



SAARC AGRINEWS

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**Promotion of Agricultural Research and Development
in SAARC member countries**

Editorial

Climate change and agriculture are interrelated processes and global warming is projected to have significant impacts on conditions affecting agriculture including temperature, rainfall, carbon dioxide, glacier, run-off and the interaction of these elements. These conditions determined the carrying capacity of the biosphere to produce enough food for the human population and domesticated animals. The overall effect of climate change on agriculture depend on the balance of these effects. Assessment of the effects of global climate changes on agriculture might help to properly anticipate and adapt farming to maximize agricultural production. At the same time, agriculture has been shown to produce significant effects on climate change, primarily through the production and release green house gases such as carbon dioxide, methane and nitrous oxide. Despite technological advances in agriculture, weather still a key factor in agricultural productivity as well as soil properties and natural communities. The effect of climate on agriculture is related to variabilities in local climates rather than in global climate pattern.

Agriculture compared to any other economic activity is more sensitive to change of climate and therefore is likely to be more impacted by it. Agricultural impacts of climate change will manifest in terms of changes in land and water resources, insect pest populations, diseases etc. which ultimately translate into a change in productivity and profitability of agriculture. Increase in severity and frequency of extreme events will have a larger negative impact on agriculture. Consequences of climate change are likely to be more severe for developing countries because of their heavy dependence on agriculture and ecosystems, rapid population growth and low health level. A drastic decline in agriculture output will cause a reduction in farm incomes and a rise in rural poverty. Moreover, the developing countries lack technologies, institutions and financial resource for mitigation and adaptation to offset the negative impacts of climate change on agriculture and food security.

Being a cross cutting phenomenon, the climate change issues have been addressed in different sectoral policies in South Asia. These policies have addressed both adaptation and mitigation strategies at different priority levels while agricultural sector enjoying a high concern, both direct and indirect ways. In East and South Asia, IPCC (2007-13) projected that crop yields could increase upto 20% by the mid-21st century. In Central and South Asia, projections suggested that yields might decrease by up to 30% over the same period. More detailed analysis of Rice yields by IRRI forecast 20% reduction in yields over the region per degree Celsius of temperature rise. Rice becomes sterile if exposed to temperature above 35 degrees for more than one hour during flowering and consequently produces no grain.

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Adaptation to Climate Change Impact on Crops Production in SAARC member countries

A two days Regional Expert Consultation Meeting on “Adaptation to Climate Change Impact on Crop Production in SAARC member countries” was held at Bangladesh Agricultural Research Council (BARC), Dhaka, Bangladesh organized by SAARC Agriculture Centre (SAC) in association with BARC during 23-24 November 2013. The consultation was organized with the objectives to assess the impact of change of climate on production of crops ; study the relationship between climate variables and crop production; strategies adopted for mitigating climate change effect by SAARC member countries; review of current knowledge including indigenous knowledge available with the professionals and farming community regarding crop management with the prevailing climatic variability; recommend appropriate measure (s) on ‘what to do’ to protect crops from damage due to the climatic change and suggest possible adaptation strategies at different scales that is at farm, community, regional and national levels.

Dr. SM Nazmul Islam, Secretary, Ministry of Agriculture, Government of Bangladesh was Chief Guest in the inaugural occasion and delivered opening address. Dr. Md. Rafiqul Islam Mondal, Director-General, Bangladesh Agricultural Research Institute (BARI) and Mr. Mukul Chandra Roy, Director-General, Department of Agricultural Extension, Bangladesh were also present as Special Guest and Guest of Honour, respectively in the inaugural session. The meeting was honoured by the august presence of Diplomats from Embassy/High commissions, Director-General of Bangladesh Rice Research Institute, Director-General of Bangladesh Jute Research Institute, Joint Secretary, Ministry of Agriculture, Representative from IRRI, University and brac International.

Dr. Abul Kalam Azad, Director, SAC welcomed all the participants. Around 35 experts from the National Agricultural Research and Extension Systems from SAARC countries participated in the consultation including the regional focal point experts from Bangladesh, Bhutan, Nepal, Pakistan and Sri Lanka. The inaugural session of the consultation meeting was presided by Dr. Wais Kabir, Executive Chairman, BARC. Dr. Kabir Iqramul Haque, Governing Board Member for SAARC Agriculture Centre (SAC) from Bangladesh and

attended the inaugural session. Mr. Abdul Motaleb Sarker, Director-General (SAARC), Ministry of Foreign Affairs, Government of Bangladesh attended in the concluding session as guest of honour and delivered a valuable speech for future initiatives by SAC on change of climate and adaptation measures for crop production in South Asia.

