



**ADVIES 90**

**INTERNATIONAL PLANT GENETIC RESOURCES INSTITUTE**

*Oprichtingsovereenkomst en Zetelakkoord*

*24 maart 2005*



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## Advies 90

### **International Plant Genetic Resources Institute - Oprichtingsovereenkomst en Zetelakkoord**

#### *Advies bij*

- *het ontwerp van decreet houdende instemming met de Overeenkomst houdende oprichting van het Plant Genetic Resources Institute, opgemaakt in Rome op 9 oktober 1991,*

#### *alsook*

- *bij het ontwerp van decreet houdende instemming met het zetelakkoord tussen het koninkrijk België en het International Plant Genetic Institute, ondertekend in Brussel op 15 oktober 2003*

### **SITUERING**

Vice-minister-president Fientje Moerman vraagt de Vlaamse Raad voor Wetenschapsbeleid (VRWB) om advies bij het ontwerp van decreet houdende instemming met de Overeenkomst houdende oprichting van het Plant Genetic Resources Institute, opgemaakt in Rome op 9 oktober 1991, alsook bij het ontwerp van decreet houdende instemming met het Zetelakkoord tussen het koninkrijk België en het International Plant Genetic Resources Institute, ondertekend in Brussel op 15 oktober 2003.

Op 9 oktober 1991 werd in Rome besloten tot de oprichting van het International Plant Genetic Resources Institute (IPGRI). Het werkt als een onafhankelijk internationaal instituut met een overeenkomstige en passende beheersstructuur, juridische rechtspersoonlijkheid en aangepaste internationale status, autoriteit, voorrechten, immuniteiten en andere voorwaarden die noodzakelijk zijn om effectief te kunnen werken.

Het IPGRI is de grootste non-profit organisatie ter wereld op het vlak van onderzoek en opleiding in de landbouw. Het IPGRI beoogt de bevordering, de aanmoediging, de ondersteuning van en de deelname aan activiteiten, die de verbetering nastreven van het behoud en het duurzaam gebruik op wereldschaal van plantgenetische rijkdommen, met een bijzondere aandacht voor de noden van de ontwikkelingslanden.

De internationale overeenkomsten m.b.t. het IPGRI zijn zogenaamde gemengde verdragen, waarbij de bevoegdheden zowel liggen bij de federale overheid als bij de Gemeenschappen en Gewesten. Dit betekent dat ook het Vlaams parlement, zoals ook de parlementen van de andere Gewesten en Gemeenschappen, zijn akkoord moet geven opdat deze verdragen zouden kunnen worden geratificeerd. Door het zetelakkoord krijgt deze internationale organisatie ook in België een juridisch statuut om onafhankelijk te kunnen werken en de mobiliteit van internationale onderzoekers naar België in het kader van IPGRI te vergemakkelijken.

## **ACTIVITEITEN IPGRI IN VLAANDEREN**

Op de website van IPGRI worden twee Vlaamse onderzoeksinstellingen vermeld.

(1) Het Instituut voor Bosbouw en Wildbeheer (IBW) (directeur: Jos Slycken) is lid van het Europees netwerk Euforgen (in het kader van IPGRI), dat zich richt op bescherming van bossen, bosbouwgenetica, diversiteit, ... Ook het VIB zou bij projecten van dit netwerk betrokken zijn.

(2) Het Laboratory of Tropical Crop Improvement (prof. Rony Swennen) van de K.U.Leuven huisvest het INIBAP Transit Centre. INIBAP is ook een programma van IPGRI en staat voor International Network for Bananas and Plantains. Het INIBAP werd in 1984 opgericht door 6 landen waaronder België, maar heeft nu een internationaal statuut op basis van de nodige wettelijke bepalingen en de toetreding van een hele rits landen.

De activiteiten van het centrum zijn hoofdzakelijk gericht op de bewaring, beheer, karakterisatie en wereldwijde evaluatie en aflevering van de wereld collectie van Musa (bananen en plantanen). Deze collectie is een wereldpatrimonium en staat onder de auspiciën van de Verenigde Naties, meer bepaald de FAO (Food and Agriculture Organisation).

België heeft sinds 1984 die activiteit gesteund wat maakt dat er heel wat spin-off onderzoeksactiviteiten zijn ontstaan dankzij extra financiering bekomen via talrijke kanalen zowel in binnen- maar vooral buitenland. Immers nu is er een 38 koppige onderzoeksgroep aanwezig aan de K.U.Leuven dat dagelijks interageert met het INIBAP Transit Centre. Deze grootste onderzoeksgroep op Musa geniet wereldfaam en heeft een zeer grote publicatie output. Bovendien werden over de voorbije 10 jaren 15 doctoraten afgeleverd en lopen er nu 16 doctoraten. Naast deze activiteiten heeft dit werk geleid naar de opleiding van 125 buitenlandse onderzoekers over de voorbije 10 jaren. Door deze opleidingen en beheer van de wereldcollectie zijn er nauwe banden met ongeveer 180 instituten in de wereld.

Ook andere onderzoeksgroepen in Vlaanderen zijn hierbij betrokken (o.m. prof. Dominique Vanderstraeten, prof. Godelieve Gheysen, prof. Magda Vincx van de UGent, prof. Harry Van Onckelen van de UA, ...).

In de bijlage wordt verdere informatie verstrekt.

## **ADVIES**

In Vlaanderen is een belangrijk IPGRI-centrum met wereldfaam gehuisvest, m.n. het INIBAP Transit Centre. De vraag om advies behelst in feite een louter formele kwestie om de mobiliteit van internationale onderzoekers naar België in het kader van dit centrum te regelen.

De Vlaamse Raad voor Wetenschapsbeleid brengt een positief advies uit. Het betreft hier een belangrijke internationale wetenschappelijke samenwerking op hoog niveau. De Raad is trouwens grote voorstander van internationale uitwisseling van onderzoekers.

Elisabeth Monard  
Secretaris

Karel Vinck  
Voorzitter

## **BIJLAGE I**

### **PLANT GENETIC RESOURCES IN EUROPE - INFORMATIE WEBSITE IPGRI: HTTP://WWW.IPGRI.CGIAR.ORG**

#### *INTRODUCTION*

IPGRI has a long history of activities in Europe, starting in 1974 when the Mediterranean was identified as an area for priority attention. The early emphasis of the Mediterranean programme was on exploration and collection of crops most threatened by genetic erosion, with particular emphasis on food legumes, cereals and vegetables.

