NBRP

筑波大学 University of Tsukuba

NBRP補助事業(ABS)講演会
～ インド遺伝資源取得の最新事情 ～

インド遺伝資源事情　－NBPGRとNBAを訪問して－

筑波大学　生命環境系／グローバルコモンズ機構
河瀬 眞琴

インド共和国
भारत गणराज्य (Bhārat Gaṇarājya)

基礎的知見：

- **共和国連邦制度**
  （29 States & 7 Union territories）
- **巨大な国家で複雑な官僚制度が発達している**
  面積は日本の９倍、人口は10倍
  メガダイバーシティ国

今回の訪問の感想：

- **インド社会は大きく変わりつつある**
- **インド社会は変わらない**
- **インドの遺伝資源へのアクセスは不可能ではない**
- **インドの遺伝資源へのアクセスは簡単でない**
- **相手を見極めて地道な関係構築を**

JBA 日本・インド ワークショップ
（2006年12月8日）
「インドの遺伝資源と伝統的知識へのアクセスと利益配分政策に関する最新動向」

by Mr. Desh Deepak Verma

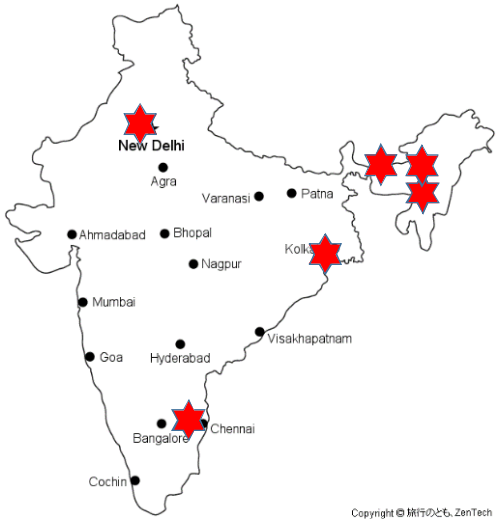
"There is enough on this earth for everybody's need but not for everybody's greed"

http://www.mabs.jp/countries/india/h18.pdf

Where visited

- NBA (Chennai)
- NBPGR (Delhi)

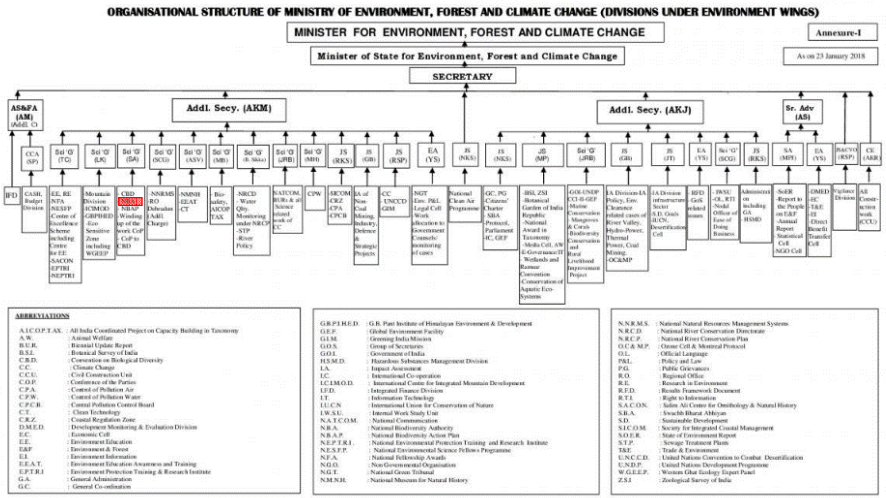
- Guwahati (IITG, GU)
- Kolkata (BSI)
- Imphal
- Kohima



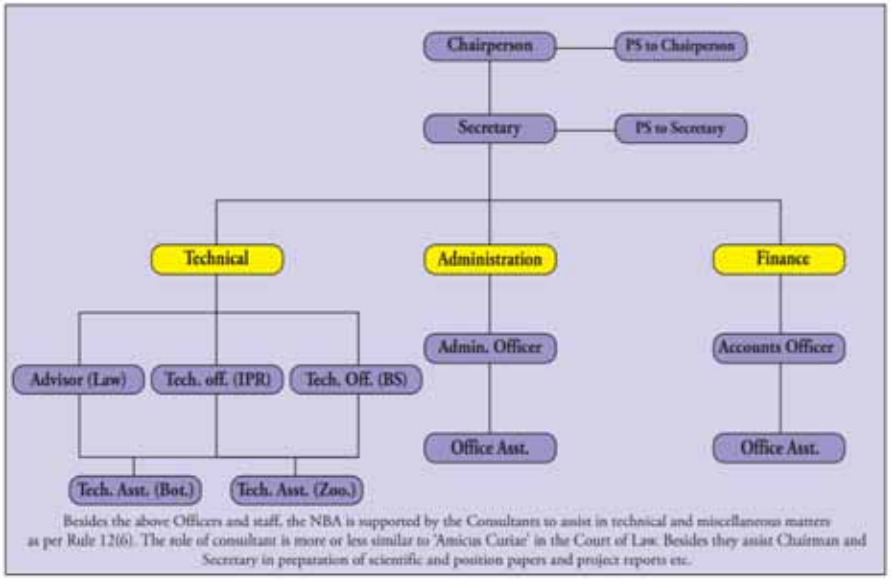
NBAとNBPGRとIJBS17とBSIと

- National Biodiversity Authority (NBA)
- National Bureau of Plant Genetic Resources (NBPGR)
- Botanical Survey of India
  - Acharya Jagadish Chandra Bose Indian Botanic Garden （Kolkata Botanic Garden）
- Indo-Japan Bilateral Symposium on Future Perspective of Bioresource Utilization in North-East India (IJBS 17)

NBA under Ministry of Environment, Forest and Climate Change



Organisational Chart of National Biodiversity Authority



http://nbaindia.org/uploaded/pdf/NBA_Setup_1.pdf

What is NBA?

