SAC Annual Report 2019

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Abbreviations

APAARI	Asia-Pacific Association of Agricultural Research Institutes
AV	Audio-Visual
AVRDC	Asian Vegetable Research and Development Centre
AFA	Asian Farmers Association
AAB	ActionAid Bangladesh
APN	Asia-Pacific Network for Global Change Research
BARC	Bangladesh Agricultural Research Council
BARI	Bangladesh Agricultural Research Institute
BAU	Bangladesh Agricultural University
BRRI	Bangladesh Rice Research Institute
CIMMYT	International Maize and Wheat Improvement Centre
CIRDAP	Centre for Integrated Rural Development for Asia Pacific
CSRTI	Central Sericulture Research and Training Institute
CVOs	Chief Veterinary Officers
DAE	Department of Agricultural Extension
DAM	Department of Agricultural Marketing
FAO	Food and Agriculture Organization of the United Nations
FSRD	Farming Systems Research and Development
GB	Governing Board
GFAR	Global Forum for Agricultural Research
HORDI	Horticultural Research and Development Institute
HPAI	Highly Pathogenic Avian Influenza
IARI	Indian Agricultural Research Institute
ICAR	Indian Council for Agricultural Research
ICIMOD	International Centre for Integrated Mountain Development
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ICT	Information and Communication Technology
IFPRI	International Food Policy Research Institute
IIVR	Indian Institute of Vegetable Research
ILRI	International Livestock Research Institute
IRRI	International Rice Research Institute
ISC	International Sericulture Commission
MoAF	Ministry of Agriculture and Forests
NAES	National Agricultural Extension Systems
NARC	Nepal Agricultural Research Council

NARIS	National Agricultural Research Information System
NARS	National Agricultural Research System
NATP	National Agricultural Technology Project
NEA	National Extension Agency
NIANP	National Institute of Animal Nutrition and Physiology
NGO	Non-Government Organization
NRM	Natural Resource Management
PARC	Pakistan Agricultural Research Council
QCI	Quality Council of India
RNR	Renewable Natural Resources
SAARC	South Asian Association for Regional Cooperation
SAC	SAARC Agriculture Centre
SAU	Sher-e- Bangla Agricultural University
SCPPC	Seed Certification and Plant Protection Centre
SDF	SAARC Development Fund
SDG	Sustainable Development Goal
SJA	SAARC Journal of Agriculture
SMRC	SAARC Meteorological Research Centre
SSF	SAARC Seed Forum
TAD	Trans-boundary Animal Diseases
TCARD	Technical Committee on Agriculture and Rural Development

Regional cooperation on agriculture gets new impetus

Goal

Promotion of agriculutural research and development (R&D) as well as technology dissemination inititives for sustainable agricultural development and poverty alleviation in the region.

Message from the Director

It was 1st March, 2020, the day I was entrusted in the role of director to carry forward the multi-sector activities of the SAARC Agriculture Centre (SAC) to step into the third decade of the twenty first century on the basis of working guidelines framed by the South Asian Association for Regional Cooperation (SAARC). Realizing the importance of agriculture and allied sectors over the lives and livelihood of the region, the SAARC Agricultural Information Centre (SAIC) was established in 1989 in order to strengthen and promote regional cooperation. By virtue of effective implementation of multi-sector programs and activities directly linked with the agrarian sector during the past, the SAARC Agriculture Centre (SAC) has evolved as the "Centre of Excellence" and currently acting as the "Agriculture Knowledge & Information Hub in South Asia".

Along with the people of other professions, currently the farming communities of the South Asian region is also passing through the unprecedented COVID-19 pandemic and confronting with the multiple challenges for their sustainability in view of containment measures against the virus. I wish for earliest recovery from the current pandemic so that routine agricultural activities could be carried out without fear and anxiety to achieve food and livelihood security in the region.

It gives me immense pleasure to present the Annual Report 2019 of SAARC Agriculture Centre in achieving several milestones and implementation of expert consultation meetings and regional trainings, book publications, partnership development, project implementation etc. Out of the seventeen SDGs of the United Nations, 14 goals are directly or indirectly linked with agriculture and allied sectors. To attain those 14 SDGs, agricultural research & development coupled with technology transfer are presumed to be the key pillars. In this view point, the SAC was able to carry out 12 expert consultation meetings on emerging challenges faced by the farming sector of the region through active participation of experts of the Member States to chalkout the policy guidelines, suggest the research needs and find out the plausible solutions. Further, eight regional trainings were conducted at the prominent institutes having state of the art facilities in order to enhance the capacity of the researchers/ academician/ professionals of the South Asian region. I feel honoured to convey my sincere thanks to all partners, who wholeheartedly supported the SAC towards implementation of those activities; either consultation meetings or regional trainings. Because of greater support and cooperation from the Member States, partners, professionals' and office staffs of SAC, it was possible to publish six edited books, three training manuals and one policy brief in 2019.

The SAC is also implementing the SAARC Development Fund supported project entitled "Livelihood enhancement of small farmers in SAARC region through small agro-business focussing value chain development" among the Member States of the SAARC. To promote and nurture talents among NARS scientist/ academician, the Centre is continuing its ambitious PhD scholarship program and I am happy to share that the number of scholarship candidate will be two from 2020 onwards. Finally, I convey my heartfelt thanks to the nominees of the Member States for their support and cooperation, to the staffs of SAC for untiring efforts to make vibrant regional Centre, to the partners for their spontaneous partnership. I wish to express my gratitude to the SAARC secretariat, Governing Board Members, TCARD Members as well as other higher bodies who guided the SAC activities to the newer heights after realizing the needs of South Asian agriculture and allied sectors.

Happy reading!

(Dr. Mian Sayeed Hassan)
Director, SAC

Executive Summary of 2019 Programs

Activities of the SAARC Agriculture Centre (SAC) during 2019 reflect its continuing success and achievements in the domain of agricultural research and development as well as to facilitate attainment of Sustainable Development Goals through agriculture-led activities among the SAARC Member Countries. The common challenges faced by the region are translated into well-crafted programs, followed by their meticulous implementation across the South Asia involving all stakeholders such as agricultural scientists, technologists, researchers, professionals, academia, extension workers and policy makers etc. The current SAARC Agriculture Centre Annual Report 2019 gives a brief account on the activities of the Centre performed during the period from January to December 2019 on Crops, Horticulture, Natural Resource Management, Livestock, Fisheries, and Policy Developments.

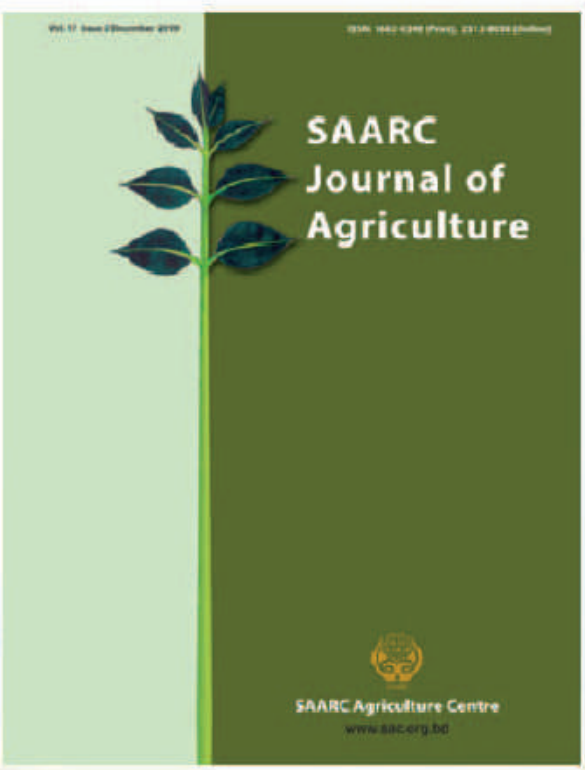
Currently, the South Asian population is around 1.94 billion and is expected to reach at 2.14 billion by 2030; the situation where more than 40% of the regional people will live in urban landscape with higher disposable incomes. In order to feed both rural and urban population, the food production from crops, livestock and aquaculture sectors desires to be enhanced by several folds despite multiple existing challenges (climate change, declined soil fertility, water scarcity, loss of biodiversity, locust invasion, fall armyworm, inundation of land by sea, transboundary zoonotic pathogens, antimicrobial resistance etc) in addition to the newer emerging challenge i.e. COVID-19. After due contemplation to all those challenges, the entire staff of the SAC are continuously exerting their efforts to develop the programs in such way that will contribute to regional agricultural growth and development in positive direction. Nevertheless, the SAC is successful in establishing its role as a stronger regional platform for addressing the issues of farming communities along with its relevant stakeholders through its numerous multi-sector approaches.

The important programs and salient achievements made during 2019 are as follows:

- The 13th Governing Board (GB) Meeting of SAC;
- The 35th SAARC Charter Day Celebration on 8th December 2019;
- SAARC Agriculture PhD Scholarship Program;
- Strengthening partnership & collaboration with different regional and international organizations;
- Capacity development;
- Information/technology dissemination;
- SAARC Journal of Agriculture
- Published books on emerging challenges of South Asian agriculture & allied sectors
- Seminars/Guest lectures on agricultural research and innovation;
- Visit of the renowned personalities;
- New arrivals/publications on regular and need based programs and sharing among SAARC Member Countries.

The 13th Governing Board (GB) Meeting was held during 14th to 16th October, 2019. The members of the GB discussed the annual activities carried out by the SAC as on date and suggested to complete the pending programs before December, 2019. The proposed new programs of the SAC were presented and discussed in details keeping in view the emerging challenges faced by the SAARC region. Finally, the GB recommended both regular and need based activities for 2020.

In order to disseminate information on successful agricultural technologies, the SAC is collating several publications for wider distribution in the South Asian Regions for the benefit of agricultural researchers, academician, students, and policy makers. In that direction, SAARC Journal of Agriculture and SAARC AgriNews are few of them.



The Centre always makes an endeavor to chalk out the programs having broader perspectives after due contemplation to the needs of farmers, natural resources, climate change, standards and protocols followed for trading of agricultural commodities among the Member States, biodiversity of crop/ livestock/ fishes etc. In order to have stronger portfolio on agriculture-led multi-sector activities, the SAC is regularly filling the vacant positions through regionally recruited professionals. In the year 2019, Dr. Rudra Bahadur Shrestha joined as Senior Program Specialist of Priority Settings & Program Development and Dr. Sreekanth Attaluri joined as Senior Program Specialist of Crops.

"Partnerships for the goals" is one of the most important SDGs identified by the United Nations for 2030. Albeit, the SAC works for regional 'development and progress' in the field of agriculture, nevertheless, it is most imperative to have the partner in the era of globalization for further strengthening the activities on a stronger footprint. In this direction, the SAC is working with numerous agencies to share experiences with others and to accrue benefits from other organizations engaged in agricultural research and development in the region. In this journey, the SAC was successful to develop link with International Food Policy Research Institute (IFPRI), International Rice Research Institute (IRRI), International Centre for Integrated Mountain Development (ICIMOD),Postgraduate Institute of Agriculture, University of Peradeniya (UoP-PGIA), Sri Lanka, International Livestock Research Institute (ILRI). Besides, a stronger partnership has been developed with Action Aid Bangladesh, and Asian Farmers' Association (AFA) for Sustainable Rural Development. The Centre is also closely working with CABI and CIRDAP for agriculture and rural development as well as with national institutes of the SAARC Member Countries for successful implementation of the programs. With the success and experience gained from the past, the 13th Meeting of the Governing Board of the centre encouraged SAC to deliver region specific activities that addressed the critical challenges and advised to work on par with other international organizations. In the spirit of enhancing SAC's relevance and eminence, the meeting advocated the need to collaborate with regional and international institutions in conducting the activities pertaining to 'agricultural research and development' after taking the Member Countries on board.

SAARC Agriculture Centre at a Glance

Genesis

The idea of regional cooperation in South Asia was first mooted in May 1980. The Foreign Secretaries of the seven countries met for the first time in Colombo in April 1981. The Committee of the Whole, which met in Colombo in August 1981, identified five broad areas for regional cooperation. New areas of cooperation were added in the following years.

The South Asian Association for Regional Cooperation (SAARC) was established when its Charter was formally approved on 8th December 1985 by the Heads of Member States: Government of Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. Afghanistan became the member of SAARC during the 14th SAARC Summit held in New Delhi, India in April 2007. Australia, China, European Union, Iran, Japan, Mauritius, Myanmar, the Republic of Korea and United States are the observers to SAARC.

SAARC Agriculture Centre (renamed in April 2007 from SAARC Agricultural Information Centre, SAIC) is the first regional Centre established by the SAARC. The Centre started functioning in 1988 with the mandate for information management, primarily in the field of agriculture and allied discipline. With the passage of time, the Centre braced up broader challenges to make regional cooperation more responsive to the needs of the stakeholders and farming communities as South Asia heads for a new order of agricultural transformation. The SAARC Agriculture Centre thus has been given an enhanced mandate for agricultural research and development, policy planning, and knowledge management.

Goal

Promotion of agricultural research and development (R&D) as well as technology dissemination initiatives for sustainable agricultural development and poverty alleviation in the region.

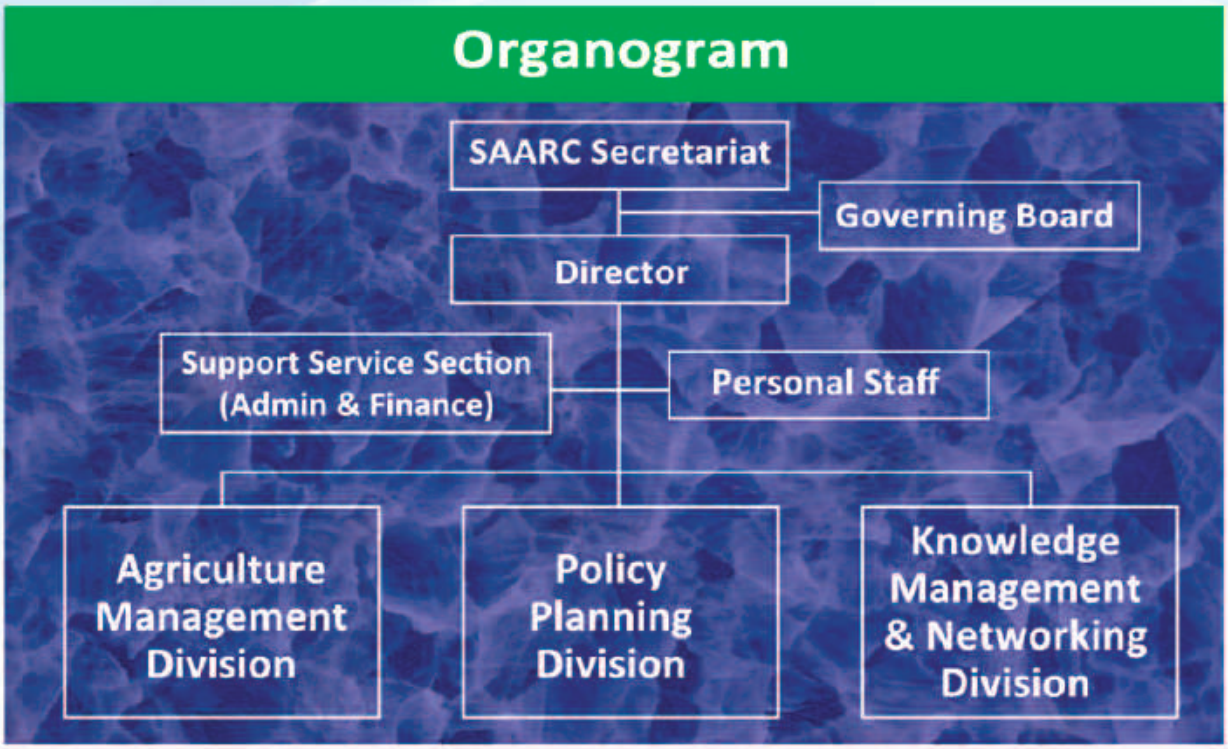
Objectives

1. To strengthen agricultural research and accelerate technology transfer through establishing regional networks on agricultural and allied disciplines, particularly among agricultural research and extension institutes, professionals, policy planners and stakeholders;
2. To provide inputs for developing regional policies, strategies, projects, primarily through developing networks in crop, livestock and fisheries sectors; and for efficient management of soil, water and other natural resources;
3. To promote new and innovative techniques and systems in agriculture, including production, post-harvest and food processing;
4. To facilitate collaborative studies, inter alia, on agricultural marketing and distribution systems, harmonization of agricultural related standards, promotion of agricultural trade, food security, risks and disaster management in agriculture;
5. To facilitate and undertake collaborative capacity building programs in agriculture and allied sectors with focus on skill development and research on frontier areas;
6. To collate and disseminate information for agricultural advancement in the region

Personnel

The Centre is operated with regionally recruited professionals from the Member States of the SAARC. The general services staff (GSS) are recruited from the host country i.e. Bangladesh. The professional staffs are responsible for program development, planning and execution in the areas of

agriculture and allied sectors with the supports from GSS staffs including senior technical officer, senior program officer, administration, accounts and other supporting people. Needless to say, all regular and need based activities of the centre are being implemented through overall guidance and leadership of the director.



Funding

The Centre is supported directly by the Member Countries through their annual financial contributions based on the annual budget. During formulation of annual program and activities, the Centre aims to maintain the balance of expenditure between institutional cost and program cost. The program and institutional costs are shared by the Member Countries according to the SAARC proportion formula.The Government of Bangladesh provides the capital cost including infrastructure.

Program Development

The Centre institutionalizes "Participatory need-based program building through consultations". The process involves participation of stakeholders at country levels as well as synthesis and vetting at the expert's level for program development. The SAARC Technical Committee on Agriculture and Rural Development (TCARD) also provides broad guidelines of programs. The proposals are reviewed in the Governing Board (GB) Meeting for further discussion and direction.

The annual program proposals recommended by the Governing Board are then reviewed by the SAARC Programming Committee and subsequently approved by the Standing Committee. The Council of Ministers of the Member States gives concurrence prior to the convening of the SAARC Summit.

Major Activities

The SAC has been providing policy inputs to the SAARC higher authorities for consideration particularly at the ministerial level meeting on agriculture. Promoting outreach Programs through "www.-sac.org.bd" to provide timely, relevant and universal access to information and knowledge resources to all agricultural practitioners of Member Countries.

- Regular Publication of newsletters, bulletins, booklet, journal, etc.;
- Publication of technical documents from priority programs (directories, bibliographies, databases, union catalogue, report, workshop proceedings, etc.);
- Development of Audio-visual media;
- Providing inputs for developing regional policies and strategies;
- Providing and automated library services and on-line services;
- Hosting of workshops, seminars, symposium, consultation and human resources develop ment programs and carrying out in-house research and publications on thrust areas of agriculture;
- Establishing institutional linkages with relevant institutions;
- Undertaking activities leading to exchange of the best practices for adaptation and/or absorp tion; time-bound short and medium terms projects and programs; and enhancing capacities of the agricultural communities of the SAARC Member Countries.
- Providing technical support for implementing the value chain development and climate resilient agricultureal project in South Asia.

Challenges

- Food Security at the back drop of climate change;
- Ensuring safe food against agro - chemicals;
- Integration and application of new science in various products, processes and services for strengthening food, nutrition, health and livelihood systems;
- Smart extension works to reduce yield gaps between the research fields and the farmers' fields with a blend of traditional knowledge and wisdom with modern technologies;
- Skill development of agro-entrepreneurship;
- Dissemination of new and sustainable technology using modern information and communi-cation technologies (ICTs) to accelerate the technology transfer process;
- Minimizing postharvest losses; improvement in agro-processing; value addition; efficient utilization of crop residues and bi-products;
- Research emphasis on sustainable management of natural resources;
- Forging Public-Private-Partnership (PPP) in agricultural R&D and technology;
- Ensuring minimum support price of agricultural products/produces at producers' level;
- Ensuring agricultural product quality at different steps of value chain and supply chain development.
- Covid Pandemic

Services

The Centre's publications, services and products are aimed to enhance the performances of scientists, extension service providers and technologists through support in research and development in agricul-ture and provide inputs for developing regional policies, strategies and programs.

SAARC Agriculture Ministers Meeting

The Fourth Meeting of the SAARC Agriculture Ministers was held on 27th June 2019 in Thimphu, Bhutan. The Meeting was attended by all Member States of SAARC (except Afghanistan).The Meeting considered and unanimously adopted the **'Thimphu Statement on Agriculture and Rural Development'** as follows:

1. Agreed to promote cooperation in Agriculture and its allied sectors to promote sustainable agriculture for enhancing agricultural productivity, competitiveness, rural growth and to ensure food and nutrition security in the region;
2. Agreed to share and promote Climate Resilient Agricultural Strategies and Technologies among the Member States; adopt planned and gender-sensitive approaches to contribute to climate change adaptation and mitigation;
3. Agreed to further promote multi-sectoral approaches and actions to attain higher level of food safety and nutrition security;
4. Agreed to further intensify agricultural research, development and innovation through higher public investment; public-private partnership; facilitate technical cooperation and share proven technologies in agriculture; share knowledge on sustainable agricultural mechanization; scale-up Agricultural Extension to disseminate Agricultural Technology involving agricultural research, extension and the stakeholders, including farmers and private sectors;
5. Agreed to strengthen cooperation to expand agro-processing and building competitive agricultural value chains; to strengthen agricultural engineering including primary processing, value addition and storage facilities; to share the best practices for post-harvest processing for fruits and vegetables; to implement the SAARC Good Agricultural Practices; to encourage private sector investment in developing markets and marketing, value chains and agro-processing;
6. Agreed to further develop mountain and hill agricultural research to develop economically and environmentally sound sustainable mountain/hill agricultural practices to enhance the livelihood of peoples living in mountains/hills;
7. Agreed to facilitate gender mainstreaming and attracting youth and women in agriculture through inclusive rural livelihood initiatives;
8. Agreed to operationalize the SAARC Food Bank to enable the Member States to avail food grains, during both emergency and normal time food shortages;
9. Agreed to operationalize the SAARC Seed Bank to facilitate the exchange of high-quality germplasm of the popular crop varieties among the Member States;
10. Agreed to facilitate the exchange of advanced genetic materials of the popular livestock, poultry and fisheries among the Member States;
11. Agreed to assess and adopt appropriate measures for addressing the issues related to trans boundary animal diseases (TAD), emerging zoonotic diseases/pathogens, and antimicrobial resistance; and trans boundary and invasive diseases and insects' pests of crops;
12. Agreed to implement recommendation of the SAARC CVOs' Forum and Global Strategy for eradication of Peste des Petits Ruminants (PPR) to make the SAARC region PPR free by 2028;
13. Adopted the Statement on SAARC's Cooperation on Antimicrobial Resistance (AMR) and are fully committed to the Regional Action Plan to Curb Antimicrobial Use (AMU)/Antimi crobial Resistance in the SAARC region;
14. Noted with appreciation the initiatives and activities taken by the SAARC Secretariat and SAARC Agriculture Centre (SAC) to promote agricultural research and development, rural development, project-based collaboration and capacity-building; and agreed to continue extending support of the Member States;

15. Noted with appreciation SAARC's increasing engagement with FAO, OIE, IFAD, WFP, CGIAR Centres and other UN specialized agencies, regional and international organizations/ institutions and development partners;
16. Appreciated the ongoing projects under the SAARC Development Fund to promote project based collaboration in agriculture, rural development, food and nutrition security;
17. Acknowledged the new regional and sub-regional project ideas and directed the SAARC Agriculture Centre (SAC) to translate them into implementable project proposals and seek funding;
18. Directed the SAARC Agriculture Centre (SAC) to realign its strategies to the priorities and activities proposed by 9th TCARD and 4th SAOM and also directed SAC to prepare draft SAARC Agriculture Vision-2030; and
19. Agreed to ensure effective and action plan-based implementation of this Statement and periodic review thereon.

