



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**

**SECOND TECHNICAL CONSULTATION ON INFORMATION TECHNOLOGY
SUPPORT FOR THE IMPLEMENTATION OF THE MULTILATERAL SYSTEM
OF ACCESS AND BENEFIT-SHARING OF THE INTERNATIONAL TREATY**

Rome, 2-3 December 2008

**PROGRESS REPORT ON THE OFFLINE AND ONLINE
INFORMATION TECHNOLOGY MODULES**

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1. Building on the work of the *Interim* Secretariat and on the prototype of the Information Technology modules showcased at the Second Session of the Governing Body of the International Treaty, the Secretariat has pursued collaboration and partnership for the development and testing of those modules, particularly in developing the linkages with other information systems on plant genetic resources already in place.

I. The offline Information Technology modules : Gene-IT

2. Gene-IT is a functional tool based on a module developed and used since 2005 by the International Cooperation Centre of Agricultural Research for Development (CIRAD) and called GENE-PI. This first module was conceived by researchers from CIRAD (Elise Perset, Mary Savagner, Henry Feyt and Roland Cottin) and developed by Roland Cottin¹ to help them to cope with the international access and benefit-sharing agreements under the Convention on Biological Diversity (CBD) and the International Treaty.
3. Based on this initial software, a bilingual prototype (English and French) was developed taking into account only the specificities of the resources included in *Annex I* of the Treaty and presented during the Second Session of the Governing Body in 2007.
4. The aim of this software is not to draft the agreements but to simplify the task of generating the Standard Material Transfer Agreement (SMTA) for the transfer of *Annex I* material according to the choices of the Parties of the agreement and the characteristics of the material exchanged.
5. A maximum of five sets of questions are required to complete the process of generating the SMTA document which can be directly edited with a word processor²:
 1. Does the material belong to *Annex I* of the Treaty?
 2. Is it used for research purposes, breeding or training for food and agriculture?
 3. Is the material under development?
 4. If yes, are there any additional conditions attached to the SMTA?
 5. Which option of benefit-sharing models (Article 6.7 or Article 6.11)?
6. Additional functionalities have been added which relate to the local management of the exchanges of plant genetic resources by :
 - adding a local database to assist in data entry related to the exchange of plant genetic resources for Food and Agriculture (PGRFA) like passport data, date, recipient, MTA, etc. with an import feature.

¹ This version was registered at the Agency Protection Program in France in September 2005 under number IDDN 05-400035-000.

² The software is compatible with all versions of windows issued after Windows 98 (98, 2000, XP, Vista).

- adding a database of plant genetic resources exchanges based on the Multi-Crop Passport Data (MCPD) format and data on exchange: Identification contract (ID contract), identification provider (ID provider), etc.
 - Importing existing MCPD data. This feature will be present, but the realization of export routines specific to each provider system is outside the scope of this project for the moment.
 - Editing statistical reports, dashboards for the manager of the collection in the form of tables and lists.
7. Besides, user interface has been enhanced to allow the following functions :
- Secure access to local data (user profiles);
 - Data Encryption of locally stored data;
 - Encryption of information electronically exchanged;
 - Features to export local data (XML, TXT, PDF, XLS, etc.) to the manager
 - Change history;
 - Context-sensitive help;
 - URL links of interest;
 - Import data function on entering SMTA;
8. In addition, three methods of information exchange, based on the type of connection available at the provider level (no connection, low or high speed connection), are provided: the user of Gene-IT can choose the most appropriate method for sending information depending on a given situation.
9. Eventually, this module has an additional multilingual interface and some links with Treaty information are available, i.e. :
- The list species of *Annex I* of the International Treaty (print and export to PDF);
 - The text of the International Treaty;
 - The text of the SMTA;
 - An URL link to the Web site of the International Treaty.
10. A draft user's manual of this software is reproduced in *Annex I* of this document.
11. This module is not intended to replace other existing tools. It can be a starting point to allow a smooth integration with existing tools and procedures, if users wish so.

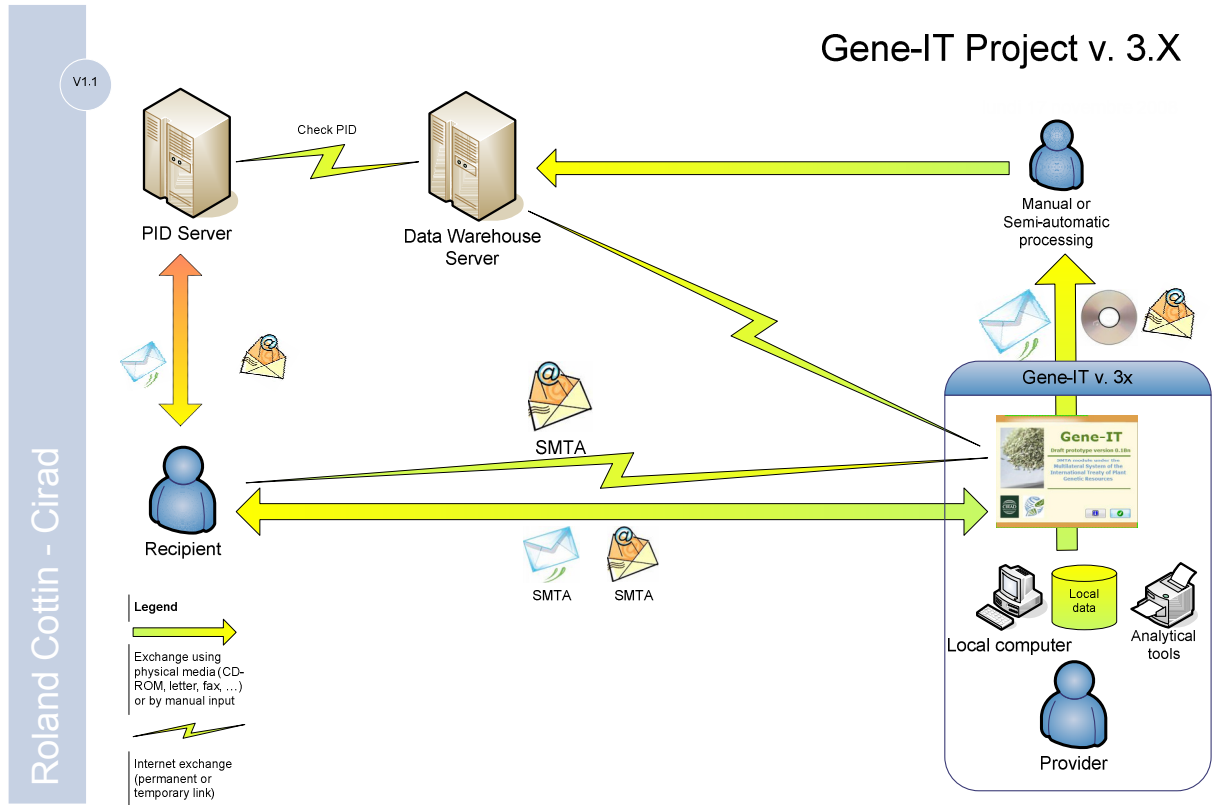


Diagram 1 : Integration of Gene-IT project in the information system related to the International Treaty

II. The online information technology modules

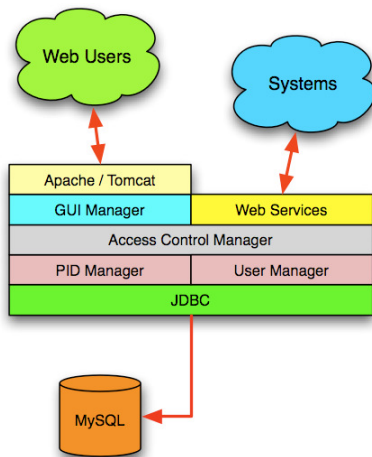
12. Cooperation between the Secretariat of the International Treaty and Bioversity International, on behalf of the CGIAR Centres, foresaw the creation of a set of web-based applications whereby Providers and Recipients of plant genetic resources from the Multilateral System can meet the full range of their obligations under the SMTA.
13. It covers the following modules:
 - a. the design and implementation of a Persistent Identifier (PID) Server designed to uniquely assign and manage PIDs to Providers and Recipients of plant genetic resources for food and agriculture under the Multilateral System;
 - b. the design of a Provider Ordering Toolkit (POTK), linked with the PID Server, and mounted on the top of each provider accession database system. It handles all SMTA-related activities, inter alia :
 - Recipient authentication on PID Server;
 - Provider-specific order processing workflow;
 - SMTA options;
 - SMTA contract preparation and signature (click/shrink-wrap);
 - Reports to the Governing Body as necessary;
 - Sending finalised orders back to the Provider's system for shipping;
 - c. the design of a Datastore (DS) which will receive and store SMTA reports.

