

# MAP-X

The next transparency revolution  
in the extractive industries

## Mapping and Assessing the Performance of Extractive Industries

01



EXTRACTIVE INDUSTRIES

03



ABOUT MAP-X

05



MAP-X COMPONENTS

06



DIFFERENT SCALES OF MAP-X

07



KEY FUNCTIONALITIES

14



POTENTIAL BENEFITS



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# Extractive Industries: Expectations and Challenges

Extractive resources such as oil, gas, minerals and timber can have a transformative impact on the development trajectory of a country. They can create jobs, generate revenue to fund basic government services and stimulate further economic growth. However, harnessing these opportunities presents numerous challenges and pitfalls. This is especially the case in countries affected by fragility, conflict and violence.

In too many cases, the extractives sector in fragile states is plagued by decades of opaque contracts, backroom deals and decisions taken without public consultation or dialogue with local communities. As a result, stakeholder trust breaks down, benefits are not shared equitably, and there is little public access to authoritative information about the profits the sector is generating, the development gains it is catalysing or the risks it is causing. When expectations are not met, social grievances and conflict are a common result.

Fortunately, significant progress is being made towards improving the governance of the sector. Hard fought battles have been won through initiatives such as the Extractive Industries Transparency Initiative (EITI) over contract disclosure, revenue payments, beneficial ownership, and production information. These are important steps

forward to inform decision-making, strengthen benefit sharing, and meet public expectations.

However, current transparency initiatives need to be taken forward to enable data to be published in an open and easily accessible format. The vast amount of information being generated needs to be unlocked and made available in formats that everyone can use. It must be interoperable and have the ability to speak to other geospatial data sets.

In addition, stakeholders can benefit from access to not only financial information, but data relating to social and environmental benefits and risks of concern to local communities. The public is interested in companies' compliance with contractual obligations, whether benefit-sharing agreements are honoured, how individual sites are performing and what environmental risks exist. The range of transparency information can also be presented in more compelling visual and interactive formats that support dialogue and decision-making.

Overcoming these shortfalls will help stakeholders to use extractives data to inform public debate, build confidence, attract new investments and improve the development impact of the sector.



Many communities and other stakeholders in the extractives sector are demanding transparency and access to authoritative information on a range of economic, social and environmental issues.

OGONILAND, NIGERIA



Capitalizing on the potential benefits from the extractive industries also requires monitoring key social and environmental risks to prevent conflicts.

OGONILAND, NIGERIA

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# What is MAP-X?

MAP-X is an answer to some of these challenges. Born out of a request by the g7+ group of conflict-affected states, the open data platform 'Mapping and Assessing the Performance of Extractive Industries', or MAP-X, aims to:

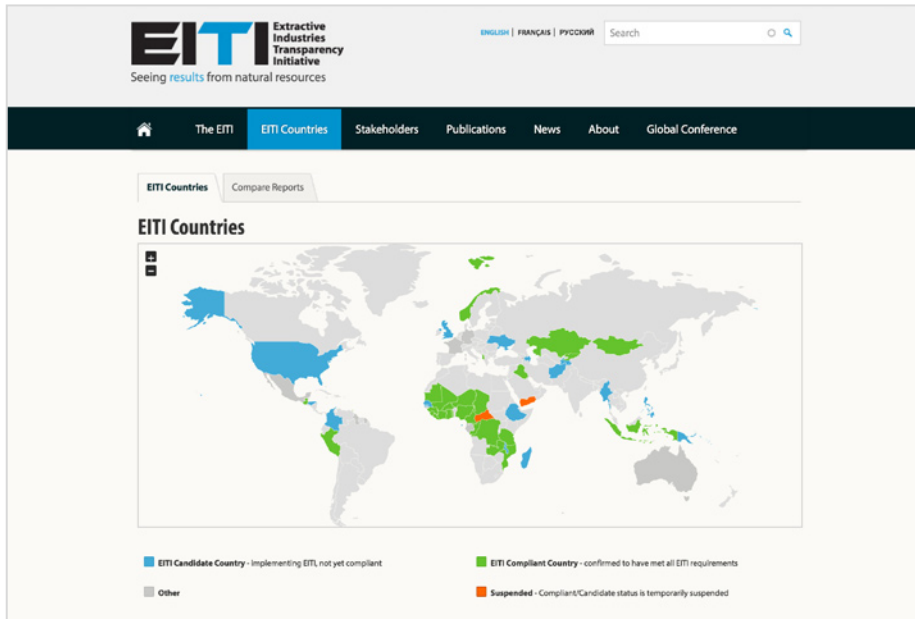
- Transform transparency information into an open data and interoperable format that is easy to access by all stakeholders in a visually intuitive platform;
- Provide a one-stop shop for stakeholders to access authoritative data on the extractive sector and other contextual information;
- Facilitate community engagement in the award and renewal of concessions;
- Help stakeholders monitor compliance and performance of individual concessions across the extractive industry value chain using economic, social and financial criteria.

