



The International Treaty
ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE



Research Study 6

Non-monetary benefit sharing mechanisms within the
projects funded by the Benefit Sharing Fund

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Introduction

1. This study presents an overview of the projects that have been funded by or proposed to the Benefit-sharing Fund (BSF) under the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). In particular, the study focusses on the technology transfer, capacity building and information exchange-related activities that are included in those projects. Through the analysis, we address the following issues:
 - The geographic scope of projects, and the activities and partnerships within them;
 - The types of technologies, capacities and information being generated and transferred;
 - The actors involved in the co-development and transfer of technologies, capacities and information); and,
 - Situations in which technology transfer, capacity building and information exchange are pursued or promoted together as part of a package and when they are pursued or promoted independently of each other.
2. As commissioned by the ITPGRFA Secretariat, the initial objective of this project was to use this information to: 1) conduct an analysis of the demand for technologies, capacities and information among Treaty member countries; and 2) study the existing mechanisms for the supply of technologies, capacities and information that are relevant for the achievement of the Treaty objectives, according to article 13.2 of the ITPGRFA. However, as the study progressed we realized that the projects under the BSF are naturally very much influenced by the Treaty's funding strategy and driven by the terms and conditions defined in the calls for proposals. In the case of the BSF projects, these two aspects (demand for and supply of technologies, capacities and information) cannot be disassociated from the calls' conditions and therefore these projects do not necessarily represent an illustrative sample of the existing demand for, and supply of technologies, capacities and information in the Treaty member countries. In view of this, we changed the approach of our study and used the information to assess how the BSF is being instrumental for generating and exchanging the types of non-monetary benefits mentioned in article 13.2 of the ITPGRFA. The results of this assessment may be useful for the Working Group on the Enhanced Functioning of the Multilateral System (WG-EFMLS) and the Governing Body of the ITPGRFA to consider options for further promoting technology transfer, capacity building and information exchange among Treaty parties, within or outside the BSF.
3. The three calls of the BSF have been very different from each other and these differences have influenced the scope, objectives, methodologies and partnerships of the proposals submitted and the projects eventually funded. The three calls have focused on the priorities identified by the Second Session of the Governing Body based on the Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture: 1) information exchange, technology transfer and capacity-building; 2) managing and conserving plant genetic resources on-farm; and 3) the sustainable use of plant genetic resources; but while the first call was very open and did not provide much detail about how the call priorities should translate into concrete objectives and activities within the projects, the second and the later calls provided very detailed descriptions of the desired objectives,

outputs, methodologies and partnerships, therefore directing the content of the proposals much more than in the first call. In addition, the second and third calls adopted a thematic focus or objective (*to enhance sustainable food security by assisting farmers to adapt to climate change*) and opened different funding windows, for strategic action plans and immediate action projects in the second call and for immediate action projects and projects dealing with technology transfer and co-development in the third call. According to the second and the third calls, immediate action projects were expected to put the emphasis on the following activities: on-farm conservation and management of PGRFA, participatory plant breeding and the distribution of appropriate seed and planting materials. The third call stimulated the submission of proposals involving organizations in different countries much more explicitly than the previous ones. Funds available for projects have considerably increased under each call: from a maximum grant of 50,000 USD per project in the first call to 400,000 USD in the second call and 800,000 USD in the third call.

Data sources and methods

Data sources

- Our data sources were documents related to the projects proposed to, or supported by the BSF in its three funding cycles (table 1). Thanks to documentation made available by the Secretariat of the International Treaty on Plant Genetic Resources for Food and Agriculture, we analysed ten out of the eleven funded projects, all the projects funded under Window 2 (Immediate Action Projects) of the second funding cycle and the 41 pre-proposals presented within the Window 3 on the co-development and transfer of technologies of the third funding round. We did not consider the projects being carried out under Window 1 of the second round of funding, since these were Strategic Action Plans and therefore did not focus on actions with the potential to generate immediate non-monetary benefits. We only considered Window 3 pre-proposals from the third cycle, in order to allow for a more specific analysis of technology transfer.

Table 1. Data sources.

Funding round /Window	Year	Type of documents available	Cases analysed
Round 1	2009	Final reports	10 projects
Round 2/Window 2	2010	Technical proposals and mid-term reports	12 projects
Round 3/Window 3	2014	Pre-proposals	41 proposals
Breeders' and genebank managers' survey	2013	Answers to technology transfer questions	200 respondents

- We constructed a common analytical framework for the completed projects of the first and second funding cycles of the BSF, and a separate framework for the pre-proposals submitted

to the third funding cycle under Window 3 of the call (on the co-development and transfer of technologies).

Methodology for analysis of first and second funding cycles

- For quantifying the activities that result in technologies, capacities and information (i.e., non-monetary benefits) contributing to the objectives of the Treaty, we defined a number of general categories into which the different activities reported in the project documents could meaningfully be fitted (table 2).

Table 2. Categories defined for the analysis of the activities taking place in the projects funded by the BSF in its first and second rounds of funding (2009 and 2010).

