, trans-boundary and are difficult to be resolved by a single country or single institution. A good example is demonstrated by the challenges and problems of the trans-boundary mountain ecosystems and river basins that originate from mountain areas. Therefore, inter-country regional cooperation should be established in areas of common interest.
- Furthermore, to address the challenges facing mountain ecosystems and mountain agriculture, It is essential to strengthen and develop cooperation with regional and international cooperation, particularly, FAO, Mountain Partnerships, ICIMOD, CGIAR Centers, universities and others relevant institutions.
- Strengthen Mountain Partnership considering that it as the only UN voluntary alliance of partners dedicated to improving the lives of mountain people and protect mountain environment around the region/ world, increase public-private sector attention, commitment, engagement and investment for the development of sustainable mountain agriculture.

These are very important recommendations that require to be adopted for implementation by national authorities as well as specialized regional, international and United Nations organizations where FAO can play an important coordinating role. The implementation of these recommendations would contribute greatly to ensure healthy mountain ecosystems and efficient productive mountain agriculture that will only contribute to global food security and nutrition but also to ensure the continued services and resources that contribute 70% of fresh water resources besides various sources of renewal energy to the world community. Both water and energy are critical tio the water – energy – food nexus essential to food and nutritional security, environmental sustainability and poverty reduction.

Beijing, 31 October 2018

V. Appendix

Annex 1 Agenda

International Workshop and Regional Expert Consultation on Mountain Agriculture Development and Food Security and Nutrition Governance

Regional Initiation on Zero Hunger

FAO and UIR

30 October – 1 November 2018

Beijing, China

Day One: 30 October 2018		
Time	Topic	Presenters/Discussants/Panelists
Opening Session: Co-Chairs: Prof. Dr. Hui Wu, Vice President, University of International Relations, China; Dr Xuan Li, Senior Policy Officer and Deliver Manager of Regional Initiative on Zero Hunger, FAO RAP		
8:30-8:45	Welcoming remarks	Dr Vincent Martin, FAO Representative, China and DPRK Prof. Dr Jian Tao, President; University of International Relations, China
8:45-9:00	Setting the scenes: Introduction of the workshop	Dr Xuan Li, Senior Policy Officer and Delivery Manager of Regional Initaitive on Zero Hunger, FAO RAP
9:00-9:30	Keynote speech: Sustainable Mountain Agriculture Development for Food Security and Improved Livelihoods for Zero Hunger	Dr. Mahmoud Solh, Vice Chair, High-Level-Panel-Experts, CFS
9:30-10:00	Keynote speech: Institutional framework on Food security and nutrition governance in mountain region of Thailand on Zero Hunger Perspective	Prof. Kraisid Tontisirin, M.D., PhD., President of Nutrition Development Foundation, Thailand
10:30-11:00	Keynote speech: Strategy and application of Precision Poverty Alleviation in Mountain regions in China: the role and effect of institutional mechanism	Prof. Dr. Fengying Nie, Deputy Director-General, Center for International Agriculture Research of Chinese Academy of Agriculture Sciences
11:00-11:15	Q&A	Plenary
11:15-11:30	Coffee break / Group photo	
Session 1. Mountain Agriculture Development and Food Security and Nutrition Governance Chair: Dr Suhas Wani, Former Research Program Director – Asia and Director, ICRISAT Development Center, ICRISAT		
11:30-11:45	Overview of food security and nutrition and major challenges in mountain areas in the world and Asia	Dr. Thomas Hofer, Senior Forestry Officer and Natural Resources Management Group Leader, RAP, FAO