During two days consultation meeting, eleven (11) technical papers and one synopsis paper were presented. All the resource persons from SAARC member countries around 35 participants of the consultation meeting discussed in the four groups on the thematic areas are a) Researchable issues; b) Development and Extension issues; c) Policies; d) Future prospects

At the end of the two days Consultative Meeting, important recommendations were adopted as breeding for stress tolerant and short duration varieties to fit in the cropping systems; development and promotion of location specific efficient technologies to reduce GHG emission in each member countries of SAARC as per their demand and need; risk analysis of emerging pests, diseases and weeds, and technological measures to minimize risk; identification and promotion of the use of traditional knowledge and community based practices like on-farm water management, water shed management, rain water harvesting and improvement of soil management practices for adaptation; need regional collaboration and cooperation in agriculture for identification, documentation and sharing of successful climate smart technologies among the SAARC countries through involvement of different stakeholders and arrange exposure visits for successful cases coordinated by SAC; capacity building for the research and extension personnel on climate adaptable technologies in regional basis; use of ICT for agro-advisory weather forecasting system; promoting integrated farming system approach, farm mechanization for small holder agriculture; resource conservation agriculture and prototype exchange among the SAARC countries; activating regional seed bank for the exchange of quality seeds during disasters; ensuring availability of quality inputs, credit and placement of appropriate crop insurance mechanisms in each member countries; establish a

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National Agricultural Education System in SAARC Countries: A Comparative Analysis

A Regional Consultation Meeting on “National Agricultural Education Systems in SAARC Countries: A Comparative Analysis” was held at Sher-e-Bangla Agricultural University (SAU), Dhaka, Bangladesh during 28-29 October 2013. The meeting was organized jointly by SAC & SAU. Renowned scientists from abroad and Bangladesh were present in the Meeting.

The focal point experts from Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka attended the consultation meeting and made comprehensive presentation on National Agricultural Education Systems in respective countries. The papers highlighting the agricultural situation and its relation to agricultural education reiterated the issues and recommendations needing national and regional attention.

Recommendations

The Meeting after group discussion with all participants proposes following recommendations (listed in order of



its priority) for enhancing the role and relevance of Agricultural University in supporting agricultural development in the region.

- Course-curricula must be updated at regular interval as per need of each country

- Establish mechanism to strengthen linkage among the education, research and extension systems
- Establish SAARC Agricultural University
- Ensure sufficient investment in education systems by the Government
- UGC/HGC/concerned authority and individual University should have HRD plan
- Standard recruitment systems adopted by the UGC/HSC/concerned authority of University should be followed.
- Adequate laboratory facilities for modern technology should be established
- Performance evaluation systems should be adopted through accreditation council
- Harmonization of remuneration systems by the Government.
- Develop student and exchange program within SAARC Agricultural Universities.
- Necessary ICT courses should be made compulsory for undergraduate students
- UGC should take initiatives for credit transfer systems
- Standard and quality education systems should be ensured through empowering UGC/HGC/concerned authority
- There should be unified admission system for student admission

Use of Geo-Information Technology for Mapping of Land Degradation in SAARC Countries

The land degradation is one of the most important issues as it directly impacts natural resources, environment,

food security and livelihood. The productivity of some lands has declined by 50% due to soil erosion and



desertification in South Asia. Annual loss in productivity is estimated at 36 million tons of cereal equivalent valued at US\$5,400 million by water erosion, and US\$1,800 million due to wind erosion. Land degradation can be grouped into six classes: water erosion, wind erosion, soil fertility decline, salinization, waterlogging, and lowering of the water table. Land degradation has both on-site and off-site effects. Land degradation in arid, semi-arid and dry sub-humid lands (drylands) resulting from various factors including climatic variations and human activities leads eventually to desertification.

To make a concrete plan of action, a Planning Meeting was held during 12-13 December 2013 organized by SAC & ICIMOD in Kathmandu, Nepal. The Meeting was participated by professionals from Government of Nepal, ICIMOD, SAARC Forestry Centre (SFC), and SAARC Agriculture Centre (SAC). The Meeting identified the area of collaboration and develop a framework based on which SAC will prepare a project proposal. Once the proposal is agreed upon by SAC, SFC and ICIMOD, a stakeholder meeting to be participated by national focal points from all SAARC member countries will be convened during 2014.

Best Practices and Procedures of Saline Soil Reclamation Systems in SAARC countries

The regional program focused on documentation of national initiatives on addressing the issue of soil salinity that has arrested the productivity of agriculture land and in many cases rendering it uncultivable. Considering the impact of saline soil on crop production, a regional program involving Bangladesh, India, Pakistan and Sri Lanka was initiated with the objectives to (i) document existing reclamation systems of saline soil in SAARC region, (ii) compare and identify saline soil problems and appropriate reclamation techniques, and (iii) disseminate reclamation methods to the researchers, extension agencies, and policy makers in the SAARC region. Based

on the country report. A Regional Expert Consultation Meeting attempts to provide a regional perspective on the salinity problem and suggests some way forward to share best practices among the SAARC member countries to enhance agricultural production and food security.

