DAIRY ASIA: TOWARDS SUSTAINABILITY

Proceedings of the Multi- stakeholder Meeting held in
Muak Lek, Saraburi, Thailand,
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Regional Office for Asia and the Pacific
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ABBREVIATIONS

ADB          Asian Development Bank
AMR          Antimicrobial Resistance
APHCA        Animal Production and Health Commission for Asia and the Pacific
CARE         Cooperative for Assistance and Relief Everywhere
CCAC         Climate and Clean Air Coalition
CGIAR        Consultative Group for International Agricultural Research
CLDDP        Community Livestock and Dairy Development Project
DEDS         Dairy Enterprise Development Scheme
DoL          Department of Livestock
DLS          Dept. of Livestock services
DPO          Dairy Farming Promotion Organization of Thailand
EIA          End Implementing Agencies
FAO          Food and Agriculture Organization of the United Nations
FAORAP       FAO Regional Office for Asia and the Pacific
FMD          Foot and Mouth Disease
GASL         Global Agenda for Sustainable Livestock
GDP          Gross Domestic Product
GMP          Good Manufacturing Practices
HACCP        Hazard Analysis and Critical Control Points
ICAR         Indian Council of Agricultural Research
ICIMOD       International Centre for Integrated Mountain Development
IDF          International Dairy Forum
IDS          Integrated Dairy Schemes
IFAD         International Fund for Agricultural Development
IFCN         International Farm Comparison Network
IFPRI        International Food Policy Research Institute
ILRI         International Livestock Research Institute
IWMI         International Water Management Institute
JICA         Japan International Cooperation Agency
LBVD         Livestock Breeding and Veterinary Department
LEAP         Livestock Environment Analysis Partnership
ME           Milk Equivalent
MT           Metric Ton
MDA          Myanmar Dairy Association
MLFRD        Ministry of Livestock, Fisheries and Rural Development
MOU          Memorandum of Understanding
NDDB         National Dairy Development Board
NDDC         National Dairy Development Centre
NDP          National Dairy Plan
NFP          National Focal Point
NDRI         National Dairy Research Institute
NGO          Non-Government Organization
NPBBDD       National Project on Bovine Breeding and Dairy Development
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<th>Abbreviation</th>
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<tr>
<td>PT</td>
<td>Progeny Testing</td>
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<td>RDTC</td>
<td>Regional Dairy Training Centre</td>
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<td>SAPPLPP</td>
<td>South Asia Pro Poor Livestock Policy Program</td>
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<td>SDG</td>
<td>Sustainable Development Goal</td>
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<td>SEI</td>
<td>Stockholm Environment Institute</td>
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<td>SHG</td>
<td>Self Help Groups</td>
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<td>SIA</td>
<td>Social Impact Assessment</td>
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<td>TA</td>
<td>Technical Assistance</td>
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<td>TWG</td>
<td>Technical Working Groups</td>
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<td>USD</td>
<td>United States Dollar</td>
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<td>UVS</td>
<td>University of Veterinary Science</td>
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I. BACKGROUND AND EXECUTIVE SUMMARY

Background:

This is one trend that cannot be ignored. Growth in the production and consumption of milk and milk products in Asia has consistently outpaced the growth in other regions and Asia has now overtaken Europe as the world’s largest milk producer. India is currently the largest producer of milk accounting for 19 percent of global production. According to OECD FAO Outlook 2015, global milk production is projected to increase by 175 Mt (23%) by 2024 when compared to the base years (2012-14), and the majority of which (75%) is anticipated to come from developing countries, especially from Asia (OECD-FAO Agricultural Outlook 2015-2024). This opens new opportunities which we must seize and throws at us new challenges that call for concerted action from politicians, scientists, industry captains, producer organizations, development agencies, academia and the larger civil society.

The rapidly changing demographics, increase in urban centres, changes in lifestyle coupled with increase in the disposable income is a phenomena in all major Asian countries. This trend inter alia will lead to an increased demand of milk and milk products especially value added products like cheese, ice cream, yoghurt, nutraceutical and milk based personal care products. Therefore, it is imperative that we need to understand the regional perspective of dairy development in Asia and take a closer look at some of the recent developments in dairy production, consumption and trade in South, East and Southeast Asia:

South-Asian sub-region has a long tradition of milk production and currently contributes about 220 million tonnes or a quarter of global milk production. Per capita consumption of milk has been growing steadily and was estimated at about 126 kg per capita per year in 2013 and ranging from about 40 kg in Bangladesh to more than 250 kg in Pakistan. By far, most of the milk in South Asia flows through unorganized marketing channels. Only about 17 to 18 per cent of milk is processed in the organised sector and the remainder is either consumed at the farm level or processed in traditional small-scale enterprises. There are inadequate quality monitoring mechanisms in place for the traditional milk marketing sector and adulteration is common. The priority areas needing attention in this sub region are improvement of milk productivity and quality and this should be done via strengthening of farmer organisations and linking them with national institutions to ensure the small farmer interests are better represented at national levels.

East Asian sub-region has been rapidly urbanizing and has emerged as the growth engine of the world contributing more than 40 per cent of increase in global economic output. Unlike South Asia, milk and milk products were not considered a traditional item in the food basket in this region but their consumption has grown rapidly during recent years, especially in China. Although still much below the consumption levels in South Asia, the annual per capita consumption doubled from 18 kg milk equivalent (ME) per capita in 2000 to 36 kg ME per capita in 2013, translating to an overall increase in consumption of more than 30 million tonnes over 13-year period. Overall, the East Asia region contributes about 7 per cent of global milk production (up from 4 per cent in 2000). However, the region has emerged as a key importer of milk and milk products currently accounting for more than 10 per cent of global dairy imports. Another important aspect of dairy production in East Asia is corporate-led industrialization of...
the dairy sector. How much impact this will have on quality improvement and the environmental footprint however remains to be seen.

**South-East Asia sub-region** is also not a traditional consumer of dairy products but the region has more than tripled its production in the last two decades. Total production grew from 1.4 million tonnes in 1990 to 4.6 million tonnes in 2012 registering a compounded annual growth rate of 5.6 per cent per annum sustained over two decades. Despite appreciable growth in production and productivity, Southeast Asia accounted for less than 0.5 per cent of total world milk output and the per capita consumption of dairy products is only about 15 kg ME per annum per capita against 36 kg in East Asia and 126 kg in South Asia. The sub-region currently imports more than 65 per cent of dairy products consumed and accounts for 9-10 per cent of global dairy imports. In terms of production structure, the sector is characterized mainly by smallholder farming; herd structure and sizes vary across countries but many parts of the region are transitioning to commercially-oriented production systems. However, knowledge of dairy husbandry skills, access to technology and high capital requirements for purchasing good quality animals remains a constraint in this transition.

Notwithstanding the diversity as mentioned above, the Asian region is facing many challenges which calls for coordinated responses on the issues ranging from (a) Productivity and impact on natural resources and environment, (b) Upgrading skills, (c) Greenhouse gas emissions, (d) Food safety and quality, (e) Smallholder integration, (f) Animal health and public health risks and (g) Breeding and genetic diversity.

Recognizing the tremendous role of dairy sector in promoting equitable economic development and the need for stakeholders to find common ground, the FAO Regional Office for Asia and the Pacific (FAORAP) together with the Animal Production and Health Division (AGA) of FAO, the Animal Production and Health Commission for Asia and the Pacific (APHCA), the Global Agenda for Sustainable Livestock (GASL) initiated a multi-stakeholder dialogue process under the broad narrative umbrella “Dairy Asia: Towards Sustainability”. The first meeting under this banner was held in Bangkok on 21-23 May 2014. The meeting was attended by about 90 participants from over 20 countries comprising stakeholders from governments, national and international research agencies, civil society organizations, multilateral institutions, think tanks, private sector and regional and global networks.

The meeting recognized the growing importance of Asia in the global production and consumption of milk and the changing landscape of dairy sector. In order to guide the dairy sector development in the region and to capitalize on the knowledge and experiences from different countries, the meeting recommended development of a Dairy Development Strategy Framework paper and the establishment of a multi-stakeholder platform to facilitate regional cooperation and collaboration. There was consensus that such a platform would add substantial value towards promoting ground level action in pursuit of sustainability objectives.

Following the Bangkok meeting, a multi-stakeholder drafting group prepared the draft strategic framework paper. The paper was peer reviewed and shared with Dairy Asia meeting participants for comments. Following the first revision, an open e-consultation was held during 15-25 October 2014 to invite further comments from the stakeholders at large. The second multi-stakeholder meeting was held on NDBDB Campus in Anand, India on 23-26 March 2015. Hosted by NDBDB and supported by FAORAP, APHCA, and the GASL, the meeting reviewed the strategy paper titled “Elements of a
Regional Strategy for Sustainable Dairy Development in Asia” and discussed the potential organizational architecture of the Dairy Asia Platform. A number of participants made official country/stakeholder statements, unanimously endorsed and adopted the Strategic Framework paper (http://cdn.dairyasia.org/dairyasia/Workshops/Anand_23-25_Mar_15/Dairy_Area_Strategic_Framework_Paper.pdf) and issued a joint communique in support of the principles outlined in the paper (http://cdn.dairyasia.org/dairyasia/Workshops/Anand_23-25_Mar_15/Dairy_Area_Joint_Communiqué.pdf). The participants also worked together to identify the basic structure and the core functions of the Dairy Asia Platform and reached a consensus on the key elements.

The ‘Dairy Asia’ launching meeting of the multi-stakeholders organized during 27-30 January 2016 in Muak Lek, Saraburi, Thailand to discuss the finer points on the strategic framework and come to a consensus to formally launch ‘Dairy Asia’ platform for the Asia and the Pacific. There was a detailed discussion among the delegates present on the draft outline of the roles and responsibilities of the stakeholders (Secretariat, Steering Committee, Technical group, National focal point and knowledge partners) which was prepared by the ‘Dairy Asia’ Secretariat at FAO-RAP. There were 110 delegates from 22 countries comprising stakeholders from governments, national and international research agencies, civil society organizations, multilateral institutions, think tanks, private sector and regional and global networks.

**Opening addresses:**

Dairy Asia launch meeting was inaugurated in conjunction with the National Dairy Festival of Thailand organized by the Dairy Farming Promotion Organization of Thailand (DPO). Her Royal Highness Princess Maha Chakri Sirindhorn was present in the symbolic opening of the launch meeting on 27 January 2016 along with the inauguration of the National Dairy Festival at the Muak Lek of Saraburi Province. She awarded a certificate and plaque to Dr. Vinod Ahuja, Livestock Policy Officer, FAO-RAP for his contribution to the development of dairy sector in Asia-Pacific region with special reference to Thailand. She also discussed with the conference delegates on some of the major issues being faced by the dairy sector in the developing countries and conveyed her full support to the success of Dairy Asia launch meeting.

The welcome, inaugural and keynote addresses highlighted the trends, opportunities and challenges of dairy development in the Asia-Pacific region. These addresses also acknowledged the important role played by FAO, National level organizations and the international partner agencies in developing the Dairy Asia platform. In his welcome address, Dr. Sakchai Srboonsue, Deputy Permanent Secretary, Ministry of Agriculture and Cooperatives, Royal Thai Government emphasized that this launch meeting is most important and will pave the way to show how the dairy sector will help and support the Sustainable Development Goals (SDGs) in the country context. He stated that he is happy to note that the first regional dairy summit was hosted in Bangkok, Thailand in 2014 where the concept of ‘Dairy Asia’ was born and it has evolved as one of the major platform for the dairy organizations that it led to the Regional Multi-stakeholder Meeting of ‘Dairy Asia’ in Anand, India where the concept was converted to action. This meeting in 2016 to launch the Dairy Asia platform reaffirms the important role of dairy in the sustainable development.
While welcoming the dignitaries of the launch meeting, Dr. Ayuth Harintharanon, Director General, Department of Livestock Development, Royal Government of Thailand said that in fact, it is probably more than a coincidence that the Dairy Asia launching meeting which intends to draw a roadmap for the journey of Dairy Asia is being held here in Muak Lek, a place where several actions and innovations have happened in the dairy sector of Thailand. He also expressed his gratitude on behalf of the Thai population regarding the long vision and strong support of His Majesty the King Bhumibol Adulyadej, the king of Thailand and his actions over the last 50 years have made Thailand the largest producer and exporter of milk and milk products in the Southeast Asia. He also elaborated that considering 80% of milk in this region is produced by the smallholders and improving organizational capabilities of the smallholders are absolutely necessary to improve their bargaining power at the market and this needs to be noted as a necessary intervention. Therefore, since last year the Royal Thai Government has initially allocated an additional budget of Thai Baht 900 million to support dairy farmers and cooperatives to increase their production capability and produce better quality of milk.

Dr. Kundhavi Kadiresan, Assistant Director-General and Regional Representative, Regional Office for Asia and the Pacific, Food and Agriculture Organization of the United Nations (FAO-RAP) welcomed the high level delegation from the member countries and thanked the partners from all countries, and especially the hosts, the Royal Thai Government, for their support and commitment. She emphasized that dairy is among the top three commodities produced in Asia-Pacific region in terms of annual gross value worth more than US$110 billion. It has been forecasted that in the near future, during the next decade, global production of milk to increase by more than 120 million tonnes and two-thirds of this increase will come from the Asia-Pacific region. She cited the example of dairy sector as instrument for inclusive growth and said that this sector helps to empower women and the marginalized and supports local development – especially important for small holder farmers. She also said that considering that the region still has a large unfinished agenda on achieving food security, poverty alleviation and nutrition, we cannot let go of this opportunity presented to us by such a robust market outlook for milk and milk products. She expressed her satisfaction on the way the ‘Dairy Asia’ process has gone so far and the regional leaders are here now to launch the ‘Dairy Asia’ platform.

