Functional Specification of National AIDS Spending Assessment Resource Tracking Tool (NASA RTT)

(Annex 2)

Uniting the world against AIDS

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1. Introduction

The NASA RTT is meant to serve as a main tool for conducting National AIDS Spending Assessment (NASA) in countries and facilitate data management process. As a result of system and business analysis, UNAIDS has decided that client - server database software where client is a desktop application will best meet its needs.

The scope of this document is to define an overview over the features of the NASA Resource Tracking Tool (NASA RTT). This will include operations allowed in each module, validation conditions, etc.

1.1 Definitions

National AIDS Spending Assessment (NASA) - A resource-tracking framework for monitoring the annual flow of funds used to finance the response to HIV/AIDS in a given country. The framework tries to capture the range of all HIV/AIDS related expenditures in one country or part of the country within one year used in the fight against the epidemic.

AIDS spending category (ASC)* – Goods, services and activities delivered to populations in need as part of the HIV response, such as condom distribution, prevention programmes, voluntary counselling and testing, etc.

Production factor (PF)* – Resources (e.g. salaries, drugs, equipment, etc.) used to produce HIV-related goods and services (i.e. an AIDS spending category)

Financing agent (FA)* – An entity (such as a national AIDS committee) that receives and pools funds received from financing sources (such as donors), which it then uses to fund programmes that provide HIV-related goods and services. The financing agent decides what will be bought/funded, for whom and who will provide the goods/services.

Financing source (FS)* – Entities (e.g. donors, Global Fund) that provide funds to financing agents

Provider of goods and services (Provider)* – An entity that engages in the production, provision, and delivery of HIV goods and services (e.g. hospitals, non-governmental organizations, etc.)

Beneficiary population (BP)* - Populations intended to benefit from specific activities (e.g. men who have sex with men, commercial sex workers, pregnant women, etc.)

Health system strengthening (HSS)* - A health system comprises "all organizations, people and actions whose primary intent is to promote, restore or maintain health". Any activity aimed at improving a component of a health system (organizations, people, etc.) is considered a health system strengthening activity. Health system strengthening is built around a framework of six building blocks: service delivery, the health workforce, health information systems, medical products, health financing, and leadership and governance.

NASA resource tracking team – The team that conducts the NASA in a given country

NASA transaction - A transfer of funds (money) from a financing source (FS) to financing agent (FA) and finally from a financing agent (FA) to a provider of goods or services (FS→FA→Provider), who invests in different production factors (PF) to generate an AIDS Spending Category (ASC) intended to benefit specific beneficiary populations (BP) and strengthen health system in some areas. A NASA transaction is therefore defined by seven vectors: FS,

FA, Provider, ASC, BP, PF and HSS, which are placed on three hierarchical levels, and the corresponding funds distributed through the vectors (section 3.7)

*List of standardized NASA classifications for FS, FA, Provider, ASC, PF and BP and HSS definitions are posted at:
http://data.unaids.org/pub/Manual/2009/20090916_NASA_Classifications_edition_en.pdf

2. NASA RTT modules

This section explains application complexity and functional specification of the required modules. More detailed functional specification of modules is provided in Section 3.

2.1 Application complexity

	Modules	Option (scenario)
1	Administration	Basic
2	Configuration	Basic
3	Registration of Organizations / Institutions	Basic
4	NASA registration	Basic
5	NASA RTT member's account management	Basic
6	User roles	Basic
7	NASA transaction	Basic
8	Export of data	Basic

9	Import of data	Basic
10	Source file link	Basic
11	Lookup table's management	Basic
12	Multi user	Basic
13	Multilanguage	Basic
14	Backup/restore data	Basic
15	Built-in reports	Basic
16	Report generator	Optional
17	Database manager configuration	Basic
18	NASA database layout	Basic
19	Testing (unit tests and functional testing of application)	Basic
20	Release management (milestones management)	Basic
21	Deploy to production	Basic

2.2 Description of modules

Module	Description
Administration	This module will handle the basic settings used inside the application such us: users and

	their roles, NASA data management (export/import, merge function, etc), multilanguage and multiuser settings, database and lookup tables management, etc.
Configuration	This module will cover the initial settings of the application such as: - Tolerance: used to allow an acceptable mismatch when the sum of spending funds entered for the NASA transaction is calculated. - Measurement Unit: this defines the main spending unit that will be used in NASA. Measurement unit can be expressed in Units, Thousands and Millions. For example $3,000 could be represented as $3,000 if the measurement unit is set to 'Units', $3,000,000 if the measurement unit is set to 'Thousands' or $3,000,000,000 if the measurement unit is set to 'Millions'. The above variables must be stored within a local dataset in order to provide the application with the type of data for use over its entire lifetime.
Registration of Organizations and Institutions	This module will cover the registration of basic information related to Organizations or Institutions which are the main 'actors' in the NASA and their roles within the NASA exercise. The information can be inserted, edited or deleted (the record is marked as inactive, no information will be deleted from the database). Change history is not required. The organization/institution can play one or many roles in the NASA and have one or many financial attributes: - Organizational roles: define the role of the organization in the NASA process. The organization may have two roles: MANAGEMENT ROLE and/or ACTOR IN HIV RESPONSE. Selection is single or multiple. - NASA owner status: define the organization's ownership status of one NASA exercise. The values are YES or NO and just single selection is allowed. - Financial type: define the source of financing relevant to the organization. The values are

	PUBLIC or PRIVATE or INTERNATIONAL or SEMIPRIVATE. Just single selection is allowed. - Financial role: define the role relevant to the organization. The values are SOURCE and/or AGENT and/or PROVIDER. Selection is single or multiple and this role can be delegated only after the organization has been assigned the organizational role ‘‘ACTOR IN HIV RESPONSE’ option.
NASA registration	This feature represents the creation of a new NASA exercise based on a country/year combination. The operations will be insert, edit and delete (information marked as inactive, no record will be deleted from the database). Once NASA has been created, the following feature information can be updated: regional classification, part of the country if the NASA is conducted in just a part of the country, assessment currency, average exchange rate, PPP coefficient/ and the source, gross domestic product (GDP), population number and the source, HIV/AIDS prevalence. NASA year and country combination are read-only. A list of countries and currencies will be provided by UNAIDS/HQ. In case where the desired country or currency is missing the ‘add country/currency feature’ will allow users to define the country/currency name. Change history is not required.
NASA RTT member’s account management	This feature will cover the information about NASA team members who are involve in NASA and can perform actions in the system. Each member will use a username and a password to login into the system. Their data will cover the full name, email address, phone number and position in the organization, employer name and address. These data can be inserted, edited and deleted (the record is marked as inactive, no information will be deleted from the database). The username is unique value in the system. No blank passwords are allowed. Change history is not required.
User roles	Functionalities supported by application are controlled by user’s roles (registration of organizations/institutions, registration of NASA and NASA RTT members, export /import of NASA data and look up tables, etc). This feature will allow the Administrator account to view defined user’s roles and the operational rights/actions that they can have within the NASA

	RTT application. This feature is read-only (hard coded) so no new user roles or user groups (administrator, project leader, etc) can be created.
NASA transaction	NASA transaction is defined as: A transfer of funds (money) from a financing source (FS) to financing agent (FA) and finally from a financing agent (FA) to a provider of goods or services (FS → FA → Provider), who invests in different production factors (PF) to generate an AIDS Spending Category (ASC) intended to benefit specific beneficiary populations (BP) and strengthen health system in certain areas. A NASA transaction is therefore defined by seven vectors: FS, FA, Provider, ASC, BP, PF and HSS, which are placed on three hierarchical levels and the corresponding funds distributed through the vectors. This feature is the 'heart' of the system. The main function of this module is to operate with spending funds classified by seven vectors on three hierarchical levels. The sums of total spending in one NASA transaction on different hierarchical levels must be equal in respect to tolerance. The module should provide visual indicators (green/red signal) on different hierarchical levels which can identify potential discrepancies between the sums of total spending between the hierarchical levels in respect to tolerance.
Export of NASA data	This module will allow high-level users, Administrator and Project Leader to export NASA data to an external file. The file should contain all transactions in a given NASA, the lookup tables and the version used at the run-time. This file will allow users on other sites to import the data.
Import of NASA data	This module will allow users to import NASA data entered in other sites. The imported NASA does not affect the existing lookup table and all other data used to in day to day activity.
Source file link	This feature will allow users to link an external file and archive it in the application. The external file is a main data source used to create NASA transaction. The file is obtained from Organization and Institutions involved in NASA and can be Excel, Word, Adobe PDF, images or text files, etc. External file is linked with NASA transaction and users will be able to see the file associated with the transaction. The files will be opened in their own container,

	meaning that there will be no viewer coded to see these files. For example, if the source link file is name.pdf, the corresponding viewer for the 'pdf' extension will be used when users try to view the file.
Lookup table's management	The list of standardized NASA classifications (FS, FA, Provider, ASC, PF, BP, HSS and other classification (country and currency name) may be changed and updated periodically. This module will cover the management of the classifications used in NASA. This feature will allow to Administrator account to import a new set of classifications mapped with old classifications. The new classifications will be received from the Administrator HQ account in a predefined Excel file, or any other suitable file. All old versions of classifications should be kept in the system. This option will allow users to view and compare different NASAs with different version of classifications.
Multi user	This feature will allow multiple users to use the application and store the data in a central repository on local site.
Multilanguage	As NASAs are implemented in various regions, the software must have a multilingual system that can be adapted to English, French, Spanish, Portuguese and Russian. The user should be able to select their language of choice from the user administration menu before the login application. This means that the labels of all variables, list of NASA classifications, lookup tables and content of reports need to be set up so that they can be easily viewed in multiple languages.
Backup/restore data	This feature will allow the administrator account to perform a backup/restore of the entire database.
Built-in reports	This feature generates the built-in reports based on data entered in the system. All of the built-in reports must be exported to Adobe PDF, Microsoft Excel and Word.
Report generator (optional module)	This module will allow users to create customized reports using the NASA data. Users will be free to define their own reports and charts based on data registered in the application. This

	feature will translate the internal database columns/table into more intuitive structure in order to allow an easier report definition.

3. Software Architecture Document

An extended overview of each module feature from Section 2 is provided below:

3.1 Administration module

This module will handle the basic settings used inside the application:

- Manage users
- Manage NASA data (merge NASA subprojects from different parts of the country into a full NASA country project)
- Manage lookup tables (FS, FA, Provider, ASC, BP, PF, HSS, country name, assessment currency, etc)
- Export NASA data
- Import NASA data
- Manage database backup/restore and source file links

3.2 Configuration

By tolerance system understands an acceptable difference between the sums of total spending placed on three hierarchical levels in one NASA transaction as described in section 3.7 NASA transaction. In order to validate NASA transaction the total amount of spending entered in first hierarchical level must be equal to sum of subtotals placed on second hierarchical level, etc. Since sum of subtotals on second hierarchical level are not always 100% equal to the total amount of spending on first hierarchical level, the tolerance factor is defined to allow acceptable difference between these two figures placed on different hierarchical levels and consider transaction validated in respect to tolerance.

Example

Assuming that defined tolerance is 0.5% and total spending in first hierarchical level is 1,000,000 USD, where accepted tolerance is equal or less than 5,000 USD

Scenario 1:

Sum of all spending in second hierarchical level: 980,000 USD

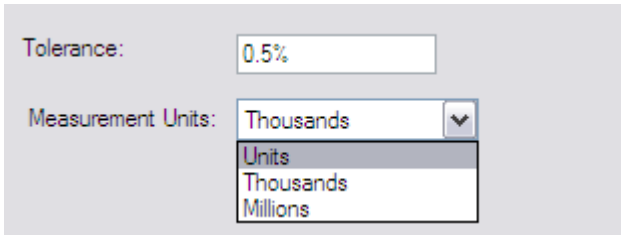
We can conclude that transaction is NOT VALID since the tolerance value is exceeded (20,000 USD> 5,000USD).

Scenario 2:

Assuming that sum of all spending in second hierarchical level is 997,000 USD

We can conclude that transaction is VALID as 3,000 USD is acceptable deviation (3,000 USD< 5,000USD).

Tolerance is a value defined by the Administrator HQ account and should be between 0 – 100%. If tolerance is not used (zero tolerance) the value should be defined as -1.



Measurement unit defines the main spending unit that will be used in NASA exercise. Due to a high exchange rate, the amount of funds associated with spending within NASA transaction can reach up to 15 numbers in local currency. In order to facilitate the data processing, measurement unit can be expressed in: Units (1), Thousands (10^3), and Millions (10^6). For example: $3,000 can be expressed as: i) $3,000 if the measurement unit is set to "Units" or ii) $3,000,000 if the measurement unit is set to "Thousands" or iii) $3,000,000,000 (if the measurement unit is set to "Millions").

Once the unit is defined in NASA it cannot be changed as it will invalidate some transactions. For example, if we use "Thousands" as measurement unit and change to "Millions" after validation it may cause the tolerance to be exceeded.

The definition of measurement unit will be provided by UNAIDS and each measurement unit will have its own defined tolerance.

When a NASA exercise is created the Measurement unit and Tolerance should be saved inside the NASA settings in order to allow import/export of data without altering the tolerance defined in the host system.

3.3 Registration of Organizations and Institutions

One of the initial steps in the NASA process is to identify and mobilize the international/national organizations and institutions that will participate in the organization of the National AIDS Spending Assessment (NASA). Therefore, information related to these organizations and institutions should be the first information that is available for registration. The objective of this phase is to register basic information related to organizations and institutions and their roles so we can later assign the organization/institution to particular NASA exercise.

Registrations of and organizations and institutions who are involved in the planning of the NASA

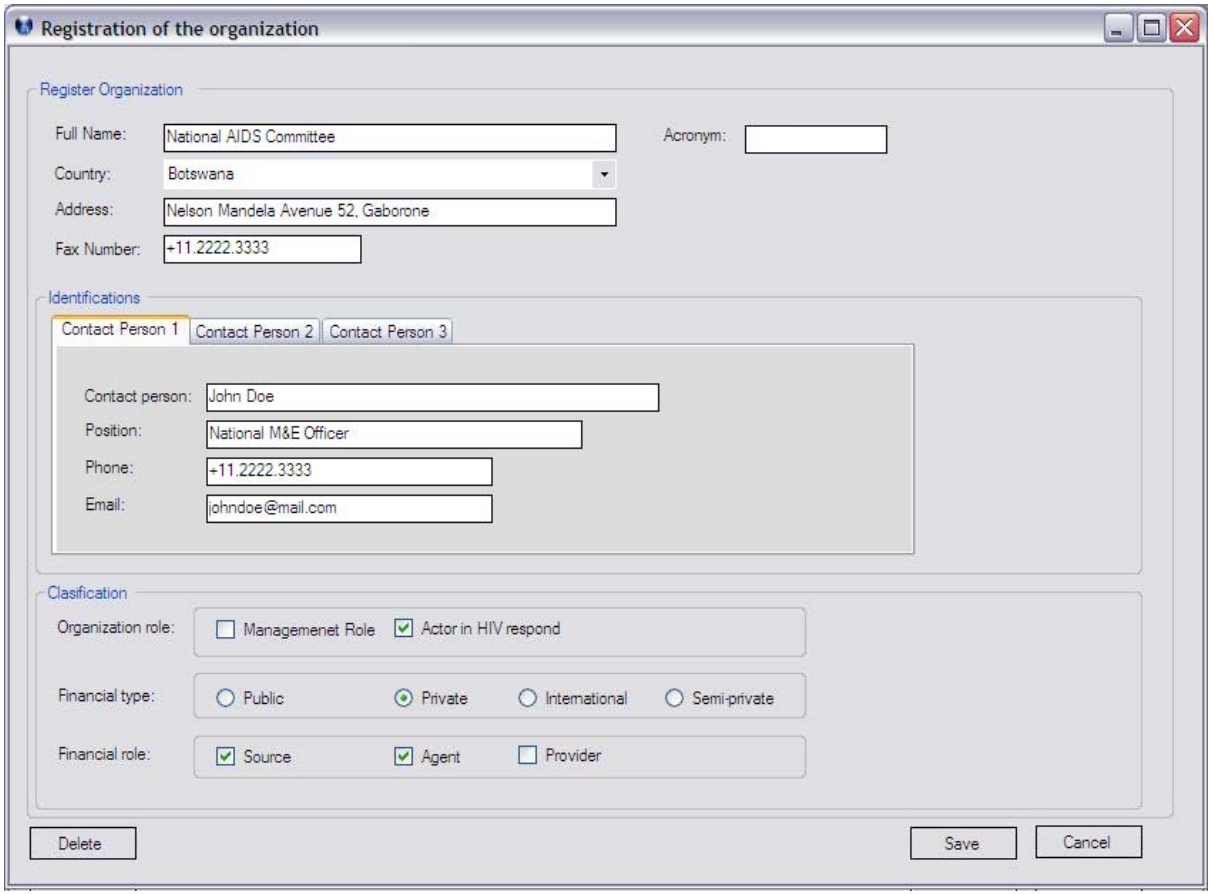
The organizations and institutions involved in the planning of the NASA are those that are directly involved in the initiation, negotiation, preparation and organization of the NASA exercise in the country. The registration of institutions and organizations can take place any time. One NASA exercise can have one or many organizations and institutions involved in the planning of NASA. The reverse can be also true, when an organization or an institution may be involved in multiple NASAs.

