



**Food and Agriculture  
Organization of the  
United Nations**



**The International Treaty**  
**ON PLANT GENETIC RESOURCES  
FOR FOOD AND AGRICULTURE**

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**INTERNATIONAL TREATY ON PLANT GENETIC RESOURCES  
FOR FOOD AND AGRICULTURE**

**SIXTH MEETING OF THE AD HOC TECHNICAL COMMITTEE ON  
CONSERVATION AND SUSTAINABLE USE OF PLANT GENETIC  
RESOURCES FOR FOOD AND AGRICULTURE**

**22 – 23 FEBRUARY 2022**

**BOTTLENECKS AND CHALLENGES TO THE IMPLEMENTATION OF  
THE ARTICLE 5 AND 6 OF THE INTERNATIONAL TREATY**

**I. INTRODUCTION**

1. The Governing Body has recognized the pivotal role of conservation and sustainable use of plant genetic resources for food and agriculture (PGRFA) in addressing global challenges, including biodiversity loss, climate change adaptation, poverty alleviation, and food security, especially for smallholder and subsistence farmers. The implementation of Articles 5 and 6 of the International Treaty is a standing item on the agenda of the Governing Body of the International Treaty. At its Eighth Session the Governing Body reaffirmed the key role of the conservation and sustainable use of PGRFA, and decided to expand the scope of the tasks of the Ad Hoc Technical Committee on Sustainable Use of PGRFA (ACSU or Committee) to include Conservation under Article 6.

2. Among the tasks assigned to it by the Governing Body, the Committee was requested to “recommend further steps on how the Governing Body can assist Contracting Parties in advancing the implementation of Articles 5 and 6 of the International Treaty for consideration of the Governing Body at its Ninth Session”.

3. At the 5th meeting of the Committee in October 2021, the Committee agreed to focus on the possible immediate further steps set out in section V of the document, IT/GB-9/ACSU-5/21/5,<sup>1</sup> particularly (i) activities for strengthening and capitalising on ongoing initiatives to increase their benefit, impact and visibility; and (ii) possible new activities to further support Contracting Parties and stakeholders in the implementation of Articles 5 and 6 of the International Treaty.

4. In discussing the range of possible new activities and areas for future work to further support Contracting Parties and stakeholders in the implementation of Articles 5 and 6 of the International Treaty, and taking into account the possible new initiatives listed in paragraph 20 of the document, IT/GB-9/ACSU-5/21/5, the Committee highlighted the opportunity to develop country/region-specific studies to address the poor implementation of Articles 5 and 6 for further consideration. The Committee expressed strong interest in the possibility to develop, as an additional initiative, tailored intra- and inter-region based activities of knowledge exchange and practical/technical experience based on the diverse topics mentioned in paragraph 20 of the document, IT/GB-

<sup>1</sup> IT/GB-9/ACSU-5/21/5, *Future Work on Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture*, available at: <https://www.fao.org/3/cb7017en/cb7017en.pdf>

9/ACSU-5/21/5, in order to identify the bottlenecks to the implementation of Articles 5 and 6, with particular emphasis on access to PGRFA, including seeds, and give examples of how to proceed and identify opportunities of improvement and collaboration to address the identified bottlenecks.

5. In response to the need expressed by the Committee to develop country/region-specific studies to assist in identifying opportunities to address the poor implementation of Articles 5 and 6, the Secretariat commenced the preliminary process for developing the study on the bottlenecks and challenges to the implementation of Articles 5 and 6.

## **II. THE DRAFT STUDY ON THE BOTTLENECKS AND CHALLENGES TO THE IMPLEMENTATION OF ARTICLES 5 AND 6 OF THE INTERNATIONAL TREATY**

### *Methodology*

6. The primary sources of information for the data analysis are the National Reports on the implementation of the International Treaty that were submitted by Contracting Parties in accordance with the Compliance procedures of the International Treaty. Since May 2016, the Secretariat of the International Treaty has received a total of 79 national reports. Of these, 19 were received from the Africa Region, 21 from the European Region, 14 from the Latin America and the Caribbean Region, 11 from the Asia Region, 2 from the North America Region, 8 from the Near East Region and 4 from the South West Pacific Region.<sup>2</sup>

7. Other sources will include:

- the outcomes of the regional webinars on the Benefit-sharing Fund, Farmers' Rights and Conservation and Sustainable Use of PGRFA organized by the Secretariat in all regions in early 2022:

- (i) Africa, 25 January 2022;
- (ii) Asia and Southwest Pacific, 26 January 2022;
- (iii) Latin America and the Caribbean, 27 January 2022;
- (iv) Near East and North Africa, 28 January 2022;
- (v) Europe, 2 February 2022;
- (vi) North America, 3 February 2022.

- the outcomes of the three regional training workshops on conservation and sustainable use of PGRFA and Farmers' Rights organized by the Secretariat in the following regions in 2019:

- (i) Asia Region, held in Manila, Philippines, from 5 to 8 March 2019;
- (ii) Africa Region, held in Dakar, Senegal, from 29 July to 1 August 2019;
- (iii) Latin America and the Caribbean, held in Montevideo, Uruguay, from 5 to 8 August 2019.

- the results of the global survey conducted in 2016 by the Secretariat of the Treaty to gather the views and needs of PGRFA stakeholders, to which 79 countries contributed, including:

- (i) 14 countries from Africa;
- (ii) 21 countries from Asia and Southwest Pacific;
- (iii) 29 countries from Europe;
- (iv) 6 countries from Latin America and the Caribbean;
- (v) 7 countries from Near East;
- (vi) 2 countries from North America;

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<sup>2</sup> The basis used for the classification of the countries in the region groupings is the list of Contracting Parties on the Treaty website: <https://www.fao.org/plant-treaty/countries/membership/en/>

- previous documents, studies and any other relevant sources of information, including the national reports to the Convention on Biological Diversity, academic papers and other documents whenever available and relevant.

### *Objective of the study*

8. The study aims to identify the bottlenecks and challenges to the implementation of Articles 5 and 6 of the International Treaty. Ultimately, the purpose is to identify opportunities of improvement and collaboration to address the identified bottlenecks, and to provide the Governing Body with inputs to assist it in making informed decisions on how it can support Contracting Parties in advancing the implementation of Articles 5 and 6 of the International Treaty.

### **III. STATUS**

9. All 79 national reports on the implementation of the Treaty submitted to the Secretariat so far have been analysed as well as the outcomes of the three regional training workshops on conservation and sustainable use of PGRFA and Farmers' Rights organized by the Secretariat in 2019. Some of the bottlenecks and challenges to the implementation of Articles 5 and 6 that were identified on the basis of the national reports and the regional training workshops have been presented and discussed during the regional webinars in early 2022. The regional webinars have further allowed to gather additional comments and inputs from the participants.

### **IV. OBSERVATIONS FROM PRELIMINARY ANALYSIS**

10. Initial observations from the preliminary analysis show a great diversity among and within the regions in terms of gaps, bottlenecks and challenges in the conservation and sustainable use of PGRFA.