IPGRI's focus in the region is on the promotion and development of national and regional strategies for plant genetic resources conservation and use. The Regional office for Europe provides advice to countries needing help in establishing and managing national genetic resources programmes. This includes providing detailed studies on the structure of existing national programmes and recommendations for their improvement.

Most of the direct work with Europe's national programmes is concentrated within IPGRI's Regional Office for Europe, based in Rome, Italy. This Office is responsible for collaboration with all countries of geographic Europe including Israel, and extending as far east as the Russian Federation and the newly independent states of the former Soviet Union.

Another key dimension of IPGRI's European strategy is to promote training and the transfer of technology between European institutions and national programmes in developing countries.

IPGRI through its Europe Group provides the international coordinating secretariat for the European Cooperative Programme on Crop Genetic Resources Networks (ECP/GR) and the European Forest Genetic Resources Programme (EUFORGEN)

Participation of east European countries in the EU-funded projects, actively supported by the ECP/GR and EUFORGEN programmes, contributed to ensuring the continuity of national systems in the countries concerned. They include genetic diversity studies, surveying, collecting, characterization and evaluation of genetic resources, documentation and information.

#### *ABOUT IPGRI*

IPGRI is an international research institute with a mandate to advance the conservation and use of genetic diversity for the well-being of present and future generations. It is a Centre of the Consultative Group on International Agricultural Research (CGIAR).

Our vision:

- Why plant genetic resources matter?
- IPGRI – An international centre
- Programmes and projects
- Who benefits?
- Our impact

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## FOREWORD

In 2004, it will be 30 years since IPGRI began as the International Board for Plant Genetic Resources. While we are not planning any grandiose celebrations, we are taking the opportunity to re-examine IPGRI's strategy and to ensure that our approach to the use and conservation of agricultural biodiversity meets the needs of our stakeholders. We have conducted extensive stakeholder consultations and held several meetings to tap the collective insights and experience of IPGRI staff and board members. While this is still a work in progress, it is clear that a key goal will be to improve the lives of poor people by deploying agricultural biodiversity more effectively. The new strategy will be launched in 2004 and will guide IPGRI's work from 2005.

The new strategy coincides with a change at the top. Geoffrey Hawtin leaves IPGRI after 12 years, having built the organization into the global centre of excellence it has become. It is difficult to express how much we, and the whole world of plant genetic resources, owe him. He will continue to play a pivotal role in the ex situ conservation of plant genetic resources through his efforts for the Global Crop Diversity Trust.

The Trust moved forward in 2003 as the Interim Panel of Eminent Experts approved the principles for determining the eligibility of collections for Trust support and the Trust's governance and structure. That structure includes the appointment of Geoffrey Hawtin as Interim Executive Secretary. We wish him every success and anticipate even closer collaboration with the Trust in future. We also look forward to providing the technical expertise that will enable the Trust to fulfil its ambition of being a crucial element in the rational, global genebank system that has long been seen as an essential tool for the effective conservation and use of agricultural biodiversity.

Other milestones during the year include the approval of a new Material Transfer Agreement for the genebanks of the Future Harvest Centres. This agreement reflects new provisions on access and benefit sharing in the International Treaty on Plant Genetic Resources for Food and Agriculture, and was drafted with the help of the System-wide Genetic Resources Programme (SGRP), hosted by IPGRI. SGRP and IPGRI also organized an international meeting on Managing Agricultural Biodiversity for Sustainable Development, which succeeded in bringing this important topic before a very wide audience.

Helping human development through the improved use of agricultural biodiversity will be the foundation of IPGRI's future. We are encouraged in this by the results of an External Programme and Management Review that reported early in 2003. The panel found IPGRI "strong and effective", and made several valuable recommendations that have influenced the development of the new strategy. The panel also identified the "charisma and fine leadership" of Geoffrey Hawtin as a key reason for IPGRI's current good health. We can only concur and thank him for his many contributions.

The International Treaty on Plant Genetic Resources for Food and Agriculture will come into force in 2004, confirming the vital importance of plant genetic resources for the future improvement of agriculture and sustainable development. Building on 30 years of experience, and with a forward-looking strategy to guide its own future, IPGRI is determined to play a leadership role to ensure that genetic resources and agricultural biodiversity contribute to a better future for all.

Emile Frison  
Director General

Benchaphun Shinawatra Ekasingh  
Board Chair

*IPGRI'S MANAGEMENT & BOARD OF TRUSTEES*



## MANAGEMENT

### Office of the Director General

Dr Emile A. Frison, Director General

Dr Lyndsey A. Withers, Assistant Director General

### Office of the Deputy Director General (Programmes)

Dr Coosje Hoogendoorn, Deputy Director General (Programmes)

### Finance and Administration

Mr Koen F. Geerts, Director – Finance and Administration

### Plant Genetic Resources Programme

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## BOARD OF TRUSTEES

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## *EUFORGEN*

### A NETWORK FOR FOREST GENETIC RESOURCES IN EUROPE

Forests are home to a great variety of tree species and other plants. Forests provide timber, food, medicine and many other products and services, and play an important role in protecting the environment. The forests of Europe have attracted far less attention than have tropical rainforests yet they too are extremely vulnerable. Air pollution, forest fires and unsuitable management practices are all threats to the continent's forest diversity.

EUFORGEN The first Ministerial Conference for the Protection of Forests in Europe was held in 1990. Resolution 2 of the Conference called for the creation of 'an instrument for co-operation on conservation of the genetic diversity of European forests'. Subsequently IPGRI and the Forestry Department of the Food and Agriculture Organisation of the United Nations (FAO), were asked to explore how to implement the Resolution. The outcome was the establishment of the European Forest Genetic Resources Programme (EUFORGEN).

EUFORGEN member countries:

Armenia	Moldova
Austria	Monaco
Belarus	Netherlands
Belgium	Norway
Croatia	Poland
Czech Republic	Portugal
Denmark	Slovakia
Estonia	Slovenia
Finland	Spain
France	Sweden
Germany	Switzerland
Hungary	Turkey
Ireland	Ukraine
Latvia	United Kingdom
Lithuania	
Malta	

How EUFORGEN works?

The Programme is co-ordinated by IPGRI in collaboration with FAO. EUFORGEN is overseen by a Steering Committee, which includes national co-ordinators nominated by participating countries. Funding is provided by the member countries through a membership contribution.