Category label	Activity category	Project activities which fall within the category
CB	Capacity Building	<ul style="list-style-type: none"> Training on agronomic practices (including farmer field schools) Training on climate change, gender, nutrition, processing, participatory learning Training on PGRFA (collection, evaluation, handling, storage, drying) Training on PGRFA (other aspects, as database management, spatial analyses) Training and support to seed registration processes Training, seminars or dialogues on policies
AV	Adding value to <i>ex situ</i> collections	<ul style="list-style-type: none"> Collection of new materials Duplication of materials across genebanks (Molecular) characterization of germplasm materials
IE	Information Exchange	<ul style="list-style-type: none"> Awareness raising events GIS-based prediction models Databases or inventories about PGRFA conservation or use Publications and communication tools Diversity fairs Exchange visits/conferences
IS	Institutional Support	<ul style="list-style-type: none"> Stakeholder platforms and/or networks (establishment or strengthening) Strengthening of local/informal seed systems (including establishment of CSBs)
TT	Technology Transfer	<ul style="list-style-type: none"> Introduction of agronomic practices Introduction of equipment (including for CSBs) Multiplication and distribution of improved varieties for cultivation Exchange of PGRFA for (participatory) research or experimental purposes Technologies for new/improved food products

- For each project, we coded for the presence (1) or absence (0) of any of the listed activities and were thus able to obtain summaries per category. For example, if a project reported on carrying out training workshops on policy and on agronomic management, it would score 2 within the general category of Capacity building (CB).

8. For each of the round 2 projects, we estimated the proportion of the budget that was dedicated to the each category of activity. As in any attempt to systematize and quantify qualitative information, we encountered some categorization challenges. It was often difficult to clearly assign an activity to a single category: the boundary between technology transfer and capacity building is not always clear; many cases of information exchange implicitly involve aspects of capacity strengthening, and so on. Also, our ability to decide how to 'code' an activity for one category or another depended on how it was described in the reports. These challenges are consistent with, and underscore, the fact that many of the project activities naturally involved inextricable mixtures of some or all types of efforts.

9. For those activities where they could be clearly identified, we qualified the types of institutions that acted as providers or recipients of the technologies, activities and information. We qualified as providers those institutions that contribute or share the knowledge, capacities and technology that they hold with other actors during the life of the project. According to this definition, a provider can be the executing agency of the project (i.e. the institution who originally prepared the project proposal and signed an agreement with the Treaty Secretariat to receive funds from the BSF), and can also be one of the partnering institutions called in to collaborate within the project. Recipients are those actors or institutions on the other end of the project activity in question, i.e. those who receive the capacity, technology or information contributed by the provider. The providers and recipients categories used in the study are set out in Table 3. In the same project, any stakeholder can be both a provider in some activities and a recipient in others.

Table 3. List of categories of providers and recipients in the activities described in the project documents from the first and second round of the BSF's funding cycle.

Providers/Recipients
National Agricultural Research Centre (NARO)
National higher education institution/University
National public institution (other than the above two)
National public institution from another country
Centre of the Consultative Group on International Agricultural Research (CGIAR)
International Non-Governmental Organization (NGO)
National Non-Governmental Organization (NGO)
Private sector stakeholder
Farmer

Methodology for analysis of third funding cycle (technology transfer window)

10. The analytical framework for analysing the pre-proposals submitted to Window 3 on the co-development and transfer of technologies of the third funding round of the BSF was based on a more specific set of categories, defined in order to differentiate among a wide range of possible technology types (table 4).

Table 4. Categories defined for the analysis of the activities proposed by applicants to the technology transfer window of the BSF's third call for funding (2014).

Category label	Description
TechPGRFA	Technologies in the form of new or improved PGRFA
TechData	Genomic and phenotypic data
TechColCon	Technologies related to the collection and conservation of PGRFA
TechCar	Technologies related to PGRFA characterization, including molecular marking and genotyping
TechEva	Technologies related to PGRFA evaluation
TechBree	Technologies related to breeding
TechInfo	Technologies related to PGRFA information management, including software
TechSeed	Technologies related to the production and distribution of seed (for cultivation)
TechCult	Technologies related to the cultivation of PGRFA, including agronomic practices
TechFood	Technologies related to processing of products of PGRFA

11. Additional features of each proposal were analysed, such as the mechanism by which the technology is proposed to be introduced (i.e. by acquisition from a third party or through co-development), the predominantly national or international flow of technology, and the presence of specific capacity building events to accompany the technology transfer. Providers and recipients were also characterized, following the same categories as those used for the first two rounds of funding.

Results and discussion

12. Before delving into the analyses, in table 5 we briefly present some information on the types of executing agencies (rounds 1 and 2) or applicants (round 3).

Table 5. Frequency of different types of executing agencies/applicant organization under funding round one and two and applicant organizations under funding round three.