Dr. Narongrit Wongsuwan, Director, DPO, Royal Government of Thailand welcomed all the dignitaries present in the ‘Dairy Asia’ launching meeting and expressed his gratitude to be chosen as co-host of this important event in conjunction with the National Dairy Festival. He also expressed his confidence that the delegates will be able to discuss the whole range of technical and policy issues related to dairy development in the Asia-Pacific region and they will come up with concrete conclusions for our ways forward.

Key Note Addresses:

Mr. Jeremy Hill, President, International Dairy Federation (IDF) estimated that approximately 4.2 billion people all over the globe will be consuming milk by the year 2025 which was 2.4 billion in 2012. This shows the potential of the dairy milk and milk products. We need to take note that milk and dairy products are not only a vital source of nutrition for these people; they also present livelihoods opportunities for farmers, processors shopkeepers and other stakeholders in the dairy value chain. IDF has helped to define the environment in which the dairy value chain operates by being at the forefront in the development and sharing of scientific and technical knowledge, best practices and guidelines.
IDF also promotes ‘Responsible Dairying’ by advocating to take care of natural resources for future generations which we feel is the right thing to do, so IDF is championing the health of our farms and waterways, looking after our animals and building thriving communities where we live and work. IDF is committed to work around the major issues on ‘Water’, ‘Climate and Energy’, ‘Efficiency and reduce waste’, ‘Animals and Biosecurity’ and ‘Livelihoods and Community’. IDF participated in dairy development in many countries in Asia like China, Sri Lanka, Indonesia, Japan, Myanmar and Philippines and considering this experience, IDF is ready to contribute to the growth and development of Dairy Asia.

Mr. T. Nanda Kumar, Chairman NDDB could not attend the meeting but his address was read out by Mr. Sangram Chaudhary, Executive Director of NDDB. He congratulated the organizers of the multi-stakeholder meeting on this historical moment that the Asian Dairy fraternity is together meeting in Bangkok to deliberate upon the sectoral issues and derive synergies on common goals on socio-economic development through Dairying. According to him, NDDB believe that dairy development is not about the commodity called milk, but about the social and economic transformation of rural households in India. NDDB also believe that dairy development has to be based primarily on the premise that sustainable development is possible only if the natural resources, particularly water, energy and agricultural residues are used with a long term sustainable perspective. India’s growth model, therefore, is based on environmental sustainability and of continuous and sustainable improvement in the livelihoods of dairy farmers.

Mr. Nanda Kumar was delighted to see that the 17 sustainable development goals (SDG) adopted by the world leaders at the United Nations Special Summit in New York, milk has been considered to have significant impact in treating under nutrition. A diet that contains sufficient milk or dairy product to provide 25-33 percent of the daily protein requirement (about 200-250 ml of milk or 15-20 g of milk powder) may have a positive effect on weight gain and linear growth in children aged 6 months to 5 years who are suffering from moderate malnutrition. In most of South and Southeast Asia, agriculture and livestock farming is dominated by smallholders, who derive their livelihoods by cultivating small pieces of land and supplementing their incomes with dairy, poultry or fish farming. And, the number of such small-sized holdings has been steadily increasing under the growing population pressure.

Mr. Henning Steinfeld, Chief, Livestock Information and Policy, FAO, HQ, Rome elaborated the sustainability principles and the efficiency of livestock systems and comparison between natural system and human system under both agriculture and dairy activities. According to him, the relative importance of the economic, social, and environmental dimensions of human development will differ according to location and time frame. Approaches to sustainability must take account of a range of factors, from the relative importance of agriculture in national economies to the existing degree of intensification of agricultural production; from the constraints and opportunities that are determined by the availability of agricultural resources, to the needs of individuals in communities. Sustainable agriculture will require continuous adjustment, innovation and improvement in strategies, policies and technologies in order to support the women and men engaged in agriculture, to maximize productivity and production, and to minimize agriculture’s environmental footprint.
In this connection, Henning brought out 3 major issues together with the triggers so that it will be wide open for the implementers: (a) Equity and growth, (b) Food security and health and (c) Natural resources use and climate change. He also mentioned about the 17 sustainable development goals (SDGs) recently adopted by the United Nation’s special summit in New York. According to him, the Asian dairy sector is strongly positioned to help reach the SDGs and could co-create direct impact on the global development by using the economic power of the livestock.

**Technical Presentations**

There were four selected technical presentations which covered specific aspects of dairy development with important implications for sustainability. The presentations highlighted aspects of genetic improvements of dairy animals, dairy economics and policies, institution development and guiding framework for ‘Dairy Asia’. The first presentation by Dr. Vinod Ahuja emphasized on the large size dairy sector in Asia which is growing and extremely dynamic. There are huge opportunities for improving productivity and gains, substituting imports, spreading risk, improving nutrition, creating jobs and many other things. The major concerns of this sector in Asian region are increasing resource scarcity and growing feed costs and increased consumer demand for food safety, convenience, quality etc. There is also a growing pressure to intensify and scale up production systems. After that he presented the activities and the process followed to reach to the stage where Dairy Asia stands today. He specifically mentioned the roads from Bangkok to Anand and what next where he presented the current issues related to the dairy development in Asia. Based on the approved structure of Dairy Asia platform, Vinod proposed the functions and the composition of the steering committee, secretariat, technical working groups in 4 identified areas of importance and country coordination/national focal point for discussion.

The second presentation by Prof. Koonawootrittriron discussed in detail about dairy farming, dairy farmers and industry, dairy cattle population, breeding strategies to enhance milk production and other economically important traits, on farm dairy genetic improvement, research and development, and challenges and opportunities for dairy genetic improvement in Thailand. He also provided some statistical data to prove that the number of cattle for dairying has been increasing continuously throughout the country over the past 25 years and the dairy farming has expanded from the Central region to the Northeastern, Southern, Eastern, and Northern regions. He mentioned that there were about 235,829 milking cows that produced 1,082,379 tons of raw milk per year (approximately 4,590 kg/cow or 15 kg/cow/day); 96 percent of this total was used to produce ready-to-drink milk (34% for SMP, and 66% for commercial markets), and the rest was used for other dairy products. Prof. Koonawootrittriron informed the delegated about the large-scale dairy genetic evaluation programme in Thailand which is being conducted by the DPO and the DLD. The DPO began their efforts to conduct genetic evaluation and selection using all available individual dairy information in 1995. The 1995 genetic evaluation used best linear unbiased prediction procedures (BLUP) and a sire model. In 1996, the BLUP procedure employed a sire-dam model. Subsequently, in 2002, the DPO genetic evaluation system was upgraded to a BLUP procedure that used a multi-breed animal model. The DPO dairy genetic evaluation system has been continuously upgraded as part of an ongoing research-development project jointly conducted by the DPO, Kasetsart University (KU), and the University of Florida, USA.
The key message in the presentation of Dr. Steve Staal was that the milk production systems across Asia are varied in terms of structure of production, scale and level of intensification, all of which is reflected in the economics of production. This variation is a function of differing agro-climate zones, level of development and infrastructure between countries, but also due to contrasting traditions of milk production and cattle keeping generally in different parts of the region. The main feature of the region is that the milk yields across the region are generally low. Regarding the farm size of the Asian dairy farming system, he mentioned that the data collected by IFCN indicate that during the period 1996 to 2010 dairy farms in key Asian countries show that farm sizes (cows/farm) are mostly less than 10, and in the major producing countries of South Asia, farms generally have fewer than 5 cows.

According to ILRI and other scientific analysis on costs of production globally using typical farm case studies, and IFCN’s standard farm budget template, it was observed that the cost of milk production are generally lower in South and SE Asia than elsewhere according to the data from this study, generally less than $30/100 kg, and similar to the levels found those in Oceana. These are among the lowest costs found anywhere globally, and are likely to be related to the low input-low output system. According to Steve, Asian region exhibits a wide of dairy market and value-chain arrangements ranging from rural village markets to traditional retail outlets to informal or traditional vendors selling fresh milk or traditionally products to highly sophisticated and integrated processor and supermarkets networks.

According to Mr. Sangram Chaudhary, Executive Director, NDDB, the Operation Flood, the most successful dairy development programme has shown how food aid can be used as investment in creating and strengthening an appropriate institutional infrastructure that can promote dairy development nationally. Programmes like Operation Flood, with similar policy orientations, may prove to be appropriate to dairy development in other Asian as well as African countries since the conditions that prevail in dairying today in a number of developing countries are comparable to those that once were found in India with a focus on creating sustainable strong institutions which can stand the test of time.

Under the institutional structure maintained by NDDB, the village level dairy cooperative societies are organised to aggregate milk from its members of which about 90% of them are small milk producers. Transparency is ensured through practices such as determining procurement price of milk on the basis of its intrinsic quality, , scientific weighing of the milk offered by producers and payments to producers made on the basis of volume and quality considerations, thereby earning their trust. These village level cooperative institutions transfer year-end profit to its member producers on the basis of their actual patronage thereby eliminating any individual bias in profit sharing. Accounts are audited and audit class statuses are granted. Each cooperative society conducts Annual General Body meetings and profit and loss accounts are shared among the members, enhancing transparency in the grass route level business operation.

The presentation of Mr. Brian started with the Dairy Sustainability Vision “A vibrant dairy sector committed to continuously improving its ability to provide safe and nutritious products from healthy cattle, while: preserving natural resources and ensuring decent livelihoods across the industry”. Creating a Dairy Sustainability Framework (DSF) to bring greater coherence and offer guidance on individual and collaborative action while allowing for continued innovation in approaches to address sustainability through three basic principles: (a) Align global ambition to regional activity on key sustainability issues in a
coherent way, (b) Map and Connect existing activity addressing regional priorities, allowing for cross-fertilization and (c) Reveal opportunities to develop new or progress existing activity to improve performance.

**Adaptation of Dairy Asia Structure:**

Dairy Asia structure and the composition along with the terms of references for each of the stakeholders were presented by Dr. Vinod Ahuja and the floor was opened for discussion. The Country delegations raised certain issues and their concerns which were well documented and accepted for further discussion in the first meeting of the Dairy Asia interim steering committee. Then the work plan and key activities of the country delegations were presented and many of them chalked out concrete programme for their country and others promised to get back to Dairy Asia secretariat very soon with concrete plans.

The closing session was chaired by Mr. Henning who reiterated the importance of Dairy Asia platform as the interface for the dairy farming and the policy makers. He also mentioned about the strong commitment of FAO, Global Agenda for Sustainable Livestock and the IDF to support this regional network. He also mentioned the success of this network will certainly give a boost to the Asian dairy development movement.
WELCOME ADDRESS

Dr. Sakchai Siriboonsue
Deputy Permanent Secretary, Ministry of Agriculture and Cooperatives
Royal Thai Government

Ladies and Gentlemen:

On behalf of the Royal Thai Government and the Ministry of Agriculture and Cooperatives, we would like to welcome you all to this Regional Launch Meeting of “Dairy Asia towards Sustainability”. For me the most important key word in this meeting is how the Dairy Sector can help and support the Sustainable Development Goals. There are still our challenges that we will discuss during the next 2-day meeting and we must overcome these challenges.

Today, it is my honor to preside over the opening ceremony of this “Dairy Asia Launch Meeting” which is jointly organized by the Dairy Farming Promotion Organization of Thailand, the Department of Livestock Development, Food and Agriculture Organization of the United Nations (FAO), and other relevant agencies.

In the previous dairy summit in Bangkok in 2014, the concept of Dairy Asia was born here in Thailand. Then, the Regional Multi-stakeholder Meeting of “DAIRY ASIA From Concept to Action” was held in Anand, India last year to reaffirm the important role of dairy in the sustainable development.

The Ministry of Agriculture and Cooperatives and Thai dairy sectors are very proud of having an opportunity to host this very important meeting which is organized in parallel with our remarkable “National Dairy Festival” that you have a chance to witness the progress of Thai dairy sectors in support of the sustainable development.

With the long vision of His Majesty the King Bhumibol Adulyadej of Thailand and His Majesty the King Frederick of Denmark, the Thai dairy industry was officially initiated when the Dairy Farming Promotion Organization of Thailand was established in 1962 with its given mandate to lead dairy development activities in Thailand until today. The National Dairy Festival is the national event where all activities related to dairy development of the country are displayed and exhibited each year. Thousands of dairy farmers including milk producers, processors, institutions, government and private sectors have joined the festival to share and exchange technology advantages as you could experience yesterday. This year is even more specials because we have included the “Dairy Asia Launch Meeting” in the National Dairy Festival.

I once again welcome you to this town of Muak Lek, Saraburi, known as a dairy province and a hometown of the Dairy Farming Promotion Organization. I personally hope that you will have a very fruitful meeting and at the end of this meeting we will have a clear roadmap on where we intend to go for Dairy Asia.

Thank you very much.
Dr. Ayuth Harinthanaron
Director General, Department of Livestock Development,
Royal Thai Government

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Thank you very much.
Distinguished speakers Excellencies, ladies and Gentlemen:

It is my pleasure to welcome you all, on behalf of FAO, to the 2016 meeting of Dairy Asia. It is really very promising to see that, despite important commitments back home, so many countries in the region have chosen to participate in this meeting and have sent high level representatives. I take this opportunity to thank all partners from all countries, and especially our hosts, the Royal Thai Government, for their support and commitment.