11. The preliminary analysis of the bottlenecks and challenges by region is provided in Annex I. It is based on the available data taken from the national reports on the implementation of the International Treaty received from the Contracting Parties and edited from May 2016 to present. Generally speaking, all regions have reported that the main drivers of PGRFA loss and erosion are climate change and other environmental issues; biotic and abiotic stress; unsustainable agricultural practices; the introduction of high yielding crop varieties; changes in agricultural practices and land use; pest and diseases; the introduction of exotic species; the promotion of crops/varieties with commercial value and the lack of adequate enabling market mechanisms; and habitat degradation, among others. In addition, three types of bottlenecks could be identified across the regions that are of greater or lesser significance depending on the regions and the countries. Keeping in mind that there is a great variety among the countries within the regions in terms of needs and challenges, the main types of bottlenecks identified so far are:

- policy, legal and institutional issues;
- scientific and technical issues;
- operational and resource constraints.

12. Graphs showing the gaps for conservation and sustainable use of PGRFA by region are provided in Annex II. They show that gaps in sustainable use of PGRFA are usually greater than for conservation of PGRFA except for the Africa region where there are, more or less, equal levels of challenges in both conservation and sustainable use of PGRFA.

### **V. NEXT STEPS**

13. The preliminary results will be consolidated and further improved and enriched through the analysis of additional data from the other sources of information, including other country reports to

FAO; the results of the regional webinars on the Benefit-sharing Fund, Farmers' Rights and Conservation and Sustainable Use of PGRFA organized by the Secretariat in all regions in early 2022; the results of the global survey conducted in 2016 by the Secretariat of the Treaty to gather the views and needs of PGRFA stakeholders; and previous documents, studies and any other relevant sources of information, including the national reports to the Convention on Biological Diversity, academic papers and GEF documents whenever available and relevant.

14. The study will be presented as an information document to the Governing Body at its Ninth Session.

## **VI. GUIDANCE SOUGHT**

15. The Committee is invited to take note of the preliminary analysis and the process of the preparation of the study on the Bottlenecks and Challenges to the implementation of articles 5 and 6 of the International Treaty, and provide any additional advice and guidance for its finalization.

## PRELIMINARY ANALYSIS IN TERMS OF GAPS, BOTTLENECKS AND CHALLENGES BY REGION IN CONSERVATION AND SUSTAINABLE USE OF PGRFA

Initial observations from the preliminary analysis show a great diversity among and within the regions in terms of gaps, bottlenecks and challenges in the conservation and sustainable use of PGRFA. The analysis is based on the available data taken from the country reports on the implementation of the International Treaty received from the Contracting Parties and edited from May 2016 to present. It should be noted that the final report will not make reference to any specific country.

### I. POLICY, LEGAL AND INSTITUTIONAL ISSUES

**In Africa**, some countries have stressed that the lack of policies specifically dedicated to PGRFA remains a major factor constraining the prioritization of PGRFA conservation programmes. Implementation issues were pointed out by half of the reporting countries from this region. A number of countries have also expressed the need for a better domestication of the International Treaty at the national level but have pointed out the lack of legal understanding and qualified human resources, especially in legal aspects. Several countries have reported that they have not done any integration of PGRFA conservation and sustainable use into any broader programme or policy; that it has not been done adequately; or that it is not being implemented. In this region, many countries have stressed that the lack of awareness of the importance of PGRFA for food security and of the challenges posed by threats to PGRFA is a serious concern as well as the lack of understanding of the provisions of the International Treaty among stakeholders, national focal points, policy-makers and smallholder farmers.

**In Asia**, most countries have adopted laws, regulation procedures or policies for PGRFA, including for plant variety protection, seed protection, fauna and flora conservation and protection, protection of indigenous people's rights, among others. However, a few countries have reported that they do not have a specific legislation in place to implement the International Treaty and some countries do not have a policy specifically dedicated to PGRFA. A few countries have articulated the need for legal support and expertise to develop national legislation and strategies pertaining to the conservation and sustainable use of PGRFA. Further, some countries report that they have not promoted an integrated approach to the exploration, conservation and sustainable use of PGRFA and that the conservation and sustainable use of PGRFA is not integrated into the country's agriculture and rural development programmes and policies, or its integration is done partly only, for instance only for the conservation aspect. In some countries, a national programme or strategy in all or some aspects of conservation and sustainable use is lacking; for instance, a country mentioned the lack of a national plan to survey and inventory PGRFA. Difficulties in coordinating large programmes involving many stakeholders from various sectors (agriculture, forestry, commerce, industry) were also mentioned. An important issue raised by many countries is the lack of awareness on the importance of PGRFA and the International Treaty. Some countries have specifically mentioned the difficulties to convince policy-makers at the governmental level to commit to the implementation of the Treaty. According to one country, these difficulties relate to the fact that there are no direct benefits to the provider institutions and their network of institutions involved in maintaining and providing PGRFA. Finally, one country has pointed out that *ex situ* conservation of PGRFA is limited to institutional initiatives and are project-based only, which is an important factor limiting the sustainable conservation of *ex situ* collections.

**In Europe**, the very high majority of countries have reported to have a legislation in place to implement the International Treaty and to promote an integrated approach to the exploration,

conservation and sustainable use of PGRFA. However, two countries have mentioned specific gaps in the national legislation to support *in situ* conservation of crop wild relatives and heritage cultivars. Most countries have reported to have integrated the conservation and sustainable use of PGRFA into the country's agriculture and rural development programmes and policies either fully or partially, but three countries have not done so. A few countries have reported a lack of a national programme or strategy in some aspects of conservation and sustainable use of PGRFA. For instance, in one country, the Strategy on Biological Diversity does not provide for specific objectives for *in situ* conservation of PGRFA. As a result, *in situ* conservation of PGRFA in protected areas, in particular crop wild relatives, has been carried out through passive protection only. In another country, although the national program has started to document PGRFA in *in situ* condition, conservation and sustainable use are not yet fully integrated into the general conservation strategy. Further, in this country, whereas one of the most important forage crops are partly based on old cultivars, no formal "On Farm" conservation system has been established so far. In another country, although there is increased information about the situation of the erosion of PGRFA, there is currently no system, mechanism or strategy at the national level to evaluate in a systematic way the factors that contribute to the genetic erosion of PGRFA at different levels and facilitate the identification of the corrective measures. In that country, there is currently no national strategy to support the inventory of PGRFA. The lack of inter-institutional and inter-sectoral coordination between government agencies sharing responsibility (Agriculture/Environment) was pointed out by a number of countries. Finally, a few countries have reported a lack of awareness on the importance of conservation and sustainable use of PGRFA among policymakers, farmers and the general population.