A. PID SERVER

14. The PID Server is designed to uniquely assign and manage PIDs to Providers and Recipients of plant genetic resources for food and agriculture under the Multilateral System, for use in SMTA reporting. The PID Server will be available through web services.
15. PIDs must meet the following requirements:
 - a) Uniqueness: Each user or provider will be recorded in the PID Server and assigned a unique PID identifier.
 - b) Permanence: PIDs permanently identify individual users, either as Providers or Recipients.
16. Particular attention has been paid to ensuring optimal compatibility with existing international codes and standards, such as the FAO Institute Codes in use within the World Information and Early Warning System on Plant Genetic Resources (WIEWS).
17. The PID Server has the following functionalities now available:
 - a) offers a simple web user interface in English and this interface will be also made available in all the UN official languages;
 - b) offers context-sensitive help and guidance throughout the registration process;
 - c) manages access control to privileged functions, through username and password;
 - d) allows users to register and receive a PID;

- e) allows PID holders to update their contact information;
- f) allows authorized systems to access user information, with appropriate access protocols;
- g) genbank managers can add new users through the PID server interface provided to them;
- h) user management module available in the POTK and central OTK are now connected with the PID server.

General Architecture



18. The general architecture of the PID Server is described in the following flow chart. Web Users will access the system through Web browsers such as Microsoft Internet Explorer, Firefox plus other popular browsers. External systems will access the PID Server using widely available, standard A2A (Application-to-Application) interoperability protocols and technologies such as Web Services. Access to the PID Server will be controlled by an Access Control Manager and using secure communication protocols as necessary (HTTPS and Secure Sockets Layer-SSL). The Graphical User Interface (GUI) manager will provide HTML pages in multiple languages as well as context-sensitive help as required.

19. The PID Manager layer will be responsible of PID assignment enforcing uniqueness and permanence while the User Account Manager will allow users to maintain their own accounts and contact information. Permanent storage of PIDs has been implemented through the open source relational database management system (RDBMS) of MySQL. Appropriate redundancy and backup procedures will be adopted to ensure maximum availability compatible with budget considerations reliability and availability of the PID Server can be obtained through appropriate design options such as multiple servers being kept by database replication or other measures. This can be considered as required.
20. Existing users of a provider system would be allocated PIDs generated from the central PID Server. When the user signs in to the local PID server at the distributed POTK, the POTK would validate the user credentials through the central PID server.
21. The PID server classifies users into two main types:
- A. Individual users who act as providers or recipients in their own name; and
 - B. Corporate users who act as providers or recipients in the name of an organization.
22. Corporate users would be classified into several subtypes depending on their authority to enter into an SMTA in the name of the organization. They may be:
- i) The organization's legal authority. In this case, no further user-validation is needed, but there would probably need to be some validation of the user's claim to be the organization's legal authority.
 - ii) Users with authority delegated generically by user (i) at the time of user registration to enter into SMTAs on behalf of an organization. In this case, user-

validation is needed at the time of user registration, but no further user-validation is needed to execute an SMTA.

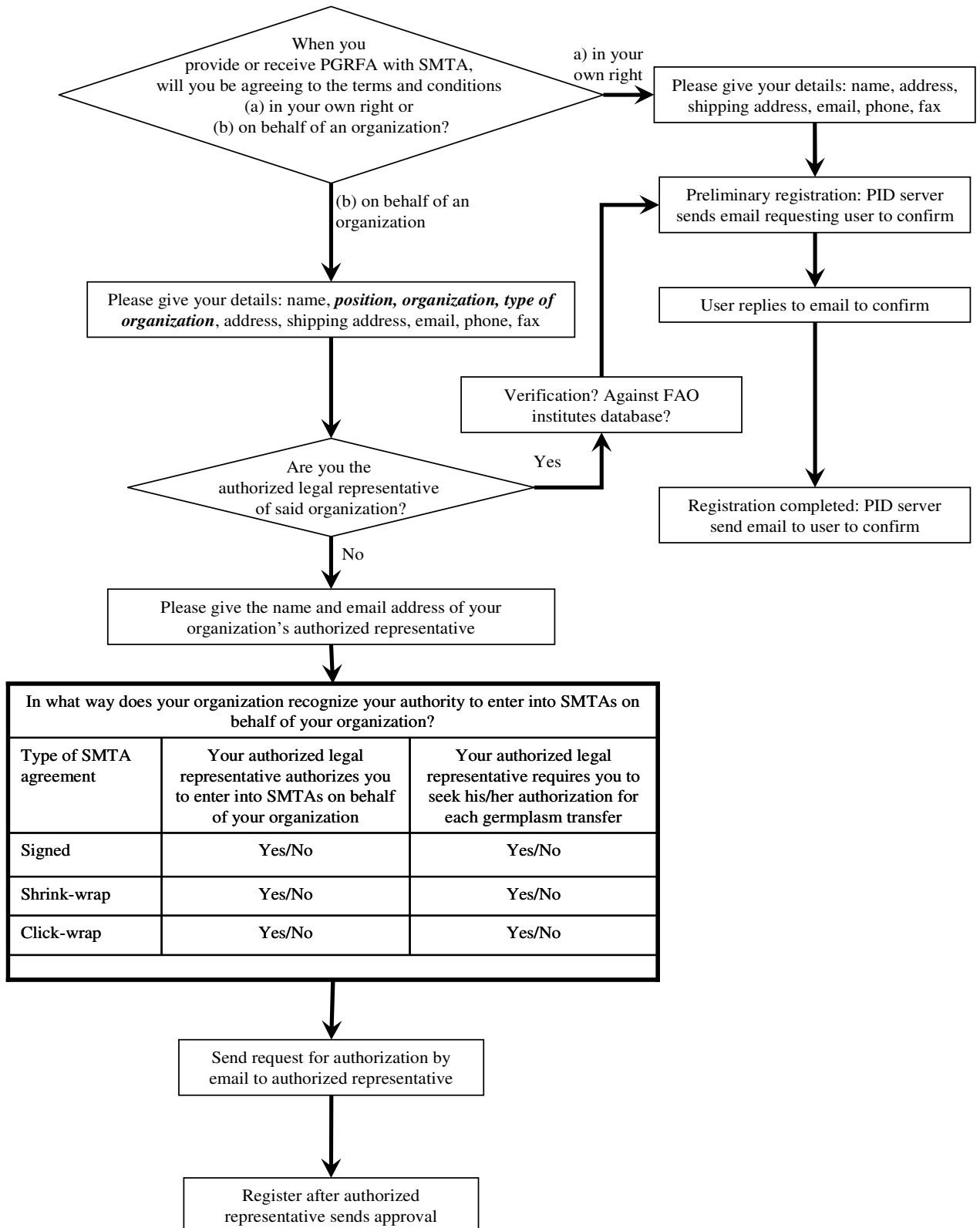
- iii) Users who must be specifically authorised by user (i) for each instance of germplasm transfer with SMTAs. In this case, validation is needed each time the user places an order.

23. There are two processes to be considered:

- (1) Registering a new user;
- (2) Entering into a new instance of germplasm transfer between two existing users.

Registering a new user

24. The workflow for registering a new user is:



Entering into a new instance of germplasm transfer between two existing users

25. Parties to the agreement :

- a. In the case of individual users, the SMTA would be between the individual recipient him/herself and the provider.
- b. In the case of corporate users, the SMTA would be between the authorised official/Organization and the provider

26. User validation :

- i. In the cases of (A), (B)(i) and (B)(ii)*, validated completion of the registration process and subsequent login by the user against a secure password will be deemed to be sufficient validation. Clicking “order” will immediately generate an order without further user validation.
- ii. In the case of (B)(iii), an email would need to be sent to the authorized official for confirmation before the SMTA can be completed.

B. THE PROVIDER ORDERING TOOL KIT

27. The Provider Ordering Tool Kit (POTK) is addressed to users offering Material through SMTAs. While SMTA management is POTK’s primary focus, it is designed to support transfer of other Plant Genetic Material not falling under the stipulations of the Treaty. The POTK assumes the presence of an Ordering System that will allow potential recipients to identify and mark plant genetic resources they are requesting. Once the recipient is satisfied with the content of the shopping cart, the Ordering System will forward it to the POTK which will take over processing and recipient interaction until the order is finalized or rejected.