MAP-X is being developed in close cooperation with the Extractive Industries Transparency Initiative (EITI). Countries in compliance with EITI or in the process of adopting the EITI standard could

use MAP-X as a transparency and open data tool linking both concession information and financial data to other types of social, environmental, land use and operational data. MAP-X could also help EITI countries to achieve compliance with the EITI requirement 6.2, which encourages countries to publish their data in a format that is machine-readable and can be compared with other publically available data.

The key long-term beneficiaries of MAP-X are local authorities and communities, national ministries, and extractive companies in countries with governments seeking to build an extractive sector based on inclusiveness, authoritative data, transparency and stakeholder dialogue. Ultimately, MAP-X is a tool to build confidence between stakeholders in the extractive sector that should help share and maximize benefits for peacebuilding and sustainable development.

The MAP-X prototype is currently being tested in the Democratic Republic of Congo and Afghanistan. Prototype development is being funded by the UNEP Partnership Trust Fund, the UN-World Bank Fragility and Conflict Partnership Trust Fund and the government of Finland.



MAP-X could help countries to achieve compliance with the EITI requirement 6.2, which encourages countries to publish their data in a format that is machine-readable and can be compared with other publicly available data.



MAP-X could help stakeholders monitor the compliance and performance of individual concessions across the entire extractive industry value chain.

TONKOLILI DISTRICT,  
SIERRA LEONE

2011 © Caroline Thomas/ UNEP

# MAP-X Components

## Open data platform:

MAP-X will offer a national open data platform for visualizing extractives sector data that can be tailor-made to local needs, is owned by stakeholders, and supported by UNEP and the World Bank. MAP-X is a tool that can reinforce the implementation of national transparency commitments, such as those under EITI as well as National Action Plans of the Open Government Partnership.

## Normative data standard and workflow:

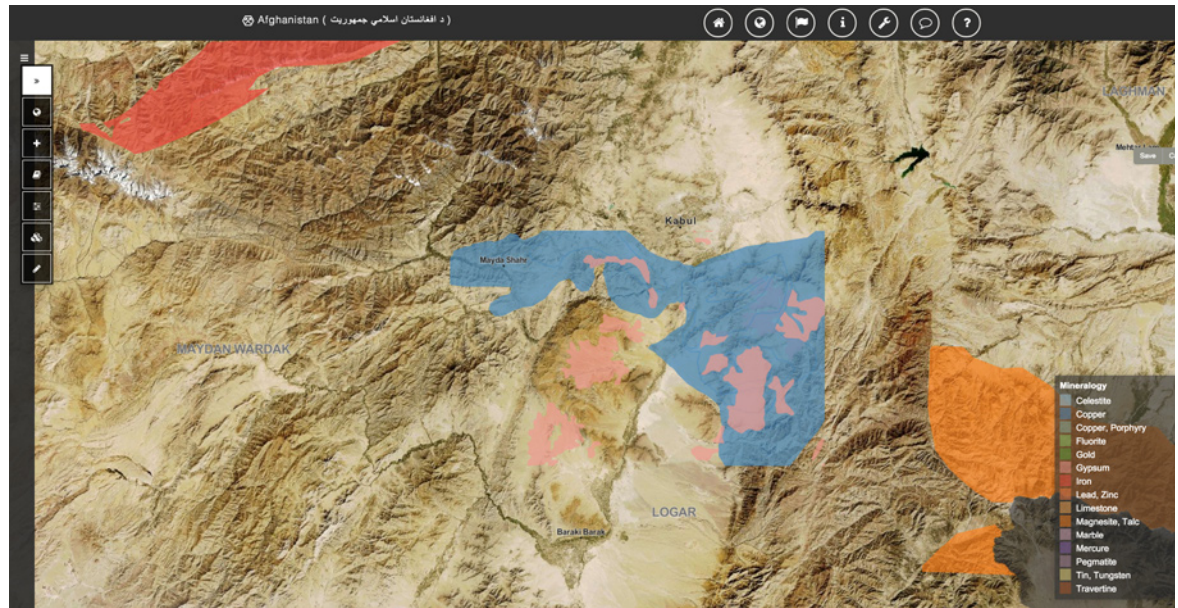
MAP-X will support data suppliers and other stakeholders in consolidating, validating, reconciling and licensing the data and making it avail-

able in standardized open data formats. This will ensure that different data sets can be integrated together, and support quality control by ensuring that all the data fed into the system is accurate, authorized, validated and interoperable.

