

Minutes of the
Fourth Meeting of Executive Council (2019-21) of Indian Society of Plant Genetic Resources, New Delhi

Date : Jan. 18, 2020 **Time** : 11.30 a.m. onwards **Agenda** : Annexure 1

Venue: Dr H.B. Singh Committee Room of the ICAR-National Bureau of Plant Genetic Resources (NBPGR), New Delhi

Chair	Dr R.S. Paroda	President, ISPGR
Members	Dr R.C. Agrawal	Vice President (VP), ISPGR
	Dr Rakesh Singh	Joint Secretary (JS), ISPGR
	Dr Amit Kumar Singh	Councillor (NZ)
	Dr Anuradha Agrawal	General Secretary (GS), ISPGR
Member Secretary		

Agenda 1 & 2: Welcome and Introductory Remarks

- The General Secretary (GS), Dr Anuradha Agrawal, welcomed all the members of the EC and expressed her gratitude for their presence in the meeting. She informed that Dr Kuldeep Singh, Vice President and Dr Dinesh Kumar, Treasurer, who had confirmed their participation in the EC meeting, were held up at the last moment and could not attend the meeting.
- Dr R.S. Paroda, President, also welcomed all the members and thanked them for their presence and appreciated that ISPGR calendar of events for 2020 was developed and being acted upon.

Agenda 3: Confirmation of the Minutes of last EC Meeting and Action Taken Report

- The minutes of the EC Meeting held on Oct. 15, 2019 were confirmed.
- The GS presented the ATR report (*Annexure 2*).

Agenda 4: General Secretary's Report

- Dr Anuradha Agrawal presented the GS report (*Annexure 3*).
- All arrangements to be made for the GBM and 2nd Dr D.S. Athwal Memorial lecture on Jan 31, 2020, including confirmation of Chief Guest, mementoes for speaker and Chief Guest, intimation to family of Dr D.S. Athwal, invitations to all staff of NBPGR, IARI, CGIAR offices, refreshments etc.

(Action : Vice-Presidents and General Secretary)

- ISPGR Award function to be planned in May 2020. President, ISPGR may constitute the Award Committee soon.

(Action : President and General Secretary)

- Membership drive to be increased by sending letters of invitation and also developing an UPI mode of payment on ISPGR website. A personal letter by the President be sent to all probable scientists for the Division of Genetics, Seed Science, Horticulture and Vegetable Science, IARI and members of ISGPB, who are not yet members.

(Action : General Secretary, Councillors (NZ) and EIC)

- Jodhpur proceedings to be released and Jan 31, 2020 and soft copies to be emailed to all members.

(Action : General Secretary)

Agenda 5: Editor-in-Chief's Report

- Dr Sunil Archak presented the EIC's report (*Annexure 4*). He apprised the status of manuscripts, journal printing and meeting with Springer staff for publishing of IJPGR.
- The EC decided to go ahead with arrangements for online publication with Springer and make all out efforts to ensure higher rating of the journal

(Action : Editor-in-Chief)

Agenda 6: Treasurer's Report

- As Dr Dinesh Kumar could not attend the meeting, the Treasurer's Report was presented by the General Secretary (*Annexure 5*).
- The EC expressed concern over increased expenditure versus incomes. Efforts be made to increase the membership (institutional and individual), and also raise funds through registration fee for the proposed National Symposium in Sept. 2020.

(Action : Treasurer)

Agenda 7: Discussion concerning organization of National Symposium/Workshop in 2020

- The draft concept note for the National Symposium on PGR to be shared with all EC members and inputs taken by Jan 25, 2020. Follow up action of sending invitations to committee members and co-sponsors to be initiated soon after. Also first circular be made ready for circulation, on priority.

(Action : General Secretary)

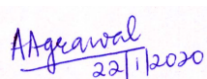
- For the National Workshop on Access and Benefit Sharing, Dr Sarath Babu, Councillor (SZ) and Dr K.S. Varaprasad would coordinate with Dr J.C. Rana to organize it on April 7-8, 2020 in Hyderabad. ISPGR would be happy to be a Co-Organizer.

(Action : Dr Sarath Babu)

- A workshop on 'Conservation of PGR in the NER' to be planned in the later part of 2020 or early 2021 in NER.

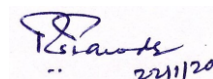
(Action : Dr Kuldeep Singh)

The meeting ended with a vote of thanks to the Chair and all EC members by Dr Rakesh Singh, JS.



AAgrawal
22/1/2020

Anuradha Agrawal
(General Secretary)



R.S. Paroda
22/1/20

R.S. Paroda
(President)

Fourth Meeting of the ISPGR Executive Council (EC) (2019-2021)

Jan. 18, 2020 (11.30 a.m.)

Dr H.B. Singh Committee Room, ICAR-NBPGR
Pusa Campus, New Delhi - 110 012

AGENDA

11.30 – 11.35 a.m.	Welcome Remarks	Kuldeep Singh Vice President, ISPGR
11.35 – 11.45 a.m.	Introductory Remarks by Chairman	R.S. Paroda President, ISPGR
11.45 – 11.50 a.m.	Confirmation of the Minutes of Third EC Meeting held on Oct. 15, 2019 and Action Taken Report	Anuradha Agrawal General Secretary, ISPGR
11.50 - 12.00 noon	Report of General Secretary	
12.00 - 12.10 p.m.	Report of Editor-in-Chief regarding progress of the journal	Sunil Archak Editor-in-Chief, IJPGR
12.10- 12.20 p.m.	Treasurer's report	Dinesh Kumar Treasurer, ISPGR
12.20 - 12.40 p.m.	Discussion concerning organization of GBM, and National Symposium in 2020	Anuradha Agrawal General Secretary, ISPGR
12.40-12.45 p.m.	Any other item, with the permission of Chair	
12.45 – 12.55 noon	Concluding remarks by Chair	R.S. Paroda President, ISPGR
12.55 – 1.00 p.m..	Vote of Thanks	Rakesh Singh Joint Secretary, ISPGR
1.00 - 2.00 p.m.	Lunch	