In **Latin America and the Caribbean**, most countries have reported to have a legislation in place to implement the International Treaty. However, a number of countries do not have a specific legislation in place for that purpose and, in some countries, the legislative framework and policies in place are not adequate or need updating. In that respect, a country clearly stressed that the lack of enabling and updated legislation for PGRFA in general, and in support of germplasm evaluation and plant breeding activities in particular, is the main factor hindering the sustainable use of PGRFA. Enforcement issues were also reported. For instance, in one country, although the systematic registration of new varieties is provided for by the Seeds Act, this has not been fully enforced yet. The lack of legal understanding and expertise was highlighted more particularly in relation to the fact that the focal points to the Treaty are usually technicians involved in bioprospecting, collection, conservation and characterization of PGRFA who have no legal knowledge, hence the need to provide them with adequate legal training. A number of countries reported that they have not promoted an integrated approach to the exploration, conservation and sustainable use of PGRFA and that the conservation and sustainable use of PGRFA is not integrated into the country's agriculture and rural development programmes and policies, or its integration is done partly, for instance for the conservation aspect only. Besides, some countries mentioned the lack of an efficient national programme/strategy in all or some aspects of conservation and sustainable use. For instance, in one country, there is no policy to preserve microorganisms for agricultural use. In another country, the national genebank has not managed to implement a sustainable strategy focused on on-farm conservation and does not have a programme dedicated to plant breeding. As a result, no release of a new variety has been officially documented for more than two decades. Another legal and institutional issue raised in the national reports is the difficulty to ensure synergy and coherence among the ITPGRFA, the Convention on Biological Diversity and UPOV when developing the relevant national legislation. Besides, the lack of inter-institutional and inter-sectoral coordination has been pointed out by a number of countries. In one country, this lack of coordination is reflected in the lack of integration or compatibility among the different existing information systems on *in situ* conservation from various institutions. Finally, a few countries have reported a lack of awareness on the importance of conservation and sustainable use of PGRFA

among policymakers, farmers and the general population. One country has specifically mentioned the lack of political willingness to support the implementation of the Treaty.

**In Near East**, only half of the reporting countries have reported to have a legislation in place to implement the International Treaty. The other countries do not have a specific legislation in place to implement the International Treaty, however they have adopted other laws, regulation procedures or policies for PGRFA. Yet the need for better policies was articulated. For instance, in one country, one of the factors explaining the complete absence of *in situ* conservation activity is the lack of clear policy at the national level for the conservation of PGRFA. Besides, the lack of legal expertise can be a challenge for some countries. Half of the reporting countries have integrated the conservation and sustainable use of PGRFA into the country's agriculture and rural development programmes and policies. For the other countries, there has been no integration of any PGRFA related activity into any broader programme and policy or such integration of PGRFA related activity has been done partially only. For instance, in one country, some integration efforts were made for conservation, exploration, collection and documentation of some PGRFA, but not on sustainable use. Finally, the lack of awareness was a serious concern for one country.

**In North America**, no bottleneck or challenge was reported.

## II. SCIENTIFIC AND TECHNICAL ISSUES

**In Africa**, there is a lack of access to recent technologies for information management in general and a lack of characterization and germplasm processing tools in particular. In this regard, one country has expressed the need for further molecular characterization and field trials to ensure the sustainable *ex situ* conservation of PGRFA. Some countries have also specifically mentioned the lack of reliable data and information. The lack of scientific interest and activities in farmers' varieties, traditional crops and neglected species also poses a major challenge in some countries.

**In Asia and Southwest Pacific**, some countries have stressed the lack of activities in specific types of crops and varieties, including crop wild relatives, non-economic and minor crops. For instance, in one country, efforts to identify and conserve crop wild relatives are only at a nascent stage while in another country, low priority is given to threat assessment of crop wild relatives and there is a lack of taxonomic expertise particularly in crop wild relative germplasm collection.

Another country indicated that conservation activities of the gene bank and research institutions were mainly focused on major crop plants and that there was minimal research on minor crops. The fact that, as reported by one country, only very few studies have tried to promote the concept of *in situ* conservation of PGRFA and that conservation efforts have been very scarce and localized, for instance on wild banana species, is another challenge. Additionally, although almost all countries from the region have reported monitoring the maintenance of the viability, degree of variation, and the genetic integrity of *ex situ* collections of PGRFA, technical difficulties associated with the maintenance of genetic diversity, especially in vegetative plant propagation, and with access to, and use of, molecular tools, were noted. Besides, in one country, the role of the formal education system and teaching in agriculture in promoting modern varieties and technologies was clearly emphasized as a factor contributing to the general lack of awareness and understanding of the importance of traditional crops. Finally, one country explained that the main objective of domestic conservation and use of PGRFA has been to adapt crops to environmental and climatic conditions, rather than supporting on-farm genetic diversity.

**In Europe**, more than 20% of the reporting countries have declared that the information and data available are not exhaustive or not publicly available. This may relate, for instance, to the incompleteness of information on the status of PGRFA both within and outside protected natural areas; the lack of systematic inventorying of wild relatives of cereals; the incompleteness of

information about, and the lack of identification of, unique accessions; the fact that no national inventory of *ex situ* collections of PGRFA has been made publicly available; the incompleteness of the characterization and evaluation of the national collection; or the lack of systematic prior declaration, which contributes to explain why the information and data available are not comprehensive, in particular regarding the inventories carried out *in situ*. Another challenge cited by one country is the lack of integrated national information system on germplasm holdings. In this country, there is a need to set up a comprehensive web-accessible or integrated national information system for PGRFA to facilitate access to PGRFA accessions. Another country has pointed out that some crop species do not have an identified collection of PGRFA. For other collections, their sustainability is not guaranteed because their management is supported by a single entity only. After the end of research or breeding programs or upon the retirement of the manager, some cultivated species no longer have a known maintainer and/or actors involved in their conservation. These species are considered as "orphan" species and their sustainability is not guaranteed.

In **Latin America and the Caribbean**, some countries have reported a lack of scientific interest and activities in specific types of crops, species and varieties, for instance with regard:

- lowland germplasm: in one country, lowland germplasm, which by nature requires conservation actions in the field or in laboratories, has not received the same attention as upland species.
- crop wild relatives and wild plant species: one country reports that there have been few initiatives only to research, inventory and identify PGRFA in *in situ* condition to date and no research has been conducted on areas of high concentration of genetic diversity for these materials.
- Edible wild plants and underutilized species: in one country, only few studies have been conducted at the national level on the nutritional value of edible wild plants and underutilized species which are part of the gastronomic heritage but have no commercial value for many of them.
- Genetic erosion: one country has reported that no formal study on the state of genetic erosion of PGRFA has been carried out so far.