Registration of organization and institution implementing NASA (NASA owner)

The organization or institution implementing NASA indicates the organization or institution that has overall responsibility for the NASA and its outputs, houses the data generated through the NASA and is the sole authority responsible for how the data is used and by whom. The NASA owner must be assigned during the registration of the NASA. A single registered NASA must have only one organization or institution listed as its owner.
The organization or institution that owns the NASA may be one of the organizations or institutions involved in the planning of the NASA, an organization or institution directly involved in the national HIV response, or other organizations and institutions. One organization or institution may be the owner of one or many NASAs.

Registration of organizations and institutions directly involved in the national HIV response

The national HIV response comprises all organizations and institutions directly involved in the HIV response who act as financing sources, financing agents or providers. These include donors, NGOs and governmental institutions (ministries, hospitals, etc). One NASA may list one or many organizations and institutions that are directly involved in the national HIV response. Conversely, one organization or institution that is directly involved in the national HIV response may be involved in one or many NASAs. The registration of institutions and organizations can take place any time.

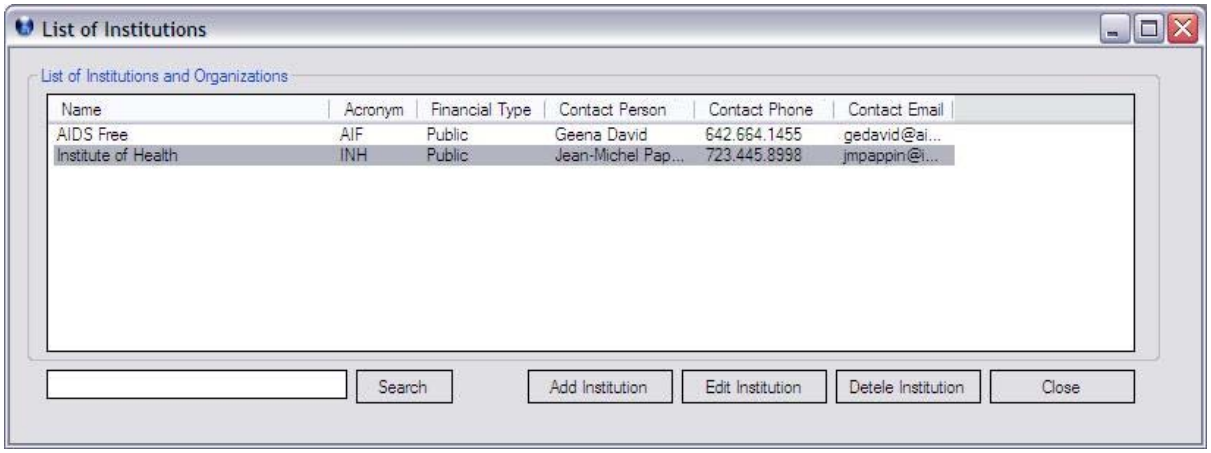


Functions:

- *Save*: will save the information to the database, adding a new record if is a new organization/institution to be registered or will update the record for the exiting institutions

- *Delete*: by this function the institution will be marked as inactive in the database, no physical delete will be done. The operation will be executed only after a confirmation from the user side

- *Cancel*: will close the form without any operation performed upon the record;



Functions:

- *Add institution*: will generate empty registration of organization form

- *Edit Institution*: will generate the registration of organization form, filled with data for the selected institution

- *Delete Institution*: will ask the user to confirm the deletion of an institution. The system should warn the user if institution is a part of any transaction and not allow deletion of the record if institution is linked with any NASA transaction in the system

- *Search*: the system will perform a quick search based on the value added. The field is mapped to the name of the institution. Also this form should have drop down list so user can scroll up /down to find the desired organization/institution

Special remarks:

- The registration of institutions and organizations can take place at any time
- Once registered the name of the institution cannot be changed
- All other settings can be updated at any time
- A history of changes is not required
- A privileged user should have the ability to delete registered organizations or institutions only if all of their assigned roles have been removed

	Variable name	Description of variable	Format	Editable	Content
1*	Full Name	Full name of the organization. Read only after creation.	String	No	User defined
2	Acronym	The acronym of the institution	String	Yes	User defined
3*	Country	The country location the institution	String	Yes	Predefined list
4	Address	The address of institution	String	Yes	User defined
5	Fax Number	Institution's fax number	String	Yes	User defined
6	Contact Person 1	Contact person 1	String	Yes	User defined
7	Contact Person 2	Contact person 2	String	Yes	User defined
8	Contact Person 3	Contact person 3	String	Yes	User defined
9	Position 1	Position of contact person 1	String	Yes	User defined
10	Position 2	Position of contact person 2	String	Yes	User defined
11	Position 3	Position of contact person 3	String	Yes	User defined
12	Phone 1	Phone of contact person 1	String	Yes	User defined
13	Phone 2	Phone of contact person 2	String	Yes	User defined
14	Phone 3	Phone of contact person 3	String	Yes	User defined
15	Email 1	Email of contact person 1	String	Yes	User defined

16	Email 2	Email of contact person 2	String	Yes	User defined
17	Email 3	Email of contact person 3	String	Yes	User defined
18*	Organization role	Role of the organization within NASA processes. Multiple selection is allowed	Numeric	Yes	Predefined list: Management role or/and Actor in HIV respond
19*	Financial type	Define the source of financing relevant for the organization involved in HIV response. Can be set only if Organization role has value 'Actor in HIV response'. Unique selection.	Numeric	Yes	Predefined list: Public or Private or International or Semi-private
20*	Financial role	Define one or many roles relevant to the organization. Can be set only if Organization role has value 'Actor in HIV respond'. Multiple selection is allowed	Numeric	Yes	Predefined list: Source or/and Agent or/and Provider

Note: all * fields are mandatory

3.4 NASA registration

National AIDS Spending Assessment (NASA) is a resource-tracking framework for monitoring the annual flow of funds used to finance the response to HIV/AIDS in a given country. The framework tries to capture the range of all HIV/AIDS related expenditures in one country or part of the country within one year used in the fight against the epidemic.

This feature represents the creation of a new NASA exercise. Each NASA is defined by the geographic location (country) where the NASA is conducted and the time period (a single year) of the assessment. NASA's year and country combination define unique NASA and cannot be edited. In some cases exercise may be conducted in just one part of the country. The operations within this module will be: insert, edit and delete (information marked as inactive, no record will be deleted from the database) where a history of changes is not required. A predefined lists of countries and assessment currency will be provided and in case that the desired country or currency is missing the 'add country/currency feature' will allow users to define the name of the country or currency.

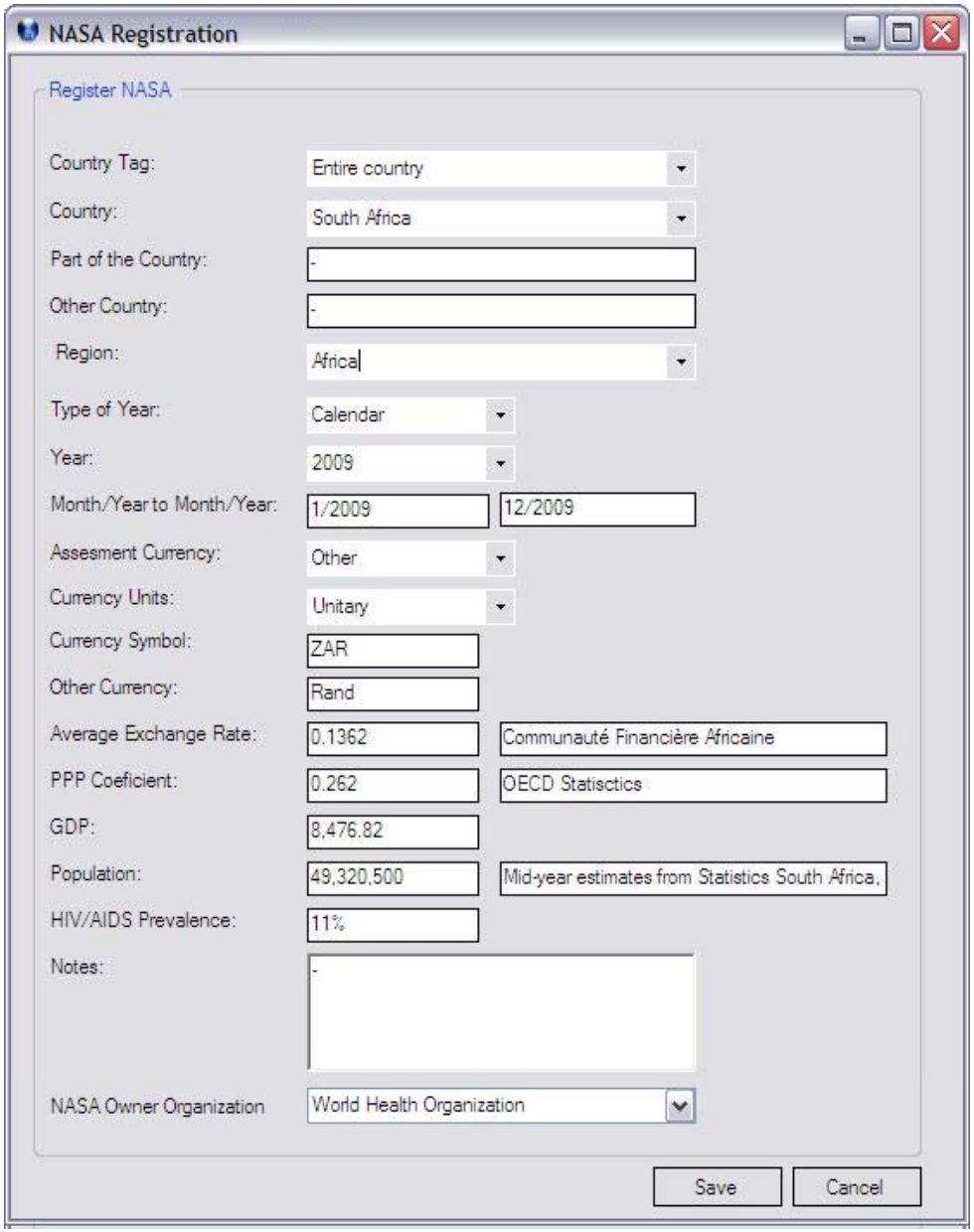
	Variable name	Description of the variable	Format	Editable	Content
1*	Country tag	Specify the geographical scope of NASA. Unique selection	String	Yes	Predefined options: Entire country or Part of the country
2*	Country	Define geographical scope of assessment	String	No	Predefined UN country classification list and option “Other”
3*	Part of the country	Specify the part of the country where NASA is conducted, active and mandatory only if `Country tag’= “Part of the Country”	String	Yes	User defined
4*	Other country	Name of the country if not specified in `Country’, active and mandatory only if `Country’= “Other”	String	Yes	User defined
5*	Region	Define region	String	Yes	Predefined UN regional classification list
6*	Type of Year	Define the type of time period for NASA. Unique selection	String	Yes	Predefined list: Fiscal or Calendar
7*	Year	Define calendar year, active and mandatory only if `Type of Year’ =”Calendar”	String	No	User defined
8*	Month/Year to Month/Year	The time period of fiscal year, active and mandatory only if `Type of Year’ =”Fiscal”	String	Yes	User defined, data format ‘mm/yyyy’ to ‘mm/yyyy’
9*	Assessment currency	Currency reported in the NASA. Unique selection	String	Yes	Predefined exclusive options: “USD” or “Other”
10*	Currency symbol	Abbreviation of currency reported according to World Bank predefined list. Active and mandatory if `	String	Yes	Predefined Word Bank classification and option “Other”

		`Assessment currency'="Other"			
11*	Other currency	Other currency not defined in `Currency symbol', active and mandatory only if ` `Assessment currency'="Other" and `Currency symbol' ="Other"	String	Yes	User defined
12*	Measurement Unit	Define which digit unit will be used in NASA. Unique selection	String	Yes	Predefined list: Unitary or Thousands or Millions
13*	Average exchange Rate	Average exchange rate (local currency to USD), Active and mandatory only if `Assessment Currency'="Other" otherwise it is 1.	Number	Yes	User defined
14	Source ex. rate	Average exchange rate	String	Yes	User defined
15	PPP coefficient	Purchasing Power Parity coefficient	Number	Yes	User defined
16	Source PPP	Source of PPP coefficient	String	Yes	User defined
17	GDP	Gross domestic product	Number	Yes	User defined
18	Population	Population	Number	Yes	User defined
19	Source population	Source of population	String	Yes	User defined
20	HIV/AIDS Prevalence	HIV/AIDS prevalence	Number	Yes	User defined
21	Note	Comments	String	Yes	User defined
22*	NASA owner	This will identify the organization who is owner of NASA.	String	Yes	Predefined list of registered organization or institutions in section 3.3.

Note: all * fields are mandatory

For each NASA, the organization who is owner of NASA must be mandatory set up by selection of the registered organization from drop down list. User first needs to register basic information related to organization and institution who is owner of NASA in module 3.3 Registration of Organization and Institution and after that to assign the owner role to the registered organizations and institution from drop down list using the form NASA Registration.

Each NASA is defined as unique combination of country and year data. However, multiple NASA exercise defined as part of the country can be edited, with the amendment that each part of country and year represents also a unique together with country and year.


NASA Registration
Register NASA
Country Tag:
Entire country
Country:
South Africa
Part of the Country:
-
Other Country:
-
Region:
Africa
Type of Year:
Calendar
Year:
2009
Month/Year to Month/Year:
1/2009
12/2009
Assesment Currency:
Other
Currency Units:
Unitary
Currency Symbol:
ZAR
Other Currency:
Rand
Average Exchange Rate:
0.1362
Communauté Financière Africaine
PPP Coeficient:
0.262
OECD Statisctics
GDP:
8,476.82
Population:
49,320,500
Mid-year estimates from Statistics South Africa,
HIV/AIDS Prevalence:
11%
Notes:
-
NASA Owner Organization
World Health Organization
Save
Cancel

Functions:

- *Save:* will append a new entry in the database. NASA defined by 'Part of the Country 'and 'Year'can be merged into an 'Entire country' NASA country/year combination, with all data consolidated. For example South Zambia, 2007 and North Zambia, 2007 can be merged into Zambia, 2007

- *Cancel:* will close the form without any update of the record.