The National Biodiversity Authority (NBA) was established by the Central Government in 2003 to implement India's Biological Diversity Act (2002). The NBA is a Statutory Body and it performs facilitative, regulatory and advisory functions for the Government of India on issues of conservation, sustainable use of biological resources and fair and equitable sharing of benefits arising out of the use of biological resources.

http://nbaindia.org/content/16/14/1/introduction.html

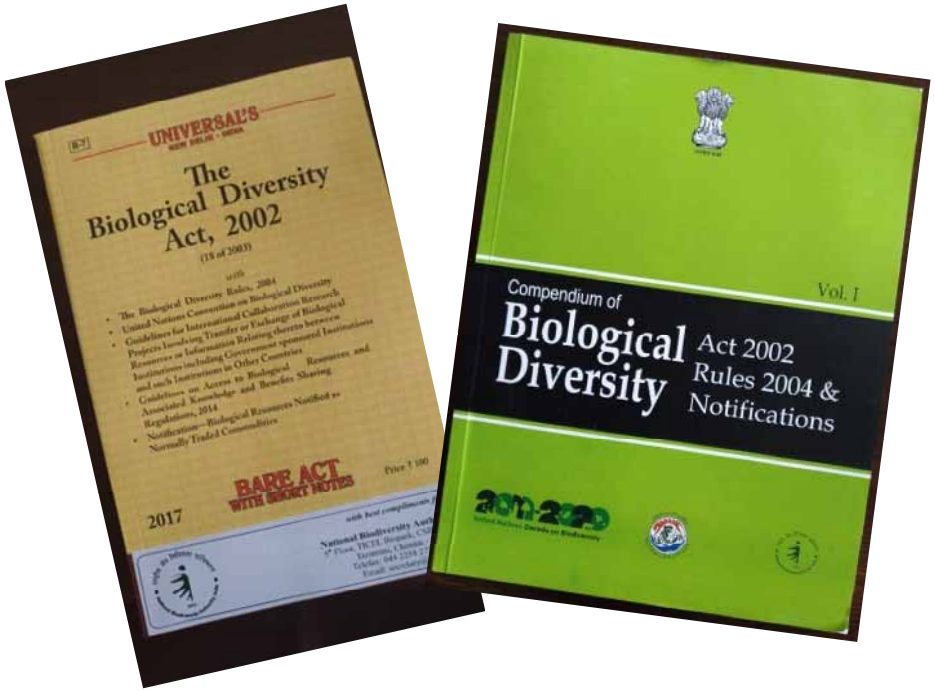
CHAIRPERSON	PERIOD
Dr. (Ms). B. Meenakumari	From 9th February 2016 onwards
Shri. Hem Pande, IAS	06th Feb 2014 to 08th Feb 2016
Dr. Balakrishna Pisupati	12th Aug 2011 to 05th Feb 2014
Shri M. F. Farooqui, IAS	11th Nov 2010 to 11th Aug 2011
Dr. P. L. Gautam	31st Dec 2008 to 3rd Nov 2010
Shri P. R. Mohanty, IFS	01st Oct 2008 to 31st Dec 2008
Shri G. K. Prasad, IFS	20th May 2008 to 30th Sep 2008
Dr. S. Kannaiyan	20th May 2005 to 19th May 2008
Shri Viswanath Anand, IAS	01st Oct 2003 to 14th July 2004

IAS: Indian Administrative Service
IFS: Indian Foreign Service

Biological Diversity Act

- The Biological Diversity Act (2002) mandates implementation of the provisions of the Act through decentralized system with the NBA focusing on advising the Central Government on matters relating to the conservation of biodiversity, sustainable use of its components and equitable sharing of benefits arising out of the utilization of biological resources; and advising the State Governments in the selection of areas of biodiversity importance to be notified under Sub-Section (1) of Section 37 as heritage sites and measures for the management of such heritage sites.The NBA considers requests by granting approval or otherwise for undertaking any activity referred to in Sections 3,4 and 6 of the Act.