The Consultation Meeting was held in Central Soil Salinity Research Institute (CSSRI), Karnal Haryana, India jointly organized by SAC and CSSRI during 27-29 November 2013. The Meeting was also attended by more than 20 scientists working on soil salinity from South Asia.



The Meeting identified pertinent issues and way forward to address the concerns of soil salinity in the region.

Some of the issues raised in the Meeting are:

- Alternative to gypsum as soil amendments
- Application of nano-technology, bio-and phyto-remediation in reclamation of soil and water
- Agroforestry as reclamation strategy
- Integrated plant nutrient management
- Integrated water management research

Way forward

Taking advantage of the scientific advances in saline soil research and development in the region, there are ample

opportunities to consolidate the efforts and design collective actions for taking forward the initiatives from each country.

- Establish a mechanism for closer interactions among scientists working on saline soil research on SAARC countries.
- Initiate SAARC Saline Soil Wheat Adaptive Trial (SASWAT) to exchange salt tolerant wheat varieties and test in all countries under the adaptive trial program.
- Share information and opportunity to participate in All India Coordinated Research Project for Management of Salt-affected Soils and Use of Saline Water in Agriculture

Extent and Potential Use of Bio-Pesticides for Crop Protection in SAARC Countries

The indiscriminate use of pesticides has raised the concern and lead to enactment of global declaration “International Code of Conduct on the Distribution and Use of Pesticides - Guidance on Pest and Pesticide Management Policy Development” in 2010. The inappropriate use of pesticides in public health, industries, and household sanitation can pose risk to public health and environment. As an alternative, use of bio-pesticides (botanical and microbial) are widely promoted as safe and environmentally friendly means to counter the pest and diseases at the same time contain the harmful effects of the chemical pesticides. Many of these bio-pesticides are within the range of farmers’ reach in terms of cost and many of these formulations can be prepared by farmers too.

In view of the wealth on resources and knowledge in the region, SAARC Agriculture centre organized a program to (i) prepare an inventory of bio-pesticides and its extent of use in agriculture, (ii) document best practices in use of bio-pesticides, (iii) prepare directory of bio-pesticides producers in the region, and (iv) prepare a synopsis of bio-pesticide in crop protection in SAARC Region and the way forward. Six countries (Afghanistan, Bangladesh, Bhutan, Nepal, Pakistan, and Sri Lanka) participated in the program by contributing comprehensive country status report and partake in the regional consultation meeting.



The regional consultation meeting was jointly organized by SAC and Ministry of Agriculture and Forests (ICS and RNRRDC, Bajo) in Bhutan during 23-25th December 2013. The meeting was inaugurated by Hon’ble Secretary, Ministry of Agriculture and Forests. All focal point experts made country presentation and deliberated in details on the issues and recommendations. The meeting also had three special papers from Bhutan which covered areas on IPM, organic policies and traditional organic practices in farming.

The country study and the regional consultation identified following issues in promoting and adoption of bio-pesticides:

Workshop Recommendations

a). Policy and Regulations

- Need to review/ develop policies and legal framework for inclusion of bio-pesticide and frame rules and regulations for registration.

- Provide subsidy for wider promotion and use of bio-pesticide.
- Establish and monitor standards and quality parameters of bio-pesticide.
- Develop policy to engage private entrepreneurs in manufacture and sale of bio-pesticide.

b). Bio-Pesticides Availability

- Given the limited access and availability of bio-pesticide at the local/ farmers level, there is need to encourage and promote local entrepreneurs in commercial bio-pesticide production.
- Improve the existing supply and demand system (proper indenting like in Bhutan).

c). Information, Awareness and Networking

- Create awareness on use of Bio-Pesticides
- Advantages of bio-pesticide, highlighting the negative aspects of conventional pesticides on environment, human health through mass media, trainings, campaigns,
- The available bio-pesticide through mass media, trainings, and campaigns.
- Collaborate and cooperate on exchange of best practices / success stories /technology on Bio-Pesticides and on organic farming. This will not only lead to only exchange of knowledge and skills but also reduce the duplication of work thereby saving time and resources.
- Promote exchanges of technical expertise in the region through exchange visits, study tours, trainings.

d). Research and Development

- Organize regional training on bio-pesticide formulation and product development
- Carryout need based research using locally available resources.
- Validate local knowledge and practices with scientific research.
- Establish long term trials for showcasing the efficacy and benefits of bio-pesticide.
- Ensure adequate funds for research for development purposes.



Ms. Fatema Nasrin Jahan joined at SAARC Agriculture Centre (SAC) as Senior Program Officer (NRM) on 5 November 2013. Prior to joining SAC, she worked as Research Associate under a project of the Bangladesh Agricultural Research Institute. Ms. Fatema completed her M.Sc.

Ag (Soil Science) from Sher-e-Bangla Agricultural University, Dhaka in 2010.