Executing agency/applicant organization	Frequencies			
	R 1	R 2	R 3	Total
National agricultural research organization ¹	6	4	24	34
Non-governmental organization (NGO)	2	4	1	7
CGIAR centre	-	3	6	9
Other international research organization	-	-	3	3
National PGRFA committee	-	-	1	1
University	3	1	6	10

13. The ten projects analysed from the first round of funding were submitted by institutions distributed across three continents, with five projects in Africa (north, east and west), four in the Americas (both central and south) and one in Asia. The geographical scope of the 12 approved projects under Window 2 of the second round of funding include five projects in Africa, four projects in Asia, and two in the Americas. Applicants to Window 3 of the BSF's third call for proposals are located in all continents: 11 proposals are from Africa, five from Asia, four from the Americas, and another three are from Europe, the South Pacific and the Caribbean. Most of these projects are multi-country, with pre-proposals clearly stating which other countries will be participating in the technology transfer co-development or transfer.

Activities resulting in technologies, capacities and information in the first and second funding cycles

14. Figure 1 shows the number of activities that fall under each general category, in the two completed rounds of funding.

¹ By NARO we broadly refer to the all the centres and institutes which are part of the national public agricultural research system (excluding Universities), such as genebanks, other PGRFA conservation and use institutions and other research centres dedicated to specific crops and agroecologies.

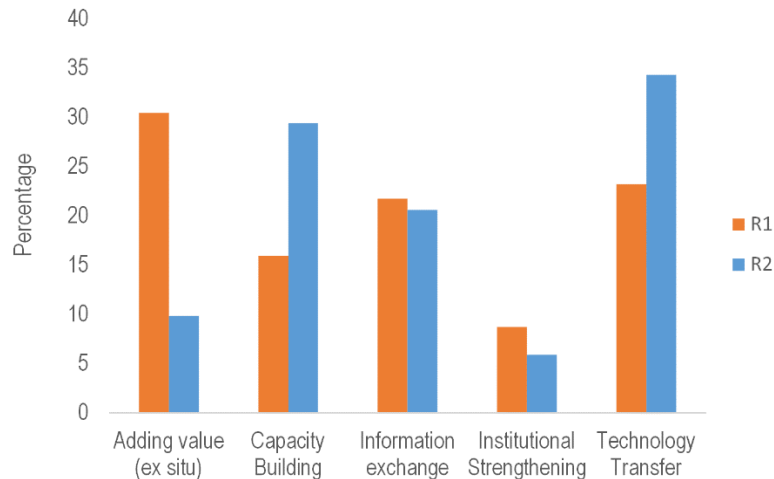
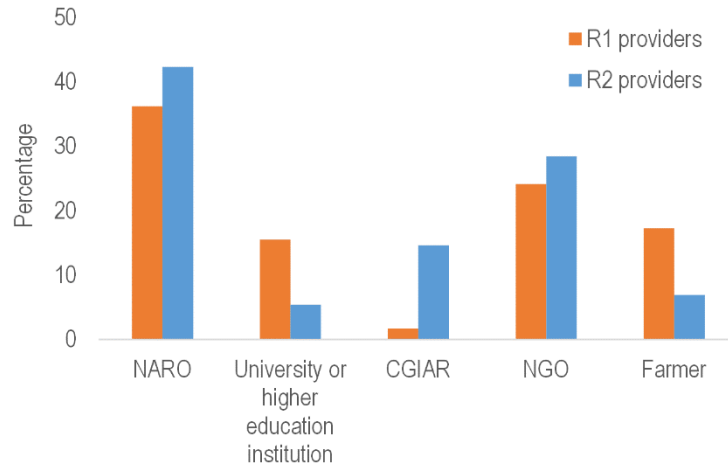


Figure 1. Percentage of the activities corresponding to each category, over the total number of activities in the funding round

15. The most frequent activities across projects differ among the two rounds, as a natural consequence of the different nature and scope of the two calls for project proposals, with the first round projects being stronger in activities aimed at adding value to germplasm collections and the second round projects focusing on technology transfer and capacity building in the context of improved on-farm conservation and sustainable use of PGRFA.
16. Overall, most of the providers for the activities detected in projects from both rounds, are public or non-profit organizations in the country or countries in which the project takes place (most projects are single-country); NAROs act as providers in 45 % of the activities analysed, while NGOs, mostly national ones, provide their services towards the realization of 30 % of such activities.
17. CGIAR Centres act as providers in ten projects (contributing to 12 % of total project activities reported here) and mostly provide technologies in the form of PGRFA and capacity building. In those target countries which host a CGIAR centre, it is usually this particular centre to be involved in the partnership. Non-CG international collaborations and partnerships are scarce: only two projects involve international NGOs and two involve other countries' public organizations. Interestingly, there are no actors from private industry involved as providers in any of the projects of the first and second funding cycles. Farmers have been considered providers in those projects which include collection of materials from farmers' fields. Since the first round projects undertook more collection efforts, farmers appear as important providers in such round.
18. At the same time, farmers are by far the predominant recipients of activities carried out in the projects (48 %), with NAROs receiving the next most consistent share (33 %) (figure 2). The private sector is a beneficiary in seven projects, mostly through project activities aimed at raising awareness or in which broadly designed capacity building or institutional strengthening involve stakeholders from the industry, in order to foster synergies among actors of a specific crop's value chain, for instance.

