



enda diapol



A Quarterly newsletter on agriculture and biotechnology



JULY-SEPTEMBER 2010

N° 07

# Editorial

Dear readers,

The seventh's issue of the quarterly newsletter «DABA», like its predecessors, deals with topics that relate mainly to African farming issues. Through its different articles, its editorial committee has focused on topical issues whose main concern is the actors involved in agriculture. These issues are playing a major increasing role in the development plan of African's economies.

Under the heading «*Behind the scenes*», farming which is often considered an activity that contributes significantly to climate change is introduced under a new facet, which is still little known. Yet, it can be a cure for various environmental changes.

«*Breaking news*» deals with the organisation of the 5th Scientific Seminar of the African Forum on Agricultural Research. It was held from the 19<sup>th</sup> to the 24<sup>th</sup> of July 2010 in Ouagadougou with more than 800 participants. The seminar's main objective was to enable African agricultural research to open up to innovation so that it can adapt to a global environment which is perpetually changing.

«**DABA**», under its heading «*Cross perspectives*», deals with the issue of food crisis that has been raging for months in Niger along with its tragedies. According to estimates from United Nations bodies, more than seven million Nigerians, that is to say almost half the population, would be in an acute food insecurity situation.

Hazards linked to climate change, such as uncertain rainfalls, have led experts to look into this issue. Consequently, irrigation and drainage have been presented under the heading «*Alternatives*» as a means to deal with the issue of water control.

Under the heading «*Testimony*» Mr. Bachir Diop, Managing Director of the Development Company and Textile Fibres (Sodefitex) and Chairman of the African Cotton Association (Aca), talks about the ups and downs of African cotton sector over the last ten years, a sector gripped by an unprecedented crisis.

Finally, «*Focus on ...*» makes a brief presentation of the Carthaginian's protocol. Defined as the reference legal framework in terms of exchange, transit and handling of genetically modified bodies; this protocol has been ratified since its signature in 2000 by more than a hundred UN member countries.

Enjoy your newsletter.

## CLIMATE CHANGE



**Is agriculture a solution to the greenhouse gas emissions?** p2

## AFAR 5<sup>th</sup> SCIENTIFIC WEEK

**African agricultural innovation at the centre of concerns** p3



## FOOD CRISIS

**A human tragedy at Niger's gates** p4



**Mr. BACHIR DIOP,**  
**SODEFITEX MANAGING DIRECTOR:**

**«Senegalese cotton is known around the world for the quality of its fibre »** pp7-8



## BEHIND THE SCENES

### CLIMATE CHANGE

# Is agriculture a solution to the greenhouse gas emissions?

*Although it belongs to human activities that emit the most greenhouse gas, agriculture can help fight efficiently global warming. At least, that is the opinion of a group of UN experts assigned to prepare long-term approaches to the mitigation of climate change.*

According to some United Nations' experts, « agriculture can be part of the solutions to climate change within the respect and support of development and food security criteria in developing countries. However, to achieve this potential, some discussions combined with systematic and targeted decisions [...] are required to clarify optional possibilities and the corresponding support. »

In the coming years, agriculture will be faced with the enormous challenge of feeding something like nine billion human beings by the year 2050. To achieve that, it will have to double its production compared to its current level. Therefore, that will imply more land and more crops, plus intensive cattle breeding and greater use of fossil fuels among other things. However, the world context is far from being favourable for that.

Nowadays, humanity is confronted with major natural disasters coupled with crises of various sorts which, according to most estimates, will go on increasing. This situation is caused by emission of greenhouse gas. According to a study done by Greenpeace, «*the overall contribution of the farming sector to the emission of greenhouse gas stands between 17 and 32% of world man-made emissions. These figures include direct emissions of Ghg from land-based activities, livestock, rice growing and indirect emissions from the use of fossil fuels; and from agrochemical production and conversion of non-cultivated lands to agriculture*».

Therefore, tackling environmental concerns while producing enough food seems to be the new challenges tomorrow's agriculture will be confronted with. However, considering the way farming is done under most production systems, agriculture cannot be the solution to climate change owing to the fact that it creates mostly additional environ-

mental problems. Therefore, the solution lies in the change of current farming practices. This will help solve current environmental problems, improve productivity and achieve food security.