11:45-12:00	Insights on development framework for Mountain agriculture and food security and nutrition governance	Dr Golam Rasul, Chief Economist, International Centre for Integrated Mountain Development (ICIMOD)
12:00-12:15	Rural development strategies for smallholder farmers in mountain areas: China's experience on mountain food security and nutrition governance	Prof Guoxiang Li, Rurual Development Institute, The Chinese Academy of Social Sciences, China
12:15-12:30	Q&A	Plenary
12:30-13:30	Lunch break	
Session 2. Mainstreaming Neglected and Underutilized Species (NUS) for Mountain Agricultural Development: The role of Future Smart Food (FSF) Chair: Dr Golam Rasul, Chief Economist, ICIMOD		
13:30-13:45	The roles and potentials of FSF for Mountain Agriculture Development: nutrition, climate-resilient, economic and social perspective	Prof. Kadambot Siddique, FAO Special Ambassador for International Year of Pulses and Hackett Professor of Agriculture Chair and Director, The University of Western Australia; Dr. Xuan Li, Senior Policy Officer, FAO RAP
13:45-14:00	Mapping and Tapping the Potential of Neglected and Underutilized Food Crops for Sustainable Nutrition Security in the Mountain areas	Dr. Abid Hussain, Food Security Economist, Livelihoods, ICIMOD
14:00-14:15	Mainstreaming FSF for Mountain Agriculture Development: case study	Dr Suhas Wani, Former Research Program Director – Asia and Director, ICRISAT Development Center, ICRISAT
14:15-14:30	Q&A	Plenary
Session 3. Building Sustainable and Integrated Farming Systems for Mountain Agriculture Chair: Prof. Kadambot Siddique, FAO Special Ambassador for International Year of Pulses		
14:30-14:45	Mountain Farming Systems and Food Security in Asia Under Climate Change: A Case Illustration of Hindu Kush Himalaya	Prof. Prakash C. Tiwari, Professor of Geography, Kumaun University, India
14:45-15:00	Sustainable and integrated farming systems for enhancing productivity and profitability under hill and mountain agro-ecosystems: case study	Prof. Anil K. Choudhary, Senior Scientist (Agronomy), Indian Agriculture Research Institute
15:00-15:15	Integrated farming systems for enhancing productivity and profitability under hill and mountain agro-ecosystems: case study on Under-Forestry economy in China	Prof. Liqun Wang, Professor, School of Economics and Management, Beijing Forestry University, China
15:15-15:30	Shifting cultivation: Drawing on past practices to secure the future	Dr. Dhrupad Choudhury, Chief, Scaling Operations & Regional Programme Manager, Adaptation to Change, International Centre for Integrated Mountain Development, ICIMOD

15:30-15:45	Main drivers for sustainable and integrated farming systems for mountain agriculture development	Prof. John Dixon, Professor, Queensland Alliance for Agriculture and Food Innovation, University of Queensland
15:45-16:15	Q&A	Plenary
16:15-16:30	Coffee break	
Session 4. Promoting integrated Value Chain and Market Access for Mountain products Chair: Dr. Thomas Hofer, Senior Forestry Officer and Natural Resources Management Group Leader, RAP, FAO		
16:30-16:45	Strengthening agro-processing and value-addition on mountain product for poverty reduction and Zero Hunger	Ms Michelle Geringer, APO, Mountain Partnership
16:45-17:00	GIAHS's role and contribution as value-addition mechanisms for mountain agriculture development: Case study	Prof. Qingwen Min, Institute of Geographic Sciences and Natural Resources Research (CAS), China
17:00-17:15	Integrated value chain development for poverty reduction and Zero Hunger in mountain region and Promoting sustainable agriculture and livelihoods through high-value mountain products: case study	Dr Surendra Raj Joshi, Programme Coordinator - HIMALICA Initiative, ICIMOD
17:30-17:45	Institutional and holistic support to promote integrated food value chain from production, processing, distributing, marketing and consumption for mountain products in Thailand	Prof. Pongsak Angkasith, Management board member of Royal project Foundation and Former President of Chiangmai University, Thailand
17:45-18:00	E-commerce for mountain product: digital empowerment for rural development	Prof. Bingchuan Hu, Professor, Rural Development Institute, Chinese Academy of Social Sciences
18:00-18:15	Q&A	Plenary
18:30-20:30	Welcoming dinner	UIR
Day Two: 31 October 2018		
Country Studies on Mountain Agriculture		
8:30-8:45	Recapping	Prof. Kadambot Siddique and Dr. Xuan Li
8:45-9:45	Country study on mountain agriculture in Bangladesh	Presenter: Dr Prakash Kanti Chowdhury, Chittagong Hill Tracts Development Board, Rangamati, Bangladesh Discussants: Prof. John Dixon, Dr. Golum Rasul, Dr. Dhrupad Choudhury
9:45-10:45	Country study on mountain agriculture in Bhutan	Presenter: Mr. Sangay Chopel, Planning Officer, Ministry of Agriculture and Forests, Bhutan Discussants: Prof. John Dixon, Dr Anil Choudhary, Ms. Michelle Geringer
10:45-11:15	Coffee break	