I also wish to specifically thank the Dairy Farming Promotion Organization of Thailand for their gesture to recognize the work of FAO related to dairy development by awarding a plaque to Mr. Vinod Ahuja who has been leading the dairy program of FAO in the Asia-Pacific region.

Milk production, as you know, has been among the most celebrated success stories in Asia. And the authors of this success story are the millions of small farmers scattered across the region.

Between 1980 and 2012, milk production in the Asia-Pacific region grew at a rate of almost 4.5 per cent per annum against the global average of 1.5 per cent. By 2012, the milk production in our region had reached 280 million tonnes. That’s 37 per cent of global production – more than a third of all milk produced in the world – compare with just 12 per cent back in 1970. Indeed, Asia and the Pacific has already overtaken Europe as the world’s largest milk producing region. India is currently the largest producer of milk. Indeed, one in every five glasses of milk comes from India.

Dairy is among the top three commodities produced in this region in terms of gross value worth more than 110 billion dollars annually. And the demand for dairy products hasn’t reached its peak. Not by a long shot. In the near future, during the next decade, we expect global production of milk to increase by more than 120 million tonnes and two-thirds of this increase will come from the Asia-Pacific region.

The dairy sector is about far more than just producing and selling more milk. Dairy products provide better nutrition and support the cognitive development of children. The dairy sector helps to empower women and the marginalized and supports local development – especially important for small holder farmers. Considering that our region still has a large unfinished agenda on achieving food security, poverty alleviation and nutrition, we cannot let go of this opportunity presented to us by such a robust market outlook for milk and milk products. We owe it to ourselves and we owe it to hundreds of millions of children across this vast region.

In fact, I recently had a chance to visit Bangladesh and heard stories about the successful school milk pilot scheme implemented by FAO and how it made a difference in the overall wellbeing of the children – both in the classroom and at home – after receiving 200 ml of milk every day at school. This was really heartening to hear and we must find ways to not only scale up the pilot project in Bangladesh but also make sure similar programs are taken up by other governments. I am aware that Thailand has a long running national school milk program and that program has been an inspiration for the pilot programs in
Bangladesh and Myanmar. Many other countries in the region (Japan, India, China, Viet Nam, for example,) also have experience with school milk programs at various levels. I think such experiences can serve as powerful sources for change.

I am also aware that small farmers and milk processors from Myanmar have benefited by visiting Thailand on study tours arranged under an FAO project. One smallholder farmer said that the project helped him fulfill his life-long dream by sending his daughter to university. So, the surplus cash generated by dairy farming gave him an opportunity to create a better life for his children.

India and Afghanistan are also working together to put in place an institutional structure for dairy development in Afghanistan; and Thailand and Bhutan have also been cooperating on various aspects of dairy development.

These are just a few examples to show how we can benefit by working together. There are many more similar examples and opportunities in the field of dairy genetics, animal nutrition, dairy value chain development, marketing, policy and strategy development, institutional development, legislation and standards development, and so on where we all can benefit by joining hands. And we must. And that is what must define the spirit of Dairy Asia.

I am pleased to see the way the Dairy Asia process has gone so far and we are here now to launch the Dairy Asia platform. While we must celebrate our achievements, we must also be cognizant of the challenges in sustaining multi-stakeholder partnerships. What is of utmost importance is that all partners must be committed to sustaining this and everyone must bring something to this partnership. From FAO’s side, I reiterate our commitment to this process and hope all other national and international agencies would bring their own commitments and contributions to this platform.

Your presence here is indeed an indication of your commitment to Dairy Asia and to bring changes to the lives of people who struggle day in and day out to make their ends meet, and so I call upon all the participants here to join together and make the Dairy Asia process a success.

Thank you.
Dr. Narongrit Wongsuwan,
Director, D P O
Royal Government of Thailand

Ladies and Gentlemen:

In my capacity as Director of the Dairy Farming Promotion Organization of Thailand, I am honored to welcome all of you on behalf of one of the main co-organizers as well as the host of this Dairy Asia Launch Meeting.

I would like to express my sincere thanks to all friends and colleagues who make this meeting happen, especially the Food and Agriculture Organization of the United Nations – the FAO, who is the main sponsor of this event.

I have no intention to spell out any details on dairy situations and development – as we will hear words of wisdoms from our prominent speakers on this stage. I am sure, there will be more issues for us to learn and discuss during our gathering here for the next two days.

As the host, I wish you all a pleasant stay and a fruitful meeting. Anything that I and my DPO staff can do to make your stay here enjoyable is our responsibility. I am confident that we will be able to discuss the entire range of related technical and policy issues – and I wish we will come up with concrete conclusions for our ways forward.

Again, I wish to thank you all for coming all the way to Muak Lek to contribute to this meeting. Please enjoy Thai hospitality while staying here.

Sawasdee krub.
KEY NOTE ADDRESS

Key Note address 1: Increasing the Resilience of Dairy Systems in Asia and the Pacific
Jeremy Hill,
President, International Dairy Federation (IDF)

It has been estimated that approximately 4.2 billion people all over the globe will be consuming milk by the year 2025 which was 2.4 billion in 2012. This shows the potential of the dairy milk and milk products. We need to take note that milk and dairy products are not only a vital source of nutrition for these people; they also present livelihoods opportunities for farmers, processors shopkeepers and other stakeholders in the dairy value chain.

The International Dairy Federation (IDF) represents the global dairy sector and ensures the best scientific expertise is used to support high quality milk and nutritious, safe and sustainable dairy products. The vision of IDF is simply that "Everybody can derive well-being from high quality milk." IDF is committed to furthering current knowledge on a wide range of issues, including environment and sustainable development, health and nutrition, methods of analysis, farm management, animal health and welfare, dairy science and technology, food hygiene and safety, food standards, dairy policies and economics, and marketing.

IDF has helped to define the environment in which the dairy value chain operates by being at the forefront in the development and sharing of scientific and technical knowledge, best practices and guidelines. IDF is continuously providing expertise and advice on behalf of the dairy sector in the development of:

- Food standards
- Methods of analysis and sampling
- Nutritional policy and standards
- Animal health and welfare standards
- Sustainable practices and life cycle analysis

IDF develops consensus positions on the science and technology relating to all aspects of the dairy chain and makes these available for our member countries to use in the establishment of best practices, policies and standards at national and regional levels and for IDF to use in the advice we provide to international intergovernmental organisations to support global framework, policy and standards development. Through our work programme and using the best available scientific and evidence based information we provide a mechanism for the sector to reach global consensus on the technical facts relating to these important issues.

IDF also promotes ‘Responsible Dairying’ by advocating to take care of natural resources for future generations which we feel is the right thing to do, so IDF is championing the health of our farms and waterways, looking after our animals and building thriving communities where we live and work. IDF is
committed to work around the major issues on ‘Water’, ‘Climate and Energy’, ‘Efficiency and reduce waste’, ‘Animals and Biosecurity’ and ‘Livelihoods and Community’.

IDF also advocate the followings as a part of the responsible dairying:
√ Promote cooperative farming to be connected to the land because it was our great-grandparents’ before us, and will be our great-grandchildren’s in years to come who will be impacted.
√ IDF also understand the value of a strong community, and it’s why we’re dedicated to helping the people and places where we live and work. It’s our way of supporting the people who support us.
√ We are also well aware that a healthy environment and society means a healthy business.

It is our strong belief that that our contribution to environmental health, community wellbeing and economic prosperity is key to our overall success and our ability to operate effectively. IDF also part of the other initiatives which are as follows:

1. Water conservation initiatives by Fonterra Co-operative:
   √ A unique partnership between Fonterra Co-operative and Department of Conservation
   √ $20 million invested by Fonterra Co-operative over 10 years (2013–2023)
   √ Additional resources committed by both organisations to design and implement partnership projects
   √ Collaborative approach with others to identify priorities, combine resources to deliver outcomes

2. Fonterra Milk for Schools programme in New Zealand initiated by the IDF is about the farmers providing kids with dairy nutrition. The main features of the programme are:
   √ In New Zealand, all primary-aged children are able to receive a 200ml serving of milk every school day.
   √ The programme is also an opportunity to provide supporting education material for the children covering dairying, health and nutrition and the importance of recycling.
   √ Recycling is taken very seriously and the product was one of the first in New Zealand to earn Product Stewardship accreditation.

3. IDF participated In dairy development in many countries in Asia which are:
   √ China:
     ▪ 1,000 locally recruited and trained staff
     ▪ 25,000 Milking Cows
   √ Sri Lanka:
     ▪ 10 Monitor farms, farm performance measured monthly
     ▪ Supply Relation officers working with local farmers
     ▪ New demonstration farm and training centre being built
   √ Indonesia:
     ▪ Scholarships are awarded to dairy farmers, dairy extension staff and industry service providers
- 13 scholars on average trained per year
- Training in NZ & Indonesia

The following key points are the take away from the activities taken up by IDF:

√ Fonterra’s dairy development programme aims to make a tangible difference to local dairy industries in which IDF operate through improving productivity, quality and income.
√ IDF seek to share its dairy excellence and knowledge, combine it with what IDF learned from working with people in markets, and then apply the approach that works best for that country.
√ Currently dairy development programmes are active in: Sri Lanka, Indonesia, Japan, Myanmar, Philippines & China. No two models are the same - as seen in the above mentioned examples.

Keeping in view the operation and experience of IDF in Asia and the Pacific region, IDF will be happy to contribute to the growth and development of ‘Dairy Asia’ platform.
Key Note Address 2: Asian Dairy, Multi-stakeholder Action: Opportunities and Challenges;
Mr. T. Nanda Kumar,
Chairman, National Dairy Development Board (NDDB), India
(Message read out by Mr. Sangram Chaudhary, Executive Director, NDDB, India)

Ladies and Gentlemen,

This is a historical moment that the Asian Dairy fraternity is together today to deliberate upon the sectoral issues and derive synergies on common goals on socio-economic development through Dairying. It would have been my privilege and honour to be present among you to deliver this key note address. I profusely thank the organizers especially FAO – RAP Office at Bangkok and Government of Thailand for inviting me to deliver the key note address.

First, let me touch upon some basic facts about Asian dairy sector. Milk production in the World is estimated at 730 MMT and Asia produces 40% of global production. The per capita availability of milk in the Asian region is 64 kgs per person per annum, much lower than the World average of 104 kgs per person. Over the decades, the average productivity of cows in Asia has increased to about 1700 kgs/annum, but still lower than the World average productivity of 2350 kgs/annum. However, due to consistent increase in GDP, changing dietary habits and growth in population, the demand for dairy products in Asia is rising rapidly. About 60% of the global import of dairy products is accounted by this region.

During the March 2015 Dairy Asia meet at Anand, I had said, “We in NDDB believe that dairy development is not about the commodity called milk, but about the social and economic transformation of rural households in India. We also believe that dairy development has to be based primarily on the premise that sustainable development is possible only if the natural resources, particularly water, energy and agricultural residues are used with a long term sustainable perspective. Our growth model, therefore, is based on environmental sustainability and of continuous and sustainable improvement in the livelihoods of dairy farmers.”

The Sustainable Development Goals was adopted by the World leaders at the United Nations Special Summit in New York. I am delighted to see that of the 17 goals, milk is considered to have significant impact in treating under nutrition. A diet that contains sufficient milk or dairy to provide 25-33 percent of the daily protein requirement (about 200-250 ml of milk or 15-20 g of milk powder) may have a positive effect on weight gain and linear growth in children aged 6 months to 5 years who are suffering from moderate malnutrition.

In most of South and Southeast Asia, and in much of sub-Saharan Africa, agriculture and livestock farming is dominated by smallholders, who derive their livelihoods by cultivating small pieces of land and supplementing their incomes with dairy, poultry or fish farming. And, the number of such small-sized holdings has been steadily increasing under the growing population pressure.
Besides improving the food security of milk producing households, small scale milk production also helps in creating numerous employment opportunities throughout the dairy chain, i.e., for small-scale rural processors and intermediaries. Small-scale milk producers also incur lower production costs. Thus, if well organized, they will be able to compete with large-scale, capital-intensive ‘high-tech’ dairy farming systems in industrialized (and developing) countries and on a more sustainable basis.

In many South East Asian countries, structure and composition of agricultural GDP has changed over the years. About three-fourths of the agriculture GDP now is contributed by High Value Agriculture which includes milk and dairy products besides fruit and vegetables, while about 3-4 decades ago, 75% of the agricultural GDP was from cereals. This has been possible due to market driven growth favouring High Value Agriculture. Consumer spending has also been aligned in a manner in which it is now found that 75% of the food expenditure is towards foods derived from High Value Agricultural enterprises including milk and dairy products. It is therefore necessary that Dairy Asia analyses country specific changes in the agricultural GDP basket and examines country specific policies for sustainable dairy development.

The sustainable alternative is to take recourse to improving the productivity of the smallholder livestock production given the constraints in area expansion of farm land. This is possible through provision of appropriate breeding, feeding and animal health care facilities to the smallholder producers. Additionally, providing market access to the small producers through collective action by establishing producer organisations, which deliver value to the producers, would provide those incomes in their hands at the point of production.

Each country in Asia has adopted their unique approach to dairy development. It is important that countries choose their own model depending on their specific situation. For example, some countries follow an approach of accelerating milk production by promoting large dairy farms. On the other hand, India and many other Asian countries have adopted smallholder milk production, utilising locally produced agricultural crop residues and technology innovation that is suitable for small scale milk production. The Indian experience proves that smallholder milk production is sustainable and profitable from a long term perspective provided they are supported by supportive institutional structure, good breeding, feeding and marketing linkages.