The lack of information and data and that of a centralised and integrated information system present additional challenges. In some countries, the data and information on wild relatives and edible wild plants, farmers' varieties or native varieties are very limited and scattered since they have not been documented in a systematic way and the information is therefore not available in a centralized national database. A country has reported that there are significant weaknesses in the form and frequency of records. Despite the collaboration of university research centres, agricultural companies and public entities, there is a lack of data and information about losses of materials and about the state of those materials that are conserved *ex situ*. As a consequence, the needs in terms of duplication, regeneration and harvest have not been identified in a comprehensive manner. In this country, while many research case studies have provided very valuable information, this information has not been centralized in a common database and has not been classified by crop, native varieties and their distribution by zones. The institutions have different information systems on *in situ* conservation, but there is no integration or compatibility among them. Besides, the high level of genetic erosion in *ex situ* collections can be a serious concern. In one country, the level of erosion of *ex situ* collections exceeds 30% due to the lack of financial and human resources for regeneration activities to take place. Genetic integrity is generally maintained but advanced means such as DNA markers are not available and the monitoring of the maintenance of genetic integrity is done by using agro-morphological markers only. This points to the need for greater agro-morphological characterization that was mentioned by a few countries. For instance, in one country, the phenotypic evaluation and agronomic characterization of maize and beans have been carried out but not their genetic evaluation due to the lack of financial resources. Agro-morphological characterization activities are limited to food security crops, in particular maize and beans. Besides, there is a lack of characterization and evaluation for those crops that are not included within the



improvement programs because they have little commercial value. In relation to this, the lack of access to molecular tools and DNA markers was mentioned by a number of countries.

**In Near East**, among the technical issues cited by some countries are the lack of a mechanism to assess and monitor genetic erosion on a regular basis and the lack of a crop-targeted threat assessment. Besides, if all reporting countries have established *ex situ* collections of PGRFA and almost all reporting countries monitor the maintenance of the viability, degree of variation, and the genetic integrity of *ex situ* collections of PGRFA, difficulties remain. For instance, one national report notes that there has been almost no regeneration of *ex situ* accessions in the country and that only two limited activities were carried out for multiplication and germination test. In another country, monitoring is done on irregular basis within intervals that exceed ten years. For one country, there is a need for regional and international support to perform regenerations for self- and cross-pollinated and vegetatively propagated crops according to international standards. The lack of access to molecular tools and advanced technologies is also a challenge for a few countries.

**In North America**, no bottleneck or challenge was reported.

### III. OPERATIONAL AND RESOURCE CONSTRAINTS

**In Africa**, operational constraints include the lack of electricity that leads to the loss of germplasm in *ex situ* collections; the lack of equipment, including storage facilities; the overall poor operation of the genebanks; and the lack of access to remote areas. For instance, one national report notes that transport is a major challenge that hinders the National Genebank from conducting regular inventories of PGRFA in all parts of the country. Besides, there is a general lack of technical capacities and human resources, for instance for collection, characterization, evaluation, documentation, regeneration, use of modern technologies in plant breeding but also in legal issues. A number of countries have also emphasized the lack of financial resources that can hinder research activities *in situ*, *ex situ* conservation efforts, the sustainability of the implementation of policies/programmes, the establishment of community seed banks, the functioning of the genebank, among others.

**In Asia and Southwest Pacific**, some countries report the lack of adequate and secure facilities and the lack of access to remote areas. For instance, a country notes that, while surveys have been conducted for the major staple crops, transport to remote areas is an issue that makes it difficult to conduct collecting missions in these difficult-to-access areas. As a result, many valuable PGRFA have not been yet surveyed. The lack of financial, human and technical skills was also articulated by a few countries. For instance, one country has mentioned that the lack of resources undermines the conservation of PGRFA, especially annual crops which require yearly maintenance and duplication efforts.

**In Europe**, some countries have emphasized the issue of the loss of knowledge on cultivation practices due to the aging of knowledgeable producers. In a few countries, the lack of human resources and professional research staff and financial resources is a serious challenge. For instance, one country reports that only three persons are employed by the National Genebank.

**In Latin America and the Caribbean**, a number of countries have pointed out the deficiencies in the infrastructure, the lack of a functional seed storage facility and other operational issues such as the lack of access to irrigation. One country reports that the current storage conditions in the national genebank in terms of temperature and humidity are valid for short-term and mid-term storage only and that there is a need to install cold rooms to allow for long-term conservation. A few countries have also mentioned the decrease in the number of producers, the aging of human resources and the lack of new skilled workforce. In a few countries, there is a need to provide training in advanced techniques (plant breeding with molecular markets and bioinformatics) to

develop varieties adapted to new edaphic and climatic conditions. The lack of adequate human resources can also relate to management capacities. For instance, in one country, hot pepper and sweet potato were successfully added to the *ex situ* collections; however, the lack of management capacities has undermined the efforts to ensure their *ex situ* conservation in a sustainable way. Besides, the lack of financial resources has been identified as a major constraint by many countries to develop comprehensive and systematic studies of PGRFA *in situ*; to undertake the survey, study, conservation and monitoring of PGRFA; to research on genetic resources and ensure adequate conservation of collections in the official seed banks; or to conduct phenotypic evaluation and agronomic characterization of specific crops.

**In Near East**, some countries have reported the lack of adequate equipment and secure facilities. For instance, in one country, only a small cold room is currently operating. The lack of adequate human resources and financial resources is also a challenge. For instance, in one country, the complete absence of *in situ* conservation activity is due to several factors, including the lack of financial and technical skills to carry out effective and comprehensive germplasm collection missions.

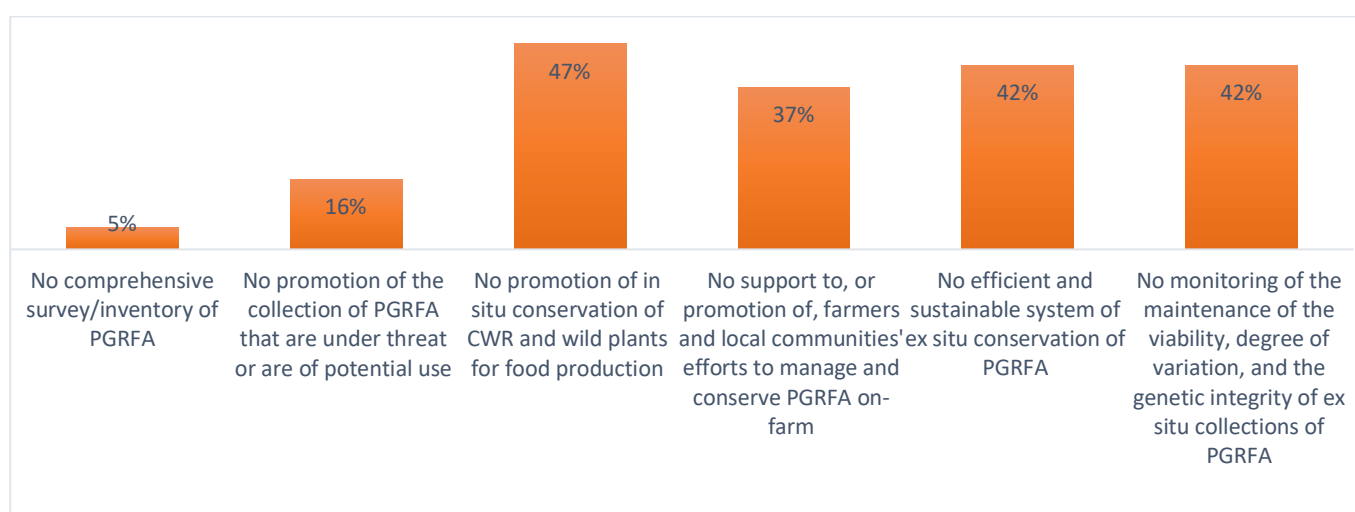
**In North America**, no bottleneck or challenge was reported.