EUFORGEN's main tasks are to co-ordinate and promote the in situ and ex situ conservation of Europe's forest genetic resources, to facilitate the exchange of genetic material and information, and to increase public awareness of the need to conserve forest genetic resources.

In its second phase, the Programme operates through five networks: Mediterranean Oaks, *Populus nigra* (black poplar), Conifers, Noble Hardwoods and Social Broadleaves (temperate oak and beech). The species selected reflect national conservation priorities and cover different ecogeographical distribution patterns and reproductive systems. Network members include forest geneticists and specialists from member countries who work together to analyse national and regional needs, exchange experiences, and develop conservation methods. The Programme is particularly concerned with providing guidance for the development of national policies and encouraging long-term national strategies and activities on forest genetic resources.

The networks focus on developing inventories of genetic resources, creating shared databases, technical guidelines and lists of descriptors, exchanging germplasm, and identifying common research needs and joint projects. The EUFORGEN networks also collaborate closely with national conservation programmes to promote the establishment of national forest reserves.

Co-operation is not restricted to Europe; networks also liaise with IPGRI regional offices and FAO networks on species common to more than one region. For example, the *Quercus suber* network co-operated with North-African countries on the conservation of cork oak and it is expected that the newly established Mediterranean Oaks Network will continue to do so.

#### Selected Network Activities

The Conifers and Noble Hardwoods Networks have produced practical guidelines for managing gene conservation stands. The guidelines aim to provide advice to forest officers and authorities responsible for gene conservation.

The *Populus nigra* Network has established a core collection, which includes representative clones from the entire distribution area of the species. The collection serves as a tool for the standardised evaluation of national collections. It can be propagated and sent to interested institutes upon request along with information about the material.

Network members often work together on externally funded projects. The cork oak network developed an EU-funded project to evaluate the genetic resources of this species. The project has established provenance tests in 7 countries throughout the distribution area. Close collaboration exists between the black poplar network and another EU project on genetic diversity in riparian ecosystems (EUROPOP). Members of the Noble Hardwoods Network and partners in an EU-funded project on elms have developed a joint European long-term gene conservation strategy for elms.

#### *THE EUROPEAN COOPERATIVE PROGRAMME FOR CROP GENETIC RESOURCES NETWORKS*

ECP/GR involves 36 countries in a joint effort to ensure the long-term conservation and increased use of plant genetic resources in Europe.

The Programme, which is entirely financed by the participating countries and is coordinated by IPGRI, operates through ten broadly focused networks dealing with groups of crops or general themes related to plant genetic resources.

#### Members of ECP/GR

Albania	Belgium
Armenia	Bulgaria
Austria	Croatia

Cyprus	Macedonia (FYR)
Czech Republic	Malta
Denmark	Netherlands
Estonia	Norway
Finland	Poland
France	Portugal
Germany	Romania
Greece	Serbia and Montenegro
Hungary	Slovakia
Iceland	Slovenia
Ireland	Spain
Israel	Sweden
Italy	Switzerland
Latvia	Turkey
Lithuania	United Kingdom

The chief goal of ECP/GR is to facilitate the long-term in situ and ex situ conservation and use of plant genetic resources in Europe. By strengthening links between plant genetic resources stakeholders including national institutions, NGOs and private breeders, ECP/GR promotes the sharing of conservation responsibilities on the continent, including among non-ECP/GR members. A number of countries have not yet formally joined ECP/GR, but have nominated focal points to allow collaboration with the Programme. These include Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, Moldova, the Russian Federation and the Ukraine.

ECP/GR is overseen by a Steering Committee consisting of the co-ordinators of national programmes of all participating countries. The International Seed Federation (ISF), FAO, IPGRI, Euro-MAB Programme (Man and Biosphere) of UNESCO, Nordic Gene Bank (NGB) and the NGO community are represented by observers. The Programme interacts with other international and regional bodies concerned with plant genetic resources, such as the Genetic Resources Programme of the European Union, and the World Information and Early Warning System on Plant Genetic Resources of FAO. IPGRI currently provides the Secretariat to ECP/GR.

#### Selected Activities

Network activities are most often carried out by working groups made up of representatives from participating countries. Actions are facilitated by focused meetings and implemented by the working group members and other scientists with their own resources as inputs in kind to the Programme. Working group members ensure effective links between ECP/GR and the respective stakeholders at the national level.

Information is a particular area of interest for ECP/GR. One key activity is the development of crop-specific databases, managed by one of the participating institutes. The databases hold passport data and some characterisation and primary evaluation data on the major crop collections in Europe. In many cases, they are available on Internet in downloadable or searchable form by the managing institutes or by documentation support centers. The databases provide users with a tool for taking informed decisions on key aspects of managing national collections, such as priority-setting, rationalization and safety-duplication.

A project for the establishment of a European Plant Genetic Resources Information Infra-Structure (EPGRIS) has been funded by the European Commission. The project, which was developed by the ECP/GR Documentation and Information Network, contributed to the further development of national plant genetic resources information systems throughout Europe and to the establishment of a regional catalogue (EURISCO) of the European accessions' passport data. (See website)

The European Meeting on Plant Genetic Resources held in Nitra, Slovakia, September 1995, recommended that ECP/GR be used as a platform to facilitate the implementation of the Global Plan of Action (GPA) for the European region. The Programme has identified three GPA activities for priority attention: emergency actions, cooperation with EU-funded projects and training. Other network activities include planning joint research or collecting missions, promoting the use of genetic resources (e.g. through the establishment and evaluation of European core collections) and regional coordination of *in situ* and *ex situ* conservation activities.

#### EUROPEAN CENTRAL CROP DATABASES

##### Cereals

Avena - BAZ Braunschweig, Germany  
Barley - IPK Gatersleben, Germany  
Maize - MRI Zemun-Belgrade, Serbia and Montenegro  
Secale - IHAR Radzikow, Poland  
Triticale - RAC Nyon, Switzerland  
Wheat - RICP Prague Ruzyně, Czech Rep.