Prospects, Needs, Benefits and Risk Assessment of Agriculture related Genetically Modified Products in SAARC countries

SAARC Agriculture Centre (SAC) organized a regional program on "Prospects, Needs, Benefits and Risk Assessment of Agriculture related Genetically Modified Products in SAARC countries" with objectives to take stock of the available resources related to GM sector in the SAARC region, to create the awareness for obtaining necessary scientific skills and to utilize the modern advancement of GM products in agriculture towards achieving food security in the SAARC region.



Professionals from six SAARC member countries (Bangladesh, Bhutan, India, Nepal, Pakistan, and Sri Lanka) participated in the program by developing a country status report. SAC and Bangladesh Agricultural Research Institute (BARI), jointly organized this Meeting at Bangladesh Agricultural Research Council (BARC), Dhaka during 6-7th December 2013. Four local professionals presented their country status reports. 40 professionals from SAARC countries and 15 local organizations participated in this Consultation Meeting and collectively drafted regional perspectives on GM products and a way forward to R & D in Agriculture.

Country status reports on the subject were presented by the focal point experts invited from six SAARC countries. Valuable discussions were made after each presentation.

To garner benefit of the regional consultation process and provide the perspectives from Bangladesh, four local professionals from University of Dhaka, BARI, BRRI and Agricultural Biotechnology Support Project were also invited to present their papers on research progress and variety development in relation to an approach to food security enhancement in Bangladesh in this session.

In the plenary session, discussion based on R&D issues, Extension & Marketing issues and Policy issues was made. Afterward, these three thematic group reports were discussed and recommendations were finalized.

Keeping in view, Research and Development issues-it was recommended that trait specific genes for biotic and abiotic stress tolerance might be identified and isolated by using genomics and bioinformatics; Sharing of technology and collaboration of research among SAARC countries with respect to virus, fungus, insect and bacterial resistance in field crops and abiotic stresses like salinity, heat, cold,

submergence and waterlogging may be enhanced; Exchange of expertise among SAARC countries in molecular breeding, MAS and transformations was also recommended-As regards Extension and Marketing, institutional capacity building and training of trainers for adoption of tools and techniques of modern biotechnology were recommended; Further, creation and strengthening of research-extension-farmers-consumers linkages are needed-



Keeping in view the policy matters-it was recommended that uniform GMO policy and networking among Biotech scientists through meetings and visits in member countries might be made to facilitate GMO research and sharing of release GM crop varieties for testing and adoption. Members who don't have Biotech Research Centre may be encouraged to establish centre of excellence in Biotechnology; To promote GM products, it is imperative to create public awareness among all stakeholders e.g., policy makers, NGOs, Media with the inclusion of farmers, farmer bodies and end-users through education and campaign on usefulness of GM technology. Finally, it was recommended that existing bio-safety rules and regulation in member countries should be documented by SAC and may be posted at SAC website.

Adaptation to Climate Change ... from page 2

central climate change Secretariat at the focal point Ministry of the United Nations Frame for Climate Change (UNFCCC) in each member country having a strong linkage with relevant ministry in respective member countries to coordinate climate change related activities in agriculture of each member country involving all the stake holders engaged in research, development and policy formulation to address climate change issues; network among SAARC member countries to form climate change alliance in the region; agro-advisory based on weather forecasting system; effective coordination among SAARC countries for sharing germplasm and innovative crop management technologies through SAC; capacity building of researchers for developing short, medium and long term in depth scenarios and their impact on crop production using appropriate technologies / tools and training for farmers for adapting the innovative technologies and Agricultural Universities in SAARC countries may include a subject on climate change and crop simulation modeling.

Popularizing Multiple Cropping Innovations as a Means to Raise Productivity and Farm Income

SAARC Agriculture Centre (SAC) in collaboration with Department of Agriculture, Sri Lanka organized a Regional Expert Consultation Meeting on “Popularizing Multiple Cropping Innovations as a means to Raise Productivity and Farm Income” which was held at Plant Genetic Resources Centre, Peradeniya, Sri Lanka during 31st October to 1st November 2013. The objectives of this Meeting were to make an assessment of the prevailing multiple cropping systems and innovations and make recommendations for selected systems for popularization based on the prospects of further improvisation, increased production, income and resource-use optimization.



Professionals from five of the SAARC member countries (Bangladesh, Bhutan, Nepal, Pakistan, and Sri Lanka) presented their respective country status reports in two technical sessions. To garner benefit of the regional consultation process and provide the perspectives from Sri Lanka, 4 local professionals were also invited to present their papers on research progress on multiple cropping innovation. Experts from IRRI also presented their papers on the issue regarding Characterizing the Soil Hydrothermal Regime in the Root Zone using RS & GIS. This Consultation Meeting covered discussion on the concept of multiple cropping, description of the different types of multiple cropping system, present status, their adoption in different zones, prerequisites, advantages and constraints for their wide spread use in the SAARC region. The crop based various traditional, innovative and potential multiple cropping systems and their effects on various productivity factors and socio-economic implications were also discussed.