## GAPS IN THE CONSERVATION AND SUSTAINABLE USE OF PGRFA BY REGION

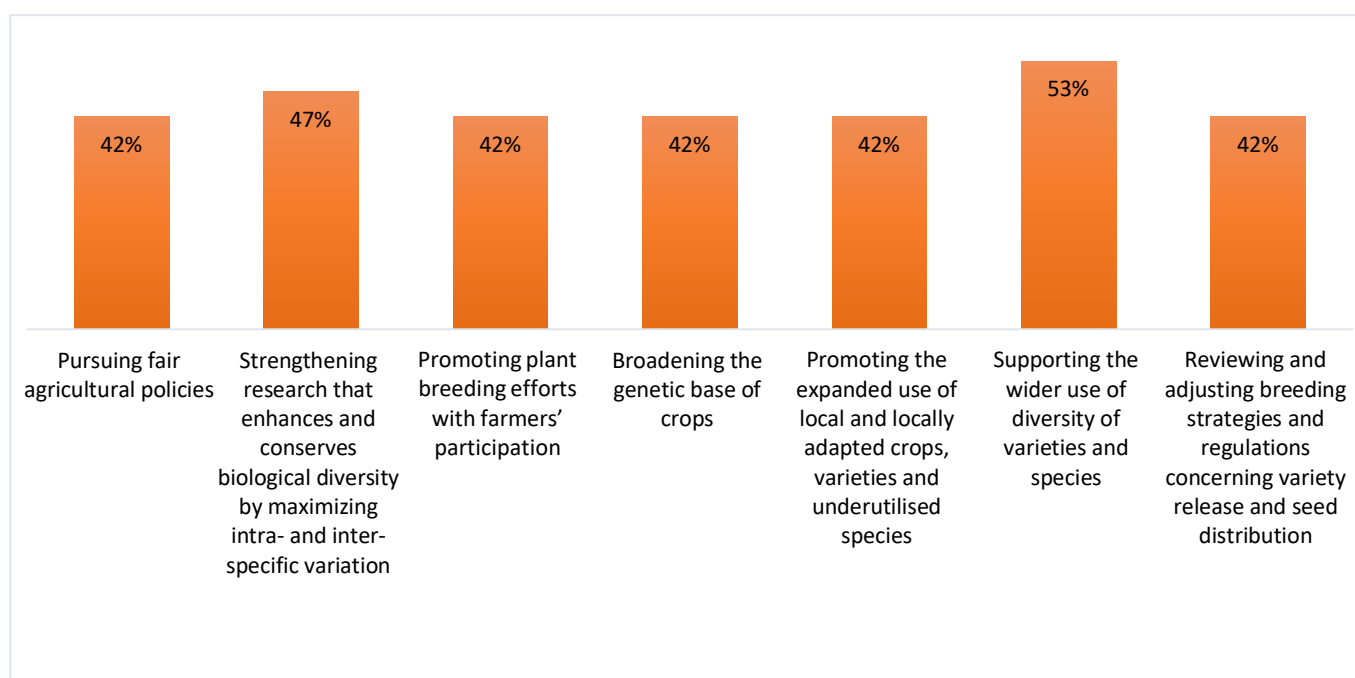
The graphs below show the percentage of countries that reported gaps in the conservation and sustainable use of PGRFA when answering specific Yes/No questions in the national reports. Graphs are provided for: Africa; Asia and Southwest Pacific; Europe; Latin America and the Caribbean; Near East and North Africa. For North America, no gap has been reported by the countries concerned when answering the Yes/No questions in the national reports; for this reason, no figure is presented for this region.