Different farming practices can contribute to the mitigation of the impact of global warming: namely the elimination of open fallows practices, land rotation through the growing of leguminous plants, optimum use of nitrogenous fertilizers and phosphorus, manures and slurry. In the last case, choosing solid manures instead of liquid manures will help limit methane emissions. Reducing ploughing without using herbicide can also be one out of many solutions. There is also the restoration of organic soils drained to get arable lands and the restoration of degraded lands to increase the number of carbon wells. This will help fight against soil erosion and contribute to organic and nutrients inputs. The optimum management of pastures as well as the reduction of chemical inputs and eradication of crops that require their use will help fight undoubtedly global warming which is a real threat to crops.

In addition, a large scale plan could also include energy-efficient measures. In fact, the way agriculture is practiced today requires an abundant use of energy. That is the case with the manufacturing of energy-intensive fertilizers which represents about 1,2% of world Ghg emission. Just as with transport, refrigeration and farming machinery to name a few.

The measures that have been previously recommended should be associated with general energy saving measures and/or utilization of renewable



energies such as solar energy and biogaz. Some major obstacles remain even if several studies and experiences have demonstrated that it is possible to both increase the output of the lands and respect the environment. These impediments are as follows: absence of a political will, a lack of information, of technical assistance, access to fertilizers, appropriate inputs. Those obstacles are also connected to the financial cost of mitigation options which often discourage people.

Therefore, it is highly important to establish policies that promote and sustain, as well as encourage funding and investment so that agriculture can fulfill its potential in terms of global warming mitigation while boosting agricultural production especially, in Sub-Saharan Africa. ■

#### **DABA**

A Quarterly newsletter  
on agriculture and biotechnology.

Director of publication: **Moussa MBAYE**  
Coordonnator: **Mamadou Alimou BARRY**  
Redaction Team: **Mamadou Alimou BARRY - Abdoulaye KONE - Wédémi Karine Raïssa OUE-DRAOGO - Marina Isabelle G BAMBARA - Claire DUBROCA - Miriam KEITA - Moussa TALL**  
Layout: **Noma Camara**

#### **Contacts :**

**ENDA DIAPOL**, Sicap Sacré Coeur Transition 4,  
villa n° 8773 - B.P. : 7329 - Dakar - SENEGAL  
Tel. : (221) 33 825 36 20 -  
Fax : (221) 33 825 36 32 -  
E-mail : [agripol@endadiapol.org](mailto:agripol@endadiapol.org) -  
Web: <http://www.endadiapol.org>

AFAR 5<sup>th</sup> SCIENTIFIC WEEK

# African agricultural innovation at the centre of concerns

*When it comes to scientific progress, Africa lags behind, particularly in the field of new technologies. This phenomenon creates a loss of earnings for the agricultural sector. In order to reverse the trend, the African Forum for Farming Research (AFAR) organised, in Ouagadougou, Burkina Faso, from the 19<sup>th</sup> to the 24<sup>th</sup> of July, 2010 its fifth scientific week*



To enable agricultural research to make headway, in view of new challenges and opportunities of science, has been the objective of the African Forum for Agricultural Research (AFAR) which has lately organised its scientific week. The fifth of its kind, the meeting was held in Ouagadougou, Burkina Faso, from the 19<sup>th</sup> to the 24<sup>th</sup> of July, 2010 in the name of farming innovation.

More than eight hundred (800) participants comprising agricultural research managers, agricultural development experts, producers, researchers, scientific and development partners, agricultural NGO's as well as actors from the private sectors and policy makers attended the meeting. «*African farming innovation in a global changing environment*» was the central theme debated by the participants during a whole week. In order to better understand its different aspects, the following sub-themes were discussed as well: «*Investment in farming innovation*

*after the financial crisis*», «*Knowledge centres and networks to meet the globalisation challenges*», «*Climate change and adaptive capacities of African agricultural traders in relation to internal upheavals*». These topics which have been discussed through 14 parallel sessions made it possible to summarize the main challenges facing agricultural research in Africa. Besides plenary sessions, exhibitions and posting activities also took place during the conference.