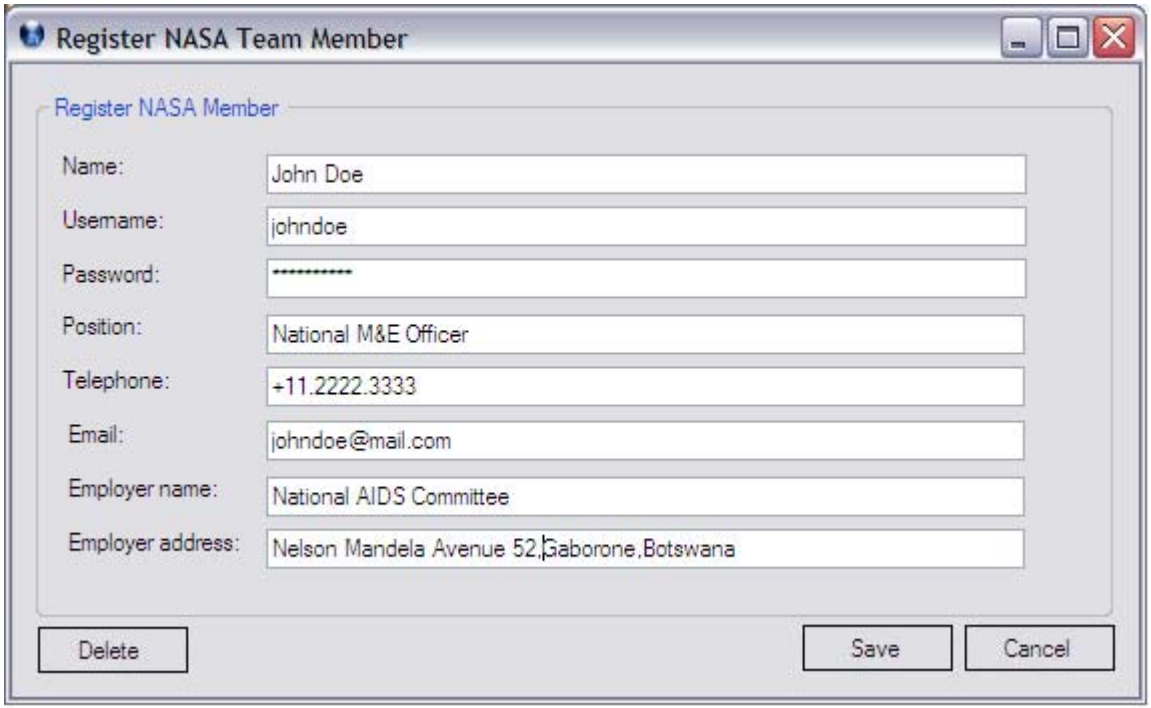
In addition, we need to have the form List of NASA similar to the form List of Institution (section 3.3) where privileged user may view, edit, add or delete NASA exercise.

3.5 NASA RTT member's account management

The NASA resource tracking team is the group of people that conducts the NASA in a given country. The members of the resource tracking team may be the staff from organizations or institutions involved in organizing the NASA, the organization or institution that owns the NASA, organizations and institutions directly involved in the HIV response, or external consultants. The registration of NASA resource tracking team members can take place at any time before, during or after the NASA. One NASA may have one or many NASAs resource tracking team members and one NASA resource tracking team member may be involved in one or many NASAs.

In addition, one or many registered NASA resource tracking team members can be privileged to access the NASA with a user name and password. The privileged NASA resource tracking team members need to be identified with defined roles and assigned to just one of the following user groups: administrator or project leader or data entry or project assistant.

The privileged user should have the option to edit the registered information related to the NASA resource tracking team at any time before, during or after the NASA process, with the exception of the "Name" and "Username". A history of changes is not required, as only the latest data entered will be used for processing. Privileged users should have the option to delete NASA resource tracking team members that are no longer involved and linked with any NASA.



Form functions:

- *Save*: will save the user record based on the values entered in the form and add a new record if a new team member is registered
- *Delete*: will set a flag on the user record indicating that the account is not active anymore, confirmation is required for this action
- *Cancel:* will close the form without any update of the record.

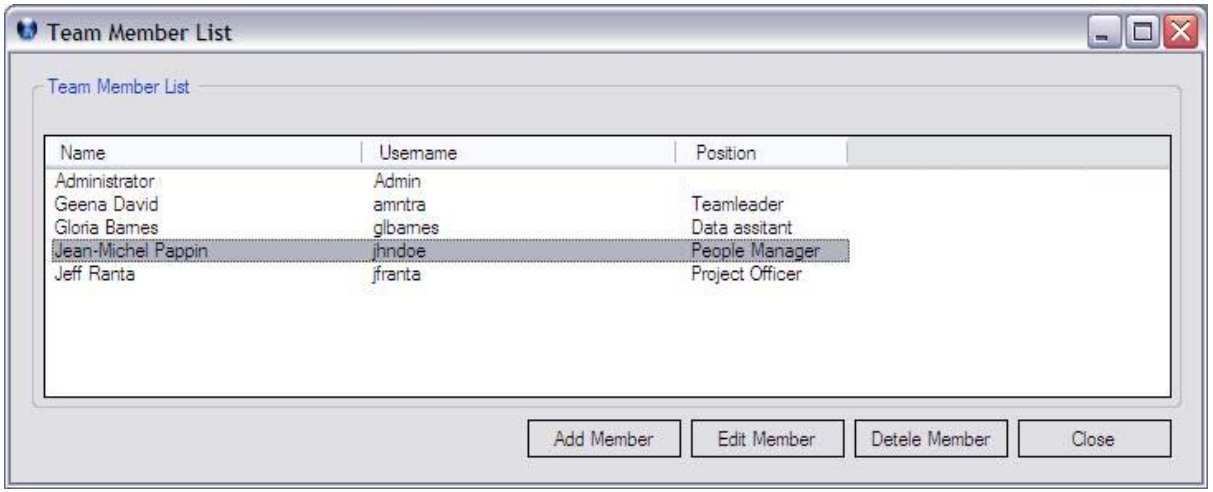
The registration of the NASA resource tracking team member in this stage should include the following variables:

	Variable Name	Description of variable	Format	Editable	Content
1*	Name	Full name of the NASA resource tracking team member	String	No	User defined
2*	Username	Unique name to login into NASA RTT	String	No	User defined
3*	Password	User password	String	Yes	User defined
5	Position	Position of the team member within it's organization	String	Yes	User defined
6	Telephone	Phone number	String	Yes	User defined
7	Email	Team member's email address	String	Yes	User defined
8	Employer Name	Name of employer	String	Yes	User defined
9	Employer Address	Address of employer	String	Yes	User defined

Note: all * fields are mandatory

Additional views for team members:

List of members



Function description:

- *Add member*: generates an empty form Register NASA Team member
- *Edit member*: generates Register NASA Team member form filled with associated data for selected entry
- *Delete member*: puts a flag on the user record indicating that the account is not active anymore. Confirmation required on this action

3.6 User roles

This module is part of administration of the application and based on the settings made within this module the users will be able to perform defined action in the application.

These roles and user groups (administrator, project leader, etc) are built-in and read only, meaning that no other roles and user groups will be created, or existing one can not be edited or removed from the system. One user can be a part just of one user group in one moment. Also one user can change the user group from tie to time. A history of changes is not required.

View of defined user groups:

Descriptions of the actions related to the roles:

Role	Description	Administrator	Project Leader	Data Entry
Manage classifications	This feature allows editing of defined classifications (lookup tables). This include: insert, edit, delete, move and export a new classifications. Management of classification will be done directly in software. This is Administrator HQ account.	-	-	-
Import classifications	This feature will allow the import of a new version of classifications.	x	-	-
Manage team members	This feature will allow creation, editing and removing of team members and their roles.	x	x	-
Institutions and organizations	This feature will allow creation, editing and removing of institutions involved in the HIV response.	x	x	x
NASA registration	This feature will allow registration of a new NASA country/year exercises in order to collect data used in HIV response.	x	x	-

NASA access	This feature will allow definition of associations between users and a NASA exercise. By this users can be assigned/removed to perform actions (add, delete, edit or read only) in NASA exercises. Any user not associated with the NASA exercise will not be able to see the content of the exercise. All administrator users are allowed to see any NASA exercise.	x	x	-
NASA transactions	This feature will allow users to define NASA transaction. Users will be able to add, edit and remove transactions and transactions details.	x	x	x
Import/export NASA	This feature allows users to create export files containing the full transactions list for a NASA exercise.	x	x	-
Built-in reports	This feature allows users to run built-in reports.	x	x	x
Report generator	This feature allows users to define and customize new reports/charts based on the data stored in the database (optional module).	x	x	-
Manage run-time data	This feature allows users to define assessment currency, regional and country classifications, and any other parameter used to help the definition of NASA exercises and transactions.	x	-	-

List of defined user groups with their roles:

User groups	Active Role	Roles
Administrator	Yes	Register, open, edit and delete NASA; register, edit and remove organizations and users to/from NASA; assign and remove user roles according to working position; register, open, edit and delete NASA transactions; data exchange (import/export of data) and conflict resolution during data import; update lookup tables based on the import file provided from Administrator HQ account; run report and report generator; backup and restore of data. Administrator role cannot be removed from the NASA access.
Project leader	Yes	Register, open, edit and delete NASA; register, edit and remove organizations and users to/from NASA; assign and remove user roles according to working position; register, open, edit and delete NASA

		transactions; data exchange (import/export of data) and conflict resolution during data import; run reports and report generator.
Data entry	Yes	Open NASA; register, edit and remove organizations to/from NASA; register, open, edit and delete NASA transactions; run reports.
Project assistant	No	Collect financial data obtained from country and assist to data entry and project leader in collecting the data and construction of transactions. Project assistant has only read-only rights.

There will be also an Administrator HQ account, not visible to anyone unless from UNAIDS HQ level, used to perform action that will alter information in the lookup tables. Administrator HQ will have unique role to manage lookup table directly in software and export the new lookup tables to be sent to other Administrators to import it into the system and update lookup tables. This account has all the privileges in the system.

The administrator and project leader account will be responsible to assign defined roles to users once NASA is registered. To be able to assign the user to user group, the team members first need to be registered in 3.5 NASA RTT member's account management.

In addition, we need to have a form where administrator can list all team members registered in 3.5 NASA RTT member's account management and assign team members to one hardcoded user group. By default any new user defined should have only read rights in the system (Project Assistant). The read-only right means that user is unable to perform any operation within the system except viewing of NASA transactions and sub-details of each spending and reports.

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3.7 NASA transactions

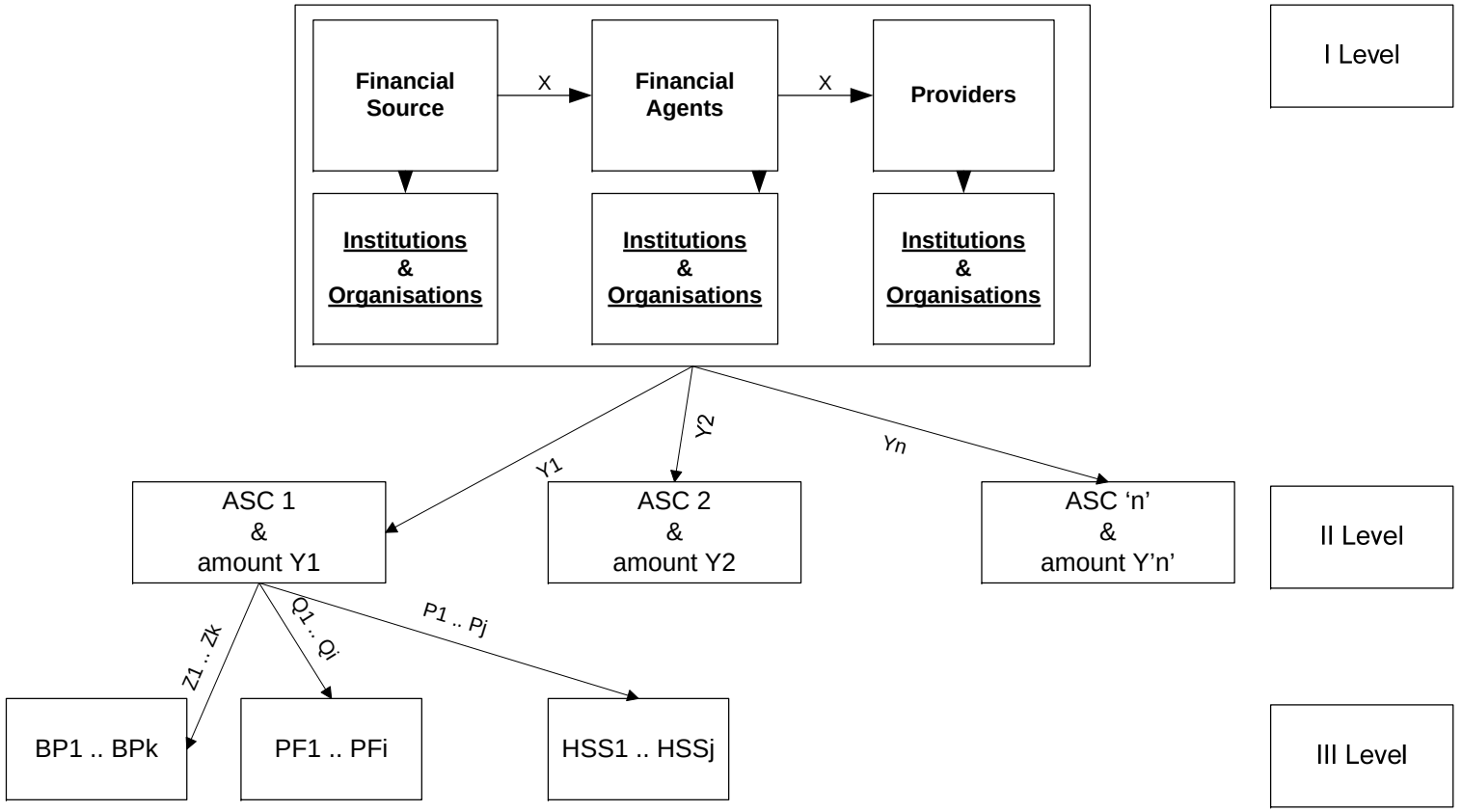
Following the registration of the NASA, the data collection work starts. The main objective of this step is to collect financial data from different sources and reconstruct, register and validate the NASA transactions.

A NASA transaction is a transfer of funds from a financing source (FS) to a financing agent (FA), and finally from a financing agent (FA) to a provider of goods or services (FS → FA → Provider), who invests in different production factors (PF) to generate an AIDS Spending Category (ASC) intended to benefit specific beneficiary populations (BP) and strengthen particular areas of the health system (HSS). The NASA transaction is defined by seven vectors: FS, FA, Provider, ASC, BP, PF and HSS, located on three-hierarchical levels. It also includes the corresponding funds distributed through the vectors (Figure 1).

where, $X=Y_1+Y_2+\ldots+Y_n$ and $Y_n=Z_1+Z_2+\ldots+Z_k= Q_1+Q_2+\ldots+Q_i= P_1+P_2+\ldots+P_j$ $n=1\ldots.\infty$

X – Total amount transferred from FS to FA and from FA to Provider
$Y_1 \ldots Y_n$ – funds distributed to corresponding $ASC_1 \ldots ASC_n$, $n=1\ldots..\infty$
$Z_1 \ldots Z_k$ – funds distributed to corresponding $BP_1 \ldots BP_k$, $k=1\ldots..\infty$
$Q_1 \ldots Q_i$ – funds distributed to corresponding $PF_1\ldots.PF_i$, $i=1\ldots..\infty$
$P_1\ldots.P_j$ – funds distributed to corresponding $HSS_1\ldots.HSS_j$, $j=1\ldots..\infty$

Figure 1


Financial Source
X
Financial Agents
X
Providers
I Level
Institutions & Organisations
Institutions & Organisations
Institutions & Organisations
Y1
Y2
Yn
ASC 1 & amount Y1
ASC 2 & amount Y2
ASC 'n' & amount Y'n'
II Level
Z1 .. Zk
Q1 .. Qi
P1 .. Pj
BP1 .. BPk
PF1 .. PFi
HSS1 .. HSSj
III Level

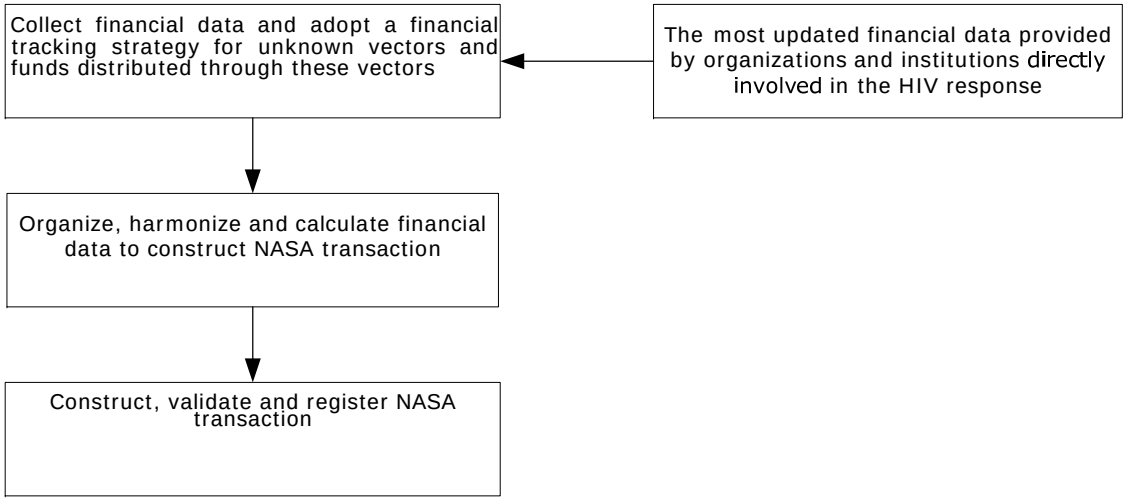
Uniting the world against AIDS

a) Registration of NASA transaction

In the process of financial tracking and reconstruction of NASA transactions, the NASA team starts with financial data provided from organizations and institutions directly involved in the HIV response. As financial data obtained to NASA team are provided in various data structure and very often incomplete, NASA team members need to organize, harmonize and calculate the financial data to be able to identify, reconstruct, register and validate NASA transactions.