##### Grain legumes

Arachis - IPGR Sadovo, Bulgaria  
Cicer - ENMP Elvas, Portugal  
Glycine - VIR St Petersburg, Russian Federation  
Lens - AARI Izmir, Turkey  
Lupinus - IPG Poznan, Poland  
Phaseolus/Vigna - Federal Office for Agrobiolgy Linz, Austria  
Pisum - JIC Norwich, UK  
Vicia faba - INRA Dijon, France

##### Forages

Agropyron - IPGR Plovdiv, Bulgaria  
Arrhenatherum elatius/Trisetum flavescens - OSEVA Pro Zubri, Czech Rep.  
Trisetum flavescens Bromus - IPPQ Tapioszele, Hungary  
Minor Forage legumes/Trifolium pratense/Dactylis/Festuca - IHAR Bydgoszcz, Poland  
Lathyrus - IBEAS Pau, France  
Lolium/Trifolium repens - IGER Aberystwyth, UK  
Perennial Medicago - INRA-GEVES Montpellier, France  
Poa - IPK Malchow, Germany  
Trifolium alexandrinum/ T. resupinatum - ARO Bet Dagan, Israel  
Trifolium subterraneum/ Annual Medicago - INIA Badajoz, Spain  
Vicia ssp. - CNR Bari, Italy  
'Other viciae' - University of Reading, UK  
Agrostis/Phalaris/Phleum/Minor forage grasses - NGB Alnarp, Sweden

##### Fruit trees

Malus - NFC Wye College, UK  
Prunus - INRA Bordeaux, France  
Pyrus - CRAGx Gembloux, Belgium

##### Vegetables

Allium - HRI Wellesbourne, UK  
Umbellifer crops Brassica/Lactuca - CGN Wageningen, The Netherlands  
Cucurbit/Cyphomandra/Physalis - COMAV Valencia, Spain  
Eggplant - KUN Nijmegen, The Netherlands  
Pepper - AARI Izmir, Turkey  
Tomato - VIR St Petersburg, Russian Federation

### Industrial Crops

Beta - BAZ Braunschweig, Germany

Flax - AGRITECH Sumperk, Czech Republic

Hemp - ISCI Bologna, Italy

Potato - cultivated - SASA Edinburgh, UK

Potato - wild, bearing tubers - CGN Wageningen, The Netherlands

## **BIJLAGE II**

### **INFORMATIE PROF. DR. IR. R.L. SWENNEN - LABORATORY OF TROPICAL CROP IMPROVEMENT, K.U.LEUVEN**

#### *E-MAIL*

**Onderwerp:** RE: Vlaamse Raad voor Wetenschapsbeleid: vraag om advies oprichting IPGRI en zetelakkoord

**Datum:** Sat, 12 Feb 2005 09:59:03 +0100

**Van:** Rony Swennen <rony.swennen@agr.kuleuven.ac.be>

**Aan:** "'Monard, Elisabeth'" <elisabeth.monard@wim.vlaanderen.be>

Geachte Mevrouw

Ik dank U voor Uw bericht en ben verheugd de kans te krijgen de activiteiten van het IPGRI in België nader te kunnen toelichten.

1. Het belang voor het wetenschappelijk onderzoek in Vlaanderen

De activiteiten van het IPGRI in Vlaanderen zijn hoofdzakelijk gericht op de bewaring, beheer, karakterisatie en wereldwijde evaluatie en aflevering van de wereld collectie van Musa (bananen en plantanen) (zie fact sheet 1-2). Deze collectie staat onder de auspiciën van de Verenigde Naties, meer bepaald de FAO (Food and Agriculture Organisation) omdat deze collectie een wereld patrimonium is.

De hoger genoemde activiteiten zijn beter gekend als het INIBAP Transit Centre: [http://www.agr.kuleuven.ac.be/DTP/TRO/\\_data/itc.htm](http://www.agr.kuleuven.ac.be/DTP/TRO/_data/itc.htm). De afkorting van INIBAP staat voor International Network for Bananas and Plantains, dat één van de programma's is van het IPGRI. Het INIBAP werd in 1984 opgericht door 6 landen waaronder België, maar heeft nu een internationaal statuut op basis van de nodige wettelijke bepalingen en de toetreding van een hele rits landen (annex 1, fact sheet 3).

België heeft sinds 1984 die activiteit gesteund wat maakt dat er heel wat spin-off onderzoeksactiviteiten zijn ontstaan dankzij extra financiering bekomen via talrijke kanalen zowel in binnen- maar vooral buitenland. Immers nu is er een 38 koppige onderzoeksgroep aanwezig aan de KUL dat dagelijks interageert met het INIBAP Transit Centre. Deze grootste onderzoeksgroep op Musa geniet wereldfaam en heeft een zeer grote publicatie output (annex 3). Bovendien werden over de voorbije 10 jaren 15 doctoraten afgeleverd en lopen er nu 16 doctoraten (annex 2). In 2005 worden er trouwens 4 doctoraten afgeleverd. Ik verwijs ook naar de website van het Laboratorium voor Tropische Plantenteelt: <http://www.agr.kuleuven.ac.be/dtp/tro/home.htm> die deze gegevens nogmaals illustreren.

Naast deze activiteiten heeft dit werk geleid naar de opleiding van 125 buitenlandse onderzoekers over de voorbije 10 jaren. Door deze opleidingen en beheer van de wereldcollectie hebben we nauwe banden geschapen met ongeveer 180 instituten in de wereld.

De plantenbiotechnologie ondersteunt het wetenschappelijk onderzoek dat erg gesofisticeerd is maar verschillende van onze eindproducten zijn heel eenvoudig te gebruiken. Het is daarom trouwens dat we uitgenodigd zijn geweest een stand op te richten tijdens de wereldtentoonstelling in Duitsland in het jaar 2000 (zie fact sheet ITC-EXPO 2000).

Enkele voorbeelden illustreren ons leiderschap in dit domein: De eerste gentechnologische bananen werden in Leuven ontwikkeld in 1993 en de eerste planten werden in het veld getest sinds 2003. Daarnaast gebruiken we gentechnologie voor genoom analyse op grote schaal en hebben hierover als eerste gepubliceerd. Ook zijn we marktleider in de vriesbewaring van planten tzt cryopreservatie. Gezien onze technieken zo ver gevorderd zijn leiden we een Europees consortium

van 7 leden, en liggen er plannen klaar om verschillende wereldcollecties naar België te brengen. Immers wij combineren hier de beste conservatietechnieken met de beste software en politieke stabiliteit.

Ik heb dit allemaal samengebracht in een boek dat uitgegeven werd via de FAO, INIBAP en het IAEA (International Atomic Energy Agency): Mohan Jain S. and Swennen R., 2004. Banana Improvement: Cellular, Molecular Biology, and Induced Mutations. Science Publishers Inc., Enfield, NH, USA: 382 pp.