a)



b)

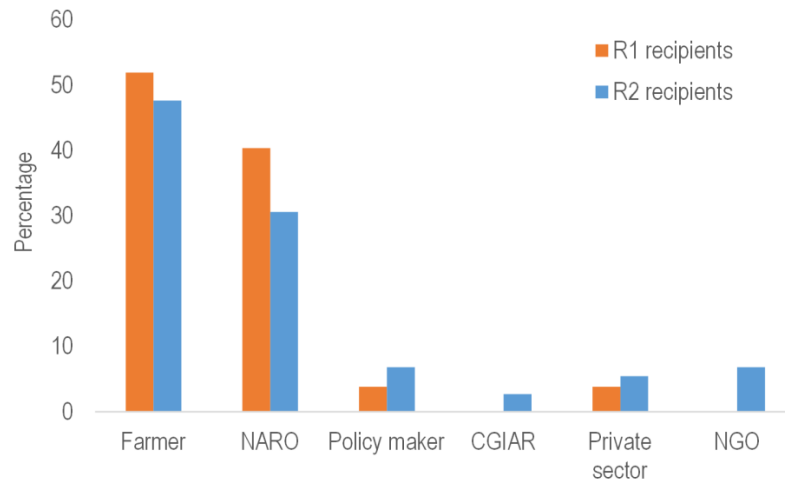


Figure 2. Percentage of activities with potential to generate technologies, capacities and information that contribute to achieve the objectives of the Treaty which involve the types of providers (a) and recipients (b) listed on the X axis.

First cycle (2009) projects

19. Within the ten funded projects analysed, adding value to *ex situ* collections was the most frequent activity (30 %), followed by technology transfer (23 %), information exchange (22 %), capacity building (15 %) and institutional strengthening (8 %). All projects involve some combination of at least two of the activities analysed, with varying frequency depending on the project's specific focus and scope (figure 3). Neither capacity building nor institutional strengthening as defined in our framework were widespread in first cycle projects: 40 % of these did not include the former and 50% did not include the latter.

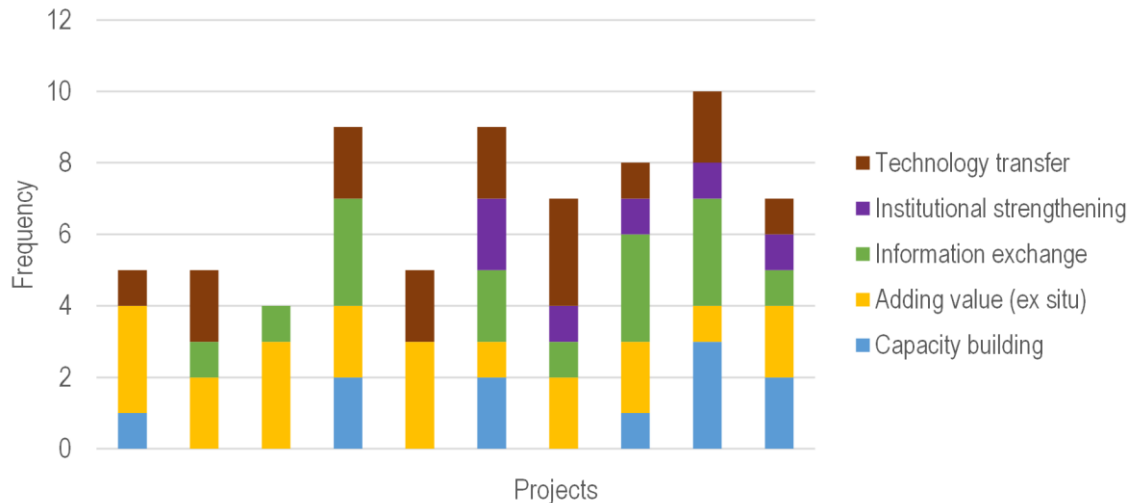


Figure 3. Frequency (number of occurrences) of activity types within each project of the first funding cycle of the BSF.

20. Value is added to *ex situ* collections both through increasing the number of samples through collection missions (in five projects), and through generating or making available information on the conserved accessions by means of molecular/morphological characterization (in nine projects) and/or evaluation of different traits (in seven projects). These activities were carried out mostly by staff from research and development institutions, but in five projects participatory variety selection (PVS) is carried out alongside institutional efforts. Technology transfer is the second most frequent type of activity, and mostly takes place through the exchange of PGRFA. Information exchange, in addition to the implicit circulation of information during all project activities, is achieved through the organization of specific events such as field days or exchange visits for researchers (totalling 36 % of the cases in which information exchange was reported); another frequently used means for exchanging information is the establishment or upgrading of datasets, databases and inventories (27 %) on specific aspects of PGRFA conservation and use (for different crops). Only 16 % of the activities described in the projects can be considered capacity building; although there almost certainly is some form of capacity strengthening implicit in other project activities, it may be that the relatively limited funds made available through this call did not allow for specific capacity building events with a larger audience. Six projects involved participatory research or

development efforts, and mostly consisted in farmers' collaboration in identifying and selecting the most promising materials in the field.