Based on the initial information provided by the organizations and institutions in a given country, the NASA team adopts a financial tracking strategy to identify NASA transaction. The NASA team always starts with one or more known vectors (FS, FA, Provider, ASC, BP or PF) and the amount of funds distributed to these known vectors. Based on the specific country situation the NASA team adopts a strategy to calculate other unknown vectors and the corresponding funds distributed to each unknown vector, using two strategies:

i. A top-down strategy from FS to BS, etc. In this case the Financial Source and amount of funds allocated from FS to FA and from FA to Provider is known, therefore we track the money flow from the top of hierarchy (level 1) to identify other vectors and corresponding funds: ASC (level 2) and BP, PF and HSS (level 3).
ii. A bottom-up strategy from ASC to FS or BP to Provider, etc.



In this stage after construction of NASA transaction we should be able to complete the first step in the registration of the NASA transaction by registering the actual FS, FA and Provider of the NASA transaction. The registered FS → FA → Provider transaction is a transfer of funds from an actual FS to an actual FA and from an actual FA to an actual Provider (FS → FA → Provider), where the amount of funds transferred from FS to FA is equal to the amount transferred from FA to Provider.

During the financial tracking process the NASA team could be faced with overlapping information related to the FS → FA → Provider financial transaction, which means that one FS → FA → Provider financial transaction may be reported many times by different actors in the HIV response. In order to avoid double counting and the overlapping of financial transactions, we need to follow the money flow from the beginning to the end of the financial transaction to identify the actual FS, FA and Provider. In this stage the user should be able to sort and visually inspect the list of all registered FS → FA → Provider financial transactions to ensure, through the process of validation, that there are no duplicated transactions.

The output of this stage should capture the following variables, which identifies the NASA transaction:

	Nam	Description of variable	Format	Edit	Content
1	Full Name of FS*	Financing source of NASA transaction, selected from country-specific organizations and institutions directly involved in the HIV response registered in 3.3	String	Yes	Predefined classification list
2	Full Name of FA*	Financing agent for the NASA transaction, selected from country-specific organizations and institutions directly involved in the HIV response registered in 3.3	String	Yes	Predefined classification list
3	Full Name of Provider*	Financial Provider for the NASA transaction selected from country specific organizations and institutions directly involved in the HIV response registered in 3.3	String	Yes	Predefined classification list
4	Financing source*	Financing source for the NASA transaction selected from Predefined AFE classification list of FS (Appendix 6) http://data.unaids.org/pub/Manual/2009/20090916_NASA_Classifications_edition_en.pdf	String	Yes	Predefined AFE classification list
5	Financing agent*	Financial agent in NASA transaction selected from Predefined AFE classification list of FA (Appendix 5) http://data.unaids.org/pub/Manual/2009/20090916_NASA_Classifications_edition_en.pdf	String	Yes	Predefined AFE classification list
6	Provider *	Financial Provider in NASA transaction selected from Predefined AFE classification list of Providers (Appendix 3) http://data.unaids.org/pub/Manual/2009/20090916_NASA_Classifications_edition_en.pdf	String	Yes	Predefined AFE classification
7	Amount*	Total amount transferred from FS to FA and from FA to Provider	Number	Yes	Numeric format
8	NASA transaction location	Specify geographical part of country, province or area or any other criteria where transaction is executed.	String	Yes	User defined
9	Type of data	Define source of data registered in this stage. Unique selection	String	Yes	Predefined options: "Certified from primary source" or "Adapted from primary source" or "Estimation or
10	Add external source	A files associated with the NASA transaction	String	Yes	User data

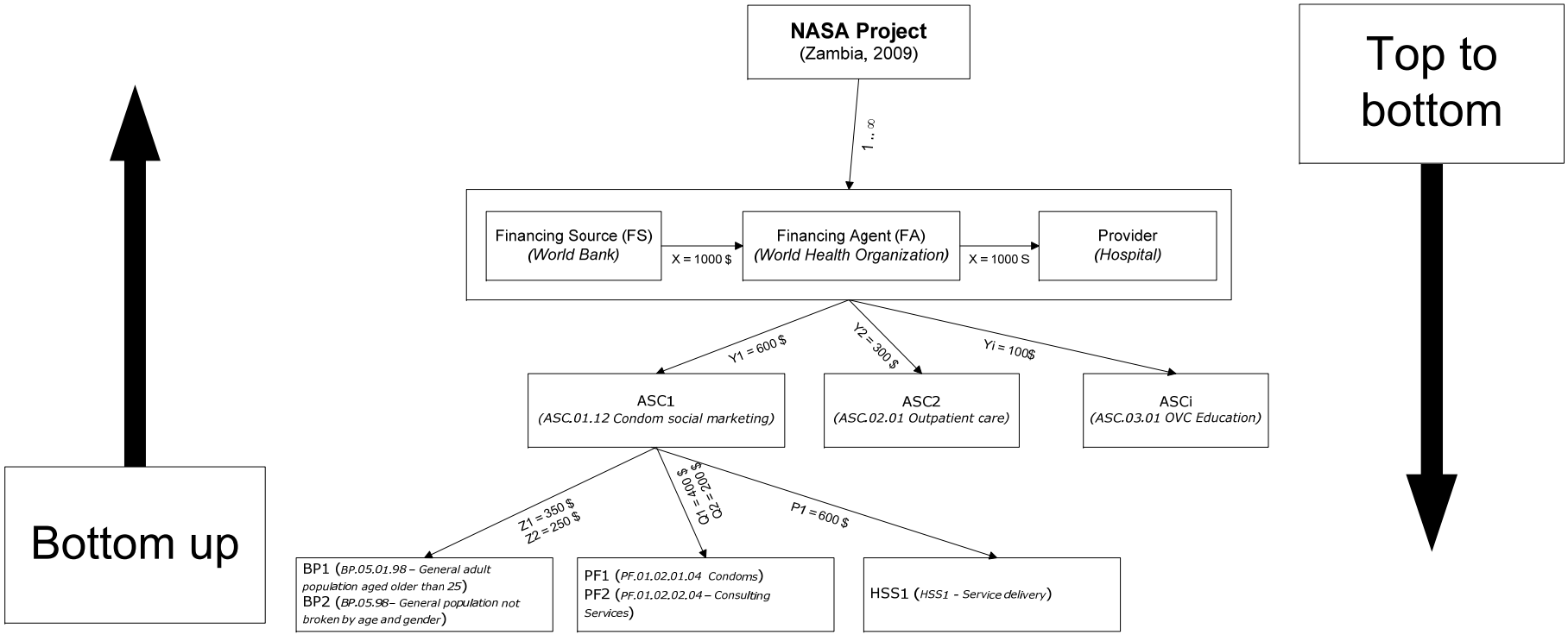
Note: all * fields are mandatory

After the registration and validation of the actual FS → FA → Provider financial transaction, the user first needs to break down amount X distributed through FS→ FA → Provider into the corresponding ASCs ($Y_1 \ldots Y_n$). Second, the user needs to break down the amount distributed through ASCs ($Y_1 \ldots Y_n$) into the corresponding BPs ($Z_1 \ldots Z_k$), PFs ($Q_1 \ldots Q_i$) and HSSs ($P_1 \ldots P_j$). One financial FS→ FA → Provider transaction may have one or many ASCs. We therefore we need to register all ASCs related to the FS→FA → Provider financial transaction and the corresponding amounts (Y_1, $Y_2 \ldots . Y_n$) distributed through the ASCs.

	Name of	Description of variable	Format	Editable	Content
1	ASC*	Predefined AIDS Spending Category list (Appendix 1) http://data.unaids.org/pub/Manual/2009/20090916_NASA_Classifications_edition_en.pdf	String	Yes	Predefined AFE category list
2	Percentage*	Percentage of funds distributed to particular ASCi	Numeric	No	Calculated field
3	Amount*	Amount ($Y_1 \ldots Y_n$) of funds distributed to $ASC_1 \ldots ASC_n$ (Figure 1)	Numeric	Yes	

Note: all * fields are mandatory

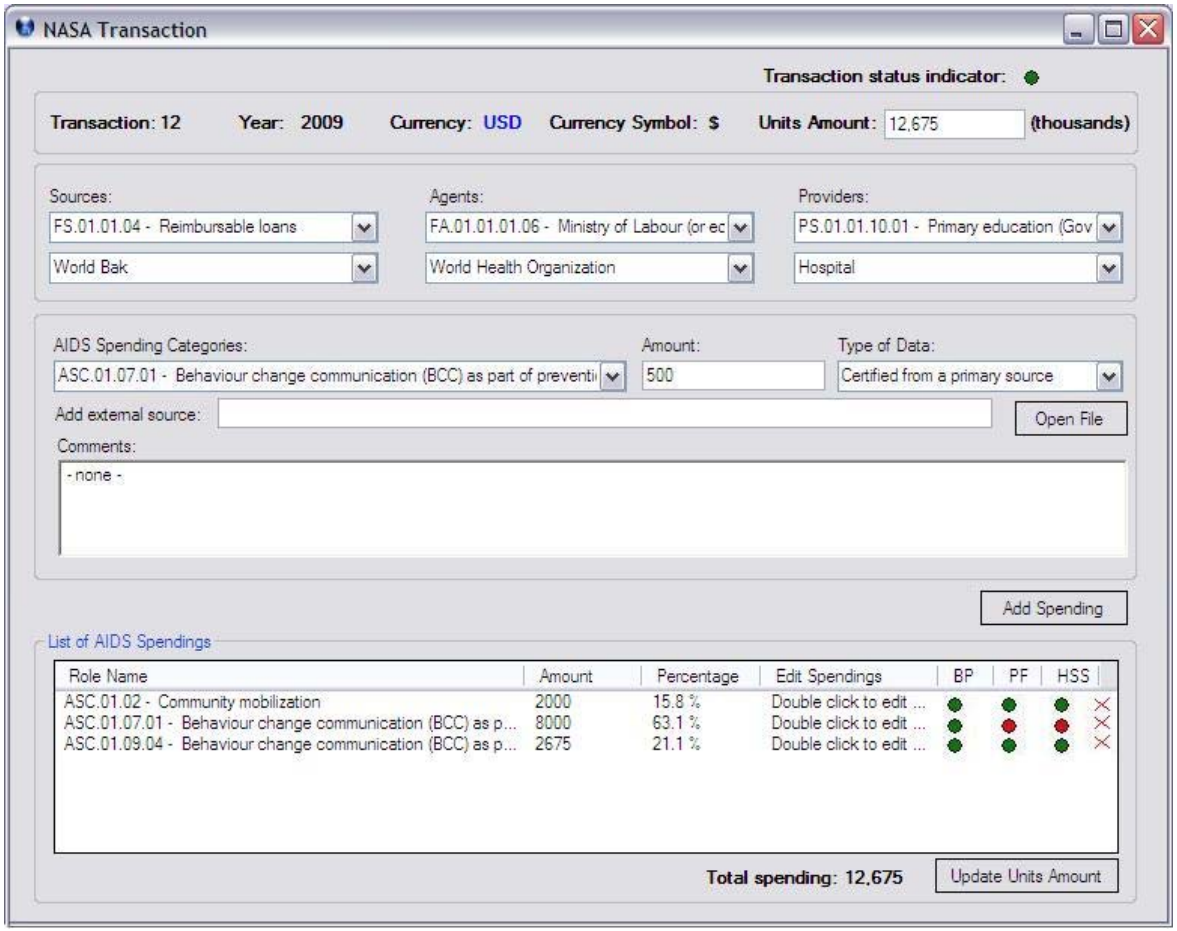
One ASC may have one or many BPs, PFs and HSSs, so we need to register all BPs, PFs and HSSs related to the each ASC and corresponding amounts ($Z_1 \ldots Z_k$), ($Q_1 \ldots Q_i$) and ($P_1 \ldots P_j$) distributed through BPs, PFs and HSSs.


Bottom up
NASA Project
(Zambia, 2009)
1 .. ∞
Financing Source (FS)
(World Bank)
X = 1000 $
Financing Agent (FA)
(World Health Organization)
X = 1000 S
Provider
(Hospital)
Y1 = 600 $
Y2 = 300 $
Yi = 100$
ASC1
(ASC.01.12 Condom social marketing)
ASC2
(ASC.02.01 Outpatient care)
ASCi
(ASC.03.01 OVC Education)
Z1 = 350 $
Z2 = 250 $
O1 = 400 $
O2 = 200 $
P1 = 600 $
BP1 (BP.05.01.98 – General adult population aged older than 25)
BP2 (BP.05.98– General population not broken by age and gender)
PF1 (PF.01.02.01.04 Condoms)
PF2 (PF.01.02.02.04 – Consulting Services)
HSS1 (HSS1 - Service delivery)
Top to bottom

	Name of	Description of variable	Format	Edit	Content
1	BP*	Predefined beneficiary population list (Appendix 2) http://data.unaids.org/pub/Manual/2009/20090916_NASA_Classifications_edition_en.pdf	String	Yes	Predefined AFE classification list
2	PF*	Predefined production factors list (Appendix 4) http://data.unaids.org/pub/Manual/2009/20090916_NASA_Classifications_edition_en.pdf	String	Yes	Predefined AFE classification list
3	HSS*	Predefined health system strengthening list	String	Yes	Predefined AFE classification list
4	Amount BP*	Amount of funds distributed to beneficial population	Numeric	Yes	Numeric format
5	Amount PF*	Amount of funds distributed to production factors	Numeric	Yes	Numeric format
6	Amount HSS*	Amount of funds distributed to health system strengthening	Numeric	Yes	Numeric format
7	Type of data	Define source of data registered in this stage. Unique selection	String	Yes	Predefined options

Special remarks:

We need to be able to identify the team member who registered the NASA transaction. There is no need to track the history of the data related to the NASA transaction as only the latest data entered will be used for processing. The only exception is the name of the team member who made the last change to the data within the NASA transaction.