Action Taken Report of the Third EC (2019-12) Meeting Held on Oct. 15, 2019

	Agenda	ATR
1.	Arranging the 2 nd Dr D.S. Athwal Memorial Lecture	Dr Kamal Bawa, Professor of Biology, Department of Biology, University of Massachusetts, Boston, USA has consented to give the lecture on Jan. 31, 2020 on 'Securing Our Biodiversity and Our Future: New Opportunities and Challenges'.
2.	Call for application of ISPGR awards	ISPGR awards announced and 33 applications received for B.R. Barwale Award, R.S. Paroda Award and Fellows. Committee for selection of awards to be constituted.
3.	Meeting to be held to change some of the Editors. Action be initiated to increase the journal rating/impact by making it open –access or approaching a reputed Publishing House.	Springer Publications have been approached. Change of editors to be approved in the EC meeting.
4.	Efforts be made to increase the membership (institutional and individual).	Needful is being done.
3.	A core committee be formed for organizing the National Symposium and first circular be issued by Nov 15, 2019.	First circular has been prepared and shall be circulated after EC meeting (Annexure 2A.).
4.	Action to be taken for an event on ABS in Hyderabad in early 2020, as proposed by Dr J.C. Rana, Nodal Officer, GEF Project, c/o Bioversity International	A meeting was held on Jan. 9, 2020 at Bioversity International office, New Delhi. The event is scheduled for April 7-8, 2020 at Hyderabad. Draft CN and tentative program is attached (Annexure 2B)
5.	A workshop on 'Conservation of PGR in the NER' to be planned during a suitable time in 2020 in Nagaland.	To be finalized as yet

**National Symposium
on
Plant Genetic Resources for Climate
Smart Agriculture and Household
Nutritional Security**

Sept. 16-18, 2020

Organized by

Indian Society of Plant Genetic Resources (ISPGR), New Delhi

and

ICAR-National Bureau of Plant Genetic Resources (NBPGR), New Delhi

Co-Organizers (Potential)

Indian Council of Agricultural Research (ICAR)
Protection of Plant Varieties and Farmers' Rights Authority (PPV&FRA)
National Biodiversity Authority (NBA)
Food and Agriculture Organization of the United Nations, Delhi Office
CGIAR Institutes, India Offices (Bioversity International, IFPRI, ICARDA, CIMMYT, IRRI)
GIZ, India

Knowledge Partners (Potential)

Trust for Advancement of Agricultural Science (TAAS), New Delhi
MS Swaminathan Research Foundation (MSSRF), Chennai
Ashoka Trust for Research in Ecology and the Environment (ATREE)

Venue

**Dr A.P. Shinde Hall
NASC Complex
Pusa Campus, New Delhi – 110 012**

CONCEPT NOTE

Context and Rationale

- The 2007 report of the United Nations' Intergovernmental Panel on Climate Change (IPCC) had revealed that the anthropogenic activities had led to approximately 1.0°C of global warming above the pre-industrial era (1850s). Same is now expected to reach 1.5°C between 2030 to 2050, and even rise to up to 4.0°C by the end of twenty first century. Real changes in the frequency and severity of extreme climate events such as drought, heavy rains & floods, hurricanes, wildfire, landslides etc. are already having negative consequences on agricultural production, thereby our future food and nutritional security.
- Human activities such as use of non-renewable fossil fuel, use of coal for energy production, cement and brick production for construction, excessive land use, including land use change like clearing of forests for cultivation, urbanisation, industrialisation, inefficient use of fertilisers etc. have increased the greenhouse gas (GHG) emissions in the form of carbon dioxide (CO₂), nitrous oxide, methane etc. At the same time, faulty agricultural practices have also contributed to global warming and thus adversely getting impacted India's total GHG emissions (3,202 million metric tons equivalent of CO₂), representing 6.5 per cent of total global GHG emissions, compared to almost twice of that by the United States of America and four times by China.
- Under the Paris Agreement (2015), India's nationally determined contributions (NDCs) in three main areas had been: (i) Reduction in GHG emission intensity of its GDP by 33-35 per cent below that of 2005; (ii) generation of 40 per cent of India's power from non-fossil fuel sources, and (iii) creation of an additional 'carbon sink' of 2.5 to 3 billion tonnes of CO₂ equivalent through additional forest and tree cover. Fortunately, thanks to required policy support and concerted efforts of the Government, the first two commitments are likely to be met satisfactorily ahead of time (2030). Already its GHG emission is reduced in intensity by 21 per cent, and India is likely to achieve a 30-35 per cent reduction target on fossil fuel use through a massive program on solar energy generation, making India a global leader. It has also banned energy generation through coal and has even imposed duty of US \$3.5 per tonne as disincentive. On the contrary, India is unable to make progress on the third target of increasing carbon sink through additional forest cover from present 24 to 33 per cent, as envisioned under New National Forest Policy (2018). Hence, in order to meet this target, the best recourse appears to be through promotion of agro-forestry.
- Globally, the demand for food is expected to rise by 50 per cent and yields may decline by up to 30 per cent by 2050 in the absence of ambitious climate action. By 2050, India's

population will reach 1.7 billion people, creating the most populated country in the world. Food demand will increase by 70%, and is already lagging domestic food production. Hence, for a country like India, which has a high dependency on agriculture, climate change threatens food security and poverty levels.

- Out of 17 United Nations Sustainable Development Goals (SDGs), adopted in 2015, majority of them relate to agriculture such as: 1) No poverty, 2) Zero hunger 3) Good health and well-being for people 12) Responsible consumption and production, 13) Climate action, 14) Life below water, 15) Life on land and 17) Partnership. To address these, especially to ensure household nutritional security, role of genetic resources becomes yet more relevant now than ever before.
- In this context, the 2019 'State of the World's Children Report' by UNICEF reveals a triple burden of malnutrition: i) undernutrition (stunting, wasting and underweight), ii) micronutrient deficiency, and iii) obesity are simultaneously being faced by many nations, which seriously threatens both growth and development of their children and broadly their economies. Further, the 2018 'Global Nutrition Report' by WHO revealed that India is home to 46.6 million out of 150.8 million stunted children globally. India is also the third most obese nation in the world and is projected to lose 46 billion USD just on account of malnutrition by 2030. A recent report, 'Food and Nutrition Security Analysis, India, 2019', by the Government of India shows that despite rapid economic growth, declining levels of poverty, enough food even to export, and a multiplicity of government programs, malnutrition amongst the poorest shall remain a high priority in India.
- • Plant genetic resources (PGR) are the biological cornerstone of global food security. The agricultural diversity and genetic resources that support crops need to be used efficiently both to maintain current levels of food production and to confront future challenges. In the light of climate change and increasing population, it is imperative that focus is also given to agroforestry and production below land (aquatic species).
- PGR would be required for both adaptations to climate change (developing more stress tolerant varieties) as well as for its mitigation. Adapting crop varieties to local ecological conditions can reduce risks induced by climate change. Thus, identifying adapted germplasm requires renewed emphasis on characterization and evaluation of collected/conserved germplasm in genebanks.
- Increasing yields of major food crops – or even maintaining them – in the face of climate change will depend on combining genetic traits found in materials of a wide range of origins, including wild species. Unfortunately, wild species are especially vulnerable to climate change because they do not receive management interventions that help them