### - Africa:

#### *Gaps in the conservation of PGRFA (% of reporting countries)*

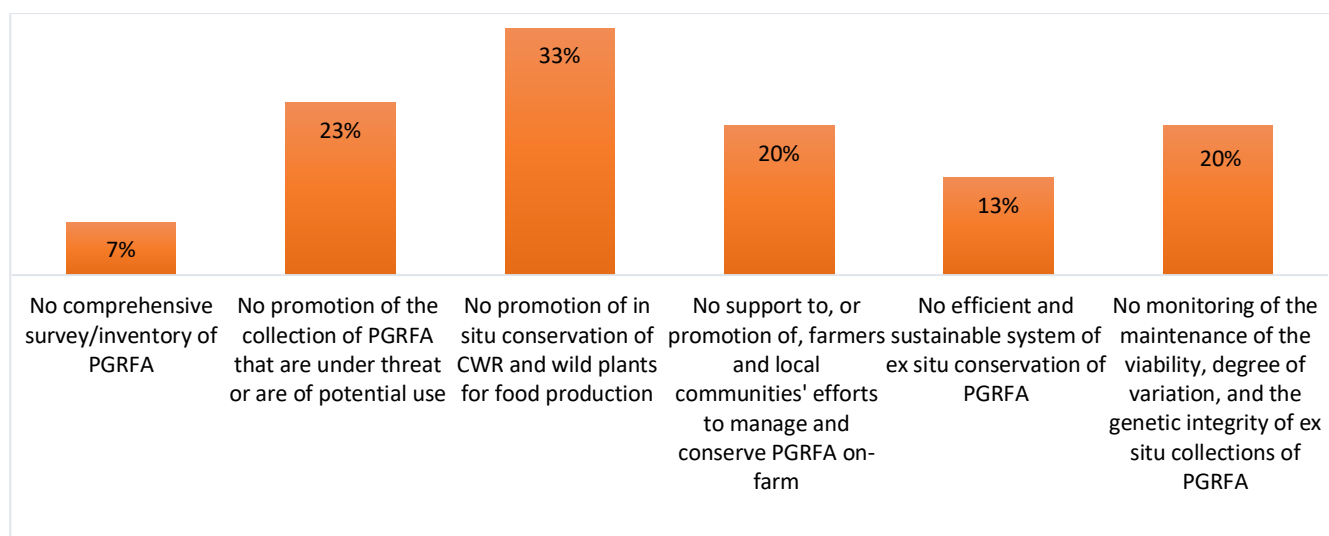


#### *Gaps in the sustainable use of PGRFA with regard to policy/legal measures for (% of reporting countries)*

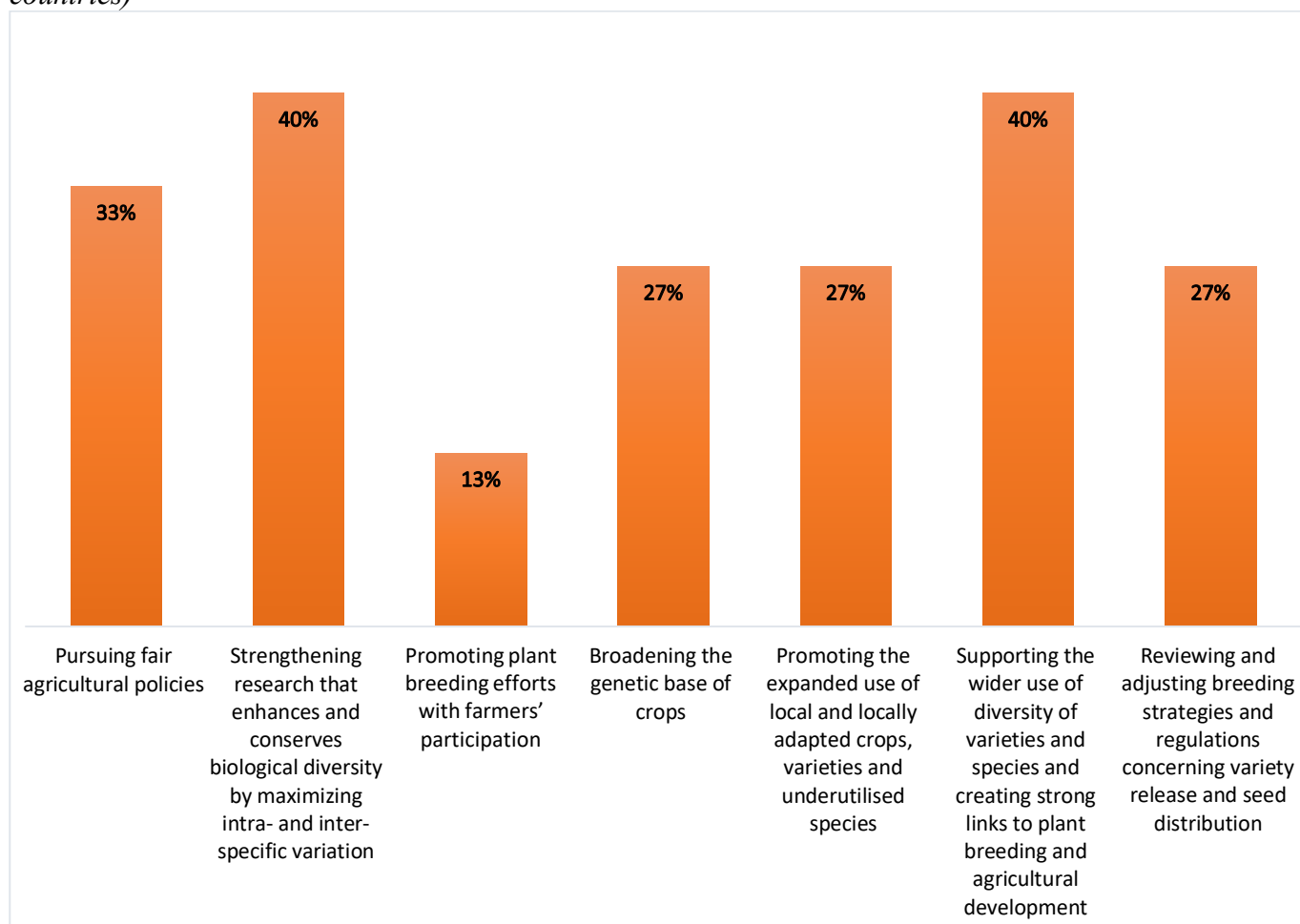


### - Asia and the Southwest Pacific:

#### *Gaps in the conservation of PGRFA (% of reporting countries)*

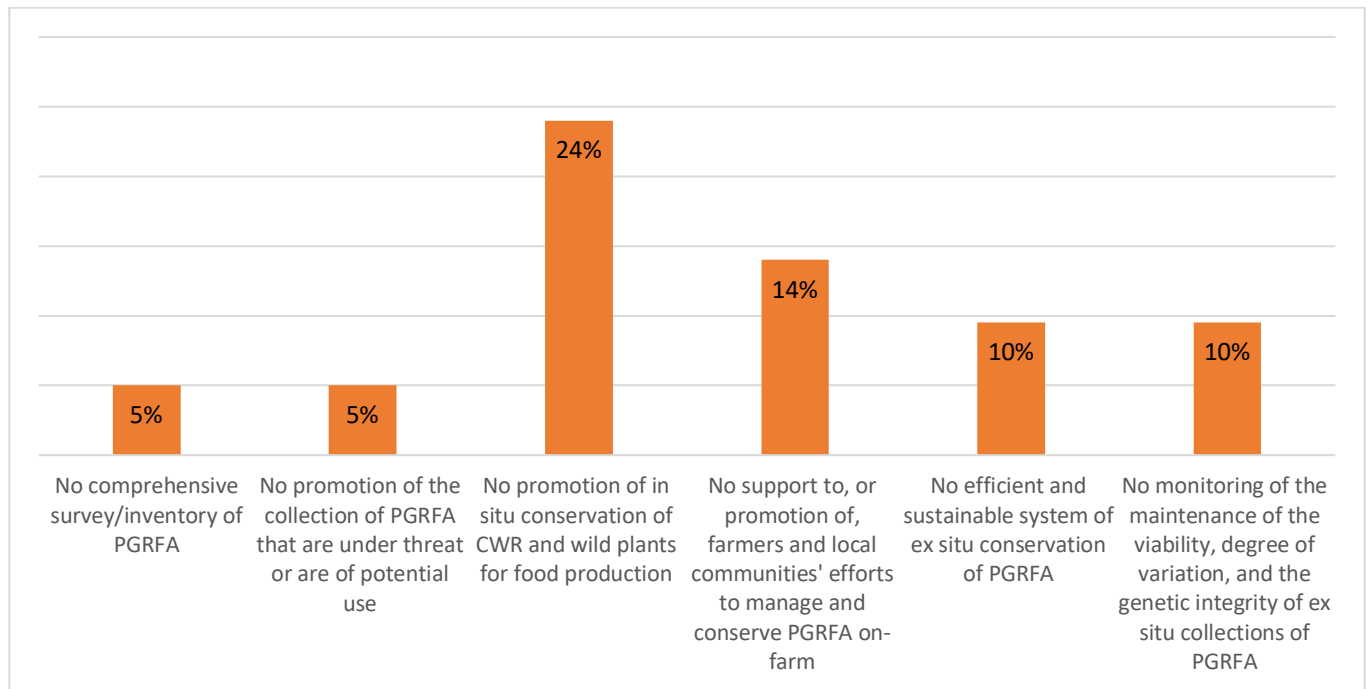