Technical Committee on Agriculture and Rural Development (TCARD) Meeting

The 9th Meeting of the Technical Committee on Agriculture and Rural Development (TCARD) was held in Thimphu on 25th June 2019, preceding the SAARC Senior Agriculture Officials' meeting and 4th Meeting of the SAARC Agriculture Ministers. The meeting was attended by all Member States of SAARC (except Afghanistan).

During inaugural address, the secretary, Ministry of Agriculture and Forests, Royal Government of Bhutan, stated that the agriculture in the region is currently facing various challenges like ageing farmers, feminization of agriculture, farm labour shortage, shrinking land, degradation of natural

resources, soaring prices and vulnerability to climate change. In the face of these challenges, the countries in the region need knowledge-intensive green revolution that combines advances in science and agricultural engineering with the region's unique traditional knowledge to make agriculture more environmentally resilient. The salient outcomes of the meeting are as follows:

- The Committee directed SAC to draft SAARC Agriculture Vision 2030 in alignment with Sustainable Development Goals (SDGs) incorporating necessary issues of agriculture and its allied sectors and circulate among the Member States for their views/comments through the SAARC Secretariat.
- The Meeting appreciated important work done by the Sixth Meeting of the SAARC CVOs' Forum (Thimphu, 10-11 May 2017) in finalizing a draft 'Statement on SAARC's Cooperation on Antimicrobial Resistance (AMR)' and draft 'Regional Action Plan to Curb Antimicrobial Use (AMU)/Antimicrobial Resistance in the SAARC Region' for consideration and of the SAARC Agriculture Ministers.
- The Committee advised SAC to develop a project on crop modelling and common issues of pulses with ICRISAT and a project with IFAD on Natural Resources Management.
- The Meeting appreciated the efforts and initiatives undertaken by SAC to promote collaboration in the SAARC region for effectively tackling regional and global challenges in agriculture and rural development. The Meeting directed SAC:
  - To re-prioritize the activities as set during the SAARC-CGIAR Consultation Meeting of 2017 in line with the decisions of the Third Multi-stakeholders' Dialogue and Ninth Meeting of TCARD;
  - To include issues on gender mainstreaming in Agriculture, hill agriculture, barriers of agricultural trade and food safety in the priority areas of SAC; and
  - To include recently identified emerging trans boundary animal and plant pests and diseases in the region, including wheat blasts and fall-army worm of maize.
- The Committee requested IRRI to assist SAC in providing low input rice varieties to the farmers since rice cultivation is increasingly getting non-profitable. The Committee also requested IRRI to provide bio-fortified rice varieties with premium quality.
- The Committee directed SAC to realign some of the priorities in line with the priorities indicated by the representatives of FAO, IFAD and IFPRI during the Ninth Meeting of TCARD.

SAARC Senior Agriculture Officials' Meeting (SAOM)

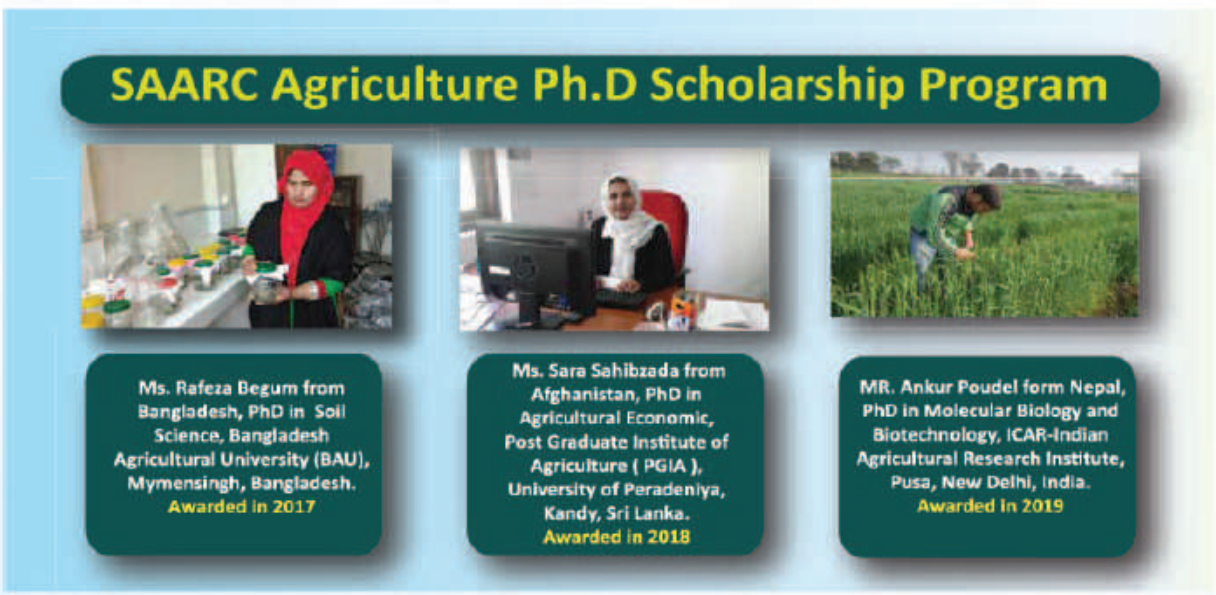
The SAARC Senior Agriculture Officials' Meeting (SAOM), preparatory to the Fourth Meeting of the SAARC Agriculture Ministers, was held in Thimphu, Bhutan on 26th June, 2019. The meeting was attended by all Member States of SAARC, except Afghanistan. The SAOM was inaugurated by His Excellency Mr. Yeshey Penjor, honourable Minister of Agriculture and Forests, Royal Government of Bhutan. Salient recommendations are as follows:

- The Meeting directed SAC to devise a mechanism on making requisition and collection of germplasms of high yielding varieties of crops and livestock and to share it with the Member States;
- SAC to develop a common protocol to control trans boundary animal and plant pests and diseases in the region, including wheat blast and fall-army worm of maize and also to include these issues in its program of activities;

- Emphasis needs to be given on sharing of propagules of fruits, seeds of vegetables, and root crops;
- To harmonize the legal frameworks for trade in quality agricultural products and inputs for agricultural production;
- The Meeting directed that implementation of SAARC-GAP be taken up as soon as possible to enhance agricultural trade in the region;
- The Meeting emphasized that important issues such as harmonization of Access and Benefit Sharing (ABS) Policies, sharing of germplasms, revitalization of rural activities, involvement of youth and women in Agriculture, and value chains could be translated into focused and result-oriented projects by SAC with the support of the SAARC Development Fund and Development Partners for the benefit of the region among others;
- The Meeting discussed possibilities of formulating a protocol on production and exchange of quality seeds to other countries through mechanisms such as contract farming. Considering the views expressed by the Member States, the Meeting directed SAC to conduct a feasibility study on this matter

SAARC Agriculture PhD Scholarship 2019

Considering the limited opportunities available for agricultural professionals working in the National Agricultural Research System (NARS) of SAARC Member Countries to pursue doctoral study, the SAARC Agriculture PhD Scholarship was conceptualized and approved by the SAC-GB to fully financially support the aspiring candidate every year in any reputed university of the SAARC Members Countries. Initially, the above scholarship was awarded one each year and the number is enhanced to two from 2020 onwards.



As on date, three talented professionals from SAARC Member States are pursuing their doctoral study at institute of international repute located in South Asia. Already a candidate from Bangladesh is undertaking doctoral study in soil science at Bangladesh Agricultural University (BAU), Bangladesh, the candidate from Afghanistan in Agricultural Economics at the university of Peradeniya-Postgraduate Institute of Agriculture (UoP-PGIA), Sri Lanka. During 2019, the SAARC Agriculture PhD scholarship has been awarded to Mr. Ankur Poudel, resident of Nepal to undertake doctoral study in "Molecular Biology and Biotechnology" at ICAR- Indian Agricultural Research Institute (ICAR-IARI), New Delhi, India

Agriculture Management and Policy Planning Programs

Regional Expert Consultation Meeting

Crop Sciences

1. Pulses Value Chain Development for Achieving Food and Nutrition Security in South Asia

The regional expert consultation Meeting on "Pulses value chain development for achieving Food and Nutrition security in South Asia" was held during 17th to 19th April, 2019 at ICRISAT, Hyderabad, India. The meeting was attended by focal persons of six Member States namely, Afghanistan, Bangladesh, Bhutan, India, Nepal and Sri Lanka in addition to several experts from host organization. The primary objectives of the expert consultation meeting were as follows:

- To analyze the current status of pulses production and value chain development activities under the dimensions of food and nutrition framework in South Asia;
- To develop synergies with existing initiatives in South Asia for food and nutrition security with crop variety exchange mechanism for contributing to the SDGs in South Asia;
- To facilitate research and trade promotion activities in SAARC Member States.

achieve food and nutrition security. The "Seeds without Borders" initiative, which was a five-year-old multi party agreement initially among countries like India, Bangladesh, and Nepal (2014) and later joined by Sri Lanka and Bhutan. The initiative facilitates inter-regional transfer of plant material. To support pulses value chains in SAARC, a detailed work plan can help to fulfill the terms and conditions laid down in the agreement. Dr Pradyumna Raj Pandey, Senior Program Specialist of SAARC Agriculture Centre coordinated the expert consultation meeting.

Recommendations

- Strong partnership and exchange of technologies, particularly in collaboration with international organizations like ICRISAT, and other interested CG Centre'scan help in holistic development of crop improvement in South Asia;
- Grain legumes activities in collaboration with National and International Institutes (like ICRISAT and ICARDA) in the region, and coordinated by SAC would be effective;
- Through the national coordinated trials, evaluation of the notified varieties in the region in collaboration with international research centres are necessary. Crops like lentil, kidney beans and mung beans may be prioritised for evaluation. Other minor grain legumes will also be evaluated on a smaller scale;

- Emphasis could be given to transfer of new technologies to farmers by conducting field demonstrations and implementing necessary research-communication strategies for faster and wider adoption.

2. The Progress and prospects of Agricultural Bio-safety in South Asian Countries

The SAARC regional expert consultation meeting on "The progress and prospects of agricultural biotechnology and biosafety in South Asia" was held from 18th to 20th June, 2019 at Dhaka, Bangladesh in collaboration with South Asia Bio-safety Program (SABP), Bangladesh and International Life Sciences Institute (ILSI) Research Foundation, Washington, USA. The consultation meeting was attended by the seven representatives (focal person) from Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka in addition to professionals from SAARC Agriculture Centre, several researchers and academicians of host country. The objectives of the expert consultation meeting were as follows:

- To share the information on the current status of agricultural biotechnology and biosafety regulations in South Asian countries;
- To explore mechanisms to promote harmonization, including a regional biosafety platform;
- To identify areas where SAARC countries can adopt harmonized polices that will provide benefit to farmers and consumers through access to food and technologies.

The regional expert consultation meeting was attended by Mr. Kamalaranjan Das, Additional Secretary (Research Wing), Ministry of Agriculture, Government of the People's Republic of Bangladesh, and Dr M. Shahidur Rahman Bhuiyan, Senior Food Security and Agricultural Policy Advisor, USAID as the Chief and Special Guests, respectively. Others attended were Dr Pradyumna Raj Pandey, Senior Program Specialist, SAARC Agriculture Centre and Dr Aparna Islam (SABP), coordinator of the meeting and participants from Member States. Mr Das, mentioned that the Government of Bangladesh formulated and published the "National Biotechnology Policy" in 2018 that highlighted significance on agriculture, nutrition and food security in Bangladesh. Dr Bhuiyan explained the various activities of USAID and SABP. The keynote address was delivered by Dr. Andrew F. Roberts, Deputy Executive Director, ILSI Research Foundation, USA. He urged that the participants make policy dialogue towards harmonization of biosafety protocols for important agricultural crops.

3. Seeds Without Borders in South Asia

Genetic gains in major cereals are less than 1% per annum and delivering these gains at the doorstep of farmers take very long due to various reasons. It indicates that South Asian farmers are not adequately benefitting from the recent advancement in plant breeding and genetic improvements. Fast tracking variety testing, release, seed production and seed delivery could greatly contribute to the UN Sustainable Development Goals, particularly the SDG 2 - Zero Hunger and contributing to several other SDGs. To accelerate the delivery of new genetic gains to farmers, seed regulatory frameworks needs to be flexible, dynamic, need-based and member countries should be willing and practically reciprocating in the smooth flow of new valuable germplasm of food crops at least that have been listed by International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) and endorsed by all the SAARC member countries, a global treaty for food security and sustainable agriculture. Considering the vital importance of sharing and accelerating the delivery of valuable rice germplasm among Asian countries, International Rice Research Institute (IRRI) initiated the facilitation of harmonizing seed policies across Asia to enable crop varieties released by one country to benefit the farmers of other SAARC Member States. This initiative is known as "Seeds Without Borders" Agreement or Protocol. This agreement in principle provides access to new improved varieties of crops to the member countries very quickly with minimum investment on time and resources. Three Agreement Protocols (Dhaka Agreement 2013; Kathmandu Agreement 2014 and Siem Reap 2017) were signed to facilitate the movement of seed varieties to member countries such as Bangladesh, Bhutan, India, Nepal, and Sri Lanka in SAARC and Cambodia and Myanmar as the member of ASEAN. In order to materialize and functioning these Protocols, SAARC Agriculture Centre (SAC) and IRRI organized the regional consultation meeting on "Seeds without Borders" representing SAARC Member States to develop the permanent functional mechanism of "Seeds without Borders". It was presumed that the mechanism would be fully owned, resourced and formally endorsed and authorized by SAARC Member States and the SAC. After due contemplation to those facts, the SAARC regional expert consultation meeting on "Seeds without border in South Asia" was held during 3rd to 5th September, at Godavari, Nepal in collaboration with International Rice Research Institute (IRRI), Nepal. The objectives of the expert consultation meeting were as follows:

- To review major achievement and gaps to date of Seeds without Borders initiative in all SAARC member counties;
- To present country status of existing policies, laws, regulation in relation to Intellectual Property (IP), Sanitary and Phytosanitary (SPS) requirement and identify major bottlenecks for the

exchange of seed varieties in line with Seeds without Borders understanding/initiative among the SAARC Member States and from CGIAR Centers;

- To prepare recommendations of a model/ mechanism to facilitate the exchange of germplasm between SAARC member states with its roles, responsibilities and operational modality.

The meeting was inaugurated by Honourable Minister, Mr. Chakrapani Khanal, Ministry of Agriculture and Livestock Development (MOALD), Nepal. Dr. Yubak Dhoj, Secretary, MOALD, Nepal and addressed by Ms. Isharat Jahan, Director (ARD), SAARC Secretariat, Kathmandu. The meeting was attended by two representatives from each Member State, besides representatives from Asian Development Bank, International Rice Research Institute, and higher officials from developmental partners based at Kathmandu, Nepal. The honourable minister urged the participants for preparing guidelines for effective implementation of the program i.e. "Seeds without border" to benefit the farmers of the region. Dr Tek Bahadur Gurung, the Executive Director of Nepal Agriculture Research Council (NARC) attended as chief guest during the closing session of the meeting and expressed his gratitude to both SAC and SAARC for this ambitious initiative. Dr Pradyumna Raj Pandey, Senior Program Specialist and coordinator of SAARC Agriculture Centre (SAC) expressed gratitude to all the dignitaries and participants for their valuable contribution to the program.

Recommendations

- Seed without Border is a fast track mechanism of sharing of seeds and information bilaterally and implementing the mandatory material transfer agreement between two countries;
- SAARC Agriculture Centre (SAC) act as coordinating body for facilitating the "Seeds without Border" initiative;
- SAARC Member States that are yet to join "Seeds without Borders" were requested to join the Initiative;
- SAARC Member States were requested to nominate nodal institution and nodal person for facilitating the initiative;
- SAARC Member States were requested to provide check listed documents (e.g. request letter, import permit, phytosanitary certificates, templates, SPS requirements, etc.) required for sharing seed varieties and information to SAC.;
- Each SAARC Member State shall identify potential and popular crop varieties along with their passport data, agronomic data, agro-climatic data (temperature, rainfall, day length, etc.), diseases, insect pests and other relevant information. This information is to be shared within the Member States. The information to be made available at SAC web portal linked with the web sites of Member States;
- SAARC Member States were requested to share listed information by the end of September 2019 and SAC shares consolidated information by 10th October 2019;
- SAARC Member States that receives seed cannot share the materials with the third country without prior consent of providing country;
- SAARC Seed Bank would need to facilitate the exchange process of seeds and associated information among the SAARC Member States on Seeds without Border;
- A list of crop species covered by "Seeds without Border" should be prepared and shared with Member States.

Horticulture

4. Strengthening High Value Vegetable Seed System in SAARC Countries

The Regional Consultation Meeting entitled "Strengthening high value vegetable seed systems in SAARC Countries" was jointly organized by SAARC Agriculture Centre (SAC) and Ministry of Land Management, Agriculture and Cooperative (MoLMAC), Gandaki Province, Nepal during 22nd to 24th December 2019 at Pokhara, Nepal. The main objectives of the current expert consultation meeting were as follows:

- To review the current status of high value vegetable seed production, supply and distribution systems in the region;
- To identify opportunities and challenges of seed system development;
- To identify possible ways for regional cooperation of developing a seed system in the region.

Mr. Lekh Bahadur Thapa, Honourable Minister for the Ministry of Land Management, Agriculture and Cooperative, Gandaki Province, Nepal inaugurated the meeting as the Chief Guest. Dr. Sheikh Mohammad Bokhtiar, Director, SAC and Dr. Grishma Neupane, Chief, Planning and Monitoring Division, MoLMAC, Gandaki Province graced the occasion as Special Guests of the inaugural session. Mr. Achyut Prasad Dhakal, honorable Secretary, Gandaki Province, chaired the session and mentioned that vegetable seed is one of the high potential agricultural sub-sectors which can contrib-

ute much to poverty reduction and enhancing food and nutritional security in remote areas of South Asian countries. The Honorable Minister stated that about one-third of Nepalese economy is based on agriculture and the country has significant opportunities for cultivation wide range of crops. Hilly areas are suitable for fruit / vegetable farming. Due to its geographical location Gandaki province has extensive potential for vegetable seed production. He also said that for the development of overall seed sector, Nepalese Government has prepared the National Seed Vision (2013-2025). Targeting to self-reliance in seeds sector, the Government of Nepal has established National Seed Laboratories. Pointing out the bottleneck of seed systems in Nepal, he mentioned that to overcome these challenges all members of SAARC countries should work together.

Enlightening about the background of the SAARC and SAC, Dr. Bokhtiar stated that the quality seeds is one of the necessary factors for increasing crop yield. Good quality seeds can increase yields significantly and, in some cases, could double the yield. Dr. Nasreen Sultana, Senior Program Specialist (Horticulture) and the coordinator of the program briefed that the common goal of the meeting is to strengthen the current high value vegetable seed system development in SSARC region, preliminarily by sharing the knowledge among experts on the status of current vegetable seed systems in their respective countries.

Secondly, identifying gaps in the current system by putting brains together, and outline future program efficiently on how to strengthen current seed systems by establishing a SAARC vegetable seed platform/network with regional stakeholders for sharing the technologies of production, creating linkages among actors, standardization of quality and facilitation of seed trade.

The meeting was attended by 14 stakeholders with representatives from six SAARC Member States including Afghanistan, Bangladesh, Bhutan, India, Nepal and Sri Lanka. Each focal person of Member States presented their country paper. Besides, four eminent speakers from host country presented on the important issues of vegetable seed production systems in Nepal. Important recommendations of the meeting are described herewith.

Recommendations

- Should emphasize on increasing production and supply of Breeder/ Foundation seeds focusing on limited high yielding varieties based on the market demand; Seed producers/ seed farmers should have easy access to elite varieties of breeder seeds;
- Number of well-trained vegetable breeders need to be increased to conduct enough variety development/breeding program; Breeding program should use local land races; Need to put more emphasis on maintenance of local germplasm conservation;
- Need more focus on more hybrid variety development; adequate infrastructure is needed to support research on reducing cost and time on hybrid variety development;
- Government should arrange loan/credit scheme for small and medium seed farmers. Provision should be made for incentive/rewards and special subsidy mechanism for vegetables seed producers. Need to develop a flexible policy and mechanism for encouraging, facilitating and supporting production and supply of breeder and foundation seed;
- Extension department should provide more support at the grass-root level seed production. Extension program should be developed in collaboration with stakeholders starting from the planning stage; implementation of quality control mechanism in each step of the seed systems by strengthening laboratory and certification systems needs to be enhanced;
- Should arrange capacity development programs for all stakeholders, including researchers through higher studies, trainings, exchange and exposure visits; frequent trainings need to be

arranged on modern technologies to update knowledge of extension workers; and sufficient functional and technical training for other stakeholders such as farmers, traders' processors etc. need to be arranged;

- Should take initiative to conduct market research to identify farmers'/or consumers' preference and to develop a strong mechanism to forecast the demand and supply of seed. Needs to establish a marketing channel through increasing direct communication between farmers and extension worker, scientists, traders etc. and Seed Traders' network should be more active;
- Seed exchange among SAARC countries based on similar agro ecological conditions needs to be streamlined. Adaptive trial and fast track method should be applied to select desired varieties;
- SAARC regional seed trade should be strengthened by establishing central seed testing laboratories and seed processing unit with the proper transportation system;
- Should lay out an easier import/export mechanism by the governments with tax exemption and easy movement without any delay at the border for importing modern machines for agricultural use.

5. Developing Country Specific Integrated Plant Nutrition System Modules for Major Crops and Cropping System

SAARC Agriculture Centre (SAC) in collaboration with Horticulture Crop Research & Development Institute (HORDI) and International Rice Research Institute (IRRI) organized Regional Experts Consultation Meeting on "Developing country specific integrated plant nutrition system modules for major crops and cropping system" during 21st to 23rd August 2019 in Kandy, Sri Lanka. The primary objectives of the meeting were as follows:

- Map organic and inorganic plant nutrient resources for SAARC countries;
- Study the alarming rate of natural resources degradation in South Asia;
- Develop country specific integrated plant nutrition systems (IPNS) modules for major crops and cropping systems.

The meeting was inaugurated by Ms. Jayantha Ilangakoon, Additional Director General, Department of Agriculture; Dr. W.M.G. Samarasinghe, Director, Horticulture Crop Research & Development Institute, Kandy and Dr. Punyawardana, Member, Governing Board of SAC.

The consultation meeting was attended by seven focal experts from SAARC Member States namely Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka besides the representative of International Rice Research Institute (IRRI). In addition, 15 Local Participants from Horticulture, Tea & Rubber Plantations, Agricultural University and Non-governmental Organizations also attended the meeting. A field visit was arranged to National Spice Garden, Matale and CIC Agri Businesses, Dambulla to witness the field applicability IPNS concept adopted for spice species and horticulture crops.

Recommendations

- Develop policy and create ideal environment to encourage manufacturing of bio-fertilizers and its quality;
- Develop policy interventions and strategies to combat water pollution due to unwise use of inorganic and organic fertilizers;
- Develop policy recommendations and policy briefs about IPNS approach;
- Inventory existing and explore new sources of organic materials including city compost, seaweeds, human excreta (preparation and usage as grade A, B and C sewage sludge, city garbage, industrial wastewater etc);
- Encourage liquid fertilizers where feasible and affordable by the farmers;
- Encourage to develop and use ICT based tools or applications to enable extension and farmers to get information easily about soils, nutrient balance, balanced fertilization, additional nutrients requirement, cost and resource need to take decisions and adopt IPNS recommendations;
- Include good agricultural practices and introduce new responsive varieties to supplement

IPNS approach for maximum benefit;

- Encourage strategies to increase nutrient use efficiencies e.g. neem coating urea, USG, slow release fertilizers etc;
- Strengthen soil, plant and (fertilizer) testing facilities, explore in-situ testing tools;
- Encourage involvement of women and youth in IPNS approach of agriculture farming;
- Develop legal instruments and mechanisms for generating and recycling organic matter/ green manures in-situ/urban waste/ bio fertilizers etc.