## Stakeholder capacity building:

MAP-X will offer a capacity building programme for stakeholders to comply with the standard, manage the workflow and use the open data platform to inform decision-making. This will ensure a bottom-up approach and strengthen the national ownership of the platform for it to become a key information and monitoring tool adapted to conflict-affected contexts.

MAP-X will offer an open data platform for extractive information, plus a normative data standard and a capacity building programme. Here depicted: mineralogy around Kabul, Afghanistan.



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# Different Scales of MAP-X

Given recent advances in information technology and communications, the MAP-X initiative is being designed to function at three different scales and be accessible by either web connected computers or mobile smart phones.

## Local level:

Stakeholders will be provided a range of tools to access the operational requirements of individual concessions in order to monitor their compliance and performance throughout the value chain. This will cover financial, social and environmental aspects using a score card system.

## National level:

The platform will permit open access to authoritative information on all extractive industry concessions, including ownership, duration, resource type, and payments. It will support strategic planning and investments by providing other important contextual data layers, as well as help identify key risks and potential development impacts.

## Global level:

Data from country platforms can also be aggregated to the global level as a basis for comparative analysis and tracking the performance of individual companies and beneficial owners.

MAP-X will integrate information at the local, national and global scales.

WESTERN AREA  
PENINSULA,  
SIERRA LEONE



2011 © Tommy Trenchard/ UNEP

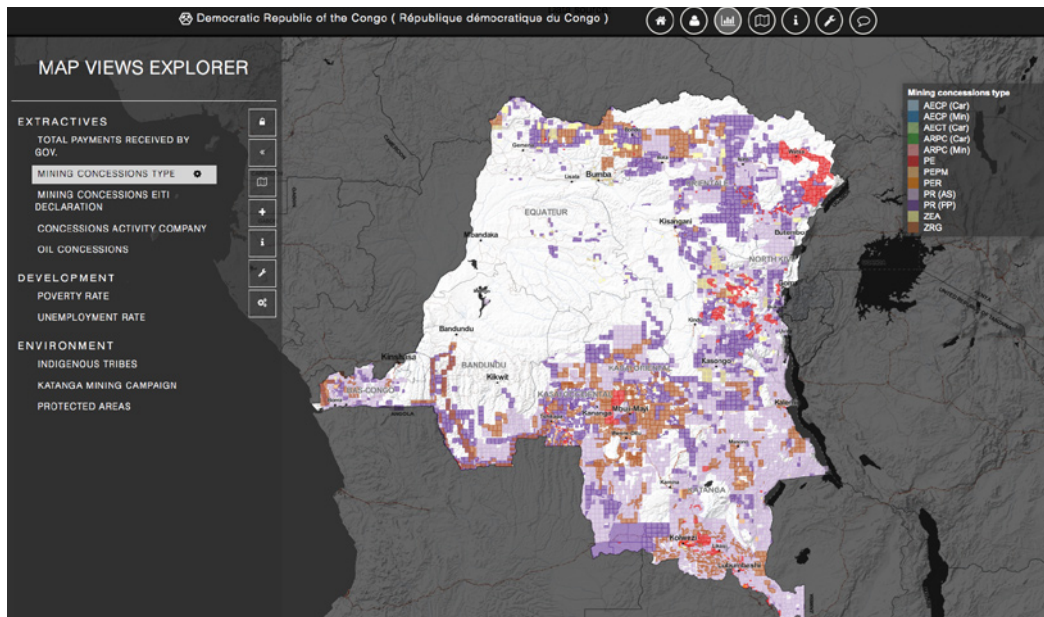
# Key MAP-X Functionalities

The key functionalities of the MAP-X prototype are presented here through the national pilot platform developed for the Democratic Republic of the Congo. It should be noted that as the prototype development and data collection are ongoing, some of the data presented here may not reflect the latest available information.

## Mapping Concessions by Type or Activity Status

To date, much of the concession-specific data remains locked down in static PDF files, such as annual EITI reports, closed databases and outdated software that do not inform real-time decision-making and do not effectively reduce information asymmetries among different ministries and stakeholders. In a single click, MAP-X can provide information on all resource concessions either by type, activity status, date of issue, or owner. Each concession can be queried for immediate access to further information. MAP-X also includes a time slider function to visualise changes in these variables over time.