adapt to changing conditions. Narrowly adapted species and endemics are especially vulnerable to the direct effects of climate change.

- Some of the centres of landrace diversity exist in areas under considerable climate-risk, where diversity is valued for its resilience. It is, however, poorly understood how the increase of climate risk, and change in the climate baseline might impact the current diversity in landraces found *in situ*. Impacts are likely to be both positive and negative on landrace diversity depending on the region, but a priority for research and monitoring activities is to ensure that more diversity is not lost.
- Although climate change does not always imply major changes in the way PGR is managed, it does require change in priorities for action. Today there is urgent need for consolidating collections of wild species, including crop wild relatives (CWR), due to increased likelihood of extinction for narrowly adapted and endemic species. Novel and increased demands on germplasm in genebanks for adapting agriculture to climate change, including the need to screening for different characters.
- There is need to review breeding strategies and priorities, crop by crop and region by region, so as to make products of breeding programs in preparedness for the challenges thrown up by climate change. In fact there is also need to review and strengthen policies for promoting systems that encourage the maintenance of biodiversity in general, and agrobiodiversity(including PGR), in particular.
- India has the advantage of being endowed with high degree of genetic variability, and more than four decades of organized programs for PGR management. Some 4.5 lakh PGR accessions are available in its National Genebank at NBPGR. There is now need to lay greater emphasis on fundamental research, documentation, conservation and protection (for access and benefit sharing) to be prepared for their use in climate resilient agriculture and nutritional security.
- Basic research and application of advance technologies (e.g. C4 plants, nitrogen use efficient plants, biofortified crops etc.) using diverse PGR would be important for addressing the future challenges in production and productivity. Also diversification of crops to include more nutricrops, horticultural and medicinal species would be helpful from nutritional security.

Scope and Significance

- The above-mentioned issues are intended to be elucidated and addressed through deliberations involving researchers, intellectuals, regulators, policy makers, farmers, NGOs,

donors, philanthropists, and other stakeholders on a common platform. This could bring out a clear roadmap as well as implementation strategy for various PGR policies, programs and capacity building to address the challenges of climate change as well as nutritional security.

- The Indian Society of Plant Genetic Resources (ISPGR), New Delhi and Indian Council of Agricultural Research-National Bureau of Plant Genetic Resources (ICAR-NBPGR) are jointly organizing a National Symposium on 'Plant Genetic Resources for Climate Resilient Agriculture and Nutritionally Secure India' from Sept. 16-18, 2019 in New Delhi. Other co-sponsors and knowledge partners expected are: Protection of Plant Varieties and Farmers' Right Authority (PPV&FRA), Ministry of Agriculture and Farmers' Welfare (MoAFW), National Biodiversity Authority (NBA), Ministry of Environment, Forest and Climate Change (MoEFCC), Departments of Biotechnology, Bioversity International and the Trust for Advancement of Agricultural Sciences (TAAS).
- The symposium aims to bring together experts in climate change, human nutrition, plant genetic resources, genetics and breeding, biotechnology, ecology and environmental science, information management, bioinformatics, genomics, agronomy, forestry, integrated pest management, conservation biology, law and policy analysis, economics and other social sciences. A system-wide approach is proposed for the deliberations which may reflect both *in situ* and *ex situ* conservation, use and sustainability of PGR in the context of climate change and nutritional security.

Objectives

- Identify ways by which climate change may influence the priorities of conservation and management of PGR, including expected implications for the genebank managers, genetic resource users, *in situ* agro-biodiversity management communities etc.
- Assess the steps being undertaken for the preparedness of PGR as an insurance system for risk management and for combating challenges of both adaptation and mitigation arising due to climate change. Also to examine as to how current available genetic resources could meet the future household nutritional security needs. This would require prioritisation of species/crops and the research areas that would require better management of PGR.
- Examine and highlight the possible contributions of youth in PGR management (as potential users and saviours of available diversity) for agricultural sustainability.
- Suggest required policy interventions to facilitate access and benefit sharing and to ensure more effective use of available genetic resources under climate change scenario in different eco-regions.

Expected Outputs

- A roadmap to enhance food, nutrition and environment security through optimal and efficient use of genetic resources under changing climate scenario.
- New thinking on the sustainable management and use of PGR through interdisciplinary and inter-institutional exchanges of ideas and technological options.
- Mainstreaming PGR related issues and to devise right policies to ensure fair access, benefit sharing and sustainable conservation through use of available genetic resources.

Organisers

- Indian Society of Plant Genetic Resources (ISPGR)
- ICAR- National Bureau of Plant Genetic Resources (NBPGR)
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Co-organisers

- Protection of Plant Varieties and Farmers' Rights Authority (PPVFRA)
- National Biodiversity Authority (NBA)
- Trust for Advancement of Agricultural Sciences (TAAS)
- Ashoka Trust for Research in Ecology and the Environment(ATREE)
- Bioversity International-India
- GIZ, India
- CGIAR research program on Climate Change, Agriculture and Food Security (CCAFS), South Asia

Venue & Date

- NASC Complex Facilities, Pusa Campus, New Delhi; Sept.16-18, 2019

Proposed Themes

- PGR management in the changing climate and emerging nutritional needs
- Status of management of available Plant Genetic Resources
- Revisiting the needs and reorienting techniques for survey, collecting, evaluation and documentation of genetic resources
- New science for germplasm characterisation and conservation
- Sustaining *in situ* and *ex situ* management and meeting the expectations of stakeholders
- PGR Science – New role and responsibilities of youth (including women)
- Policies to facilitate access, exchange and benefit sharing of PGR under the changing regulatory and IPR systems