24 professionals from 4 organizations of SAARC countries participated in this consultation meeting and collectively drafted regional perspectives on multiple cropping innovations and a way forward to R & D.

Recommendations were prepared by three thematic groups (Research, Extension and Policy) and discussed by the participants. It was recommended that localization and improvement of various techniques available with the SAARC member countries is needed and a compendium of multiple cropping systems available in SAARC countries needs to be prepared by including

water saving irrigation techniques, high efficiency irrigation systems and use of various mulching materials. Efficiency of nitrogen fixing bacteria, fungi and algae as well as phosphate solubilizing bacteria can be used as alternative to chemical fertilizer. It was further added that Characterization of areas suitable for adoption of multiple cropping systems for sustainable land management and climate smart agriculture by using remote sensing & GIS techniques and crop modelling. Moreover, NARS should focus and allocate more resources and efforts for research on multiple cropping and come up with holistic research recommendations (costs/benefits, recommendations on inputs, cropping intensity, long term sustainability of a system etc).

Sharing of existing extension materials/success stories of multiple cropping systems for disseminating among SAARC countries and exposure visits of extension officers to other SAARC countries for observing promising multiple cropping systems, applicable in their countries were recommended.

Considering the potentials of multiple cropping for small holder subsistence agriculture, food security and poverty alleviation, SAC was proposed to develop a convincing project proposal for funding to popularize multiple cropping in the SAARC region. It was also recommended to identify enabling policies to support farmers for multiple cropping systems through different forms of sustainable positive incentives.

Contribute to SAARC AgriNews

SAARC AgriNews is a widely circulated Newsletter devoted for disseminating agricultural research and development findings as well as information on applied technology for the farmers of South Asian region.

SAARC Agriculture Centre (SAC) has been publishing this Newsletter quarterly (formerly SAIC Newsletter) since 1991 and distributing it to about 6,500 readers in SAARC member countries. The Centre has been distributing SAARC AgriNews to the relevant agricultural institutions, scientists and extension service providers of SAARC member countries for better livelihood of the farmers free of cost. Please send your articles, success stories and news on applied research, extension activities, proceedings and/or recommendations of seminars, symposium, consultations and workshops in the field of agriculture with relevant photographs either by post or through e-mail: sac@saarcagri.org. Please note that unaccepted articles are not returned to the authors.



Professional Development

● Dr. Tayan Raj Gurung, Senior Program Specialist (NRM) and Dr. Nure Alam Siddiky, Senior Program Officer (Livestock) from SAC attended a training workshop on “Management of Open Access Journal System” for regional NARS organized by The Food and Agriculture Organization of the United Nations (FAO) in collaboration with APAARI. The training was held during 26-30 August 2013 at the TOT Academy, Bangkok, Thailand. The participants from Bangladesh, India, Pakistan, Bhutan and Sri Lanka were attended in the training workshop.

● Ms. Nasrin Akter, Senior Program Specialist (Horticulture), SAARC Agriculture Centre attended a Regional Workshop on **Youth and Agriculture: Challenges and Opportunities in Asia-Pacific Region** was organized jointly by Asia-Pacific Association of Agricultural Research Institutions (APAARI) and Pakistan Agricultural Research Council (PARC), Islamabad during 23-24 October, 2013 with the objective to: i) assess national and regional constraints, opportunities and priorities for attracting youth (including young women) in agriculture to ensure food, nutrition and environmental security, ii) explore mechanisms for empowering farm youth through their involvement in decision making processes at local, national, regional and global level, iii) understand pathways to ensure effective participation of youth in agriculture through enabling policy environment, iv) develop suitable mechanisms for greater involvement of youth through various initiatives and collaborations, and v) create synergies and networks for capacity development, access to new knowledge and linking science to society by involving youth.

Also she participated a Regional Dialogue on **Strengthening Partnership between National Agricultural Research Systems (NARS) and the Consultative Group on International Agricultural Research (CGIAR)** Centres engaged in South Asia was organised jointly by APAARI and PARC on 22 October, 2013 at National Agricultural Research Centre, Islamabad. The dialogue mainly focused on future priorities and the implementation strategies for strengthening partnership between NARS and CGIAR for shared vision in AR4D and for catalysing the policy makers/planners to create enabling environment to ensure food, nutrition and livelihood security in the region.

Farm Animal Genetic Resources Evaluation, Conservation and Management in SAARC Countries

SAARC Agriculture Centre (SAC) in collaboration with Department of Animal Production and Health (DAPH), Kandy, Sri Lanka convened a regional expert consultation on Farm Animal Genetic Resources Evaluation, Conservation and Management in SAARC Countries during September 5-6, 2013 in Kandy, Sri Lanka. Focal point experts from Bangladesh, Bhutan, India, Pakistan, Sri Lanka and Nepal participated in the consultation meeting.