### **The private sector invited to invest in agriculture**

During the sessions, actors from the private sector, whose role is important in terms of financing and research, have not been marginalized. Indeed, they have been invited to direct their investments towards agriculture. That is why the day devoted to Pddaa (Program for the development of agriculture in Africa) helped illustrate the role of the private sector in implementing the program for

a sustainable and extensive agriculture in Africa. However, it is important to notice that the initiatives from the private sector are often impeded by various constraints, namely administrative. Participants drew the attention of policy makers to the need of giving more opportunities to private actors for greater and better involvement in the execution of Pddaa. As far as the Ministers of Agriculture from Burkina Faso, Rwanda, Sierra Leone and the Minister of Research of Mozambique are concerned, they made a plea for private-public partnership in the field of agricultural research.

Before the next edition of the scientific week of the AFAR which has been scheduled for the year 2013 in Maghreb, the Ouagadougou edition helped participants to learn better about the challenges, opportunities and progress made in the field of African agricultural research. Hopefully, every actor will play its part. The development of agriculture in Africa is at that price.

# WHAT IS NEW IN AGRI-BUSINESS

## ● Cross-perspectives

### FOOD CRISIS

## A human tragedy at Niger's gates

*Since the beginning of the year 2010, Niger has been experiencing its worst food crisis ever. About seven million Nigerians suffer from hunger and nearly 370.000 children under five are malnourished. This situation is the result of the disastrous 2009/2010 agricultural season.*



**N**iger is in a state of emergency. About seven million people, namely half its population, including close to 370.000 children under five are suffering from hunger. This is the result of the severe food crisis raging in the country since the beginning of the year. Despite the mobilisation of the international community, the country has been struggling to solve this problem.

Niger's current situation is mainly due to the disastrous results of its 2009/2010 agricultural season which have been caused by insufficient and irregular rainfall. The latter have led

to a 30% drop in cereal production and nearly 70% concerning the production of fodder for cattle. Furthermore, pests' invasions, illnesses and population boom have led to higher prices of foodstuffs. Dire poverty of the populations, severe lack of foodstuffs and impoverished pastures should also be mentioned. Large-scale migrations are being also witnessed. Today, they are about 500.000 Nigerian who go into neighbouring countries looking for temporary jobs.

This on-going food crisis is likely to increase the number of its victims

if help is not increased. Already in 2005, the lack of food stocks had led to a starvation resulting in the death of more than 100.000 people. Currently, the majority of the population lives in a state of utter destitution. Weakened by drought, livestock are being sold at a give away price to buy food; this costs a lot due to inflation. The system of free public health no longer cares for children, thus condemning thousands of them, malnourished, to certain death for lack of care.

To make matters worse, torrential rains over the last few weeks have

## WHAT IS NEW IN AGRI-BUSINESS



devastated the Agadez region leaving many families homeless.

### Emergency measures

Unlike the 2005 crisis, Nigerian authorities have called for international aid in order to be able to rescue the populations. At the local level, cereals sales at moderate prices have been undertaken for the most vulnerable people. Also, the free distribution of food supplies has made it possible to significantly ease the crisis in the rural areas. Despite the arrival of the first food supplies, the situation is still alarming. As far as it is concerned, the Niger Food Organization (Nfo) is doing its best to send food to different areas hit by food insecurity. Technical and financial partners are called on to intervene on the ground in order to curb this crisis.

International aid is coming in even if it is to be well-organised and directed towards the most vulnerable people. Preceding experiences have allowed the establishment of monitoring and answering mechanisms, thus making it possible to better coordinate aid. United Nations' humanitarian agencies, the Red Cross and Non-Governmental Organisation, are providing emergency relief specially, for women and malnourished children. Nevertheless, funding remains inadequate. According to the United Nations, out of the required 348 million US dollars there is a shortfall of 206 millions. According to Caritas Niger, the country has only received 47.000 tons of food aid out of the 85.000 pledged by the international community.

Food insecurity is a situation where malnutrition, reduction of the capacity to produce foods or generate revenues as well as the increase

in predisposition for sickness are noticed. Generally, it is due to timely or structural causes. The food crisis in Niger has an effect on many countries in the Sahelian areas. Ten million people suffer from it. According to the United Nations Food and Agriculture Organization (Fao) 465.000 people in Burkina Faso, 600.000 in Mali, 370.000 in Mauritania and dozens of thousand in Northern Nigeria are affected by the crisis.