NDDB is willing to share our knowledge and experience of dairy development with countries who want to adopt this model and the Dairy Asia is an ideal platform to discuss and further such modalities. Creating an infrastructure and providing reliable and transparent market access with a focus on small producers have lifted many dairy farmers out of poverty and under-nutrition. Economic empowerment of the small dairy farmer is an important pillar in the strategy for providing nutrition security.

The Indian experience of organising more than 15 million small producers (average animal holding of 2-3 animals) into strong cooperative organisations is unique in the world. This development initiative has not only made India the largest producer of milk, but also increased per capita availability of milk from 112 grams per day in early 1970s to 322 grams in 2014-15.
We have found that in some Asian countries milk is not an integral part of people’s diets and there is a greater preference for meat based products. There is an imperative need to promote milk and milk based products in these regions particularly among children. This gains much more importance as we are constantly looking for avenues to cut down on emissions and make each and every process more and more environmental friendly. As per FAO’s publications, a kilogram of protein derived from beef results in an emission of about 290 kilogram equivalents of carbon dioxide as compared to only 80 kilogram equivalent if protein is derived from milk of dairy cattle. This level of emission is even lesser than that of the meat and milk derived from small ruminants which is estimated at 190 and 130 kilogram equivalent of carbon dioxide respectively per kilogram of protein. Thus promoting milk against meat may have significant positive impact on the environment in both short and long term.

Milk is often regarded as a complete food as it is source for most of the nutrients and vital vitamins and minerals. Milk is critical for cognitive and physiological growth in children. Recent government data indicates that Indian households that are engaged in dairying consume almost 2 to 4 times more milk and milk products than the households that do not rear milch animals. This huge divergence is not seen in other food items such as cereals, pulses, vegetables, fruits, edible oil, eggs, meat and fish. Therefore one can assume the critical role milk must be playing towards fulfilling the nutritional requirements of the households especially among the downtrodden and economically disadvantaged.

I hope that the Dairy Asia conference will provide a meaningful opportunity for all the delegates and professionals to deliberate upon different actions that could be shared across the countries and enable the countries to develop their own sustainable models with mutual support and support from FAO.

Thank you.
Key Note Address 3: Sustainable Development Goals and Dairy
Mr. Henning Steinfeld,
Chief, Livestock Information and Policy, FAO, HQ, Rome

Henning described agriculture as the interface between the world’s natural and human systems. It is the bridge that utilizes natural resources and environmental services to produce agricultural products and economic and social services for the benefit of humanity. Both human and natural systems are highly permeable to each other. The natural system has been shaped by humans since at least the dawn of agriculture, and the human system is itself part of the natural system.

The relative importance of the economic, social, and environmental dimensions of human development will differ according to location and time frame. Approaches to sustainability must take account of a range of factors, from the relative importance of agriculture in national economies to the existing degree of intensification of agricultural production; from the constraints and opportunities that are determined by the availability of agricultural resources, to the needs of individuals in communities. Sustainable agriculture will require continuous adjustment, innovation and improvement in strategies, policies and technologies in order to support the women and men engaged in agriculture, to maximize productivity and production, and to minimize agriculture’s environmental footprint.
Henning then draw the attention of the member of the delegates on the three major issues and the triggers thereof to illustrate the job needs to be accomplished in case we need to develop an environment friendly, sustainability responsive dairy sector in Asian region.

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Major Issues</th>
<th>Triggers</th>
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<tbody>
<tr>
<td>1.</td>
<td>Equity and Growth</td>
<td>√ 60% of rural households keep livestock in developing countries</td>
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<td></td>
<td></td>
<td>√ 530 million extremely poor keep livestock</td>
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<td></td>
<td>√ 150 million pastoralists</td>
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<td></td>
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<td>√ Small and poor livestock keepers are particularly vulnerable to the</td>
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<td></td>
<td></td>
<td>impact of climate change</td>
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<td></td>
<td></td>
<td>√ 60% of smallholder livestock keepers are women</td>
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<td></td>
<td></td>
<td>√ Rapid growth of demand for dairy (double by 2050)</td>
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<td></td>
<td></td>
<td>√ Growth Process is uneven</td>
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<td>2.</td>
<td>Food security and health</td>
<td>√ Livestock products: 25% of all protein in human diets globally, 40%+</td>
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<td></td>
<td></td>
<td>in rich countries</td>
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<td></td>
<td></td>
<td>√ Critical nutrients to vulnerable groups (children)</td>
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<td></td>
<td></td>
<td>√ Multiple functions of livestock (input to cropping, asset)</td>
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<td></td>
<td></td>
<td>√ Dairy: no competition for food</td>
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<td></td>
<td></td>
<td>√ Issue of residues, zoonotic diseases, AMR</td>
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<td>3.</td>
<td>Natural resources use and climate</td>
<td>√ 30% of land area</td>
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<td></td>
<td>change</td>
<td>√ 14.5% of GHG emissions, 80% from ruminants; but large scope for</td>
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<td></td>
<td></td>
<td>improvement</td>
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<td></td>
<td></td>
<td>√ 8 -15% of global water use</td>
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<td></td>
<td></td>
<td>√ Biodiversity – positive/negative</td>
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<td></td>
<td></td>
<td>√ Positive role on nutrient cycling, but also water pollution</td>
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Henning initiated the discussion on the 17 Sustainable Development Goals (SDGs) adopted by the world leaders at the United Nations Special Summit in New York in 2015 and described that how each of the goal stated are related to the development of the dairy sector. He also pointed out that the Asian Dairy Sector is strongly positioned to help reach these goals with some challenges which could be taken care of during the course of implementation:

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>SDG Goal Description</th>
<th>Livestock Development as Response</th>
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<tbody>
<tr>
<td>Goal 1</td>
<td>End poverty in all its forms everywhere</td>
<td>Use livestock as a tools for poverty reduction (livestock are the most important asset of poor people)</td>
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<tr>
<td>Goal 2</td>
<td>End hunger, achieve food security and improved nutrition</td>
<td>Enhance livestock’s net contribution, limit competition</td>
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<td></td>
<td>and promote sustainable agriculture</td>
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<td>Goal 3</td>
<td>Ensure healthy lives and promote wellbeing for all, at</td>
<td>Enhance Nutrition, reduce health risks</td>
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<td></td>
<td>all ages</td>
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<td>Goal 4</td>
<td>Ensure inclusive and equitable quality education and</td>
<td>Enhance cognitive capacities through livestock products (e.g. school</td>
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<td></td>
<td>promote lifelong learning opportunities for all</td>
<td>milk)</td>
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<tr>
<td>Goal 5</td>
<td>Achieve gender equality and empower all</td>
<td>Use livestock to generate income for women</td>
</tr>
<tr>
<td>Goal</td>
<td>Description</td>
<td>Action</td>
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<td>------</td>
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<tr>
<td>Goal 6</td>
<td>Ensure availability and sustainable management of water and sanitation for all</td>
<td>Manage livestock waste (intensive systems) and water cycles (extensive)</td>
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<tr>
<td>Goal 7</td>
<td>Ensure access to affordable, reliable, sustainable and modern energy for all</td>
<td>Use biogas, livestock in the bio-economy</td>
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<tr>
<td>Goal 8</td>
<td>Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</td>
<td>Create decent employment in dairy value chains</td>
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<tr>
<td>Goal 9</td>
<td>Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation</td>
<td>Manage livestock growth</td>
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<td>Goal 10</td>
<td>Reduce inequality within and among countries</td>
<td>Create opportunities for small-scale producers</td>
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<tr>
<td>Goal 11</td>
<td>Make cities and human settlements inclusive, safe, resilient and sustainable</td>
<td>Manage geographic distribution of livestock</td>
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<td>Goal 12</td>
<td>Ensure sustainable consumption and production patterns</td>
<td>Balance livestock in human diets, animal welfare</td>
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<tr>
<td>Goal 13</td>
<td>Take urgent action to combat climate change and its impacts</td>
<td>Mitigate and adapt through livestock</td>
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<tr>
<td>Goal 14</td>
<td>Conserve and sustainably use the oceans, seas and marine resources for sustainable development</td>
<td>Reduce run-off from livestock and feed production, use fishmeal responsibly</td>
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<td>Goal 15</td>
<td>Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.</td>
<td>Reduce land demand and manage livestock to enhance eco-systems</td>
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<tr>
<td>Goal 16</td>
<td>Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels</td>
<td>Strengthen governance at all levels of value chain</td>
</tr>
<tr>
<td>Goal 17</td>
<td>Strengthen the means of implementation and revitalize the global partnership for sustainable development</td>
<td>Regional Network like ‘Dairy Asia’</td>
</tr>
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TECHNICAL PRESENTATIONS

Technical Presentation 1: Dairy Asia: Where we are and how we got here?

Vinod Ahuja
Livestock Policy Officer
FAO Regional Office for Asia and the Pacific

Dairy sector in Asia is large, growing and extremely dynamic. There are huge opportunities for improving productivity and gains, substituting imports, spreading risk, improving nutrition, creating jobs and many other things. The major concerns of this sector in Asian region are increasing resource scarcity and growing feed costs and increased consumer demand for food safety, convenience, quality etc. There is also a growing pressure to intensify and scale up production systems. The other unique feature of Asian dairy sector is the predominance of the smallholder producers. The key strategic pillars for growth and development of this sector in Asia are: (a) human resources and knowledge management, (b) productivity and competitiveness and (c) market linkages and they will work well in the presence of enabling policy environment. It is imperative to recognize the new realities of growth stories where we need to keep a constant vigil on the (a) enhanced efficiency of water, nutrients, energy, land and labour, (b) protect soil, water and biodiversity, (c) climate change adaptation and mitigation, (d) protection against diseases and (e) build system resilience.

Vinod then described the road from Bangkok to Anand and consultation process undertaken for formulation of “Elements of Regional Strategy for Sustainable Dairy Development in Asia”. The drafting group for regional strategy paper was constituted during Bangkok meet in 2014 and the report was peer reviewed by the technical and policy experts. The strategy paper was further reviewed by the dairy Asia Bangkok delegates during the writeshop. Then an e-consultation was opened for the public in general which received huge response and the final draft was presented in the Ananad meeting in 2015 which was adopted unanimously.

Sustainable dairy development in Asia covers six (6) major strategic objectives which are: (a) farm profitability and milk productivity, (b) fair and efficient markets, (c) dairy food quality and safety, (d) consumer education and school milk, (e) capacity to cope with risks and for greater innovation and (f) environmental footprint and climate changes. These objectives led to the vision of Dairy Asia as “A socially and environmentally responsible Asian Dairy Sector that enhances rural livelihoods, improves nutrition, and contributes to economic prosperity”. The new vision seeks to foster multi-stakeholder collaboration to achieve sustainable growth in the dairy sector through market based solutions while at the same time positioning the sector as a positive driver of food security, environmental sustainability and equitable economic growth in the region.

The Anand meeting in 2015 was very successful in terms of the outcomes as the group of high level delegations unanimously came to conclusion (a) Reviewed and adopted the strategy paper, (b) Signed the Joint Communiqué and (c) came to consensus on the need and structure of Dairy Asia platform. The delegates of the Anand meeting also finalized the core functions and the structure of Dairy Asia platform.
Based on the approved structure of Dairy Asia platform, Vinod proposed the functions and the composition of the steering committee, secretariat, and technical working groups in 4 identified areas of importance and country coordination/national focal point for discussion. The next step he proposed is to recognize the stakeholders and adoption of Dairy Asia platform. The floor was also opened for discussion on the membership issues and signing of core values and consensus document, steering committee and national focal point etc. It was also discussed that the roles, responsibilities and time lines for the activities and work plan for the year 2016-17 need to be finalised by the end of the second day of the meeting.
Technical Presentation 2: Dairy Genetic Improvements in Asia (Thailand)

Prof. Skorn Koonawootrittriron
Associate Dean (Research);
Faculty of Agriculture, Kasetsart University, Bangkok, Thailand

Prof. Koonawootrittriron’s presentation was on detailed information about dairy farming, dairy farmers and industry, dairy cattle population, breeding strategies to enhance milk production and other economically important traits, on farm dairy genetic improvement, research and development, and challenges and opportunities for dairy genetic improvement in Thailand. However, the dairy genetic improvement in Thailand has many aspects that are similar to other countries in Asia, but some specific details are different. It was expected that the information presented will help relate the dairy genetic improvement program in Thailand to that in other countries.

Cattle in Thailand have been part of Thai culture since ancient times. Cattle were primarily used for draught power, and to a lesser extent for meat consumption, but not for milk. Raising cattle for milk production was initiated approximately 90 years ago by Indian immigrants, who usually raised 1 to 2 cows and collected milk only for family consumption. After the end of World War II in 1945, consumption of milk and other dairy products began to be promoted by the Thai government to improve growth and health of people throughout the country. Since then, milk and dairy products have been imported from dairy exporting countries to fulfill the demand within Thailand. The Thai government established an agreement with the Danish government on academic cooperation in dairy farming. A Thai-Danish Dairy Farm was established at Muak lek district, Saraburi Province in 1962, and a Thai-German Dairy Farm was started in Chiang Mai in 1965. Holstein Friesian or Black and White cattle were imported to Thailand in 1962 to evaluate their suitability for milk production under Thai environmental conditions. In 1971, the Thai-Danish Dairy Farm became the Dairy Farming Promotion Organization of Thailand (DPO).