28. As the POTK is addressed to all providers and since it is intended to be easily adopted by them in the largest possible number, it is critical that the POTK meets the following technological requirements:

- appropriate software technology;
- minimal or zero acquisition costs;
- low Total Cost of Ownership;
- low system requirements;
- easiness of customization as per any providers’ needs and requirements.

29. This overall mechanism needs to allow for customizable, multilingual user interface so that the Recipient sees little or no change from the familiar provider’s system environment.

* See paras 21-22

30. Moreover, as the Governing Body will likely be unable to offer high-volume of technical assistance, it is critical that the POTK is as robust and trouble-free as possible.
31. A good candidate to meet all of the above requirements is a combination of php/Java/XML/XSL/SQL technologies which are by far the most widely used in multiplatform solutions. They are also readily available in the open source environment, robust and popular among developers. Coupled with the appropriate design and documentation, these attributes will simplify the acquisition of POTK by providers while at the same time minimize requests for support to the Governing Body.
32. Also, it is necessary that different requests and order management procedures can be implemented in order to accurately match the provider's policies. These requirements can be adequately satisfied by carefully designed and flexible system architecture.
33. Though, it is important to note that there is an important margin of flexibility about each function, according to the needs of the specific provider.
34. For instance, the process of development may include the distribution of PGRFA under development to a network of collaborating breeders. In this case, two levels of user validation are needed: validation by the PID server and validation against the subset of PIDs that are also network members.
35. The online ordering system would enable dual validation with a single login so prospective recipients should not have to login separately to the PID server and to the network before placing an order. This can be achieved by logging into a locally cached subset of the PID table on the provider's server, synchronized with the central PID table, but containing only data on the PIDs that are also user members.

Request of material

36. The first step in POTK operation is the acquisition of the request for material, i.e. the acquisition of the shopping cart coming from the provider's system. This acquisition occurs through a message sent from the provider's system. The message contains all information required by the POTK to take over processing and management of the order, such as:
 - Request identifiers and metadata;
 - Provider PID;
 - Recipient PID and contact information if available;
 - Accession numbers and passport data of the material being requested;
 - Quantities of material being requested;
 - Status of "under development" or "available without restriction" where required;
 - ID of SMTAs through which any material "under development" was received (required by Art. 6.5b);
 - Indication of the material received through SMTAs by providers who selected the Art. 6.11 Alternate Payment Option;
 - Links to non-proprietary information related to material where applicable;

- Applicable fees;
 - Additional conditions for material under development;
37. The POTK provides the flexible and speedy means of configuring the workflows linked with provider database and the PID server registered users (or new user to be registered). It also sends the data to the data store on a transaction by transaction basis with the facility of the provider making such a choice within the application. The POTK is easily configurable with any existing provider database.
38. This is important when the POTK is used in coordination with a portal such as the One Stop Ordering System being developed by the CGIAR System. These portals will make possible that for different providers to be involved in satisfying the same material request. In these cases it is assumed that the portal performs an initial partitioning of the request so that subrequests are produced and redirected to the respective Provider.

Recipient identification

39. The first step in processing the request would be ensuring that the recipient is properly identified. If recipient identification information is passed in the request (element <recipient>), the POTK assumes that the provider system has already carried this task out and proceeds to the next step. Otherwise, a login page is presented to the recipient whereby he is invited to identify himself. The information entered in the login form is passed to the PID Server in a system-to-system transaction. If the login is successful, the POTK receives from the PID Server the necessary recipient information, creates a <recipient> element as described above and adds it to the request. This step is completed and the request moves on to the next phase. If the login information is not correct, an error message is displayed so that the recipient can try again.

Request processing

40. This phase is the most complex and likely to be customized by providers because it directly implements specific provider's policies. A generic SMTA operation workflow is provided in Table 1 (p.14) of this document.
41. Request partitioning The first step partitions the request element in groups identified according to the following major categories and subcategories:
1. MLS Material
 - a. Material available without restriction;
 - b. Material under development;
 2. Non-MLS material
42. The need for the above partitioning is related to the different treatment that each group will be requiring. In particular Multilateral System (MLS) Material will be included into the SMTA contract template while non-MLS material will be included in a provider-specific MTA template to be provided to the POTK. According to the group, the request processing

can take different routes as specified in the provider-specific workflow. For instance, while MLS material available without restriction would only require checks against stock availability, other groups, especially non-MLS material may require additional checks and authorizations before the order can actually be finalized. At this stage, it is however important to note that only MLS material is handled. Generalization to non-MLS material could be implemented later on, if the Contracting Party, the administrators and the users so wish.

43. Workflow processing. The next step is to perform the checks described in the workflow configured by the Provider. By definition, such checks cannot be accurately described here, but the general idea revolves around a set of building blocks allowing the POTK to:
- *send email messages*, for instance to:
 - notify the curator that a request has been received;
 - ask the genebank manager to confirm material availability;
 - notify the recipient that his request needs further input;
 - *present forms* whereby provider staff annotates the request, for instance explaining what problems are encountered in providing some material or whereby the recipient decides if he agrees to drop some problematic material from the request.
 - *take decisions* on the results of these actions.
44. These basic tools allow for the definition of quite sophisticated workflow processes. It is expected that available workflow management systems are evaluated and possibly incorporated to allow for greater flexibility and/or easier workflow configuration.
45. The result of the workflow will be the request with attributes identifying the request items that:
- A. can be actually ordered;
 - B. are on hold and why;
 - C. have been dropped by whom and why;
46. The next step will further process the items that belong to Group A above. The workflow will be able to specify whether requests with items in groups B or C above can be further processed or require additional validation.
47. Order metadata. If, according to the workflow, the request can be actually converted into a contract and therefore become an order, suitable metadata need to be collected according to the stipulations of the SMTA. The POTK will provide built-in processing procedures that will make sure that all necessary information is collected for SMTA finalization. This specifically applies to:
- Recipient choice of alternate payment option (Art. 6.11) for material under development not already under such conditions;
 - Recipient choice of signature type within those acceptable to the provider;

48. However, while for SMTA such metadata are well identified, for MTAs, it will be the responsibility of the workflow to satisfy such needs as they may be specific to the provider
49. Contract document preparation. Once all information is collected, the actual SMTA(s) can be prepared. The resulting PDF documents will be made available by the POTK for download and printing by the recipient, regardless of the signature type. This is important so that recipients are given all opportunities to understand and agree to the contract terms before final acceptance. In the case of personal signature, provider staff will be informed that the SMTA is ready and can be printed and mailed to the recipient for signature. Further processing of the request will be put on hold until the signed copy is received and the workflow is manually resumed.
50. Order finalization. Once all the above steps have been completed, the last thing to do is to present a final acceptance form to the recipient, at least in the case of click-wrap or shrink-wrap signatures so that the recipient has a final chance to abort ordering.
51. Order forwarding to Provider system. Once the order is finalized, it is sent to the provider's system for shipment preparation. The full request, starting with the request details and enriched with all other information collected during the previous steps is forwarded to the provider system which will take the necessary steps to satisfy the order.
52. Reporting to the Governing Body. The final step in order processing is reporting about finalized SMTA contracts back to the Governing Body as required by the Treaty. Reporting will occur according to the schedule set by the Governing Body. However, should the provider wish to use real-time reporting, a powerful filter interface will allow him to select which information he/she wishes to send to the datastore. However, the POTK will maintain all information produced during its activity in its local database so that they can be:
 - searched and browsed locally;
 - reported in periodic batches to the Governing Body according to a configurable schedule.

Online Application Steps in order to acquire germplasm	System	User	Comments
1. Search of material	POTK	Recipient	Search criteria
2. Selection of material	POTK	Recipient	Choosing the material which the recipient is actually interested in ordering.
3. Place the order message	POTK	Recipient	Screen Message to the user indicating that order steps are completed
4. Redirection to the Local PTK	PID	Recipient	User has to check out
5. Login/register to the local PTK	PID	Recipient /Gene bank Local PID administrator	Login event, User uses PID as username and the password (which is based on user input)
6. Validation	POTK	Recipient	User validated through local PTK on Central PID server
7. Choice of benefit-sharing option	POTK	Recipient	Recipient can choose Art. 6.7 or Art. 6.11 benefit-sharing options
8. Choice of option of signature (click wrap, shrink-wrap, signed)	POTK	Recipient	In either signature type, he can save locally and print it
9. Recipient chooses an option.	PID	Recipient	At this stage order is completed. Notification sent to the provider by email.
10. Provider is informed, he/she logs in	POTK	Provider	Validation on Central PID Server
11. Validation of the order (acceptance/rejection)	POTK	Provider	The provider has to validate the orders.
12. Optional filter on SMTA data	POTK	Provider	Provider can choose which information to transmit to the DS (can be customized to specific providers policy)
13. Sending of the SMTA to the provider email and filtered data to the data store	POTK AND DS	Provider	
14. Notification by email	POTK	Provider	
15. Login and check of the order	POTK	Recipient	Recipient logs in and sees whether the request sent was accepted or rejected

Table 1: The Generic SMTA operation workflow

C. THE DATA STORE

53. As some of the information contained in the SMTA reports is potentially confidential, security measures have been taken into consideration when developing the SMTA report repository.
54. At this time, as no requirements have been received by the Governing Body about the kind of information that DataStore is expected to receive from SMTA reports, a minimum-effort approach has been adopted that allows for maximum flexibility. The flexibility is so high that any relevant decisions taken by the GB in this regard can be accommodated without major additional costs.
55. At this time, as no requirements have been received by the Governing Body about the kind of information that Data Store is expected to extract from the SMTA reports, a minimum-effort approach has been adopted which allows for maximum flexibility.
56. The Data Store prototype is, at this time, essentially a one-table repository storing the information as exactly received by the POTK. The database engine used is MySQL, an open Source relational database.