Also representatives from International Livestock Research Institute (ILRI) and World Society for the Protection of Animals (WSPA) participated in this meeting. Local participants from Agriculture University of Sri Lanka, Department of Animal Production and Health present in this consultation. During inaugural session, Dr. W. K. De Silva, Director General, Dept. of Animal Production & Health, Peradeniya, Sri Lanka welcomed all participants; Dr. H. H. D. Fonseka, GB Chairperson, SAARC Agriculture Centre and Hon. Secretary, Minister of Livestock and Rural Community Development as guests of honour; His Excellency H. R. Mithrapala

Hon. Deputy Minister of Livestock and Rural Community Development as special guest; His Excellency Arumugan Thondaman, Hon. Minister of Livestock and Rural Community Development as chief guest and Dr. Md. Nure Alam Siddiky, SAC, Bangladesh gave Introductory remarks about SAC and aims and objectives of the meeting

RECOMMENDATIONS

● Characterization, Documentation and Monitoring of Trends and Associated Risks

Efforts are needed for identification, evaluation and characterization of FAnGR.

● Sustainable Use and Development of Indigenous FAnGR

The long term goal in this regard should be enhanced sustainable use and development of FAnGR in all relevant production systems.

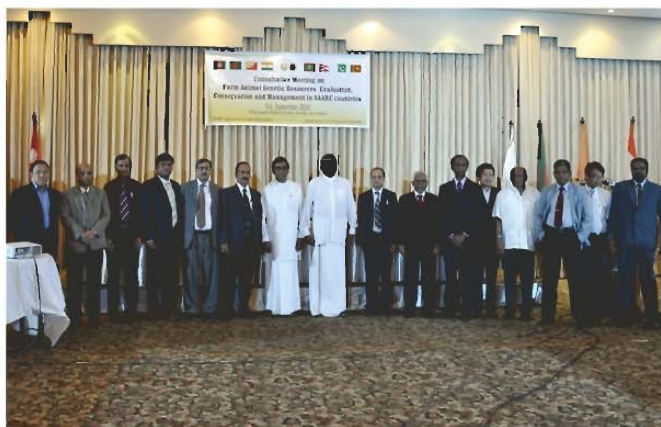
● Conservation of FAnGR

The ex-situ conservation approaches are complementary to in-situ approach and therefore they may be linked.

● Institutions and policies

- A national centre of excellence on evaluation and conservation of FAnGR should be established immediately.

- ❑ Economic and performance valuation of all existing FAnGR should be undertaken immediately at priority basis.
- ❑ National breeding plan and strategy should be developed and followed very strictly.
- ❑ Legal instrument/ framework is needed for implementing comprehensive livestock policy, registration of animal breeds, protection of farmers' rights, control of genetic erosion of defined indigenous breeds and access to and benefit sharing of FAnGR.
- ❑ Establishment of fully functional national focal points for FAnGR. Development of strong national coordination between the national focal points and stakeholders involved in FAnGR, such as the breeding industry, government agencies, civil society organizations, and networks and advisory committees.



- ❑ Review of national research and education capacities in relevant fields, and establish targets for training to build the national human capacity. Inclusion of special courses on management and sustainable utilization of FAnGR at graduate and post graduate levels pertaining to Animal/Veterinary Sciences. Identification of short-term, medium-term and long-term needs for research and education, and promotion of the formation of relevant cadres of national experts through international training.
- ❑ Establishment of open access new national database on FAnGR and strengthening existing databases to enable information sharing among countries.
- ❑ Development of a mechanism for export and import of farm animals/germplasm for a better management of FAnGR, especially of regional and international transboundary breeds.
- **Regional Policies**
- ❑ Development of regional detailed information database and network on FAnGR.

- ❑ Sharing of information about the national initiatives and policies on conservation and management of FAnGR among the SAARC member countries.
- ❑ Institutionalization of a regional reference genebank of FAnGR for conservation of transboundary animal genetic resources.
- ❑ National focal points should be identified from all SAARC member countries to maintain mutual collaboration, cooperation and networking.
- **Management of Transboundary Livestock and Poultry Breeds in SAARC countries**

Following actions would be necessary in the interest of transboundary FAnGR in accordance with the global plan of action developed by FAO:

- ❑ Establish or strengthen international collaboration in the characterization, utilization, and conservation of transboundary breeds.
- ❑ Develop an agreement on a common set of minimum criteria and indicators for FAnGR, including means for assessing endangerment status, and methods to assess environmental, socio-economic and cultural factors related to the management of FAnGR,
- ❑ Develop technical standards and protocols for phenotypic and molecular characterization, including methods for the assessment of quantitative and qualitative production traits, nutrient utilization, functional traits and economic valuation. This makes possible the assessment of comparative breed performance in different production environments.
- ❑ Develop protocols for participatory monitoring of trends and associated risks, and characterization of indigenous breeds managed by indigenous and local communities and livestock keepers.
- ❑ Establish an integrated support arrangement to protect breeds and populations at risk from emergency or other disaster scenarios, and to enable restocking after emergencies, in line with the national policy.
- ❑ Establish regional and global networks of gene banks for FAnGR and harmonize approaches to cryopreservation via gene banks and to facilitating exchange.