<http://www.scipub.net/agriculture/banana-improvement-induced-mutations.html>  
and <http://www.actahort.org/chronica/pdf/ch4404.pdf> (see p.33-34)

## 2. Andere onderzoeksgroepen in Vlaanderen hierbij betrokken

Hoogstaand onderzoek kan pas op niveau blijven indien er een kritisch massa bestaat die nauw samenwerkt met verschillende partners. Op wereldvlak is dit legio en in Vlaanderen gebeurt dat met Prof. Dominique Vanderstraeten, Godelieve Gheysen en Magda Vincx aan de UGent, en met Prof. Harry Van Onckelen van de Univ Antwerpen. Ook Prof Monica Höfte aan de Ugent wenst samen te werken maar dat moet nog uitgewerkt worden alhoewel zij nu al de nodige informatie heeft gekregen. Prof Bart Samyn van de Ugent heeft nu ook een project ingediend met een samenwerkingscomponent met ons.

Ik hoop dat ik U hiermee van dienste ben geweest en ben bereid voor nadere toelichtingen te geven.

Hoogachtend

Prof. Dr. Ir. R.L. Swennen (<http://www.kuleuven.ac.be/cv/u0015509e.htm>)

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-----Original Message-----

**From:** Monard, Elisabeth [<mailto:elisabeth.monard@wim.vlaanderen.be>]

**Sent:** vrijdag 11 februari 2005 16:59

**To:** [rony.swennen@agr.kuleuven.ac.be](mailto:rony.swennen@agr.kuleuven.ac.be)

**Subject:** Vlaamse Raad voor Wetenschapsbeleid: vraag om advies oprichting IPGRI en zetelakkoord

Geachte professor Swennen,

De Vlaamse Raad voor Wetenschapsbeleid (VRWB) wordt door minister Moerman om advies gevraagd:

\* bij het ontwerp van decreet houdende instemming met de Overeenkomst houdende oprichting van het Plant Genetic Resources Institute, opgemaakt in Rome op 9 oktober 1991,

\* alsook bij het ontwerp van decreet houdende instemming met het zetelakkoord tussen het koninkrijk België en het International Plant Genetic Institute, ondertekend in Brussel op 15 oktober 2003.

Uit het bijgevoegde dossier blijkt dat al eerder advies werd gevraagd bij de SERV en de Mina-Raad. Waarom men nu pas bij ons komt is mij niet duidelijk. Op de website van IPGRI ben ik uw naam tegen gekomen, alsook deze van J. Van der Slycken (Instituut voor Bosbouw en Wildbeheer). Graag had ik van u wat meer informatie over deze aangelegenheid, in het bijzonder m.b.t. het belang voor het wetenschappelijk onderzoek in Vlaanderen, alsook welke andere onderzoeksgroepen in Vlaanderen hierbij betrokken zijn. Ik heb uw al enkele dagen proberen te telefoneren, zonder



succes, ik heb wel gesproken met prof. Ines Van den Houwe, die mij reeds wat uitleg heeft gegeven, maar mij toch nog naar u doorverwees. Met dank en vriendelijke groeten,

Elisabeth Monard

Secretaris

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#### *BELGIAN SUPPORT TO INIBAP, KUL AND MUSA R&D*

Belgium's involvement with INIBAP (the International Network for the Improvement of Banana and Plantain) goes back to the early 1980s when it played a critical role in developing the concept of an organization that works through networking. The Belgian government was among the first six to ratify the agreement establishing INIBAP. Since then, sustained investment by DGDC, VVOB and other agencies has helped to make Belgium the acknowledged world leader in banana and plantain (Musa) research and has forged a special link between INIBAP and the Belgian Musa research community.

The country's universities are home to more than 50 scientists conducting research on banana in partnership with INIBAP and organizations in the South. Over the years, INIBAP has also trained more than 125 scientists from developing countries through Belgian partners, thus helping to develop centres of excellence for banana research in banana-producing regions. This activity has been made easier with the signing in 2003 of an agreement establishing the international status of IPGRI, INIBAP's parent organization, in Belgium.

The Belgian government has always been INIBAP's main donor, providing about 20% of its \$US 4 to 6 million annual budget. This strong support has been vital in attracting other donors. For example, Belgian funds for the operation of INIBAP's regional networks in Africa (Annex D) allowed the programme to mobilize close to \$US 1 million per annum in additional funding from various donors to implement a portfolio of projects. The importance INIBAP attributes to its work in Africa is reflected in the fact that two of its four regional offices are based in the region.

Belgium is also providing restricted support for the maintenance of the International Musa Germplasm Collection established at the INIBAP Transit Centre (ITC) located at KUL. With over 1100 accessions, including wild species as well as local and improved varieties, the ITC hosts the world's largest collection of bananas. The ITC conserves banana accessions 'in trust' for the global community, under the auspices of the United Nations Food and Agriculture Organization. Every day, the staff sends on average 6 accessions to researchers and growers around the world.

Thanks to research carried out by Belgian scientists, an innovative cost-effective method has been developed to store accessions at ultra-low temperatures. This allows recalcitrant seeds or vegetatively propagated species such as Musa to be securely conserved for the indefinite future.

The ITC holds the most comprehensive CGIAR collection stored under these conditions. The advances in cryopreservation have helped place the ITC in a position where it can provide expertise and capacity building on the conservation of other vegetatively propagated crops, such as potato, cassava and taro.

Research conducted with KUL, is helping the exchange of germplasm by developing protocols to eradicate viruses from infected accessions whose circulation is restricted. The most effective

therapies, mainly cryotherapy and heat therapy, are used against cucumber mosaic virus, banana streak virus, banana bunchy top virus and banana mild mosaic virus.

INIBAP-commissioned research on the genetic transformation of banana has helped KUL become a leader in this field and a strong collaborator in the Global Musa Genomics Consortium, as well as an important player in capacity building. KUL's research has substantially streamlined the process of producing the starting materials for transformation and of transforming them, resulting in speedier, more productive protocols for a range of different banana cultivars.

KUL's expertise in genetic transformation is being tapped in a project aimed at helping Uganda develop high-yielding, pest- and disease-resistant varieties of East African highland bananas, a staple food and important source of income in many areas of East and Central Africa. The project, which is partly funded by the Belgian government, has adopted the approach of building capacity in the use of biotechnology tools and methodologies that can then be drawn on to respond to the country's needs.

