# Creating Digital Site Maps for the Additional Protocol

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## Digital connections between site declarations and GIS

### ABSTRACT

- The German Support Program has been working alongside the IAEA Department of Safeguards to enhance the methods for submitting site maps required under Article 2.a.(iii) of the Additional Protocol.
- The authors used an open source GIS web server to demonstrate the ability of site operators to capture, maintain and submit the relevant map data and associated tabular information such as building use and descriptions.

### BACKGROUND

The IAEA Department of Safeguards typically receives Additional Protocol (AP) declarations submissions in electronic format but also sometimes as hardcopies. When the IAEA receives electronic declarations, the attachments to declarations, including maps as specified in AP section 2.a.(iii), are not automatically linked to the GIS data for each facility.
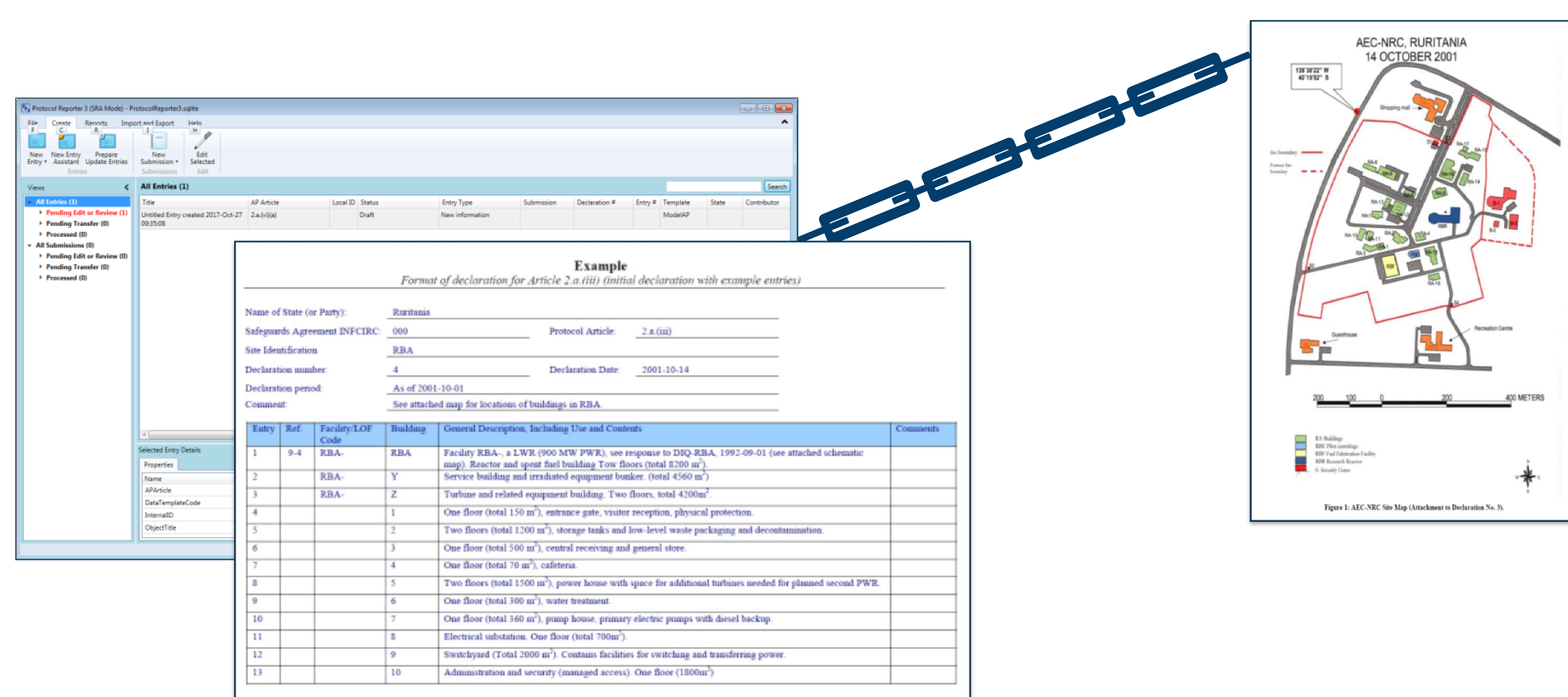


This separation of AP declarations from attached documents and maps causes problems in subsequent data storage and retrieval. The latest version of the submission software Protocol Reporter 3 (PR3) provides for the first time in Protocol Reporter software the capability to include attachments (documents or maps) in the AP submission packages, which are sent to the IAEA. However, attaching the spatial location of each entry as an attachment requires additional work to associate each entry with a location within the IAEA's internal geographic information system. An optimal solution to attaching site map data, with geospatial information intact, could look similar to the prototype described in this paper and would assist the Department of Safeguards by reducing their efforts to associate each 2.a.(iii) with a spatial location.