III. Conclusions

57. The IT modules are not intended to replace existing information systems, but rather to supplement and seamlessly integrate with such existing systems in order to save for operators of such systems the effort and expenditure required by them to adapt their systems to MLS operations. They are not for mandatory but only for optional use by system operators, if they wish so.
58. In further developing the information technology (IT) modules, emphasis has been put on the flexibility of use in order to cover the wide range of needs and requirements from Contracting Parties, users and administrators.
59. A general architecture of online IT modules using a generic SMTA processing workflow has been envisaged as an overall model dedicated mainly to genebanks with existing accession database systems. In parallel, a stand-alone and offline IT module, Gene-IT, has been developed and targeted for small collections (genebank material as well as breeding lines) which are not inventoried into an information system.
60. In between those two extremes, a full spectrum of options is envisaged: the general architecture and the IT modules could be adapted in such a way that they can fit with a wide range of different users requirements.
61. For instance, with some adjustments of the general architecture, the full package could be mounted on a nursery database to allow the provider to exert his discretion on the access to

its material while continuing to use the ordering facilities and the connection with the PID server and the Data Store.

62. Likewise, with few adjustments of the SMTA operation workflow, the full package of IT modules could be equally adapted to a single provider database or a multiple-provider database (i.e. regional databases, multiple genebank database like SINGER, or the future Global Accession Level System to be implemented under the Global Information on Germplasm project as referred in IT/GB-3/TITC-2/08/Inf.2).
63. Besides, when ordering systems already exist at the provider level (whether curator or breeder), the full IT online package is no longer necessary and users may decide to simply synchronise or connect through an application to application secure login with the PID server and/or the Data Store.
64. Eventually, if no ordering system is needed or wanted by the user, an upload function allows providers to report about SMTAs entered into in periodic batches to the Data Store according to a desired schedule. This functionality is also necessary for all transactions occurred offline.
65. Therefore, all concepts presented in this document must be taken as preliminary and open to discussion with the experts to the Consultation. More specifically, technical feedback is requested from the experts on, *inter alia*, the following points :
 - The functionalities and the interface of Gene-IT;
 - The online IT modules; (PID server, POTK, DS)
 - The generic online SMTA operation workflow;
 - The next steps and the deployment strategy.

Annex 1: Gene IT Users' Manual

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1.1 Identification Screen



This identification screen allows secure access to data managed by Gene-IT. There are several user profiles available, ranging from account "guest" with limited rights to the "Administrator" with complete control of the software.

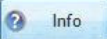
1.2 Welcome Screen

This is the first screen that appears to launch the program. It displays the information of the version of this tool.



A click on  closes the welcome screen and displays the next window on the contractors.

Note: after 15 seconds, if the user takes no action, this window will close automatically.

Clicking on  will open a window on the conditions of use of this software.

1.3 Main Screen



This screen allows you to access all features of Gene-IT through two types of menus:

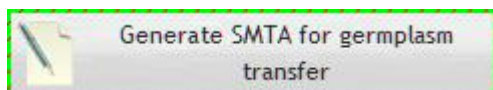
- The main menu, which displays two buttons
- Two floating bars respectively for accessing tools or complementary information.

A) Main Menu



This screen allows access to two main features of Gene-IT: some basic indications on how to generate an SMTA adapted to the exchange of plant genetic resources and access to that function and a button to access all the files necessary references for the generation of the text.

A-1) CREATING A SMTA

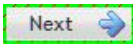


A-1.1) STEP 1: PARTIES TO THE AGREEMENT

This screen allows the user to enter the identification and contact details of both the provider and the recipient of the genetic resources. The user has to click on a top tab to change the view from one screen to the other.

The unique identification number of the SMTA is automatically assigned by the software.

NB: the name of the provider is accessible only through the configuration screen (button "Config" located on the toolbar "Tools" (see B-5).

Once the mandatory information is provided, the user has to click on "Next" , which closes the window, saves user's configuration and goes to the next screen on the legal status of the material to be transferred.

A-1.2) STEP 2: MATERIAL TRANSFERRED AND BENEFIT-SHARING

At this stage, the user must answer a number of questions to determine what is the type of standard agreement suitable for the particular situation.

Step 2 : Characteristics of the material and benefit sharing option

Annex I plant genetic resources
 Research, breeding and training for food and agriculture utilisation purposes

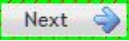
Material under development
 Benefit sharing option


Additional conditions
 Article 6.7


Article 6.11

SMTA # 4

Back Next

The figures on a black background tell you the steps to follow before you click the button "next" .

The number of steps varies from 2 to 5 according to your answers. For example,  located beside a question indicates that you must answer it before moving on to the fifth stage.

If  is located above the "next" button and you've responded to questions 1, 2 and 3, you can go to the next screen.

You must describe in a maximum of 5 steps the genetic resources holds by your organization by checking the box next to the various information characterizing the response and if the answer is "Yes" or by unchecking it otherwise:

a) Does the genetic resources belongs to the species listed in Annex I of the International Treaty? To help you, you can click on the "Annex I" located at the "information" toolbar which will display a list of these species (see paragraph B-3 below).

b) Is this material being transferred for research, training, or breeding for food or agricultural use?

c) Is the material under development?

If the answer is yes, the question regarding the acquisition will be activated (see d)

If the answer is "No" (box unchecked), the option on the type of benefit sharing will be activated (see e). In both cases, this is question No. 4.

d) Are there any restrictions for the transfer of the material?

Check the box if so, or uncheck it in the opposite case.

Whatever your choice is, you can proceed to Step No. 5: Click on "Next" at the bottom right corner of the window).

e) Then you have two benefit-sharing options:

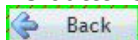
Either under Article 6.7

Either under Article 6.11

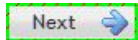
The choices are mutually exclusive, ie only one can be chosen at a time.

Whatever your choice is, you can skip to validate the data your entered by clicking on "Next.

The buttons at the bottom right to navigate between windows:



redisplays the previous screen



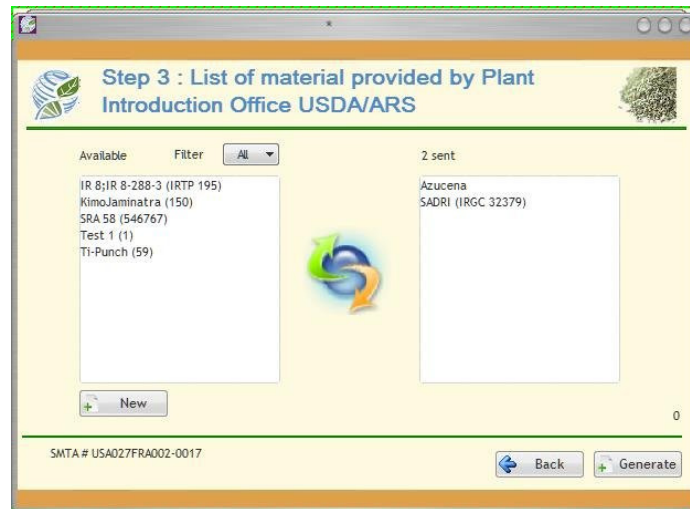
closes the current window and displays the windows on the next steps.

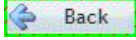
A-1.3) STEP 3: LISTS THE MATERIAL PROVIDED AND GENERATES THE SMTA

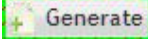
The last informative step is uses to indicate the characteristics of plant material transferred.

For this you have a selection list of varieties available on your site.