The number of cattle for dairying has been increasing continuously throughout the country over the past 25 years (120,000 in 1990 to 509,524 in 2015) and the dairy farming has expanded from the Central region to the Northeastern, Southern, Eastern, and Northern regions. There were about 235,829 milking cows that produced 1,082,379 tons of raw milk per year (approximately 4,590 kg/cow or 15 kg/cow/day); 96 percent of this total was used to produce ready-to-drink milk (34% for SMP, and 66% for commercial markets), and the rest was used for other dairy products. Thailand also exports dairy products such as sweetened condensed milk, sterilized fresh milk and evaporated milk to several neighboring countries (e.g., Cambodia, Indonesia, Philippines, Malaysia, and Myanmar). At present, Thai people consumes approximately 16 kg of milk per year. Despite the increase in the volume of milk produced in Thailand (+4.3 % every year from 2010 - 2015), it is still necessary to import milk and other dairy products to fulfill the demand of the country.

Dairy animals in Thailand are largely multi-breed, thus purebred and crossbred animals have a chance to be selected as parents of the next generation. The largest group of milking cows are crossbreds with Holstein fractions ranging from 51% to 75% (47% of the population), followed by crossbreds with H fractions larger than 75% but less than 100% (43.5% of the population), crossbreds with Holstein fractions lower than 50% (7.8% of the population), and purebred Holstein (1.7% of the population).
Other breeds represented as crossbreds in this population are Brahman, Brown Swiss, Jersey, Red Dane, Red Sindhi, Sahiwal, and Thai Native. The number of breeds represented in a particular cow ranges from 1 to more than 8. Most farms (49.3%) prefer to use purebred Holstein rather than crossbred Holstein (32.5%) sires or sires from other dairy breeds (10.0%) or beef breeds (8.2%) to breed their cows by artificial insemination. Farmers generally use their own experience and/or advice from the government or private organizations to select sires.

Large-scale dairy genetic evaluation programs in Thailand have been conducted by the DPO and the DLD. The DPO began their efforts to conduct genetic evaluation and selection using all available individual dairy information in 1995. The 1995 genetic evaluation used best linear unbiased prediction procedures (BLUP) and a sire model. In 1996, the BLUP procedure employed a sire-dam model. Subsequently, in 2002, the DPO genetic evaluation system was upgraded to a BLUP procedure that used a multi-breed animal model. The DPO dairy genetic evaluation system has been continuously upgraded as part of an ongoing research-development project jointly conducted by the DPO, Kasetsart University (KU), and the University of Florida, USA. On-farm genetic improvement of Thai cattle population is one of the major steps taken by the DPO and DLD which has brought new vistas in breed improvement. Sire selection in Thailand has been primarily based on semen availability, and secondarily on their genetic ability for economically important traits (Koonawootritriron et al., 2009). Farmers have tried upgrading their cow herds to fractions close to 100% Holstein. However, because of health and reproductive problems, farmers needed to keep the breed composition of their cattle at approximately 90% Holstein or lower.

Increasing the efficiency of milk production of individual animals to increase profitability presents great challenges but also great opportunities to the Thai dairy farmers given the current national and international market opportunities. One challenge will be to fairly compare dairy cows of different ages and lactation stages within and among small size farms. This requires the use of accurate pedigree information and phenotypic data on individual animals from birth to culling in farms that are connected through common animals (primarily sires). Other challenges are the prevalent small-farm size that limits herd size and the high cost of land to increase farm size prevents most Thai dairy farmers from expanding their dairy operations. Here is where cooperatives play an essential role to increase revenues and profitability of small farmers by decreasing costs, developing stronger business models, and breaking into bigger markets both nationally and internationally.
Technical Presentation 3: Dairy Economics and Policy: Focus on Asia

Dr. Steve Staal  
Regional Representative for East and Southeast Asia,  
International Livestock Research Institute, Metro Manila, Philippines

Milk production systems across Asia are varied in terms of structure of production, scale and level of intensification, all of which is reflected in the economics of production. This variation is a function of differing agro-climate zones, level of development and infrastructure between countries, but also due to contrasting traditions of milk production and cattle keeping generally in different parts of the region. The main feature of the region is that the milk yields across the region are generally low. Only China and Thailand exhibit the highest yields at 3-5 MT/cow/year due to greater use of improved technology and concentrate feed and all other parts the yields remain relatively low, under 2 MT/cow/yr, and in India, yields are 1 MT or lower. This is likely reflecting the low input, low output production strategies. There were little evidences available to prove that milk yields are improving, so the growth is through increased herd size.

As in many other tropical developing countries areas, dairy farms in Asia are often depicted as small compared to global averages. This stereotype is being increasingly challenged by public perception given the high profile that large scale dairy development investment often receives. However, the available data suggest that the stereotype remains generally true, depending on one’s definition. Data collected by IFCN in the figure below indicate that during the period 1996 to 2010 dairy farms in key Asian countries show that farm sizes (cows/farm) are mostly less than 10, and in the major producing countries of South Asia, farms generally have fewer than 5 cows.
As mentioned above, wide differences in yields may not necessarily translate into large differences in costs and particularly of returns. Scientific analysis of costs of production globally using typical farm case studies, and IFCN’s standard farm budget template, it was observed that the cost of milk production are generally lower in South and SE Asia than elsewhere according to the data from this study, generally less than $30/100 kg, and similar to the levels found those in Oceana. These are among the lowest costs found anywhere globally, and are likely to be related to the low input-low output system described earlier using underutilized family and land resources (and related to available low cost pasture in Oceana). China exhibited higher levels of costs, around $50/100 kg. Feed was found to be the first determinant of costs, followed by labour.

Asia exhibits a wide of dairy market and value-chain arrangements ranging from rural village markets to traditional retail outlets to informal or traditional vendors selling fresh milk or traditionally processed to highly sophisticated and integrated processor and supermarkets networks. The emergence of supermarkets and their impact on the production landscape has been a subject of intense policy debate in the region but the informal and traditional markets are often left out of policy attention and in the case of dairy, the role of supermarkets may be different. According to some estimates, nearly 60 percent (and in some countries more than 80 percent) of consumers purchase dairy products in informal or traditional markets and only occasionally consume processed or semi-processed products, some of which are also traditionally processed. In the case of dairy in East and Southeast Asia, the share held by informal markets however is much less than in South Asia. This is all occurring in the context of very rapid growth in demand for milk and dairy products across the region, particularly in E and SE Asia as incomes rise and consumer tastes change. Imports of dairy products in some parts of the region are large and growing.

National farm gate milk price data for selected Asian countries derived from various IFCN dairy reports are compared to the international milk price. International prices spiked in 2007 with the global food price crisis that occurred around that time, but that increase was not consistently reflected in national milk prices, except in the Philippines and Vietnam for example, most likely reflecting their large...
dependence on imports. In major producing countries such as India, prices only increased moderately at that time. In subsequent years prices climbed mostly gradually and in some cases stabilized. Of interest is that prices vary widely between Asian countries, in addition to differing from international prices.

National dairy markets in Asia are extremely diverse in terms of the types of products, supply chains and linkages and market actors. While East and Southeast Asia exhibit mostly formalized milk markets that rely on modern processing technology and typically apply modern HACCP protocols comparable to countries in the North, South Asia is mostly characterized by informal or traditional markets supplying raw or traditionally processed products. There are few reliable statistics, but estimates indicate that 80% of the milk in India flows through these channels and more than 90% in Pakistan. In Sri Lanka the figure is closer to 40%. Cooperatives also play an important role in some cases, such as in Thailand with more than 90% share of locally produced milk. In India, the formal market is now estimated to be split about evenly between cooperatives and private dairy enterprises, as the private share has grown in recent years. School milk programs such as in Thailand may also play an important role in local milk markets, and also serve to create milk consumption habits among youth that can drive future demand.
The analysis of Indian National Sample Survey Organization (NSSO) data of 70th round indicate that livestock sector is the third most significant source of rural income for rural households accounting for about 12% of income for all sizes of land holding groups and is more than 25% of income in case of households with tiny holdings of area up to 0.01 ha. Dairying is widely recognized as an instrument of social and economic development in India. The nation’s milk supply comes from millions of small producers, dispersed throughout the rural areas. These farmers maintain an average herd of one or two milch animals, comprising cows and/or buffaloes. The animals' nutritional requirements are largely met by agricultural waste and by-products. Ample labour and a small land base encourage farmers to practice dairying as an occupation subsidiary to agriculture. While income from crop production is seasonal, dairying provides a stable, year-round income, which is an important economic incentive for the small farmer to take to dairying.

Operation Flood, the most successful dairy development programme has shown how food aid can be used as investment in creating and strengthening an appropriate institutional infrastructure that can promote dairy development nationally. Programmes like Operation Flood, with similar policy orientations, may prove to be appropriate to dairy development in other Asian as well as African countries since the conditions that prevail in dairying today in a number of developing countries are comparable to those that once were found in India with a focus on creating sustainable strong institutions which can stand the test of time. Under this institutional structure, the village level dairy cooperative societies are organised to aggregate milk from its members of which about 90% of them are small milk producers. Transparency is ensured through practices such as determining procurement price of milk on the basis of its intrinsic quality, scientific weighing of the milk offered by producers and payments to producers made on the basis of volume and quality.
considerations, thereby earning their trust. These village level cooperative institutions transfer year-end profit to its member producers on the basis of their actual patronage thereby eliminating any individual bias in profit sharing. Accounts are audited and audit class statuses are granted. Each cooperative society conducts Annual General Body meetings and profit and loss accounts are shared among the members, enhancing transparency in the grass route level business operation.

The experiences of the Operation Flood brought out many important lessons:

✓ It showed that a single-commodity project can have multidimensional impacts; but to run well the project needs participatory organisations and a commercial approach.

✓ Keeping the farmers engaged in dairying is a challenge for which the most critical factor is to maintain a fair price that continues to make dairying viable and a transparent and fair procurement system that constitute a non-opportunistic buyer of raw milk. Milk production-enhancement services are important but producers will not use them unless they are paid a fair price through a transparent and fair procurement system.

✓ A protective market environment is necessary for providing an incentive to increase domestic production, especially in a sector where use of subsidies for both production and/or export has been used by some of the major developed dairying countries.

✓ It has been proved again that a large number of tiny producers could organize themselves into a cooperative; they assume command of procurement, processing and marketing of their produce and can be assured of a fair and stable price for their marketed surplus. It is only by enabling such cooperative organisations to emerge and develop into strong and viable institutions that prosperity can be ensured for millions of farmers.

In Bangladesh, tens of thousands of very poor rural households have moved out of poverty as a result of the successful introduction of the holistic Milk Vita and Grameen–CLDDP smallholder dairying models which is mainly driven by institutional strength. Many families now own up to 20 cows and have intensified and commercialized their milk production. The two models embrace a complete cow-to-consumer package of input and output services, and their on-going scaling up has helped put the dairy sector in Bangladesh in a unique position to take advantage of the recent huge increases in the cost of imported dairy products, especially milk powder, by substituting imports with domestically produced milk.

In Pakistan, about 80 percent of the milk in the country was collectively produced by rural commercial and rural subsistence producers. The peri-urban producers account for 15 percent of the total production, whereas urban producers contribute 5 percent. Little over half of the dairying households owned 1–4 animals, 28 percent of dairying households maintained herd sizes of 5–10 animals; another 14 percent had herds of 11–50 animals. Only 7 percent of the dairying farms in the country could be considered large, with more than 50 animals.
RESPONSES OF DELEGATES ON THE TECHNICAL PRESENTATIONS

Technical Presentation 1: Dairy Asia: Where we are and how we got here?

Questions
1. Dr. Tashi Samdup (Director General, Ministry of Agriculture and Forests, Bhutan): Why does the vision only include rural livelihoods and not urban? (He refers to the vision of Dairy Asia that was determined in the last meeting and has been presented by Vinod Ahuja). Why do we want national focal points, and not local focal points?

2. Thanawat Tiensin (Head International Livestock trade & regulation, Bureau of Disease Control and Veterinary Services, Thailand): How can we ensure that the countries feel ownership for the programme? And how should we proceed to include small local stakeholders?

3. Vijay Paul Sharma (Indian institute of Management, India): How can we ensure that the informal sector is heard and included?

Answers:
1. Vinod Ahuja (Livestock Policy Officer, FAO, Thailand): The country focal points are closer to the ground and linked to the platform. Need to provide voice to small group. Challenge to bring down ownership to farmers. Everybody needs to contribute. We need to invest in giving everyone a voice, and a feeling for ownership.

2. Jeremy Hill (Chief Science and Technology officer, International dairy federation, New Zealand): We need to create a reporting structure and include the ground level stakeholders. It is important to define new tools.

After this short Q & A session, each table has been allocated to work on the following 2 questions:

1. Internalize the outputs of Anand and Bangkok meetings by
   √ Clarify for yourselves the kind of things/outputs that came up from these meetings?
   √ Find out if there are any questions coming out which need a response? (2 cards per table)

2. What need to be sorted out in order to make Dairy Asia to be successful (2-3 cards per table)

The responses from the tables which were consist of representatives from different countries and different organizations prepared 2-3 cards and presented as below:
<table>
<thead>
<tr>
<th>Questions that need a response</th>
<th>What to be sorted out to make dairy Asia successful</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the guidance from Dairy Asia Regional/Country Representative? — From Public Sector — From private sector</td>
<td>Who should be the focal point at national level</td>
</tr>
<tr>
<td>How does a country will develop the dairy specific breed?</td>
<td>Information center for Funding/Location/Membership etc. need to be developed</td>
</tr>
<tr>
<td>Who should be focal point for a country</td>
<td>How the member country would benefit from Dairy Asia</td>
</tr>
<tr>
<td>Ownership of the network in each country focal point</td>
<td>Timelines vis-a-vis achievement monitoring</td>
</tr>
<tr>
<td>TOR for establishing national focal point</td>
<td>Co-ordination &amp; Communication barriers / Economic viability</td>
</tr>
<tr>
<td>Does the role of government need to be redefined</td>
<td>Country specific issues to be addressed in the common strategy</td>
</tr>
<tr>
<td>How funding will be done for the network</td>
<td>Resources need to be identified for a country formally declares in investing dairy sector</td>
</tr>
<tr>
<td>Who should be the focal point? Is it private sector or public sector?</td>
<td>Need a resource pool for technology adoption</td>
</tr>
<tr>
<td>Separating the organization against political agenda/disputes between member countries - Knowledge sharing - Sustainability of the network</td>
<td></td>
</tr>
<tr>
<td>Resources a country formally declares in investing dairy sector</td>
<td></td>
</tr>
</tbody>
</table>

After presentation by the groups from each table, the following questions/issues/comments were raised for further clarifications:
**Clarifications:**

1. Naiten Wangchuk (Chief Livestock Officer, Ministry of Agriculture and Forests, Bhutan): APHCA is a good similar organisation. But we need to emphasize sustainability. Other organisations have started with similar motivation, but had trouble with funding.