Livestock

6. Identification of Best Practices in Livestock Feed and Fodder Production and Management

The expert consultation meeting on "Identification of best practices in livestock feed and fodder production and management" was jointly conducted by SAARC Agriculture Centre and ICAR-National Institute of Animal Nutrition and Physiology during 21st to 23rd May, 2019 in Bengaluru, India. Dr. Ashis Kumar Samanta, Senior Program Specialist, SAC, Dhaka was the program Coordinator and lead the SAARC delegation team to Bengaluru, India. The meeting was attended by 4 focal persons from SAARC Member States namely Bangladesh, Bhutan, India and Sri Lanka. The primary objectives of the meeting were as follows:

- Review and documentation of existing feed and fodder production and management system in the SAARC region;
- Identification of best practice for cost effective feed and fodder production and management;
- Discuss and prioritize issues and gaps for policy, research and technology transfer for feed and fodder production and management

Dr. J. K. Jena, Deputy Director General (Fisheries and Animal Sciences), Indian Council of Agricultural Research (ICAR), New Delhi graced the inaugural session as Chief Guest. He urged for more cooperation among SAARC Member States and opined to increase the number of nominees (at least two) from each country. Dr. Raghavendra Bhatta, Director of the host institute spoke on the overview of the expert consultation meeting vis a vis its objectives. Dr. A.K. Samanta, team leader of livestock program, SAC, Dhaka presented the genesis of the meeting, livestock activities of SAC and expectations from the focal persons. The inaugural session was attended by more than 150 participants, comprising of scientists, research scholars, students, Joint Director and Heads of neighbouring ICAR institutes, representatives from National Dairy Development Board and feed industry, and academia from poultry industries.

The technical session began with the presentation of Dr. Sridhar, General Manager, NDDB on "Feeding management in dairy cooperatives". He highlighted the importance of balanced feeding in dairy production for maximizing the productivity. Dr. Dinesh Bhosle, former Chairman, Compounded Livestock Feed Manufacturing Association, elaborated "Current status of feed industry and challenges in feed production. Professor Natarajan talked about "Poultry feed industry – Indian perspectives". The focal persons from Member States presented the country paper.

The local speakers presented on fodder production technologies and challenges, national feed inventory: methodology and challenges, and alternate feed resources and technologies for their optimal usages. The participants made the field visit to the nearby 'livestock feed processing plant' of Karnataka Milk Federation, Central Poultry Development Organization & Training Institute, Central Frozen Semen Production & Training Institute, Hessarghatta, Bengaluru.

Recommendations

- Regional and national feed and fodder inventory is crucial for sustainable livestock development in order to secure food and livelihood security among small and marginal livestock farmers;
- Best practices in feed production and management includes ration balancing program, area specific mineral mixtures, crop residue improvement, complete feed blocks, year-round green fodder production, fodder conservation and improved fodder production;
- Urgent need of portable kits to analyse feeds and fodder at farmer's level;
- Conserving and improving the productivity of pastures and common grazing lands across country and promoting the same in delta areas;
- Crop residues are the backbone of feed resources and needs to be better utilized through interventions like chaff cutter, bailing, pellets, complete feed blocks and total mixed rations;
- Appropriate use of feed supplements could help in addressing the issues of greenhouse gas emission from livestock, heat stress, low fat/ SNF, infertility, and mastitis management;
- Promoting calf rearing through better feeding management program is vital for both smallholder and organized dairy enterprise towards profit maximization;
- Developing a suitable mechanism to share seeds or planting material of improved fodder varieties among SAARC countries under the 'seeds without borders' program;
- Promoting the usage of Azolla as nutritive feed supplement for dairy animals

Fisheries

7. Development of Aquaculture for Commercially Important Finfishes in South Asia

The regional Consultation meeting on "Development of aquaculture for commercially important finfishes in South Asia" was held in Colombo, Sri Lanka during 26th to 28th March, 2019. The program was jointly organized by the SAC, Dhaka and National Aquaculture Development Authority (NAQDA), Sri Lanka. Dr. Shiba Shankar Giri, Senior Program Specialist, SAARC Agriculture Centre, Dhaka was the Program Coordinator and led the SAARC delegation to Colombo. Dr (Mrs) J. M. Ashoka, NAQDA was the local coordinator of the consultation meeting. The meeting was attended by six focal persons from SAARC Member States, namely Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka besides several local experts from host country. The objectives of consultation meeting were as follows:

- Identify /list the commercially important cultivable finishes of South Asia, those are of high market demand and export potential;
- Review the research and development needs for sustainable finfish aquaculture
- Achieve development in the SAARC countries.;
- Coordinate the regional research, extension and training activities to assist the development of sustainable finfish culture in South Asia.

The consultation meeting was graced by the Honorable Dilip Wedaarachchi, State Minister of Fisheries and Aquatic Resources Development, Mr. K.D.S. Ruwanchandra, Secretary, Ministry of Agriculture, Rural Economic Affairs, Livestock Development, Irrigation and Fisheries & Aquatic Resources Development, and Mr. N. P. Madawan Arachchi, Chairman, NAQDA

Recommendations

- Spatial planning and zoning to keep aquaculture within the surrounding ecosystem's carrying capacity and to lessen conflicts over resource uses;
- Development and promotion of cooperative system, aquaculture insurance program and capacity building;
- Development of SAARC regional BMP, standards for fish and fish products, farm-based Hazard Analysis and Critical Control Points (HACCP) food safety systems and mechanisms to enable product traceability;
- Empowering communities and strengthening community participation and introducing incentives to reward sustainability through access to training, water supply, wastewater treatment, low-interest loans and tax exemptions to small and marginal farmers;
- Moving towards reduction of carbon foot print in aquaculture;
- Zone-wise commercially valuable stress tolerant species may be identified and cultured for better adaptation to climate change impacts;
- Integration of aquaculture, livestock, agriculture and other production systems or ecosystem management activities.

8. Fish Culture in Cages and Pens in Reservoirs, Lakes, Rivers and Marine Waters for Aquaculture Diversification in South Asia

The SAARC regional consultation meeting on "Fish culture in cages and pens in reservoirs, lakes, rivers and marine waters for aquaculture diversification in South Asia" was held in Pokhara, Nepal during 17th to 19th April, 2019. The program was jointly organized by the SAC, Ministry of Agriculture and Livestock Development, DLS/CFPCC, Nepal: Directorate of Livestock and Fisheries Development, MLMAC, Gandaki Pradesh, Nepal. Dr. Shiba Shankar Giri, Senior Program Specialist, SAC, Dhaka was the Program Coordinator and led the SAARC delegation to Nepal. Mr. Baikuntha Adhikari, Chief Fisheries Development Officer, CFPCC, Nepal was the local coordinator of the consultation meeting. The consultation meeting was attended by focal person from 7 Member States of SAARC, namely Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka. Around 33 local participants from different institutions and organizations of Nepal also attended the meeting. The primary objectives of the meeting were as follows:

- To identify drivers of diversified aquaculture;
- To review the research and development needs for sustainable aquaculture development in the SAARC region;
- To coordinate the regional research, extension and training activities to assist the development of sustainable diversified aquaculture in South Asia.

The consultation meeting was graced by the Hon'ble Lekh Bahadur Thapa Magar Minister for Land Management, Agriculture and Cooperatives, Gandaki Pradesh, Nepal; His Excellency Mr. Amjad Hussain B. Sial, Secretary General of SAARC; Mr. Prakash Mathema, Secretary, Ministry of Agriculture and Livestock Development; Dr. Tek Bahadur Gurung, Executive Director, Nepal Agricultural Research Council; and Dr. Bimal Kumar Nirmal, Director General, Department of Livestock Services.In successive technical sessions, seven country status paper and six oral presentations were made on the topic of the consultation meeting. This was followed by separate working group discussion and policy recommendation for the SAARC Region drafted.

Recommendations

- While considering the use of non-native species, the guidelines of the International Council for the Exploration of the Sea and FAO Technical Guidelines for Responsible Fisheries should be followed;
- Diversification of culture systems, e.g. recalculating aquaculture systems (RAS), integrated multi-tropic aquaculture (IMTA) and offshore aquaculture should ensure bio security in the culture of exotic species, eliminate seasonality, preferably located close to markets, reduce water use and with effluent treatment;
- Development of SAARC regional BMP, standards for fish and fish products, farm-based Hazard Analysis and Critical Control Points (HACCP) food safety systems and mechanisms to enable product traceability;
- Research and development, appropriate to the diversification of aquaculture in the region, to address food and nutrition security, sustainability, livelihood and social issues; public and private investments;
- Strengthening community participation through knowledge and capacity building in culture-based fisheries and natural water aquaculture management

Priority Setting and Program Development

9. Youth and Women in Agriculture: Economic Development and Food Security in South Asia

The expert consultation entitled "Youth and women in agriculture for economic development and key to food security in future" was jointly organized by SAARC Agriculture Centre, Ministry of Agriculture and Livestock Development, Nepal, Asian Farmers' Association (AFA) and Action Aid Bangladesh in Kathmandu, Nepal during 9th to 11th June, 2019. Dr. Younus Ali, Senior Program Officer acted as the coordinator of the program. The program was jointly organized by SAARC Agriculture Centre (SAC), Ministry of Agriculture and Livestock Development, Nepal, Asian Farmers' Association (AFA) and Action Aid Bangladesh. The consultation meeting was attended by more than 30 participants from seven SAARC Member States (Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka), and partner organizations i.e. Action Aid and AFA. The primary objective of the consultation meeting was as follows:

- To analyse the status of women and youth engagement in agriculture for fostering economic development and security in South Asia


Regional Expert Consultation Meeting on
"Youth and Women in Agriculture: For Economic Development and Key to Food Security in Future"
9-11 June, 2019
Park Village Hotel, Budhanilkantha, Kathmandu, Nepal
actionaid


Regional Expert Consultation Meeting on
"Youth and Women in Agriculture: For Economic Development and Key to Food Security in Future"

The consultation meeting was graced by Mr. Chakrapani Khanal 'Baldev', Hon'ble Minister, Ministry for Agriculture and Livestock Development, Nepal, Dr. Yubak Dhoj G.C., Secretary, Ministry of Agriculture and Livestock Development, Nepal, Ms. Ishrat Jahan, Director ARD, SAARC Secretariat, Kathmandu, Nepal; Ma. Estrella Penunia, Secretary General, AFA, and Ms. Shameem Sheik Dastagir, International Manager-Women Rights, Action Aid International. Dr. Yam Bahadur Thapa, Former Member of National Planning Council was as a key note speaker of the program.

After the inaugural session, technical papers were presented by the seven focal persons of the SAARC Member States, followed by presentation by SAC, Action Aid, and AFA.

Recommendations

- Unpaid care work should be discouraged in order to strengthen women empowerment in agriculture and allied sectors;
- Development of ICT platforms in country and regional level for data collection, analysis and dissemination among farmers of South Asia;
- Identifying, design and implement the new programs for women on agricultural entrepreneurs. Respective Ministry of the SAARC Member countries can take imitative to formulate the program;
- SAC and SAARC Members countries should set up the door step trainings on food processing and packaging engaging the Department of Agriculture Extension of each country;
- Strengthen climate resilient farming practices and bring in technologies so that youth and women farmer could use it and adapt with climate change shocks;
- Build links and coordinate among the government organizations, framer organizations, and non- governmental organizations;
- Develop market information centre through conducting market research in countries and regional level;
- Initiate step to develop "Mission for Youth in Agriculture" and "Regional Platform for Youth in Agriculture".;
- SAC and SAARC Member countries should facilitate farmers and producers' organizations development in countries and regional level.

10. Multi-Sectoral Program Development for SAARC Agriculture Centre

The expert consultation meeting entitled "Multi-sectoral program development for SAARC Agriculture Centre" was conducted by the SAC in collaboration with Asia-Pacific Agricultural Association of Research Institutions (APAARI) during 16th to 18thJuly, 2019 in Dhaka, Bangladesh. The meeting was coordinated by Dr. Rudra Bahadur Shrestha, Senior Program Specialist. A total of 40 participants attended the meeting; out of which seven were nominated by the Ministry of Foreign Affairs of SAARC Member States namely, Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, and Sri Lanka. Additionally, seven thematic experts from APAARI also joined the meeting besides experts of developmental partners and professionals of SAC. The major objectives of the meeting were as follows:

- Assess the status of agricultural R&D, and policy issues in the region vis a vis global development in technologies, innovations and development processes;
- Identify challenges and opportunities, and priority areas in policies and programs for agricultural R&D;
- Identify need-based demand driven programs in agriculture and allied sectors for long-term.

A total of 16 papers were presented from SAARC Member Countries and thematic experts (on crops, horticulture, livestock, fisheries, NRM, agricultural policy, agricultural research, USAID/USDA in agriculture, and strategic vision framework). An intensive group work was conducted on the issues/ challenges, opportunities and program activities on each thematic area.

Recommendations

- Convert raw germplasm in to inbreeds and parental lines for crop improvement using molecular and conventional tools through multi-location field evaluation based on present day trait needs to tackle changing climate, emerging pests, nutritional and quality needs;
- Promote sustainable agriculture;
- Development of appropriate seed systems for quality seed access to farmers;
- Attracting, retaining and empowering youth and women in agriculture;
- Monitoring and management of climate-related transboundary pests and diseases;
- Develop appropriate processing and value addition technology of horticultural crops;
- Safe horticultural products in compliance with "Good Agricultural Practices";
- Conservation and promotion of potential indigenous breeds of livestock species;
- Prevent, control and eradicate transboundary and zoonotic disease;
- Cost effective feed formulation using locally available feed resources to reduce greenhouse gas emission from livestock;

- Alternate feed additives to replace conventional antibiotic growth promoters;
- Good livestock management practices for animal farming including poultry;
- Establishment of brood banks and seed certifications;
- Exchange of genetically improved and pure gene pool among countries;
- Promote aquaculture in seasonal water bodies;
- Enhance fish and aquaculture diversification and formulate water budgeting;
- Encouraging fishermen to use climate smart technology;
- Reduce tariff and non-tariff barriers in fish trade among South Asian countries.
- Sustainable management for integration of agro-forestry, forestry and crops;
- Promote micronutrient and zinc & iron bio-fortification in crops;
- Promote liming and organic amendments in low pH soils for higher crop production; Adaptation of climate resilient agricultural practices in different agro-ecosystems;
- Efficient value-chain development alliance (dairy, pulses, oilseeds, aromatic rice, herbs);
- Market integrations, pricing and trade competitiveness;
- Ensure fertilizer security to the smallholder farmers;
- Governance for R&D, education, extension and investment;

11. Family Farmers Cooperatives to End Hunger and Poverty through Integrated Farming in South Asia

The regional expert's consultation meeting on "Family farmers cooperatives to end hunger and poverty through integrated farming in South Asia" was held during 22nd to 24th July, 2019 in Anand, Gujarat, India. This program was jointly organized by SAARC Agriculture Centre (SAC), Bangladesh, Asian Farmers' Association (AFA), and National Dairy Development Board, Anand, Gujarat, India. The meeting was coordinated by Dr. Rudra Bahadur Shrestha, Senior Program Specialist. Country Focal Point Experts from six SAARC Member Countries (Bangladesh, Bhutan, India, Maldives, Nepal, and Sri Lanka), technical experts, and farmers' leaders attended the program. The specific objectives of the meeting were as follows:

- Share good practices, policies and programs on family farmers to strengthen their cooperatives' production and marketing endeavours;
- Identify constraints and challenges, policy gaps and recommendation in for strengthening family farmers cooperatives at the country and the regional level.

A total of 17 papers (consisting of country specific perspectives on family farming and cooperatives, and invited technical papers) were presented, followed by group discussion under four thematic areas. Meanwhile, field visit in some of the model project areas of NDDB (for example, Amul, mild processing, slurry, gas, solar power, Biddhya dairy) were organized that made insightful on the overall integrated approach of cooperative development in India.

Recommendations

- Aligning of the policies and programs of farmers' cooperatives as it has strong potentiality for ending poverty and enabling food security;
- Cooperative movement and development could be integrated from inputs arrangement to output marketing that helps to increase the economics of scale.

12. Regional Exposure Visits for Partnership to Strengthen Community based Seed System in South Asia

A three days program on "Regional Exposure Visit for Partnership to Strengthen Community Based Seed Systems in South Asia" was organized jointly by SAARC Agriculture Centre, Asian Farmer Association (AFA), and Pakistan Agricultural Research Council (PARC) during 5th to 7th November, 2019, Islamabad, Pakistan. The program was coordinated by Dr. Rudra Bahadur Shrestha, Senior program specialist. A total of 36 participants representatives from SAARC Member Countries (Afghanistan, Bangladesh, Bhutan, Maldives, Nepal, Pakistan and Sri Lanka), Farmers Organization, AFA, PARC, and development partner organizations were involved. The specific objectives of the program were as follows:

- Assess the community-based seed system (CBSS) initiatives, its developments, and identify and exchange of the best practices in the region;
- Analyse the constraints, challenges, and opportunities, and policy programs on CBSS;
- Analyse CBSS to contribute in biodiversity conservation and food and nutrition security;
- Issue a joint communiqué incorporating policy recommendations to strengthen the CBSS in the region.

Thirteen papers comprising of country specific perspectives, technical papers and farmers' experiences were presented. It was followed by followed by group discussion under three thematic areas.

Recommendations

- CBSS is the best means of saving, exchange, store and use of seeds in the rural communities;
- Formulating policies and programs towards strengthening CBSS for improving food security and biodiversity conservation at the country level, provincial level and local level;
- The Farmers' Right need to be strengthened aligned along with the UN Declaration and customize with the national policies, programs, acts and regulations.

Regional Training

Crops

1. Building Resilient Agriculture: Solution Packages for Farming Communities in SAARC Member States

Climate change is affecting the livelihoods and food security of farming communities all over the world. In the face of these increasing risks and vulnerabilities, developing agricultural solutions focusing on building the resilience of such communities is imperative. But throughout the Hindu Kush Himalaya (HKH) and South Asia, access to technical knowledge and skills with regards to sustainable production systems and the use of climate-resilient practices is still inadequate. Given the lack of communities' access to these solutions and need for regional-level capacity development, the four-day regional training on "Building resilient agriculture: Solution packages for farming communities" was carried out at Kathmandu, Nepal during 27th to 30th May, 2019 through partnering with the International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal. The training was attended by senior government officials representing national agriculture research, development, and extension centers from countries namely Afghanistan (1), Bangladesh (2), Bhutan (2), India (2), Nepal (2), Pakistan (2) and Sri Lanka (2). Nevertheless, total number of participants were 13. The objectives of the training were as follows:

- To be familiar with the current state of agriculture and food security, key drivers of success for agriculture transformation, climate change and its impacts, adaptation and resilience concept and frameworks;
- To get an updates on global, regional and national level climate change statistics and approaches to adapt these changes towards resilience (e.g. introduction to the United Nations Framework Convention on Climate Change (UNFCCC), associated agreement such as Paris accord, and national level approaches such as NAP, NAPA, LAPA, climate smart village (CSV);
- To equip the participants with skills to achieve economy of scale, strengthen market linkages, and develop inclusive value chain and community enterprises.

The training revolved around the concept of employing a resilient agriculture approaches, which is increasingly being regarded as a comprehensive pathway for building the capacities of farmers and agribusinesses so that they can absorb, adapt, and transform in response to complex shocks and opportunities. Over the course of the training, the participants visited Dabur's Ashok Medicinal and Aromatic Plants Center in Banepa and two ICIMOD pilot villages in Kalchhebesi and Baluwa.

2. Earth Observation and Climate Data Analysis for Agricultural Drought Monitoring in South Asia

The SAARC regional training workshop on "Earth observation and climate data analysis for agricultural drought monitoring in South Asia" was organized in Islamabad, Pakistan in partnership with International Centre for Integrated Mountain Development (ICIMOD), Pakistan Agricultural Research Council (PARC), Islamabad, Pakistan, The International Maize and Wheat Improvement Centre (CIMMYT), John Hopkin University, USA and NASA SERVIR Program, USA. The training aimed for meteorological, agriculture and climate scientists, delves on the techniques of data development and analysis tailored for use in drought monitoring to understand drought and its implications better, and minimize the impacts of drought in the region.The primary objectives of the training were as follows:

- To capacitate agriculture and climate scientists through a training workshop on the techniques of data development and analysis tailored for use in drought monitoring;
- To impart hands-on skills and knowledge in remote sensing and climate data analysis to the workshop participants;
- To give practical skill to handle locally generated climatic data and their practical use in drought monitoring.


ICIMOD
SERVIR
SAARC regional training workshop on

Dr. Mohammad Faisal, Director General South Asia, Ministry of Foreign Affairs, Pakistan, formally launched the system during the opening ceremony of SAARC Regional Training program. Mr. Muhammad Riaz, Director General, Pakistan Meteorological Department (PMD) highlighted the role of PMD in generating timely advisory on extreme climate events particularly on flood and droughts in the country. He emphasized on close engagement with focal institutions to yield best returns of investment.

Senior Program Specialist of SAARC Agriculture Centre (SAC) and coordinator of the program, Dr Pradyumna Raj Pandey shared that the training would enable participants to understand how satellite data, weather forecast and early warning systems can help to understand and manage droughts. Speaking about the system's capabilities, ICIMOD's Program Manager Dr. Ghulam Rasul shared that the system provided multiple indices for droughts and seasonal weather outlooks at the national and regional levels, and baselines on crop type maps, and farming practices calendars valid at the district level.

He said, "As a regional knowledge Centre, ICIMOD has been promoting the use of Earth Observation information for evidence-based decision-making through applications and information systems to provide timely and accurate information. Hon. Dr. Muhammad Azeem Khan, Member Climate Change & Food Security, Planning Commission, Government of Pakistan was the chief guest of the closing ceremony.

He appreciated the efforts made by SAC, ICIMOD, PARC and other collaborating institutions for such type of practical and need based training program. All together25 participants from SAARC Member States, namely, Afghanistan, Bangladesh, Maldives, Nepal, Pakistan and Sri Lanka are participating from the Member States of SAARC

Horticulture

3. Safe and Sustainable Vegetable Value Chain Development in South Asia

Theregional training on "Safe and sustainable vegetable value chain development in South Asia" was organized at Peradeniya, Sri Lanka during 28th July to 1st August, 2019 by the SAARC Agriculture Centre (SAC) in collaboration with Centre on Integrated Rural Development for Asia and the Pacific (CIRDAP) and the Department of Agriculture (DoA), Sri Lanka. The major objectives of the regional training were as follows:

- To understand concept and guiding principles of vegetable value chain approach;
- To understand roles of value chain actors and opportunity to create new market linkages;
- To develop capacities for identifying competitive challenges for determine market requirements by value chain analysis.

he inaugural session of the training was chaired by Dr. W. Weerakoon, Director General, Department of Agriculture (DoA), Sri Lanka. Dr. Ajanthe de Silva, Additional Secretary, Ministry of Agriculture, Sri Lanka graced the session as Chief Guest. Ms. Jayantha Menikellankoon, Additional Director General DoA, Sri Lanka and Dr. R.Punyawardene, Director, Natural Resources Management Centre, DoA, Sri Lanka and Governing Board member of SAC were present as Special Guest and Guest of Honour, respectively.

On behalf of organisers Mr. George Babu, Program Officer, CIRDAP, Dr. Nasreen Sultana, SPS, SAC and Ms. Disna Rathnasinghe, Deputy Director, DoA, Sri Lanka coordinated the training program. During his inaugural speech, Dr. Ajanthe deSilva, stated that global food markets are undergoing significant changes over time. Consequently, consumption of vegetables has increased many folds. Hence, it is high time for South Asian countries to enter global vegetables trade by developing capacity of stakeholders.

Emphasizing the importance of vegetable in solving nutrition insecurity in SAARC Countries, Dr. Weerakoon expressed his thanks to SAC and CIRDAP for organizing this much-demanded training in his organization. Stressing on regional integration and free trade, Dr. Punyawardene, acknowledged that among SAARC Centre, SAC is working diligently and continuously proving itself as a Centre of Excellence.