The drop-down list, located at the top right of the list of varieties available, allows you to limit the list to the varieties beginning with the letter chosen.

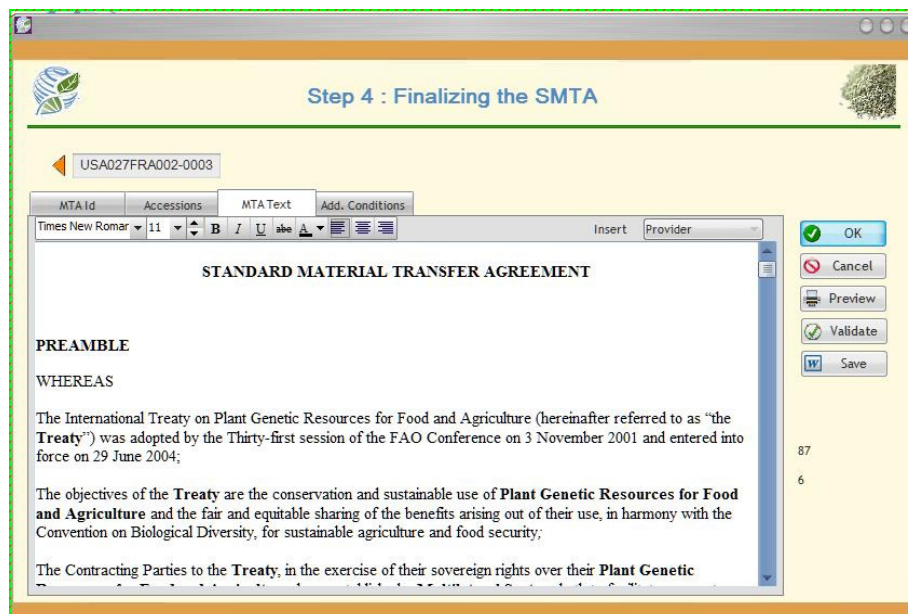


If you want to review the legal characteristics of the plant material, click on the "Back" button  and the software will take you back to the previous screen.

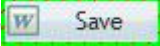
Otherwise, click on "Generate"  to create the agreement which meets the information you just entered.

A-1.4) STEP 4: FINALIZING THE SMTA


The information previously entered (identification and addresses, list of plant material, etc.) has been inserted in the text of the SMTA, if applicable.



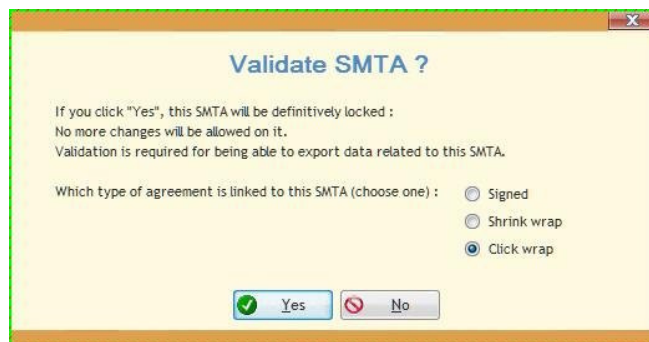
The user can also add some additional information (date, URL, etc.), revise and print it before passing it for signature to the other contractors.

The button "save"  , lets the user saving the document in RTF format and to edit it with a word processor compatible (MsWord, OpenOffice Write, ...). The name of the document consists of the number of SMTA and the extension (RTF USA027FRA002-0003.RTF eg).

Once the user has inserted all the modifications needed, he must validate the SMTA by

clicking on "Validate"  to finalize the document and to prevent any later modifications.

A-1.5) FINAL STEP: VALIDATION OF THE SMTA



The validation of the SMTA is related to the choice of signing the SMTA.

Three options are displayed on the screen: you can make your choice before clicking the button "Yes".

A-1.6) EXPORTING THE SMTA DATA

The validation also activates the button "Export"  , which allows you to save the SMTA related information in an electronic standard to exchange it between the different parts involved in this transfer.

Two sizes are available for exchange, XML classic


```

<par (par (par (par (par (x1z76 (x4820
Signature.....\tab
Date.....\super\fs18 \nosubsub\fs22\par
\pard (par (pard (W720\par \pard\fs24\par ) "</MTATxt>
<OrgPID>"</OrgPID>
<OrgFULLNAME>"</OrgFULLNAME>
<OrgINSTCODE>"FRA002"</OrgINSTCODE>
<OrgACRONYM>"</OrgACRONYM>
<OrgECPAACRONYM>"</OrgECPAACRONYM>
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<OrgURL>"</OrgURL>
<OrgLb_Director>"</OrgLb_Director>
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<DestName>"Roland"</DestName>
<DestPhone>" +33467615846"</DestPhone>
<DestFax>" +33467517537"</DestFax>
<DestEmail>"roland.cottin@cirad.fr"</DestEmail>
- <MCPDID>
- "1"
- <MCPDACCNAME>"Azucena"</MCPDACCNAME>
- <MCPDACCENUM>"</MCPDACCENUM>
- <MCPDINSTCODE>"</MCPDINSTCODE>
- <MCPDCOLLNUMB>"5"</MCPDCOLLNUMB>
- <MCPDCOLLCODE>"</MCPDCOLLCODE>
- <MCPDACCQDATE>"</MCPDACCQDATE>
- <MCPDORIGCTY>"</MCPDORIGCTY>
- <MCPDCOLLSITE>"</MCPDCOLLSITE>
- <MCPDLATTITUDE>"</MCPDLATTITUDE>