Stakeholders can access resource concession information by type, activity status, date of issue or owner. Here depicted: mining concessions by type in DR Congo.

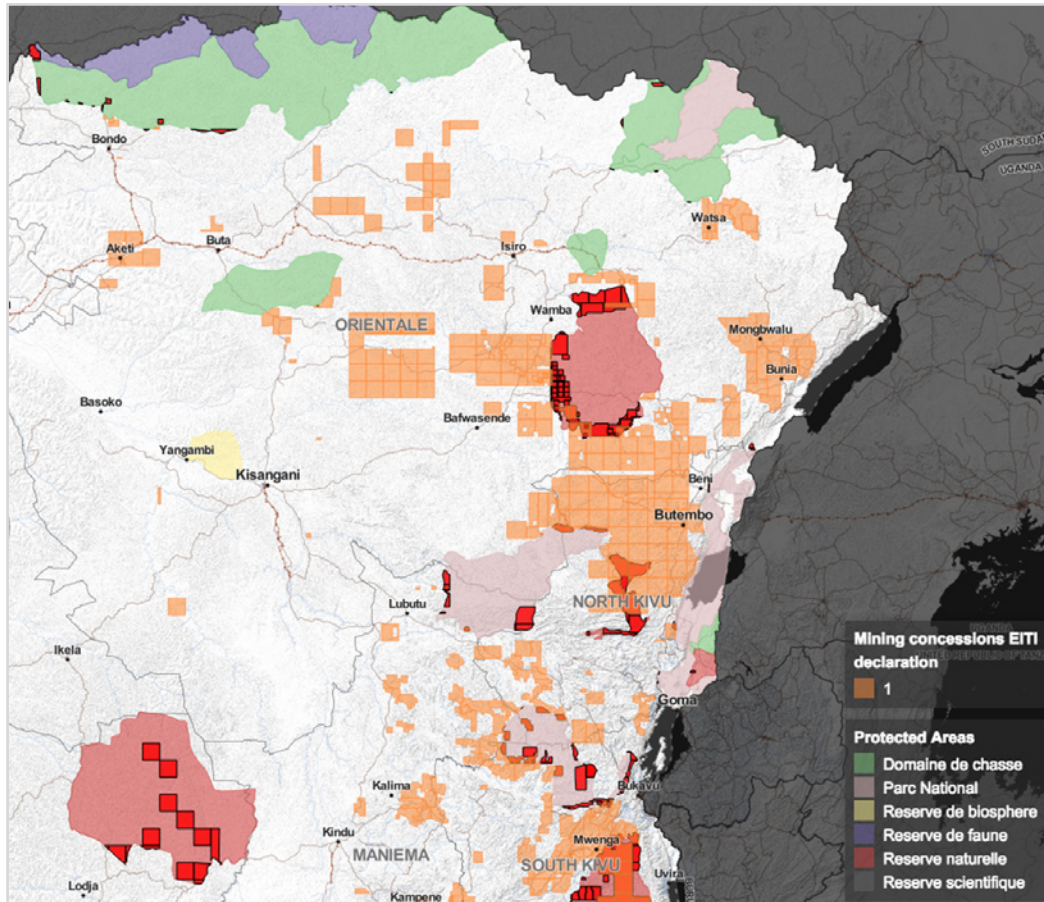




## Visualizing Conflicting Land Use and Rights

Conflicts between different types of land uses and rights can be illustrated by combining concession information with land use information and other data layers. MAP-X can then automatically detect overlapping areas between different concessions, between concessions and other designated forms of land use (e.g. agricultural and pastoral areas, protected areas), or between concessions and other rights holders (e.g. indigenous territories). It will also generate overlap statistics in the intersecting areas. In addition, this functionality will show how different operational risks (e.g. natural hazards) overlap and where cumulative risks are most intense (e.g. heat maps).