With the sharing of current status of vegetable value chain in their respective countries by the participants, technical part of the training started. In addition to these, there was round table discussion, group works and field visits. Participants got first hand lesion from two Vegetable Collection Centers:(i) Organic vegetable production center, Government production center (Hydroponic and Aeroponic seed potato), (ii) private Fruits and Vegetable Processing Centre.A total of 13 government officers, working in the vegetable value chain,attended the said training. The trainees were from Afghanistan, Bangladesh, Bhutan, Maldives, Nepal and Sri Lanka.

4. Good Agriculture Practices (GAP) in South Asian countries

The regional training on "Good agriculture practices (GAP) in South Asian Countries" was conducted by the SAARC Agriculture Centre (SAC) in collaboration of Quality Council of India (QCI), Government of India atduring 27th to 30th August, 2019 at Ghaziabad, Uttar Pradesh, India. The primary objectives of the regional training were as follows:

- To review the past framework and activities under country specific GAP as well as SAARC GAP;
- To train the GAP structure, indicators and implementation modalities in South Asia and other parts of the worlds;
- To establish GAP network for SAARC Member States in coordination with SAC, FAO-RAP and Quality Council of India (QCI);
- To establish quality infrastructure mechanism in each of the SAARC nation.


Regional Training on
Good Agriculture Practices (GAP)

The inaugural session of the training was chaired by Dr. Manish Kumar Pandey, Director, Quality Council of India. Dr. Suresh Kumar Malhotra, Agriculture Commissioner, Ministry of Agriculture and Farmers Welfare, Government of India, graced the session as Chief Guest and Dr. Anjay Dave, International Consultant, Food Safety and Former Chairperson Codex Alimentarius Commission India, was present as Special Guest. In his inaugural address, Dr. Malhotra said that GAP is crucial tool for India to increase agricultural exports and become a 5 trillion economy by 2024. He emphasized on the need for harmonization of the individual national GAP standards to enhance regional trade in South Asia and also urged for the establishment of certification systems in all these countries.

Mr. Sanjay Dave, said that GAP has been instrumental in the transformation of the grape industry in India and we must expand it to other products and countries in South Asia. Dr. R. P. Singh, Secretary General, QCI conveyed the message that QCI is committed to support fully on technical matters for the successful implementation of GAP standards in the SAARC in collaboration with the SAC. The speakers for the training include experts from the Food Safety and Standards Authority of India (FSSAI), Agricultural Produce Export Development Authority (APEDA), Global Good Agricultural Practices, and the National Accreditation Board for Certification Bodies (NABCB). A total of 14 participants from Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal and Sri Lanka attended the said training.

5. Pesticide Residue Analysis

The regional training program on "Pesticide Residue Analysis" was conducted by the SAARC Agriculture Centre (SAC) in collaboration with Bangladesh Agricultural Research Institute (BARI) during 19th to 23rd November, 2019 at BARI campus, Gazipur, Bangladesh with 17 participants from six SAARC Member States namely Bangladesh, Bhutan, India, Maldives, Nepal and Sri Lanka. The major objectives of the training were as follows:

- To increase the knowledge of the scientist/analyst who are working in the area of pesticide residue analysis;
- To increase awareness for the monitoring of pesticide residue analysis in the agricultural commodities;
- To teach the recent QuEChERS extraction and cleanup techniques for pesticide residue analysis;
- To exchange the knowledge for the development and validation of analytical methods for the determination of pesticide residues in agricultural commodities.

Dr. Abul Kalam Azad, Director General of BARI presided over the inaugural session of the training, while Dr. Md. Abdur Rauf, honourable Additional Secretary (PPC wing) of the Ministry of Agriculture inaugurated the training program as the Chief Guest. Dr. Sheikh Mohammad Bokhtir, Director, SAC and Dr. Md. Miaruddin, Director (Training & Communication Wing), BARI was present as Special Guests. In his inaugural address, emphasizing the role of agriculture in achieving the Sustainable Development Goals, the Chief Guest, Dr. Abdur Rouf, told that doubling the crop production in a sustainable manner is crucial worldwide.

Dr. Azad said that increased use of pesticide resulted many undesirable effects on human health. He told that safe food production is one of the topmost priorities of the current government. He also expressed his commitment to support SAC on developing an appropriate monitoring system among the SAARC countries for the quantification of residue load in crops and the environment.

Thanking the BARI, Dr. Bokhtiar said that as the largest agricultural research institute of the host country, the BARI always extends their supportive hands to the SAC for any aspects of agricultural research, development and training. He also added that, pesticide residue analysis in agricultural products is of great importance not only for protecting human health but also for strengthening international trade and regulatory control.The subject's areas covered under the training include common pesticides used in region, their mode of action, extraction and residue analysis of pesticides applying advanced instrument facilities including interpretation of output data.

Natural Resource Management

6. Smart Agricultural Water Management Interventions for Enhancing Water Productivity and Resilience in South Asia

The SAARC regional training entitled "Smart Agricultural Water Management Interventions for Enhancing Water Productivity and Resilience in South Asia" was carried out by SAARC Agriculture Centre in collaboration with ICAR-Indian Institute of Water Management during 18th to 22nd June, 2019 at Bhubaneswar, India. The particular regional training was attended by 12 participants from seven SAARC Member States namelyAfghanistan, Bangladesh, Bhutan, India, Maldives, Nepal and Sri Lanka. The major objectives of the training program were as follows:

- Develop a team of master trainers on smart agricultural water management in the region;
- Establish a network of practitioners of smart agricultural water management to continue exchange of knowledge and technology

The training was inaugurated by Dr. P. K. Agrawal, Vice Chancellor, Odisha University of Agriculture and Technology, Dr. A. K Sikka, Country Representative, International Water Management Institute (IWMI), New Delhi,Dr. S. K. Ambast, Director, Indian Institute of Water Management in the presence of all Directors of ICAR- Institutes stationed in Bhubaneswar. The training covered range of important topics related to agricultural water management and water productivityin the face of climate change. The details of lectures delivered were compiled, and published in bound form of Training Manual. It was released during the inaugural session and distributed to all the trainees before undertaking actual taking. Moreover, participants of the training made exposure visit to Rubber Check Dam sites and Horticulture Research Centre to understand the best practices of agricultural water management.

Livestock

7. Molecular Diagnosis and Laboratory Surveillance of PPR

The SAARC Regional capacity development on "Molecular diagnosis and laboratory Surveillance of PPR" was carried out at SAARC Regional Leading Diagnostic Laboratory for PPR, Bangladesh Livestock Research Institute, Savar, Dhaka, Bangladesh from 21st to 26th July, 2019. It was jointly organized by SAARC Agriculture Centre, Dhaka and Bangladesh Livestock Research Institute, Savar. Dr. Ashis Kumar Samanta, Senior Program Specialist – Livestock was the program coordinator and lead the SAARC delegation team for the training. Dr. Younus Ali, Senior Technical Officer looked after the on-spot implementation of activities pertaining to the training. The particular training was attended by eight participants from four Member States namely Bangladesh, India, Nepal and Sri Lanka. The primary objectives of the training were as follows:

- To develop the capacities of scientist/ professionals of national laboratories of the SAARC Member States in laboratory diagnosis of PPR;
- To harmonize the procedures and protocol for PPR diagnosis in the region.

The inaugural session was graced by Mr. Subol Bose Moni, Additional Secretary, Ministry of Fisheries and Livestock, Government of Peoples Republic Bangladesh as Honourable Chief Guest, Dr. S.M. Bokhtiar, Director, SAARC Agriculture Centre as Special Guest. Dr. Nathu Ram Sarker, Director General, Bangladesh Livestock Research Institute, chaired the inaugural session.

The topics covered under the training include PPR eradication strategy, Regional roadmap for PPR control, ELISA: an essential tool for surveillance of PPR, cell culture for virus isolation and identification, RT-PCR: the technique for the detection of PPR, general guidelines for PPR sample collection, preservation and genomic analysis, detection of PPRV antibody in sera by competitive Elisa, BLRI developed PPR control model; comprising primarily practical (hands on experience) along with limited theoretical classes. A lecture on "National Animal Disease Referral Expert System (NADRES)" was also arranged through skype by an Indian expert.

8. Laboratory Biosafety and Biosecurity for Handling Transboundary Animal diseases and Zoonotic Emerging Pathogens

The SAARC Regional capacity development program on "Laboratory biosafety and biosecurity for handling transboundary animal diseases and zoonotic emerging pathogens" was conducted at ICAR-National Institute of Veterinary Epidemiology and Disease Informatics (ICAR-NIVEDI), Yelahanka, Bengaluru, India during 19th to 24th August, 2019. The regional training program was jointly organized by the SAARC Agriculture Centre, Dhaka, Bangladesh and ICAR- National Institute of Veterinary Epidemiology and Disease Informatics, Yelahanka, Bengaluru, India. Dr. Ashis Kumar Samanta, Senior Program Specialist – Livestock was the program coordinator and lead the SAARC delegation team to the host organization. The training was attended by 13 participants from six Member States namely Afghanistan (three), Bangladesh (two), Bhutan (two), India (one), Nepal (two), and Sri Lanka (three). Keeping in mind the principles for handling transboundary animal diseases and zoonotic emerging pathogens, the training was organized with objectives as mentioned herewith.

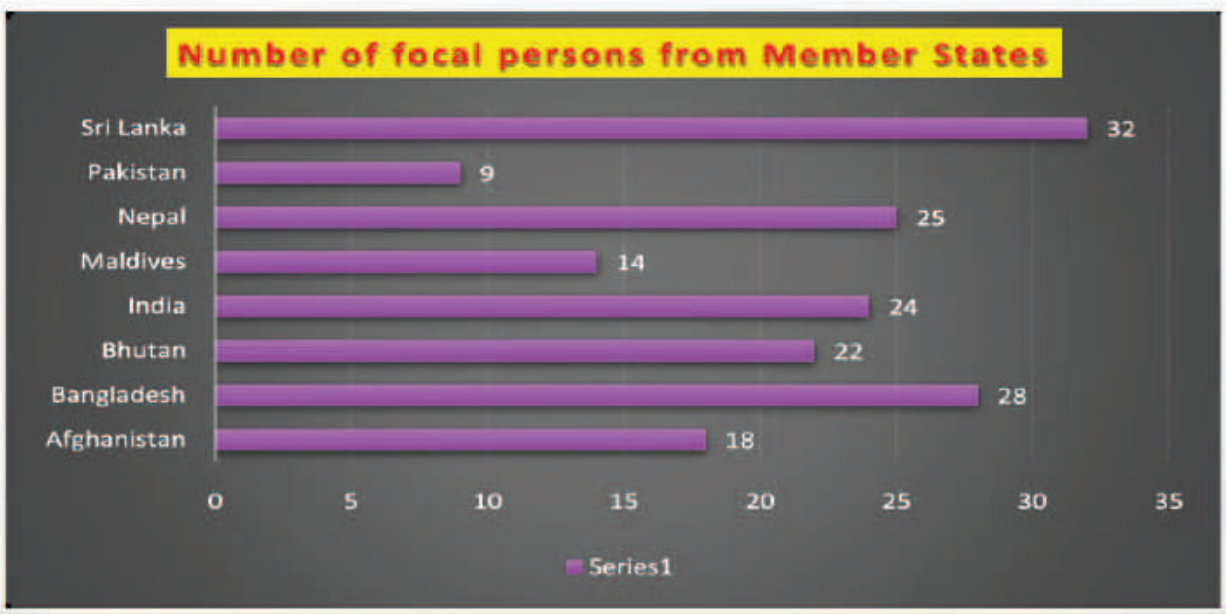
- To develop capacity of scientists/ professionals of national veterinary laboratories of the Member States in handling transboundary animal diseases and zoonotic emerging pathogens;
- To acquire advanced knowledge for reducing the risk of unintentional exposure to pathogens and toxins or their accidental release.

The inaugural session was graced by Dr. Raghavendra Bhatta, Director, ICAR- National Institute of Animal Nutrition and Physiology as Chief Guest, Dr. Aniket Sanyal, Joint Director, Bengaluru Campus of Indian Veterinary Research Institute as Guest of Honour, Dr. Ashis Kumar Samanta, Senior Program Specialist – Livestock, SAARC Agriculture Centre, Dhaka as Guest of Honour. The session was chaired by Dr. Parimal Roy, Director, ICAR-NIVEDI and Course Director of the SAARC Regional Training. He briefed about the Institute activities on the above theme. The bound training manual was released during inaugural session and distributed to all the participants before the beginning of hands on experience.

The training primarily focused on hands on experiences on biosafety and biosecurity principles pertaining to handling transboundary animal diseases and zoonotic pathogens. Important areas covered were: Introduction to biosafety and biosecurity, good laboratory practices, safety levels and agent classification, national biosafety regulations in SAARC Member States, personal protective equipment, emergencies in biosafety lab and ways to handle them, biosafety practices – collection, package and transportation of infectious materials, agent specific biosafety and biosecurity practices – Rabies, Brucella spp., parasitic diseases, Bacillus anthracis, African swine fever virus, Leptospira spp., Glanders, Waste management, risk management in laboratory etc.

Number of Participants from Member States in 2019 Programs

Name of Member States of SAARC	Number of participants		Total
	Training	Expert Consultation Meeting	
Afghanistan	9	9	18
Bangladesh	14	14	28
Bhutan	11	11	22
India	12	12	24
Maldives	6	8	14
Nepal	12	13	25
Pakistan	2	7	9
Sri Lanka	18	14	32
Total	**84**	**88**	**172**



Knowledge Management and Networking

Information Management and Networking

Under the aegis of Knowledge Management and Networking, SAARC Agriculture Centre (SAC)is regularly publishing SAARC AgriNews (Quarterly), SAARC Journal of Agriculture (Half yearly), policy briefs, books on emerging areas of agriculture and allied sectors etc.

SAARC AgriNews

Publication of quarterly SAARC AgriNews is one of the approved regular activity of SAARC Agriculture Centre. It regularly highlights the accomplished activity during the particular quarter of the year and widely circulated among the stakeholders of the SAARC Member States including the Governing Board Members. Dr. Younus Ali is the editor of the SAARC AgriNews and its editorial board members are Dr. Main Sayed Hoque and Dr. Nasreen Sultana, All the published issues of the agri News are being uploaded at the SAC webpage for public views and information sharing on recent activities of the SAARC Agriculture Centre.

SAARC Journal of Agriculture

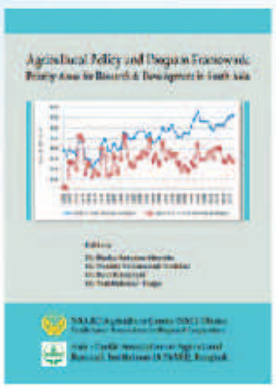
Publication of SAARC Journal of Agriculture (SJA) is one of the most important approved regular activity of SAARC Agriculture Centre. Two issues are published in each year. The SJA is intended to be a leading international journal focusing on all aspects of agrarian sector in South Asian region. It publishes original article, review, case study, short communication on the fundamental, applied and managemental areas of crop science, horticulture, animal science, fisheries, natural resource management, post-harvest processing, rural development,climate change, social sciences etc. The aim of SJA is to advance and disseminate the knowledge in all spheres of agriculture towards achieving the sustainable development goals.

Policy brief

Publication of policy brief on important issue of regional importance in the field of agriculture and allied sector is crucial for sustainable development in South Asia. The current policy brief is the second in the series and it is the result of professional spirit and commitment towards regional development in fishery sector. The publication has nicely elaborated the status of South Asian fisheries and aquaculture, diversification of aquaculture approaches, key challenges, and their remedies etc. It is authored by S.S Giri and S.M Bokhtiar. The entire document is freely available from SAC webpage under the section "Resources" and subsection "Policy brief".

Books on emerging areas

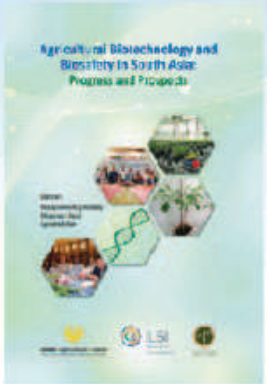
This book 'Integrated Plant Nutrition System Modules for Major Crops and Cropping Systems in South Asia' is published to share information on the status of natural resource degradation, availability of organic and inorganic fertilizers, IPNS approach, IPNS modules for major crops and cropping systems, issues and challenges associated with the adoption of IPNS approach at the farm level in South Asian countries. The policy measures, research and extension support with regard to IPNS were put in place in all countries of South Asia. However, additional requirements of appropriate policy interventions, research innovations, effective extension services and need for joint coordinated efforts of the stakeholders were also included in the publication.



A majority of South Asian population depends on agriculture for their livelihood. Hence, the region's economy is dominated by Agriculture. Although the region, endowed with large arable land, possesses huge potentiality for sustainable agricultural development, the agricultural sector has challenges like smallholding farms, lack of access to quality inputs including improved seeds and fertilizers, weak mechanization and infrastructure development, inefficient value chain, and extreme climate change effects. Considering the regional challenges and opportunities, the book has made an effort to present the agriculture policy and program framework after due contemplation to multi-sectoral approaches i.e. crops, horticulture, livestock, fisheries, natural resource management.

Livestock occupies significant niche on the socioeconomic fabric among all South Asian countries. Often, the productivity of livestock is adversely affected owing to inadequate quantity or quality of feeds and fodder. Furthermore, the expenses on account of feed and fodder shares 65 to 70% of the total expenses of livestock. Hence, any strategy on cutting down the cost of livestock feeding is expected to ensure higher economic returns. "Livestock Feeds and Feeding Practices in South Asia" is published with the aim to have in-depth analysis of feed and feeding practices among Member States to guide the policy makers, developmental agencies, livestock cooperatives for taking necessary steps towards sectoral improvement.

With the rapid decline of capture fisheries, the so-called fishermen are suffering from livelihood displacement and poverty. In order to increase the fish production as well as engage these people in traditional income generating activities, diversification of aquaculture especially cage culture could be the solution for them. The model of cage culture using tilapia in the river of Bangladesh or reservoir of Sri Lanka and grass carp and silver carp in the Pokhra lake of Nepal have been found successful for livelihood security as well as for productivity enhancement. The book entitled "Diversification in aquaculture towards achieving sustainability" is aimed to share information pertaining to crucial aspects of aquaculture diversifications and their related opportunities, challenges, available policies and future needs for the South Asian region.

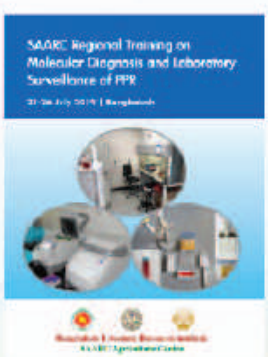


The South Asian agriculture is facing serious, interconnected challenges, including the constant threat of pests and diseases, increasingly severe consequences of climate change, and other forms of environmental degradation and land use changes. Viewing the severity of these challenges, we need innovations in agriculture, including the development and deployment of modern biotechnology for ensuring food and nutrition security in South Asia. The book embodies the currents status of knowledge on prospects of agricultural biotechnology and biosafety among SAARC Member States coupled with harmonization of regional standards on safety of GM foods. The book was jointly published by SAARC Agriculture Centre, ILSI, USA and South Asia Biosafety program, Bangladesh.

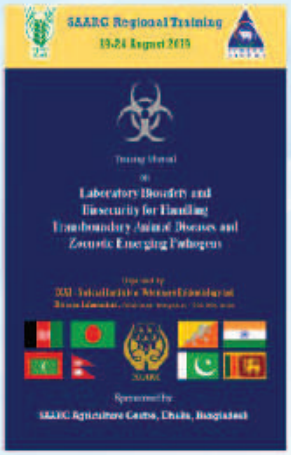
Agriculture sector has been adversely affected by unpredictable and frequent climate change events such as rising temperature, drought, flood, hailstone, typhoon, cyclone, etc. This scenario pressurized farmers to grow enough and sustainable food production, researchers to innovate improved technologies and develop stress tolerance with high yielding varieties of crops and breeds of animals, and policy makers to create enabling policy environment for sustainable agricultural development. Climate Smart Agriculture (CSA) is emerging as an approach dealing with increasing productivity, strengthening adaptive and resilient capacity, and mitigating the GHG emission.

Training Manual

The training manual embodies the advanced knowledge on smart agricultural water management interventions covering the topics on water productivity in agriculture, micro-irrigation, fertigation and automatic irrigation, impact of climate change on water footprint and climate smart agriculture practices, efficient drainage system for agriculture land, remote sensing and GIS application in water resource management, safe use of waste water in crop production, management of flood prone/ waterlogged area for productive agriculture, use of non-conventional energy in efficient irrigation etc. The manual was jointly published by ICAR-Indian Institute of Water Management, International Water Management Institute and SAARC Agriculture Centre.



PPR is one of the important economic and devastating disease for small ruminants prevalent in SAARC countries. PPR can easily be transmitted from one SAARC countries to another due to trans-boundary nature of the disease. Regional concerted and coordinated effort is prerequisite to eradicate PPR in compliance with the global initiatives. The training manual embodies the practical knowledge on various aspects of PPR control including regional roadmap, PCR and RT-PCR for detection, cell culture, NADRES, biosafety and biosecurity for handling virus etc. It was jointly published by Bangladesh Livestock Research Institute and SAARC Agriculture Centre.



The training manual embodies the advanced knowledge on laboratory biosafety and biosecurity for handling transboundary animals' disease and zoonotic emerging pathogens. It covers topics such as good laboratory practices, safety levels and agent classification, national biosafety regulations in SAARC Member States, personal protective equipment, emergencies in biosafety laboratory and ways to handle, laboratory waste management, agent specific biosafety and biosecurity practices: rabies, Brucella spp., Bacillus anthracis, Leptospirosis spp., African swine fever, parasitic disease, Glanders, biosafety practices for collection and transportation of samples, biosecurity of physical, personal, pathogen and data security etc.The manual was jointly published by ICAR-National Institute of Veterinary Epidemiology and Disease Informatics, and SAARC Agriculture Centre.

Archive of SAARC Agriculture Centre (SAC)

The SAC developed system study and information collection from the existing system and requirement of the new database, interface and the CMS.04, designing and finalize the format of the archive and new web portal. The system needs to be robust enough to address multiple queries simultaneously by multiple users. In case of system crash there should be a rollback option with log and content.

The web address of the SAC is www.sac.org.bd. The SAC publications have been uploaded in SAC website to facilitate easy access of the users. The ***pdf*** files are downloadable from the archive.