- 21. The main providers involved in the first round usually correspond to the organizations who directly received the BSF funds, i.e. the executing agencies; we encountered few activities which were reported as a joint collaboration with other institutions. This may be due to the rather limited funding made available in this round, which may not have allowed for much extension of the project to other collaborating entities.
- 22. The project reports did not mention any cases of using materials received from the MLS for the projects' purposes, but eight of the projects reported on having notified the Treaty's Secretariat about the collections included in the MLS.

Second cycle (2010) projects

23. Projects involve a broad range of activities, from improved access to germplasm and associated information, to capacity building, information exchange and technology transfer. Many of these have been carried out already, as stated in the mid-term reports. Unless the mid-term report declared any unexpected change in plans, we also counted those pending activities as declared in the technical proposal. As shown in figure 1 (blue bars), the most recurrent activities among those taken into account here are technology transfer (34 %), capacity building (29 %), and information exchange (20 %), followed by adding value to collections (10 %) and institutional strengthening (6 %). Only one project does not report on clearly defined capacity building efforts (quite different from the situation in the first round), while all others contain a combination of the three plus at least one other type of activity (figure 4).

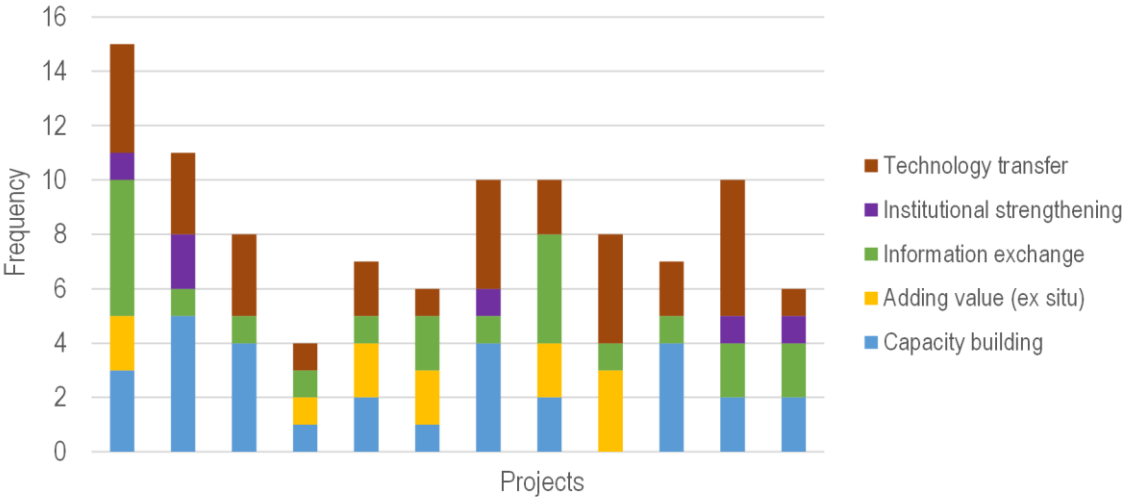


Figure 4. Frequency of activity types per project within the Window 2 of the BSF second funding cycle.

24. The technologies introduced in the projects consists mostly of seed for cultivation (28%), PGRFA for selection and breeding purposes (26%), equipment (20%) or agronomic techniques (14%). PGRFA are usually transferred at the start of projects which carry out characterization, evaluation, selection and breeding activities. In half of the projects, these activities are carried out in collaboration with farmers (PVS and/or PPB), and represent important cases of co-development of improved PGRFA among research and development institutions and farmers. Equipment transferred in the BSF projects mostly consist of quite basic implements, such as those necessary for the management of seed at community levels (driers, seed storage containers, scales, etc.), those associated with the introduction of new agronomic and post-harvest practices (e.g. tools for implementing the system of rice intensification), or field trials (iButtons for measuring local climate parameters). In two projects, technology is also transferred in the form of improved processing methods to enhance the market potential or the nutritional value of the end product from the projects target crop(s). Most capacity building activities aim at improving capacities of stakeholders in PGRFA conservation (collection, germplasm handling, sample drying and storage) and their on-farm agronomic management (23%). Many of the Window 2 projects also deliver capacity on policy (five projects) or cross-cutting issues such as gender, participatory methods and climate change adaptation (five projects), something new compared to first round projects. Six of the 12 projects include either participatory variety selection (PVS) or participatory plant breeding (PPB), often as the core of the project.
25. Compared to the first round, second round projects are more international in nature; CGIAR centres are more frequently present, mostly as providers of capacity and/or technology in the form of PGRFA. In some of the projects, beneficiaries are involved in international study tours, international conferences and exchanges, including with other BSF projects teams in other countries.
26. Three projects explicitly state that material from the MLS will be acquired and used for the projects' purposes through a partnership with international centres, which in turn allow the results of the projects (in the form of promising varieties) to benefit the international community and not only the organizations involved in the project.
27. The activities of interest for this study (TT, CB , IE, etc.) absorbed approximately 67% of the total allocated budget for window 2 in the BSF's second round of funding, according to a summary analyses of the budgets presented in the projects' technical proposals. The proportion of the total budget allocated to each activity category is set out in table 6. The highest overall proportion of financial resources was dedicated to capacity building and thereafter, technology transfer. Together, these two activities absorbed most (33%) of the overall budgets. In some reports, PVS and PPB packages have a specific budget line which amounted for 14% of the overall budget. Their relatively important financial weight is likely due to the fact that these efforts included specific combinations of many of the activities we have been analysing separately.