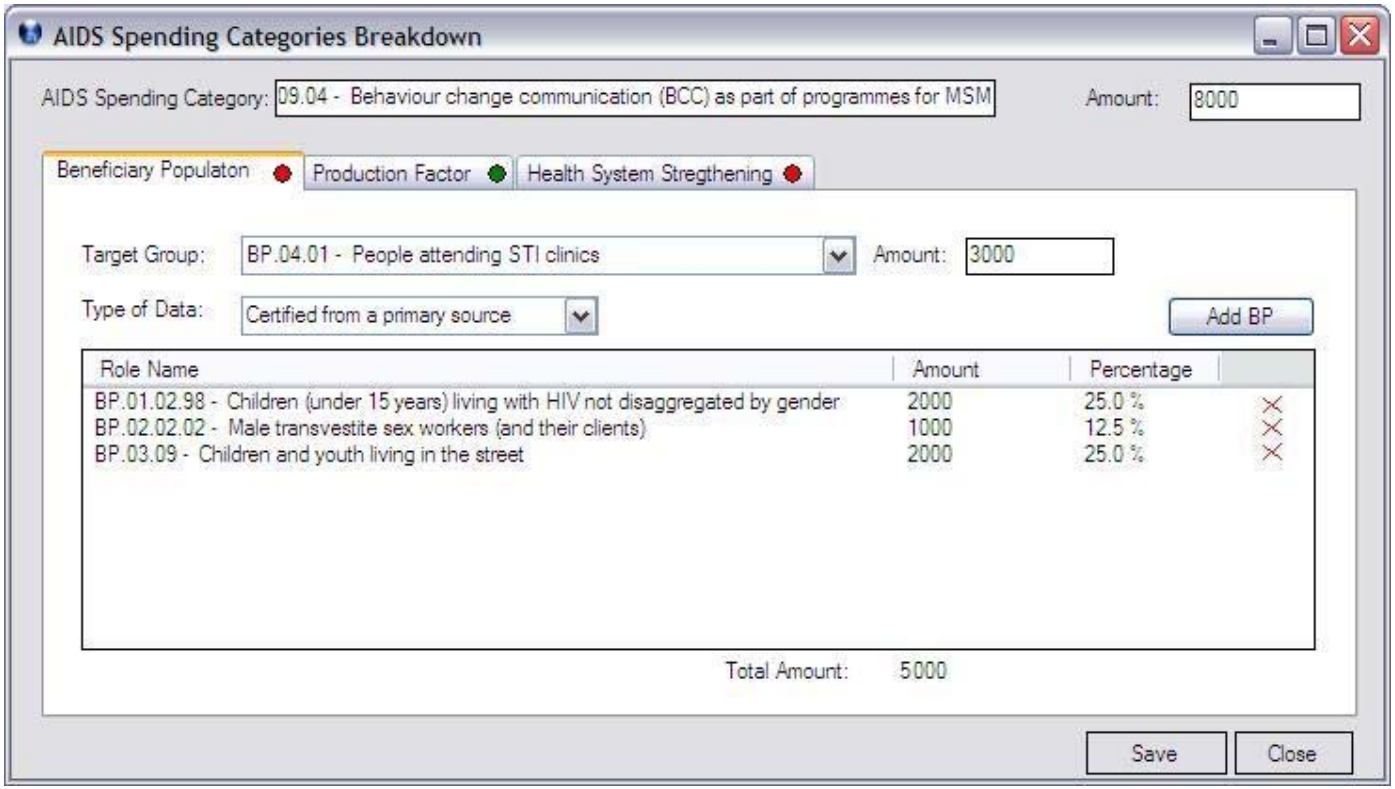


Functions:

Open file: will open a dialog file to select external source file associated with the spending to be attached in the system

Add spending: will save the defined spending in the system, even if is not validated, add it to the list of spending and check the validation rules. Red/green indicators are associated to each spending in order to allow users to see if the spending is validated or not.

Update Units Amount: this function is used only when the flow of tracking is bottom-up. It will update the field representing the upper hierarchical level with the sum of all spending for current hierarchical level. For example, if we start with bottom-up tracking from ASC level (second hierarchical level) with corresponding funds Y_i associated to ASC_i, activating the function Updates Units Amount will calculate Unit Amounts $= \sum Y_i$ for first hierarchical level. Leave the field `Units Amount' blank starting from first hierarchical level means that we will conduct a bottom-up approach, otherwise the approach will be top-down. In both cases the percentages of spending should be calculated automatically, in one case the base is Units Amounts initially defined by user (first hierarchical level) which is top down approach in the other case the sum of spending (second hierarchical level) is filled in by user, since the initial Units Amounts is missing which is bottom up approach.



Functions:

- *Add BP (PF, HSS):* will add the selected value from the dropdown list together with the amount defined and the type of data
- *Delete (X* mark): will delete the selected record (BP, PF or HSS). Confirmation required on this action
- *Save:* will store the entire definitions for each sub-detail, BP, PF or HSS, calculate and update sums and percentage, check and verify validation rules and activate the colour indicators
- *Close:* will close the form without any saving

b) Validation of a NASA transaction

The privileged user who validates the transactions is responsible to verify that there are no overlapping transactions, meaning that one transaction is not entered more than once in the system. Visual inspection of all transactions entered in NASA can be done by Transaction list form.

Validation of transaction implies that the sum of all spending in one hierarchical level should match the total amount of funds initially defined on another hierarchical level, in relation with the tolerance factor defined in the administration module.

Validation rules:

1) The total amount of funds X transferred from FS → FA → Provider has to be equal to the sum of funds Y_1, Y_2,…, Y_n, distributed to one or many ASC_1, ASC_2, …, ASC_n, where one transfer of funds X from FS → FA → Provider can have one or many ASCs.

2) The total amount of funds Y_i distributed to particular ASC_i has to be equal to the sum of funds Z_1, Z_2…. Z_k, distributed to one or many BP_1, BP_2 … . BP_k, where one ASC may have one or more BP_s.

3) The total amount of funds Y_i distributed to a particular PF_i has to be equal to the sum of funds Q_1, Q_2….Q_i, distributed to one or many PF_1, PF_2….PF_i, where one ASC may have one or more PF_s.

4) The total amount of funds Y_i distributed to a particular HSS_i has to be equal to the sum of funds P_1, P_2…. P_j, distributed to one or many HSS_1, HSS_2….HSS_j, where one ASC may have one or more HSS.

In the validation process it would be desirable to have a colour indicator which gives an indication that the above-mentioned conditions have been met in respect to tolerance (green signal). If there is any deviation from the rules, the application needs to warn the user showing red signal and a pop-up message and indicate which rule has been violated.

If spending data can not be classified under the existing classifications, there should be at least an “x.98-Not classified” category on sub category level defined otherwise the system will indicate the transaction with error (red signal). A transaction is valid in respect of tolerance if all indicators are green, funds for spending categories are provided and sub-details of classifications are covered with at least “x.98-Not classified” category.

There are two ways of validation:

- Top to bottom: if FS, FA, Provider and Units Amount are known (first hierarchical level) then sum of all spending on second and third hierarchical level should match the value entered in the filed “Units Amount “ on first hierarchical level, in relation with tolerance.

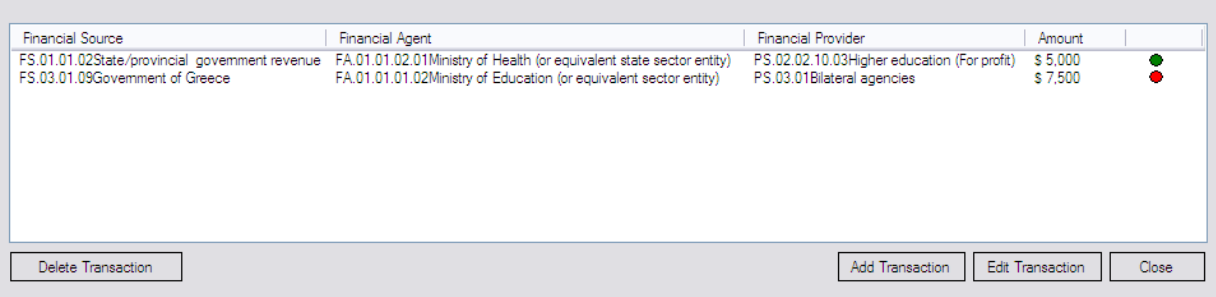
- Bottom to top: if FS, FA and Provide are known and Units Amount is unknown (blank field), user starts a transaction from second hierarchical level and the total amount of spending on second hierarchical level will define the value for field “Units Amount” on first hierarchical level, in this case no sum of spending validation is needed between first and second level.

Special note:

- A transaction can be saved without having FS, FA and Provider information but the system should warn the users that the information is missing by a special flag different from the one that indicates if transaction is valid.

- Once a sub-detail form above is closed the system will automatically recalculate all the percentages and sums, check and verify validation rules and indicate the validation by colour indicators.

Transaction list:



Functions:

Add Transaction: open NASA transaction form to register a new transaction

Edit Transaction: open a saved transaction to edit spending data

Delete Transaction: remove selected transaction. Confirmation required on this action

All columns from lists should have option to be sorted (ascending/descending)

c) Drop down list behaviour

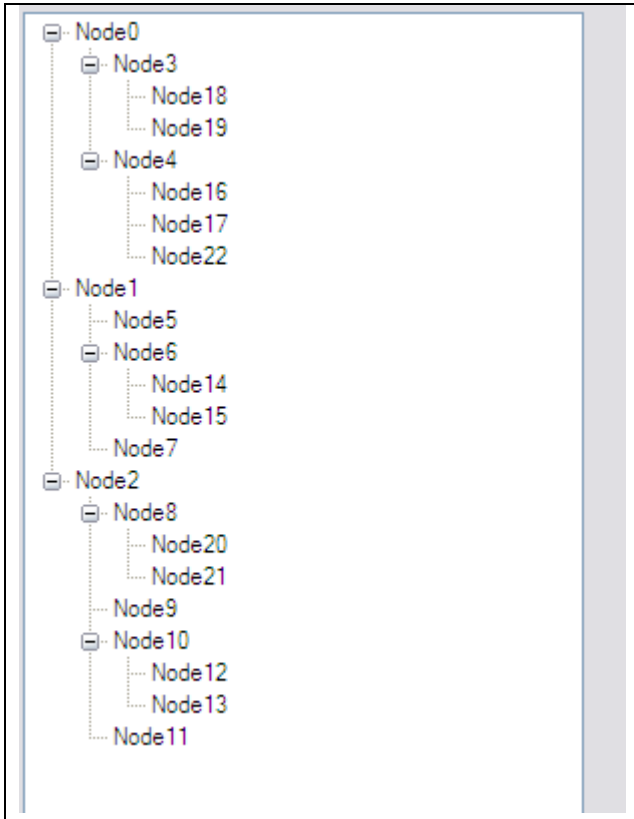
The seven vectors (FS, FA, Provider, ASC, BP, PF and HSS) are organized in a hierarchy, therefore when load the dropdown list with data r the following rule must be applied:

- Only leaf-nodes will be added and shown in drop down list, meaning that nodes with sub-nodes will not be showed in the drop down list.

- Each operation on transaction will be stored in the database or the developer will add on each form (details and sub-details) a ‘Save’ button which will notify the user when he moves from the form that the data need to be saved.

- When a value is selected from the dropdown list, the user should have following choices: use as a normal combo-box, type the value or open a dialog window for selecting the value.

- All the nodes are ordered by their code.



Taking the hierarchy described in the picture on the left column the following values will be added:

- node 18

- node 19

- node 16

- node 17

- node 22

- node 5

- node 14

- node 15

- node 7

- node 20

- node 21

- node 9

- node 12

- node 13

-node 11

3.8 Export NASA data

This module will allow the administrator to export an entire NASA (see definition in 3.4 NASA registration). By this function all data associated with a NASA will be exported into an external file, Data file**, covering the NASA definitions, transactions, lookup tables with all additions/deletion of data and all source file links.

This option will create an archive of all data using the following naming convention (proposed):

CountryCode_YEAR_Date_CountryName_CountryPart.exp

The worksheets within the Data file will follow this pattern:

- 'Worksheet 1': project definitions, tolerance and measurement units definition, lookup table version, all other settings used in the definition of NASA exercise;
- 'Worksheet 2': all transactions identified by codes;

When creating an export data file the user will be asked if the archive will include any external source file associated with the transactions defined in a NASA exercise. At developer choice: the files included in transactions can be stored as they are or can be compressed.

During the data exchange between the users, when one or more sub-country NASA projects are merged into one NASA project user need to have a choice to export just validated or all (validated and not validated) transactions.

** Data file can be defined by the developer. It can be any format that can be easily imported in external databases: xml for example and Excel file.

3.9 Import NASA data

This module will allow administrator to import external NASA project. The user can choose a file to import from the source and the application will recreate the NASA as it was created in its main location. The archive contains the Data** file with NASA data and an archive of external source files.

As described in Export NASA data the worksheets within the Data file will follow this pattern:

- 'Worksheet 1': NASA definitions, tolerance and measurement units definition, lookup table version, all other settings used in the definition of NASA exercises;

- ‘Worksheet 2’: all transactions identified by codes;

The archive can contain all the external source links, if any, leaving this option for importing at user choice.

Importing an existing NASA will erase the old data, for example if the user imports a version of a NASA exercise and receives later another updated version of the same NASA exercise, the system will keep only the data from last version of NASA.

During the data exchange between the users, when one or more sub-country NASA projects are merged into one NASA project user needs to have a choice to import just validated or all (validated and not validated) transactions.

** Data file can be defined by the developer. It can be any format that can easily be imported in external databases: for example xml and Excel.

3.10 Source file link

By this feature the users will be able to add external file to the system which is the main source of spending information containing the aggregation of data and used to construct NASA transactions. This file can be stored inside the main database or in a subfolder of the application. In order to allow other users to see the data when is exported the suggested files should be common Office files, Adobe PDF files or common JPEG files. Use of unknown applications can aggravate viewing of data by other users after export. The external source file is linked with NASA Transaction, where one NASA transaction may be defined by one or many external source files.

Since it is almost impossible to interfere with the file system of the machine where the application reside it is recommended to ask the user to check the file when a difference is noticed between the saved file and the new source file.

External files will be opened in their own container, meaning that no viewer will be developed.

The application should warn users when the same file is used as main source for different NASA transactions. The user should be allowed to choose which file to keep, use multiple copies of the same file, even if there are different versions of that file. The system must take in consideration the last saving time, name and location of the file in order to avoid multiple references when this can be avoided. The same file can be reference to multiply NASA transactions.

In order to avoid naming conflicts when import files the physical name of the file, if is stored outside the database, should follow a pattern to make it unique in a multi-computer world wide environment. The association between physical name and the real name should be kept in the database.

Proposed name for physical file = GUID.sfl

Where GUID is a globally unique identifier is a special type of identifier used in software applications to provide a unique reference number. The value is represented as a 32 character hexadecimal character string, such as 21EC2020-3AEA-1069-A2DD-08002B30309D

Example:

- Stored file name: Ministry_of_Health.xls used as source for a transaction within a NASA
- Database record will look as follow:

ID	MainSource	PhysicalLocation
12	Ministry_of_Health.xls	098f2470-bae0-11cd-b579-08002b30bfeb.sfl

Opening the 098f2470-bae0-11cd-b579-08002b30bfeb.sfl will create a temporary file Ministry_of_Health.xls which will be opened using the installed viewer.

3.11 Management of lookup tables

The list of classifications (look up tables) may be changed and updated periodically. The management of lookup tables will cover seven vectors: FS, FA, PS, ASC, BP, PF and HSS (3.7 NASA transactions) and classification list of countries and assessment currency symbols (3.4 Registration of NASA). Each NASA exercise is linked with just one version of classification which means that one NASA exercise will start and finish with the same version of classifications.

Definition	Description
AIDS spending category (ASC)	Goods, services and activities delivered to populations in need as part of the HIV response, such as condom distribution, prevention programs, voluntary counselling and testing, etc.
Production factor (PF)	Resources (e.g. salaries, drugs, equipment, etc.) used to produce HIV-related goods and services (i.e. an AIDS spending category).
Beneficiary population (BP)	Populations intended to benefit from specific activities (e.g. men who have sex with men, commercial sex workers, pregnant women, etc.).
Health system strengthening (HSS)	A health system comprises "all organizations, people and actions whose primary intent is to promote, restore or maintain health". Any activity aimed at improving a component of a health system (organizations, people, etc.) is considered a health system strengthening activity. Health system strengthening is built around a framework of six building blocks: service delivery, the health workforce, health information systems, medical products, health financing, and leadership and governance.
Financing source (FS)	Entities (e.g. donors, Global Fund) that provide funds to financing agents.
Financing agent (FA)	An entity (such as a national AIDS committee) that receives and pools funds received from financing sources (such as donors), which it then uses to fund programmes that provide HIV-related goods and services. The financing agent decides what will be bought/funded, for whom and who will provide the goods/services.
Provider of goods and services (Provider)	An entity that engages in the production, provision, and delivery of HIV goods and services (e.g. hospitals, non-governmental organizations, etc.).