11:15-12:15	Country study on mountain agriculture in Cambodia	Presenter: Mr In Chantha, Deputy Director of industrial corps, GDA/MAFF, Cambodia Discussants: Dr. Prakash Kanto Chowdhury, Dr. Abid Hussain
12:15-14:00	Lunch break	
14:00-15:00	Country study on mountain agriculture in India	Presenter: Dr. Parshant Bakshi, Associate Professor, Shere-e-Kashmir University of Agricultural Sciences and Technology Jammu Discussants: Dr. Wani Suhas; Dr. Golam Rasul
15:00-15:30	Coffee break	
15:30-16:30	Country study on mountain agriculture in Lao PDR	Presenter: Dr. Bounthanh Keoboulapha, Director of Upland Agriculture Research Center (UARC), National Agriculture and Forestry Research Institute (NAFRI), Lao PDR NAFRI Discussants: Prof. John Dixon, Dr. Surendra Joshi, Prof. Prakash Kanto Chowdhury
16:30-17:30	Country study on mountain agriculture in Myanmar	Presenter: Mr. Myint Han, Assistant Research Officer, Htonebo Research Farm, Department of Agricultural Research, Myanmar Discussants: Dr.Dhrupad Choudhury, Dr. Surendra Joshi
Day Three: 1 November 2018		
8:30-8:45	Recapping	Prof. Kadambot Siddique and Dr. Xuan Li
8:45-9:45	Country study on mountain agriculture in Nepal	Presenter: Mr Rabindra Subedi, Senior Agriculture Extension Officer, Ministry of Agriculture and Livestock Development, Nepal Discussants: Dr. Golam Rasul, Dr. Surendra Joshi, Ms Michelle Geringer
9:45-10:45	Country study on mountain agriculture in Viet Nam	Presenter: Mr. Luu Ngoc Quyen, Deputy Director General, Norlhem Mountainous Agriculture & Forestry Science, Viet Nam Discussants: Prof. John Dixon, Dr.Wani Suhas, Prof. Anil Choudhary, Dr. Abid Hussain

10:45-11:15	Coffee	
11:15-12:15	Country study on mountain agriculture in Pakistan	Presenter: Dr Umar Farooq, Member of Social Science Division, Pakistan Agricultural Research Council, Pakistan Discussants: Prof. Dhrupad Choudhury, Dr. Surendra Joshi
12:15-13:30	Lunch Break	
Policy Dialogues on mountain agriculture development and food security and nutrition governance Co-Chairs: Prof. Jinhua Na, Deputy Director-General, Subcommittee of Cultural and History, Yunnan People's Political Consultative Conference (Former President, Yunnan Han and Minorities Ethitics University; Dr. Xuan Li, FAO RAP		
13:30-14:30	Policy Dialogue 1: Gaps and challenges in mountain agriculture development within national policies, techniques and institutions	Chair: Prof. Prakash C. Tiwari, Professor of Geography, Kumaun University, India Panelists: • Mr. Sangay Chophel, Planning Officer, Ministry of Agriculture and Forests, Bhutan • Prof. Liqun Wang, Professor, School of Economics and Management, Beijing Forestry University, China • Dr Prakash Kanti Chowdhury, Chittagong Hill Tracts Development Board, Rangamati, Bangladesh • Dr Suhas Wani, Former Research Program Director – Asia and Director, ICRISAT Development Center • Prof. John Dixon, Professor, Queensland Alliance for Agriculture and Food Innovation, University of Queensland
14:30-15:30	Policy Dialogue 2: Strategies for mountain agriculture development: policy, socio-economical, institutional, environmental and technical aspect	Chair: Dr. Mahmoud Solh, Vice Chair, High-Level-Panel-Experts, CFS Panelists: • Prof. Kadambot Siddique, FAO Special Ambassador for International Year of Pulses and Hackett Professor of Agriculture Chair and Director, The University of Western Australia • Prof. Prakash C. Tiwari, Professor of Geography at Kumaun University, Nainital, Uttarakhand, India

		Mr Manoj Kumar Yadav, Ministry of Land Management, Agriculture & Cooperatives, Nepal Dr Surendra Raj Joshi, Programme Coordinator - HIMALICA Initiative, ICIMOD Ms Michelle Geringer, APO, Mountain Partnership
15:30-16:00	Coffee break	
16:00-17:00	Policy Dialogue 3: Strategies for food security and nutrition governance in mountain region	Chair: Prof. Kraisid Tontisirin, M.D., PhD., President of Nutrition Development Foundation, Thailand Panelists: • Mr. Sai Than Aung, Assistant Director, Department of Agriculture, Ministry of Agriculture, Livestock and Irrigation, Myanmar • H.E. Sok Silo, Deputy Secretary General of the Council for Agricultural and Rural Development, Cambodia • Dr. Mahmoud El Solh, Vice Chair, High-Level-Panel-Experts, CFS • Prof. Liqun Wang, Professor, School of Economics and Management, Beijing Forestry University, China • Dr. Thomas Hofer, Senior Forestry Officer and Natural Resources Management Group Leader, RAP, FAO • Dr Golam Rasul, Chief Economist, International Centre for Integrated Mountain Development, ICIMOD
17:00-17:15	Special remarks	Dr David Molden, Director-General, ICIMOD
17:15-17:30	Experts' Recommendations on sustainable mountain agriculture	Dr. Mahmoud Solh, Vice Chair, High-Level-Panel-Experts, CFS
17:30-17:50	Closing session: Co-Chairs: ● Ms. Xiuying Tan, Chief-in-Editor, *International Security Studies*, UIR; ● Dr Xuan Li, Senior Policy Officer and Deliver Manager of Regional Initiative on Zero Hunger, FAO RAP Closing Remarks: ● Prof. Hui Wu, Vice President, University of International Relations, China; ● Dr Daniel Gustafson, Deputy Director-General, Programme, FAO	