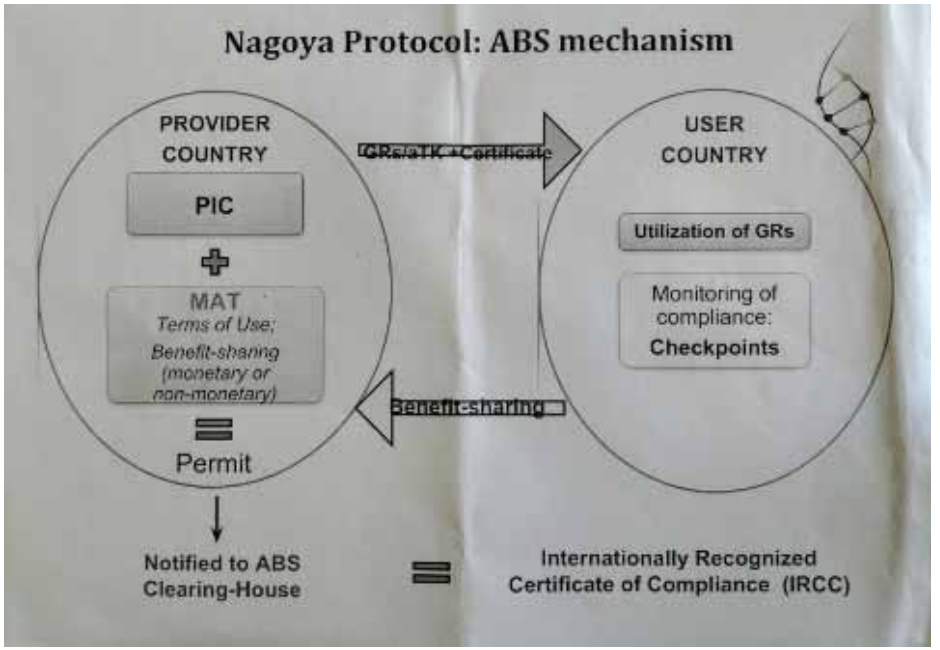
http://nbaindia.org/content/16/14/1/introduction.html

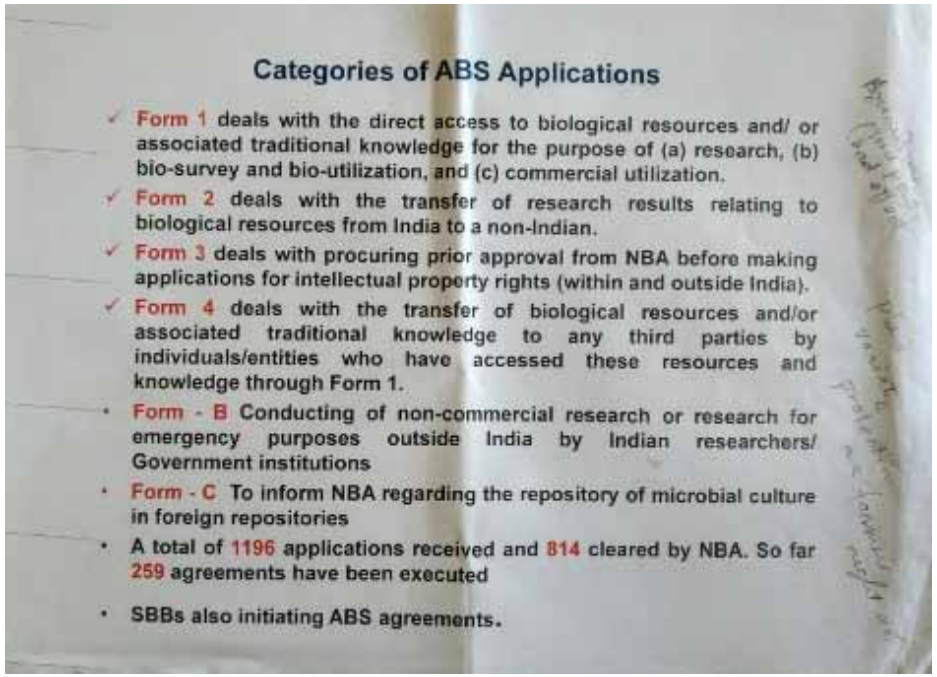


Biological Diversity Act

CHAPTER - I Preliminary - Terminologies and Definitions
CHAPTER - II Regulation of Access to Biological Diversity
CHAPTER - III National Biodiversity Authority
CHAPTER - IV Functions and Powers of the National Biodiversity Authority
CHAPTER - V Approval by the National Biodiversity Authority
CHAPTER - VI State Biodiversity Board
CHAPTER - VII Finance, Accounts and Audit of National Biodiversity Authority
CHAPTER - VIII Finance, Accounts and Audit of State Biodiversity Board
CHAPTER - IX Duties of the Central and the State Governments
CHAPTER - X Biodiversity Management Committees
CHAPTER - XI Local, Biodiversity Fund
CHAPTER - XII Miscellaneous

from http://www.wipo.int/wipolex/en/text.jsp?file_id=185798





Application Forms	Purpose of Application	Who should apply	Downloads	Application Fee	Guidance for filling up of Forms
FORM I (Apply Online)	Access of biological resources occurring in or obtained from India and/or associated traditional knowledge for research, commercial utilization, biosurvey or bio-utilization	Non-Indian, NRI, Foreign entity or Indian entity having non-Indian participation in share capital or management		INR 10,000/- (Click here for Online Payment)	
FORM A	If the applicant is a Trader/ Manufacturer / Company, he shall submit along with **Form I,** as per regulation 2 of ABS Guidelines, 2014	Trader/ Manufacturer / Company			
FORM II (Apply Online)	Transfer the results of research	Any Indian / nonIndian or entity to any non-Indian, NRI, foreign entity or Indian entity having non-Indian participation in share capital or management		INR 5,000/- (Click here for Online Payment)	

http://nbaindia.org/content/26/59/1/forms.html

Application Forms	Purpose of Application	Who should apply	Downloads	Application Fee	Guidance for filling up of Forms
FORM III (Apply Online)	Applying for Intellectual Property Rights for inventions based on any research or information on a biological resource obtained from India	Any Indian/ non Indian or entity		INR 500/- (Click here for Online Payment)	
FORM IV (Apply Online)	Transfer of biological resources / knowledge already accessed, to a third party	Any person who obtained approval of NBA in Form I, to Indians / non-Indians or entities		INR 10,000/- (Click here for Online Payment)	
FORM B	Conducting of non-commercial research or research for emergency purpose outside India by Indian Researchers/Government Institutions, as per regulation 13 of ABS Guidelines, 2014	Indian Researchers/ Government Institutions,			

http://nbaindia.org/content/26/59/1/forms.html

FORM I

FORM I
(see rule 14)