After a thirty years' struggle, Niger is yet to find a coherent strategy to get out of the vicious circle of food insecurity. The solution would reside, undoubtedly, in the involvement of all actors, namely, through the combination of all efforts made by the Nigerian State, sub-regional integration bodies and technical as well as financial partners geared to the planning of actions that need to be implemented in order to get out of this chronic food insecurity. ■

# WHAT IS NEW IN AGRI-BUSINESS

## ● Alternatives

### BOOSTING AGRICULTURAL PRODUCTION IN AFRICA

## Water control imperative through irrigation and drainage

*Chronic droughts in certain areas while others are flooded result from the unequalled spatiotemporal distribution of water resources. This situation is detrimental to the development of an intensive farming production on the African continent. To remedy it, control of water becomes a prerequisite.*

The climate change affecting agriculture resulting in an excess and/or a lack of rainfall has become an urgent issue for the control of water. Hence, irrigation and drainage are advocated to stabilise crops and improve yields.

Irrigation is an operation in which water is brought artificially to plants in order to increase their yield. As for drainage, it enables the draining off of water through ditches or drains. These two methods are required whenever there is a lack or excess of water. Several irrigation techniques can be identified. Manual irrigation is done with a watering can, a bucket or any other container. It is practised on a small surface area. But, its disadvantage is the fact that it requires a great deal of water, most of it being lost to evaporation. On the contrary, micro-irrigation, also called dripping system, is a more economical technique since it prevents water running off. But it can only be used for crops standing in line like market gardening and fruit growing. Besides, it calls for the use of filtered water in order not to obstruct irrigation channels. This technique consists in channelling low-pressured water as far down as plant's roots. Dripping takes place on the surface or underground, thanks to small pipes that are put on the ground or buried.

As far as irrigation through spraying is concerned, it is a



method that utilizes buried pipes, where water runs under high pressure. Mobile pipes, linked to these channels, water the plots as would rain, sending water under pressure above plants.

The major drawback of micro-irrigation and irrigation through spraying is the fact that either one of these techniques require costly infrastructure, thus creating a problem of accessibility for African farmers.

Water control requires as well the control of drainage. This consists in evacuating the surplus water from plots through ditches. In fact, an excessive humidity creates change to the physical-chemical characteristic of soil through unstable organic structures, particles desegregation and a lack of oxygen among other things. This makes farming works difficult because it

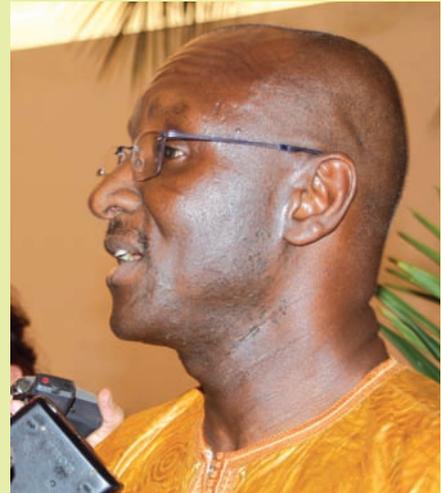
causes the formation of big and compact clods of earth which limits the feeding and growth of the plants. The ditches dug inside the soil in order to evacuate surplus of water are then a solution. As for irrigation, putting in place a drainage system is also costly and sometimes lies beyond the reach of most African producers.

Owing to the recent food crisis, the combined efforts from both sides, aim at intensifying agricultural production in Africa. However, due to the bad effects of climate change which are badly felt on the continent, these initiatives may be annihilated if adaptation strategies are not found. Somehow, drainage and irrigation, combined with other better farming practices, can constitute the base for an intensive and sustainable agriculture in Africa. ■

**Mr. BACHIR DIOP, SODEFITEX MANAGING DIRECTOR:**

## «Senegalese cotton is known around the world for the quality of its fibre »

*As an agronomist-economist, Mr. Bachir Diop has held various positions since he has been recruited by Sodefitex. From 1983 to 1997, he has been successively: Department Manager, head of the follow-up-evaluation Department, Deputy Technical Director and Coordinator of the Rural Development Project in Eastern Senegal; Agronomic Technical Director as well as Rural Development Director. Between 1997 and 2000, he was selected to manage a Pilot Project financed by the International Fund for Agricultural Development, (Fida), the Project for the Promotion of Rural Small Scale Enterprises that aims to expand non-agricultural activities in rural areas, before leaving Sodefitex. In 2000, due to a political change of power, he was called back at the helm of Sodefitex with the special mission of improving the performance of a company that was facing its worst crisis ever. Thus, DABA is interviewing in this edition a man whose passion for rural development issues is unquestionable (by the way he presides over the think tank «Ipar» which is a «Rural and Agricultural Prospective Initiative».*