Tentative Program Structure

Day 1

9.00- 9.30 AM	Registration
9.30-11:30 AM	Inaugural Session
	Plenary Lecture 1 : Agriculture in the Changing Climate – Expectations and Requirements Plenary Lecture 2: Malnutrition Crisis – Challenges and Way Forward
11.30-12.00	Tea
12.00 -1.00 PM	Technical Session 1 : Status of Plant Genetic Resources in India Chair: Co-Chair: Rapporteurs:
12.05-12.20 PM	Lead Lecture : PGR in National Genebank of NBPGR
12.20 -12.30 PM	Oral Presentation 1: Community Seed Banks (MSSRF)
12.30 -12.40 PM	Oral Presentation 2: Field Genebank Status (IIHR)
12.40-12.50 PM	Oral Presentation 3: Botanical Gardens (TBGRI)
12.50 - 1.00 PM	Discussion and Concluding Remarks
1.00 – 2.00 PM	Lunch
2.00 -3.30 PM	Technical Session 2 : Revisiting the approaches for survey, collecting and conservation and biosecurity of PGR for climate change preparedness and nutritional security Chair: Co-Chair: Rapporteurs:
2.05 - 2.35 PM	Lead Lecture
2.35-2.50 PM	Oral Presentation 1
2.50 -3.05 PM	Oral Presentation 2
3.05 -3.20 PM	Oral Presentation 3
3.20- 3.30 PM	Oral Presentation 4
3.30 - 4.15 PM	Tea & Poster Session (Technical Sessions 1, 2)
4.15 - 4.30 PM	Oral Presentation 5
4.30 - 4.45 PM	Oral Presentation 6
4.45 - 5.00 PM	Discussion and Concluding Remarks
6.00 - 7.00 PM	General Body Meeting (GBM) of ISPGR
7.00 PM	Dinner

Day 2

9.30 AM - 11.00 AM	Technical Session 3 : New strategies for germplasm characterization, and utilization for nutritional security and climate resilience Chair: Co-Chair: Rapporteurs:
9.35 - 10.05 AM	Lead Lecture 1

10.05-10.20 AM	Oral Presentation 1
10.20 -10.35 AM	Oral Presentation 2
10.35 – 10.50 AM	Oral Presentation 3
10.50 – 11.05 AM	Oral Presentation 4
11.05-11.45 AM	Tea & Poster Session (Technical Sessions 3)
11.45-12.00 PM	Oral Presentation 5
12.00-12.15 PM	Oral Presentation 6
12.15 -12.30 PM	Oral Presentation 7
12.35- 1.00 PM	Discussion and Concluding Remarks
1.00 – 2.00 PM	Lunch
2.00 -3.30 PM	Technical Session 4 : <i>In Situ</i> Management of PGR and Role of Farmers and Communities in on-Farm Conservation of PGR Chair: Co-Chair: Rapporteurs:
2.05 - 2.35 PM	Lead Lecture
2.35-2.50 PM	Oral Presentation 1
2.50 -3.05 PM	Oral Presentation 2
3.05 -3.30 PM	Discussion and Concluding Remarks
3.30 - 4.15 PM	Tea & Poster Session (Technical Session 4)
4.15 - 5.00 PM	Evening Lecture

Day 3

9.30 AM - 11.00 AM	Technical Session 5 : PGR Science – Contributions by Students and Youth Chair: Co-Chair: Rapporteurs:
9.35 - 10.45 AM	11 Short presentations (10 min. each) by Students/Young Researchers on thematic areas of technical sessions
10.45 - 11.00 AM	Discussion
11.00-11.30 AM	Tea & Poster Session (Technical Session 5)
11.30-1.00 PM	Panel Discussion : Policies to facilitate access and exchange of PGR in view of shifts in climate zones globally
12.45- 1.00 PM	Discussion and Concluding Remarks
1.00 – 2.00 PM	Lunch
2.00 -3.30 PM	Plenary Session and ISPGR Award Function Chair: Co-Chair: Rapporteurs:
2.05 - 2.35 PM	Major Recommendations from the Sessions
2.35 - 3.00 PM	Presentation of Awards
3.00 - 3.50 PM	Remarks by Dignitaries on Dais
3.50 - 4.00 PM	Vote of Thanks
4.00 PM	Tea

Committees

National Advisory Committee

Dr R. S. Paroda, Chairman, TAAS, New Delhi and President, ISPGR
Dr Trilochan Mohapatra, Secretary, DARE and DG, ICAR, New Delhi
Mr Sanjay Agarwal, Secretary, DAC&FW, Gol, New Delhi
Dr V.B. Mathur, Chairperson, National Biodiversity Authority (NBA), Chennai
Dr R.B. Singh, Former President, NAAS, New Delhi
Dr. P.L. Gautam, Former Chairperson, NBA, Chennai
Dr K.V. Prabhu, Chairperson, PPV&FRA, New Delhi
Dr B.S. Dhillon, VC, PAU, Ludhiana
Shri J. Justin Mohan, Secretary, NBA, Chennai
Sh. Ashwani Kumar, Joint Secretary (Seeds), DAC&FW, Gol, New Delhi
Dr A.K. Singh, Director, ICAR-IARI, New Delhi
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Dr R.S. Rana, Former Director, NBPGR, New Delhi
Dr S.K. Sharma, Former Director, NBPGR, New Delhi
Dr J.L. Karihaloo, Former Coordinator, APCoAB, APAARI, Bangkok
Dr Bhag Mal, Senior Consultant, TAAS, New Delhi
Dr D.K. Yadava, ADG (Seed), ICAR, New Delhi

Organizing Committee

Organizing Secretary

Dr Anuradha Agrawal, General Secretary, ISPGR

Co-Organizing Secretaries

Dr Dinesh Kumar, Treasurer & Dr Rakesh Singh, Joint Secretary, ISPGR, New Delhi

Technical Program Committee

Dr R.C. Agrawal, National Director, NAHEP, ICAR, New Delhi & Vice-President, ISPGR, New Delhi –Chair
Dr Anjula Pandey, PS, ICAR-NBPGR
Dr Celia Chalam, PS, ICAR-NBPGR
Dr S. Rajkumar, PS, ICAR-NBPGR
Dr Monica Singh, Senior Scientist, NBPGR
Dr Sunil Archak, EIC, IJPGR - Member Secretary