```

An encrypted XML (XMTA) is automatically decoded by Gene-IT.

```

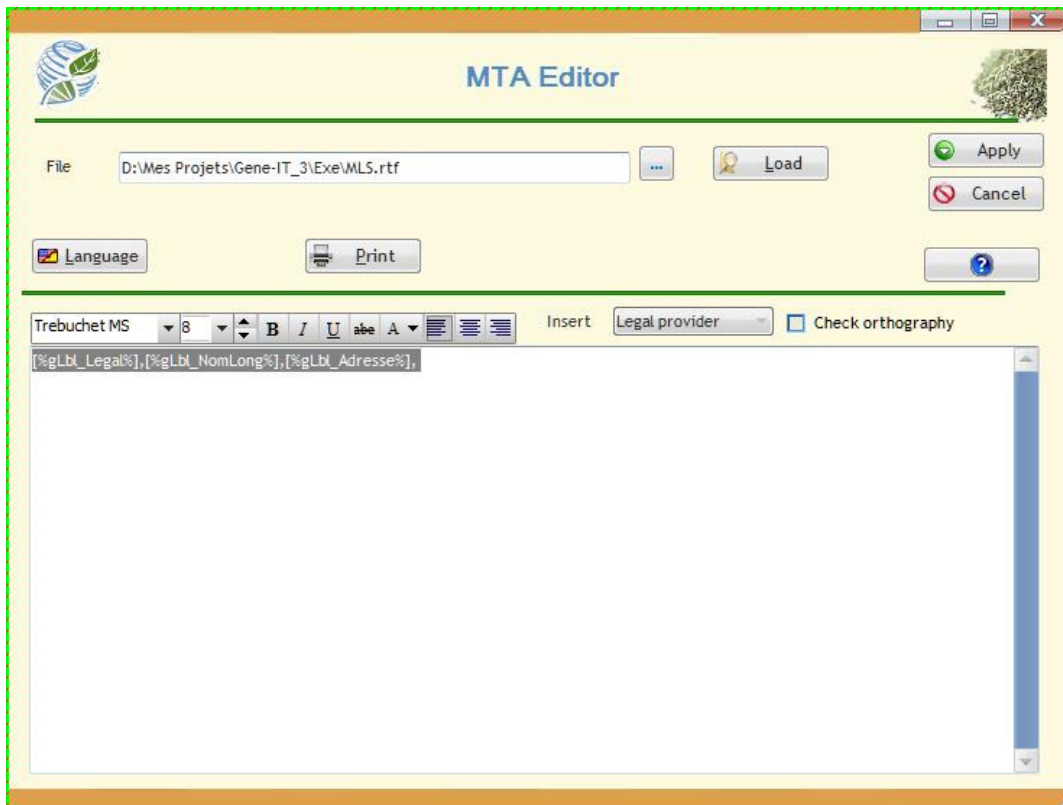
OC1gAOcHsRgzeSEKM9zpJ28EYzLay1bMsk6dTNy7b887t1oTWb5aoTnMCSQRkcmfHjIz2XFhtOVXMRh
m5NCRb75j11w+98c11QVNuqkHHEXm4W7z0BqS/R61Pm3RfeJ255de31XkXwvTM0g3zrRHvrv/k3Ae
+qyY8Bdmi1pAr+6QhSe2IB1yXCCTQz2XvDns/42cRQe4m/nAFUmlw1d7da0Tz1fRn3PUDLT7ERd
kE1FhJ2DH2doMEXLTOa1Pvo+NOVzutDabH2kE/41kE3JOCZ7zwpbbEQ43GqwpZoeqZMj4F1o6zDAF1H
qWYoa3nthXW72z1U+Ht53kMPD2M6CPE82kl1y5OaMgA8Cqk1Y4qp3PL9T2KVM3jz4mFJ06VdREBktI9A
jxG6fELe4qkVXE0cPzdBgE049U2JOF9wCexNiu+EVluJuX137Q3h2vfhbqgFK591b19caA1j
Dz2fj1GXaD4FSAw0c3yF1E8AuhhefKbPtZ/z//Q5oqptI6Dz6wTn9uqgWHS2AZq24zU8j3EBa2
Rwe0epv2gthfzJvKuzR1AYd05dq1S4Vt+XmXQp9E9W2IxxDXagqEj5jZQp9y7t1pwe6r91zQ80
Nzqdhapuoz2hUkrCZ80Mqnceo317A1/MtMcN5MvH8nY1q6R2T4AK7H1ochdD28jMiIHm89giq8eMcCoQ
0H/d5yQVtnuR1zGTf7XrNUPFNu165Xel2+F+477Anves6Q5In1gAUZkx1cCb39NbGoF1GL1Rqh4Z
H7FFft2d+11Ipzmzfm1YyG891p+6LFIwdfdvXh+4eQu1afCo9J5aX9Htc908BCpAEm+w1kbW13my9
7hJUCGHPDECqAaXMi2kxjpbaiPAmboyaol1y1UuRwdD62VHrckmV2FVaW2rCo0Sp81skRQpUD1BgMz
HrFb/XeXWYv9S245cc31gtctaeFk7AVuGdHFrachvT+7b7KvYeBkw/aR1H/1RQ44AbAhhndB+SN
AG1/mbeJ5+eqYmf3e2k9c0Ukex2WSeH9ZT11Sf0wPbbgo2kPbDxLfw8ND2baCP875+5eK5ayq9M
1j+SuTYLnze1j0IF4/KRAGMB8pCCG/L1aOVUXASB/G3Vj0ePAZGHZ2SpMRK5GITIwz1Zm/188knuEj1kr
d6+Ipk87FDzJcpblzYFbUXCatVZ1qRTYLFj1xdnF3w5PaEkaB1Vwo1zd0JRL2Xc31EeSw1z0L646aFco
kXbby+hhjA08872yWB27IBeU5H9560+1axEY21k+9KB/qzdFIg8dJj1/wSEdq907QN1A/xxejzCRGR6
XpQZ1Fvq/g/Wu01o64ZeLezyfo/4011LC/FVzKx9EQSQ0Nn2z83M2NRQeMKN44nXOB0G6WLNRC1
6Dbu4nJCYy11VfWw9B9kXbWwWZUJKU1+1m3aCHS510141/xSHRyOUM893/pvuz2F9y31RM
TK65bUgcmz8ISqob1NqhtocayVR46LXej2KwP3wSjeh7vwtUeLhnAb0LpdBEmxMj54dH1B9q
eH1cWTWfvfjgPv0W3tKDeCkLr7vng8+xDj/zGyF1EbxUa1DDyjE2NAGnIaz01uXkA5UoEb09vz2
WUQxXwWw1+or+koukAvydfJ5H37AaRkXEZ4EQ5+EcUaeWj1rYmIyeXR9xOEwP9NRvzSF5A78M2j
H5AaEWTevOah3w8WHQAAEzqjEkwRnu2F1Sx6Q1vJo/281WE0c7g+1EhWn+3ONW217k28dp7ECqE/k1
CmXw+2DLWeTdVbU1EvPwPp+n5kgqRmqAdGRvXuDgiE9gmyDe4xYalqnaRskv0PmRwRMPvxcvEZR29s
w/zg5buwvIQ866v/AtPn6QuxaULa4ctH+nRcR4XK11wE18AwS1o324E2q1jHv1yGUp0ppQwvCL417B

```

This format has the advantage of guaranteeing a good privacy level in the electronic exchange.

A-1.7) EDITION OF A MTA

In the case where an SMTA is not applicable, Gene-IT offers a MTA editor:

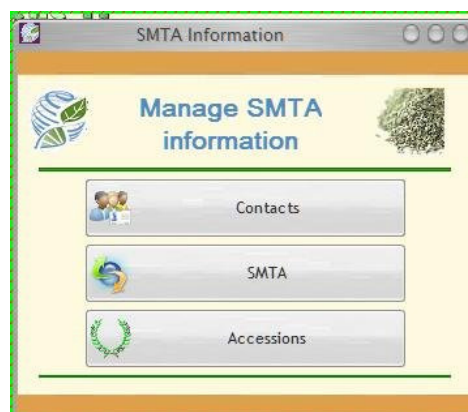
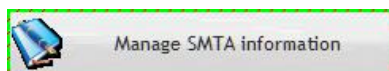


The text editor included in Gene-IT enables you to write (or load) a RTF document which meets the requirements of the MTA.

A toolbar enables you to change the text (bold, underline, font, etc.) and to adjust the layout of the document in accordance with your preferences.

A-2) MANAGEMENT OF MTA RELATED INFORMATION

The second button on the main menu gives you access to a submenu to manage the SMTA information and the required references.



Three management options are possible: by contact, by SMTA or by accessions managed by the software.

A-2.1) MANAGEMENT OF CONTACTS AND ORGANISATIONS

Manage Contact information

Name: Roland

Surname: COTTIN

Phone: +33467615846

Fax: +33467517537

Email: roland.cottin@cirad.fr

Organisation: CIRAD, Département

Contact PID: [ABCDEFGHIJ-1234-5678-9012-ABCDEFGHIJKL]

Exchanges

F_Exchange	DateExchange
USA027FRA004-0001	20070126
USA027FRA004-0002	20080317
USA027FRA002-0001	
USA027FRA002-0002	
USA027FRA002-0003	
USA027FRA002-0004	
USA027FRA002-0005	
19	

This screen allows you to view and edit the contact information, whether this contact is a supplier or a recipient of plant material.

Clicking the "Exchanges" lists the SMTAs containing that contact.

A-2.2) MANAGEMENT OF SMTA

Entering MTA Outgoing MTA All MTA

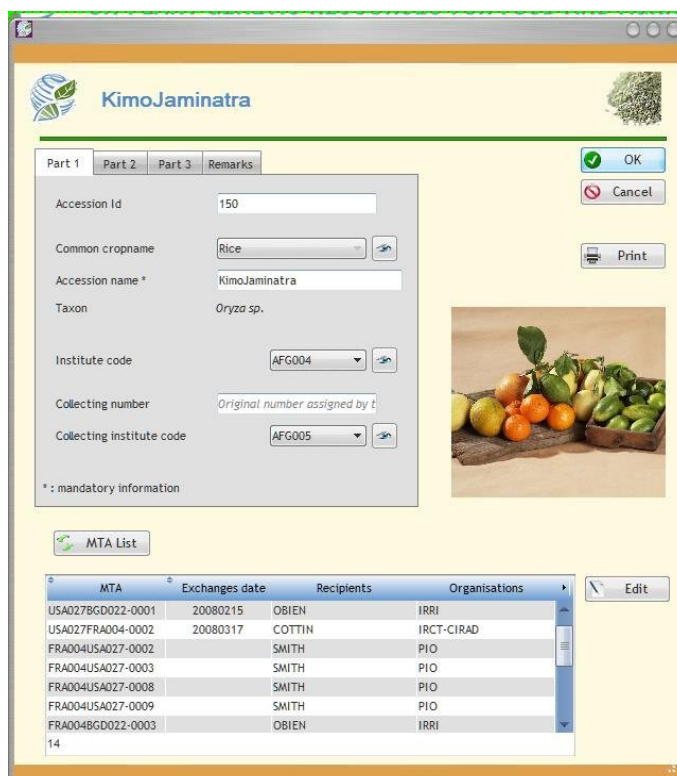
I/O	Id MTA	Date	Recipient
	FRA004BGD022-0002		OBIEN
	FRA004BGD022-0003		OBIEN
▶	FRA004USA027-0001	27/03/2008	SMITH
▶	FRA004USA027-0002		SMITH
▶	FRA004USA027-0003		SMITH
▶	FRA004USA027-0004		SMITH
▶	FRA004USA027-0005		SMITH
▶	FRA004USA027-0006		DOE
▶	FRA004USA027-0007		DOE
▶	FRA004USA027-0008		SMITH
▶	FRA004USA027-0009		SMITH
▶	USA027BGD022-0001	15/02/2008	OBIEN
▶	USA027BGD022-0002	02/04/2008	OBIEN
▶	USA027BGD022-0004	08/04/2008	OBIEN
▶	USA027BGD022-0005		OBIEN
▶	USA027BGD022-0006		OBIEN
▶	USA027BGD022-0007	10/06/2008	OBIEN
▶	USA027BGD022-0008	04/07/2008	OBIEN
▶	USA027BGD022-0009	10/10/2008	OBIEN
▶	USA027BGD022-0010		OBIEN
▶	USA027FRA002-0001		COTTIN

Counter: 46

This screen allows you to manage the list of SMTAs: by clicking the appropriate button, located above the list, you can choose to view only the SMTA incoming, outgoing or all of SMTAs managed locally by Gene-IT. On the right of each line, a green or orange icon indicates the direction of the SMTA exchange.