Annex 2 Welcoming Remarks

Welcoming Remark delivered by Vincent Martin FAO Representative for China and DPRK

Distinguished guests, Participants, ladies and gentlemen, Colleagues,
Ladies and Gentlemen,

Good morning to you all!

I would like to welcome you all to the International Workshop and Regional Expert Consultation on Mountain Agriculture Development and Food Security and Nutrition Governance.

I want to take this opportunity to first warmly welcome all of you, and I would also like to thank you for your participation in the International Workshop and Regional Expert Consultation on Mountain Agriculture Development and Food Security and Nutrition Governance. This is a very important area that we FAO, in both region and the country would like to focus on towards Zero Hunger.

When addressing Zero Hunger, why mountain? Food and nutrition insecurity are very challenging in mountainous areas in Asia which affect a large amount of people especially in marginal land and remote areas. Let me begin by saying that hunger is again at rise counting over 821 million people suffering chronic undernourishment globally. The achievements against hunger are at risk of being reversed as conflict, climate change, population growth and urbanization pose new challenges, requesting doubling the efforts to get back on track. Currently, some 490 million people are hungry in Asia and the Pacific. Malnutrition such as stunting among children below the age of five remains high in many countries in the region. If these trends continue, many countries in the region will fall short of the 2030 target of ending food insecurity. Mountain areas are the hard nut for achieving Zero Hunger and poverty reduction. Around 40 percent of mountain populations resident in developing and transition countries and about 300 million people, is food insecure with half of them suffering from chronic hunger. This is no exception in the Asia region where mountain ranges are many. While one out of nine is food insecure globally, one out of three in mountain areas is food insecure. Despite of alarming situation, the issues of mountain food security and nutrition are often neglected in national and international policy and research agendas.

Why mountain agriculture? Mountain have high ecological, agriculture, cultural, and socioeconomic significance for Zero Hunger and sustainable development in the context of climate change. Mountains are home to one tenth of the world population and cover 25 percent of the earth's land surface. Mountains host approximately one quarter of all terrestrial biodiversity and nearly half of the world's biodiversity hotspots. In addition, mountains provide precious global goods and services in the form of water, hydroelectricity, timber, niche products, mineral resources and flood management.

In addition, topographic and climatic constraints are limiting factors for agriculture. Thus, in mountain areas, food systems are mainly extensive. In parallel, mountain farming is characterized by a large number of activities on or off-farm, and so more diversification. Tourism and recreational activities are also key factors for mountain development. They bring stability and a sustainable diversification, as well as an important source of employment for mountain communities. The link between quality products and cultural identity offers opportunities both for increasing markets for these products and for regional development through the reputation of both the products and their regions. Finally, food production are powerful cultural elements that link the mountain environment to its population through secular practices such as the traditional crops production, often associated with landscape and heritage, songs, festivals and cultural itineraries.

While mountain agriculture has enormous potentials to address Zero Hunger, the living conditions of mountain peoples have deteriorated and their vulnerability to hunger has increased. Harsh climates, inaccessibility, fragility and seasonality in the mountain areas, poor market access and weak institutional services, combined with political and social marginality, certainly contribute to making mountain peoples particularly vulnerable to food insecurity. Therefore, special attention and concentrated solutions targeting mountain agriculture in Asia are required towards Zero Hunger goal.