Application form for access to Biological resources and associated traditional knowledge

Part A

1. Full particulars of the applicant

   I. Name:
   II. Permanent address:
   III. Address of the contact person / agent, if any, in India:
   IV. Profile of the organization (personal profile in case the applicant is an individual). Please attach relevant documents of authentication):
   V. Nature of business:
   VI. Turnover of the organization in US$:

2. Details and specific information about nature of access sought and biological material and associated knowledge to be accessed

   a. Identification (scientific name) of biological resources and its traditional use:
   b. Geographical location of proposed collection:
   c. Description / nature of traditional knowledge (oral / documented):
   d. Any identified individual / community holding the traditional knowledge:
   e. Quantity of biological resources to be collected (give the schedule):
   f. Time span in which the biological resources is proposed to be collected:
   g. Name and number of person authorized by the company for making the selection:
   h. The purpose for which the access is requested including the type and extent of research, commercial use being derived and expected to be derived from it:
   i. Whether any collection of the resource endangers any component of biological diversity and the risks which may arise from the access:

3. Details of any national institution which will participate in the Research and Development activities.

4. Primary destination of accessed resource and identity of the location where the R&D will be carried out.

5. The economic and other benefits including those arriving out of any IPR, patent obtained out of accessed biological resources and knowledge that are intended, or may accrue to the applicant or to the country that he/she belongs

6. The biotechnological, scientific, social or any other benefits obtained out of accessed biological resources and knowledge that are intended, or may accrue to the applicant or to the country that he/she belongs

7. Estimation of benefits, that would flow to India/ communities arising out of the use of accessed bioresources and traditional knowledge.

8. Proposed mechanism and arrangements for benefit sharing.

9. Any other information considered relevant.

Part B
Declaration

FORM B

I/ we declare that:

- Collection of proposed biological resources shall not adversely affect the sustainability of the resources;
- Collection of proposed biological resources shall not entail any environmental impact;
- Collection of proposed biological resources shall not pose any risk to ecosystems;
- Collection of proposed biological resources shall not adversely affect the local communities;

I/ we further declare the Information provided in the application form is true and

correct and I /We shall be responsible for any incorrect / wrong information.

Place

Signed

Date

Name

Title

FORM A

FORM A
(See regulation 2)
Information to be furnished for use of biological resources by the applicant
Self-disclosure

Common Name of the biological resource proposed to be used:

Scientific Name :

Plants or animals or parts thereof traded :

Specific purpose of access: _____

Locations / source from where procured*	Quantity in Kgs	Rate per unit	State Biodiversity Board	Prospective Buyers/Users (if known)

*List of local body/BMCs, if already identified shall be attached.

Undertaking

1. I have read and understood the terms and conditions of ABS guidelines and I undertake to abide by relevant legal provisions applicable to biological resource.
2. I undertake to obtain the approval of the NBA/ SBB before making any change in the stated purpose.
3. I undertake to furnish/ share the relevant records with the NBA/ SBB, as and when required.
4. I further declare that the Information provided in the form is true and correct and I shall be liable for any incorrect/ wrong information and wilful suppression of the facts.

Signature
Name of the trader/ company/manufacturer/ Authorized Representative
Complete Address of the trader/ company/manufacturer along with phone number and email address

Place
Date

Definition (S. 2)

(c) **Biological resources** means plants, animals and microorganisms or parts thereof, their genetic material and byproducts (excluding value added products) with actual or potential use or value, but does not include human genetic material.

(d) **Bio-survey and bio-utilization** means survey or collection of species, subspecies, genes, components and extracts of biological resource for any purpose and includes characterisation, inventorisation and bioassay.

(f) **Commercial utilization** means end uses of biological resources for commercial utilization such as drugs, industrial enzymes, food flavours, fragrance, cosmetics, emulsifiers, oleoresins, colours, extracts and genes used for improving crops and livestock through genetic intervention, but does not include conventional breeding or traditional practices in use in any agriculture, horticulture, poultry, dairy farming, animal husbandry or bee keeping.

(m) **Research** means study or systematic investigation of any biological resource or technological application, that uses biological systems, living organisms or derivatives thereof to make or modify products or processes for any use.