This module will cover the following functions: viewing, creation, editing and deletion of a vector and other look up tables (country names and assessment currency symbols)

Special remarks:

- All vectors must have multi-language definitions

- The operations: creation, editing and deletion will be done under an Administrator HQ account in order to prevent data corruption

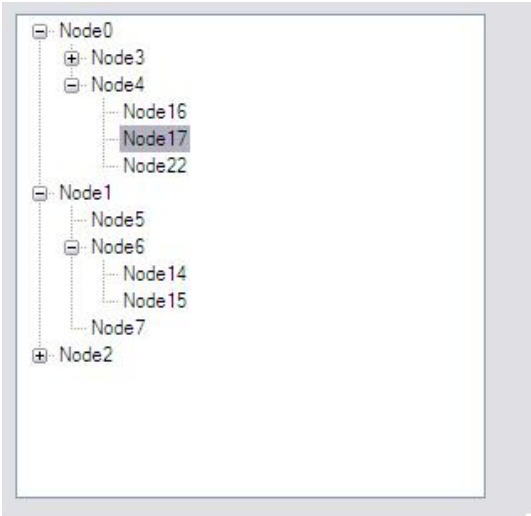
- The application will have a module to handle import and export of look up tables

- The application must keep a version for each classification, e.g. suppose that we define a classification in 2009, named version 1. In 2010 the classification will be updated based on criteria's defined at UNAIDS – HQ and will have version 2.

- A mapping between old and new version of classification is required in case that a node is moved, added, etc from its original location in the hierarchy.

- Moving a node to new location must create a location mapping between old position and new one.

- Since in each transaction only the leaf-nodes will be used to define spending parameters, adding or deletion of a node must follow some restrictions:



Example 1 : If Node 17 and 22 are moved to Node 14, then the new classification when reports old version of lookup tables should be able to report old nodes as sum, Node 14 = Node 17 + Node 22 + Node 14

Example 2: node 4 is moved to node 5. The map of location should be created. The system will ask the user about mapping of ending node.

- Rearranging the nodes in the hierarchy tree will display new codes resulting.

- The system will allow the Administrator HQ to edit the code value.

- The system will warn if there are nodes with same codes.

- New classification should start from an old classification

- Once new classification is created in the system it is not still active. Only way to make it active is to export the new classifications from the system and import this file with new classifications into system. Therefore when a new classification is used the storage will be another tables, file that is not used by the classifications at run-time.

- The codes will use the following pattern:
    - Accronym.XX.YY.ZZ...., where XX, YY, ZZ are numbers.

A NASA exercise defined using older version of the classifications cannot be opened using the newer classifications but the system should be able to convert the whole NASA exercise from old to new classifications and save it as a separate NASA exercise. For example NASA - Zambia, 2007, version 1 (old classification) can be converted and saved into classification version 2, NASA - Zambia, 2007, version 2 (new classification).

Special note regarding the mapping of nodes in the classifications from version 1 to version 2 of classification and their relocation

Example of classifications:

Example:

In the following table there is a short list of ASC classification:

Code (version 1)	Description
ASC.01	Prevention
ASC.01.01	Communication for social and behavioural change
ASC.01.01.01	Health-related communication for social and behavioural change
ASC.01.01.02	Non-health-related communication for social and behavioural change
ASC.01.01.98	Communication for Social and behavioural change not disaggregated by type
ASC.01.02	Community mobilization

- ASC.01.01.02 is mapped to new codes ASC.01.01.02.01 and ASC.01.01.02.02 not existed in version 1
    - This is the logic when it is decided to develop more detailed version of classification
- ASC.01.01.02 is mapped to ASC.01.01.98 (or .99) code which existed in both version of classifications
    - This is the logic when ASC.01.01.02 is dropped from version 2 of classification
- ASC.01.01.02 is mapped to ASC.01.01.04 which was not existed in version 2 of classifications
    - Since the code in on the same branch, the impact is minor, only code and maybe description will be changed.

- ASC.01.01.02 is mapped to ASC.01.02.X existed or not in version 1
- ASC.01.01.02 is mapped to ASC.02.X, existed or not in version 1
- ASC.01.01.02 is mapped to ASC.X

It is impossible to compare NASA backwards, a NASA defined in 2010 using version 3 of the classification cannot be opened using version 1 or 2, since mapping is defined only from older to newer version of classification.

Import and export of lookup tables should be grated only to the Administrator HQ. Administrator HQ will be able to edit current version of look up tables and export the new version of look up tables to be sent to other administrators who will be granted only to import the new version of look up tables. Once look up tables are changed by Administrator HQ, the system must be able to create and export a list of new classifications in a defined and encrypted file. In order to update classifications in the system this file needs to be imported in the system.

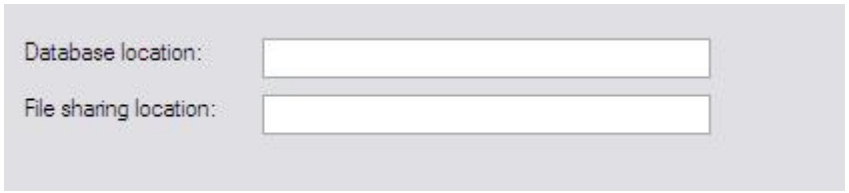
3.12 Multilanguage support

As NASAs are implemented in various regions, the software must have a multilingual system that can be adapted to English, French, Spanish, Portuguese and Russian. The users should be able to select their language of choice from the user administration menu before they login to the application. This means that the labels of all variables, list of NASA classifications, lookup tables and content of reports need to be set up so that they can be easily viewed in multiple languages. The translation of all NASA classifications will be provided by UNAIDS/HQ.

- At installation the desired language can be set based on the above options
- At run-time the user can choose to see the labels, classifications and in multiple languages

3.13 Multiuser

This feature will allow multiple users to use the system at the same time. This option will need the implementation of a feature in Administrative menu in order to set the corresponding settings like database location and file sharing folder where the source file links will be stored in case that the solution for keeping this file is not to store them inside the database.



3.14 Backup/restore database

This module will allow the administrator of the application to run the full backup of the database and of the files associated with external source links, in case of not storing files inside the database. There should be a naming convention in order to allow restoration of the database to a 'last know working' database.

Name = CountryCode_Date_NASA_Project.bkp

The full backup can be used at any time to restore the data as was at the saving time (DATE part from the name). By restoring data all saved data from that time until the restore time will be lost. Users should be warned about this. Only administrator accounts are allowed to perform backup and restore of data.

If external source links files are stored outside the database then archive of the files is a must in order to keep the system homogeny.

3.15 Built-in Reports

The application must provide the following built-in reports based on data collected within on NASA exercise:

1) 7 reports which will list the current NASA classifications: FS, FA, Provider, ASC, BP, PF and HSS, exported as a doc, pdf, xls or csv file.

Example:

FS Categories

Codigo	ASC
FS.01	Public funds
FS.01.01	Territorial government funds
FS.01.01.01	Central government revenue
FS.01.01.02	State/provincial government revenue
FS.01.01.03	Local/municipal government revenue
FS.01.01.04	Reimbursable loans
FS.01.02	Social security funds (i)
FS.01.02.01	Employer's compulsory contributions to social security
FS.01.02.02	Employee's compulsory contributions to social security
FS.01.02.03	Government transfers to social security
FS.01.99	Other public funds n.e.c.
FS.02	Private Funds
FS.02.01	For-profit institutions and corporations
FS.02.02	Households' funds
FS.02.03	Not-for-profit institutions (other than social insurance)
FS.02.99	Private financing sources n.e.c.
FS.03	International funds
FS.03.01	Direct bilateral contributions
FS.03.01.01	Government of Australia
FS.03.01.02	Government of Austria
FS.03.01.03	Government of Belgium
FS.03.01.04	Government of Canada
FS.03.01.05	Government of Denmark
FS.03.01.06	Government of Finland

2) One report which lists the institutions and organizations involved in the HIV response and their financial role (source, agent, provider), exported as doc, pdf, xls or csv file.

Example:

Institution	Source	Agent	Provider
WHO	x	x	
Ministry of Health		x	

Hospital			x

3) One table which lists the source of data and the corresponding total amount of funds and number of transactions per source of data, exported as doc, pdf ,xls or csv.

Example:

Type of data	Number of transactions	Total expenditures spending
Adapted from primary source	0	0
Certified from primary source	3	$ 12,000
Estimation of imputation	5	$ 18,700
Personal communication	2	S 5,400

4) Three tables containing the variables defined bellow, exported as doc, pdf, xls or csv for:

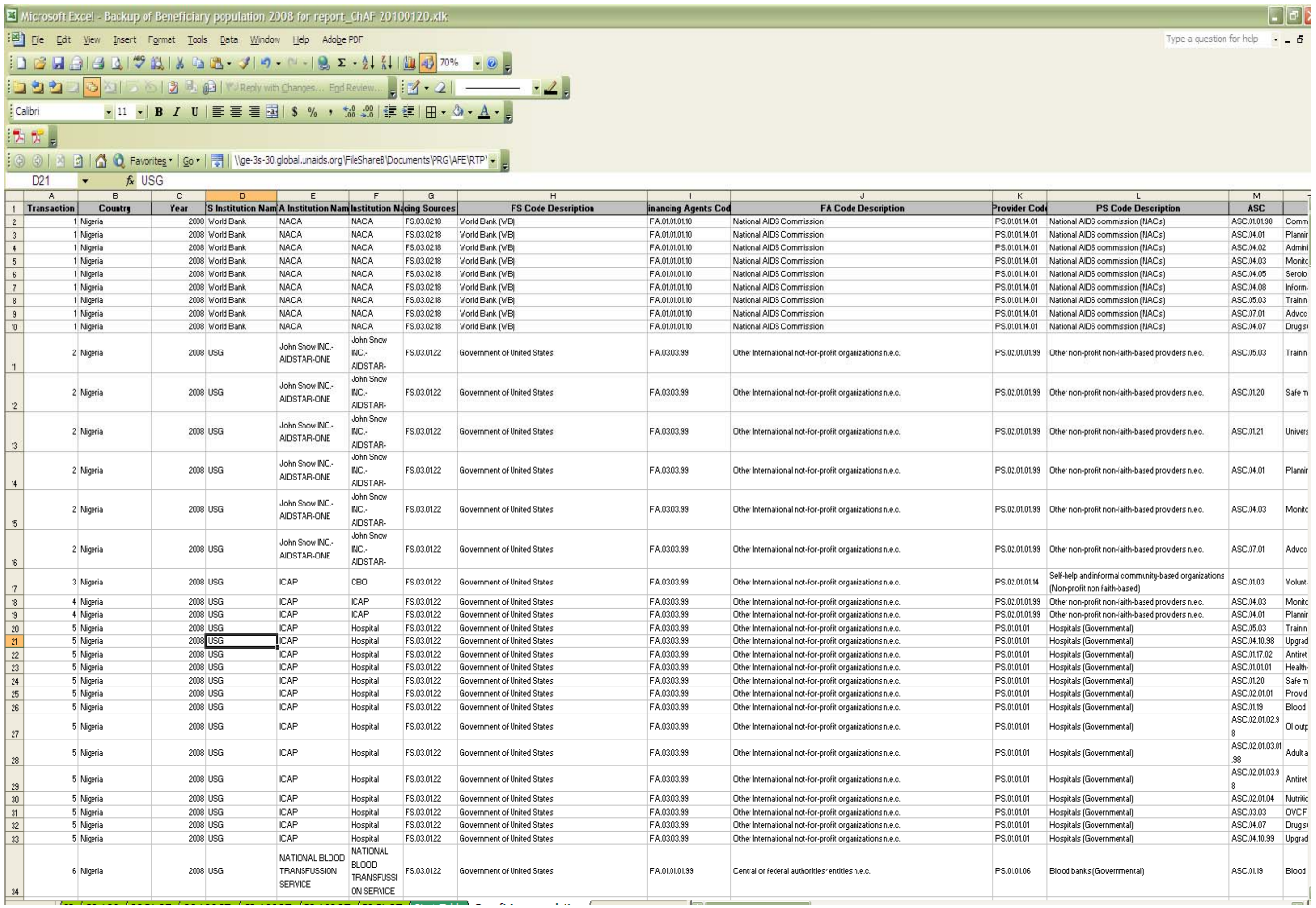
   a) One NASA exercise (one country/ year combination, Zambia 2008, etc) using original classifications
   b) All NASA exercises registered in the system including all country/year combination of NASA (Zambia 2008 + Zambia 2009 + Zambia 2010, etc) with last version of classifications. This means that all NASA exercises registered in the system need to be converted to the newest version of classifications.

Example:

Variable name	Variable name	Variable name
Country	Country	Country

Year	Year	Year
Currency	Currency	Currency
Exchange rate	Exchange rate	Exchange rate
PPP	PPP	PPP
Population	Population	Population
Transaction number	Transaction number	Transaction number
FS – institution name	FS – institution name	FS – institution name
FS – NASA code, name	FS – NASA code, name	FS – NASA code, name
FA – institution name	FA – institution name	FA – institution name
FA – NASA code, name	FA – NASA code, name	FA – NASA code, name
Provider – institution name	Provider – institution name	Provider – institution name
Provider – NASA code, name	Provider – NASA code, name	Provider – NASA code, name
ASC	ASC	ASC
BP	PF	HSS
Type of data	Type of data	Type of data
Amount	Amount	Amount

Example:



	A	B	C	D	E	F	G	H	I	J	K	L	M	
1	Transaction	Country	Year	S Institution Nam	A Institution Nam	Institution N	oing Sources	FS Code Description	inancing Agents Cod	FA Code Description	Provider Code	PS Code Description	ASC	
2	1	Nigeria	2008	World Bank	NACA	NACA	FS.03.02.18	World Bank (WB)	FA.01.01.01.10	National AIDS Commission	PS.01.01.14.01	National AIDS commission (NACs)	ASC.01.01.98	Comm
3	1	Nigeria	2008	World Bank	NACA	NACA	FS.03.02.18	World Bank (WB)	FA.01.01.01.10	National AIDS Commission	PS.01.01.14.01	National AIDS commission (NACs)	ASC.04.01	Plannir
4	1	Nigeria	2008	World Bank	NACA	NACA	FS.03.02.18	World Bank (WB)	FA.01.01.01.10	National AIDS Commission	PS.01.01.14.01	National AIDS commission (NACs)	ASC.04.02	Admini
5	1	Nigeria	2008	World Bank	NACA	NACA	FS.03.02.18	World Bank (WB)	FA.01.01.01.10	National AIDS Commission	PS.01.01.14.01	National AIDS commission (NACs)	ASC.04.03	Monitc
6	1	Nigeria	2008	World Bank	NACA	NACA	FS.03.02.18	World Bank (WB)	FA.01.01.01.10	National AIDS Commission	PS.01.01.14.01	National AIDS commission (NACs)	ASC.04.05	Serolo
7	1	Nigeria	2008	World Bank	NACA	NACA	FS.03.02.18	World Bank (WB)	FA.01.01.01.10	National AIDS Commission	PS.01.01.14.01	National AIDS commission (NACs)	ASC.04.08	Inform
8	1	Nigeria	2008	World Bank	NACA	NACA	FS.03.02.18	World Bank (WB)	FA.01.01.01.10	National AIDS Commission	PS.01.01.14.01	National AIDS commission (NACs)	ASC.05.03	Trainin
9	1	Nigeria	2008	World Bank	NACA	NACA	FS.03.02.18	World Bank (WB)	FA.01.01.01.10	National AIDS Commission	PS.01.01.14.01	National AIDS commission (NACs)	ASC.07.01	Advoc
10	1	Nigeria	2008	World Bank	NACA	NACA	FS.03.02.18	World Bank (WB)	FA.01.01.01.10	National AIDS Commission	PS.01.01.14.01	National AIDS commission (NACs)	ASC.04.07	Drug s
11	2	Nigeria	2008	USG	John Snow INC.- AIDSTAR-ONE	John Snow INC.- AIDSTAR-	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.02.01.01.99	Other non-profit non-faith-based providers n.e.c.	ASC.05.03	Trainin
12	2	Nigeria	2008	USG	John Snow INC.- AIDSTAR-ONE	John Snow INC.- AIDSTAR-	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.02.01.01.99	Other non-profit non-faith-based providers n.e.c.	ASC.01.20	Safe m
13	2	Nigeria	2008	USG	John Snow INC.- AIDSTAR-ONE	John Snow INC.- AIDSTAR-	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.02.01.01.99	Other non-profit non-faith-based providers n.e.c.	ASC.01.21	Univer
14	2	Nigeria	2008	USG	John Snow INC.- AIDSTAR-ONE	John Snow INC.- AIDSTAR-	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.02.01.01.99	Other non-profit non-faith-based providers n.e.c.	ASC.04.01	Plannir
15	2	Nigeria	2008	USG	John Snow INC.- AIDSTAR-ONE	John Snow INC.- AIDSTAR-	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.02.01.01.99	Other non-profit non-faith-based providers n.e.c.	ASC.04.03	Monitc
16	2	Nigeria	2008	USG	John Snow INC.- AIDSTAR-ONE	John Snow INC.- AIDSTAR-	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.02.01.01.99	Other non-profit non-faith-based providers n.e.c.	ASC.07.01	Advoc
17	3	Nigeria	2008	USG	ICAP	CBO	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.02.01.01.14	Self-help and informal community-based organizations (Non-profit non faith-based)	ASC.01.03	Volunt
18	4	Nigeria	2008	USG	ICAP	ICAP	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.02.01.01.99	Other non-profit non-faith-based providers n.e.c.	ASC.04.03	Monitc
19	4	Nigeria	2008	USG	ICAP	ICAP	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.02.01.01.99	Other non-profit non-faith-based providers n.e.c.	ASC.04.01	Plannir
20	5	Nigeria	2008	USG	ICAP	Hospital	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.01.01.01	Hospitals (Governmental)	ASC.05.03	Trainin
21	5	Nigeria	2008	USG	ICAP	Hospital	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.01.01.01	Hospitals (Governmental)	ASC.04.10.98	Upgrad
22	5	Nigeria	2008	USG	ICAP	Hospital	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.01.01.01	Hospitals (Governmental)	ASC.01.17.02	Antiret
23	5	Nigeria	2008	USG	ICAP	Hospital	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.01.01.01	Hospitals (Governmental)	ASC.01.01.01	Health
24	5	Nigeria	2008	USG	ICAP	Hospital	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.01.01.01	Hospitals (Governmental)	ASC.01.20	Safe m
25	5	Nigeria	2008	USG	ICAP	Hospital	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.01.01.01	Hospitals (Governmental)	ASC.02.01.01	Provid
26	5	Nigeria	2008	USG	ICAP	Hospital	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.01.01.01	Hospitals (Governmental)	ASC.01.19	Blood
27	5	Nigeria	2008	USG	ICAP	Hospital	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.01.01.01	Hospitals (Governmental)	ASC.02.01.02.98	OI outp
28	5	Nigeria	2008	USG	ICAP	Hospital	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.01.01.01	Hospitals (Governmental)	ASC.02.01.03.01.98	Adult a
29	5	Nigeria	2008	USG	ICAP	Hospital	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.01.01.01	Hospitals (Governmental)	ASC.02.01.03.98	Antiret
30	5	Nigeria	2008	USG	ICAP	Hospital	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.01.01.01	Hospitals (Governmental)	ASC.02.01.04	Nutritic
31	5	Nigeria	2008	USG	ICAP	Hospital	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.01.01.01	Hospitals (Governmental)	ASC.03.03	OVC F
32	5	Nigeria	2008	USG	ICAP	Hospital	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.01.01.01	Hospitals (Governmental)	ASC.04.07	Drug s
33	5	Nigeria	2008	USG	ICAP	Hospital	FS.03.01.22	Government of United States	FA.03.03.99	Other International not-for-profit organizations n.e.c.	PS.01.01.01	Hospitals (Governmental)	ASC.04.10.99	Upgrad
34	6	Nigeria	2008	USG	NATIONAL BLOOD TRANSFUSION SERVICE	NATIONAL BLOOD TRANSFUSSION SERVICE	FS.03.01.22	Government of United States	FA.01.01.01.99	Central or federal authorities' entities n.e.c.	PS.01.01.06	Blood banks (Governmental)	ASC.01.19	Blood

5) 18 two-way tables with the structure defined below, listing subtotals and totals by row and column, exported as pdf, doc, xls or csv file.

Column	Row
FS	FA
FS	ASC
FS	PS
FS	BP
FS	PF
FS	HSS
FA	ASC
FA	PS
FA	BP
FA	PF
FA	HSS
ASC	BP
ASC	PF
ASC	HSS
PS	ASC
PS	BP
PS	PF
PS	HSS

Example:

FS Categories	FA Catecories	115	116	117
	25 The Clinton Foundation	FA.03.03.26 The Ford Foundation	FA.03.03.27 The Henry J. Kaiser Family Foundation	FA.03.03.28 The Nuffiel
		Monto	Monto	Monto
FS.03.03.26 The Ford Foundation				
	0	0.00	0.00	0.00
FS.03.03.27 The Henry J. Kaiser Family Foundation	0	0.00	0.00	0.00
FS.03.03.28 The Nuffield Trust	0	0.00	0.00	0.00
FS.03.03.29 The Open Society Institute/Soros Foundation	0	0.00	0.00	0.00
FS.03.03.30 The Rockefeller Foundation	0	0.00	0.00	0.00
FS.03.03.31 United Nations Foundation	0	0.00	0.00	0.00
FS.03.03.32 Wellcome Trust	0	0.00	0.00	0.00
FS.03.03.33 World Vision	0	0.00	0.00	0.00
FS.03.03.34 International Planned Parenthood Federation	0	0.00	0.00	0.00
FS.03.03.35 Order of Malta	0	0.00	0.00	0.00
FS.03.03.99 Other International not-for-profit organizations and foundations n.e.	0	0.00	0.00	0.00
FS.03.04 International for profit organizations	0	0.00	0.00	0.00
FS.03.99 International funds n.e.c.	0	0.00	0.00	0.00
Grand Total	0	0.00	0.00	0.00

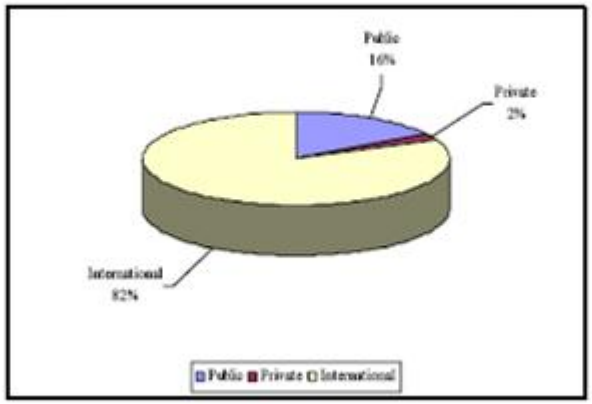
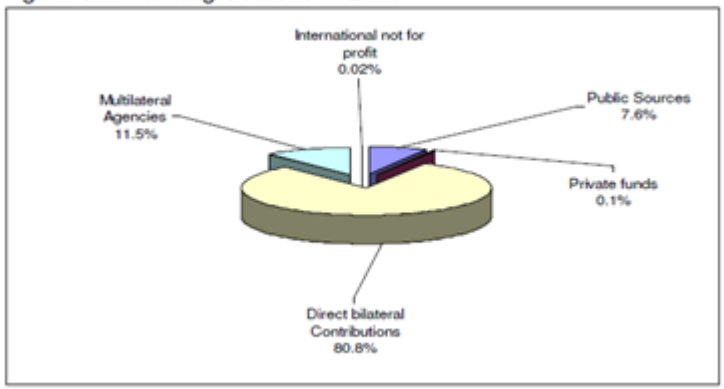
6) One table containing the following variables, exported as doc, pdf, xls or csv:

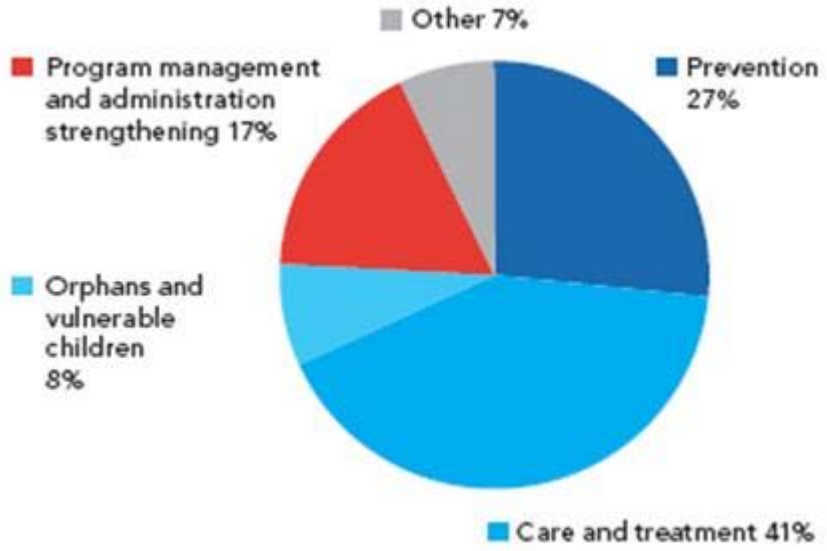
Variable name	Description
Country	Country name
Year	Year
Total HIV spending	Total amount transferred within one NASA project
Total HIV spending USD PPP	Total amount transferred within one NASA project * PPP coefficient
Public spending as a share of total HIV	Total (Public) / Total (Public + International + Private) in %
International spending as a share of total HIV spending	Total (International) / Total (Public + International + Private) in %
Private spending as a share of total HIV spending	Total (Private) / Total (Public + International + Private) in %
HIV spending as a share of GDP: %	Total (Public + International + Private) / GDP in %
Per capita spending USD	Total (Public + International + Private) / Population in %
Per capita spending USD PPP	(Total (Public + International + Private) / Population) x PPP coefficient
HIV Spending per people live with HIV/AIDS USD	Total (Public + International + Private) / (Prevalence x Population)
HIV Spending per people live with HIV/AIDS USD PPP	(Total (Public + International + Private) / (Prevalence * Population)) x PPP coefficient

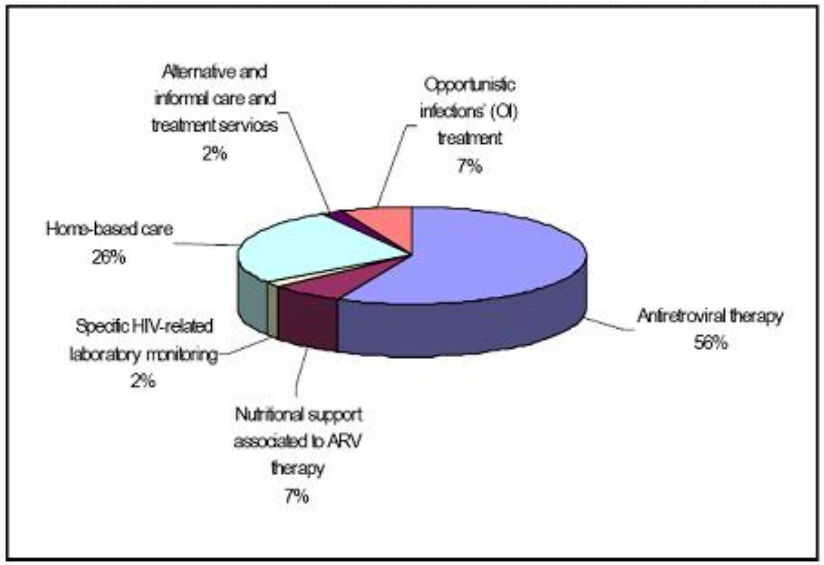
Prevention as a % share of total spending	ASC.1 Prevention (Public + International + Private) / Total (Public + International + Private) in %
Care and treatment USD as a % share of total spending	ASC.2 Care and Treatment (Public + International + Private) / Total (Public + International + Private) in %
Orphans and vulnerable children as a share of total spending	ASC.3 OVC (Public + International + + Private) / Total (Public + International + Private) in %
Management as a share of total spending	ASC.4 Management (Public + International + Private) / Total (Public + International + Private) in %
Most-at-risk populations USD	ASC.1.08 CSW + ASC.1.09 MSM + ASC.1.10 IDU (Public + International + Private)
Most-at-risk populations as a share of total prevention spending	ASC.1.08 CSW + ASC.1.09 MSM + ASC.1.10 IDU (Public + International + Private) / ASC.01 Prevention (Public + International + Private) in %
Prevention of mother-to-child- transmission	ASC.1.17 PMTCT (Public + International + Private) / ASC.01
Share of total prevention spending	Prevention (Public + International + Private) in %
Antiretroviral therapy as a share of total care and treatment spending	2.01.03 Antiretroviral therapy (Public + International + Private) / ASC.02 Care and Treatment (Public + International + Private) in %

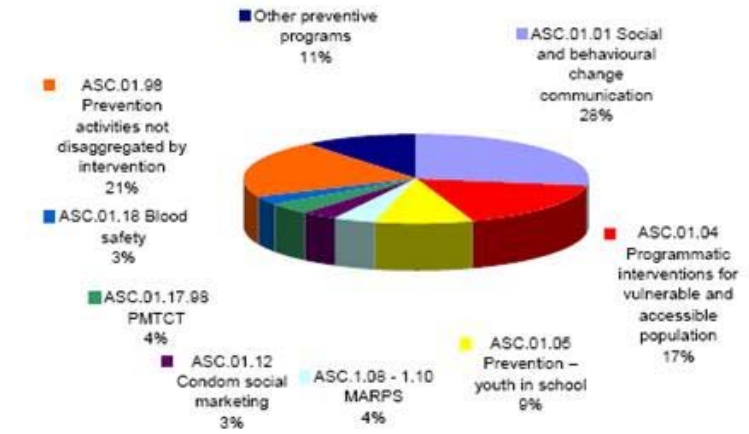
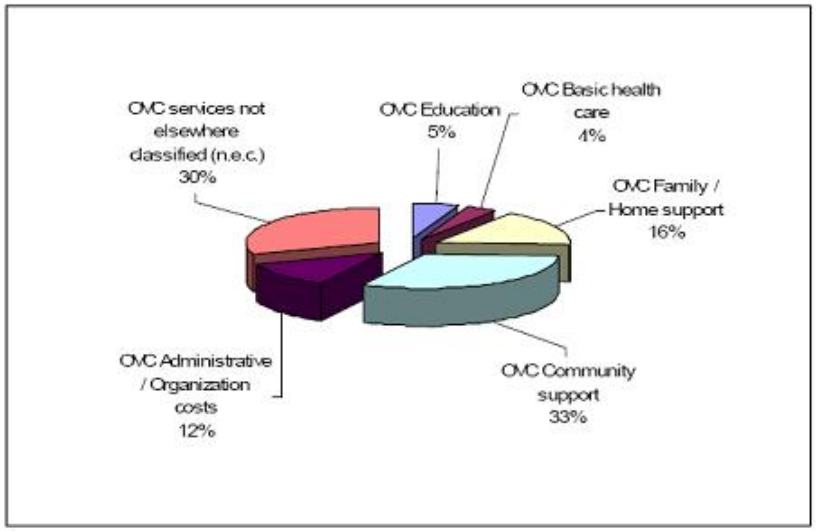
* If data is not available, the values in table should be listed as ‘n/a’