Double-clicking on a line opens the window and displays the SMTA.

A-2.3) MANAGEMENT OF ACCESSIONS (MCPD)



The screenshot shows the KimoJaminatra software interface. The main window is titled "KimoJaminatra" and has a tabbed interface with "Part 1", "Part 2", "Part 3", and "Remarks". The "Part 1" tab is active, showing a form for entering SMTA details. The form fields are:

- Accession Id: 150
- Common cropname: Rice
- Accession name *: KimoJaminatra
- Taxon: Oryza sp.
- Institute code: AFG004
- Collecting number: Original number assigned by t
- Collecting institute code: AFG005

There are buttons for "OK", "Cancel", and "Print" on the right side of the form. Below the form is a button labeled "MTA List".

Below the "MTA List" button is a table with the following data:

MTA	Exchanges date	Recipients	Organisations
USA027BGD022-0001	20080215	OBIEN	IRRI
USA027FRA004-0002	20080317	COTTIN	IRCT-CIRAD
FRA004USA027-0002		SMITH	PIO
FRA004USA027-0003		SMITH	PIO
FRA004USA027-0008		SMITH	PIO
FRA004USA027-0009		SMITH	PIO
FRA004BGD022-0003		OBIEN	IRRI

The table has a page number "14" at the bottom left and an "Edit" button at the bottom right.

The management of accessions is conducted by Gene-IT in nomenclature MCPD (Multi-Crop Passport Data). The button "MTA List" at the bottom left, displays the list of SMTA including the accession currently on the screen. As in the view "Contacts", by making double-click on a line of the list and Gene-IT will show the details of the SMTA.

B) Toolbar « Info »

The toolbar "Info" contains four buttons to access the text of the Treaty and that of the SMTA, and some additional background information on the International Treaty and its implementation.

(1) B-1) TEXT OF THE INTERNATIONAL TREATY

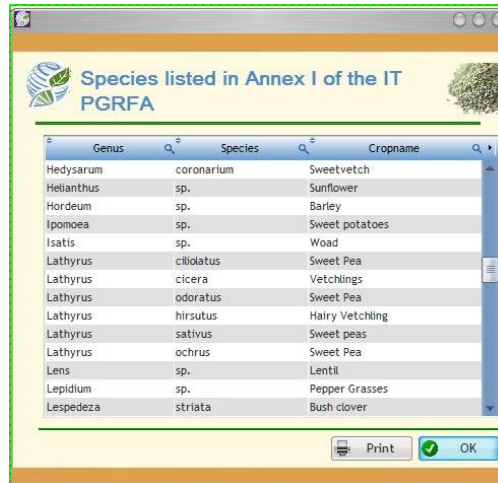
Clicking on this button allows you to view, in one of the six official languages of FAO and by language being used by Gene-IT, the full text of the International Treaty in PDF format. A programme for reading this format (Acrobat, Foxit, etc.) is required on your computer to take advantage of this feature.

B-2) TEXT OF THE SMTA

This button allows you to view, in one of six languages of FAO and by language being used by Gene-IT, the full text of the Standard Material Transfer Agreement. As the previous button, you will need a programme to read PDF (Acrobat, Foxit, etc.) installed on your computer.


B-3) LIST OF CROPS LISTED IN THE ANNEX I OF THE INTERNATIONAL TREATY

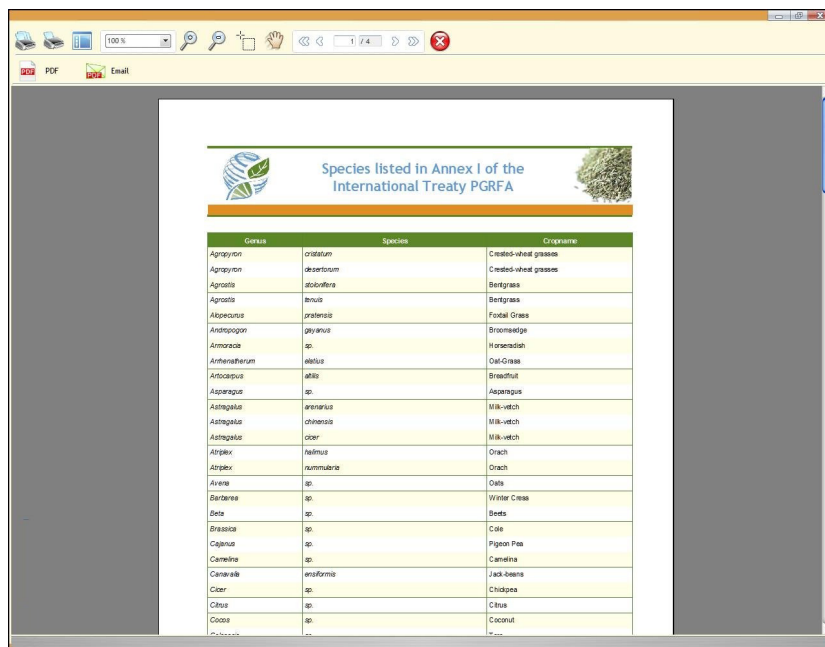
Clicking the "Annex I" button displays a window with the species listed in the Annex I of the International Treaty.




Genus	Species	Cropname
Hedysarum	coronarium	Sweetvetch
Helianthus	sp.	Sunflower
Hordeum	sp.	Barley
Ipomoea	sp.	Sweet potatoes
Isatis	sp.	Woad
Lathyrus	ciliolatus	Sweet Pea
Lathyrus	cicera	Vetchings
Lathyrus	odoratus	Sweet Pea
Lathyrus	hirsutus	Hairy Vetchling
Lathyrus	sativus	Sweet peas
Lathyrus	ochrus	Sweet Pea
Lens	sp.	Lentil
Lepidium	sp.	Pepper Grasses
Lespedeza	striata	Bush clover


Click on genre to see any comments on it. Use the side bar on the right side of the list to scroll it.


In order to obtain a hard copy or PDF format, click on "Print" . Then, you will preview the file.



Genus	Species	Cropname
Agropyron	cristatum	Crested-wheat grasses
Agropyron	desartorum	Crested-wheat grasses
Agrostis	stolonifera	Bentgrass
Agrostis	trivis	Bentgrass
Albeocorus	pratensis	Foxtail Grass
Andropogon	platensis	Bromegrass
Amoracia	sp.	Horse radish
Antennatherum	elatius	Old-Grass
Artocarpus	alata	Breadfruit
Asparagus	sp.	Asparagus
Astragalus	arvensis	Wild-vetch
Astragalus	obovatus	Wild-vetch
Astragalus	obovatus	Wild-vetch
Atriplex	halimifolia	Orach
Atriplex	summitana	Orach
Avena	sp.	Oats
Bardonia	sp.	Winter Cress
Beta	sp.	Beets
Brassica	sp.	Cole
Cajanus	sp.	Pigeon Pea
Camelina	sp.	Camelina
Canavalia	ensiformis	Jack-beans
Cicer	sp.	Chickpea
Citrus	sp.	Citrus
Cocos	sp.	Coconut

One click on the button  will let you to choose the printer and the number of copies.

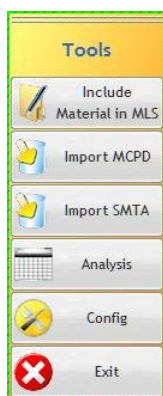
Click on  to create a PDF file from the preview, which could be use, for example, with Acrobat Reader®.