Strengthen technical cooperation and establishment of facilities for technology transfer and exchange of experience, and enhance educational and other training opportunities between SAARC countries. Support regional and international campaigns to raise awareness of the status of FAnGR for food and agriculture, and seek for strong support at the government and institutional levels, as well as among the general public.

High Yielding Dairy Buffalo Breed Development in SAARC Countries

An Expert Consultation Meeting for the inception on High Yielding Dairy Buffalo Breed Development in SAARC Countries was held at SAARC Agriculture Centre (SAC), Dhaka, Bangladesh during 16-17 November 2013. Focal point experts from Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka participated in this inception meeting. Local participants

from Bangladesh Agricultural University, Department of Livestock Services, Bangladesh Livestock Research Institute, Private sector organizations and SAC participated in this inception meeting. In the inaugural session, Dr. Md. Nure Alam Siddiky, Senior Program Officer (Livestock), SAARC Agriculture Centre (SAC) presented on

perspectives of high yielding dairy buffalo breed development in SAARC Countries; Dr. Mosaddique Hossain, Director General, Department of Livestock Services (DLS), Bangladesh and Dr. Md. Nazrul Islam, Director General, Bangladesh Livestock Research Institute (BLRI) as guests of honour; Dr. Wais Kabir, Executive Chairman, Bangladesh Agricultural Research Council (BARC) as special guest; Dr. Shelina Afroza, Secretary, Ministry of Fisheries and Livestock, Bangladesh as chief guest and Dr. Abul Kalam Aazd, Director, SAARC Agriculture Centre presided over the inaugural session

Following recommendations made under three thematic areas as follows:

Theme 1: Import Policy Guidelines of Buffalo Germplasm for SAARC countries

- **Policy Recommendations for Germplasm Import**
Import of buffalo germplasms (semen, embryos and live animals) will be permitted for breeding, research and development purposes (in institutional /organized herds, peri-urban herds/ dairy un-organized in rural areas/any other buffalo herds recognized by competent authority/ government agency)

- The importing countries will not demand the germplasm/live animals of those indigenous buffalo breeds which has been declared threatened/endangered by the exporting country

- The import of germplasm will be allowed subjected to the fulfillment of following conditions
- For import of germplasm, order of preference shall be frozen semen, frozen embryos and live animals. However, based on the demand of the importing country, the exporting country shall fulfill their requirement.



- Imported buffalo germplasm will conform true to the breed characteristics.

- During import of germplasm average milk production and fat percent records of imported breeds will be above the breed averages of the exporting countries.

- Health certificate of buffalo germplasm requested by the

importing countries/authorities will be provided by the exporting country

- For import of semen/embryo/ova, the collection and processing techniques as mentioned by the OIE terrestrial animal health code (2005) as amended from time to time
- The exporting agencies will provide the requirement of import of the countries which are interested in importing buffalo germplasm (live animals, semen, ova, embryos and gonads) and also provide their import policy documents and health protocol to the concerned authority. The exporting agency from respective country will comply with the rules and regulations as intimated by concerned government authority.

● Material Transfer Agreement (MTA)

SAC would forward the existing material transfer agreement to the SAARC Member states through SAARC secretariat for their concern and consideration.

Theme 2: Capacity Building of the Professionals

● Training (Short Term)

- Buffalo breed characterization, progeny testing, animal recording and analysis
- Nutrition – Feed formulation and conservation

- ❑ Reproductive herd health management – including USG
 - ❑ Frozen semen technology and AI
 - ❑ Disease surveillance and monitoring of buffalo herd
 - **Participation in seminar and workshop**
 - ❑ First / presenting author of a scientific paper may be supported partially / fully to participate in seminar on buffalo science organized in SAARC countries, or in Asian / World Buffalo Congress.
 - **Collaborative Research**
 - ❑ Progeny testing and adaptive breed development of Murrah and Nili-Ravi in SAARC countries.
 - ❑ Methodological development of reproductive efficiency management in field buffalo.
 - ❑ Assessment of location specific nutritional/mineral deficiencies for supporting appropriate feed formulation for buffalo.
 - ❑ Buffalo feed formulation as mitigation strategy for methane emission.
- Theme 3: Knowledge Management and Information Sharing**
- ❑ Develop a SAARC Harmonized Code of Rules for sharing the buffalo germplasm information among the SAARC member countries. The draft Code of Rules should be forwarded for approval by the appropriate authority through the SAARC Secretariat.
 - ❑ Development and posting of data base on buffalo breeds in SAARC countries
 - ❑ Characterization of a non-descript buffalo breeds /varieties of SAARC countries (Phenotypic, Molecular etc)
 - ❑ Buffalo disease information sharing for effective prevention and control in SAARC countries
 - ❑ Share success stories in SAARC countries related to buffalo development
 - ❑ Arranging E-conference on buffalo development in SAARC Countries
 - ❑ Prepare farmers manual on buffalo rearing
 - ❑ Prepare an effective manual on milk and milk products for small entrepreneurs/self help groups
 - ❑ Exchange of extension materials for the improvement of buffalo productivity through improved management.
 - ❑ Organize seminar/symposium/workshop in SAARC countries on rotation basis through SAC
 - ❑ Publishing Buffalo bulletin highlighting the breed promotional activities
 - ❑ Exposure visits of extension professionals/scientists/ policy makers/farmers
 - ❑ Awareness campaign to develop habit of “drinking milk “ at national and regional level