Coordination Committee

Dr Kuldeep Singh, Director, NBPGR & Vice-President, ISPGR, New Delhi - Chair
Dr S.P. Ahlawat, Head, Division of Plant Exploration and Germplasm Collection, NBPGR, New Delhi
Dr S.C. Dubey, Head, Division of Plant Quarantine, NBPGR, New Delhi
Dr Ashok Kumar, Head, Division of Plant Evaluation, NBPGR, New Delhi
Dr Gurinder Jit Randhawa, Head, Division of Genomic Resources, NBPGR, New Delhi
Dr Veena Gupta, Head, Division of Germplasm Conservation, NBPGR, New Delhi
Dr Pratibha Brahmī, OIC, Germplasm Exchange and Policy Unit, NBPGR, New Delhi
Dr Kavita Gupta, OIC, PME, NBPGR, New Delhi - Member Secretary

National Dialogue on Implementation of Access to Plant Genetic Resources and Benefit Sharing Concept Note

Introduction

India provided a benefit sharing model on commercial use of plant genetic resources 20 years before Nagoya Protocol¹ was realized. Indigenous traditional knowledge of *Kani* tribals on a stamina builder herb *Arogyapacha* was developed into a commercial herbal product *Jeevani* by Arya Vaidya Pharmacy and TBGRI². Commercial benefits were shared with the *Kani* tribe. Farmers, tribal and indigenous communities in India have been playing a critical role as conservers of bioresources and related traditional knowledge. Bioresources, that provide various benefits to the society, must be used in a sustainable manner and the providers are rewarded with monetary and/or non-monetary benefits. The purpose of ABS framework is to ensure that biological resources are accessed and used with Prior Informed Consent (PIC) from the providers and on Mutually Agreed Terms (MAT) between the providers and users. When commercial benefits are accrued, consequent to access and use of bioresources, the user needs to share them fairly and equitably with the provider.

A forerunner in the adoption of benefit sharing principle, India is a founder member of international treaties, Convention on Biological Diversity (CBD) as well as International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). Consequently, the country enacted Biological Diversity Act (BDA) in 2002 and established the National Biodiversity Authority (NBA) in 2003. NBA is a statutory body that performs facilitative, regulatory and advisory function for Government of India on issues of conservation, sustainable use of biological resource and fair equitable sharing of benefits of use. Nagoya Protocol on Access and Benefit Sharing (ABS), a supplementary agreement to CBD, was also ratified by India in 2012 and 'Guidelines on Access and Benefit Sharing' were issued in November 2014. Parallely but compatibly with BDA, access to 64 food and forage crops and resultant benefit sharing is regulated under Plant Treaty (ITPGRFA) and implemented in India by Department of Agriculture, Cooperation and Farmers' Welfare. Likewise, Protection of Plant Varieties and Farmers' Rights Act, 2001 was enacted and the Protection of Plant Varieties and Farmers' Rights Authority (PPV&FRA) was established in 2005 to recognize and protect the rights of the farmers in respect of their contribution made at any time in conserving, improving and making available plant genetic resources for the development of the new plant varieties.

India, therefore, has requisite legislations and institutions to regulate the access to plant genetic resources as well as to ensure benefit sharing to the stakeholders.

Guidelines on Access to Biological Resources and Associated Knowledge and Benefits Sharing Regulations, 2014

¹ <https://www.cbd.int/abs/>

² http://www.kerenvin.nic.in/Database/TBGRI_1402.aspx

Above ABS guidelines have come in to force with effect from 21st November 2014. ABS guidelines consists of - Procedure for access to biological resources and/ or associated traditional knowledge for research or bio-survey and bio-utilization for research and commercial utilization; mode of benefit sharing for commercial utilization (1 to 3% for the trader and 3 to 5% for the manufacturer); option of benefit sharing on sale price of the biological resources (from 0.1% to 0.5% based on annual gross ex-factory sale of product); procedure and mode of benefit sharing for transfer of results of research; procedure and mode of benefit sharing in IPR cases (directly by applicant 0.2 to 1.0% through licensing 3 to 5%); procedure and mode of benefit sharing for third party transfers (2 to 5%); determination of benefit sharing and sharing of benefits: processing of applications received by NBA and details of exemptions to access for prior approval of NBA or SBB. Scope of implementation of these guidelines is very vast in India. However, its implementation is limited to few cases only both in public and private sectors and led to legal conflicts particularly with reference to the private sector.

ABS: Implementation Challenges

Operationalizing ABS in India has been facing several challenges including (i) Appropriate valuation of bioresources; (ii) Correct interpretation of provisions and exemptions; (iii) Harmonization across multiple implementing institutions and jurisdictions; and (iv) Simplification of legal jargons and enhancing procedural transparency.

Valuation: Commercial value of biodiversity is largely unestimated and often underestimated. Ecosystem services are largely unaccounted. Global seed market is expected to top \$70 billion of which 4% is acquired by the Indian market in 2017 and the entire seed industry is based on plant genetic resources. Industries with about 25% bioresource-based products have massive global market value e.g. herbal supplements (\$22 billion), personal care (\$12 billion), food products (\$31 billion), and pharma industry (\$640 billion). Public and private R&D institutes use bioresources for developing technologies. Some of the users need repeated access to resources for their industry, while others need resource only once and it will be replicated based on science and technology.

Most critical challenge in implementing ABS under the Nagoya Protocol is to assess the actual as well as potential economic value of resources before arriving at appropriate terms of benefit sharing. This is accentuated in cases where the assessment is done a priori. Absence of clarity —on market value, its appreciation and temporal/spatial variations as well as industry demand and market reach—can put the fairness and equity elements of ABS at risk. Often such situations propagate reluctance among the users and disillusioned providers.