Once the consultation is completed, click on the OK button  to close the window and to return to the screen on the legal characteristics of the genetic resources transferred.

B-4) WEB SITE OF THE INTERNATIONAL TREATY

If you have an active Internet connection, this button lets you to start Internet Explorer and to visit the homepage of the International Treaty in English, French or Spanish (<http://www.planttreaty.org/>)

b) C) Toolbar « tools »



This toolbar allows you to access features available in Gene-IT, but also to quit the software.

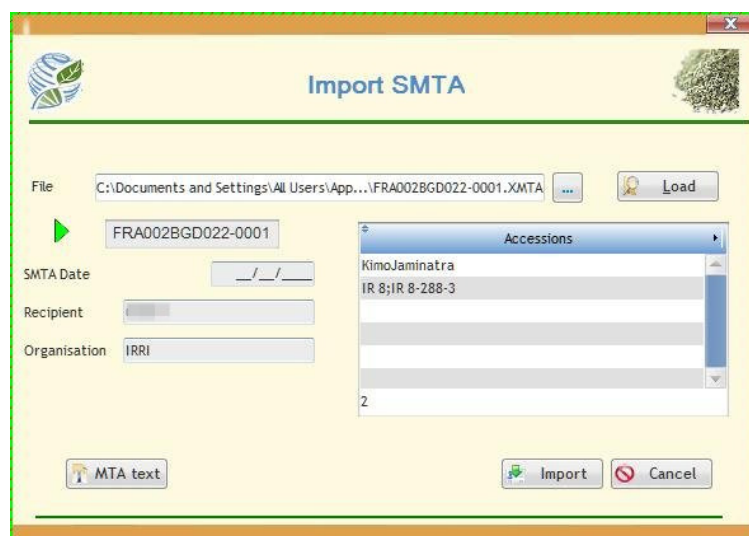
C-1) STANDARD LETTER TO NOTIFY THE INCLUSION OF GENETIC MATERIAL IN THE MLS

This button allows you to get into your word processor, using the RTF format, to write a letter to notify the inclusion of genetic material in the Multilateral System. This document can be adapted to your own needs.

C-2) IMPORT OF ACCESSION RELATED INFORMATION

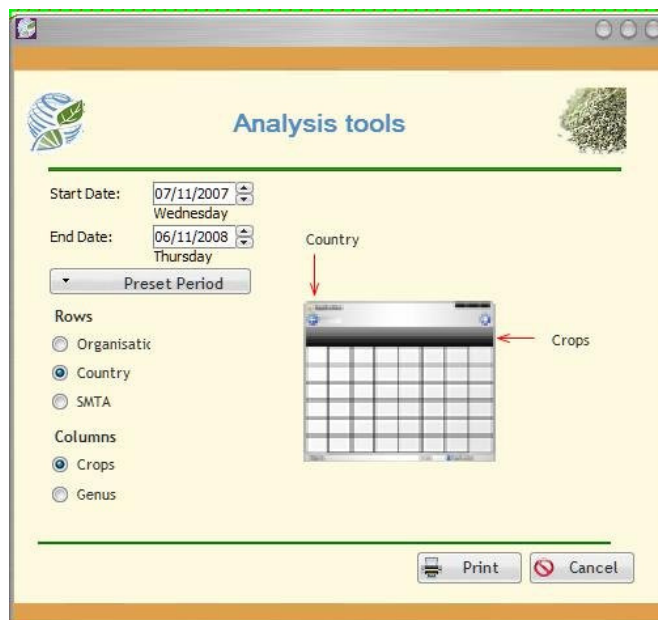
With this button is possible to import the characteristics of the accessions, according to the format MCPD . The export of such data from third-party software is not part of this project.

C-3) IMPORT OF SMTA RELATED INFORMATION



If your counterpart also uses Gene-IT, you can import all the information related to the SMTA with this button. For that, you need to get through your choice of the swap file, exported from your ISP's genetic materials (see A.1-6 Export the SMTA). Once the file is loaded, clicking on the button "Import" to include all the information related to the SMTA in your local database.

C-4) ANALYSES OF EXCHANGES

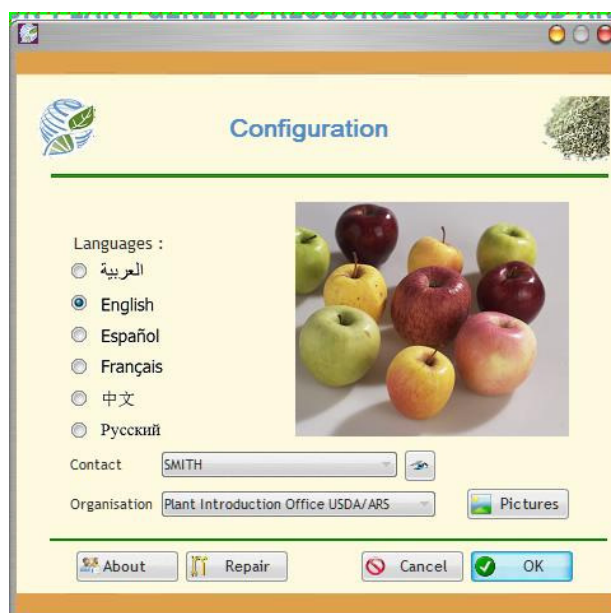


This button allows you to create several tables to give you an overview of your exchange activities under the International Treaty.

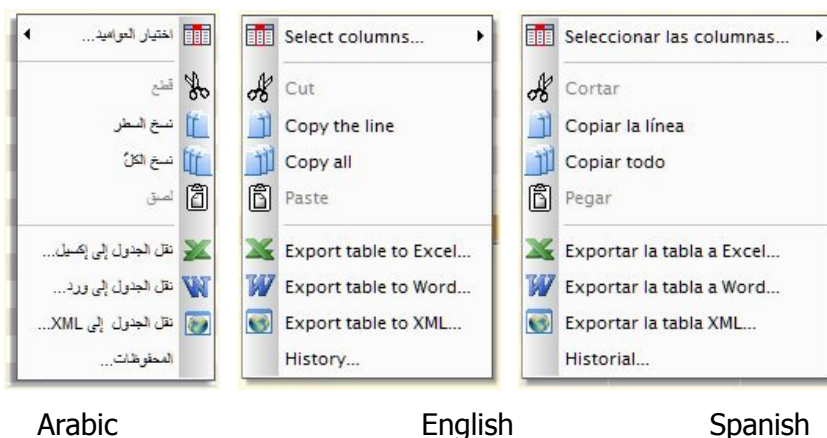
By clicking on the appropriate buttons, you select the type of information (organizations, country, SMTA) which should be in the row of the table, while the columns will be filled with information on varieties or genre taxonomy.

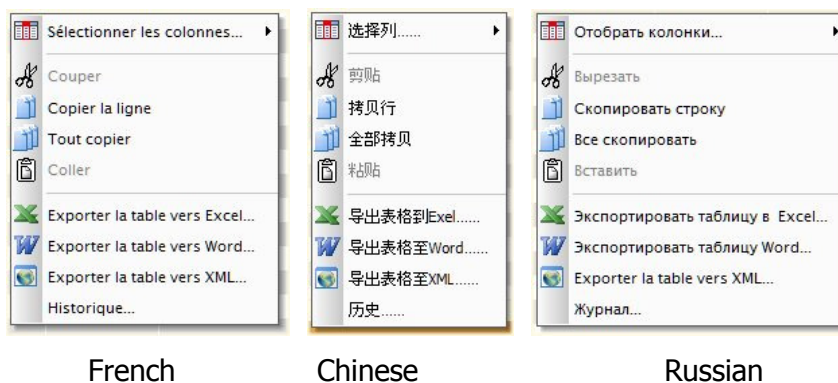
Clicking on the "Print" will let you to preview, print and export in various formats, this general overview table.

C-5) CONFIGURATION OF GENE-IT



The button "Configuration" allows the setup of the Gene-IT software environment, particularly the customization of the interface language. You can select to use one of the six official languages of FAO.



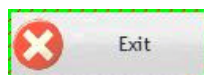


It is also through this screen that the choice of the identity of the supplier is archived. There are other tools to physically maintain (re-indexing, repair, etc) to the local database and to manage the image library used to illustrate some screens of Gene-IT.

Note 1: Changing the language of the interface will restart the software to implement the changes.

Note 2: The choice of the language will only affect the software interface, not the data exchanged, which will be available only in English.

C-6) EXIT GENE-IT



This button lets you close the program and end your session.

A new use will require you to log in again to enjoy access rights associated with your account (see 3.1).