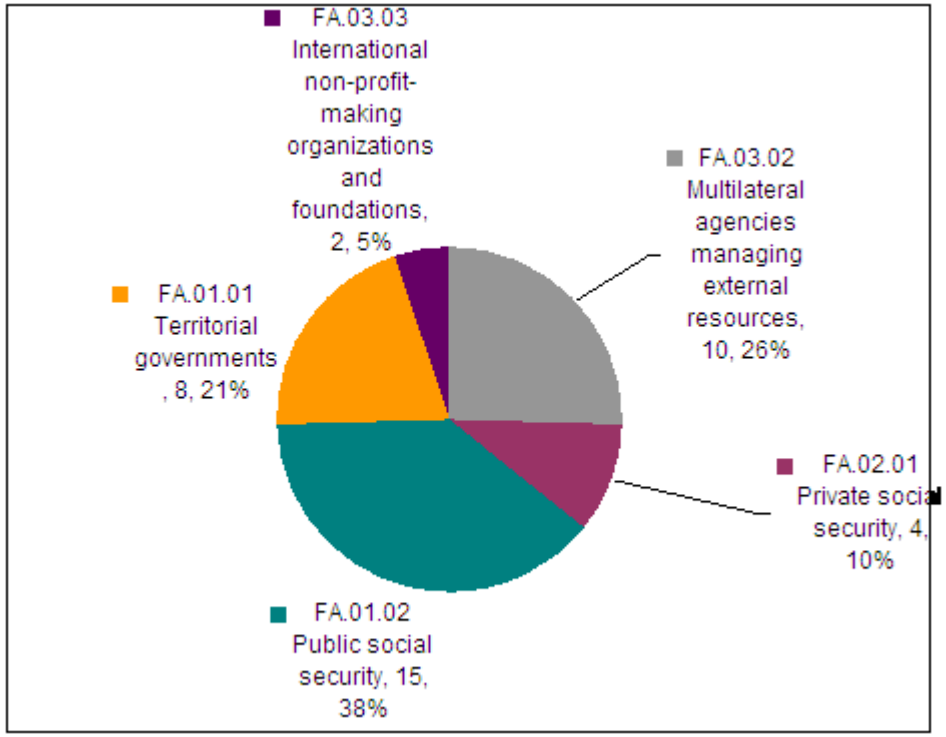
7) The system will provide the following built-in graphs:

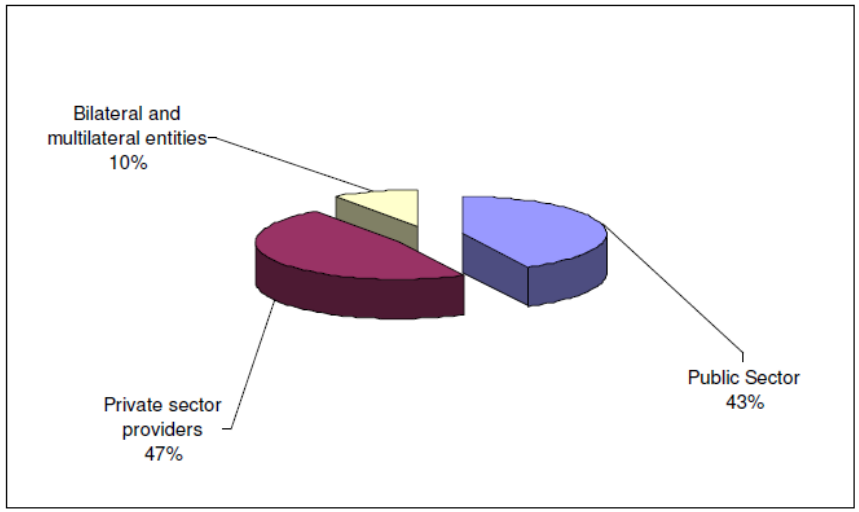
FS 1st digit	
FS 2nd digit	Figure 8: Financing Sources in 2008 

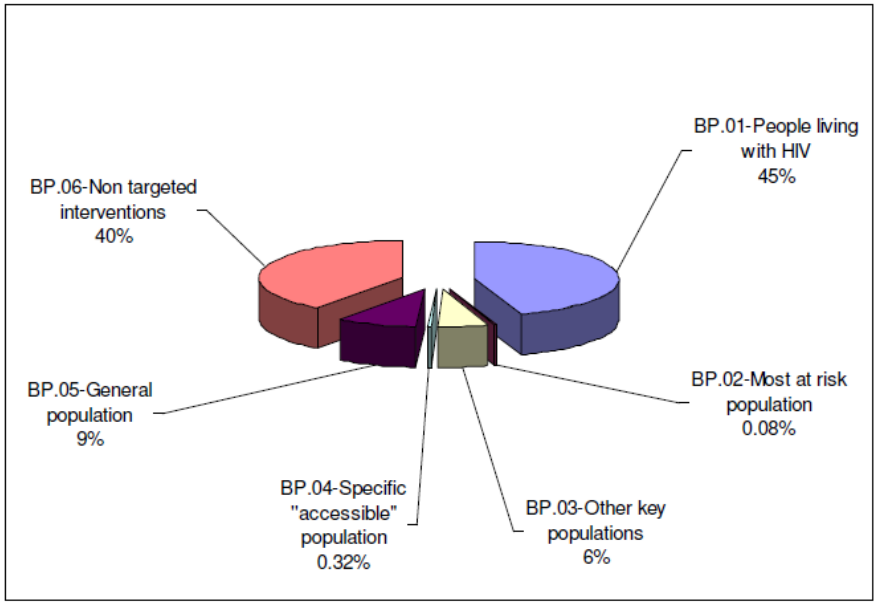
ASC 1st digit	

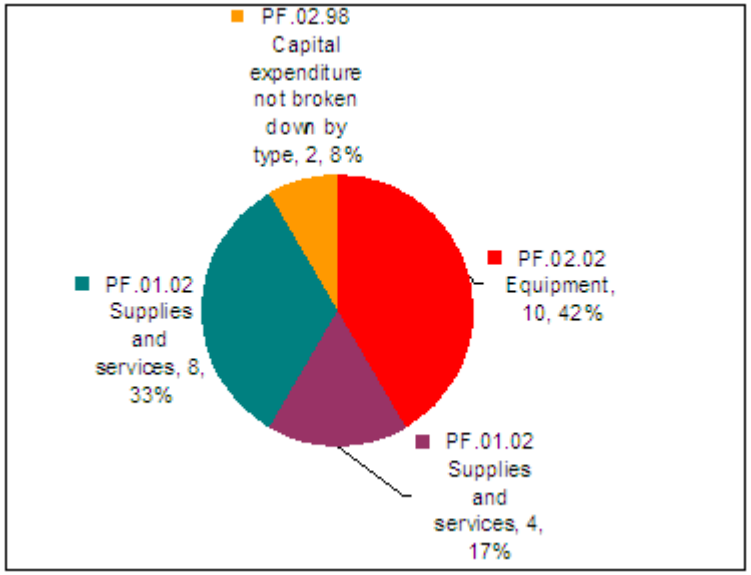
ASC 2nd digit (under Treatment and Care classification)	

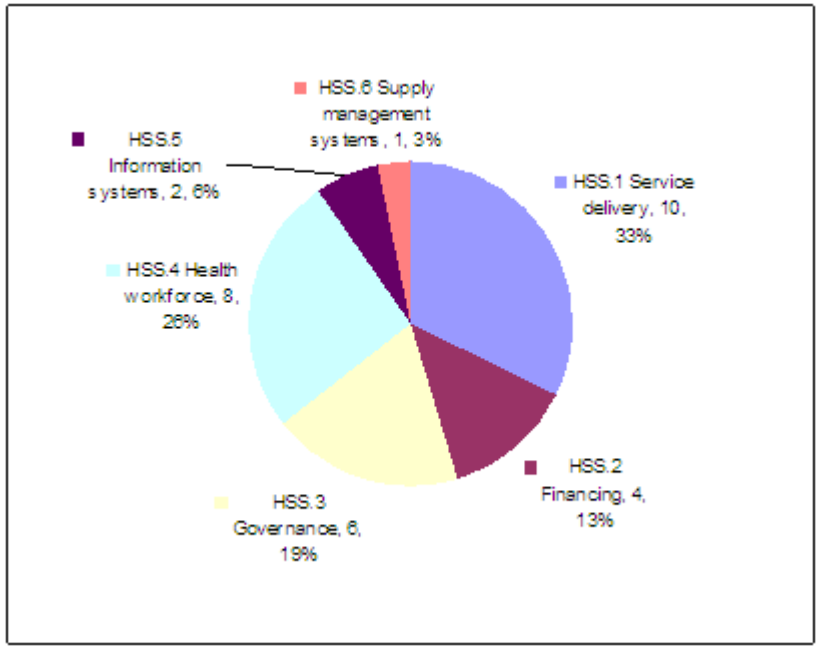
ASC 2nd digit (under Prevention classification)	*Figure 13 Spending on Prevention 2007 – Graph:* 
ASC 2nd digit (under OVC classification)	

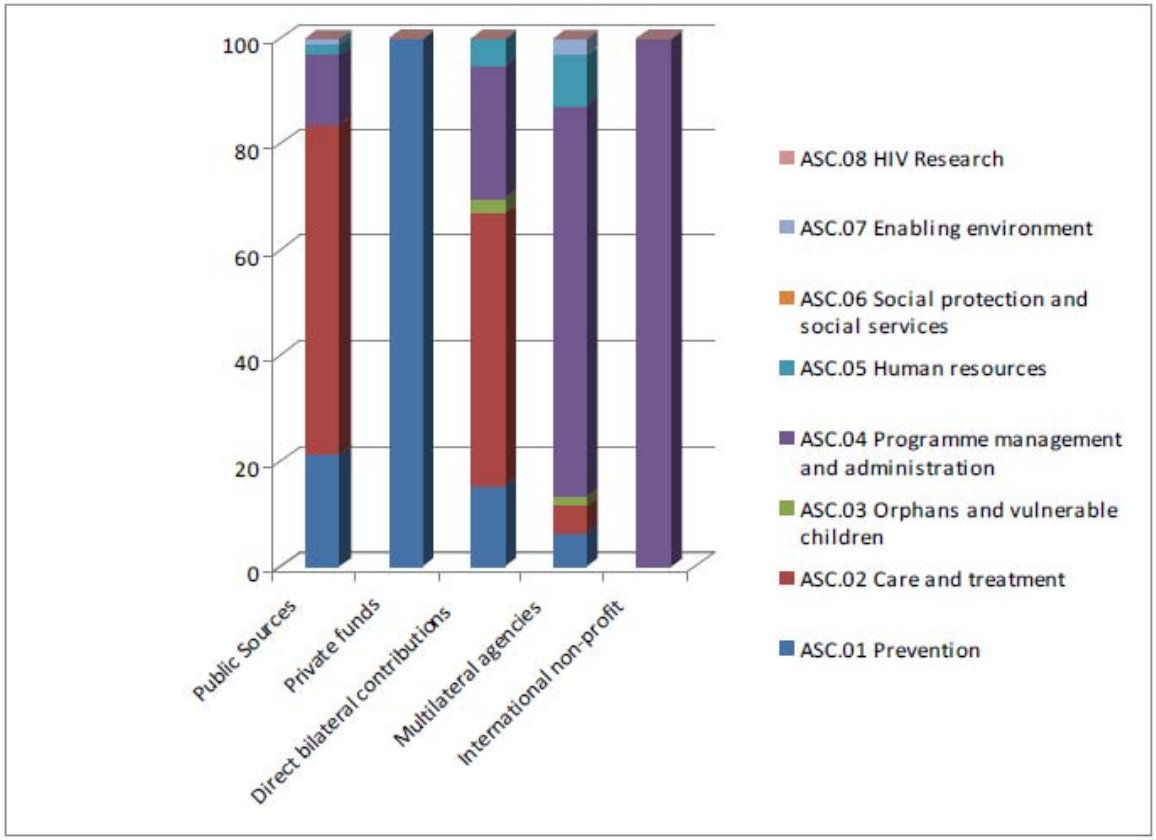
FA 2nd digit	 FA.03.03 International non-profit-making organizations and foundations, 2, 5% FA.03.02 Multilateral agencies managing external resources, 10, 26% FA.01.01 Territorial governments, 8, 21% FA.02.01 Private social security, 4, 10% FA.01.02 Public social security, 15, 38%

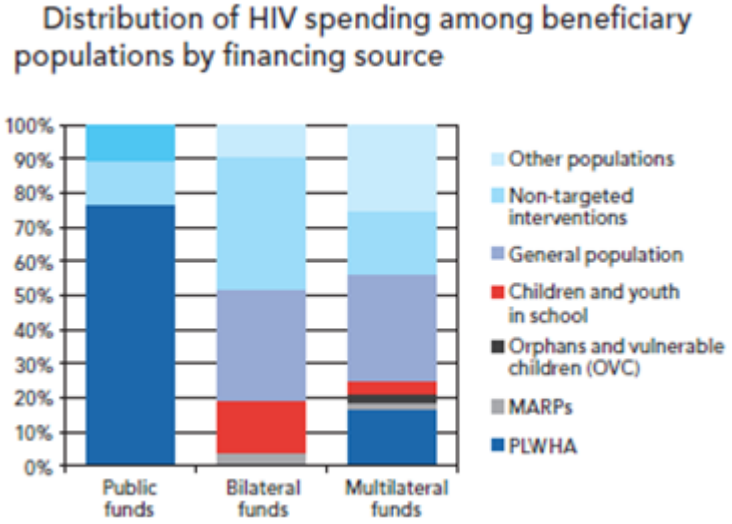
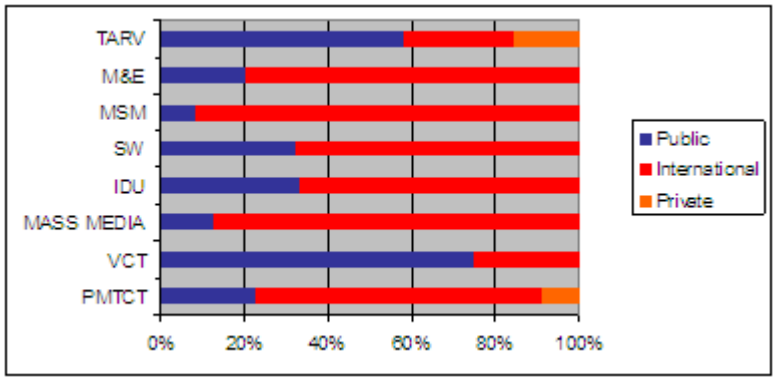
PS 1st digit	Figure 17: HIV/AIDS Service Providers in 2007 

BP 1st digit	Figure 22: Beneficiary population in 2007 

PF 2nd digit	 PF.02.98 Capital expenditure not broken down by type, 2, 8% PF.02.02 Equipment, 10, 42% PF.01.02 Supplies and services, 8, 33% PF.01.02 Supplies and services, 4, 17%

HSS	 HSS.6 Supply management systems, 1, 3% HSS.5 Information systems, 2, 6% HSS.1 Service delivery, 10, 33% HSS.4 Health workforce, 8, 26% HSS.2 Financing, 4, 13% HSS.3 Governance, 6, 19%

ASC 1st digit by financing sources	Figure11: Spending by Financing Sources 2008 

BP 1st digit by financing sources	
Selected ASC 2nd digit by financing sources	

* Digit – hierarchy level in NASA classification (FS, FA; Provider, ASC, BP, PF, HSS)

3.16 Report generator

This feature is optional and subject to the changes. It is expected from developer to propose technical solution for this module.

The design goal of custom report interface is to serve the universal client demand of "give me the report I want, in a familiar format, with all the data I want, and all from a single keystroke," and to do so in a way that would not require programmer intervention every time the user wants to change something in the report. The result is a report generator interface and a report viewer simple enough for any user to run and view the reports, while maintaining the power and versatility to get the periodical reports that user needs.

The module should allow creation of custom periodical reports based on relationship between lookup tables and values defined for spending. The module should be flexible and intuitive and allow users to define the data that they need to present in the report. The reports should be able to create and present data in the table format including basic computation of data (subtotals by columns and rows, etc). Reports should be exported into Excel, Word or Adobe PDF files.

The report generator should allow users to create two way tables as defined in section 3.15, table 5 and pie charts by selecting variables such as: Year, FS, FA, ASC and PS. Also the report generator should be designed to allow definition of digit levels as constructed in most up to dated classifications and use the most up to date classifications for presenting the data. In order to be able to create periodical reports (time series) all data coded with old classifications need to be converted to the most updated classification.

When a report is created the system will allocate automatically as DATABASE_SOURCE the database used to store the data, to avoid confusing the final user with connection string definitions. All reports created should have option to be saved in order to be used several times. The system should consider all restrictions defined in the documentation.

Suggested tool Crystal Reports, having the ability to create reports, using math computation, formatting reports, header & footer, charts, sub-reports, etc.