**Current technical uses and future requirements for GeoNode 2.0**

During the preparation and execution of the activities, a number of issues arose regarding broken, missing or desirable capabilities of GeoNode that should be fixed or amended to improve its usability as SDI solution. The GeoNode version used was not the stable final 2.0 version which is expected to be released in early 2014, rather a test version.

These requirements will be communicated and discussed with the GeoNode development team to evaluate them and maybe added to the development roadmap.

**Usability**

 Most users complain that when uploading a shapefile it is necessary to load separately the .shp, .dbf, .shx and .prj files. They can all be automatically detected and then, if necessary, manually overridden. This was mentioned regarding 1.2 and has now been fixed for 2.0.

 Style files (SLDs) can be only uploaded when the layer is first added to GeoNode. The same way the data can be loaded again, it would be important to have a link to separately reload the SLD. A possible workaround will be to separately add “SLD” in Geoserver, and then synchronize the layers with GeoNode, but this is somewhat difficult for most users.

 About saving the SLD file for a GeoNode layer, this is also somewhat hidden in the style name link, and most user would not know what to do with the XML (SLD) file, so it may be better to have a ‘Save style (SLD)’.

 The CSV data file created by the download options of vector layers in GeoNode is not compatible with the CSV data store in Geoserver. It should be possible to add to Geoserver a CSV saved from GeoNode.

**Broken functionality**

One of the proposed GeoNode federation methodologies makes use of web service cascading (creating data stores in GeoServer that are then used in GeoNode). However, this methodology has still some problems listed below.

 WMS services often fail when one try to save a WMS datastore in Geoserver. Some other servers can indeed be created as data stores from GeoServer. However, after running “GeoNode updatelayers” command, they are not ‘created’ as new GeoNode layers, so they do not appear in the list of layers published by GeoNode. They can still be found when the ‘Add layer’ menu is used within the Map viewer (GeoExplorer).

 When cascaded WMS services are added to a map, *they do not display correctly* (pink tiles are displayed in the layer location).

 WFS services can be created as data stores in GeoServer, and the “updatelayers” command works fine for them, so unlike WMS they do become visible as GeoNode layers. However, it seems the native CRS of the feature service is not correctly detected, and *only services which publish features with native WGS84 CRS are displayed correctly*, regardless of the projection option selected when cascading in GeoServer.

Regarding new document support in GeoNode 2.0:

 Downloading documents does not work from the ‘Explore’ page, but it does work from each specific document page.

In relation to layer removal:

 To remove a layer successfully in GeoNode, we need to perform three steps:

o Remove the layer in GeoServer

o Run “updatelayers” command

o Remove it in GeoNode

 The behaviour should be:

o If we remove a layer in GeoNode, it should be automatically removed in Geoserver

o If we remove a layer in GeoServer and run “updatelayers”, it should be removed from GeoNode without the need of a manual removal in the GeoNode GUI.

A problem with metadata export:

When exporting metadata (at least when the TC211 option is selected):

 The <csw:GetRecordByIdResponse> XML tag is included in the exported metadata, which is wrong and makes the metadata unsuitable for importing in other tools.

Problems when editing raster styles:

 The Add/Edit/Clone tools in the style editor disappear when editing the style of a raster layer from the layer page. They still appear when the style is edited from the GeoExplorer (map viewer).

 The changes in the raster style (e.g. color ramp for an elevation raster) are not saved after adding a few rules, and the style remains the same when opened again.

**Missing functionality**

 It is not possible to modify the *Distribution URL* in the metadata (it always points to the corresponding GeoNode resource page), and it is not possible to create multiple Distribution URL links (while the metadata standards allow for this).

 The current version of GeoNode does not add service *linkages* in the metadata (links to WMS and WFS services) GeoNode generates layer web page URL and download linkages, but not the links to the services themselves. As GeoNode does not generate these links in the metadata, this does not create an internal inconsistency, but it prevents applications like Geonetwork the automated visualization of Geonode services based on the metadata information., and therefore it is not possible to use these links from external CSW client applications like Geonetwork. This is something that can be easily fixed in GeoNode.

 It is not possible to *add WFS and WCS services* to a GeoNode map, as with WMS services. It should at least be possible to add WFS layers, since these can be published by other GeoNodes.

 *Federated search* and access to other GeoNodes should be implemented. Users should be able to search in other GeoNodes for layers and maps, and add them to their own maps.

 It should be possible to *import metadata* to GeoNode, for an existing layer and ideally also to create a new layer from the distribution URL links in a metadata file.

 Also, it should be possible to use an external CSW service (maybe from another GeoNode, from Geonetwork, or from other CSW servers) to collect metadata and add it to the GeoNode, that is, the GeoNode administrator should be able to configure *metadata harvesting* from other CSW servers.

 WCS services cannot be cascaded (no datasource for GeoServer). These kind of services are important for publishing multiband satellite data and other raster data. This is something that must be added in Geoserver issue.

**Requested features**

While these features are not essential, they would make life much easier for data and IT managers, and would make an important difference in increasing sustainability of the SDI, especially in the context of disasters.

 A critical factor identified in other SDI projects is the cost of maintaining current links to data and services in the metadata records. The location or status of data and services often changes, but metadata are not updated accordingly, leaving the client applications with broken links and hanging request. An administration tool or automated process that *verifies the availability of services and links* included in the metadata catalog would be very useful in maintaining these resources and preventing problems.

 Another feature that is often requested from SDI systems is the ability to replicate distributed data to *prevent critical information loss* in case of an emergency. While the SDI philosophy is that the data must be ideally stored and maintained in the organizations that generate the information, a mechanism should be offered to have *alternative storage*, or alternative services, and an automatic synchronization between the original and the backup data source.

 The new GeoNode 2.0 has the capability to handle documents and create metadata for them, so they can be searched as layers and maps. However, many organizations like 5C or CRID Regional Disaster Information Centre for Latin America and the Caribbean (http://www.cridlac.org/ing\_index.shtml) have already *large document databases whose metadata could be imported* in GeoNode. A conversion tool should be provided that would take bibliographic metadata in ISO 2709 or other standards and convert it to ISO metadata for GeoNode.

**Generic issues with version 2.0**

During the mission activities, two generic questions have come up often about the new GeoNode 2.0:

 Many users like Geonetwork and would like to use it alongside GeoNode. However, installing Geonetwork to be run together with GeoNode and make it the CSW frontend is not easy unless you have good knowledge of Linux administration and specific knowledge of the tools involved, so it would be a good idea to have an installation option in the GeoNode installation scripts, to have Geonetwork installed instead of pyCSW.

 The HaitiData.org site has been migrated from 1.2 to 2.0 versions. This process required some manual scripting as well as data downloading, cleaning and uploading. The migration process should be helped by some documentation and if possible with some automated scripts that save crucial information like styles and metadata, which are difficult to migrate.