2. Sangram R. Chaudhary (Executive Director, National Dairy Development Board, India): Who should chair the focal points? NDDB commits to taking the office of the focal point in India.

3. David E. Steane (Resource person- dairy genetics, Thailand): A common source of failing in international organisations is the national focal points. We should not appoint groups with whom we are closely linked, but real representatives. This should not be done half-heartedly. In genetic resources this is a large issue. Representatives’ commitment is most important, regardless the type of organisation.

4. Neil Fraser (Global Agenda for Sustainable Livestock, New Zealand): Global Agenda for Sustainable Livestock encourages the initiative. We are committed: We signed the consensus, share the experiences of other networks and have already given financial supports. The own financial resources are strained, but they hope to be more financially supportive in the future, once their own resources grow. Dairy Asia depends on the national focal points, but Global Agenda want to support and give guidance.

5. Ajay Kumar Roy (Director General, Department of Livestock Services, Bangladesh): The responsibility of a focal point in Bangladesh should be given to the Department of Livestock, and could be transferred later once a national dairy board is launched.

6. Brian Lindsay (gdaa, Belgium): GDAA offers support, wish to cooperate. It needs to be seen what the organisation can do for Dairy Asia.

**Technical Presentation 2: Dairy Genetic Improvements in Asia (Thailand)**

**Questions:**

1. David E. Steane (Resource person- dairy genetics, Thailand): Why does Thailand only breed with Holstein? Why does only statistical data exist of 50,000? With this low number there is a risk of low accuracy.

2. Henning Steinfeld (FAO, Italy): Does climate change play a role in the breeding plans of the near future?

**Answers:**

1. Skorn Koonawootrittriron (Associate Professor, Kasetsart University, Thailand): Because of the local climate conditions, the breeds need to be adopted. Foreign breeds perform less well here.

2. Skorn Koonawootrittriron (Associate Professor, Kasetsart University, Thailand): Yes, in the near future temperature change is included in the breeding model.
After this short Q & A session, each table has been allocated to work on the following 2 questions:

1. What are the countries going to do (priority areas) in this technical area (think about the how) (2-3 cards per table)
2. What should the platform do to make the country actions better, more effective and efficient (the value addition) in these technical areas (2-3 cards per table)

The responses from the tables which were consist of representatives from different countries and different organizations prepared 2-3 cards and presented as below:

<table>
<thead>
<tr>
<th>What countries are going to do priority areas</th>
<th>What the platform do value addition in the technical area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Country Priority</strong></td>
<td><strong>To develop breeding strategies &amp; policies:</strong></td>
</tr>
<tr>
<td>1. Conduct study to determine best – fit breed for country / region</td>
<td>1. Breeding policies</td>
</tr>
<tr>
<td>2. Follow – up study for update due to change in condition</td>
<td>2. Improve AI infrastructure including capacity building, provision, manual, tools, equipments</td>
</tr>
<tr>
<td>3. Increase involvement of dairy organization in dairy cattle in genetic improvement</td>
<td></td>
</tr>
<tr>
<td><strong>Review of Artificial Insemination scheme</strong></td>
<td><strong>Country should setup genetic evaluation system</strong></td>
</tr>
<tr>
<td>√ New Breed</td>
<td></td>
</tr>
<tr>
<td>√ Tropical resistant breed</td>
<td></td>
</tr>
<tr>
<td><strong>Conservation and development of local breeds</strong></td>
<td><strong>Promote Cooperative dairy model</strong></td>
</tr>
<tr>
<td><strong>Develop information system to collect data centrally</strong></td>
<td><strong>Assistance in identification of animals for breeding programme</strong></td>
</tr>
<tr>
<td><strong>To include/ increase more farm data into the national database for progeny testing programme</strong></td>
<td><strong>Priority areas lot on recording genomics role of private sector</strong></td>
</tr>
<tr>
<td><strong>Come up with a simple recording system for farmers</strong></td>
<td><strong>Improvement of technical know-how on AI, ET, progeny, genomics (bio-tech)</strong></td>
</tr>
</tbody>
</table>

| Provision of technical assistance            |
| **Exchange of experience, skill transfer etc.** |                                                          |              |                                                          |
Construct the common database and find out the countries have commonality
Import data collection and training farmers to be able to identify the breed
Identify best breed for hot + humid climate

Clarifications:
After presentation by the groups from each table, the following questions/issues/comments were raised for further clarifications:

1. Md. Anisur Rahman (Chief Operating Officer, PRAN Dairy Ltd., Bangladesh): Countries should conduct best-breed-study and align it in policy. His company uses artificial insemination and improved the daily milk yield per cow from 5 litres to 10 litres. Furthermore more women were enlisting as farmers and more farmers based their income solely on dairy, instead of having several incomes.
2. Brian Lindsay (GDAA, Belgium): Everyone aims at increasing yields, but what the farmer actually is seeking is increasing income. Do not forget about the costs of investing into increasing yields.

BOX: PRAN Dairy- the Story of Touching Lives in Bangladesh
PRAN Dairy is a sister concern of PRAN Group and the largest private sector dairy processor in Bangladesh. PRAN Dairy collect raw milk from the farmers through dairy hub system and process to various liquid and other forms of milk products. Collection of raw milk in large scale is a challenging job and the Dairy Hubs are being set up by the company to better accomplish the hard task keeping both cost and quality, and serving thousands of rural farmers in the milk supply chain. It is a one-herd concept consisting of 15-20 villages located within 15 to 20 kilometers radius that organizes and develops smallholder farmers’ milk production and provide them direct access to milk markets.

The company has reached to a total of 9,000 farmers in Hub area through 120 Village Milk Collection Centers (VMCC). The company provide dairy extension services like training on animal husbandry, veterinary support, AI, fodder and silage management etc. at free of cost to the rural farmers. In return the company provide buy back guarantee of milk round the year at competitive price.

The Dairy Hub project together with the Dairy Academy, a private sector initiative, could be seen as a strong step in developing the dairy sector in the country resulting to poverty alleviation through creating employment, income generation and investment opportunities in the distant rural area. In four years of operation, dairy hubs could achieve remarkable successes such as:

√ Increased daily yield of milk from 4 litres to more than 10 litres through cross breeding and better farm management.
√ Average household income has increased from US$ 100 in 2011 to US$ 340 in 2015.
√ 20% of the farmers have now taken dairy farming as primary source of income as opposed to 2% during start of the program.
√ About 15% of the farmers are women as compared to 0% in 2011 when the baseline survey was conducted.

As per the initial success of dairy business through Hub model, the company has drawn a plan to develop
nation-wide network of Dairy Hubs. PRAN Dairy has the ambition to help increase Bangladesh’s milk production from the present 6 Million tons per year to exceed 10 Million tons by 2025.

So whenever a consumer buys a pack of milk or milk product of PRAN Dairy, it results to a divine smile to a distant rural family and compose a story of touching lives.

**Technical Presentation 3: Dairy Economics and Policy: Focus on Asia**

**Questions:**

1. Torsten Hemme (Managing director, IFCN): The costs of production increase with rising wages. Smallholders are very sensitive to rising salaries. It is a double sided sword: Prosperity lead to more demand of dairy products, but also to more pressure on smallholders.

2. Harrinder Makkar (Animal Production officer, FAO, Italy): Does the lifetime production of the animals have an impact on the choice for specific breeds?

3. Brian Lindsay (GDAA, Belgium): The platform needs to decide on the type of data it wishes to record on national levels.

**Answers:**

1 & 2. Steve Staal and Vinod Ahuja: We imagine that this characteristic can play a role in desiring specific animal breeds. However, there is no long term data available, and collecting this data would be very expensive and time demanding.

3. Vinod Ahuja: Yes, not only decide on a common methodology.

**Comments:**

1. Torsten Hemme (Managing director, IFCN): One needs to make people understand farm economics. Most people do not have any insights, but having insights can be very rewarding.

The facilitator then asked for the tables to come up with their views on the **What the countries are going to do?** – **Priority area**

- √ Sharing knowledge (Models) consistency
- √ Sharing information: technology & experience
- √ What platform to do: Share information on prices, costs, volumes, policies, yield
- √ Construct the common data structure for economic evaluation
- √ Simple analysis of cost and return
- √ Reduce cost of production through innovation and technology
- √ Start from profitability
Technical Presentation 4: Appropriate Institutional Structures for Dairy Development

Questions:
1. Abdul Quadeer Jawad (Ministry of Agriculture, irrigation and Livestock, Afghanistan): The NDDB is a very inclusive organisation, without discrimination of class and religion. It does not matter how much milk a farmer can bring. NDDB serves as a great example for inclusiveness. But it is important that their model is adapted to the local context, before transmitting it to other countries.
2. T A C Tiskumara (Livestock Development, department of Animal Production and Health, Sri Lanka): Women involvement in Sri Lanka is difficult. Another issue is to also include the younger generations, that turns away from dairy.

Answers:
1 & 2. Sangram R. Chaudhari (Excecutive Director, National Dairy Development Board, India): Dairy is mostly growing in regions, where there is no other meaningful employment. Young people are attracted to profitable commercial farms. India also has set up an education programme. However he is also aware of the issue mentioned by Sri Lanka.

Questions:
1. Chinh Xuan Tong (Ministry of Agriculture and Rural Development, Vietnam): Do you have policy support in India, in terms of trade barriers to prevent cheap imports?
2. Abdul Latif Zahed (Ministry of Agriculture, irrigation and Livestock, Afghanistan): There is much to learn from the Indian model. How do you see the future of India with an increased involvement of the private sector? You have implemented you model already several year ago, what are your lessons learned?
3. Vijay Paul Sharma (Indian institute of Management, India): This is one issue to debate. How can we secure the dairy sector, while the world market price is very volatile. There is some protection needed but at the same time institutions need to be strengthened without support.

Answers:
1 &2. Sangram R. Chaudhari (Excecutive Director, National Dairy Development Board, India): Some support of the government is required. The private sector can perform similarly to farmer cooperatives, but the government has to ensure fairplay. The milk sector is already modernizing in Afghanistan. India want to use a transparent pricing system based on fat and protein content of milk. There needs to be government support in rural areas where transportation is difficult.
3. Sangram R. Chaudhari (Excecutive Director, National Dairy Development Board, India): Large share of liquid milk in retail, means that the domestic price is less correlated with market price. Market support is indeed an issue, because also farmers in other countries around the world are supported by their governments. There needs to be a balance in the degree of protection.

Comments:
1. Neil Fraser (Global Agenda for Sustainable Livestock, New Zealand): The only institutions we have discussed so far are related to milk collection, processing and marketing. But there are also other institutions: Farm institutions, feed, R&D, credit, quality regulations etc.
2. Vichien from Thailand: Need to adapt and make an objective towards small farms. Need to keep small farms. Cannot cut private sector. Sustain small farms. Cost of production increase, imports become cheaper, but sector needs to survive.

3. MD Anisur Rahman (Chief Operating Officer, PRAN Dairy Ltd., Bangladesh): Can always replicate the NDDB model, but we need to assess first if it can be successful. The company he is representing in Bangladesh has taken the time to look at different models around the world, before developing its own. However they have no experience in the management of medium sized farms and look forward to technical support from the platform.

**PREPARING THE WORK PLAN FOR 2016-17**

**Technical Session 5: Preparing the work Plan and key activities of Dairy Asia for 2016-17**

**Presenter: Vinod Ahuja**

Dr. Vinod Ahuja summarized the 2 days deliberations and presented the proposed structure of Dairy Asia platform. He also presented the functions and composition of the key stakeholders of the Dairy Asia structure. The session Chair Neil Fraser, Chair, Guiding group, Global Agenda for Sustainable Livestock allowed the participants to continue to raise their issues and concerns on the structure of Dairy Asia.