Publication available in SAC Archive

Sl. No.	Title of the Publications
1.	Released and Registered CropVarieties of Cereals, Pulses and Oilseeds in SAARC Region
2.	Cotton Technology Exchange Program in SAARC Region
3.	Policy Farming on Fish Biodiversity Management in Transboundary Rivers of South Asia
4.	Climate Change Impact on Coastal Fisheries and Aquaculture in South Asia
5.	Pulses for Sustainable Food and Nutrition Security in SAARC Region
6.	Role of Agro-processing for Rural Development in SAARC Region
7.	Status and Future Prospect of Organic Agriculture for Safe Food Security in SAARC Member Countries
8.	Soil and Soul – Means and End for Sustainable Agriculture
9.	SAARC Outlook on Water-Energy-Food Nexus in SAARC MemberCountries
10.	Technological Advancement – Agro-forestry Systems – Strategy for Climate Smart Agricultural Technologies in SAARC Region
11.	Sericulture Scenario in SAARC Region
12.	Potential and Prospect of Floriculture Sector to Improve Livelihood of the Farmers in SAARC Member Countries
13.	Status and Future Prospect of Organic Agriculture for Safe Food Security in SAARC Member Countries
14.	SAARC Dairy Out Look
15.	Means and End for Sustainable Agriculture-A collection of essays and seminar papers on Soil
16.	Mite management of coconut in SAARCMember Countries
17.	Adaptation to Climate Change Impact on Crop Production in SAARC Member Countries
18.	Prospects, Needs Benefits and Risk Assessment of Agriculture Related Genetically Modified Products in SAARC Member Countries
19.	Farm Animal Genetic Resources in SAARC Member Countries Diversity, Conservation and Management

Sl. No.	Title of the Publications
20.	Value Chain Analysis and Market Studies on Fruits and Vegetable in SAARC Member Countries
21.	National Agricultural Extension Systems (NARES)in SAARC Member Countries - An Analysis of the System Diversity
22.	SAC Monograph on The SAARC Australia Project entitled "Developing Capacity in Cropping Systems Modelling for South Asia"
23.	Coastal and Marine Fisheries Management in SAARC Member Countries
24.	Popularizing Multiple Cropping Innovation as a means to Raise Crop Productivity and Farm Income
25.	Extent and Potential use of Bio-pesticides for Crop Production in SAARC Member Countries
26.	Best Practices and Procedures of Saline Soil Reclamation Systems in SAARC Member Countries
27.	National Agricultural Education System in SAARC Member Countries
28.	Economic Impact of Transboundary Animal Diseases in SAARC Member Countries
29.	Diversity of Veterinary Services in SAARC Member Countries
30.	Quality Seed in SAARC Member Countries: Production, Processing, Legal and quality Control and Marketing System (Reprint)
31.	SAARC Seed Outlook
32.	Current Status and Future Prospect of Pulse Production in SAARC Member Countries
33.	Directory of Successful Farm Machinery in SAARC Member Countries
34.	Statistical Data Book for Agricultural Research and Development in SAARC Member Countries 2012
35.	Impact of Climatic Parameters on Agricultural Production and Crop Productivity Losses through Weather Forecast and Advisory Service in SAARC Member Countries
36.	Enhancing Oilseeds Production through Improved Technology in SAARC Member Countries
37.	NARS (National Agricultural Research System) in SAARC Member Countries-An analysis of System Diversity
38.	Pesticide Information of SAARC Member Countries
39.	Veterinary Public Health and Zoonotic Disease Control in SAARC Member Countries (Workshop Proceedings)
40.	Dairy Production, Quality Control and Marketing System in SAARC Member Countries (Workshop Proceedings)
41.	Strategies for Arresting Land Degradation in South Asian Countries
42.	Quality Seed in SAARC Member Countries: Production, Processing, Legal and Quality Control and Marketing System (Workshop Proceedings)
43.	Public Sector Support System and its collaboration with Private Sector for Livestock Development in SAARC Member Countries

Sl. No.	Title of the Publications
44.	Statistical Data Book for Agricultural Research and Development in SAARC Member Countries (2008-09)
45.	Proceedings of Regional Workshop on Hill Agriculture in SAARC Member Countries: Constraints & Opportunities
46.	Directory of Ph.D. Dissertations on Agriculture in SAARC Member Countries 2000-2006 Vol. 3, India
47.	Fodder Germplasm in SAARC Member Countries
48.	Status of Integrated Pest Management (IPM) in SAARC Member Countries
49.	Regional Workshop on Farm Mechanization for Small holders Agriculture in SAARC Member Countries
50.	Directory of Ph.D. Dissertations on Agriculture in SAARC Member Countries 2000-2006 Vol. 2, India
51.	Bibliography of Periodicals Available in SAARC Agriculture Centre Library (2nd Edition)
52.	Livelihood Development through Agriculture in the Saline Prone Coastal Ecosystem of SAARC Member Countries
53.	Best Practices in Animal Feed Production and Management in SAARC Member Countries
54.	Statistics Data Book for Agricultural Research and Development in SAARC Member Countries
55.	Crop Varieties in SAARC Member Countries
56.	Regional Program Development in Agriculture Through Consultations
57.	Handbook on Livestock and Poultry Diseases in SAARC MemberCountries
58.	Training Manual and Interactive Multimedia CD ROMs on Presentation Technology
59.	Catalogue on Natural Enemies of the Insect Pests Food Crops in SAARC Member Countries
60.	Directory of PhD Dissertations on Agriculture in SAARC Member Countries 2000-06 Vol. 1, Bangladesh
61.	Bibliography of Periodicals Available in SAARC Agriculture Centre Library
62.	Proceedings of the Regional workshop on Research-Extension Linkages for Effective Delivery of Agricultural Technology in SAARC Member Countries
63.	Guide on Medicinal and Aromatic Plants of SAAC Member Countries
64.	Risk in Agriculture and their Coping Strategies in SAARC Member Countries
65.	Handbook on Fish and Crustacean Diseases in the SAARC Region
66.	Agricultural Scientists and Technologists of SAARC Countries: 2nd Edition
67.	Statistical Bulletin of SAARC Agricultural Data-2004
68.	Proceedings of the Regional Workshop on Attempts and Successes of ICT Roadmap to Villages in the SAARC Member Countries

Sl. No.	Title of the Publications
69.	Technologies on Livestock and Fisheries for Poverty Alleviation in SAARC Member Countries
70.	Agricultural Institutions in SAARC Countries: 3rd Edition
71.	Statistical Bulletin of SAARC Agricultural Data-2003
72.	Plant Genetic Resources of SAARC Member Countries: Their Conservation and Management
73.	Proceedings of SAARC Workshop on Post harvest Technology
74.	Role of Information and Communication Technologies for Poverty Alleviation through Agricultural Development in SAARC Member Countries
75.	SAARC Directory of Seed Companies/ Entrepreneurs 2003
76.	Statistical Bulletin of SAARC Agricultural Data –2002
77.	Proceedings of SAARC Workshop on Soil Fertility Management for Increasing Productivity in Rice-based Cropping System
78.	Annotated Bibliography on Seed Quality, Production and Preservation in the SAARC Region
79.	Agricultural Research and Extension Systems in SAARC Member Countries
80.	Quarantine and Phytosanitary Laws of SAARC Member Countries
81.	Directory of Agricultural Periodicals of SAARC Member Countries (3rd edition)
82.	Development of Horticulture in SAARC Member Countries
83.	Regional Workshop of Experts in SAARC Member Countries on Transfer of Technology in Agriculture
84.	Agricultural Information Systems and Services in SAARC Member Countries
85.	Union Catalogue of Ph.D. Thesis of SAARC Member Countries
86.	Agricultural Training in SAARC Member Countries
87.	Agricultural Information Needs, Mode, Mechanism and Information Flow in SAARC Member Countries
88.	Bibliography on Technologies for Drought-prone and Salt-affected AEZ in SAARC Member Countries
89.	Success Stories on Transfer of Farm Technology in SAARC Member Countries
90.	Hybrid and High Yielding Crop Varieties in SAARC Member Countries
91.	Innovative Agricultural Technologies in SAARC Member Countries
92.	Agricultural Institutions in SAARC Member Countries: 2nd Edition
93.	Database on Renewable Energy Resources in SAARC Member Countries (1996)
94.	Directory of Agricultural Periodicals of SAARC Member Countries: 2nd Revised Edition
95.	Database on Livestock Production Breeding and Management in SAARC Member Countries
96.	Improved Equipment for the Farm People of the SAARC Region

Sl. No.	Title of the Publications
97.	Annotated Bibliography on Potato in the SAARC Member Countries
98.	Bibliography on Fish Diseases in the SAARC Member Countries
99.	Dynamics of Agricultural Biotechnology: SAARC Bibliographical Database
100.	Postharvest Management in Agriculture SAARC Bibliographical Database
101.	Agricultural Scientists and Technologists of SAARC Member Countries: 1st Edition
102.	Agricultural Institutions in SAARC Member Countries: 1st Edition
103.	Annotated Bibliography on Agroforestry in the SAARC Region
104.	Directory of Agricultural Periodicals of SAARC Member Countries (1st edition)
105.	Women in Agriculture, Gender issues in South Asian Farming
106.	Agricultural Research in SAARC Region: Common challenges and priorities
107.	Mechanization for Sustainable Agricultural Intensification in SAARC Region
108.	Community –based Non-Wood Forest Products Enterprise: A Sustainable Business Model
109.	Pulse Based Recipes for Better Diets and Nutrition
110.	Backyard Poultry Production System in SAARC Member Countries
111.	Sustainable Goat Farming for Livelihood Improvement in South Asia
112.	Water-Energy-Food Nexus: A basis for Sustainable Agricultural Development in SAARC Region
113.	Best Practices of Integrated Plant Nutrition System in SAARC Member Countries
114.	Best Practices of Conservation Agriculture in South Asia
115.	Best Practices of Maize Production Technology in South Asia
116.	Challenges and opportunities in Value Chain of Spices in South Asia
117.	Best Management Practices in Aquaculture; Capacity Building and Policy Development
118.	Export Promotion and Global Market Access for Agricultural and Food Products
119.	Farm –made Aqua feeds: Opportunities, Challenges and policy intervention
120.	Monograph of Threatened Fish of South Asia
121.	Facilitating Microbial Pesticide Use in Agriculture
122.	Agricultural Risk Management for Small Farmers in South Asia
123.	Exchange of rice based value chain development technologies in SAARC Member Countries
124.	Development of country specific Good Agriculture Practices (GAP) standards and harmonization of SAARC GAP for vegetable and fruits in SAARC Member Countries
125.	Animal genomics selection for the genetic improvement and enhancing productivity of indigenous livestock
126.	Development of sustainable rural poultry value chain model for poverty reduction
127.	Small sale fisheries in South Asia

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128.	Trans-boundary fish diseases in the SAARC region: threats, their therapeutic and prophylactic measures and policy briefing
129.	Information and communication technologies (ICTs) for development of rural agriculture in South Asia: Issues, challenges, opportunities and policy concerns
130.	Women's empowerment for agriculture development in South Asia: enabling policies"
131.	Climate smart agricultural policies, strategies and agricultural development programs towards climate change adaptation and mitigation
132.	Agricultural Technologies in South Asia "Formulation of Enabling Policy Recommendations and Project Concept for Popularization of Innovative"

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1.	Agricultural Technology Development in Barind in Bangladesh	001_Barind	
2.	Apple Cultivation in Nepal	002_Apple	
3.	Appropriate Farm Mechanization in Bangladesh	003_Farm_Bangladesh	
4.	Bamboo and Its Propagation in Bangladesh	004_Bamboo	https://youtu.be/P3aU1Tkt7gM
5.	Bangladesh Rice Research Institute and Its Success	005_BRRI	
6.	Black Bengal Goats in Bangladesh	006_Goats	https://www.youtube.com/watch?v=dPQN1XzGR3g
7.	Bee keeping in Nepal	007_Bee keeping	
8.	Coffee Cultivation in Nepal	008_Coffee Cultivation	
9.	Community Based Mushroom Management in Bhutan	009_Mushroom_Bhutan	
10.	Compost Production in Sri Lanka	010_Compost	
11.	Current Practice of Sericulture in Bangladesh	011_Sericulture	
12.	Drip Irrigation in Pakistan	012_Drip_Irrigation	https://youtu.be/SEZQhWRPV08
13.	Farm Mechanization in Bhutan	013_Farm_Bhutan	
14.	Floriculture in India and its Prospects	014_Floriculture	
15.	Integrated Pest Management in Nepal	015_IPM_Nepal	
16.	Integrated Pest Management in Sri Lanka	016_IPM_SriLanka	
17.	Jackfruits in Sri Lanka	017_Jackfruits	
18.	Kithul Tree in Sri Lanka	018_Kithul_Tree	
19.	Livestock Development in Bhutan	019_Livestock	
20.	Make Money from Ornamental Plants in Sri Lanka	020_Ornamental_Plants	
21.	Mandarin in Bhutan	021_Mandarin	
22.	Mango Production and Post Harvest Management in Pakistan	022_Mango	
23.	Marvels of Himalayan Herbs – India	023_Marvels	
24.	Milk Production Cooperative System in Nepal	024_Milk_Production	
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26.	Multi Operations Machine for Agriculture – Pakistan	026_Machine	
27.	Mushroom Farming Through Artificially Cultured Spawn Production in Nepal	027_Mushroom_Nepal	
28.	Ornamental Fish Breeding and Culture in India	028_Ornamental_Fish	

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29.	Ornamental Foliage Plants in Sri Lanka	029_Foliage_Plants	
30.	Biological Control of Helicoverpa armigera in Cotton and Chickpea – India	030_Cotton	
31.	Post-harvest Technology of Major Fruit crops in Sri Lanka	031_Post_Harvest	
32.	Potato Production from True Potato Seed (TPS) – Nepal	032_Potato_TPS	
33.	Poultry Farming for Rural Women in Nepal	033_Poultry	
34.	Rice Cultivation in Sri Lanka (Triumph of Golden Panic)	034_Rice	
35.	Science and Practice of Mushroom Growing in India	035_Mushroom_India	
36.	Seed Production for Better Crops in Nepal	036_Seed_Nepal	
37.	Self Paddy Seed Production in Sri Lanka	037_Seed_SriLanka	
38.	Simple Hydroponics in Sri Lanka	038_Hydroponics	
39.	Sprinkler Irrigation in Pakistan	039_Sprinkler_Irrigation	
40.	The Success Stories of Dairy Development in SAARC Countries (Nepal)	040_Dairy	
41.	Technology of Rubber Cultivation in Sri Lanka	041_Rubber	
42.	Tea Cultivation and Processing in Sri Lanka	042_Tea	
43.	The Success Story of Rindpest Eradication in Nepal	043_Rinderpest	
44.	Transplanted Sugarcane in Bangladesh	044_Sugarcane	
45.	Triumph of Golden Harvest – Sri Lanka	045_Golden_Harvest	
46.	Upgrading of Milk Production Through Artificially Insemination of Local Cows in Nepal	046_Milk Upgrading	
47.	Virus-free Potato Seed Production Through Tissue Culture in Nepal	047_Virus_free_Potato	
48.	Wheat: From Deficit to Surplus: A Spectacular Story – India	048_Wheat	
49.	Cultivation of Rabi Medicinal Plants – India	049_Medicinal plants	
50.	Higher Income from Cultivation of off-season Vegetables in the Hills – India	050_Vevetables	

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51.	Greening the Sea: The Story of Green Mussel Cultivation in India	051_Green Mussel	
52.	Yellow fin Tuna Fishing: Some Glimpses – India	052_Tuna Fishing	
53.	Tea Manufacture (CTC) – Sri Lanka	053_Tea	
54.	New Horizons in Mariculture: Culture of Seabass in open Sea Cage – India	054_ Mariculture	
55.	CMFRI: The Saga Continues – India	055_ Saga Continues	
56.	Farming Jewels from the Sea – India	056_Jewel Farming	
57.	CIFT-The Wave Riders – India	057_ Wave Riders_1 057_ Wave Riders_2	
58.	HACCP in food processing plants – India	058_Food Processing	
59.	The pre-requisite programs-GMP & SSOP – India	059_ GMP & SSOP	
60.	Wealth from waste-livestock feed from cephalopod processing waste – India	060_ Feed from waste	
61.	Fabrication and maintenance of fishing nets – India	061_Fishing net	
62.	Catfish (Magur) farming – India	062_Catfish farming	
63.	Freshwater prawn hatchery for boosting prawn production – India	063_ Prawn hatchery	
64.	CIFA: gateway of aquaculture – India	064_ Aquaculture	
65.	Poultry Passion in India	065_Poultry	
66.	CPRI in Tune with the Time – India	066_Potato research	
67.	Potato Seed Production in India	067_Potato seed	
68.	ICRISAT helping and poverty through Inclusive Market Oriented Development – India	068_ICRISAT_01	
69.	ICRISAT pigeonpea genome sequence – India	069_ICRISAT_02	
70.	ICRISAT – NASFAM partnership – India	070_ICRISAT_03	
71.	Preparation of Vermicmpost – India	071_ICRISAT_04	
72.	Integrated water management- A successful story, Kothapally – India	072_ICRISAT_05	
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74.	National Research Centre for Agroforestry in service of nation – India	074_Agroforestry	
75.	Documentary on National Resource Conservation through Watershed Development – India	075_Watershed	
76.	Directorate of Wheat Research (DWR) profile – India	076_DWR profile	
77.	RCT for increased wheat production in India	077_RCT wheat	
78.	Honey Bee – Pakistan	078_Honey Bee	
79.	Area Specific Mineral Mixture for improving productivity in animals – India	079_ Mineral Mixture	
80.	Improving quality and utilization of poor quality roughages – India	080_Roughages	
81.	Azolla cultivation for livestock feeding – India	081_Azolla	
82.	Complete feed block – India	082_Feed block	
83.	NIANP – Looks Ahead – India	083_NIANP Looks	
84.	Exploing Mithun: Journey Ahead – India	084_Mithun	
85.	Importance of Weed Management – India	085_Weed Management	
86.	Parthenium Management – India	086_Parthenium	
87.	Threat of Invasive Weeds in India	087_Invasive Weeds	
88.	Directorate of Weed Science Research (DWSR) Profile – India	088_DWSR Profile	
89.	Enlivening the Thar Desert – India	089_Thar Desert	
90.	Jute Reinvented – India	090_Jute Reinvented	
91.	The Jute Non woven in agriculture	091_Jute Non Woven_1 091_Jute Non Woven_2	
92.	Central Plantation Crops Research Institute (CPCRI): For Farmers Prosperity (English) – India	092_ CPCRI_1 092_ CPCRI_2	
93.	A Tale of Central Tobacco Research Institute (CTRI) – India	093_CTRI_1 093_CTRI_2	
94.	Shrimp culture – India	094_Shrimp	
95.	Mud Crab farming and fattening by women – India	095_Mud Crab	

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96.	Fish Food products development and marketing by women self help groups – India	096_Fish Food	
97.	Aqua feed development by women self help groups – India	097_Aqua Feed	
98.	Diversification of livelihoods among the coastal women self help group – India	098_Coastal Women	
99.	Sri Lankan Spices for Better Quality	099_Spices	
100.	Sweet Sorghum- A smart bio fuel Crop – India	100_Sweet Sorghum	
101.	Central Institute of Brackish-water Aquaculture (CIBA) profile and Programs – India	101_CIBA profile	
102.	Cultivation of Rabi Medicinal Plants – India	102_Medicinal Plants	
103.	Herbal wealth of India	103_Herbal wealth	
104.	Good Agricultural and Collection practices of Medicinal Plants – India	104_Medicinal Plants_1 104_Medicinal Plants_2 104_Medicinal Plants_3 104_Medicinal Plants_4 104_Medicinal Plants_5 104_Medicinal Plants_6 104_Medicinal Plants_7 104_Medicinal Plants_8	
105.	Indian Fisheries – a success story	105_Indian Fisheries	
106.	Polythene Film Technology (PFT), ICIMOD – Nepal	106_Polythene	
107.	Sloping Agricultural Land Technology, ICIMOD – Nepal33	107_Sloping Land	
108.	Warning Signals from the Apple Valleys, ICIMOD – Nepal	108_Apple Valleys	
109.	ICIMOD Demonstration and Training – Godavari – Nepal	109_Godavari_1 109_Godavari_2	
110.	In the Grip of Drought, ICIMOD – Nepal	110_Drought	
111.	Living with Floods, ICIMOD – Nepal	111_Floods	
112.	Promoting Herbal Gardens in School, ICIMOD – Nepal	112_Herbal Gardens	

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113.	Too Much Water; Too Little Water, ICIMOD – Nepal	113_Water	
114.	Documentary on G.B. Agricultural University – India	114_GB University	
115.	Greedy Fish Farmer – India	115_Greedy Fish	
116.	Little Fishes and Tiny Nets – India	116_Tiny Nets	
117.	Environment of Sri Lanka	117_Environment	
118.	Over use of Fertilizers	118_Fertilizers	
119.	Use of Straight Fertilizer – Sri Lanka	119_Straight Fertilizer	
120.	Use of Organic Fertilizer – Sri Lanka	120_Organic Fertilizer	
121.	Compost as a Fertilizer – Sri Lanka	121_Compost Fertilizer	https://youtu.be/jwR6qch3IP0
122.	Large Scale Compost Making – Sri Lanka	122_Compost Making	https://youtu.be/AzPuS6Qed6M
123.	Use of Straw as a Fertilizer – Sri Lanka	123_Straw fertilizer	https://youtu.be/00CBswiM_rw
124.	Use of Azolla as a Fertilizer – Sri Lanka	124_Azolla Fertilizer	https://youtu.be/YQDWRpmwo4A
125.	Beekeeping (part I – VII) – Sri Lanka	125_Beekeeping	https://youtu.be/1uPIVWKMUSU
126.	Runkarale Jaya – Sri Lanka	126_Runkarale	https://youtu.be/hG2Y5eld1BY
127.	Seed Potato Production (from field preparation to vesting) – India	127_Seed potato	https://youtu.be/U1d6QipqMMI
128.	Hybrid Rice Seed Production Technology – India	128_Hybrid rice	https://youtu.be/lqpfH8C7zqE
129.	Integrated Pest Management in Rice – India	129_IPM rice	https://youtu.be/9BWUhlhZhSs
130.	Quality Protein Maize (QPM) for Improved Nutrition – India	130_Maize	https://youtu.be/LTpj-qq1yyA
131.	Cotton Plant by-products and their Utilization – India	131_Cotton	https://youtu.be/hjJsEwnjvQ0
132.	Success Story of IPM in Rainfed Cotton – India	132_IPM cotton	https://youtu.be/fNyxu3MRxQA
133.	Backyard Rearing of Improved Nicobari Fowls for Increased Income – India	133_Nicobari	https://youtu.be/Gzu6YzedIWA
134.	Weed Control in Cropping System – India	134_Weed	https://youtu.be/Nzamtx7FgH4

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135.	Honey Production for Additional Employment and Income Generation – India	135_Honey	https://youtu.be/R6rI0ePrsyM
136.	Year Round Fodder Production – India	136_Fodder	https://youtu.be/92vivCuFRSg
137.	Fishing Nets Fabrication and Maintenance – India	137_Fishing Nets	https://youtu.be/0FUeCJpkbUg
138.	ICAR Shrimp Culture – India	138_Shrimp Culture	https://youtu.be/TYRejE8dk64
139.	Reservoir Fisheries Management – India	139_Fisheries	https://youtu.be/r1DU9NVw4JA
140.	Freshwater Prawn Hatcheries – India	140_Hatcheries	https://youtu.be/MG4Lf-uQFdk
141.	Marine Pearl Culture – India	141_Pearl	https://youtu.be/RIqzlwb1PN8
142.	Catfish Farming – India	142_Catfish	https://youtu.be/dVzB1IzaA3I
143.	Himalayan Mahseer Breeding and Culture – India	143_Fish Breeding	https://youtu.be/BLkmXIANUMY
144.	Animal Health Care – India	144_Animal Health	https://youtu.be/T80hWCF3sZg
145.	Hygienic Meat and Meat Product Processing and Packaging – India	145_Hygienic Meat	https://youtu.be/6AUKVd7ug6c
146.	Hygienic Milk and Milk Product Processing and Packaging – India	146_Hygienic Milk	https://youtu.be/KpoXNbNPZyA
147.	Sheep Rearing for Carpet and Fine Wood Production – India	147_ Carpet	https://youtu.be/DA10hgSGG3k
148.	Pig Production – High Focus in North – East Region – India	148_Pig Production	https://youtu.be/yKN-PS7SS_8
149.	Rural Poultry Production for Income and Household Nutritional Security - India	149_Rural Poultry	https://youtu.be/SlRzABCHvKc
150.	Improving Quality and Utilization of Poor Quality Roughages – India	150_Roughages	https://youtu.be/km_1m0j259w
151.	Mineral Mixture for Increased Animal Productivity – India	151_Mineral Mixture	https://youtu.be/Oy0jN46W2OY
152.	Garole Sheep Farming for Increased Income – India	152_Garole Sheep	https://youtu.be/fZHnoiQ0eEE