Table 6. Budget dedicated to the activity categories defined in the analysis within the Window 2 approved projects of the BSF second cycle.

Activity categories	Activity budget (all W2 projects)	Percent over total approved budget
Capacity building	554720	16.71
Adding value to <i>ex situ</i> collections	488545	14.72
Information exchange	354731	10.69
Institutional strengthening	307356	9.26
Technology transfer	530118	15.97
Other	1084026	32.66
Total W2 disbursement by BSF	3319496	-

Third cycle (2014) pre-proposals

28. Most of the pre-proposals submitted to the BSF under Window 3 of its third call aim at increasing the knowledge about valuable traits of selected germplasm of target crops in order to identify promising lines to be included in breeding programmes. Therefore the most demanded types of technologies among project applicants are genomic and phenotypic data, followed closely by technologies related to PGRFA characterization, including molecular marking and genotyping, and new or improved PGRFA (see table 7 for details). Probably, this demand has been partially influenced by the call's terms and conditions, which put the emphasis of these kinds of technologies.

Table 7. Absolute and relative frequency of different types of technologies as they appear in the pre-proposals submitted to the BSF in its third funding cycle.

Type of technologies transferred or co-developed	Frequency	Percentage
Genomic and phenotypic data	26	26.80
Technologies related to PGRFA characterization, incl. molecular marking and genotyping	23	23.71
Technologies in the form of new or improved PGRFA	20	20.62
Technologies related to PGRFA information management, including software	11	11.34
Technologies related to PGRFA evaluation	5	5.15
Technologies related to breeding	5	5.15
Technologies related to the collection and conservation of PGRFA	2	2.06
Technologies related to the cultivation of PGRFA, including agronomic practices	3	3.09
Technologies related to the production and distribution of seed (for cultivation)	1	1.03
Technologies related to processing of products of PGRFA	1	1.03

29. These predominant types of technologies mirror those reported to be in greatest need among breeders, according to the answers of 200 public plant breeders in developing countries to an international survey recently completed within the framework of the CGIAR's collaborative research programme on Climate Change, Agriculture and Food Security (CCAFS). In insisting on the need for greater access to technologies for breeding, characterization and evaluation of PGRFA, breeders most frequently mentioned the lack of molecular tools, such as molecular markers for characterization and marker assisted selection, transgenic technologies, and phenotyping platforms for evaluating specific traits. When asked about the major constraints to acquiring the technology, breeders mentioned limited in-house capacities to use the technology efficiently and lack of financial resources to be the most serious limitations. The forty genebank managers also surveyed reported to be in need of technologies related to collection and conservation, including infrastructure for cryo- and *in vitro* conservation or for efficiently drying seeds before storage.
30. Going back to the proposals submitted under Window 3 of the third funding cycle of the BSF, applicants propose obtaining these technologies either through acquisition or through co-development, with a slight predominance of co-development cases. Co-development here encompasses a much broader set of activities than in the first and second round projects, where it was exclusively confined to participatory efforts towards identification or generation of adapted or improved planting material (PVS and PPB). Co-development here is more strongly predominant when the technology sought after is molecular data or technologies for germplasm evaluation and for agronomic practices (figure 7).