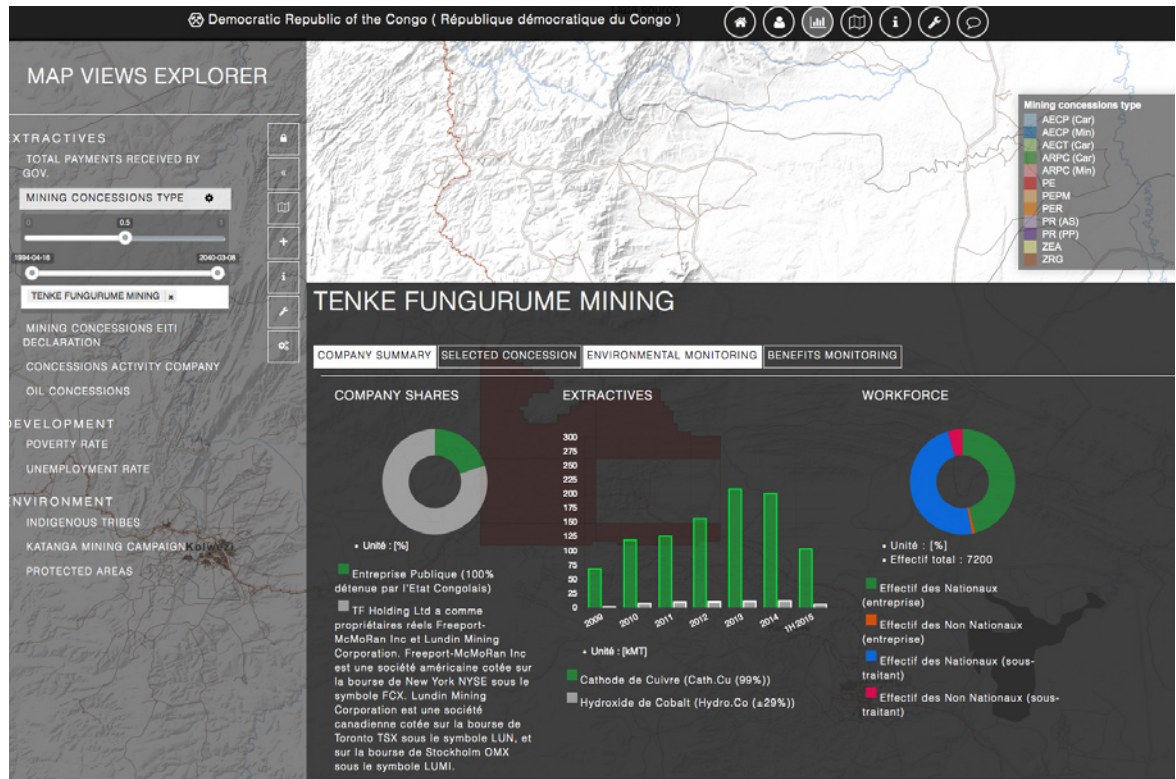
MAP-X can identify overlapping areas between concessions and other land use boundaries. Here depicted: areas highlighted in red indicate potential overlaps between mining concession boundaries and protected areas.



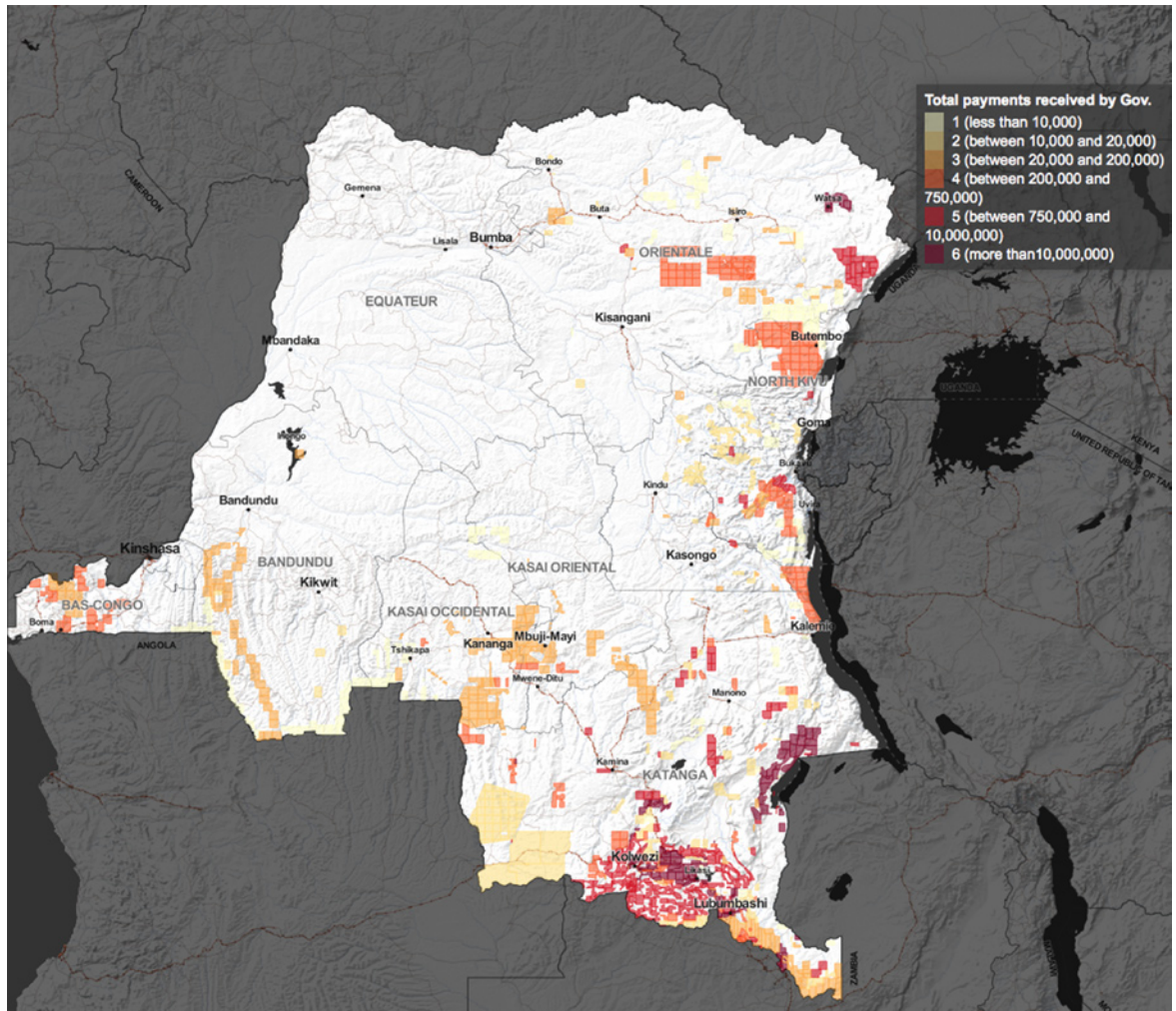
## Visualizing EITI Reporting Requirements