With the increasing awareness of the problems as well as the needs for nutrition-enhancement and climate resilience in mountain areas, FAO and its partners regard it timely to organise this event towards Zero Hunger and poverty reduction. We need not only to continue raising the flag for mountains and mountain peoples in Asia region, but also give emphasis on mountain agriculture development and mountain food security and nutrition governance. We need to ensure that mountains are not a forgotten ecosystem in the major multilateral environmental agreements and to continue our advocacy actions at global, regional and national level. We need to reach further, communicating regionally and globally to those audiences, including policy-makers, for whom the global importance of mountain agriculture and the linkages between upland and lowland areas are still invisible. We need to support countries in their endeavor to pay attention to mountains in the implementation of the 2030 SDG Agenda and connect it with mountain development. We need to continue building alliances with other fragile ecosystems, and to raise awareness about the urgency of action, especially in the face of climate change. We need to empower mountain peoples to lift them out of the cycle of poverty through establishing multi-donor facilities, building on private-sector investments, exploring innovative funding schemes and giving them a voice in decision-making.

As we are speaking and sharing knowledge and experience in China today, we wish to emphasis the role and importance of South-South Cooperation, which brings the mutual sharing and exchange of key development solutions – knowledge, experiences and good practices, policies, technology, know-how, and resources – between and among countries in the global south. China has vast experiences on poverty reduction and food security and nutrition governance that will be valuable for other countries in the region. I look forward to hearing the cases studies from China and learn the synergies among different issues in different countries.

To achieve Zero Hunger, we reply on partnership, multi-stakeholder consultation and cross-sectoral coordination and cooperation. Countries need to enhance governance and coordination mechanisms, to facilitate dialogue and create incentives for different sectors and stakeholders to work together. We must partner together with policy makers, academia, development partners, civil society, private sector, farmers' cooperatives, to share knowledge to support countries as they implement and monitor the SDGs. I am very pleased that today, FAO and University of International Relations comes together, in collaboration with so many national governments, national and intentional academia and international organization and research organisations, especially ICRISAT, ICIMOD, Mountain Partnership and CIAR of CAAS. On behalf of FAO, I would like to give our appreciation to Dr Mahmoud Solh, Vice Chair of HLPE of CFS, and the Special Ambassador for the International Year of Pulses for FAO and also Prof. Kraisid Tontisirin, President of Nutrition Development Foundation, Thailand. This is a real pleasure to have you with us – and also all the experts and senior officials from various governments here in the region as well as from other parts of the world.

Thank you for your attention. Look forward to a very fruitful and successful meeting in the coming days!

Annex 3 Key Points Raised by Country Experts on Day 2 and 3

Key highlights and areas of lessons-learnt	Bangladesh	Bhutan	Cambodia	India	Lao PDR	Myanmar	Nepal	Vietnam
Agro-ecological								
Agrobiodiversity and sustainable intensification	- Decrease tobacco production and promote sustainable integrated farming	- Traditional subsistence oriented mixed farming systems that integrate cropping, livestock rearing and use of forest products	- Conservation agriculture of legumes/maize - Promote Animal Health and Production - Sustainable Fisheries, Forestry & Wildlife Resource Management - Conservation agriculture in Battambang and Kampong Cham provinces - Casava-Maize field experiment	- Shift of inter-cropping patterns - Integrated farming of rice, maize, millets, barley and buckwheat, pulses and oilseeds - Seasonal migration livestock caring rentals/livestock per household - The shift towards sustainable agriculture can also improve the ecosystem (water soil control)	- Shifting cultivation - Mixed cropping systems with leguminous species; Intercropping systems; Crop rotation systems; Strip cropping systems, or Agroforestry systems - Weed management, integrated pest management, precision agriculture	- Shifting cultivation and subsistence farming - Livestock, poultry farming and temperate fruit trees -	- Shifting from monoculture to diversified and integrated farming systems, animal production and grazing system, conservation agriculture - Seasonal rotation	- Indigenous farming systems that are unique to the mountains should be preserved from lowland agriculture
Natural resources management and conservation	- Land conflict and privatization issues	- Irrigation for mountain areas and increase productivities of rainfed agri in mountains	- Resource assessment of uplands so that land suitability assessment and sustainable farming systems can be implemented	- Watershed management - natural subsidy in the form of forest biomass and recycled nutrients. -	- Restores the natural resource base including biodiversity of the farm lands	- Promotion of sustainable sloping land technologies, agro-forest models to protect soils	- Organic matter preservation in the soil	- Low level land use and lack of irrigation technologies for mountain
Mitigation and resilience for climate change		- Enhance climate and disaster resilient development including HWC management - Crop insurance, climate information and advisory	- Prolonged drought - Microfiance	- GIS to gather climate data - Flood and drought management	- Extreme weather events, pest and disease outbreaks		- Mountain reletaed disated mitigation and risk plans	- Deforestation and slash-and-burn agriculture are a traditional farming practices that deplete natural resources and have negative impacts on agricultural production