Interpretation: There is a perception among a section of Indian industry that ABS obligations are meant for foreigners using Indian resources and not applicable to Indian industry. Such doubts and question mark on the powers of the SBBs were laid to rest by a 2018 judgement of Uttarakhand High Court that ruled that Indian users also have benefit sharing obligations and that SBBs have the regulatory authority. However, Indian users need not get prior permission for accessing the resources for research, biosurvey and bioutilization purposes, but they need to get prior approval from the respective authorities if the resources are utilized for commercial activities. On the other hand, foreign users of Indian bioresources (foreign individuals/entities including non-resident Indians or Indian companies having foreign

shareholders) need to get prior approval from the NBA even before accessing the bioresources. Stakeholders complain about the lack clarity on (i) a cut-off date for access to pre-BDA material and their commercialization; (ii) access to genetic resources (e.g. insect, pest or weed) for “services” e.g. “to be used to test against” them for research; (iii) definitions of ‘Indian Company’, ‘biological resource’, ‘genetic material’, ‘value added product’, ‘conventional breeding’, ‘occurring in India’ in today’s context; (iv) overlapping jurisdictions e.g. NBA, PPVFRA and DAC-the Treaty (ITPGRFA) implementing authority.

Exemptions: India exempts specific uses/activities (value-added products, conventional breeding, certain government approved collaborative research work and over 400 normally traded commodities under certain conditions), certain users (Local communities, traditional healers and farmers), and obligations (exchange of designated genetic resources of food crops and forages under Plant Treaty for research, breeding and training for food and agriculture). However, interpretation of exemption of value-added products such as liquor and paper and broadening of definition of biological resources to include coal, lime stone etc. are debatable and hence remain challenges to ABS implementation. PPVFRA registration for plant varieties is treated on par with patent registration and any person applying for any right under the Protection of Plant Varieties and Farmers’ Rights Act, 2001 (53 of 2001) shall be exempted from this sub-regulation 8.

Harmonization: In India, ABS is affected by multiple statutes, governed by multiple ministries issuing multiple guidelines, and executed by multiple agencies. Modalities for access to genetic resources need to be harmonized before benefit sharing issues are implemented. Coordination and cooperation among agencies has been a challenge for effective implementation of ABS. A functional interface (e.g. PPV&FRA and NBA; NBA and IPO; NBA and DAC; NBA and ICAR) can establish non-encroaching, complementary and compliant procedures. Addressing issues such as (i) disparities in the applicability of biodiversity rules across states; and (ii) mismatch between bilateral MTA and multilateral SMTA remain a challenge. Further, enabling process under multilateral access to genetic resources as per ITPGRFA needs to be discussed.

Simplification and transparency: Experts propose³ establishing a simplified and enabling system for effective ABS regime with simplification of forms and reasonable time-frame for disposal of applications; setting up a ‘Single Window System’ as a clearing house to facilitate effective and efficient ABS system as per provisions of the Nagoya Protocol; and putting in place end-to-end guidelines for access and sharing the benefits. An integrated platform for access to bio-resources and eventual benefit sharing with dedicated jurisdictionary modules relevant to regulatory and approval authorities like NBA, PPV&FRA, DAC and IPO could be a pragmatic option but remains a challenge to be addressed.

Access to Genetic Resources

Communities are the owners of biological resources as a traditional biological heritage. In three tier system of Biological Diversity Act (BDA) Biodiversity Monitoring Committee (BMC)

³ Paroda et al (2017) Proceedings of the Awareness cum Brainstorming Meeting on Access and Benefit Sharing (ABS): Striking the Right Balance. ispgr.nbgr.ernet.in/download/ABS_Proceedings_IAC2016.pdf

at grassroots level is the most powerful and the decision maker for giving permission to access resources by the user. BMCs are formed taking village or Gram Panchayat as a unit as per guidelines in BDA. There are 29 SBBs and 1,55,838 BMCs in India. There are several Government and Non-Governmental Organisations that contribute to conservation of Biological Resources. There are few outstanding individuals both in forest and cultivated ecosystems who conserve and use biological resources. Several community seed banks supported by NGOs and others also serve as source of seed for users. There are more than 1,700 genebanks in the world at international, national and local level. Eleven of the CG Centre genebanks hold more than 7,36,000 accessions of genetic resources that are accessible with Standard Material Transfer Agreement (SMTA) to users. The National Genebank (NGB) housed in National Bureau of Plant Genetic Resources has over 4,43,000 accessions. Several research institutes within and outside National Agricultural Research System also conserves including NGB has several genomic resources in addition to seeds. However, all these gene and genomic resources reached these conservers primarily because of conservators over several thousands of years by the communities at grassroots level.

Accessing any biological resource or associated knowledge for research, commercial utilization, bio-survey and bio-utilization, transfer of biological resources, transfer of research results or obtaining intellectual property (IP) rights requires approval from the respective regulatory bodies. Regulatory requirements vary based on the nature of the applicant and the activities. The users, upon obtaining approval for access, should enter into a benefit sharing agreement with relevant institution. Benefit sharing arrangements (monetary and/or non-monetary options) are decided on a case-by-case basis after due consultation with the local bodies and the benefit claimers. It needs to be mentioned at this juncture that the benefit received by SBBs or NBA, only 5% can be retained with them and rest must be shared with the BMCs or for biodiversity conservation by granting projects within the frame work of India's National Biodiversity Action Plan (2019).

Mainstreaming Benefit Sharing

All the ABS instruments that are in place India to regulate access to genetic resources and benefit sharing amount to a complex web of legal texts and beyond the interpretation and reach of most rural farmers. Rural farmers are disproportionately unaware of the institutional rules and structures that govern the ABS. There is feel among several corners that ABS implementation and subsequent portfolio management has not yet struck the balance between conservers and users. The long-term sustainability of locally created legal bodies such BMC are at stake without any inbuilt financial mechanism and technical backstopping. Similarly, many authorities and institution have provisions to incentivize the farmers and farming communities for promoting agrobiodiversity conservation but again it is onetime award given for the effort. There is no in-built policy mechanism where the farmers and communities who are involved in the conservation of agrobiodiversity are incentivize on long-term basis as part of their regular activities. There is a need to quantify ecosystem services being provided by these communities by continuously cultivating genetic diversity on farm in terms of monetary value. These monetary benefits can be diverted to these communities to compensate the losses that communities are bearing for not opting to high value crops and varieties. There is also a view that these regulatory restrictions on access for research have negatively impacted and it is felt that there should be provision to distinguish between the research aiming for proprietary rights and conservation research meant for public domain.