*MUSA RESEARCH PUBLICATION, 1995-2004, FROM THE KATHOLIEKE UNIVERSITEIT LEUVEN, LABORATORY OF TROPICAL CROP IMPROVEMENT*

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Articles published in other scientific journals

*In press*

Total: 1

*Published*

Total: 86

Papers presented at international congresses/symposia and published as a full article in the proceedings

*Published*

Total: 22

Papers presented at international congresses/symposia but not published or only published as an abstract

*Published*

Total: 93

Papers presented at other scientific meetings; published as a full article in the proceedings

Total: 7

Papers presented at other scientific meetings; not published or only published as an abstract

Total: 20

Books as author

Total: 9

Articles in books

*In press*

Total: 2

*Published*

Total: 33

CAPACITY BUILDING IN MUSA R&D AT K.U.LEUVEN

Completed PhD's in Musa

Total: 12 Belgians; 3 non-Belgians

Total: 8 field studies; 7 laboratory studies

Current PhD's In Musa

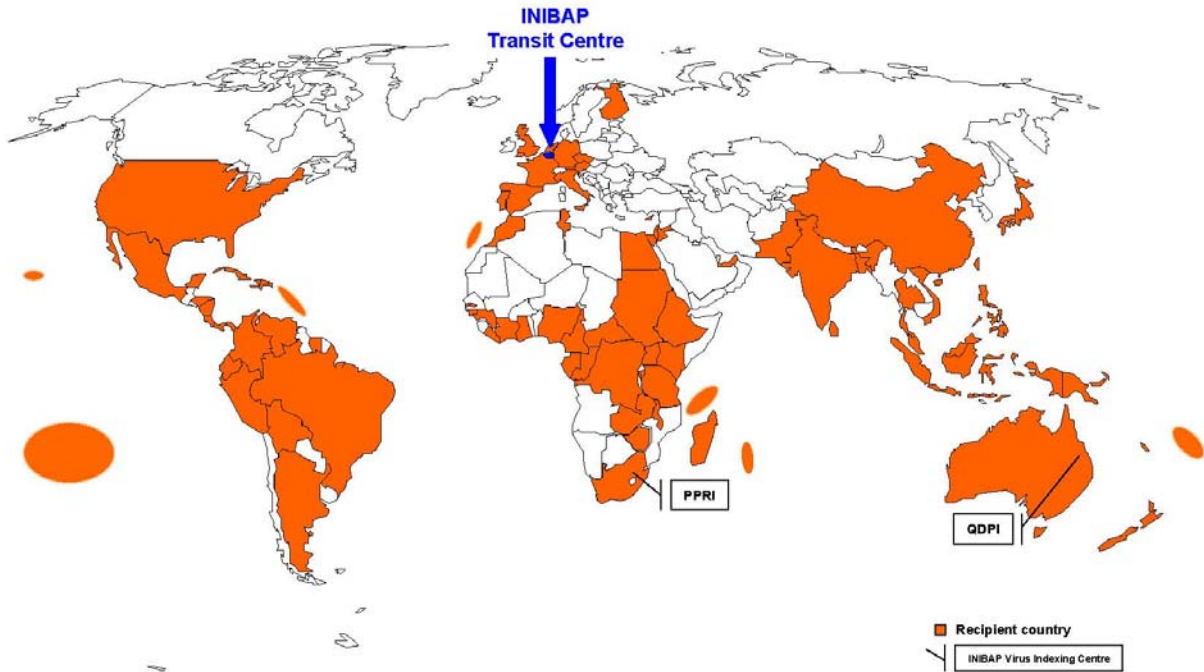
Total: 6 Belgians; 6 non-Belgians

Total: 5 field studies; 7 laboratory studies





## World-wide distribution of germplasm from the international banana collection at the INIBAP Transit Centre





# Belgium and INIBAP - a long and fruitful story

October 2003

**The creation of INIBAP**  
Belgium's involvement with INIBAP, the International Network for the Improvement of Banana and Plantain, began in the early 80s when it played a critical role in developing the concept of an organization that works through networking. The Belgian government was among the first six to ratify the agreement establishing INIBAP. Belgium was also one of the first signatories of the Establishment Agreement conferring on IPGRI an international status. IPGRI's signature of a Headquarters Agreement with the government of Belgium, on 15 October 2003, further strengthens its link with the country, especially in the framework of INIBAP, which now operates as a programme of IPGRI.

Government of Uganda and the Rockefeller Foundation, to implement a portfolio of projects. The importance INIBAP attributes to its work in Africa, which hosts two of its four regional offices, is in step with Belgium's interest in the region.

Belgium is also providing support specifically for the maintenance of the International *Musa* Germplasm Collection established at the INIBAP Transit Centre (ITC) located

at the *Katholieke Universiteit Leuven*. With over 1100 accessions, including wild species as well as local and improved varieties, the ITC hosts the world's largest collection of bananas. The ITC conserves banana accessions 'in trust' for the global community, under the auspices of the United Nations Food and Agriculture Organization. The staff sends an average of 6 accessions per day to researchers and growers around the world.

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INIBAP is a programme of the International Plant Genetic Resources

Institute (IPGRI) a center of  
**FUTURE HARVEST**<sup>SM</sup>

**Number 1 donor**  
The Belgian government has always been INIBAP's main donor, currently providing about 20% of its \$US6 million budget. This strong support has been vital to attracting other donors and spurring the growth of *Musa* (banana and plantain) research. For example, Belgian funds for the operation of INIBAP's two regional offices in Africa have allowed the programme to mobilize close to \$US1 million in additional funding from donors like the UK Department for International Development, the European Union, the



David Montbray



Robt Stevens

The *Musa* collection has also attracted the interest of other donors such as the Gatsby Foundation and the World Bank.

**Belgians galore**

INIBAP spends about 20% of its budget in Belgium, which amounts to approximately 4% of IPGRI's budget.

One in four of INIBAP's staff is of Belgian origin. They are dispersed on the four continents where INIBAP has offices, including six in Belgium. Moreover, two of the three former directors of INIBAP are Belgian. Together they steered the programme for 12 of the 18 years of its existence. From 1995 to 2002, Luc Sas, also Belgian, has been Chairman of the INIBAP Support Group. He is now its Vice-Chairman.

**Centre of excellence**

Belgium is a world leader in banana research. Its expertise is particularly strong in germplasm conservation, plant pathology and biotechnology. More than 50 people working in Belgian universities conduct

research on banana in partnership with INIBAP and organizations in the South.