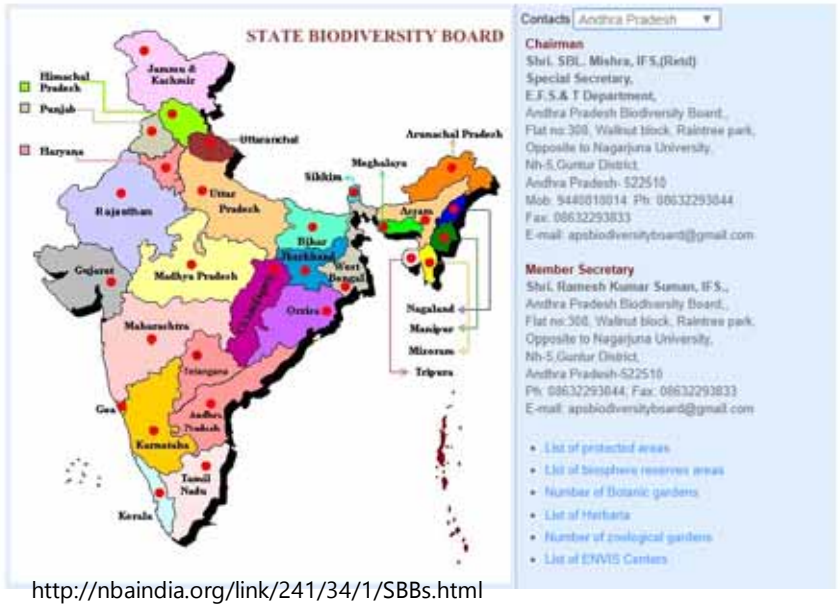
EXPERT COMMITTEE

Archive>>

Sl.No	Name of the Expert Committee	Chairperson	No. of Members
1.	Expert Committee on Agro Biodiversity.	Chairman **Dr. R. S. Rana**	20
2.	Expert Committee on Normally Traded Commodities.	Chairman **Shri. D. K. Ved** Co - Chairman **Shri. C. Achalender Reddy, IFS**	29
3.	Expert Committee on Access and Benefit Sharing.	Chairman **Dr. Girishar Kinhal, IFS (Retd.)** Co - Chairman **Dr. R. V. Varma**	31 Corrigendum
4.	Expert Committee on Medicinal Plants	Chairman **Smt. Amarjeet Ahuja, IAS (Retd.)** Co - Chairman **Dr. G.A. Kinhal, IFS**	26 **Extension**
5.	Expert Committee on Invasive Alien Species	Chairman **Dr. C. R. Babu** Co - Chairman **Dr. K. V. Sankaran**	16

http://nbaindia.org/content/21/18/1/committees.html

SBBs



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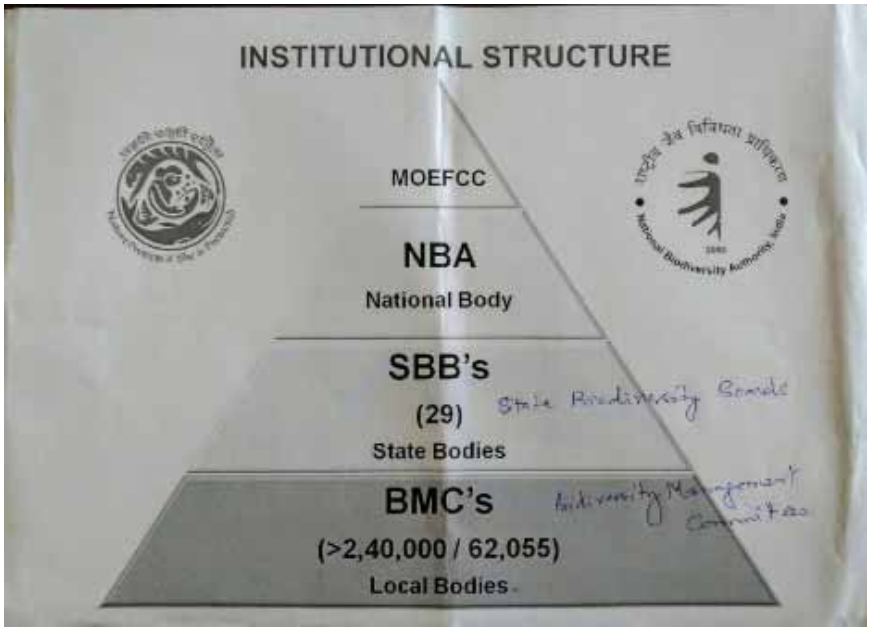


Biodiversity Management Committees

1	Andhra Pradesh	2738	16	Manipur	62
2	Arunachal Pradesh	58	17	Meghalaya	203
3	Assam	205	18	Mizoram	222
4	Bihar	--	19	Nagaland	10
5	Chatttisgarh	45	20	Odisha	1036
6	Goa	112	21	Punjab	69
7	Gujarat	6900	22	Rajasthan	95
8	Himachal Pradesh	322	23	Sikkim	27
9	Haryana	--	24	Tamil Nadu	16
10	Jharkhand	569	25	Telangana	2402
11	Jammu & Kashmir	--	26	Tripura	361
12	Karnataka	4,900	27	Uttar Pradesh	106
13	Kerala	1034	28	Uttarkhand	907
14	Madhya Pradesh	23,406	29	West Bengal	205
15	Maharashtra	16,492		Total	62,502