ABS: Road Ahead

It is not surprising that in a country as vast and as biodiversity rich as India, magnitude of bioresources cannot be inventorized comprehensively. However, digitalized documentation must be in a systematic manner involving all stakeholders. Country has options to declare a few regions as SEZ i.e. Special Ecological Zones for evolving clarity of extent, nature and taxonomic limitations of access. Customized strategies for different bioresource-use-user combinations need to be drafted and pilot projects and case studies need to be commissioned. All the steps across states must be harmonized within the framework of ABS provisions. Greater involvement of providers as a result of awareness and capacity building will augur well for the successful implementation of ABS.

PPV&FRA, as an exemplary step, confers communities and individuals with genome saviour awards. However, how does the state handhold the conservers to ensure sustenance in their conservation activities and economic growth? Can we establish mentorship programs where rewardees work in organic relationship with either government R&D agencies or industry? How do Indian regulatory agencies maximize the utility of benefit funds or genefunds? Experts and stakeholders need to brainstorm to find practical solutions.

Purpose of the Dialogue

The National Dialogue is proposed to involve various stakeholders—from different sectors conserving and using biological resources—for inclusive deliberations. The Dialogue will be organized into distinct sessions involving the regulators (SBB and NBA), users (seed, genomic resources, microbial resources, pharma, personal care, health and food) and providers (communities, BMCs, national and international genebanks and crop-based institutes and universities with experience of commercialization of biological resources). Each session will have lead presenters to flag issues related to providers as well as users; however, the Dialogue is visualized primarily to revolve around moderated group discussions to come up with recommendations.

Objectives

1. To deliberate on the gaps and inconsistencies in the existing ABS structure in India and suggest policy measures for improvement, harmonization and effective implementation
2. To deliberate on identifying definite ways and means including awareness and capacity development in ABS beyond rewards, recognitions and benefits for sustainable management of bioresource portfolio by the communities
3. To suggest a framework for integration of ABS in the activities of conservation and utilization of bioresources by public and private organisations
4. To suggest mechanisms towards establishing and expanding National Gene Fund for effective utilisation of Benefit Sharing Funds

Expected Output

A Roadmap is developed to enhance awareness in all sectors. A framework of guidelines for the users and providers will be devoted with guidelines to be implemented at organisation and project level in different sectors. Based on this framework, it is expected that guidelines will be prepared and major public and private research institutions and industry to comply

with ABS as per existing regulatory process. It is expected ABS will promote all the objectives of BDA- the conservation, sustainable use and sharing of benefits of arising out of such use of plant genetic resources. Mechanisms to establish and expand National Gene Fund suggested.

Co-Organisers

Bioversity International

ICAR-NBPGR

Indian Society of Plant Genetic Resources

Trust for Advancement of Agricultural Sciences

Protection of Plant of Plant Variety and Framers' Right Authority

National Biodiversity Authority

Program Structure

Dates: 7-8 April 2020

Venue: Hyderabad

Participants: 100 by invitation

Technical Program (Tentative)

DAY 1: Tuesday, April 7, 2020

8.30	Registration
	Opening Session
9.00	Welcome and Introduction Dr JC Rana, National Coordinator, UN Environment GEF Project, Bioversity International (BI) Special Remarks Chairman, NBA Chairman, PPV&FRA, Secretary, DAC -NFP for ITPGRFA DG, ICFRE DG, ICAR & Secretary, DARE Chairman's Address, Dr R.S. Paroda , President, ISPGR and Chairman, TAAS Inaugural address by Chief Guest
10.00	National Scenario of Access and Benefit Sharing with respect to Plant Genetic Resources - Dr PL Gautam, Former Chairman, NBA and PPVFRA
10.20	Vote of Thanks Dr B Sarath Babu, Organizing Secretary
10.30	Group Photo & Tea/ Coffee Break
11.00	Technical Session I ABS Implementation Perspectives Chair: Co Chair: Rapporteur
	Keynote Address: ABS Implementation Status, Challenges and Roadmap ahead - Secretary, NBA
	Madhya Pradesh -Member Secretary, MPSBB Uttarakhand - Member Secretary, UKSBB Telangana - Member Secretary, TSBB Kerala - Member Secretary, KSBB Discussion
13.00	Lunch
	Technical Session II Stakeholder Perspectives on ABS Chair: Co Chair: Rapporteur
13.45	Benefit sharing mechanism, status and challenges for the rights granted by the Plant Variety Protection & Farmers Rights Authority - Dr R.C. Agrawal
14.15	Benefit sharing mechanism, status and challenges under ITPGRFA -Dr Sunil Archak

15.00	Tea/ Coffee Break
	Technical Session II Stakeholders's perspectives on ABS (Continued)
15.15	Benefit Sharing mechanisms status and challenges in Gene-banks - Dr Kuldeep Singh
15.45	Communities Relevance and Perspectives on ABS - Dr JC Rana
16.15	Research institutes' Perspectives on ABS - Dr KS Varaprasad
16.45	Discussion

DAY 2: Wednesday, April 8, 2020

	Technical Session III ABS and Industry Perspectives Chair: Co Chair: Rapporteur
9.30	Seed Industry- Dr Shivendra Bajaj
	Plant based pharma and personal care industry - To be decided
	Horticulture based industry -To be decided
	Biotech based industry -To be decided Discussion
11.30	Tea/ Coffee Break
11.45	Technical Session III Panel Discussion on ABS Roadmap Chair: Co Chair: Rapporteur
	Flagging the issues : Dr RS Paroda Representatives of Community - 2 Representatives of Industry - 2 Representatives of NBA & SBB - 2 Representatives of PPVFRA - 1 Representatives of DAC -1 Representatives of Gene-bank -1 Representatives of Research Institutes 1
13.30	Lunch
	Plenary Session Chair: Co Chair: Rapporteur
14.15	Presentations on Recommendations of Technical Session
15.15	Concluding Remarks by Chair and Co-Chair
15.30	Vote of Thanks