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153.	Vermi-composting using Plantation Material Waste – India	153_Vermi Compost	https://youtu.be/_5NLLyrV8oM
154.	Water Resources Management Under Rainfed Farming Through Community Action – India	154_Water Resources	https://youtu.be/nquh01I3brk
155.	Drainage for Reclamation of Waterlogged Saline Soils – India	155_Waterlogged	https://youtu.be/x33Iue3crc0
156.	Resource Conservation Technologies for Increasing Wheat Production – India	156_Wheat Production	https://youtu.be/x5wGGWUiwn0
157.	Construction and Environment Control of Greenhouses – India	157_Greenhouses	https://youtu.be/ADfIvefUL1U
158.	Efficient Use of Water in Agriculture – India	158_Water Use	https://youtu.be/ASS6eEVhrps
159.	Coping with Intermittent Drough Spells – India	159_Drough Spells	https://youtu.be/yIk-BCI_228
160.	Cultivation of Horticultural Crops in Arid Zone – India	160_ Horticulture	https://youtu.be/sJ4Wffzu0jQ
161.	Protected Gultivation of Capsicum and Tomato – India	161_Capsicum	https://youtu.be/HBZVOwCL8ME
162.	Production of Quality Vegetable Seedlings – India	162_Vegetable	https://youtu.be/MyL4Wou6Lz0
163.	Post Harvest Management of Onion And Garlic – India	163_Onion	https://youtu.be/qriW6azpRIw
164.	Reducing Drudgery of Farm Women in Farm Operations – India	164_Farm Women	https://youtu.be/mKWkO71eAqI
165.	Mechanized Sugarcane Production: Save Labour and Earn More – India	165_Sugarcane	https://youtu.be/JYhN1lCIYFo
166.	Meneke Rose Garden – Sri Lanka	166_Meneka	https://youtu.be/Ru-Z6zyrQkY
167.	Vikasitha: Rose Garden – Sri Lanka	167_Vikasitha	https://youtu.be/GnJMuZr4MQs
168.	Protected Agriculture (Vegetable Grower) – Sri Lanka	168_Vegetable	https://youtu.be/AVQnAtJU8ik
169.	Finger Miet Fied story – Sri Lanka	169_Finger Miet	https://youtu.be/_NyUmJOPEAk
170.	Ornamental Leaves – Sri Lanka	170_Ornamental Leaves	https://youtu.be/40gy39focOg

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171.	Rathna Papya Vareity – Sri Lanka	171_Rathna Papya	https://youtu.be/HKg1tQc_OhA
172.	Seed Paddy Production – Sri Lanka	172_Seed Paddy	https://youtu.be/a8CYAIAZ-tc
173.	Fluid Bed Tea Drier – Sri Lanka	173_Tea Drier	https://youtu.be/nlqdGYX0wf4
174.	Soil Fertility in Tea – Sri Lanka	174_Soil Fertility	https://youtu.be/P8PeokL2OWM
175.	Harvesting Tea – Sri Lanka	175_Harvesting Tea	https://youtu.be/Vfz-ugYNFsY
176.	Tea Nursery Management – Sri Lanka	176_Tea Nursery	https://youtu.be/hsbI4WMfK5Q
177.	Field Practices in Tea – Sri Lanka	177_Field Tea	https://youtu.be/vh6EqISZlDw
178.	Graphs from dumbulla – Sri Lanka	178_Graphs	https://youtu.be/6VhoqvvMwOk
179.	Agricultural Light Engineering Program (ALEP) – Pakistan	179_ALEP	https://youtu.be/6IsvQsxIiNw
180.	Introduction of Livestock Production Research Institute – Pakistan	180_ Livestock	https://youtu.be/S0uIIIfvlPE
181.	Paddy Straw Treatment with Urea – Pakistan	181_Paddy Straw	https://youtu.be/k-Xs_BnrV-Q
182.	Clean and Hygienic Milk Production – Pakistan	182_Hygienic Milk	https://youtu.be/UGVR6BuSFW8
183.	Silage Making – Pakistan	183_Silage Making	https://youtu.be/izSaXJxoRNw
184.	Welcome to NARC – Pakistan	184_NARC	https://youtu.be/69pTK8ONUvQ
185.	Urea Treated Fodder – Pakistan	185_Urea Fodder	https://youtu.be/aDvRI-rOMA4
186.	Livestock Research for Prosperity – Pakistan	186_Livestock	https://youtu.be/33SxGxlD21w
187.	Sugarcane – Pakistan	187_Sugarcane	https://youtu.be/Jgisw4cOoTM
188.	Soil Erosion – Pakistan	188_Soil Erosion	https://youtu.be/uLEWUJDjF14

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189.	Peach Cultivation – Pakistan	189_Peach Cultivation	https://youtu.be/E7_w3ToXF1U
190.	Buffalo Management – Pakistan	190_Buffalo	https://youtu.be/jO7tnsItBZo
191.	Rice Nursery Growing for Transplantation – Pakistan	191_ Rice Nursery	https://youtu.be/8v-V27QABfg
192.	Off Session Vegetables – Pakistan	192_Vegetables	https://youtu.be/Vr9fl3tpvyM
193.	Canola Oil – Pakistan	193_Canola Oil	https://youtu.be/CbEX-7Dtuds
194.	Buffalo: From experts point of view – Pakistan	194_Buffalo	https://youtu.be/GIuVXn4nAVc
195.	Wheat: Preparation of land – Pakistan	195_Wheat	https://youtu.be/Es07F2IVLoI
196.	Agricultural Sustainability – Pakistan	196_Agriculture	https://youtu.be/z-pk8VUm6uc
197.	Bio Pesticide – Pakistan	197_ Bio Pesticide	https://youtu.be/71ciLPAelhI
198.	Role of Women in Agriculture – Pakistan	198_Women	https://youtu.be/OSxt8Iyy-4o
199.	Mott Grass – Pakistan	199_Mott Grass	https://youtu.be/2ejBiTBeWtM
200.	Cotton Virus (Preventive measures) – Pakistan	200_Cotton Virus	https://youtu.be/F-xoZ6esOvQ
201.	Cotton Virus (Research Aspects) – Pakistan	201_Cotton Research	https://youtu.be/A0EFmQmH7-o
202.	Balance Use of Fertilizer – Pakistan	202_Fertilizer	https://youtu.be/p14J0_CNruM
203.	A Video on NWFP Agriculture University – Serving Agriculture – Pakistan	203_NWFP	https://youtu.be/jlOIPDt-w_Q
204.	Manage of Plant Protection on fruit crops in Bhutan	204_Fruit Crop	https://youtu.be/HGks3pMDPj0
205.	National Irrigation Policy – Bhutan	205_Irrigation Policy	https://youtu.be/qZBIBE9sZV0
206.	Citrus Growing in Bhutan	206_Citrus Growing	https://youtu.be/QAM_Qix6uMg
207.	NRTI Participation in the Laya Yak – Bhutan	207_Laya Yak	https://youtu.be/N8wyPVHvMmc

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208.	Tree Beatification – India	208_Tree Beatification	https://youtu.be/7BGUF7z0Khw
209.	Humming Honey Maker – India	209_Honey Maker	https://youtu.be/I2yEtIXpSwY
210.	Teak Defoliators – India	210_Teak Defoliators	https://youtu.be/TsN0VJBj-e0
211.	Tea Plantation in India	211_Tea Plantation	https://youtu.be/UJXZmCV1WlI
212.	Tissue Culture in Pakistan	212_Tissue Culture	https://youtu.be/v1HynjQp30c
213.	TPS: A New Technology in Pakistan	213_TPS	https://youtu.be/xUbHS0pIuf4
214.	NRCS The Crusader for Success Story of Soybean in India	214_Soybean	https://youtu.be/8jY9kiPBjNI
215.	Cultivation Technology of Button and Oyster Mushroom in India	215_Mushroom	https://youtu.be/9DPrkLPg9YY
216.	Pruning of Fruit Trees – Pakistan	216_Pruning	https://youtu.be/Vs9SyNNS57Y
217.	Blight Disease and Control in Chickpea – Pakistan	217_Chickpea	https://youtu.be/DBAynpwJWi8
218.	Utilization of Salt-Affected Lands in Joint Satiana Pilot – Pakistan	218_Salt Land	https://youtu.be/2EXNDHnzd1I
219.	Method of Raising Eucalyptus Nursery – Pakistan	219_Eucalyptus	https://youtu.be/CbRNggMvqPY
220.	Tea Cultivation – Pakistan	220_Tea Cultivation	https://youtu.be/ZRMf4tX86nU
221.	Cooperative Society: Nakka Kahut – Pakistan	221_Cooperative	https://youtu.be/VLK836VC4y8
222.	Visitors Book: Rational Use of Potash in Pakistan	222_Potash	https://youtu.be/bIm2Tit-ta4
223.	Yak Husbandry – Nepal	223_Yak Husbandry	https://youtu.be/jFPMTrKZwv8
224.	Cane Tech Spot Films – India	224_Cane Tech	https://youtu.be/8Xw3BD8uAhk
225.	Early Planting Sugarcane – India	225_Sugar Plant	https://youtu.be/jhaLXGV9DiE

Sl. No	Title of the Videos	Name of the File	Short Code
226.	Sugarcane Seed Nursery Program – India	226_Sugarcane Seed	https://youtu.be/fb0qDdL3HVg
227.	Bio Fertilizer – India	227_Bio Fertilizer	https://youtu.be/uApwPFM8CXw
228.	Participatory Research With Women Farmers (ICRISAT) – India	228_Women Farmers	https://youtu.be/VURwirtEUdo
229.	Hygienic Milk – India (Telecasted by Bangladesh Television)	229_Hygienic Milk	https://youtu.be/izUUksPrBsI
230.	Drip Irrigation – Pakistan (Telecasted by Bangladesh Television)	230_Drip Irrigation	https://youtu.be/gxwVK9sqURo https://youtu.be/2g1z3qvrk1s
231.	Green House Vegetable – India (Telecasted by Bangladesh Television)	231_Vegetable	
232.	Sprinkler Irrigation – Pakistan (Telecasted by Bangladesh Television)	232_Irrigation	https://youtu.be/oSJSGTveDtA
233.	Maize Production – India (Telecasted by Bangladesh Television)	233_Maize	https://youtu.be/H9_SdELOyxM
234.	Off-Season Vegetable – India (Telecasted by Bangladesh Television)	234_Vegetable	https://youtu.be/swr-6RYanPQ
235.	Potato Seed Production – India (Telecasted by Bangladesh Television)	235_Potato Seed	https://youtu.be/QIc17SlqTEM
236.	Vegetable Seed Production in Nepal	236_Vegetable	https://youtu.be/Z85SDxTu5b4
237.	Trout Fish Culture – Nepal	237_Trout Fish	https://youtu.be/Tln3-PIHcPY
238.	Potato Production from Seed – Nepal	238_Potato Seed	https://youtu.be/frfHzeaipMU
239.	High Hill Horticulture Development – Nepal	239_Hill Horticulture	https://youtu.be/pIxL0fZ1A3E
240.	Ginger Drying Technology - Nepal	240_Ginger	https://youtu.be/lE_fUZhXKsw
241.	Embryo Transfer in cows – India	241_Embryo	https://youtu.be/3JNRXL6geBI
242.	Neem: An analysis – India	242_Neem	https://youtu.be/NjpMS3ojxoY

Sl. No	Title of the Videos	Name of the File	Short Code
243.	Azolla – India	243_Azolla	https://youtu.be/M3I13wHvXQg
244.	Thanjayur wilt diseases of Coconut Tree – India	244_Thanjayur	https://youtu.be/3c_OAoDZ78I
245.	Neem in Insect Control – India	245_Neem	https://youtu.be/c6Wud7NAV70
246.	Tamil Nadu Prosperity Through Agricultural Biotechnology – India	246_Biotechnology	https://youtu.be/rlgMorm7wF0
247.	About TNAU – India	247_TNAU	https://youtu.be/63xNrfihvUA
248.	Soybean Cultivation – India	248_Soybean	https://youtu.be/I3G2_H9txM0
249.	Bamboo: A crop – India	249_Bamboo	https://youtu.be/OejWSnUweFI
250.	Improving Women Through Social Engineering (CIRDAP) – India	250_Inprove Women	https://youtu.be/vQA8AeCmGSE

SAC Website

www.sac.org.bd is the principal interface of SAARC Agriculture Centre for playing the role of "Agricultural Knowledge & Information Hub in South Asia" as well as to reach the stakeholders concerned with agriculture and allied sectors. The website is an interactive one with dynamic features and programs for sharing the latest activities of SAARC Agriculture Centre. Additionally, it displays the information pertaining to technological advancement and key issues in crop, livestock and fishery sectors of South Asia, regional policy on emerging challenges, climate change adaptation and mitigation, research & development, germplasm exchange for crop, livestock and fishes etc. Publications of the Centre including books, training manual, SAARC Journal of Agriculture, policy brief, SAARC AgriNews are being hosted in the website and freely available to the clients.

Upgrade Dedicated Full Duplex Internet Connectivity

SAARC Agriculture Centre (SAC) has upgraded 2.5 Mbps to 10 Mbps Dedicated Full Duplex Broadband Internet Connection through underground optical fibre and one backup connection through overhead optical fibre from 01st January 2015.

Purchase Country Domain (www.sac.org.bd) and unlimited server space

SAARC Agriculture Centre (SAC) purchased Country Domain (www.sac.org.bd) from Bangladesh Telecommunications Company Ltd. and purchased unlimited server space from HostGator for uploading SAC Website and Archive.

Change Web Portal of SAARC Agriculture Centre

SAARC Agriculture Centre designs and uploaded a new web portal. The new Uniform Resource Locator (URL) is www.sac.org.bd

Video Conferencing Facility

SAARC Agriculture Centre (SAC) created a unique video conferencing facility within the office premises during 2017 and the facility is being continuously used for conduction of skype based expert consultation meeting as well as for communication & discussion with other international/ regional platforms, as and when required.

Successful Agricultural Technology Dissemination in SAARC Member Countries Audio-Visual on Agro-Technology

The SAC has developed audio-visual materials and also collects AV materials on agro-technologies from member countries and other sources for wider distribution. The SAC has established a depository Video Lab of Video Films on agricultural technologies developed and disseminated by the Pioneer Agricultural Institutions/Organizations and Universities of SAARC Member Countries.

The SAC has a collection of 370 video films, on agricultural technologies out of which 314 were collected from SAARC Member Countries, 48 were produced and dubbed respectively at the SAC. The SAC has a collection of 75 Video Films.

Publications Purchased by SAC during 2019

Sl. No.	Description	Published	Taka
1	Breeding of Horticultural Crops: Principles and Practices. 2nd edition. Authored by N. Kumar	2016	1,600/-
2	Climate Change, Soil and Agricultural Technologies for Sustainable Development, Food and Social. Authored by Subhash Chand	2015	2,330/-
3	Commercial Vegetable Processing. 2nd edition. Authored by Bor Shiun Luh	2014	2,690/-
4	Farm Business Management: The Fundamentals of Good Practice. Authored by Peter L. Nuthall	2016	4,398/-
5	Flower and Plant Production: Greenhouse Management. Authored by Rajender Singh	2016	890/-
6	Fruit and Vegetable Preservation: Principles and Practices. 3rd edition. Authored by R. P. Srivastava	2016	710/-
7	Groundwater Hydrology. Authored by Heman Bouwers	2014	1,600/-
8	Handing, Transportation and Storage of Fruits and Vegetables.Vol-1. Authored by ALioyd Ryall	2014	1,970/-
9	Handing, Transportation and Storage of Fruits and Vegetables.Vol-2. Authored by ALioyd Ryall	2014	1,970/-
10	Indian Agriculture & Agri-Business Management. Authored by Smita S. Diwase	2014	890/-
11	Introduction to Horticulture. 2nd edition. Authored by Mamta Bohra	2017	710/-
12	Irrigation Technology: Theory and Practice. Authored by Amalendu Bhattacharya	2014	2,690/-
13	Mango: Insect Pest Management. Authored by R. P. Srivastava	2015	1,790/-
14	Plant Biochemistry 3rd edition. Authored by James Bonner	2013	7,190/-
15	Plant Biotechnology. 2nd edition. Authored by Paolo Fasella	2017	2,690/-
16	Recent Advances in Cloning, Genetics & Stem Cell Technology. Authored by Jailan Asche	2013	2,870/-
17	Recent Advances Role of Biotechnology in Medicinal Plants. Authored by Brandon Issac	2013	2,870/-
18	Watershed Management for Sustainable Agriculture. Authored by M. A. Khan	2012	1,430/-
19	Soil Conservation. 3rd edition. Authored by Norman Hudson	2015	5,130/-
20	Sustainable Water Management in Smallholder Farming:Theory and Practice. Authored by Sara Finley	2016	4,398/-
21	Climate Change in Asia and the Pacific:How Can Countries Adapt? Authored by Venkatachalam Anbumozhi	2012	1,700/-
22	Energy, Irrigation and Water Suppl. Authored by Aaron Harris	2013	2,690/-
23	Disaster Management and Private Sectors: Challenges and Potentials. Authored by Takako Izumi	2015	9,499/-
24	Downstream Processing of Natural Products: A Practical Handbook. Authored by M. Verrral	2013	6,470/-
			71,175
A total of BDT seventy-one thousand, one hundred and seventy-five only			

SAC Provides ABIS through e-mail

SAARC Agriculture Centre(SAC) has been providing Agricultural Bibliographic Information Service (ABIS) on different CD-ROM database. The following CD-ROM databases are available with SAC: CROP CD (2007/07), HORT CD (2008/06), VET CD (2003/11), PLANT GENE CD (2008/08), SOIL CD (2007/04), PARASITE CD (2005/07), FSTA (2007/10), CAB ABSTRACT (2005/11), TREE CD (2004/10), FOREST SCIENCE CD (2008/07), ANIMAL PROD. CD (2008/11), VETEARINARY CD (2008/8), AGRICOLA CD (2007/6) is also subscribed for renewal. ABIS can be availed through request to sac.cdrom@gmail.com addressing to the Director, SAC. The information seeker should mention the keywords, title of CD-ROM database and the range of years for which references are needed.

SAC Corners in Agricultural Libraries in Bangladesh

SAARC Agriculture Centre (SAC) has opened its corners at various libraries of Agricultural Institutions such as Bangladesh Jute Research Institute (BJRI), Bangladesh Agricultural Research Institute (BARI), Bangladesh Rice Research Institute (BRRI), Sher-e-Bangla Agricultural University (SAU), Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU), Bangladesh Agricultural University (BAU) and also at Krishibid Institution Bangladesh(KIB), Dhaka, Bangladesh for sharing information with all students, scientists, stakeholders. Users can find out easily their desired SAC publications, reports, journals, newsletters, bulletin, data books, seminar/workshop proceedings and CDs on the success stories on agriculture and allied fields of SAARC Member Countries.

Representation of SAC in International, Regional and National Events

Second Meeting of the SAARC Seed Bank Board

The second meeting of SAARC Seed Bank Board was held in New Delhi, India on 17th January, 2019. Ms. Ishrat Jahan, Director, ARD, SAARC Secretariat, conveyed to all the delegates warm greetings and best wishes from the Secretary General of SAARC. She expressed sincere thanks and gratitude to the Government of India for hosting this important meeting and for the warm welcome and hospitality extended to all the delegates. She briefed about the genesis of the SAARC Seed Bank, which was established recognizing the importance of attaining Seed Security as a means of ensuring Food Security and importance given to it by the SAARC Leaders. She also hoped that with the support of the Member States, the Seed Bank would emerge as a vital SAARC institution for the promotion of regional agricultural growth as well as food and nutrition security.

Dr. Pradyumna Raj Pandey, Senior Program Specialist, SAARC Agriculture Centre (SAC) made a presentation on various aspects of the Agreement, especially, on the modalities for operationalization of the Seed Bank and the seed related policies, rules and regulations as directed by the First Meeting of the Bank and updated the Meeting on the Seed Situation in the Member States of SAARC and activities undertaken by SAC on the Seed and Seed Bank related issues. Dr. Pandey briefed the Board on the objectives of SAARC Seed Bank Information System (SSBIS) and updated the Board on the recently launched SSBIS in the website of SAC.

Tenth Meeting of the SAARC Food Bank Board

The tenth meeting of SAARC Food Bank Board was held in Islamabad, Pakistan during 21st to 22nd January, 2019. Ms. Ishrat Jahan, Director, ARD, SAARC Secretariat, conveyed warm greetings and best wishes from Secretary General of SAARC to all the delegates. She briefly touched upon the activities of the SAARC Food Bank Board and developments that took place in the last few years, and mentioned about the emphasis laid by higher SAARC bodies on utilization of the Food Bank reserves.

Dr. Pradyumna Raj Pandey, Senior Program Specialist, SAARC Agriculture Centre (SAC), made a presentation covering the status of the SAARC Food Bank Information System (SFBIS). Dr. Pandey also updated the Meeting on activities undertaken by SAC on the SFBIS. The Board requested the Member States to designate a dedicated technical officer to regularly upload information/data into the SFBIS. The Board Members reiterated their commitment to personally intervene and monitor in sending inputs to the SFBIS.

Workshop on "Future climate projections and their applications in South Asia" held in ICIMOD, Kathmandu, Nepal

Dr. Ashis Kumar Samanta represented SAARC Agriculture centre to attend the workshop on "Future climate projections and their applications in South Asia" held during 29th to 31st January, 2019 at ICIMOD, Kathmandu, Nepal.

The combination of a highly diverse climate, burgeoning population and a higher dependence over natural resources by farming community means that Member Nations of South Asia will be at higher risk to the innumerable vagaries of climate change. This is further worsened because the primary stakeholder of agriculture (crop, livestock, fisheries) is small and marginal farmer and unable to afford any additional cost towards climate change adaptation. As a result of climate change, there is every possibility of depletion of freshwater resources, unprecedented biodiversity loss, deforestation, and spread of invasive species (crop, livestock, fisheries) and it could jeopardize the food and livelihood security in South Asia. According to the recent estimate, the total greenhouse gas emission by all South Asian Member States is approximately 3883.1 MT and the per capita greenhouse gas emission ranged from zero to 3.37 Tones; being lowest in Bhutan and highest in Maldives. Perceiving the climate change as the greatest challenge to the agrarian sector of South Asia, SAARC Agriculture Centre is focussing its multisectoral activities through capacity building, sensitization and adaptation. Dr. Samanta made a presentation on "An overview of SAC activities on climate resilient agriculture in South Asia" during the workshop and reiterated the commitment of the SAC to work collectively in this direction.

Second Meeting of ISARC Coordination Committee

Dr. Pradyumna Raj Pandey, Senior Program Specialist, represented SAARC Agriculture Centre in the second meeting of ISARC Coordination Committee held in Varanasi, India on 26th March, 2019.

Dr. Pandey presented the recent activities of SAC and shared the views of SAARC Agriculture Centre pertaining to rice crop including exchange of germplasm, value chain development, seed, capacity building etc. The meeting concluded with the resolution to build stronger partnership and exchange of knowledge between IRRI South Asia Regional Centre and SAC.

Field Visit cum Meeting for Partnership Development

A team comprising of Dr. S.M. Bokhtiar (Director), Dr. Ashis Kumar Samanta (Senior Program Specialist) and Dr. Younis Ali (Senior Technical Officer), visited Rangpur on 7th April, 2019 to witness the sustainable agriculture activities carried out by Syngenta Foundation for Sustainable Agriculture (SFSA).

The team visited the Research & Development Station, Milerpar, Rangpur. Out of the 100 "Farmer's Hub" established in Rangpur Division, the team visited two "Farmer's Hub" located at village Parbatipur and Birgonj. All the "Farmer's Hub" are formed by the technical guidance of SFSA. Nevertheless, it is running by the local entrepreneur following rigorous skill development and capacity building by SFSA, Bangladesh. The farmers confessed the benefits accrued as a result of establishment of "Farmer's Hub", including selling of their produce, reduction of drudgery, availability of quality seed and seedlings, pesticides, fertilizer, farm machineries. Later on, the team reached at Birgonj, Dinajpur to witness the novel initiative taken up by the SFSA for indigenous tribal (Saothal community) woman farmer towards sustainable agriculture. The cluster (tribal woman farmers) is growing high value market-oriented vegetable crops through protected cultivation. As a part of livestock development program, initially they offer two female goats along with one male goat to the interested farmer and the same family is linked to another farmer for handing over the upcoming goat kids. In such platform, a self-sustainable goat production is happening for ensuring livelihood and food security.

Fourth FAO/OIE Sub-regional meeting of the Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs) for SAARC and seventh meeting of the Chief Veterinary Officers' (CVOs) forum

Dr. Ashis Kumar Samanta represented SAARC Agriculture Centre in the fourth FAO/OIE Sub-Regional Meeting of the Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs) for SAARCheld in Islamabad, Pakistan on 22nd July, 2019.