**DABA: The African cotton sector has been going through a crisis since 2000. What are its impacts in Senegal?**

**M. Bachir Diop:** From 1998 to 2000, the Senegalese cotton sector had, if I may say so, «hit the bottom» with the worst results it had ever achieved during the course of its history: 11 600 tons, 14 600 tons of seed cotton. Suddenly, agronomical yields have dropped (200 and 682/ha) because of the invasion of a dangerous pest that bites and sucks, Bemisia tabaci, the “white fly”. Cotton farmers’ income dropped dramatically and agricultural credit’s system was frozen for producers were unable to pay back their loans. Luckily, between 2000 and 2007, the production had more than tripled thanks to the establishment and setting-up of a strategic plan which enabled 50 000 Senegalese cotton growers acting in common along with the wage earners of Sodefitex to mobilise and form an association, the FNPC. Yields were doubled and the Senegalese cotton fibre’s good reputation was restored. But in 2008, things changed because of a very poor rainfall which drastically undercut cotton growers’ income. After seven agricultural seasons marked by increased growth, the Senegalese cotton sector has been subjected to a severe crisis resulting from low world cotton rates and a rise in the prices of agricultural inputs leading to a total collapse of African cotton production.

**What are the causes of the uncertain evolution of Senegalese cotton production which, up to now, cannot exceed the 50.000 tons of seed cotton?**

The evolution of surfaces and production in Senegal are determined mainly by weather conditions, change to producers’ prices and

related prices; inputs cost and incentive policies from the State. In fact, to be attractive the cotton sector must imperatively offer comparative and tangible advantages for cotton growers. It is an endless fight for ever better results which requires a perfect organisation of the sector, competitive technical options, disseminated through a wide-ranging and appropriate operational supervisory system. Senegal will never be a major cotton country. Nevertheless, it can produce a fibre of a high quality, offers good prices to cotton growers, and make full use of its ginning facilities, and create a wealth that is fairly distributed between farmers, shareholders and the State while investing to develop the sector. It is thanks to all of this that the actors’ strategy is a sound one. Hence, the ISO 9001 certification obtained by our company five years ago has allowed us to develop an equitable (L8, F8) cotton brand. So, Senegalese cotton is known around the world for the quality of its fibre.

**What are the measures initiated to revive cotton cultivation in the different production centres, namely in the South-East of the country?**

Following the successive poor performances of the last three years, the 2 400 cotton producers’ associations of Senegal and more than 120 technicians from Sodefitex have, during two months, through several assessment meetings attended by 24 000 cotton growers, made a thorough analysis of the problems confronting the cotton sector’s and worked out guidelines to boost production. At the end of this process, the plan to boost cotton production, which aims to reach within three years its fullest industrial potential, (65 000

T), has been adopted by all actors of the cotton sector. In order to reach this objective, the actors have agreed to boost production in a sustainable way by improving and protecting producers’ income. This, by restoring good agronomical yields, controlling cotton growers’ debt and internal outstanding payments of cotton producers associations, as well as the total eradication of inputs trafficking and misappropriation. The plan which was validated during the 29 May conference, held in Missirah in Tambacounda, and chaired by the Minister of Agriculture, include three main axes: First of all, by investing again in human resources development, farmers, professional organisations representatives, village technical relays and Sodefitex agricultural supervisors. Next, by expanding staffing and logistical means, to better supervise cotton growers and finally by adopting the technical options proposed under the new situation and by seeing to their adoption.

**What is your association’s contribution in promoting cotton growing in Africa?**

The African Cotton Association (Aca) which includes cotton companies and their associates was created on the eve of the WTO meeting in Cancun, a meeting where the issue of cotton grants was high on the agenda. It played a big role with C4 States to promote, within the WTO and around the world the need for a more equitable market and a fair application of the rules. Concentrated in the beginning in West Africa and in the Centre, our Association is now established in all the regions of the continent; and the number of

# WHAT IS NEW IN AGRI-BUSINESS

full members went from six in 2002 to 26 in 2009. It makes its voice heard in international forums to defend African cotton. It engages in actions that improve the quality of African cotton. Its annual conferences have become a major event on the world cotton agenda. Our association is working out a strategic plan for the 2011-2016's period to adjust to changes occurring around the world. We have also started networking our various experts within technical commissions which enables information exchange between different cotton companies of the continent; dissemination of good practices and the creation of unifying regional project.