#### *Gaps in the sustainable use of PGRFA with regard to policy/legal measures for (% of reporting countries)*

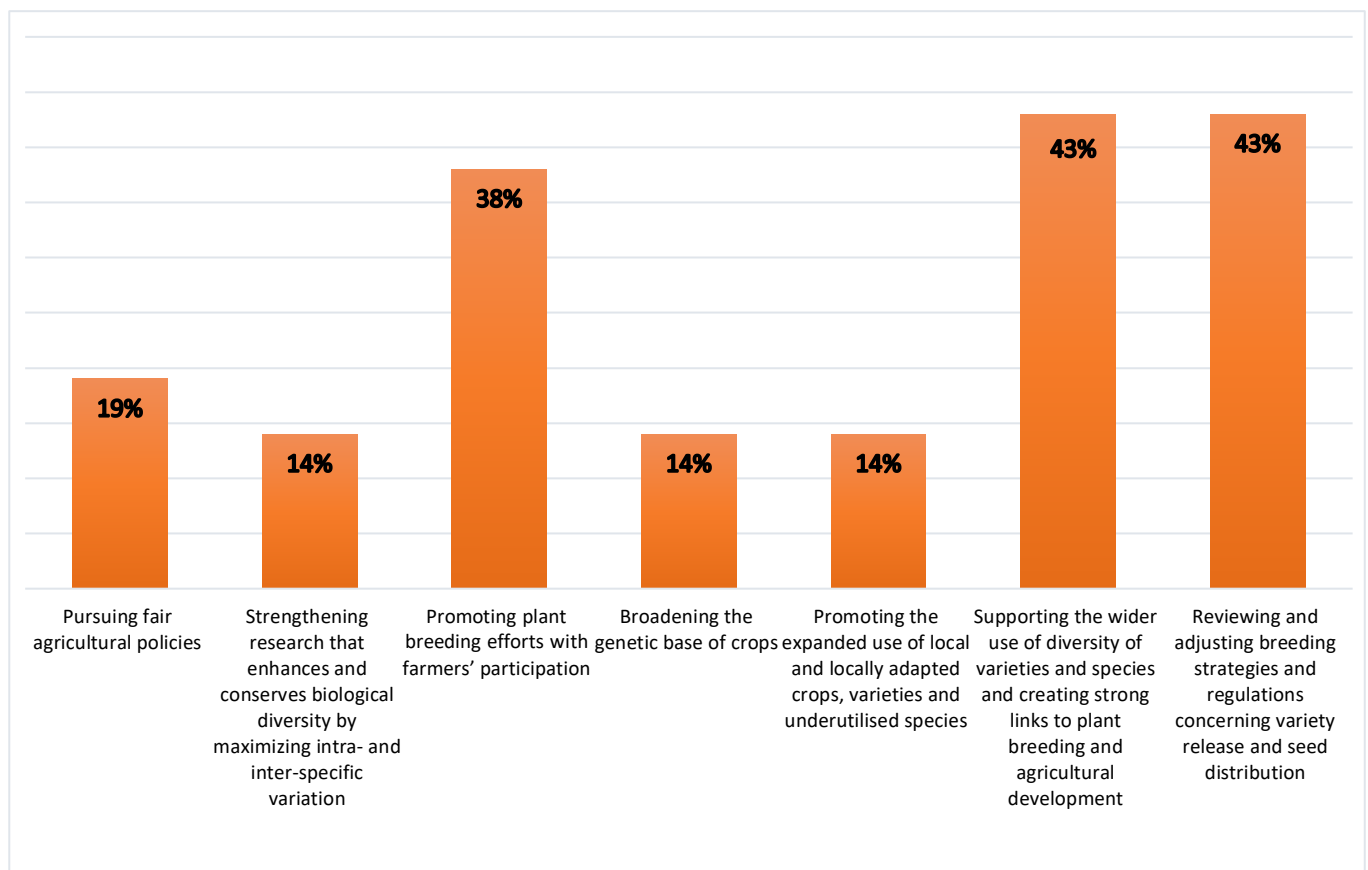


## - Europe

### *Gaps in the conservation of PGRFA (% of reporting countries)*

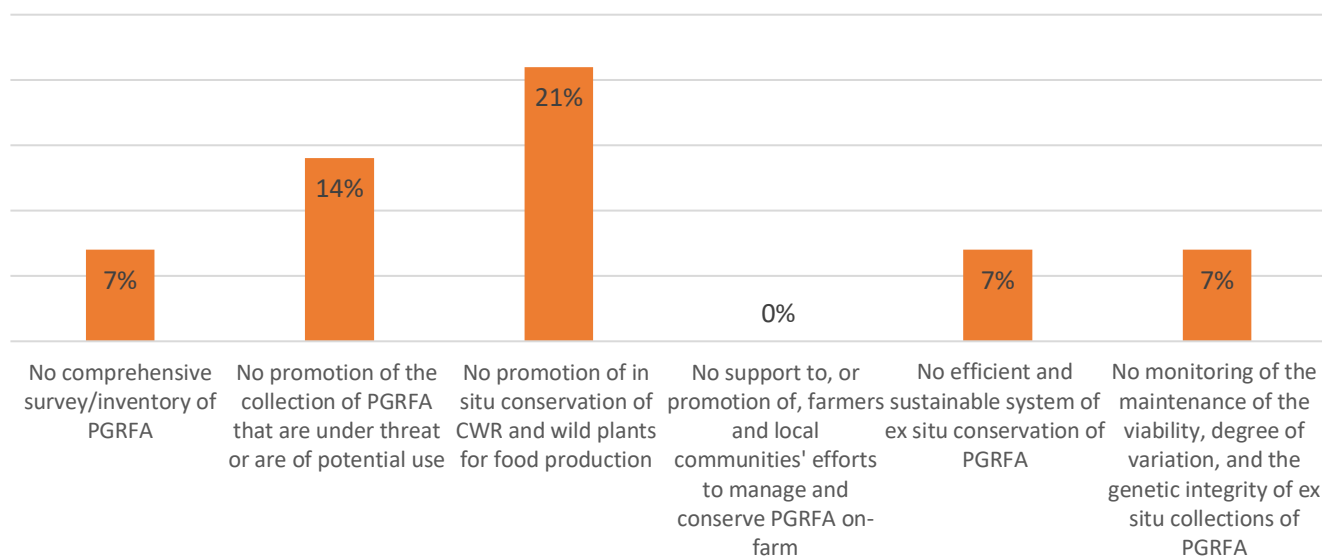


### *Gaps in the sustainable use of PGRFA with regard to policy/legal measures for (% of reporting countries)*

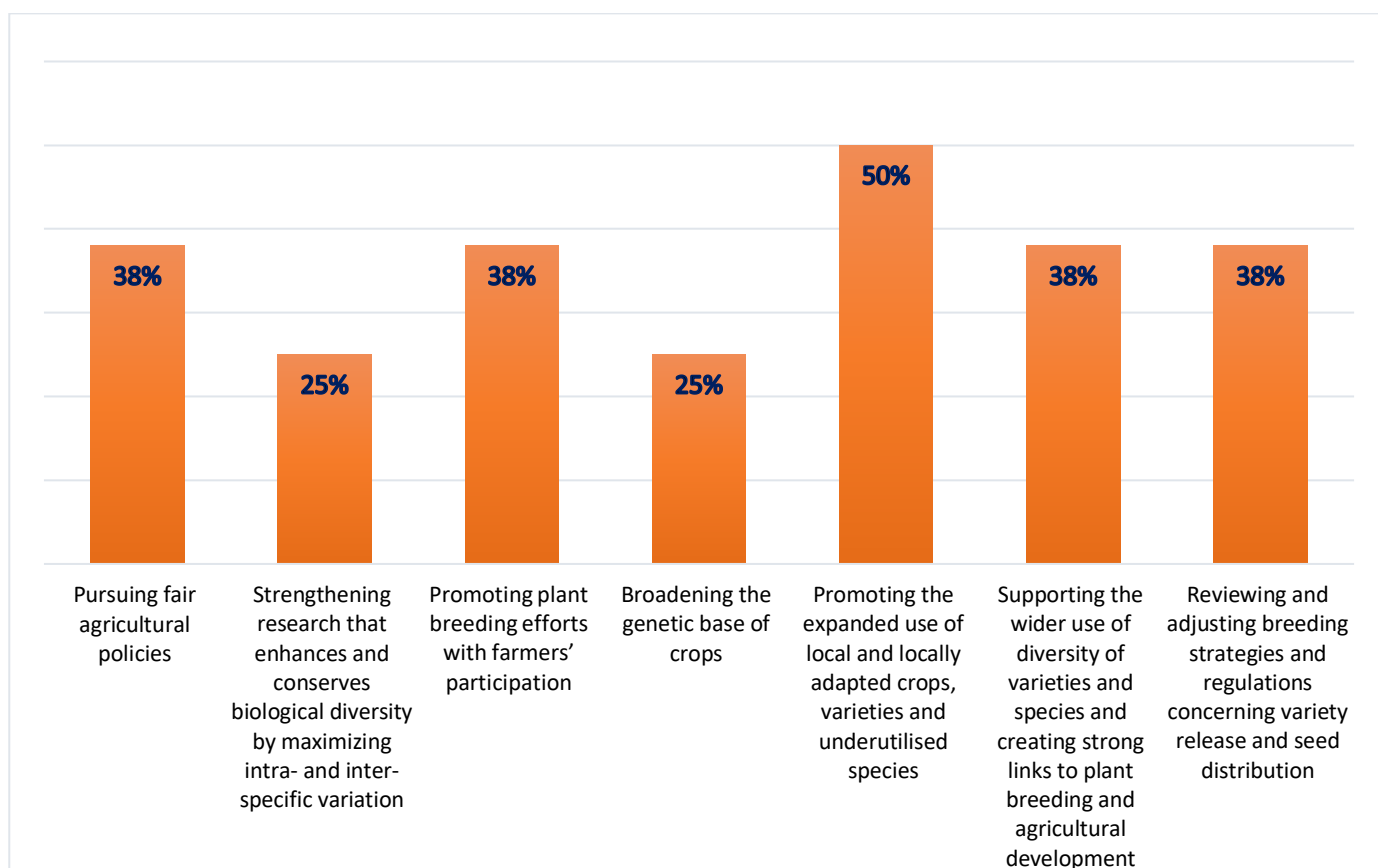