After registering for the said meeting, Dr. Samanta presented the "Updates from SAARC Agriculture Centre on the activities, programs and plans on the control of transboundary animal diseases in the SAARC region". As per the OIE GF-TADs, only three diseases are prioritized namely FMD, HPAI and PPR. Keeping in view the current changes on animal disease epidemic vis a vis its impact over livestock and livelihood of the farmers in South Asia, there is an urgent need to list few more diseases after through consultation with the experts from SAARC Member States.

Dr. Samanta also attended the seventh Meeting of the SAARC Chief Veterinary Officers' (CVOs) Forum held on 23rd to 24th July, 2019 in Islamabad, Pakistan. He presented "Activities of SAARC Agriculture Centre on livestock, animal health and disease on 23rd July, 2019. He highlighted the recent activities particularly compilation on list of livestock institutions and experts of the region, distribution of buffalo semen obtained from Pakistan (Nilli Ravi) and India (Murrah) etc.

SAARC- Tripartite Rabies workshop on "Enhancing progress towards rabies elimination 'Zero by 30' in the SAARC region"

Dr. Ashis Kumar Samanta, Senior Program Specialist represented SAARC Agriculture Centre in the SAARC-Tripartite rabies workshop on "Enhancing progress towards rabies elimination 'Zero by 30' in the SAARC region" held in Kathmandu, Nepal during 26th to 28th June, 2019.

After registration, Dr. Samanta attended the above workshop on rabies. Rabies is primarily caused by dog bite and more than 50% of global death by rabies happens to be from South Asia region and the workshop reiterated to eradicate rabies by 2030 from the region through multisectoral activities. The workshop suggested SAARC Agriculture Centre to conduct rabies diagnosis in animals. During one of the panel discussions, Dr. Samanta informed the house that "Hands on training on rabies diagnosis in animals" will be proposed in the forthcoming meeting of Governing Board of SAC and it will be conducted in accredited laboratory where advanced diagnostic facilities are available for capacity building. Accordingly, the Dr. A. Rahman, Executive Director and former president of Commonwealth Veterinary Association agreed to partner with SAARC Agriculture Centre in such regional capacity development program for fight against rabies.

FAO - Animal Production and Health Commission for Asia and the Pacific (APHCA) session

Dr. Ashis Kumar Samanta, Senior Program Specialist of livestock, represented SAARC Agriculture Centre during the 42nd Business session for FAO-APHCA held on 5th and 6th of November, 2019 in Kuala Lumpur, Malaysia.

The livestock sector related activities of the SAARC Agriculture Centre (SAC), Dhaka was presented by Dr. Samanta. After presenting a brief on the evolution of the SAC, he apprised the audience that the SAARC region is the richest habitat for several livestock species and is the platform of livelihood and food security for millions of small and marginal farmers. As per the recent estimate, 18%, 75%, 10% and 25% of the global cattle, buffalo, sheep and goat, respectively, are present in South Asia. The Members of the APHCA appreciated the livestock related activities of SAARC Agriculture Centre, particularly the capacity building program. Some of the Members opined to avail the SAC platform to enhance the capacity of APHCA livestock professionals. Dr. Samanta proposed the concept of "APHCA FEED BANK" for livestock in view of increased frequency and intensity of natural calamities in the Asia Pacific region. The proposal will lead to conceptualization and institutionalization of "APHCA FEED BANK" for storing and distributing lifesaving feed among Member States in order to meet the emergency feed requirement during natural calamities. The house

felt for strengthening collaboration among different regional, multilateral and international organizations on the emerging issues of livestock production.

SAC team visited Milkvita Buffalo Farm, Takerhat, Madaripur to evaluate buffalo calves born through artificial insemination of pedigreed buffalo semen under the initiative on "High Yielding Dairy Breed Development in SAARC Countries"

The SAC team comprising of Dr. Ashis Kumar Samanta, Senior Program Specialist (livestock) and Dr. Younus Ali (Senior Technical officer) visited Buffalo Farm of Bangladesh Milk Producer's Cooperative Union Ltd (Milkvita), Takerhat, Madaripur, on 28th November, 2019 to witness the performance of Murrah buffalo calves born through artificial insemination of pedigreed buffalo semen under the initiative on "High Yielding Dairy Breed Development in SAARC Countries".

About fifteen calves were born till 22nd November, 2019 as a result of successful artificial insemination of she-buffaloes. Out of the fifteen calves, thirteen are surviving. The birth weight of new borne calves' ranges from 25 to 41kg; with an average body weight of 33.6±1.63 kg. All the calves born through artificial insemination sound healthy and growing well with the dietary schedule adopted by the management of farm. Few more calves are expected to be borne in coming months.

Capacity Development

OIE PVS pathway training workshop for south Asia

Dr. Ashis Kumar Samanta, senior Program specialist of livestock from SAARC Agriculture Centre attended the OIE PVS pathway training workshop held during 12th to 15th February, 2019 in Paro, Bhutan.

World Organization for Animal Health (OIE) mission is to improve animal health and welfare across the world. Recognizing this, the OIE has framed international standards on quality of veterinary services. Relying on the principles and standards, the OIE has developed the "Performance of Veterinary Services (PVS) Pathway", the flagship capacity building platform for the sustainable improvement of national veterinary services. This enables the countries to take ownership and prioritise improvements to their animal health system. Dr. Samanta shared the livestock related activities of the SAC with the participants as well as the trainers of the program.

Regional training on "Pesticide residue analysis"

Ms. Fatema Nasrin Jahan, Senior Program Officer of SAARC Agriculture Centre attended the regional training program entitled "Pesticide Residue Analysis" held at Bangladesh Agricultural Research Institute (BARI), Gazipur, Bangladesh during 19th to 23rd November, 2019.

Participation of SAC in Ekusa Bai Mela in Dhaka

The Amor Ekushey Boi Mela was held from 1st to 28th February, 2019 at the Dhaka University Campus, Bangladesh. Following receiving invitation from the organizer, the SAARC Agriculture Centre participated in the historic Ekushey Boi Mela for the entire month with the designer stall at Bangla Academy. All the publications (books, monograph, SAARC Journal of Agriculture, SAARC AgriNews, policy brief etc.) of the Centre were displayed during the month-long period of "Boi Mela". More than five hundred people visited the stall and have a glance over those publications made by the SAARC Agriculture Centre. Several books were also sold during the above "Boi Mela".

She undergone extensive training comprising of theory and hands on experience on different issues of pesticide residue analysis including extraction, detection, quantification by HPLC, GC-MS etc. During the training, visit was arranged for the participants at various facilities of BARI and nearby agricultural research institutes. The training also covers production of safe food including cereal, vegetables and fruits in order to mission "Good Health and Well-being".

MoU in Processing

- International Livestock Research Institute (ILRI)
- Yunnan Academy of Agricultural Sciences (YAAS)
- The World Vegetable Center (WorldVeg)
- Intern Postgraduate Institute of Agriculture, University of Peradeniya (UoP-PGIA)
- International Food Policy Research Institute (IFPRI)
- Indian Council for Agriculture Research (ICAR)
- International Centre for Integrated Mountain Development (ICIMOD)

International Collaborations

The SAARC Agriculture Centre is closely working with the following international organizations on thrust areas of agriculture and allied sectors for regional development.

- International Rice Research Institute (IRRI)
- Centre on Integrated Rural Development for Asia and the Pacific (CIRDAP)
- World Agro-forestry Centre (WAC)
- Food and Agriculture Organization (FAO) of the United Nations
- International Centre for Integrated Mountain Development (ICIMOD)
- International Food Policy Research Institute (IFPRI)
- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
- International Sericulture Commission (ISC)
- SAARC Development Fund (SDF)
- Asia-Pacific Association of Agricultural Research Institutes (APAARI)
- Global Forum on Agricultural Research (GFAR)
- International Livestock Research Institute (ILRI)
- International Maize and Wheat Improvement Centre (CIMMYT)
- Asian Farmers' Association (AFA)
- ActionAid International
- Commonwealth Veterinary Association (CVA)
- Welthvunngerhilfe

Projects

Brief Introduction of Proposed/ ongoing SAC Projects and collaboration with International Agencies

Consortium for Scaling-up Climate Smart Agriculture in South Asia (C-SUCCSeS) (proposed)

As per the directives of SAARC Charter and the SAARC higher bodies, SAC organized "SAARC-CGIAR Consultative Meeting on Agriculture Research and Development for Food and Nutritional Security in SAARC Region" (New Delhi, August 2017) and finally in "SAC-Donor Coordination Meeting on SAARC Regional Agricultural Projects" held during 5-6 April 2018 in Kathmandu, IFAD agreed to extend Three Million USD grant (USD 3 Million) for regional project on "Consortium for Scaling-Up Climate Smart Agriculture in South Asia" and the draft project proposal was elaborately discussed along with the other six project proposals drafted by SAC. This project will foster partnership and cooperation between SAC, NARES/Agriculture/ relevant Ministries of the Member States of SAARC, IFPRI and other CGIAR-CCAFS on the Climate Smart Agriculture (CSA) agenda. The overarching goal of the project is to promote sustainable and resilient agricultural intensification in South Asia through enhanced capacity (policy, institution, skills) to scale-up climate smart strategies and technologies. The expected outcomes of the project include: (i) CSA policies and strategies are mainstreamed in national agricultural development strategies with appropriate institutional arrangement for effective implementation; (ii) enhanced capacities of approximately 2500 national staffs (policy, research and extension system) on climate smart agricultural technologies and sustainable and resilient agricultural intensification; (iii) around 5000 demonstration sites adopting the CSA technologies and best practices; and (iv) enhanced SAC-led cooperation program on CSA in the SAARC region. The grant activities will target directly smallholders, researchers, extension workers, and policy makers in the Member States of SAARC. Efforts will be made to ensure equal balance among genders.

The consortium project will commence in January 2019 for a period of 60 months until December 2023. SAC will be the main implementing agency through NARES/Agricultural/ relevant Ministries of the Member States of SAARC in collaboration with the IFPRI and CGIAR-CCAFS and other potential development partners depending on the specific activities. While IFAD will extend the major contribution (grant) to the project budget, SAC, IFPRI and CCAFS and NARES would make in-kind contributions. The project will set up a Project Steering Committee comprised of Heads of NARES of Member States of SAARC, SAC, IFAD IFPRI, and CCAFS with other potential development partners, chaired by the heads of NARES on rotation basis. The IFAD grants will flow through SAC and will disburse funds to the IFPRI and NARES based on the project activities. The total cost of the consortium project is estimated at around US$5.8 million (including cash and in-kind contributions) of which US$3.0 million is proposed to be financed on a grant basis by IFAD. The consortium will be kept open for other partners to join based on objectives and project activities, which will be decided by the inception workshop before the project implementation. Meanwhile, based on recent suggestion by IFAD, the project is revised for 3 years' time frame with US $1.5 million. IFAD is looking at the possibility of a 7/8 years long engagement with total funding potentially exceeding $ 4million and up to $5 million.

Livelihood Enhancement of the Small Farmers in SAARC Region through Small Scale Agro-business Focusing on Value Chain Development (ongoing)

South Asian region is one of the populace regions in the World with 1.6 billion people which represents 24.2 % of the World population. Agriculture sector provides employment to 70% of

population and contributes 24-50% GDP. Average across the region, almost 60% of the regional population depends on agriculture for their livelihood. Operating with average land holding of less than 1 hectare more than 25% fall below poverty and face acute shortage of food. This bracket of population is also vulnerable to malnutrition.

Fruits and vegetables play a major role in the agricultural economy of the SAARC countries. These countries grow a large variety of indigenous and exotic fruits and vegetables. Most member countries of SAARC for the past several years, maintained positive growth in production of fruits and vegetables indicating the increasing role that they play in enhancing farmer incomes, alleviating poverty and improving quality of diet. In most of the SAARC countries vegetables are an obvious priority as they are less risky to grow as compared to fruits. Vegetable production in South Asia was estimated to be 100 mt and total utilization was reported to be 99.13mt. The project to be implemented in eight Member States with the following objectives:

- To identify and replicate successful food processing technologies and models for fruits and vegetable in South and South-East Asia region
- To increase skill and capacity of smallholder farm families on value addition of locally produces fruits and vegetable
- To increase income and improve livelihoods of the small holders
- To promote empowerment of rural women and employment through promotion of agri-business
- To develop value chain of the agriculture products and mainstreaming the locally produced commodities

Donor : SDF (SAARC Development Fund)

Total project cost : 2249694 US$ (SDF grant US$ 1813972 and IA Contribution- In Kind US$ 435722)

Duration : Two years

Project Partners : Six Member States (Bangladesh, Bhutan, India, Maldives, Pakistan, and Sri Lanka).

Progress of the project

A Project Inception Meeting was held in Bhutan on 26-27 November 2018. Six Member States, including SAC, have signed the Project Financing Agreement. Meanwhile, the SDF has disbursed about US $ 162,018 to SAC, RDA, Bangladesh, DoA, Bhutan, M.S. Swaminathan Research Foundation, India, PARC, Pakistan and DoA, Sri Lanka for the project activities. The total expenditure of the project up to February 2020 is around USD 120182.00. The major achievements of the project are as follows:

- Producer group formation;
- Awareness rising training of the farmers about the project work;
- Cultivation of fruits and vegetables in the project site;
- Technical training of the farmers for machine operation;
- Data collection for baseline survey and preparation of the baseline report;
- Construction work for Infrastructure of processing machineries;
- Procurement and installation of machineries.

Common Updates

New Professionals Joined in 2019

Dr. Rudra Bahadur Shrestha joined on 6th January, 2019 in the position of Senior Program Specialist (Priority Setting & Program Development) at SAARC Agriculture Centre, Dhaka, Bangladesh. He served as a Senior Agricultural Economist and Head of International Cooperation Section, Ministry of Agriculture, Nepal; Cross Sector Advisor, Global Food Security Strategy, USAID-GON; Chairperson, Nepal Rice Working Group; and Focal Point from the Ministry of Agriculture for UNDP, FAO, ILO, USAID, WB, ADB, Danida, SDC, JICA, IFPRI, IRRI, CIMMYT, DFID in Nepal. He obtained PhD in Agricultural Economics from the National Pingtung University of Science and Technology,Taiwan and M.Sc. in Agricultural Economics from the University of Philippines Los Banos, Philippines. He served as Visiting Professor in Thai Nguyen University, Vietnam, and in Purbanchal University, Nepal. His areas of expertise include agricultural economics, strategic policy planning, farmers' right & smallholding agriculture, agriculture and food system, agribusiness, marketing and value chain, international trade and competitive, public private partnership. He was the Secretary General of Nepal Agricultural Economics Society and published dozens of papers in different journals in addition to editing of books and contributing book chapters.

Dr. Sreekanth Attaluri joined SAARC Agriculture Centre, Dhaka on 11th November, 2019 in the position of Senior Program Specialist – Crops. He was graduated in B.Sc. Agriculture from Andhra Pradesh agricultural University, Hyderabad, India and studied M.Sc. Agriculture in crop physiology from the University of Agricultural Sciences, Bangalore, Karnataka, India through qualifying the ICAR-Junior Research Fellowship. Later on, he obtained PhD in Crop Science (Agronomy) from University of Peradeniya, Sri Lanka through international fellowship offered by International Potato Centre, Peru. He started his carrier in the position of scientist at International Potato Centre (CIP-ACGIAR research Centre) and posted at New Delhi. Further, he was relocated to CIP, Bhubaneswar, Orissa state in 2003. During his professional carrier, he collaborated with NARS- Bangladesh, India, Nepal and Sri Lanka for 17 years and undertook research and development of root and tuber crops including potato and sweet potato. Besides, he was also engaged with Government of Orissa funded projects on sweet potato. He has vast experience in crop improvement of tuber crops in South Asia and led several collaborative sweetpotato projects in collaboration with Tuber Crops Research Center of BARI in Bangladesh and Horticultural Crop Research and Development Institute, Department of Agriculture in Sri Lanka. He has expertise in crop improvement, seed systems, knowledge management, value chain improvement and advocacy for nutrition and agriculture strategies. Developed networks with appropriate stakeholders and executed country exchange programs related to bio-fortification in South Asia. He produced number of research publications and received the J.N. Bose Memorial Award on 'Community Nutrition' in India.

Financial Report

Fund

Two types of budgets are prepared for each fiscal year: Institutional and Program Cost budgets. During implementing the programs, the Centre aims to maintain a balance of expenditure between the institutional and Program costs.

The Institutional and the Program costs are shared by all the SAARC member countries according to the SAARC proportion formula.

As the host, the Government of Bangladesh provides capital costs and other infrastructure facilities. The capital cost supports infrastructure facilities including office premises, furniture, vehicles, equipment etc. or any other items based on its requirement.

Contribution by each SAARC Member States (2019)

Member states	Amount Due/(Excess) till 2019 (in US$)	Assessed Contribution for the year 2019 (in US$)			Contribution received in 2019 (in US$)	Amount Due/ (Excess) till 2019 (in US$)
		Institutional	Program	Total		
	1	2	3	4= (1+2+3)	5	6= (4-5)
Afghanistan	0.00	14,693.00	22,863.75	37,556.75	37,556.75	
Bangladesh	0.00	2,27,624.00	49,031.00	2,76,655.00	2,76,655.00	
Bhutan	0.00	14,693.00	22,863.75	37,556.75	37,573.75	(17.00)
India	0.00	89,204.64	1,38,747.29	2,27,951.93	2,27,951.95	
Maldives	0.00	500.00	0.00	500.00	500.00	
Nepal	35.00	31,525.95	49,031.00	80,591.95	80,591.95	
Pakistan	7,766.79	66,237.78	1,03,104.19	1,77,108.76	87,664.50	89,444.26
Sri Lanka	0.00	31,525.95	49,031.00	80,556.95	80,556.95	
Total	**7,801.79**	**4,76,004.32**	**4,34,671.98**	**9,18,478.09**	**8,29,050.85**	**89,427.26**

Statement of Expenditure

Institutional Cost

Sl. No	Head of Accounts	Amount US$
1.	Allowances to Director and other Professional Staffs	153184.82
2.	Salaries and allowances to GS Officers and Staff	181983.13
3.	Printing, Stationeries and Reproduction	3236.75
4.	Travel Cost and Perdiem	2171.78
5.	Utilities Services and Maintenance	23713.23
6.	Local Hospitality for Governing Board, Selection Committee meetings	17693.82
7.	Vehicles Generator Lift, AC etc., POL, Insurance, Repairs etc.	12768.66
8.	Contingencies	28617.71
	Total of Institutional Cost:	**423369.90**

A) Program Cost (regular)

Sl. No	Head of Accounts	Amount US$
1.	SAARC Journal of Agriculture	4587.34
2.	In-house Res. & Pub. on Thrust Areas in SAARC Countries	23405.63
3.	Observance of SAARC Charter Day	1202.14
4.	Capacity Building & Prof. Development	2568.82
5.	Prog. Building, Monitoring & Backstopping	15831.63
6.	Acqui. of Info. Materials in Agri. From SA &	6136.99
7.	ICT Mediated Communication	4752.94
8.	Distribution of Information Materials	1072.10
9.	Rep. of Info. Materials AV & Dubbing	26.78
10.	Promotional Activities on SAARC Agric. Centre	2671.56
11.	SAARC Agriculture PhD Scholarship program	28243.00
12.	Participation in Ekushey Book Fair	3197.37
13.	SAARC Seed Bank/Seed Forum meeting	2409.55
	Sub-total of A (for regular program)	**96,105.85**

A) Need Base Program (Continue from previous year)

Sl. No.	Need Base Program (continue from previous year)	Amount US$
14.	Regional training on smart agricultural water management interventions for enhancing	16389.81
15.	High yielding dairy buffalo development	739.64
	Sub-total of B (Need base program continue)	**17,129.45**

B) Need Base Program new

Sl. No.	Need Base Program New	Amount US$
16.	SAARC Regional training on pesticide R.A.	10895.29
17.	Regional consultative Meeting S.W.B. SAARC	15620.80
18.	Regional training building R.L.P.S.M.C. SAARC	15494.93
19.	Regional training Earth C.D.A.D.M.S.A.	17851.72
20.	SAARC Regional C.M.V.C.D.V.E.A.F.	14791.46
21.	SAARC Regional training on (GAP)	16441.03
22.	Regional consultation Meeting S.H.V.S. SAARC	16852.30
23.	Identification of B.P.L.F.F.P.M.	13741.57
24.	Regional training L.B.H.T.A.D.Z.E.P.	15936.38
25.	SAARC Regional training on Molecular Dia. L. SPPR	15332.68
26.	SAARC Regional consultation on D.A.C.I.M.	19125.49
27.	SAARC Regional consultation on F.C.C.P.R.L.	19059.55
28.	Proven technology on N.M.D.E.	29.34
29.	Developing country (IPNS) M.M.C.C.S.	21557.79
30.	Youth & Women agriculture (E.D.K.F.S.)	12150.00
31.	SAARC Regional consultation on P.P.A.B.S.	12642.54
32.	Fostering investment for S.A.D. SAARC. M.C.	16474.85
33.	Regional training on safe & S.V.C.D.S.	16043.38
34.	Multi-sectoral program D.SAARC.A.C.E.C.	17129.12
35.	Family farmers cooperatives to E.H.P.T.I.F.	18450.71
36.	Regional exposure visit forp. S.C.B.S.S.	14215.08
37.	SAARC Regional consultation M.F.S.S.A.R.C.	16484.72
38.	Video program 19	5557.99
	Sub-total of C (Need base program new)	**341,878.72**

C) Miscellaneous/ Incidental charges

Sl. No.	Head	Amount US$
39.	Miscellaneous/ incidental charges	500.00
	Sub-total of D (Miscellaneous / incidental charges)	500.00
	Total program cost (A+B+C+D)	4,55,614.02

Total of institutional and program cost

Head	Amount US$
E. Intuitional cost + program cost	8,78,983.92
F. Capital cost	28344.82
G.NATP-2	1162.79
H. SDF- funded project (indirect incomes as per payment)	37459.08
I.SDF-funded project	8626.71
Grand total (E+F+G+H+I)	9,54,577.32

Audit Report

SAARC Agriculture Centre (SAC)

The Director
SAARC Agriculture Centre
Dhaka, Bangladesh

Subject: **Joint Audit Report on the Accounts and Operations of the SAARC Agriculture Centre (SAC), Dhaka for the period 1st January to 31st December 2019.**

Dear Sir,

Enclosed please find Joint Audit Report on the Accounts and Operations of the SAARC Agriculture Centre (SAC), Dhaka for the period 1st January to 31st December 2019.

We conducted our audit in accordance with the International Standards of Supreme Audit Institutions (ISSAIs). The Audit Report consists of the following four parts:

Part I : Auditors' Report on the Statement of Receipts & Payments of the SAARC Agriculture Centre for the period from 1st January to 31st December 2019;

Part II : Management Letter including Observations and Recommendations;

Part III : Follow-up of the Joint Audit Team (JAT 16) Recommendations; and Part

IV : Brief Profile of the SAARC Agriculture Centre (SAC).

We would like to take this opportunity to extend our thanks to the Director and Staff of the Centre for cooperation and assistance extended to us. This indeed was instrumental in facilitating the timely completion of audit.

Yours sincerely,

(Mr. Jagannath Nepupane)
Director
Office of the Author General
of Nepal
Kathmandu, Nepar

(Mr. Tariq Bashir Chaltha)
Director General Audit
(Feeding and International)
Islamabad, Pakistan

(Mr. Amjad Ali)
Director
Office of the Author General
of Pakistan
Islamabad, Pakistan

Joint Audit Team

Dhaka, Bangladesh
21 February, 2020

SAC Governing Board Members

The Governing Board (GB) is the apex body to supervise functions of the Centre. The GB is composed of eminent personalities in the field of agriculture from each Member Countries. The GB analyses the policy matters, approves the projects, recommends the annual budget estimates, monitors and evaluates the administrative and overall operations of SAC. A Chairman designated for a two-year term from the member countries by alphabetical order and heads the Board. The GB meets usually once in a year and may meet more frequently if necessary. A representative of the SAARC Secretariat also attends the GB meeting. The Proceedings of the GB meetings need to be approved by the Standing Committee and the Council of Ministers.