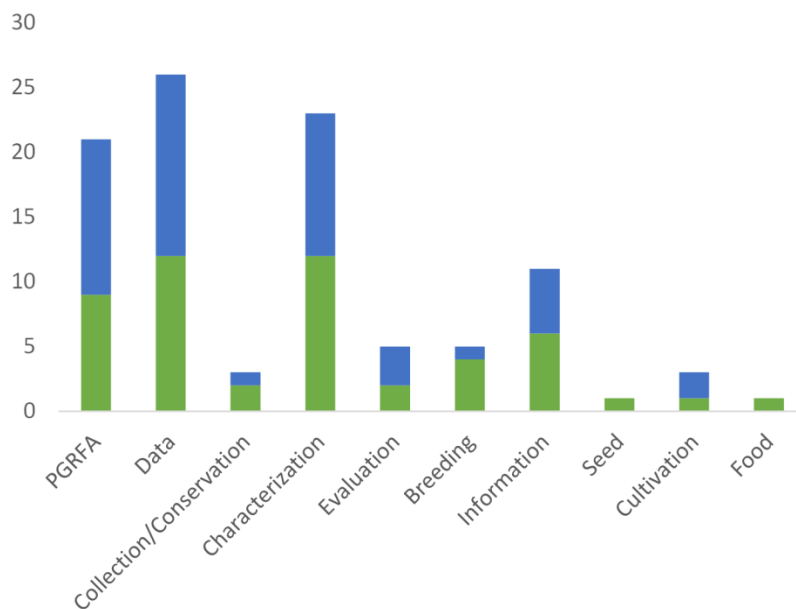


Figure 7. Type of technologies in demand within the pre-proposals to the third funding cycle of the BSF and proposed mode of introduction (green for acquisition and blue for co-development).

31. While there is likely an element of implicit capacity building in all technology transfer or co-development instances, half of the proposals explicitly mention the organization of specific capacity building events. Of the 41 proposals analysed, 25 (61 %) are “international” in as much as they involve international organizations or national organizations from other countries in the transfer or co-development of technologies. In the rest of the projects technology transfer takes place among actors within the same country, commonly through the introduction of adapted varieties identified by national research organizations in farmers’ fields. A more detailed breakdown of organizations that act as providers or co-developers (figure 8) reveals that the vast majority are national agricultural research organizations (30%), followed by international organizations (22.5%) and Universities (18.7%). More than one provider is often mentioned in the same project. Only one project involves an NGO (national) as provider or co-developer of technologies.

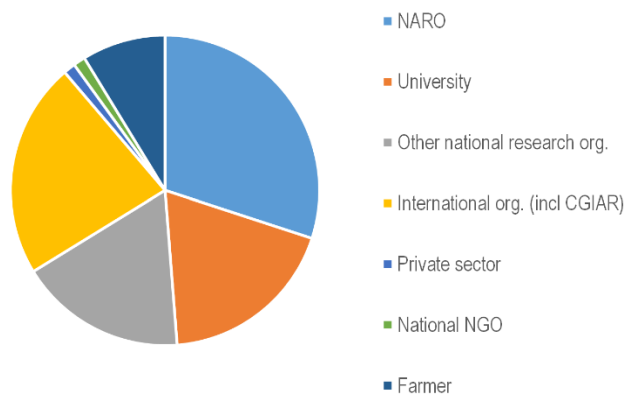


Figure 8. Proposed providers or co-developers of technologies in the pre-proposals submitted to Window 3 of the BSF third funding cycle (co-development and transfer of technologies, single and multi-country).

32. Less frequent providers are other types of national research organizations including institutes specialized in specific crops and agro-ecological systems or regions of the countries (17.5%), and farmers (7.5%). In only two projects is a private sector company included as a provider (in both cases, based in a developed country). NARO providers or co-developers are mostly located in developing countries (75%), as well as University providers (60%) and farmers (85%). South-south cooperation is the most frequent mode of operation proposed by applicants: 17 proposals envisage co-development of the required technologies among developing countries (42 %). In decreasing frequency, applicants propose north to south transfer of technologies (11 cases), north-south co-development (8 cases) and south to south transfer (6 cases). Predominant recipients are the NAROs (53%), farmers (14 %) and a number of other categories to a lesser degree (figure 9). In three pre-proposals, the CGIAR is a recipient of the technology in the form of molecular characterization data generated by a partner organization.

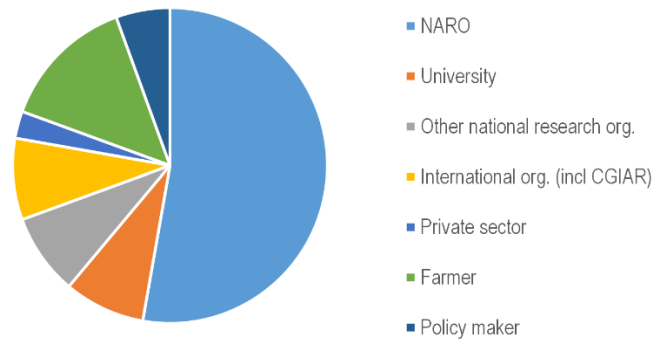


Figure 9. Expected beneficiaries of technologies in the pre-proposals submitted to the BSF third funding cycle (co-development and transfer of technologies, single and multi-country).