		services directly to farmers						
Socio-economic								
Value chain and commercialization for value added species	- Agroindustry, village common farm and organic products - Gaps and opportunities on market linkage and condition - Link marginalized farmer to market through profitable FSF	- Value chain development for cardamom - one specific ecotourism in each of the 20 districts - Targeted subsidies and incentives to trigger multiplier effects - International competitiveness of traditional varieties for export - Challenges for hill-farming mechanization -		- Dairy and poultry development (government subsidies), one person on plant, agro processing and value chain (collective processing units), piggery development, GIAHS, HMNEH, Kisan Seva Kendra - Agrotourim	- Technologies relevant to post-harvest handling, processing, storage and renewable energy - Diversified market-oriented production system	- China as a potential big market for Southeastern Asian mountain products - Affordable, reliable microcredit and rural finance options - Private sector investment for processing industries such as sugar mills, palm oil mill and rubber in the area - Increasing access to Veterinary service for livestock health care -	- Value chain development for Oat, barley, wheat, potato, buckwheat, yams, amaranthus, medicinal herbs	- Transportation difficulties in the region as well as connections with the political, economic and commercial centers countrywide
Role of youth and women in the context of migration	- Women are decision makers in household thus require education and targeted capacity building - Using mobile phone to gather data and indicators for development	- Bhutan is a very young country		- Foreign migration - GIHAS attracts youth employment in mountain rural areas			- Family farming, women's role in irrigation and nutrition of the household	- Women and children in the mountain areas have higher level of malnutrition
Rural livelihood of remote areas		- Social capital of farmer groups, community based approach	- Sanitation and health - Mountain-specific nutrition	- Difficulties in behavior and habit change - Increased population in upland areas	- Equalities' and opportunities for all ethnic groups - Complementing local indigenous knowledge with	- Creation of community managed revolving fund, animal and crop banks	- Disadvantaged mountain indeginous and ethnic groups	- Non-farm releated activities if found market, can generate new methods to

			programmes: fortification -		scientific knowledge (productivity-enhancing technology package) - Social safety net	- Vocational skill building where there is high demand		improve livelihoods
Policy and governance								
	- Cross ministries, strength coordination and integrated approach - Fluid definition and classification of mountain: instead of a hard definition, utilize a mountain livelihoods pattern -	- Strategic vision for agriculture development	- Strengthening Institutional Capacity, Enhancing Efficiency of Supporting Services and Human Resource Development -	- Comprehensive policy framework integrate poverty gaps and social safety net - Mountain's role in climate action plan - Regional R&D centers to focus on regional issues -	- Land tenure and property right policies	- Border markets and transboundary issues - Multilevel agricultural research centers and state agricultural institutes - Systematic survey, assessment, plan, program, project, action plans	- All three tiers of governments are constitutionally assigned exclusive powers along with concurrent powers to be exercised jointly by the federal and provincial governments as well as by federal, provincial and local governments	- Specific national programs on hunger eradication, poverty reduction, and sustainable development in the North Midland and Mountainous region

Annex 4 Closing Remarks

International Workshop and Regional Expert Consultation on
Mountain Agriculture Development and Food Security and Nutrition Governance

FAO and UIR

In collaboration with the FAO Special Ambassador of the International Year of Pulses, the International Crops Research Institute for the Semi-Arid Tropics, the International Centre for Integrated Mountain Development, Mountain Partnership and Center for International Agriculture Research of Chinese Academy of Agriculture Sciences

Under Regional Initiative on Zero Hunger

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Beijing, China

Closing Remark

Dr. Daniel Gustafson, Deputy Director-General, Programme, FAO

Thank you very much for the introduction. It is somewhat an uncertain pleasure that I have to speak here. I am here in China for another event to commemorate the 40-years of opening-up for poverty reduction in China, and it wasn't clear that at what point of the day my talk would come, so I didn't want to commit, but I'm just delighted that I can be here and do this, for two reasons: Firstly, the issues that you discuss here on mountains are extremely important to us and it is of high priory in sustainable development. Secondly it is also an unexpected pleasure to see so many friends and colleagues.

All the things about mountains that I know, I have learnt from you, from the time that I lived in India and Bhutan including the time with ICIMOD. A number of you are key in this. Also I would like to say that a number of you are old colleagues, Dr. Solh and Dr. Kraisid, have had and continuously to have impactful careers. Some of you but not many of you know that they were both division directors of the FAO, respectively in plant production division and nutrition division. And without a question, their period, set the direction that we are still going. Looking at agriculture and nutrition in a more sustainable way, it was a time out for both of them for a much longer career. But really for us, the fruit of the seeds that they sewed in those days, continues. It is really a pleasure. I could go on, John Dixon taught us about farming systems in those days, Dr. Wani, of course, we know very well. I am particularly happy also about two of our former FAO HQ colleagues, Li Xuan and Thomas Hofer, are back again in the field. Not that they ever stopped contributing, but it is just a pleasure for me to see this. And I cannot resist it to put it here.