Chairman SAC GB

Mr. Ugyen Penjore

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Department of Agriculture and Marketing Cooperatives,
Ministry of Agriculture and Forest,
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Members SAC GB

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Director (ARD) & Representative from SAARC Secretariat
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E-mail: dirban@saarc-sec.org

The Director (SAARC & BIMSTEC)
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SAC Team

Sl. No.	Name	Designation
1	Dr. Mian Sayeed Hassan	Director from 1st March, 2020 onwards
2	Dr. S. M. Bokhtiar	Director till 29th February, 2020
3	Dr. Nasreen Sultana	Senior Program Specialist - Horticulture
4	Dr. Ashis Kumar Samanta	Senior Program Specialist - Livestock
5	Mr. Kinzang Gyeltshen	Senior Program Specialist - NRM
6	Dr. Rudra Bahadur Shrestha	Senior Program Specialist – Policy Support and Program Development
7	Dr. Sreekanth Attaluri	Senior Program Specialist - Crops
8	Dr. Grinson George	Senior Program Specialist - Fisheries
9	Dr. Shiba Shanka Giri	Senior Program Specialist – Fisheries (till May, 2019)
10	Dr. Pradyumma Raj Pandey	Senior Program Specialist – Crops (till August, 2019)
11	Mr. Mohammad Abdullah	Senior Program Officer (Publication)
12	Ms. Fatema Nasrin Jahan	Senior Program Officer (NRM)
13	Dr. Md. Younus Ali	Senior Technical Officer
14	Mr. Md. Saifur Rahman	Administrative Officer
15	Mr. Md. Abdul Salam	Senior Finance Officer
16	Mr. Md. Mizanur Rahman	IT Manager (Database)
17	Mr. Mizanur Rahman	Personal Officer to Director
18	Md. Emdadul Haque	Procurement Officer
19	Mr. Md. Abdul Kadir	IT Manager (Software)
20	Ms. Sanjida Akter	Graphics Designer
21	Mr. ATM Mostafizur Rahman Mojumder	Senior Finance Officer
22	Mr. Md. Nurul Wara	Program Assistant
23	Mrs. Nazmoon Nahar	Cataloguer
24	Mr. Md. Nurul Amin	Driver
25	Mr. Md. Rafiqul Islam	Driver
26	Mr. Md. Shahidul Alam Khan	Lift-cum-Gen. Operator
27	Mr. Md. Ruhul Amin Sarder	Driver
28	Mr. Md. Harun-or-Rashid	Messenger
29	Mr. Md. Helal Uddin	Messenger
30	Mr. Md. Akhter Hossain	Watchman
31	Mr. Md. Altaf Hossain	MLSS
32	Mr. Md. Abu Taher	Janitor
33	Mr. Md. Ashraful Alam	MLSS

Special Day Celebrations

SAC Celebrated 35th SAARC Charter Day

The SAARC Agriculture Centre celebrated the 35th SAARC Charter Day on 8th December 2019 in Dhaka. The celebration of SAARC charter Day began with flag hoisting of Member Countries National flags along with the flag of the SAARC in the morning. To commemorate the day, representative from High Commission of SAARC Member States also joined in the event. This was followed by release of colourful balloons and pigeon by the dignitaries present at that moment. After a while, the main celebration started at Krishibid Institution auditorium (KIB), Farmgate, Dhaka.

Dr. Muhammad Abdur Razzaque MP, Honourable Minister, Ministry of Agriculture, Government of the People's Republic of Bangladesh graced the occasion as the Chief Guest. Mr. Md. Nasiruzzaman, Secretary, Ministry of Agriculture, Government of the People's Republic of Bangladesh and Ms. Nahida Rahman Shumona, Director General, Ministry of Foreign Affairs were the special guests in the occasion. The function was chaired by Dr. Md. Kabir Ikramul Haque, Member, Governing Board of the SAARC Agriculture Centre and Executive Chairman, BARC. Dr. Trilochan Mohapatra, Secretary, Department of Agricultural Research & Education (DARE) and Director General, Indian Council of Agricultural Research (ICAR), Ministry of Agriculture and Farmers' Welfare, Government of

India delivered the Keynote address. Dr. S. M. Bokhtiar, Director, SAARC Agriculture Centre welcome the dignitaries and gave brief presentation of Centre's activity highlighting the salient achievements during the past and expressed his gratitude to the Ministry of Foreign Affairs/ External Affairs of Member States for their remarkable support and cooperation towards successful implementation of multisectoral activities. Several edited books on emerging challenges of regional implication in the field of agriculture and allied sectors were released to mark the occasion. The meeting was attended by about 200 delegates from several NARS institutions (DAE, BARC, Agricultural University, KGF, BARI, BRRI etc.), International organizations (IRRI, CIMMYT, CIRDAP, FAO), regional body (SARSO), NGOs (Action Aid, Asian Farmer Association, Syngenta Foundation etc.).

Governing Board Meeting of SAC

13th Meeting of the Governing Board Meeting of SAC

The Inaugural Session of the 13th Meeting of the Governing Board (GB) of SAARC Agriculture Centre was held in the evening of 14th October, 2019 at Hotel Intercontinental Dhaka, Bangladesh. on 14th October 2019. The technical sessions were held at SAARC Agriculture Centre (SAC), Dhaka during 15-16 October 2019.

The inaugural session of the 13th Meeting of GB was presided over by Dr. Aminath Shafia, Permanent Secretary, Ministry of Fisheries, Marine Resources and Agriculture of Government of Maldives. Dr. Md. Abdur Rouf, Additional Secretary, Ministry of Agriculture, Bangladesh graced the inaugural session as the Chief Guest. Dr. Md. Kabir Ikramul Haque, Executive Chairman, Bangladesh Agricultural Research Council (BARC) and Mr Md. Shamsul Haque, Director General (SAARC & BIMESTEC), Ministry of Foreign Affairs, Bangladesh addressed the inaugural Session as Special Guests. GB Members/Mission Representatives from seven Member States and Ms. Ishrat Jahan, Director (ARD& SDF), SAARC Secretariat attended the inaugural session. Representatives from Diplomatic Missions, various national, regional and international organizations also attended the event.

Dr. Bokhtiar welcomed all Members of Governing Board (GB) of SAARC Agriculture Centre (SAC), Chief Guest, Special Guests, diplomats, and delegates from the SAARC Specialized Body, Scientists of NARS, officials of Ministry of Foreign Affairs and Ministry of Agriculture of Bangladesh and other distinguished guests attended the inaugural session. He highlighted the activities of SAC and the role of SAC in research and development and dissemination of technologies across the Member States. He emphasized that SAC is making efforts to enhance collaboration with national, regional and international partners as per the directives of the higher Bodies of SAARC.

He acknowledged the efforts, cooperation and collaboration of SAARC Member States in successfully performing the activities of SAARC Agriculture Centre during 2019. Ms. Ishrat Jahan conveyed the warm greetings and best wishes of H.E. Mr. Amjad Hussain B. Sial, Secretary General of SAARC for successful holding of the 13th Meeting of the Governing Board of SAARC Agriculture Centre. She expressed gratitude to GB Members for attending the meeting. She also thanked the Director of the Centre, all the professionals and staff members of the Centre for their efforts in implementing the programs. She highlighted that given the importance of agriculture in the livelihood and economies of the South Asia, since its inception, the SAARC has identified agriculture and food security as one of the major areas of cooperation among the Member States. Ms. Jahan also highlighted the outcomes of the Fourth Meeting of the SAARC Agriculture Ministers held in Thimphu, Bhutan on 24-27 June 2019, culminated in the adoption of the "Thimphu Statement on Agriculture and Rural Development" with 19-points regional pledges and strategies, to deal with the emerging challenges being faced by the region in agriculture and allied sectors and to advance agricultural sector of the Region.

She mentioned that Fourth Meeting of the SAARC Agriculture Ministers directed SAARC Agriculture Centre (SAC) to realign its strategies to the priorities and activities proposed by 9th Meeting of the Technical Committee on Agriculture and Rural Development (TCARD) and 4th Senior Agriculture Officials' Meeting. She hoped that with the support and guidance of the GB Members, the SAC would be able to successfully accomplish its mandate. She stressed the importance of GB Meeting in overseeing the program activities and in reviewing the financial and administrative matters of the Centre.

Mr. Md. Shamsul Haque delivered his speech as Special Guest. He emphasized on the importance of agriculture in the SAARC region and role of SAC in this regard. Mr. Haque mentioned that as the host country, Bangladesh always extends all-out support to the Centre. He thanked the Director and other officials of the SAARC Agriculture Centre for their efforts in carrying out the activities of the Centre. He expressed the hope that the GB members will have extensive deliberations on the agenda items during the following two days and bring out a fruitful outcome document. Dr. Md. Kabir Ikramul Haque delivered his speech as Special Guest. In his speech, Dr. Kabir emphasized that agriculture and its allied activities would remain the most predominant sector in improving food and nutritional security for the people besides creating job opportunities in the SAARC Region. He mentioned that SAC has enormous potential to fulfil its mandate for reducing poverty in SAARC Region. Dr. Kabir particularly appreciated the SAC for initiating PhD Scholarship Program for the SAARC Member Countries.

Dr. Md. Abdur Rouf delivered his speech as Chief Guest. Dr. Rouf mentioned that agriculture in the SAARC Region is an important sector that supports more than 50% of the population for their livelihood and employment; agriculture in all SAARC Member Countries as a whole contributing to the extent of about 18 to its GDP; agriculture has created employment generation to around 48 percent of the population of SAARC Member Countries. Dr. Rouf has greatly appreciated the remarkable program for awarding PhD Scholarship of SAARC Member Countries, strengthening capacities keeping in view to working in partnership and collaboration with various international and regional organizations to achieve the SDGs.

Dr Aminath Shafia thanked the Government of Bangladesh and the SAC for hospitably extended and the excellent arrangements made for the meeting. She appreciated the efforts made by the SAC as a "Centre of Excellence" to support the Agricultural communities in the SAARC region. She mentioned that the demand for knowledge and support from the agriculture communities in the region is diverse, hence the outcomes of the capacity building and trainings must make a positive impact on the institutions and ripple down to the farmers, fishers and rural communities of member countries.

Dr. Shafia highlighted on the importance of regional collaboration and hoped that with the commitments from the Governing Board members to support the team of SAC and with the support of the institutions of the Member States to maximize collaborations and partnerships, no country will be left behind and SAC would become a more respected and relevant institution in the endeavour of addressing the challenges of the agriculture and natural resource management sectors of the SAARC region. She appreciated the contributions of the international community who are supporting the countries through the SAC platform, and thanked IFAD, Bill and Melinda Gates Foundations and other international and regional bodies for their enduring support. She mentioned that it would now be the thrust of the GB and the SAC team to ensure the success of these interventions and build the trust of other development partners. Dr. Shafia hoped useful decisions and guidance of the GB on the activities of SAC for the betterment of the people of SAARC region.

Recommendations

- GB reiterated that as per rule, Centre should maintain strict budgetary discipline and discretion in incurring approved expenditure. GB noted that under several heads, the budget has been kept to be utilized/procuredonly at the end of the year and under few heads allocated budgets have been left unutilized. GB suggested that activities should be staggered over the calendar year.The GB reiterated that SAC should schedule/plan its activities to be implemented round the year– to ensure quality of the programs as also to avoid staggering of activities towards the end of the year;
- It was noted that SAC did not seek approval from the Secretary General of SAARC on the re-appropriation of funds from one head to another of the budget for 2018 as per rule and as directed by the 12th GB. The GB expressed dissatisfaction over the matter, and advised the Director, SAC to obtain approval from the Secretary General of SAARC on the re-appropriation of funds from one head to another as per rule and to strictly comply with the rules;
- It was also noted with concern that both in the Institutional cost and Program cost of the Budget of 2019, under many heads, SAC made re-appropriation of funds, without seeking prior approval from the Secretary General of SAARC. The GB once again advised the Director of SAC to obtain approval from the Secretary General of SAARC on the re-appropriation of funds from one head to another as per rule. With that understanding, the proposed revised budget for 2019 was approved by the GB.

DignitariesVisited

1.	Dr. Malvika Chaudhary Regional Coordinator - Plant-wise Asia CABI-South Asia India
2.	Mrs. Srivalli Krishnan Senior Program Officer Global development, Bill & Melinda gates Foundation New Delhi, India
3.	Md. Farhad Husain Country Director Syngenta Foundation Bangladesh
4.	Dr. Xue Lin Li President Professor Yunnan Academy of Agricultural Sciences Yunnan, PR China
5.	Dr. Dayun Tao Professor Yunnan Academy of Agricultural Sciences Yunnan, PR China
6.	Dr. Jersmond Sammut Associate Professor School of biological Earth and Environmental Sciences University of New south Wales Sydney, Australia
7.	Andrew F. Roberts Deputy Executive Director International Life sciences Institute Research Foundation Washington DC, USA
8.	Hansen Thambi Prem Project manager Disaster management World Animal Protection New Delhi, India

Contributions from Staff of SAC

Dr. Mian Sayeed Hassan, Director

Dr. S.M. Bokhtiar, former Director (currently Executive Chairman of BARC)

Dr. Nasreen Sultana, Senior Program Specialist (Horticulture)

Dr. Ashis Kumar Samanta, Senior Program Specialist (Livestock)

Dr. Rudra Bahadur Shrestha, Senior Program Specialist (PSPD)

Dr. Sreekanth Attaluri, Senior Program specialist (Crops)

Dr. George Grinson, Senior Program Specialist (Fisheries)

Dr. Shiba Shankar Giri, former Senior Program Specialist

Dr. Pradyumna Raj Pandey, former Senior Program Specialist

Ms. Fatema Nasrin Jahan, Senior Program Officer (NRM)

Dr. Md. Younus Ali, Senior Technical Officer

Mr. Md. Mizanur Rahman, IT Manager (Database)

Mr. Md. Saifur Rahman, Administrative Officer

Mr. ATM Mostafizur Rahman Mojumder, Senior Finance Officer

Mr. Mizanur Rahman, Personal Officer to Director

Ms. Najmoon Nahar, Cataloguer

Mr. Nurul Wara, Program Assistant

Price list of SAC Publications

Sl. No.	Title of publications	Price in US$		Retail Price	Published Year
		SAARC Member Countries	Other Countries	in BD Taka	
1	Agricultural policy and program framework: Priority areas for research and development in South Asia	50	100		2019
2	Integrated plant nutrition system modules for major crops and cropping systems in South Asia	20	50		2019
3	Livestock feeds and feeding practices in South Asia	50	100		2019
4	Agricultural biotechnology and biosafety in South Asia	10	50		2019
5	Diversification in aquaculture – towards achieving sustainability	20	50		2019
6	Climate smart agriculture – strategies to respond climate change in South Asia	40	80		2019
7	Small scale fisheries in South Asia	50	80		2018
8	Policy framing for control of transboundary aquatic animal disease	50	80		2018
9	Women's empowerment for agriculture development in South Asia: Enabling Policies	10	50		2018
10	ICTs for Development of Rural Agriculture in South Asia: Policy Concerns	10	50		2018
11	SAARC Good Agriculture Practices (GAP) for Vegetables and Fruits in South Asia: Current Status and Future Opportunities	10	50		2018
12	Innovative agricultural technologies in South	10	50		2018
13	Sustainable rural poultry value chain model for poverty reduction in South Asia: Opportunities, potentials and challenges	10	50		2018
14	Animal breeding policies and strategies in South Asia	10	20	800	2018
15	Agricultural risk management for small farmers in South Asia	10	50		2017
	Monograph on threatened freshwater fishes of South Asia	100	150		2017
15	Export promotion and global market access for agricultural and food products	10	50		2017
16	Agricultural research in SAARC Region: Common challenger and priorities	5	--		2017
17	Best management practices in aquaculture: capacity building &policy development	20	80		2017
18	Farm-Made aquafeeds: Opportunities, challenges and policy intervention	20	80		2017
19	Mechanization for sustainable agricultural intensification in SAARC Region	10	50		2017
20	Backyard poultry production systems in SAARC Member States	10	20		2017

Sl. No.	Title of publications	Price in US$		Retail Price	Published Year
		SAARC Member Countries	Other Countries	in BD Taka	
21	Sustainable goat farming for livelihood improvement in South Asia	10	20	600/-	2017
22	Best practices of integrated plant nutrition system in SAARC countries	10	50	836/-	2017
23	Water-energy-food nexus: a basis for sustainable agricultural development in SAARC region	10	50	600/-	2017
24	Best practices of conservation agriculture in South Asia"	10	50		
25	Community-based non-wood forest products enterprise: a sustainable business model	10	50	600/-	2017
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27	Challenges and opportunity in value chain of spices in South Asia	10	50	600/-	2017
28	Best practices of maize production technologies in South Asia	10	50	600/-	2017
29	Pulse based recipes for better diets and nutrition	3	-	251/-	2017
30	Released varieties of cereals, pulses and oilseeds in SAARC Region	10	50	600/-	2016
31	Cotton technology exchange program in SAARC Region	20	50	1590/-	2016
32	Policy farming on fish biodiversity management in transboundary rivers of South Asia	10	50	600/-	2016
33	Climate change impact on coastal fisheries and aquaculture in South Asia	10	50	600/-	2016
34	Pulses for sustainable food and nutrition security in SAARC Region	10	20	600/-	2016
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46	Farm animal genetic resources in SAARC Countries: Diversity, conservation and management	8.00	10	500/-	2014
47	Value chain analysis and market studies on fruits and vegetable in SAARC Member Countries	5	10	300/-	2014
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53	Best practices and procedures of saline soil reclamation systems in SAARC Countries	10	20	600/-	2013
54	National agricultural education system in SAARC Countries	10	20	600/-	2013
55	Economic impact of transboundary animal diseases in SAARC Countries (not enough for sale)	5	8	300/-	2013
56	Diversity of veterinary services in SAARC Countries*	6	10	400/-	2013
57	Quality seed in SAARC Countries: Production, processing, legal and quality control and marketing system (Reprint)	10	20	600/-	2013
58	SAARC Seed Outlook*	5	10	300/-	2012
59	Current status and future prospect of pulse production in SAARC countries*	5	10	300/-	2012
60	Directory of successful farm machinery in SAARC countries*	7	10	500/-	2012

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61	Statistical data book for agricultural research and development in SAARC countries	8	10	300/-	2012
62	Impact of climatic parameters on agricultural production and crop productivity losses through weather forecast and advisory service in SAARC countries*	6	10	400/-	2012
63	Enhancing oilseeds production through improved technology in SAARC countries	5	10	300/-	2012
64	NARS: National agricultural research system in SAARC Countries-An analysis of system diversity	5	10	300/-	2011
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68	Strategies for arresting land degradation in South Asian Countries	5	10	300/-	2011
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71	Statistical data book for agricultural research and development in SAARC Countries (2008-09)	8	10	300/-	2010
72	Proceedings of regional workshop on hill agriculture in SAARC countries: Constraints &opportunities	5	10	250/-	2010
73	Directory of Ph.D. dissertations on agriculture in SAARC Countries 2000-2006 Vol. 3, India*	10	15	500/-	2010
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76	Regional workshop on farm mechanization for small holder's agriculture in SAARC Countries	5	7	200/-	2008
77	Directory of PhD Dissertations on Agriculture in SAARC Countries 2000-2006 Vol. 2, India*	10	15	500/-	2008
78	Livelihood development through agriculture in the saline prone coastal ecosystem of SAARC Countries	6	10	200/-	2008
79	Best practices in animal feed production and management in SAARC Countries	6	10	300/-	2008
80	Statistics data book for agricultural research and development in SAARC Countries	8	10	300/-	2007

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81	Crop varieties in SAARC Countries	3	5	100/-	2007
82	Handbook on livestock and poultry diseases in SAARC Countries	10	15	300/-	2007
83	Training manual and interactive multimedia CD ROMs on presentation technology	3	5	50/-	2007
84	Catalogue on natural enemies of the insect pest's food crops in SAARC Countries	10	15	300/-	2007
85	Directory of PhD dissertations on agriculture in SAARC Countries 2000-06 Vol. 1, Bangladesh*	10	15	500/-	2007
86	Proceedings of the regional workshop on research-extension linkages for effective delivery of agricultural technology in SAARC Countries*	5	7	200/-	2006
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88	Risk in agriculture and their coping strategies in SAARC Countries (not enough for sale)	5	7	100/-	2005
89	Handbook on fish and crustacean diseases in the SAARC Region	10	15	300/-	2005
90	Directory of agricultural scientists and technologists of SAARC Countries: 2nd Edition*	10	15	500/-	2004
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92	Proceedings of the regional workshop on attempts and successes of ICT roadmap to villages in the SAARC Countries*	10	15	440/-	2004
93	Technologies on livestock and fisheries for poverty alleviation in SAARC Countries*	5	7	150/-	2004
94	Directory of agricultural institutions in SAARC Countries: 3rd Edition	10	15	440/-	2003
95	Statistical Bulletin of SAARC agricultural data-2003	10	15	440/-	2003
96	Plant genetic resources of SAARC Countries: Their conservation and management	10	15	500/-	2003
97	Proceedings of SAARC workshop on post-harvest technology*	5	8.00	80/-	2003
98	Role of information and communication technologies for poverty alleviation through agricultural development in SAARC Countries*	10	15	440/-	2003
99	SAARC Directory of seed companies/ entrepreneurs 2003*	5	10	150/-	2003
100	Statistical bulletin of SAARC Agricultural Data –2002	10.00	15.00	440	2002

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101	Proceedings of SAARC workshop on soil fertility management for increasing productivity in rice-based cropping system*	3	5	75/-	2002
102	Annotated bibliography on seed quality, production and preservation in the SAARC region	10	15	440/-	2002
103	Agricultural research and extension systems in SAARC Countries	4	6	130/-	2001
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106	Development of horticulture in SAARC Countries	3	5	75/-	2000
107	Regional workshop of experts in SAARC Countries on transfer of technology in agriculture	3	5	75/-	1999
108	Agricultural information systems and services in SAARC Countries*	3	5	75/-	1999
109	Union catalogue of PhD thesis of SAARC Countries*	3	5	75/-	1999
110	Agricultural training in SAARC Countries	2	5	40/-	1998
111	Agricultural information:Needs, mode, mechanism and information flow in SAARC Countries*	2	5	50/-	1998
112	Bibliography on technologies for drought-prone and salt-affected AEZ in SAARC Countries	3	5	100/-	1998
113	Success stories on transfer of farm technology in SAARC Countries*	2	3	50/-	1998
114	Hybrid and high yielding crop varieties in SAARC Countries*	2	3	50/-	1998
115	Innovative agricultural technologies in SAARC Countries	3	5	75/-	1998
116	Agricultural institutions in SAARC Countries: 2nd edition	10	15	440/-	1996
117	Database on renewable energy resources in SAARC Countries (1996)	3	5	132/-	1996
118	Directory of agricultural periodicals of SAARC Countries: 2nd revised edition*	10	15	500/-	1996
119	Database on livestock production,breeding and management in SAARC Countries*	10	15	440/-	1996
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		SAARC Member Countries	Other Countries	in BD Taka	
121	Annotated bibliography on potato in the SAARC Countries	10	15	440/-	1995
122	Bibliography on fish diseases in the SAARC Countries	3	5	132/-	1995
123	Dynamics of agricultural biotechnology: SAARC Bibliographical database	10	15	440/-	1995
124	Postharvest management in agriculture: SAARC Bibliographical database	5	8	220/-	1995
125	Agricultural scientists and technologists of SAARC Countries: 1st edition	20	25	440/-	1993
126	Agricultural institutions in SAARC Countries: 1st edition	10	15	440/-	1993
1127	Annotated bibliography on agroforestry in the SAARC region	10	14	440/-	1993
128	Directory of agricultural periodicals of SAARC Countries (1st edition)	10	15	500/-	1993
129	Women in agriculture, gender issues in South Asian farming	7.5	10	352/-	1993

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