SAARC Vegetable Adaptive Trials Network (SVATNet)

The Second Annual Review Meeting on “SAARC Vegetable Adaptive Trials Network (SVATNet)” held on 28-29 December 2013 in Thimphu, Bhutan. During Meeting, the recommendations were adopted as follows:

Prioritization of crops and problems: A Matrix be developed and crop and related problems be prioritized by the end of this meeting.

Variety Coding: SAC should harmonize the variety coding system and should come up with a methods as how to analyze the data from different countries.

Research protocol and reporting format: It was suggested that a common research protocol and reporting format to be developed SAC or the one prepared by India be circulated to member countries.

Quality of research and planting materials: Sufficient research fund from SAC and appropriate technical support from ICAR is sought.

Good research findings: Any resistance observed should be shared with other member countries

Inputs supply: Seeds of exceptionally good quality and better varieties should be shared on time by the member countries. Improve quality of materials internally as well as through out sourcing. Include one elite variety of each vegetable from each country. It was agreed that seed supply will take place in January and July of every year.

Disease management: Removal of source of virus inoculum is recommended to be followed strictly by all researchers. strong quarantine measures to be instituted within the country so that disease do not spread from one country to another.

Traits of brinjal: Traits specific characterization should be carried out

Books and pamphlets: Hand book of agriculture and horticulture / Disease management pamphlets to be shared by ICAR, India. SAC will also make APS publication available to member states

Up-scaling the SVATNet: Scale up the programme to bigger project level as good beginning has already been made. Consultation with AVRDC, India for future linkage

M&E: SAC should facilitate to put M&E in place. Visits by country team to trial sites/premier vegetable institutes should be organized

Capacity development: Exposure visits and training of young breeders/researchers. SAC/respective government can recommend student exchange programmes for post graduates course.

3rd SAVNet Review Meeting will be held in Sri Lanka tentatively 2nd week of October 2014

SAARC Charter Day Observed

The Charter of SAARC is constantly reminding us of our endeavors and commitment to assist the member countries to prepare the national plans of action to address issues of food security through agricultural development, poverty alleviation, empowerment of women, and human resource development.

SAARC Charter Day was observed on 8 December 2013 in Dhaka, Bangladesh jointly organized by SAARC Meteorological Research Centre (SMRC) and SAARC Agriculture Centre (SAC) with due solemnity to commemorate the adoption on SAARC Charter. In observance of the **29th SAARC Charter Day**, the two Centres organized various activities including opening the eight country flags, fly the pigeons for peace and painting competition on Nature by the student, and building and main gate enlightening, display of the



Centre's products and services, folder with SAARC Charter, writing pad and pen with SAARC Charter Day, during the occasion.

Seminar

To commemorate the Charter Day, a seminar was held at Bangladesh Agricultural Research Council. During seminar, two important papers were presented by Dr. Md. Rafiqul Islam Mondal, Director-General, Bangladesh Agricultural Research Institute (BARI) on **“Increasing Crop Production through Four Crop-based Cropping System in Bangladesh”** and Dr. Shahid Mansoor, Director, National Institute for Biotechnology and Genetic Engineering, Pakistan presented on **“Problems and Prospect of GM Crops in Pakistan”**. Md. Shah Alam, Director, SMRC presided over the seminar, Dr. Wais Kabir, Executive Chairman, BARC graced the occasion as chief guest. Dr. Md. Nurul Alam, Senior Program specialist (PSPD) gave welcome address in the seminar.



BARI developing organic model farm for the small scale growers



Director-General, BARI monitoring the preparation of organic vegetable field.

Bangladesh Agricultural Research Institute (BARI) a multi crop research institute initiated research on organic model farm focusing small scale growers. In this model,

functional bio-diversity of flora and fauna are being considered. It also consider farmers economic aspect too. Last two years the model gave good output. Soil nutrient budgeting and crop cultivation process now under observation. In future this model will be adapted in the farmers field in Bangladesh as well as .

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