Thanks to the research carried out by Belgian scientists, an innovative cost-effective method has been developed to store accessions at ultra-low temperatures. This allows recalcitrant seeds or vegetatively propagated species such as *Musa* to be securely conserved for the indefinite future. The

ITC holds the most comprehensive CGIAR collection stored under these conditions.

Belgian institutions are helping other CGIAR Centres to conserve vegetatively propagated crops. They also plan to keep the duplicate, or 'black box', collections of species such as cassava, yam, potato and sweet potato for long term conservation.

With capacity building an important part of its mission, INIBAP has trained more than 125 scientists from developing countries through Belgian partners.

**Peer recognition**

Since IPGRI and INIBAP joined forces, IPGRI has undergone two external reviews. In 1997, the Panel commended INIBAP for its achievements and cited its original *modus operandi* as a model: "The 'INIBAP experiment' is judged by this Panel as a success and the Panel commends the INIBAP *modus operandi* to the CGIAR System." In 2002, the Panel was also

impressed with the contribution of INIBAP to IPGRI's research.

In 2000, a Centre commissioned external review was similarly very supportive of the networking *modus operandi* of INIBAP and highlighted its cost effectiveness in relation to other CGIAR Centres. The review panel stressed the critical responsibility of INIBAP in the maintenance of the *Musa* collection and the distribution of germplasm from the ITC.

Belgium's commitment to international agricultural research and sustainable development is not only demonstrated by its support of the *Musa* programme but also by its contributions to CGIAR Centres. As Prince Laurent of Belgium, Future Harvest ambassador, stated at an international symposium on bananas held in Belgium in September 2002: "There is no hope of reversing environmental degradation and poverty and sustaining humanity without the interdisciplinary cooperation of scientists committed to sound farming that protects the environment."



Mark Ruas



# Banana collection

September 2001

## The largest collection of bananas in the world

The International *Musa* Germplasm Collection maintained by INIBAP is the world's largest collection of bananas. It contains over 1100 accessions, including wild species as well as local, commercial and improved varieties, and represents a large proportion of the genetic diversity that exists in the genus *Musa*. The collection is held 'in trust' for the global community, under the auspices of the United Nations Food and Agriculture Organization and is located at the *Katholieke Universiteit Leuven*, Belgium. Most of the accessions in the collection have been donated by INIBAP's national programme partners, and are freely available to all users.



### Conservation

Because most banana cultivars do not have seeds, they cannot be conserved in a conventional seed genebank. *In vitro* conservation (literally "in glass") provides a useful alternative method. Sterile plantlets are maintained on a nutrient medium under strictly controlled conditions. Low temperatures (16°C) and low light intensity reduce plant growth rates. On average, one re-culture each year is sufficient to maintain the plants.

High-tech solutions are being investigated for the long-term storage of germplasm. Cryopreservation techniques are being developed to improve cost-effectiveness and efficiency. These techniques allow living material to be maintained indefinitely at very low temperatures (-170°C). Plants conserved in this way can be brought back to life at anytime.

### Distribution

The accessions maintained by INIBAP contain the genes necessary for breeding improved varieties. Many of the conserved banana varieties may be needed by breeders who are working far from where the bananas are traditionally grown. Germplasm distribution is therefore one of INIBAP's most important functions. Since 1985, the INIBAP genebank has distributed over 10 000 assignments of numerous varieties to 172 institutes in 76 countries. All material is virus-indexed so that diseases are not inadvertently distributed with the germplasm.

germplasm have reached no less than 37 000 households. Farmers are starting to feel the benefits of higher yields and significant progress is being made towards increased sustainable production on smallholder farms.

The INIBAP genebank, on its own, is unable to cope with the vast demand for improved varieties from farmers worldwide. INIBAP's responsibility to build capacity within banana-producing countries is pivotal. The genebank acts as an important training centre where scientists from developing countries learn techniques for *Musa* conservation and improvement. This has helped to develop centres of excellence in countries such as India, Uganda, Cameroon, and Costa Rica. Multiplication and distribution centres for banana germplasm are now being established in many parts of the world, accelerating the distribution of improved *Musa* varieties to those who need them most.

### Building capacity

For the first time in the history of banana research, a mechanism has been put in place to allow the safe and efficient movement of *Musa* germplasm worldwide. The genebank has distributed improved varieties produced by breeding programmes to more than 50 countries. In a single collaborative project in Tanzania, plants grown from INIBAP

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## Transit Centre at Expo 2000

## Leuven's bananas begin global dialogue

Wouter Verbeijen/Translation John Hymers

The Laboratory for the Cultivation of Tropical Plants (LTP) has recently been the recipient of especially good press due to the selection of its banana project for Expo 2000 in Hannover. As we snuck in between *Arte* and *Deutsche Welle*, Professor Rory Swennen, head of the LTP, and Ines Van den houwe, head of the INIBAP Transit Centre, both convinced us of the global importance of the banana.



Perhaps it is odd that Leuven finds itself with a collection of tropical banana varieties - 1,132 to be precise. Says Rory Swennen: "Belgium had traditionally carried out research on tropical crops in Middle Africa - cacao, oil-palm, and even rubber. Over time that was all bled dry but for the banana." Ines Van den houwe adds: "In 1985 professor em. Edmond De Langhe, the predecessor to professor Swennen, founded the International Network for the Improvement of Banana and Plantain (INIBAP). Since we then already possessed both a limited collection and the necessary in-vitro expertise, the 'Conservation and Distribution of Banana and Plantain Genetic Resources' project was allotted to us. That project now reaches almost every corner of the world."

According to Swennen, "the banana is the fourth most import food crop in the world, after rice, wheat, and maize. Perhaps that is surprising to us, but from total of the 88 million tonnes that are produced yearly, only 13 percent is destined for export, and the rest remains for local consumption. In contrast to the international trade, which in fact is based only on one variety, local farmers and producers grow many varieties. The INIBAP wants to safeguard and stimulate the survival of these varieties - and thus of biodiversity."

**Black Sigatoka**

This diversity is threatened by many kinds of diseases, which are being spread more and more easily due to the growing world trade. The direct cause for the founding of the INIBAP was the world-wide epidemic in the 1980s of *Black Sigatoka*, a mould. Says Swennen: "Due to the nature of things, there were of course damaging moulds earlier, but they remained restricted until the advent of the export bananas. The large producers usually combatted these moulds with chemicals. However, *Black Sigatoka* also attacked the local varieties and the smaller farmers remained helpless. They had to switch over to larger farms, or grow annual crops such as rice or manioc."