Annual EITI reports include a wealth of important information for many stakeholders. Unfortunately, the data is not easily extracted from PDF files, which in most cases is the common reporting format. MAP-X provides a platform and tools to visualize and further analyse a range of different EITI data at the national level. For example, MAP-X can illustrate company-specific production and employment data over the years for easy comparison. The declared volume of payments by concessions received by the government can be mapped. MAP-X could also serve as an archive for concession-specific documentation, including contracts and environmental impact assessments.

MAP-X can visualize a range of key indicators reported by individual companies. Here depicted: information on company ownership, annual production and employment from Tenke Fungurume Mining in DR Congo.



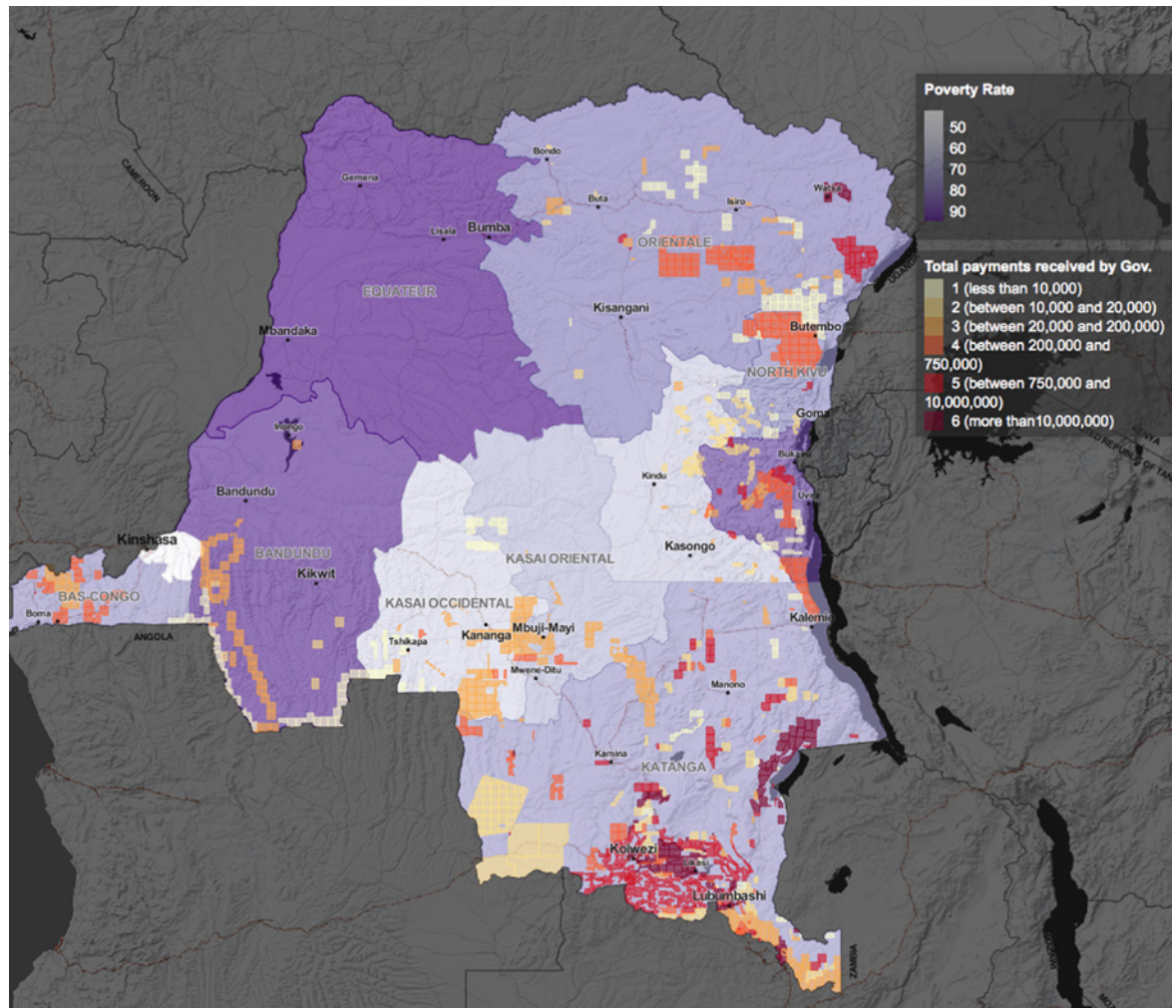
MAP-X can show the geographic distribution of payments reported and reconciled in the EITI process. Here depicted: visualizing the volume and location of payments made by EITI reporting companies for 2013 in DR Congo.