But what I am most strike by, is the similarity between what we are discussing today and the event tomorrow on 40-years anniversary of opening-up. They are in parallel and unique in the history of mankind of undeliverable large scale poverty reduction in the span of 40 years. No one thought that it was possible and mountain plays a big part in it. One of the key areas in it is working together in partnership. I am so pleased that we can do this with partnership with universities, professors in recognition that food security is in fact a security issue, which we have thought of it for a long time whereas some other part of the world didn't recognize this fact until relatively recently. It is thus an appropriate partnership with the University of International Relations in China. We are really pleased and enormously grateful for your work that went into this. We are looking into food security with the international security debate, and the mountain discussions within it. It is just terrific.

When I look into the summary of the workshop, I think those are similar messages in the other event, within the context of mountain, but with the recognition of the very large imbalance between the importance of the topic and the attention that they receive, that is the mountain population and mountain food system. It is somewhat a mystery to me still of why it is the case. It is not a small portion of population and it is an

overwhelming portion of where some of the solutions are, as we see in the summary, with regards to biodiversity, water, and many other things. Why it is unbalanced? But also when we are looking at the global picture of what we discussed today, much of what China accomplished would be very difficult to replicate, in the sense that a very large of population moved out of agriculture to urban areas into industry. What we see in the later transformed economy, is that, there is a move out of agriculture, but no growth in industry. So what you have is a much greater pressure in employment, especially youth employment. But not much increase of productivity for those left behind in the rural areas. So how to overcome this, then we get into the experience from China. You need targeted pro-poor policy, infrastructure, human capital and among other things, some social protection policies, not only for the development of human capital, but for protecting people from falling back to poverty.

Within this context, the mountain situation is exemplary in this regard. What we are looking for, even in the plains, are value addition or high value products that are location specific, so to move away from non-differentiated cereals. In particular, addressing Professor Siddique here, the International Year of Pulses had big impact in increasing the pulses consumption and production. It has exceeded our expectation in what we can do to promote certain commodity. So how can we bring this attention to mountain and mountain products, in the way that is taking advantage of the unique value that pretty much the rest of the world sees the value. People value mountain products, they see that something come from the Himalayas, for example, is something special. And it is common for all countries in this area. So how can we turn the value of the area specific products into the benefit to the people who live here, not only in terms of production, but also, processing, transportation, distribution, tourism, marketing and so on.

In fact, we have good examples of it. Many of you know it from your countries' GIAHS. These heritage sites tend to be in mountains because of the specific mountain products that consumers and tourists (international and local) really want. So how can we use that model, say an agro-territorial approach, in a way that is beyond production but received a lot value addition and employment for youth to generate agroforestry related but non-farm livelihoods that are related to these products. And I think that the Recommendation that you just went through now are very similar to what we want to see globally. It would be not good for Asia, but also for examples, for mountains in Africa, on how to empower farmers and women, diminish conflict and improve food security, employment and resilience. It is very outstanding.

I am delighted to say that it is fantastic to have 10 countries here. I think that's properly more than what we had before with the mountain partnership. We though the Mountain Partnership was good in the beginning, everyone loves it, but we didn't attract the attention and not much countries have signed up. So I hope you can go back to your country and gives enthusiasm to this. As I said, it is a semi-unexpected pleasure to speak on behalf of the organization. And thank you for your contribution and thanks again to the university and the organizations from our side. We look forward to seeing the fruits of your deliberations turning into food security, less conflict, more water, more biodiversity and so on and on. Thank you very much.