33. In nine of the proposals, activities involve accessing and using PGRFA that come from international genebanks of the CGIAR and therefore from the multilateral system. In a number of instances the proposals state that organizations from different countries will exchange PGRFA coming from their own collections, but only in two of them they specify that the exchange of germplasm will take place according to the terms and conditions of the MLS.
34. Since Annex-1 PGRFA resulting from the projects' implementation are expected to be placed in the MLS and information generated by the projects is expected to be made public not later than one year after the project completion, all the pre-proposals are expected to generate spill-over benefits. However, the potential of these benefits to reach users outside the countries concerned are more obvious in some pre-proposals, for example in those that plan to 1) put in place information systems and databases of regional or global coverage (two projects), 2) make new information and germplasm available through international genebanks such as those of the CGIAR, CATIE and the South Pacific Community (eight projects); 3) use the technologies generated (such as molecular markers and molecular information) in the context of international breeding programmes (six projects); and 4) set up international networks for decentralized evaluation of germplasm and sharing of information (three projects). These projects where the developments of global public goods are more obvious represent a 26% of the 41 proposals included in this analysis.

Reflections and preliminary conclusions

35. The overview presented in this paper provides interesting insights into the types of non-monetary benefits that are generated through a monetary or financial mechanism as the BSF, which started its operations recently, in 2009. Since its second round of funding, the BSF has focused on supporting small farmers stay ahead of the climate change curve, through the utilisation of the plant genetic resources overseen by the Treaty, becoming to a great extent a (PGRFA-focused) climate adaptation financing mechanism. Nevertheless, it is important to bear in mind that according to Article 13 of the ITPGRFA, Treaty member countries' obligations

to share non-monetary benefits are not linked directly to the functioning of the BSF and there are other Treaty mechanisms and initiatives that could support their provision.

36. The Governing Body regularly provides guidance on the operations of the BSF and the research undertaken may inform future decision-making related to the BSF as well as generally the delivery of non-monetary benefit-sharing mechanisms under Article 13 of the Treaty. It may wish to take into account the main reflections and conclusions arising from the research:

- Notwithstanding the differences in scope and level of funding across the two first calls and their thematic windows, all of the completed projects of rounds one and two have integrated different types of activities (technology transfer, capacity building, information exchange, etc.) with the potential to generate non-monetary benefits for different actors in Treaty member countries. Some projects have explicitly created a “package” of integrated activity types, most notably in the cases of participatory variety selection and/or breeding: combining circulation and transfer of technologies and information, as well as capacity building and in some cases institutional strengthening.
- Our analysis shows that providers and beneficiaries are similar in all three funding rounds of the BSF and that they tend to be those commonly found in publicly funded projects: public institutions (either the national agricultural research organizations or Universities) are the predominant providers of capacities, technologies, information, while farmers prevail among recipients.
- International collaborations become more frequent from the first to the second round projects, and this evolution is likely to allow more widespread, globally shared benefits than those deriving from first round projects, where the global benefits mostly consisted in placement of materials in the MLS, a pre-requisite of the call. An interesting point is that there are extremely few cases of public-private partnerships in the projects or proposals analysed. Indeed, private sector companies are only extremely marginally engaged in activities supported by the BSF.
- Also, few of the completed projects are centred on international exchanges/flows of technologies, capacities or information between farmers’ organizations, between companies, between NGOs or any combinations of the above, across different countries. Instead, the ‘international’ projects seem to stay fairly close to established, relatively hierarchical collaborative links between national public stakeholders and, to a certain degree, international centres.
- The technology transfer window of the third round, likely as a result of its more specific focus and carefully designed requirements suggesting international partnerships, seems to allow for a wider range of transfer and co-development options. The relatively more high-tech content of the proposals in the third call’s Window 3 is likely to be an important driver of more international collaborations, both with international centres but also among countries

including in the developing world. This may in turn be generating even more spill-over benefits than those achieved to date by projects in the first two calls.

- The analysis confirms that the BSF can be a useful instrument to facilitate non-monetary as well as monetary benefit sharing. In addition the analysis suggests that there are opportunities to increase the proportion of support for projects where the spill-over non-monetary benefits would be useful for down-stream beneficiaries from subregional to global scales. This focus on spillover benefits would apply not only to PGRFA included in the MLS (which is always available to all parties) but also technologies, knowledge and capacities developed with support from the BSF. At the same time, to keep benefits on the ground and connected to national priorities, countries could be required to continue to demonstrate how support from the BSF will contribute to a nationally developed strategy, with complementary contributions from the country itself.
- Many of the kinds of activities supported by the BSF are not new. International cooperation for technology development and transfer, capacity building and information exchange in the area of PGRFA conservation and sustainable use existed long before the Treaty, the CGIAR being an example of such cooperation. These circumstances make the Treaty different from other international conventions, where the generation and transfer of new technologies, capacities and information were crucial for the implementation of the convention, given the novelty of the issues at stake (for example the Montreal Protocol on Substances that Deplete the Ozone Layer and to a certain extent the Kyoto Protocol to the United Nations Framework Convention on Climate Change).
- A more comprehensive analysis of the existing demand and supply, looking at projects supported by national public funds and international donors but also initiatives funded by private companies, will be helpful for the Treaty community to understand to what extent the current schemes of the BSF respond to the present demand among a diversity of actors and whether the supply mechanisms favoured by the BSF are more or less efficient than other possible mechanisms.