## Full Interoperability with Other Geospatial Data Sets

MAP-X has the capacity to automatically extract and display data from other available geospatial data sets that comply with the Web Map Service (WMS) standard. This will enable users to import various data sets, ranging from socio-economic and conflict incidence data to environmentally sensitive areas and occurrence of natural hazards, to conduct further analysis and monitoring. In this example, the payments by extractive companies to the government are combined with provincial level data on poverty rates.

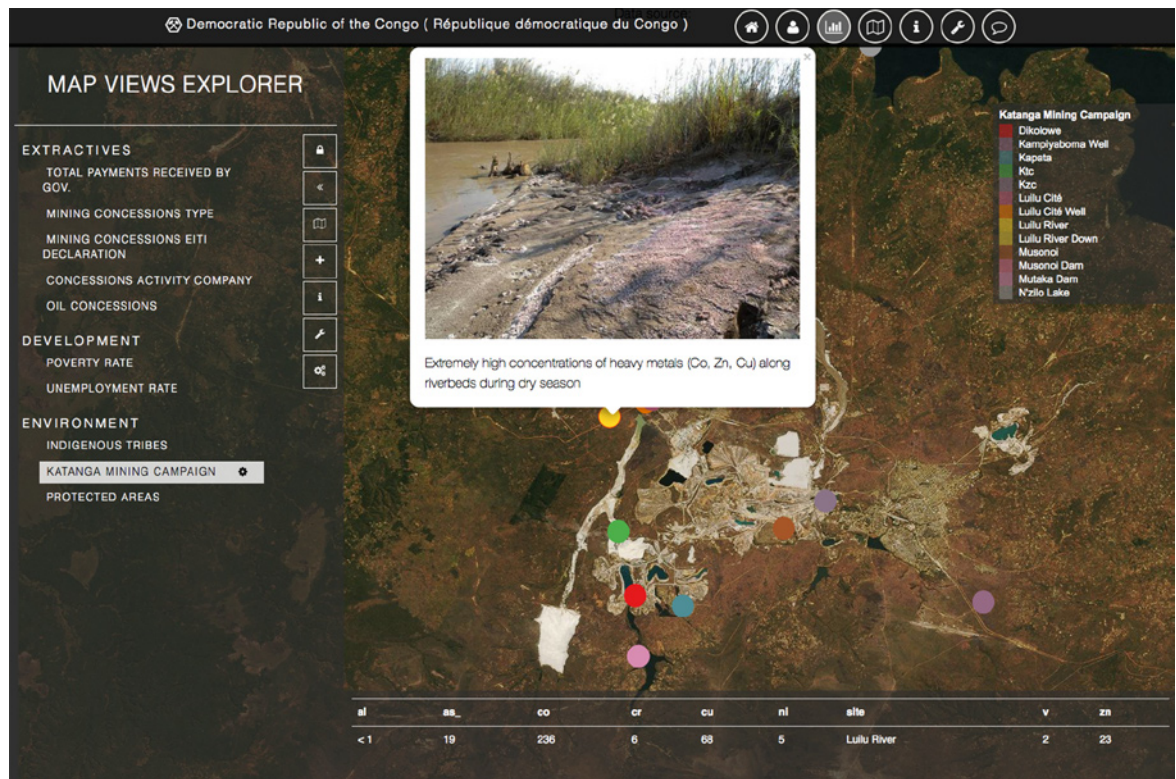
MAP-X supports full interoperability with other global data platforms. Here depicted: comparison of provincial poverty data from UNDP against the EITI 2013 payments in DR Congo. This allows socio-economic analysis of the extractives sector.