"Immediately they lost the advantage of the banana: it is a perennial plant, and thus is cheaper and less labour intensive than annuals. Further: since banana trees can bear fruit all year long, they also bridge the 'hunger gap' between the dry and the rainy seasons."

Thus Belgium, Canada, and France took the initiative in 1985 to found the INIBAP, a worldwide network that, among other things, sees to the safe and efficient transportation of banana seed plasma throughout the whole world. It was a logical decision to place the collection in a non-tropical country such as Belgium: every banana disease would have free reign in a tropical country to enter and spread. Says Swennen: "For the first step, which was the building of the collection, we actually went on exploration in tropical countries. There we had to observe the necessary diplomacy, because food crops are protected as a part of the national patrimony. Governments want to prevent 'bio-piracy' at all costs."

**Network**

The second step was to make the collection available. "We are working under the wing of the Food and Agricultural Organization," says Van den houwe, "which is to say that nothing in our collection may be patented and that it must be made freely available. Before establishing its availability, naturally we must take care to avoid all contamination. For efficient control, the plants are preserved *in vitro*, in test tubes. Hence the research into viruses and moulds is also coordinated." Adds Swennen: "We are even doing research into bacteria, but the INIBAP comes into force against viruses: we send varieties to France, South Africa, and Australia, or to Cerebroux in Belgium, all of which then report on the health of the seedlings."

"Next the plants are tested for resistance: if they are sent to a particular area, it is not sufficient that they are 'safe' - they also may not be felled by sickness *in situ*. Once they are safe, we can send them to those who need them - local farmers, institutes, ministries, any bonafide user in fact, after the completion of a form."

Ines Van den houwe leads us to the cellar where the seedlings are preserved in less than tropical temperatures - 15 degrees Celsius - in order to retard the growing process. "These conditions do not obviate our need to renew the collection roughly every year," she says. "For safety, we also have a backup for half of the varieties - each variety exists in the collection 'merely' in 20 test tubes, which thus must be controlled regularly."

**Recycling plants**

Says Van den houwe: "Within each banana plant there is a so-called 'growth-point' wherein the cells continue to divide themselves. We sterilize this small clump of a couple centimetres and place it in a nutrient-rich culture; in this manner we obtain multiplying cultures. And then when we isolate a section and place it in a culture, it grows into a plant that we can send. We can thus easily make millions of seedlings from one plant, whereas in the field there would only be a ten-fold yield."

"We send the plants in restricted amounts: our service is free and thus if one wants a greater production, one should take care of that oneself. At this moment we deliver on average about five varieties per day. We can no longer manage the work alone, and hence we are quite busy establishing regional multiplication centres, such as in Cameroon."

Swennen adds: "With that we come to a phase wherein we actually can do something for farmers. As I earlier said, banana trees require less intensive care, not least of all because they take up about 6 metres per plant. If that space becomes free, then weeds move in, which means more work for the farmer. Moreover, the banana tree is a type of 'recycling plant': not only does it take many nutrients out of the soil, but it also returns many. Its production of organic material is especially impressive. If you replace this plant with another crop, then you have much less protection for the soil."

**Judgement of the future**

"Next to this we are guaranteeing a number of local projects. For example, together with the Belgische Technische Coöperatie and a number of local NGOs, we are steering a project in Tanzania. The local plants yield bunches weighing 15 kilograms, whereas our kindred but resistant varieties produce bunches weighing up to 75 kilograms."

"The project began in 1994 with a socio-economic study of the area. At that time the country was experiencing, due to the disturbances in Rwanda and Burundi, an enormous influx of refugees and thus was in need of food supplies. In 1996 we actively began our multiplication project and we have since distributed 90,000 plants. We are now teaching the multiplication process to the Tanzanians themselves so that the production before long may

be carried out by and for the local population. All things being equal we will achieve 250,000 plants in the coming year and two million in three years."

"But there is still a lot of work to be done. For instance, we can still aid Mozambique and the Congo substantially. You can scarcely estimate what impact the banana plant can have in Africa. That becomes even clearer when you examine areas stricken by crises in recent years. When people come home after a year on the

run, the banana trees are still standing. Compare that, for example, with Somalia or Ethiopia, where bananas are rarely cultivated: when people are absent for three months, then they miss the planting season, with famine as the immediate consequence."

It is thus not surprising that the project was chosen for Expo 2000, where the emphasis lies on the judgement of the future and on lasting solutions for problems concerning humanity, nature and technology. Says Van den houwe: "The project 'Conservation and Distribution of Banana and Plantain Genetic Resources' was displayed from August 15 until August 17, during the 'Global Dialogue' forum. On display the whole time were panels with explanations emphasizing the cooperative aspect - once more: the INIBAP is a network, and the project thus works with many non-Belgian partners."

You can find more information on the INIBAP at [www.inibap.fr](http://www.inibap.fr). For information on the Transit Centre, please visit [www.agr.kuleuven.ac.be/dtp/iro/itc.htm](http://www.agr.kuleuven.ac.be/dtp/iro/itc.htm)



De Vlaamse Raad voor Wetenschapsbeleid (VRWB), opgericht bij decreet van 15 december 1993, is het adviesorgaan voor de Vlaamse regering en het Vlaams Parlement inzake elke aangelegenheid betreffende het wetenschaps- en technologiebeleid. De VRWB is een uniek forum waar vooraanstaande actoren uit de academische en sociaal-economische wereld zich beraden over de algemene krachtlijnen van het te voeren wetenschaps- en technologiebeleid in Vlaanderen. De VRWB is samengesteld uit een voorzitter en zestien leden, allen benoemd op grond van hun deskundigheid en/of betrokkenheid bij het wetenschaps- en technologiebeleid in Vlaanderen. Zes van deze leden worden voorgedragen door de Vlaamse Interuniversitaire Raad (VLIR), telkens drie door de werkgevers- en werknemersorganisaties vertegenwoordigd in de SERV, en vier leden worden rechtstreeks benoemd door de Vlaamse regering. Vijf hoge ambtenaren uit de Vlaamse administratie nemen met raadgevende stem deel aan de vergaderingen.

Uitgave van de Vlaamse Raad voor Wetenschapsbeleid (VRWB)

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