- **Genetic Improvement**
  - Data on production environment and breeds and develop criteria for breed evaluation
  - Facilitate technical support (hands on training)
  - Expert roster
  - Guidance documents which need to include all experiences in different countries of the region for better understanding
  - Production should be seen in a dynamic environment
  - Breed mapping – from Dairy Asia platform

- **Dairy Economics and Policy**
  - Improved understanding of dairy farming systems in Asia
  - Standards and regulations
  - Trade and competition
  - Costs and prices
  - Awareness about fresh milk / school milk
  - Trade and competition are not the ways for comparing countries (we need to come up with a framework that will allow country comparison) (Harmonization & Methodologies)
  - Need criteria for measuring market efficiency
  - Micro perspective – understanding farming system
  - Micro perspective – share that the farmer get
— Focus on animal nutrition (it is major in Dairy economy)
— Farmers to understand their own business
— Need common methodologies for determining cost and prices
— Have credible person in the country to work on the economics of Dairy and then fit that into policies

√ **Institution building**
— Leadership
— Producer orientation
— Strong public sector (policy and investment) support
— Strengthening institutions in a changing market landscape (policy and investment)
— Institutions through the value chain (inputs, credit, quality assurance)
— Fostering partnership
— Lessons learnt on institutions
— Guidance on incentive payment scheme
— Facilitate networking
— Standards development
— Compare and distribute information on institutional models / study tours / exchange of experts
— Dairy Asia as an institution – need common rule of law and how it work in the countries
— Beyond the 3 technical areas, we need to look at the role & animal feeding to make Dairy Asia successful

**Structure of Dairy Asia**
Vinod presented the structure of Dairy Asia which has already been approved the members of the delegations present in the last meeting held in Anand, India during 23-26 March 2015. The structure presented is as follows:
The floor was then opened for discussion on the Dairy Asia structure and the following observations received from the delegates present in the meeting:

- Box on genetics should be redefined as ‘Technology’ under this box we will have genetics, feed, Information technology etc.
- Need also have dairy health in some of the boxes or on its own as a box
- Dairy Asia provide/sharing information in terms of investment opportunities
- Soft infrastructure will be part of the institution (e.g. Research, etc.)
- The National focal points need to be connected with the secretariat and the steering committee

Vinod agreed to the points raised by the members; however he reminded that we need to be careful to make many boxes be care they have to be driven by certain people. He also agreed to the comments on the interaction with the national focal point and other stakeholders of Dairy Asia. He also suggested that he will redesign the visual part of the structure which essentially will look more flat and not hierarchical functions & steering committee.

**Structure of Steering committee**

**Functions**

- Lead, guide, coordinate and set policy directions, strategy and program priorities for Dairy Asia including contribution the continuous development of vision and strategy
- Advocate and promote the values and cause of Dairy Asia
- Stimulate partnerships and participation including establishing linkages with governments and other national, regional and international platforms, agencies and initiatives
- Approval of work plan and budget
- Resource mobilization
- Advise on the communication needs and tools of Dairy Asia

**Composition**

- Time bound (term limit- 3 years; staggered every 3 years)
- Rotational/geographic representation
- 8-12 members
- Minimum representation of the following key sectors—Government, national dairy agencies, civil society, international/regional, private sector, research/academia, producer representation

Dr. Vinod Ahuja presented the proposed name of the institutions for the interim steering committee of Dairy Asia:

1. GASL (Global Agenda for Sustainable Livestock)
2. APHCA
3. NDDB India
4. Afghanistan
5. Myanmar Livestock Federation
6. DPO Thailand
7. ILRI
8. FAO RAP (Secretariat)
9. Private sector representatives
10. Civil Society Representative
11. Academia/research

The delegates suggested few more points on the functions and composition of the steering committee of Dairy Asia platform:

— They need to listen to the members who should drive the programme – need to develop strategy on how do they capture the input from the members
— Composition: secretariat need to be in the steering committee
— Whether donor agencies will be the part of the Steering committee
— Decision making on a consensus and not majority
— Secretariat should be ex-officio not a member interim steering committee
— Who will choose the chair? (Is it chosen by the Secretariat/member countries or by the interim steering committee?)
— Interim Steering Committee will be initially chosen for 18 months to formulate the details functions of the committee.
— There need to be farmer representatives or farmer cooperatives in the steering committee
— Need to develop criteria for selection of members of the steering committee
— Representative from each region – East Asia is missing
— Asia is big continent and 12 members will limit other countries and it was suggested that the number may be increased to 15 members.
— An important criterion to be member of steering Committee is willingness and other one is the network with other countries in the region.

Structure of Technical Working Groups

✓ Functions
— Provide knowledge leadership in specific technical areas
— Develop and package knowledge from cross country experience
— Compile and analyze knowledge and information in specific technical areas and develop knowledge products and partnerships
— Propose and initiative projects, training and technical activities
— Respond to specific technical requests from members
— Explore new areas of regional technical needs
— Contribute to resource mobilization

✓ Composition
— Committed technical experts/senior managers

The delegates suggested few more points on the functions and composition of the Technical Working Groups of Dairy Asia platform
--- Do we need a limit and movement to expertise over time
--- Tech working groups are like a community and practice
--- Membership of the technical working group will change as the focus change over time

**Functions of the National Focal Points (NFP)**

--- Ambassador/champion of Dairy Asia at the country level
--- Encourage other stakeholders to join Dairy Asia
--- Liaise with the secretariat; propose/coordinate implementation of DA recommendations/activities in the countries
--- Represent or identify appropriate country representative and provide feedback to country stakeholders
--- Provide/human resources/finances to support in-country DA activities
--- Contribute to resource mobilization in support of DA activities at the country level
--- Organize stakeholder meetings to identify priorities etc
--- Translation and dissemination of knowledge products/communication

The delegates suggested few more points on the functions and selection of the National Focal Points of Dairy Asia platform

--- National focal points are like pollinators who will be making connections in the country
--- The National Focal points need to be the organization and the organizations need to identify one person/group of persons to act as focal point.
--- The NFP need to translate, disseminate and liaison with other agencies related to this activities.
--- It seems to be little dangerous that we rely on a single representative from the countries for which the solutions may be as follows:
  - Need to have steering committee represents the stakeholders in the countries
  - The focal points should organize stakeholder in the countries
  - Thailand has the milk board with reps to different actors/members/sectors/private sectors
  - International Dairy Foundation has some national committees
--- As per the design, it seems that most likely the government department will be leading the coordination work of the national committees and in that case can there be multiple focal points?
--- During the selection process, there is a need to emphasise on the committed dairy person than that of an institution and the focal person to be linked with the institutions so that even if the person resigns there will be continuity.
--- Evaluation will be through peer review mechanism (not formal way)
--- What about the reporting mechanism – About the activities happening in the countries (lessons learnt that could be shared with other countries)
--- Need to agree on how the products will be developed – collect the raw materials from the countries – Synthesize them and get them introduced in the countries.
Functions of the Secretariat

— Provide administrative and logistics support for platform activities
— Coordinate activities of the Technical Working groups
— Provide communication infrastructure and products including website maintenance
— Process documentation, member relations, organization of meetings and activities
— Process annual budget, plan and projects and manage financial resources
— Implement Steering Committee decisions
— Develop strategy for long term sustainable growth of the platform

At this juncture, Neil and Vinod requested the members of the country delegations to identify the national focal points and record the commitments. Accordingly some countries took the on-spot decision and some of them communicated that they need to discuss with the appropriate authorities upon their return to their own countries and will get back to the Secretariat of Dairy Asia about their decision. The representative from the Embassy of Germany in Thailand said that they will support the initiative and will report to the ministry and agriculture in Germany for further instructions. The country commitments on the national focal points and knowledge partners/sponsors are as under:

<table>
<thead>
<tr>
<th>Focal points</th>
<th>Knowledge Partners/Sponsors</th>
</tr>
</thead>
<tbody>
<tr>
<td>India- National Dairy Development Board (NDDB)</td>
<td>Global Agenda for Sustainable Livestock (GASL)</td>
</tr>
<tr>
<td>Bhutan: Department of Livestock. (However they wanted to put in record that as the Dairy Asia platform is a volunteer organization and d not a formal institution, it will be difficult for the government to commit funding to its activities)</td>
<td>APHCA</td>
</tr>
<tr>
<td>Bangladesh- Department of Livestock</td>
<td>FAO</td>
</tr>
<tr>
<td>Thailand – Either Department of Livestock Development (DLD) or Dairy Farming Promotion Organization (DPO). It will be finalized in 2 months’ time</td>
<td>ILRI</td>
</tr>
<tr>
<td>Afghanistan – Ministry of Agriculture</td>
<td>GDAA</td>
</tr>
<tr>
<td>Sri Lanka- Department of Animal Production and Health (DPAH)</td>
<td>IFCN</td>
</tr>
<tr>
<td>Myanmar- NDDB or Myanmar Dairy Association</td>
<td>IDF</td>
</tr>
<tr>
<td>China – China Dairy Farmers Association (not confirmed yet, Ministry of Agriculture will get back to the Secretariat in 2 month)</td>
<td></td>
</tr>
<tr>
<td>Vietnam- Vietnamese Dairy association</td>
<td></td>
</tr>
<tr>
<td>Mongolia- Ministry of Food and Agriculture</td>
<td></td>
</tr>
<tr>
<td>Indonesia- They need to finalize between 3 organizations, GKSI, DGAHS, HHRDC</td>
<td></td>
</tr>
<tr>
<td>Philippines- National Dairy Authority</td>
<td></td>
</tr>
</tbody>
</table>
To answer the question raised by Bhutan regarding the legal form of the Dairy Asia Platform Vinod reiterated the position of FAO and said that the platform will not have any legal structure and volunteer association for the benefit of the dairy movement in the region. However, in case required, Dairy Asia may work under the banner of FAO and or APHCA to take care of the legal issues which may come up in mobilizing funding.

Work Plan for 2016-2017

In this session, the country groups reassembled and worked out the activities and work plan for the next 12 months. They were required to answer the questions like how do they see the process in their countries, outline the activities they will perform, timeline and the responsible actors. Apart from the country groups, one knowledge group was also formed to understand their views:

1. AFGHANISTAN

<table>
<thead>
<tr>
<th>Activities</th>
<th>Responsible Authority</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appointment of focal points</td>
<td>Dy Minister, Ministry of Agriculture, Irrigation and Livestock</td>
<td>15 Feb 2016</td>
</tr>
<tr>
<td>Call a meeting of relevant stakeholder &amp; briefing item on Dairy Asia</td>
<td>Dy Minister, Ministry of Agriculture, Irrigation and Livestock</td>
<td>28 Feb 2016</td>
</tr>
<tr>
<td>Finalization of TOR (Technical working group &amp; engage with NDDB)</td>
<td>Dy Minister, Ministry of Agriculture, Irrigation and Livestock</td>
<td>15 March 2016</td>
</tr>
<tr>
<td>Initiate the process of signing an MOU with NDDB</td>
<td>Dy Minister, Ministry of Agriculture, Irrigation and Livestock</td>
<td>31 March 2016</td>
</tr>
<tr>
<td>Initiating the process of creating ADPO with NDDB</td>
<td>Dy Minister, Ministry of Agriculture, Irrigation and Livestock</td>
<td>April-May 2016</td>
</tr>
<tr>
<td>Initiate the process of creating a dairy federation</td>
<td>Dy Minister, Ministry of Agriculture, Irrigation and Livestock</td>
<td>June 2016</td>
</tr>
</tbody>
</table>

2. BANGLADESH

✓ Selecting focal point – 1 (one) month
✓ Informing government regarding elaborate concept of Dairy Asia – 1 (one) month
✓ Informing government and regarding the urgency of forming/establishing the national dairy development board - 1 (one) month
✓ Sharing the concept of Dairy Asia with all the stakeholders representatives - 3 (three) month
✓ Requesting Milk Vita and other milk processors for producing to give more emphasis for quality and safe products – 3 (three) months
✓ Providing adequate support services to cooperative members for profitable milk productions – 6 (Six) months
✓ Meeting the Scientists of BLRI for conducting regional need based research work – 3 (three) month
✓ Fix up a programme for creating/declaring FMD free country – 1 (one) year
3. MONGOLIA

- Establish National Board (NB) consisting of main stakeholders – March 2016 (Ministry of Fisheries and Agriculture-MoFA)
- Organize first meeting of National Board – March 2016 (Project unit)
- Mobilize funds - Dec 2016 (MoFA and NB)
- Pilot school milk scheme – Dec 2016 (MoFA and NB)
- Technical parameters – (Association)
- Capacity building – Project Unit

4. MYANMAR

<table>
<thead>
<tr>
<th>Timeline</th>
<th>Activities</th>
<th>Responsible Actors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb 2016</td>
<td>Stakeholder workshop on Dairy Development Explain about DA+take agreement</td>
<td>MDA, Stakeholder from Dairy Sector</td>
</tr>
<tr>
<td>Mar 2016</td>
<td>Annual General Meeting of MLF</td>
<td>LBVD, MLF, MDA + Stakeholder</td>
</tr>
<tr>
<td>Apr 2016</td>
<td>Report to DA</td>
<td>NDDB, NIDA</td>
</tr>
<tr>
<td>May 2016</td>
<td>Training on operation of batch pasteurizer</td>
<td>LBVD, Small local processor</td>
</tr>
<tr>
<td>June 2016</td>
<td>Distribution of grass + legume seeds Training on dairy processing study tour in Chiangmai RDTC</td>
<td>LBVD, FARMERS MDEP</td>
</tr>
<tr>
<td>July2016</td>
<td>Training on Dairy Farm management + SOP for milking</td>
<td>LBVD, MDA Processors</td>
</tr>
<tr>
<td>Aug 2016</td>
<td>Training on Dairy Processing Lesson Learn from Chiangmai RDTC</td>
<td>LBVD, MDA Processors</td>
</tr>
<tr>
<td>Sep- Oct 2016</td>
<td>Evaluation of pasture + practical training on silage making</td>
<td>LBVD, MDA Farmers</td>
</tr>
<tr>
<td>Nov-Dec 2016</td>
<td>Feeding + breeding management training</td>
<td>LBVD, Farmers MDEP</td>
</tr>
<tr>
<td>Jan 2017</td>
<td>Report to DA</td>
<td></td>
</tr>
</tbody>
</table>

5. SRI LANKA

- Sri Lanka has a vision to be self-sufficient in milk in year 2020
- Government policies have already been reformulated to provide on conductive environment for dairy sector.
- New Government has given importance for rural economic development emphasized mostly on livelihood development, food security
- All respective organizations dealing with different aspects of livestock development (NLDB, MIHO DAPH, MLE) has brought under one umbrella – Ministry of REA
- Agri business authorities formed with public/private partnership and NGOs.
- State budget allocations strictly based on results. Lack of coordination among related institutions and their roles are not clearly defined.