* Last Updated on 17/07/2017

http://nbaindia.org/content/20/35/1/bmc.html

Dr. Meenakumari, NBAから

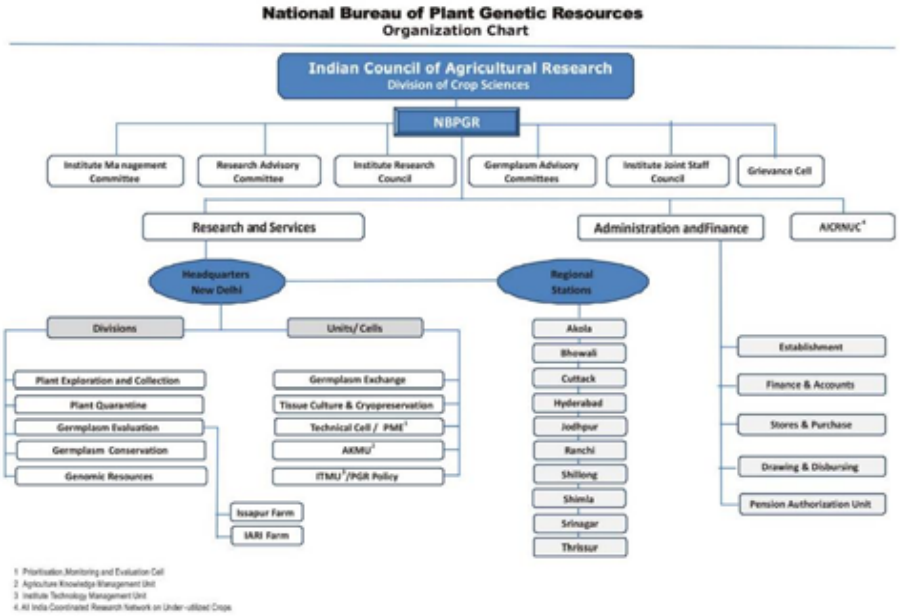
- NBAは環境森林気候変動省傘下
- 政府に対して促進・規制にかかる助言
- ABSはすべてはNBAが仕切る。直接SBBにはダメ
- すべてWebsiteで公開
- インターネット申請は一年間試行して改良
- NBAは研究組織でも収集機関でもない
- 許可を出すのがNBA
- ITPGRFAはスコープが狭い　本当の意味で法的拘束力が。。。

NBPGR

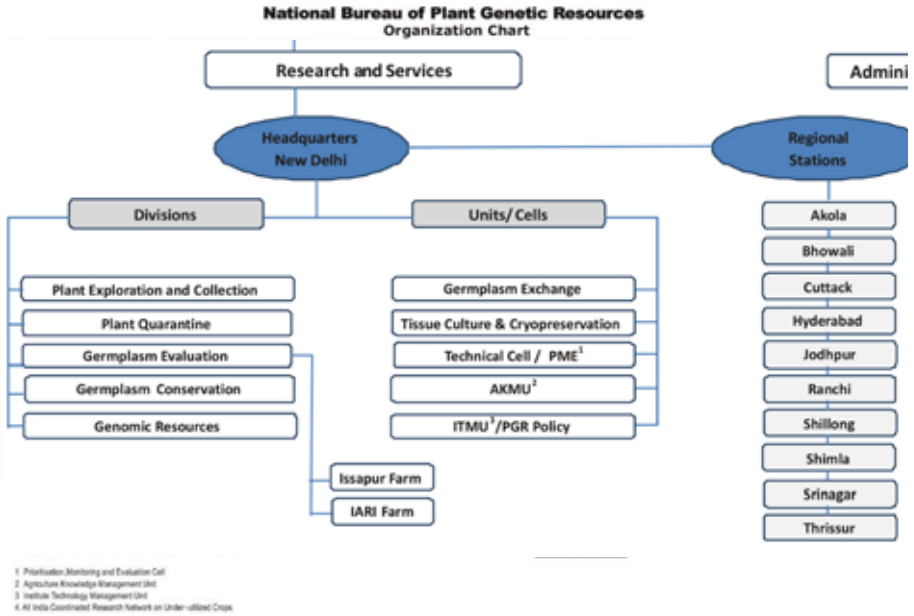
Union Government
- Ministry of Agriculture and Farmers Ministry of Agriculture and Farmers Welfare
  - Department of Agricultural Research and Education (DARE)
  - Department of Agriculture, Cooperation and Farmers Welfare
  - Department of Animal Husbandry, Dairying and Fisheries
- Department of Agricultural Research and Education (DARE)
- Divisions / Units / Wings
  - Agricultural Technology Information Centre (ATIC)
- Companies
  - Agrinnovate India
- Statutory Bodies
  - Indian Council of Agricultural Research (ICAR)
- Regional/Field Offices
  - Collapse Indian Institute of Horticultural Research (IIHR)