## - Latin America and the Caribbean

### *Gaps in the conservation of PGRFA (% of reporting countries)*

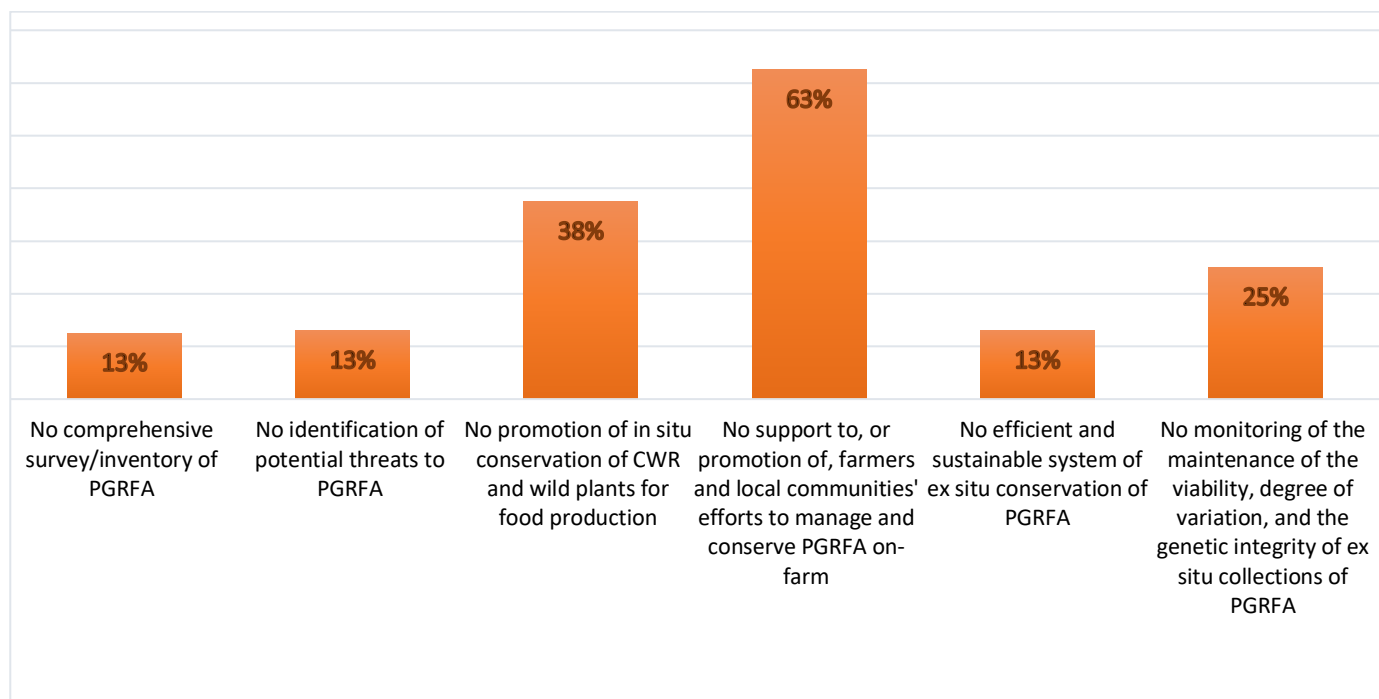


### *Gaps in the sustainable use of PGRFA with regard to policy/legal measures for (% of reporting countries)*



## - Near East

### *Gaps in the conservation of PGRFA (% of reporting countries)*



### *Gaps in the sustainable use of PGRFA with regard to policy/legal measures for (% of reporting countries)*