In addition, the Aca participates in designing and evaluating agricultural policies assessment in various African sub-regions. Furthermore, our organisation has decided to expand in order to include various regional economic communities through the Au in order to participate more efficiently in the definition of policies.

## **Some African countries have adopted Gmo while others are considering such a possibility. Do you think Gmo can provide a means to boost cotton production in Africa?**

Our association is made of 26 full members working in different contexts with specific directives and options. Each one of them has its own options. But our association offers to its members a unique service: to give them all available information so that they can choose knowingly. Thus, five years ago, during ACA's third annual conference in Ouagadougou, some presentations of a very high scientific standard were made, which have been of great help to our members. In a few weeks time, we will cooperate with our sister association Afcot to hold another seminar in order to enrich and deepen our knowledge on the bases of lessons learnt from our colleagues and friends from Burkina Faso who are the leaders in the field. All things considered, Gmc are part of the range of tools offered by science to the cotton sectors in order to improve their competitiveness. But everything must be put into perspective. As long as the issue of organising the sectors and of managing the question of mutual liability is concerned, plus the issue of access and adequate use of inputs are not settled, such innovations will not yield all their potential. To end with, I would say that the increase in cotton rates after more than five long years of crisis will sustain the recovery of the sectors. Therefore, we have to make the most of it.

**The current issue of the newsletter has been achieved with the support of:**



## FOCUS ON...

### THE CARTHAGINIAN'S PROTOCOL

## A tool for biotechnological risks' prevention

*In order to set up rules and standards for the handling, transportation, utilization and exchange between countries of genetically modified bodies, the international community, under the leadership of the United Nations, has established the Carthaginian's protocol. Adopted on January the 19<sup>th</sup>, 2000, in Montreal, Canada, it came into force in September 2003.*

The aim behind the creation of the Carthaginian's protocol is to regulate genetically modified bodies, (Gmb), since their inception. As the first of its kind, this tool sets up a legal framework for the protection, conservation and utilization of biodiversity. This, while taking into account the uncertainties and fears relating to Gmb, specially in the field of human health.

The Carthaginian's protocol draws mainly on the Convention on Biological Diversity (Cbd) dated June the 05<sup>th</sup>, 1992 and adopted during the United Nations' Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil. In its article 19.3, the Cdb stipulates that « *the Parties shall try to see, if it is necessary to take measures and define methods, possibly in the form of a protocol, including namely a preliminary agreement given with full knowledge of the facts, defining appropriate procedures in the field of transfer, of handling and utilization in complete safety of any live modified body, resulting from biotechnology, that could have negative effects on the conservation and sustainable utilization of biological diversity*».

Through 40 articles and appendices, the Carthaginian's protocol sets up the rules and standards relating to the handling, transportation, utilization and exchange of Gmo between countries. It is based mainly on two principles, namely: the compendium of the prior agreement from the importing country and an early information procedure.

In fact, the import of an Gmo intended to be disseminated intentionally in the environment will depend on a notification and prior consent from the im-

porting State. This measure is particularly important for the countries, specially the developing countries, to get prior information necessary for enlightened decision-taking. This will guarantee the same sovereign rights to all countries.

As far as an early information procedure is concerned, it will apply to the Ogm intended to be used directly to feed humans and animals, without being disseminated into the environment of the importing country. This useful initial information on the use of Gmo which must be supplied to each country through the information exchange mechanism of the protocol will enable each importing country to prepare itself for a possible request, within the framework of its national legislation, aiming to introduce this Gmo into the country. Beyond the precaution mentioned above, the protocol provides also the setting up of an information system. It is an Exchange Centre for the prevention of biotechnological risks whose mission is to gather and disseminate any information likely to enlighten potential users of Gmo in terms of risks that are inherent in their adoption.

Defined as a binding instrument of international law, the Carthaginian's protocol on the prevention of biotechnological risks, known as «Biodiversity Protocol» was adopted on January 29, 2000 in Montreal. To this date, 147 countries from the five continents have ratified it, since it came into in September 2003. It is the result of a five-year long process of hard bargaining between various countries around the world under the auspices of the United Nations. ■