<table>
<thead>
<tr>
<th>ACTION PLAN 2016</th>
<th>Timeline and Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appointing the local point for Dairy Asia, D.A.P.H. the technical arm</td>
<td>Feb 2016, M/RE</td>
</tr>
<tr>
<td>Appointing the steering committee with all related institutions</td>
<td>March, M/RE</td>
</tr>
</tbody>
</table>
Quick need assessment to analyses the gaps, support expertise from Dairy Asia | April, M/RE + DAPH
---|---
Review existing objectives of different agencies to analysis the gaps | May, M/RE & All agencies
Develop an integrated approach to overcome existing problems | 
Action plans to be developed with monitoring and evaluation systems to achieve the target in 2020 | June (Jointly)

6. INDIA

- Constituting National Focal Point by March 2016
- Identifying Coordination by March 2016
- Directory of stakeholders by June 2016
- Conveying meeting of stakeholders by October 2016
- Preparation of Expert's roster by December 2016
- Access to Dairy Asia link to NDDB Website
- Linking of Indian Dairy Machinery Manufacturer Association site with Dairy Asia
- Processing Request from member countries for training in the field of dairy development with their own cost.
  (The responsible organization is NDDB, India)

7. NEPAL

- Dairy Asia Focal point will be endorse by NDDB executive committee – March, 2016 (NDDB)
- Multi-stakeholder meeting will be organized & inform about Dairy Asia – Feb 2016 (NDDB)
- Coordination committee will be formed– March 2016 (NDDB)
- In country focal point will be identified and designed with TOR for reporting Dairy Asia Focal Point – April 2016 (NDDB)
- Information hub for Dairy will be created in NDDB – July-August, 2016 (MoL)
- Quarterly DACC meeting will be put in regular program – March, 2016 (NDDB)

8. PHILIPPINES

- Orientation to stakeholders about Dairy Asia & participation of the Philippines
  a) Feb 2016 – Dairy commission Board
  b) Mar 2016 – NDA Dairy Industry Board
  c) Apr 2016 – Dairy Congress
- Have our 1st collaborative project with NDDB, as resource person in the Dairy Congress to share Dairy Dev in India
- Confirmation of the Phil National focal point of Dairy Asia – September 2016
- Continuously try to learn new technologies as share by Dairy Asia in improving our dairy enterprises
9. CHINA
— By March 2016 DAC NFP
— By July 2016 China Dairy development year book
— Half a year June or Dec – Dairy activities to DA
— By December Study tour or training in china

10. THAILAND

Thailand has already prepared the road map and it will be discussed with DPO and DLD to finalize and they will send their timeline and the activities to Dairy Asia Secretariat in 3 month from now.

11. WORK PLAN OF KNOWLEDGE GROUP
— Genetic Resource Mapping
— Capacity Building (Training Modules)
— Measuring performance tool
— Details report on the trade and market
— Draft Dairy Policy
— IFCN will develop tools for both Macroeconomic and microeconomic aspects
  o Macro economy- State KPIs for 10 countries, Update country Factsheet and World milk price to relate national prices
  o Micro economy – methods of farming system classification, methods for costing capacity building framework

12. WORK PLAN OF DAIRY ASIA SECRETARIAT
— Initiate TWGs and finalize technical papers Apr 2016
— Governance proposal (Steering committee) May 2016
— Interim steering committee meeting June 2016
— Website in place July 2016
— Proposal for ICT infrastructure Sep 2016
— Draft outline of sustainability framework Sep 2016
— Consultation of sustainability framework Dec 2016
— Reporting the progress and outcome to APHCA As and when ready
— Next Dairy Asia meeting Not yet decide

Technical Session 6: The Dairy Sustainability Framework

Presenter: Mr. Brian Lindsay, Global Dairy Agenda for Action (GDAA)

The presentation started with the Dairy Sustainability Vision “A vibrant dairy sector committed to continuously improving its ability to provide safe and nutritious products from healthy cattle, while: preserving natural resources and ensuring decent livelihoods across the industry”. Creating a Dairy Sustainability Framework (DSF) to bring greater coherence and offer guidance on individual and
collaborative action while allowing for continued innovation in approaches to address sustainability through the following three ways:

- **Align** global ambition to regional activity on key sustainability issues in a coherent way.
- **Map and Connect** existing activity addressing regional priorities, allowing for cross-fertilization
- **Reveal** opportunities to **develop new or progress existing activity** to improve performance

There are three types of DSF membership as follows:

- **Implementing Members**: Those who can implement initiatives to address the Criteria and Strategic Intents, e.g. farming groups, dairy manufacturers. This category requires the member to commit to an annual reporting process to the Secretariat of the DSF.
- **Affiliate Members**: Those close to, or part of, the sector who are able to endorse the Criteria and Strategic Intents, though not in a position to directly implement sustainability initiatives e.g. research organizations. Sometimes this may even be a sector member just starting their sustainability journey and are supportive while they become organized to progress to Implementing member status.
- **Aggregating members**: Members collaborating on a ‘local’ programme and are able to report aggregated progress through one coordinating body.

The member Organizations all over the globe are active in performing some core activities ranging from soil nutrient maintenance to manage the Green House Gas emission and from rural economics to animal care as shown below:

<table>
<thead>
<tr>
<th>Activities</th>
<th>Detailed Activities</th>
</tr>
</thead>
</table>
| Management of Soil Nutrients | • Nutrient application technologies to growing crops  
|                           | • Calculation tools – Crop/manure/compound fertilizers  
|                           | • Education programs for farmers                                                     |
| Water management         | • Control programs for efficient use  
|                           | • Water footprint studies  
|                           | • Rescheduling in processing plants for more effective and efficient cleaning         |
| GHG Emissions            | • Carbon Masters throughout the business  
|                           | • Local and national carbon footprint studies  
|                           | • More efficient processing plants  
|                           | • Farms producing energy as well as food!                                            |
| Rural economics          | • Financial support for new entrants and farming families  
|                           | • Leasing for farmers as an alternative to bank loans  
|                           | • Business support for traditional family farms                                       |
| Product safety and Quality | • New technology introduction  
|                           | • Prevention, monitoring and reduction programs  
|                           | • Certification schemes designed to provide reassurance to the customer               |
| Animal Care              | • Cow behaviour research  
|                           | • Animal care targets for suppliers  
|                           | • Welfare assessments based on outcome measures                                        |
The Dairy Sustainable Framework runs with involvement all members and under a good governance system which made it very strong and useful in nature.

- Framework not a standard
- Flexible in its application
- Not a developed world initiative
- Continuous improvement (potentially faster)
- Globally representative – local ownership
- Recognizes diversity and starting points
- Collaborative, pre-competitive and inclusive
- Recognises the challenges - Supportive and not policing
- Provides the necessary alignment and reporting
- Free to join!
CONCLUDING REMARKS AND WAY FORWARD

Concluding remarks:

The concluding session sought to synthesize the key messages from the technical presentations and the structure of Dairy Asia platform which has been discussed right through the day 2 of the meeting. It was also aimed to recognize the critical issues and concerns raised by the members of the delegations. There was also a felt need to articulate some elements of what may comprise the dairy development strategy for Asia and the Pacific region which the Dairy Asia platform can address.

The changing landscape of dairy sector was fully recognized by the participants and the technical presenters. It was further recognized that a platform like Dairy Asia will help to disseminate the much needed knowledge through exchange of ideas, expertise and capacity building and it presents a unique opportunity to contribute to socio-economic development of the member countries. Mr. Henning Steinfeld, Chief Livestock Information and Policy, FAO, HQ, Rome summarized the whole proceedings and concluded with the following remarks:

— Strong commitment from FAO and IDF to develop Dairy Asia platform for the growth development of dairy Industry in Asian region.
— Request all the participants to do something for Dairy Asia and live up to the commitments.
— Dairy being the most important economic activity in deed renewed importance which need to be led by Dairy Asia
— Synergy, common framework and spirit of collaboration need to be developed among the member countries
— Stick on the principles of inclusive, pro-poor, sustainable growth and development with no competition with other livelihood activities.
— Dairy Asia also need to recognize diversity among the member countries and act accordingly
— Technical working group need to prioritize the critical issues of the countries and need to ask resolve the most pertinent questions.
— The Sustainable Development Goals has allowed the Dairy Asia platform with new challenges of equitable growth through its contribution for overall development of dairy industry in the Asian region.
— The SDG also calls for investment in the dairy sector, policy framework and ICT infrastructure etc. for improved livelihoods.
— Elements of the working programme where we need to stick to the expression of interest
— Funding is another plausible pitfall, but we need to rely on the non-conventional funding opportunity (e.g. South – South cooperation etc.)
— FAO has given a mandate to work on the multi-platform in Dairy Asia which is very complex yet challenging. FAO convey its full support for developing Dairy Asia as the most vibrant regional network of knowledge and innovation.
Way Forward:

Following the broad agreement on the structure and composition of Dairy Asia platform which is the regional dairy development network comprised of member countries from the Asia and the Pacific, the participants agreed on the following next steps:

— As per the plan presented by the Dairy Asia Secretariat, the interim steering committee will be formed as per the agreed terms of reference and the committee members will be appointed for a period of 12-18 months. The committee will review the terms of references for Technical Working Group and National focal point. They will also review the eligibility criteria for selection of Steering committee members.

— The member countries present will send their detailed plan and timelines to support the activities of Dairy Asia after discussion with the concerned departments and stakeholders.

— The Country Focal Point will be identified within 2-3 month timeline which will be sent to the secretariat. The Secretariat will communicate with the members of the delegates present in the meeting until country focal point is identified.
ANNEX - I

Programme: Dairy Asia: Towards Sustainability


26 January 2016 (Tuesday)

06.00-18.00 Arrival of international participants

27 January 2016 (Wednesday)

10.00-12.00 Visit to the National Dairy Festival, DPO, Muak Lek, Saraburi
12.00-12.30 Departure for the Grand Hall Pavilion, National Dairy Festival
12.30 Symbolic opening of Dairy Asia launch meeting by Her Royal Highness Princess Maha Chakri Sirindhorn

Return to the hotel after the opening

18.30-20.30 Welcome Dinner and cow boy show hosted by DPO

28 January 2016 (Thursday)

Opening Session
08.30-09.00 Registration
09.00-10.45 Welcome addresses
Dr. Sakchai Sriboonsue, Deputy Permanent Secretary, Ministry of Agriculture and Cooperatives, Royal Thai Government
Dr. Ayuth Harinthanron, Director General, Department of Livestock Development, Royal Thai Government
Welcome address – Kundhavi Kadiresan, Assistant Director General and Regional Representative, FAORAP

Key Note addresses
1. Increasing the Resilience of Dairy Systems in Asia and the Pacific by Jeremy Hill, President, International Dairy Federation
2. Asian Dairy, Multi-stakeholder Action: Opportunities and Challenges by Nanda Kumar, National Dairy Development Board of India
3. Sustainable Development Goals and Dairy by Henning Steinfeld, Chief, Livestock Information and Policy, FAO HQ, Rome

10.45-11.15 Coffee break and group photo

Session 1: Session Chair: HE Lyonpo Yeshey Dorji, Minister, Ministry of Agriculture and Forests, Government of Bhutan
11.15-12.00 Dairy Asia: Where we are and how we got here? by Vinod Ahuja

12.00-13.00 Endorsing and adoption of Dairy Asia
13.00-14.30 Lunch

Session 2: Session Chair: Dr. Ayuth Harinthanon, Director General, Department of Livestock Development, Royal Thai Government
14.00-15.30 Technical presentation by Prof. Skorn Koonawoottritirion on ‘Dairy Genetic Improvement in Asia’ followed by moderated discussion with a view to identify priority activities in this technical area for Dairy Asia
15.30-16.00 Coffee

Session 3: Session Chair: Purvi Mehta, Senior Advisor & Head-Agriculture (SA), Bill and Melinda Gates Foundation
16.00-17.30 Technical presentation by Steve Staal on Dairy Economics and Policy Issues followed by moderated discussion with a view to identify priority activities in this technical area for Dairy Asia
18.30-20.30 Dinner hosted by FAO

29 January 2016 (Friday)
Session 4: Session Chair: HE Abdul Qdeer Jawad, Deputy Minister, Ministry of Agriculture, Irrigation & Livestock, Islamic Republic of Afghanistan
08.30-10.00 Technical presentation by Sangram Chaudhary on Dairy Institutional Development issues followed by moderated discussion with a view to identify priority activities in this technical area for Dairy Asia
10.00-10.30 Coffee

Session 5: Session Chair: Neil Fraser, Chair, Guiding Group, Global Agenda for Sustainable Livestock
11.00-12.30 Preparing the work plan and key activities for Dairy Asia for 2016-17
12.30-14.00 Lunch
14.00-15.30 Agreeing on roles, responsibilities and time lines
Steering Committee Meeting—Parallel Session
15.30-16.00 Coffee

Session 6: Session Chair: Henning Steinfeld, Chief, Livestock Information and Policy, FAO, Rome
16.00-17.30 Closing
18.30-20.30 Dinner at the hotel hosted by FAO

30 January 2016 (Saturday)—Field Trip (optional)
ANNEX-2

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