Annex 5 List of Participants

No.	Name	Institution and Position
1	Abid Hussain	ICIMOD
2	Anil K. Choudhary	Senior Scientist at Division of Agronomy, ICAR–Indian Agricultural Research Institute (IARI), New Delhi, India
3	Bounthanh Keoboualapha	Director, Upland Agriculture Research Center, Luang Prabang Province, Lao PDR
4	Dhrupad Choudhury	Regional Programme Manager, ICIMOD
5	Dinesh Kumar	Mission Director &Joint Secretary (Mission for Integrated Development of Horticulture & Cooperation), Department of Agriculture, Cooperation& Farmers' Welfare, Ministry of Agriculture, Government of India
6	Golam Rasul	Policy Development Specialist at ICIMOD
7	H.E. Sok Silo	Deputy Secretary General, Council for Agricultural and Rural Development (CARD), Cambodia
8	In Chantha	Deputy Director, Department of Industrial Crops, General Directorate of Agriculture, Ministry of Agriculture Forestry and Fisheries (MAFF)
9	John Menzies Dixon	Adjunct Professor, University of Queensland, Australia
10	Kadambot Siddique	the FAO Special Ambassador of the International Year of Pulses, Hackett Professor of Agriculture & Director, Institute of Agriculture, The University of Western Australia
11	Kraisid Tontisirin	Institutional framework on Food security and nutrition governance in mountain region of Thailand on Zero Hunger Perspective, Member of the National Food Committee and chairman of the Planning Committee for Food Management in Thailand
12	Li Xuan	Senior Policy Officer and Delivery Manager of Regional Initiative on Zero Hunger, Food and Agriculture of Food and Agriculture Organization (FAO) Regional Office for Asia and the Pacific (RAP)
13	Li Zixi	Consultant for the Regional Initiative on Zero Hunger at the Regional Office for Asia and the Pacific of the FAO
14	Luu Ngoc Quyen	Deputy Director General, Northern Mountainous of Agriculture and Forestry Science Institute (NOMAFSI) under the VAAS (Vietnam Academy of Agricultural Sciences)

15	Mahmoud El Solh	Vice Chair of the High Level Panel for Food Security and Nutrition (HLPE) of the Global Committee for Food Security (CFS)
16	Manoj Kumar Yadav	Ministry of Land Management, Agriculture & Cooperatives, Province No. – 1, Biratnagar, Morang, Nepal
17	Michelle Geringer	Associate Professional Officer, Mountain Partnership Secretariat, FAO
18	Myint Han	Assistant Research Officer, Department of Agricultural Research, Ministry of Agriculture, Livestock and Irrigation, Myanmar
19	Parshant Bakshi	Associate Professor, Fruit Science, SKUAST-Jammu, India
20	Pongsak Angkasith	Management Board Member of Royal Project Foundation and Former President of Chiangmai University, Thailand
21	Prakash C. Tiwari	Professor of Geography at Kumaun University, Nainital, Uttarakhand, India
22	Prakash Kanti Chowdhury	Deputy Secretary, Member (Planning), Chattogram Hill Tracts Development Board (CHTDB), Rangamati, Bangladesh
23	Rabindra Subedi	Senior Agriculture Extension Officer, Ministry of Agriculture and Livestock Development, Nepal
24	Sai Than Aung	Assistant Director, Department of Agriculture, Ministry of Agriculture, Livestock and Irrigation, Myanmar
25	Sangay Chophel	Planning Officer at the Policy and Planning Division, Ministry of Agriculture and Forests (MoAF), Royal Government of Bhutan
26	Suhas Pralhad Wani	Research Program Director – Asia and Director, ICRISAT Development Center (IDC), ICRISAT
27	Surendra Raj Joshi	Programme Coordinator -Resilient Livelihoods Initiative, ICIMOD
28	Thomas Hofer	Senior Forestry Officer and Group Leader of Natural Resource Management Group in the Asia - Pacific Regional Office of FAO
29	Xu Nan	Media Contact, Beijing office, FAO

30	Umar Farooq	Member (SSD), PARC, Islamabad, Pakistan
31	Vincent Martin	Representative, China and DPR Korea, FAO
32	Hu Bingchuan	Senior Research Fellow and Deputy Director Rural Development Institute, Chinese Academy of Social Sciences
33	Li Guoxiang	Senior Research Fellow, Rural Development Institute, Chinese Academy of Social Sciences
34	Min Qingwen	Senior Research Fellow, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences
35	Na Jinhua	Vice Chairman, Professor, Former President of Yunnan Minzu University, Expert for educational assessment, Ministry of Education
36	Nie Fengying	Deputy Director and Professor, Center for International Agricultural Research, China Academy of Agricultural Science
37	Wang Liqun	Professor, School of Economics and Management, Beijing Forestry University, China
38	Tao Jian	President and Professor, UIR
39	Wu Hui	Vice President and Professor, UIR
40	Tan Xiuying	Chief Editor, *Journal of International Security Studies,* UIR
41	Su Juan	Associate Professor of Editorship, Assistant Chief Editor, *Journal of International Security Studies,* UIR
42	Qi Lin	Associate Professor of Editorship, *Journal of International Security Studies,* UIR
43	Xie Lei	Assistant Researcher, *Journal of International Security Studies,* UIR