http://goidirectory.nic.in/ministries_categories.php?ct=1#group1

NBPGR



http://www.nbpgr.ernet.in/About_NBPGR/Organization.aspx



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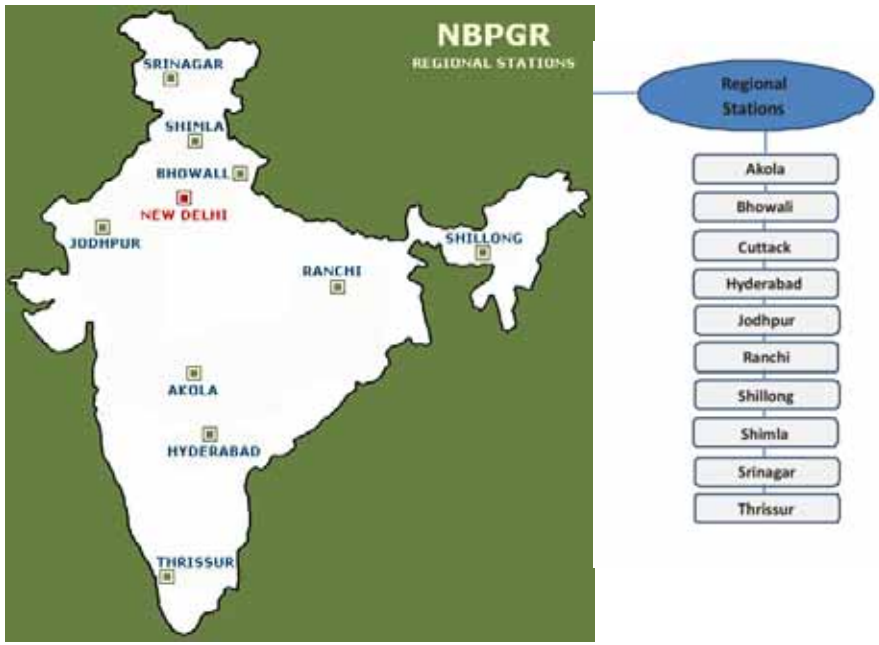


http://www.nbpgr.ernet.in/About_NBPGR/Regional_Stations.aspx

NBPGR

Mandate

- Management and promote sustainable use of plant genetic and genomic resources of agri-hotricultural crop and carry out related research
- Coordination and capacity building in PGR management and policy issues governing access and benefit sharing of their use
- Molecular profile of varieties of agri-horticultural crop and GM detection technology research

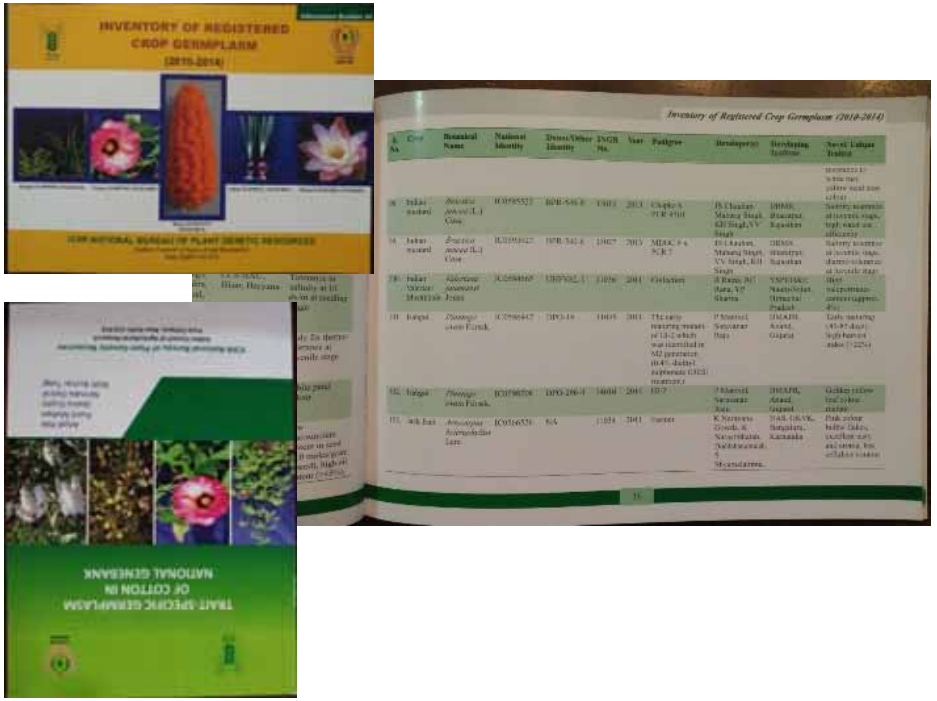
http://www.nbpgr.ernet.in/About_NBPGR/Mandate.aspx

NBPGR

Objectives of NBPGR

- To plan, organize, conduct and coordinate exploration and collection of indigenous and exotic plant genetic resources.
- To undertake introduction, exchange and quarantine of plant genetic resources.
- To characterize, evaluate, document and conserve crop genetic resources and promote their use, in collaboration with other national organizations.
- To develop information network on plant genetic resources.
- To conduct research, undertake teaching and training, develop guidelines and create public awareness on plant genetic resources.

http://www.nbpgr.ernet.in/About_NBPGR/Mandate.aspx



Global Consultation on use and management of Agrobiodiversity for Sustainable Food Security 2013/02/12-14

The first ever International Congress on Agrobiodiversity (IAC 2016) 2016/11/6-9

NBPGRの現状

- **保存種子は**432,000**点**
- ITPGR**の**SMTA**ベース**（MLS）26,000**点**
- Exploration: **未調査地域での探索**
  - **北東インド等　近年実施**
  - **アンダマン・ニコバル諸島**
- **特徴付けや特性評価を積極的に推進（ゲノム情報による解析も）**

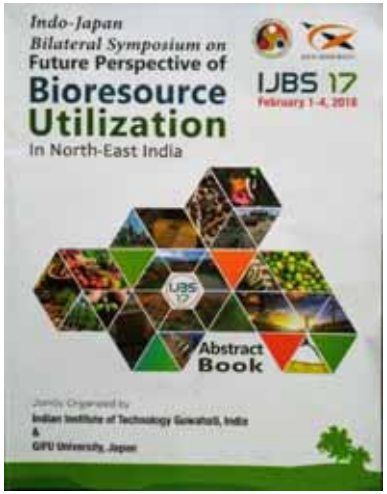
NBPGR側から日本側への期待

- 日本（特にNARO遺伝資源センター）との共同調査を希望（東南アジア、中央アジア、アフリカ等　雑豆、イネ、葉菜等　特にストレス耐性・抵抗性に注目）
- 探索のためにも、まずNBPGRとNARO遺伝資源センターとの協力関係を希望　例えばJSPS-DST二国間交流事業（共同研究）
- JIRCASにも期待