### IMPLEMENTATION
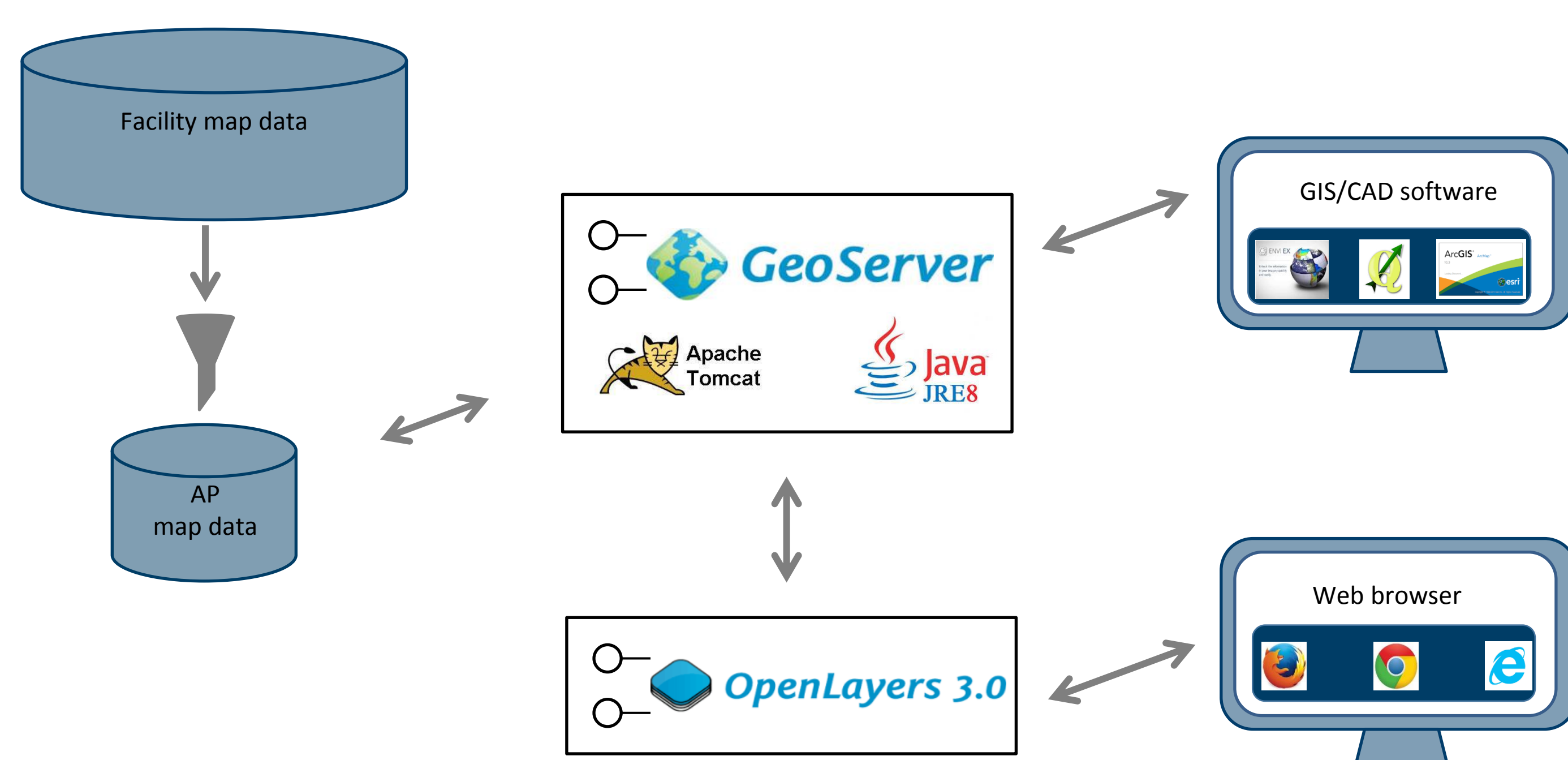


*Scheme showing data, server and desktop clients.*

### OUTCOME

A map webportal prototype was designed to demonstrate the viability of server-based geographic information systems to support site map submissions under the Additional Protocol (AP). The web-portal prototype uses several free and open source software applications in order to create the web-portal platform. These include: QGIS, Geoserver, Apache Tomcat, Node.js and OpenLayers.
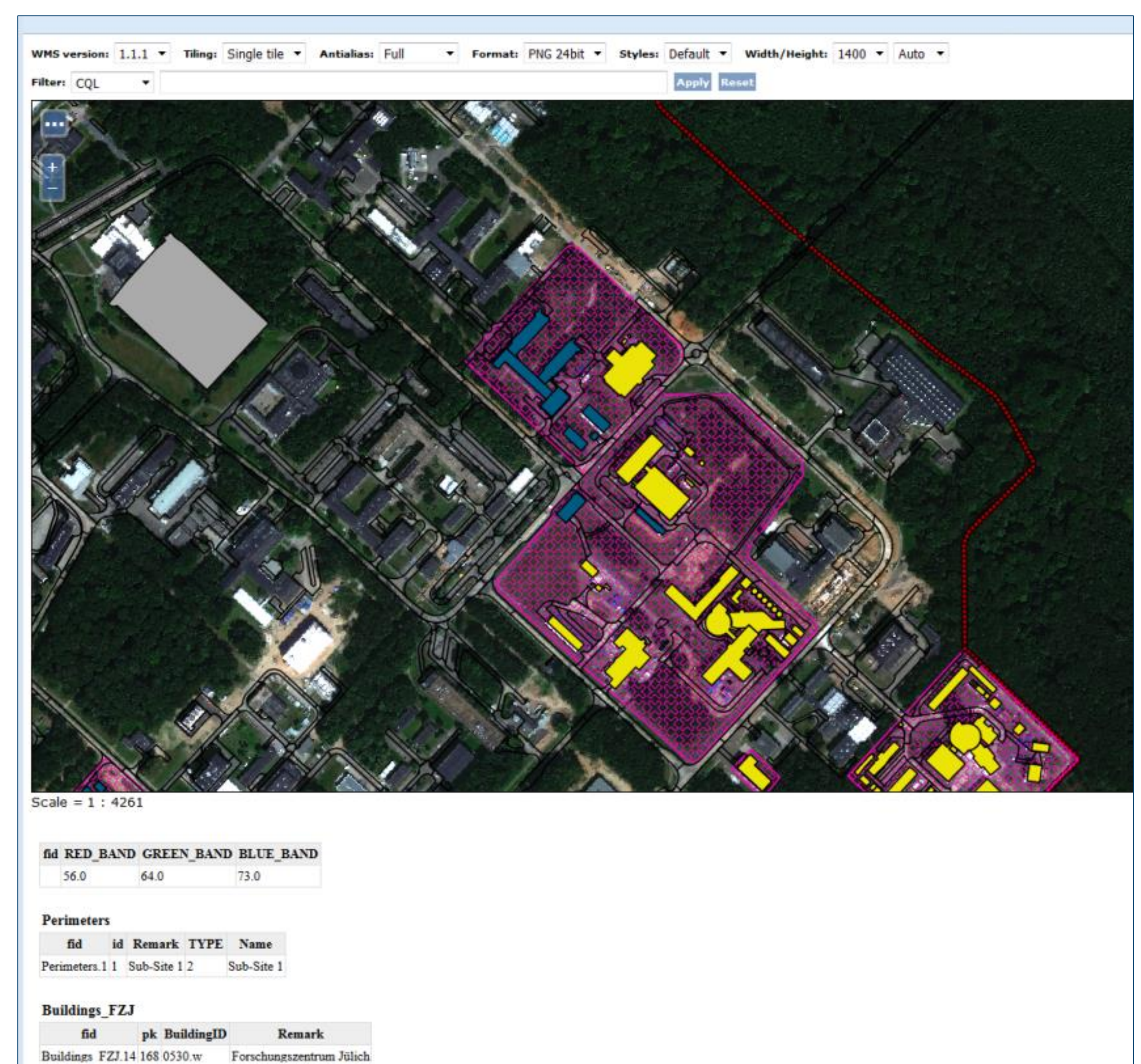


*View of Jülich map data in IAEA format displayed in a web browser*

### CONCLUSION

- Safeguards officers from each facility need a convenient mechanism for submitting site map information to the States or Regional Authority responsible for the implementation of Safeguards (SRAs) and the IAEA

- Web based GIS portals offer facility operators, SRAs and the IAEA a mechanism to connect map data related to section 2.a.(iii) of the AP.

- As the IAEA's State Declaration Portal and Protocol Reporter 3 software continues to be enhanced, so should the capabilities related to Additional Protocol site map submissions.

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