Report of the General Secretary

ISPGR Awards

- For the year 2019, call for ISPGR awards were advertised in October 2019, and the last date of application was Dec. 31, 2019. Some 33 applications have been received and the next ISPGR Award Function is tentatively scheduled for April 2020. Based on recommendations of a committee and endorsement by the EC, the award money has been enhanced as follows:
 - Dr H.B. Singh Memorial Award increased from Rs. 1,00,000 to 1,50,000
 - Dr B.R. Barwale Award for Application/ Excellence in PGR increased from Rs. 50,000 to 1,00,000
 - Dr R.S. Paroda Young Scientist Award from Rs. 20,000 to 50,000
 - Dr R.K. Arora Best Paper Award (IJPGR) from Rs. 5,000 to 10,000
 - Dr K.L. Mehra Best Student Award from Rs. 10,000 to 20,000

Publication of Proceedings

- The Proceedings and Recommendations of the Satellite Symposium on 'Dryland Agrobiodiversity for Adaptation to Climate Change', held on Feb. 13, 2019, at Jodhpur, have been published. They would be formally released in the GBM on Jan., 31, 2020.

ISPGR Website

- Proposals have been invited for redesigning of ISPGR website for inclusion of an online payment gateway. The process would take about one to two months for operationalization.

Events planned for 2020

- **ISPGR General Body Meeting on Jan. 31, 2020**, 12 noon to 1.00 p.m. at ICAR-NBPGR, New Delhi.
- **2nd Dr D.S. Athwal Memorial Lecture on Jan. 31, 2020**, 2.30-4.30 p.m. at ICAR-NBPGR, New Delhi. **Professor Kamal Bawa**, Distinguished Professor of Biology, University of Massachusetts Boston, and Founder-President of the Ashoka Trust for Research in Ecology and the Environment (ATREE) shall deliver lecture entitled 'Securing Our Biodiversity and Our Future: New Opportunities and Challenges'.
- National Dialogue on Access to Plant Genetic Resources and Benefit Sharing Regulations, April 7-8, 2020, at Hyderabad. To be organized in collaboration with Bioversity International, ICAR-NBPGR, Protection of Plant Varieties and Farmers' Right Authority (PPV&FRA), National Biodiversity Authority (NBA) and Trust for Advancement of Agricultural Sciences (TAAS) etc.
- National Symposium on 'Plant Genetic Resources for Climate Smart Agriculture and Household Nutritional Security', Sept 16-18, 2020, at NASC, New Delhi. is proposed to be organised by ISPGR, ICAR and other stake holders.

(Anuradha Agrawal)
General Secretary

Report of the Editor-in-Chief, IJPGR

1. Manuscript current status (as on date)

i. Total no. of manuscripts being handled	76
ii. MS under review	20
iii. MS under editorial process	16
iv. MS sent back to authors for revision	19
v. MS Accepted	21
<i>For Vol. 32(3) 2019 sent to press</i>	15
<i>For Vol. 33(1) 2020 accepted articles</i>	15
<i>For Vol. 33(2) 2020 accepted articles</i>	06

2. NAAS evaluation

- Submitted on 9 Aug 2019; acknowledgment received on 7-10-2019.
- NAAS has decided to defer the evaluation process for assigning NAAS Score to **non-IF journals** effective from Jan 1, 2020 due to some unavoidable reasons.
- The guidelines and the proforma for evaluation of non-IF journals are being revised and the fresh applications for assigning NAAS Score effective from **Jan 1, 2021** will be invited sometime in the month of May/June 2020
- NAAS Score (of 2019) of non-IF journals will remain valid for the year 2020.

3. Tie-up with Springer

- As per the decision of the last EC, contacted Springer again on 13-01-2020.
- The internal process is initiated for the external review of the Journal. All the information, soft copies of journal issues, special issues, list of possible reviewers have been provided.



(Sunil Archak)

Submitted to:

President, ISPGR

Report of the Treasurer

- The status of ISPGR accounts (*as on Jan. 17, 2020) is as follows:

Category		As on March 31, 2019 (Rs)	As on Jan. 17, 2020 (Rs)
Cash and Bank Balance			
	Fixed Deposit	56,84,819.80	50,42,849.10
	Cash-in Hand	2,983.00	20,430.00
	Cash in Bank (saving account)	6,40,437.77	1,06,359.27
Incomes (membership, donation etc.)	FY 2018-19	16,51,322.65	3,60,362.64*
Expenditure (journal, award function, secretarial expenses)	FY 2018-19	11,85,275.94	12,19,115.00

* Rs 2,00,000/- sanctioned from ICAR for journal publication; receipt of money awaited.

Expenditure Details (Rs)

ISPGR Office			2,67,314
	Office expenses (stationery etc.)	10,711	
	Salary & honorarium	2,02,770	
	Postage	18,460	
	Refreshments for meetings	6,618	
	Travel (local)	2,205	
	CA services	26,550	
IJPGR			1,92,601
	Vol 32(1), 2019	91,854	
	Vol 32(2), 2019	99,747	
Jodhpur Proceedings			1,36,640
ISPGR awards			4,20,311
	ISPGR awardees prize money	2,50,000	
	Mementoes	13,283	
	Printing of circular etc.	21,404	
	Decorations, tent, bouquet and banners, photography, shawl	55,975	
	High tea and dinner	79,650	
BISA due amount return			2,02,249
Total			12,19,115

Income (Rs)

Donation + Bank interest + IJPGR colour printing	1,14,362.64
Membership (Institutional)	1,40,000.00
Membership (Life)	1,30,000.00
Membership (Annual)	12,000.00
TOTAL	3,60,362.64

Committed Expenditure (up to March 31, 2020)

1. **Rs 1.00 lakh** for journal publication [IJPGR, Vol. 33(3)]
2. For online payment of membership, ISPGR needs to purchase **payment gateway along with upgradation of ISPGR website**. An expected cost of **Rs one lakh** is estimated for the same.
3. **Rs 1.00 lakh** for ISPGR GBM and 2nd Dr D.S. Athwal Memorial lecture on Jan 31, 2020.

Expected Income (up to March 31, 2020)

1. **~Rs 2.0 lakh** from ICAR for IJPGR
2. **~ Rs 1.0 lakh** from Library subscription of IJPGR
3. **Rs 27, 328** from **Bioversity International** for purchase of 100 copies of Jodhpur Proceedings



(Dinesh Kumar)
Treasurer, ISPGR