NBPGR側から日本側への期待

- 日印の協力でアジア諸国の若手遺伝資源研究者向けの研修を実施したい
- 日本のリーダーシップに期待（GCP/RAS/240/JPN; GCP/RAS/280/JPN 等を念頭に）するとともに日印でリーダーシップを
- より多くの人的交流、例えば超低温保存技術
- 日印と他の東南アジア、南アジア、太平洋諸国で、どんな遺伝資源がどこにあるのかを相互に検索できる簡単な情報交換システム（GRIN-Globalを待ってられない）

Indo-Japan Bilateral Symposium on Future Perspective of Bioresource Utilization in North-East India (IJBS 17)



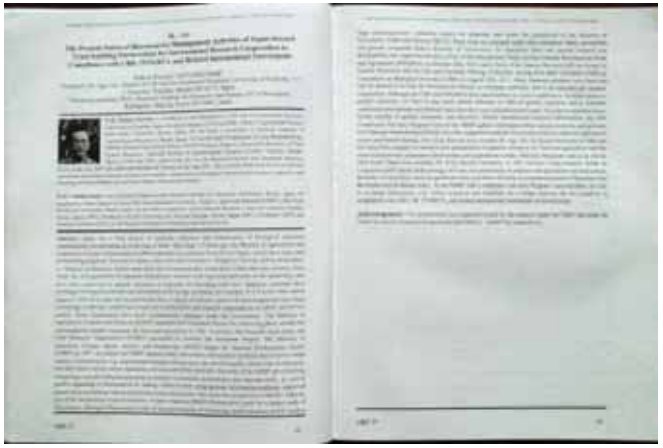
Indo-Japan Bilateral Symposium on Future Perspective of Bioresource Utilization in North-East India

February 1-4, 2018, IIT Guwahati, India

Programme Schedule

Day 1 - February 01, 2018			
Inauguration of IJBS - 17			**Conference Hall - 2**
Talk	Time (Hrs)	Title	Speaker
IL-01	14.30-15.30	Inauguration & Inaugural Talk: Bioeconomy in Agrish Food Waste	Prof. K. P. Singh, Vice Chancellor, Haryana Agricultural University, Hisar, Haryana, India
	15.30-15.50	About North Eastern Regional Agricultural Marketing Corporation Limited	Pankaj Kumar Prasad, Managing Director, NERAMAC, Guwahati, India
IL-02	15.50-16.10	Glocalization of Gifu University	Prof. Fumiaki Suzuki, Vice President, Gifu University, Japan
IL-03	16.10-16.30	Sustainable Renewable Energy Production in Agricultural Fields	Prof. Daisuke Shibata, Chief Scientist, Kazusa DNA Research Institute & Kyoto University, Japan
16.30-16.50		High Tea	
Session I: Frontiers in Bio-processing Research and Product Development			**Conference Hall - 2**
IL-04	16.50-17.10	International Joint Program in Food Science and Technology: A Case study between Indian Institute of Technology Guwahati and Gifu University	Prof. Akio Ebihara, Gifu University, Japan
IL-05	17.10-17.30	Technological Processing of Agro-industrial Biomass for Value Added Products	Dr. Sudesh Kumar Yadav, Scientist F, Centre of Innovative and Applied Bioprocessing, Mohali, India
IL-06	17.30-17.50	Regeneration Technique of Biomass for Energy Utilization	Dr. Nobuyuki Kobayashi, Associate Professor, Gifu University, Japan
IL-07	17.50-18.10	Extraction of Natural Colours for Food and Allied Applications	Dr. K S M S Raghavarao, Chief Scientist, Central Food Technological Research Institute, Mysuru, India
IL-08	18.10-18.30	Bio-Based and Biodegradable Plastics for Stringent Food Packaging Applications	Dr. Vimal Katiyar, Indian Institute of Technology Guwahati, Assam, India
18.30-19.30		Cultural Program	Venue: Bhupen Hazarika Auditorium, IIT Guwahati
19.30-21.30		Dinner	

The Present Status of Bioresources Management Activities of Japan toward Trust-building Partnerships for International Research Cooperation in Compliance with CBD, ITPGRFA and Related International Instruments



IJBS 17 was tied up with development of commercial society of Northeast India

Kolkata Botanic Garden

Acharya Jagadish Chandra Bose Indian Botanic Garden is under Botanical Survey of India, Ministry of Envionment, Forest and Climate Change

Shibpur, Howrah, West Bengal 711 103, India

Kolkata Botanic Garden

Kolkata Botanic Garden

今までの対話が足りない

- インド社会は大きく変わりつつある
- インド社会は変わらない
- インドの遺伝資源へのアクセスは不可能ではない
- インドの遺伝資源へのアクセスは簡単でない
- 相手を見極めて地道な関係構築を

- **インド側は日本側の実情を知らない**
- **日本側はインド側の実情を知らない**

Thank You!