## Monitoring of Site-Specific Performance

MAP-X will include tools to store, access and visualize a range of site-specific data. This will include access to concession contracts, a scorecard system for monitoring benefit-sharing agreements and grievances, as well as a tool for monitoring environmental sampling and related research. Users can also define a geographic area of interest and receive a text message or email updates when new concessions or other land use changes are detected in that area. MAP-X can also provide access to high resolution satellite images where available to monitor land use change over time.

Users can access a range of site-specific information covering the economic, social and environmental performance of an operation. Here depicted: environmental monitoring results in selected locations in the Katanga region.

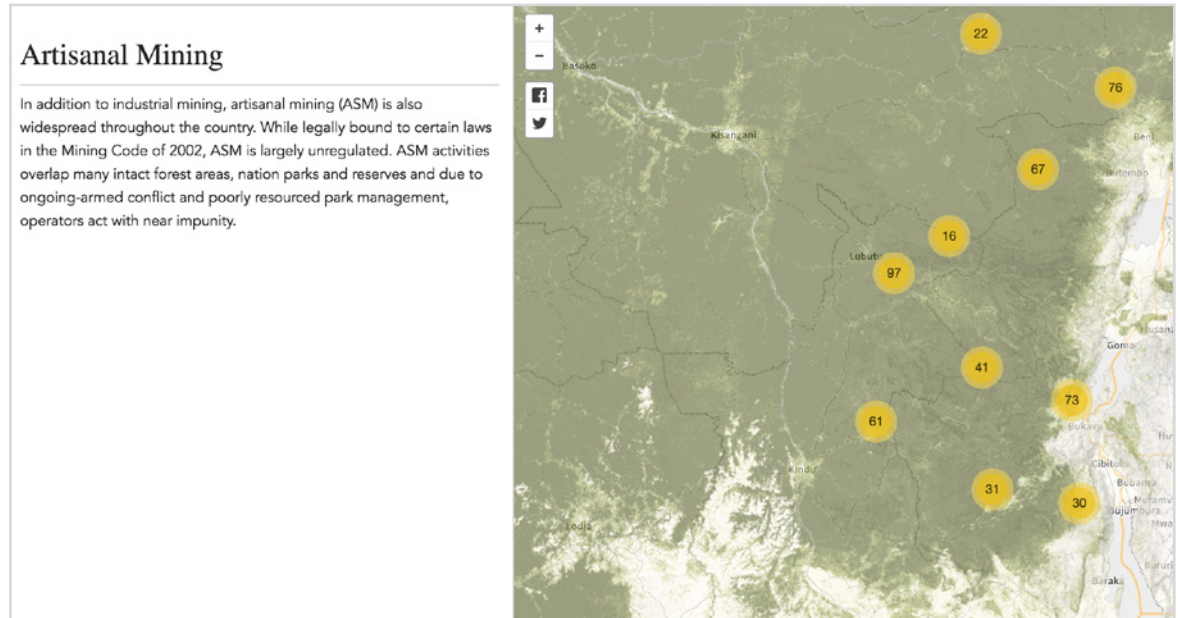


## Story Maps

MAP-X can be used to document area-specific case studies, CSR investments and community grievances into story maps. Through story maps, users can easily combine maps and contextualize geographical layers using narrative text, images and multimedia content. Stories are narrated linearly and are available by scrolling down with associated geo-localized representation. The story map functionality can also serve to document the implementation of site-specific action plans.

This functionality is ideal, for example, to monitor the expansion of the artisanal mining sector in a country by local communities. Given the often informal nature of artisanal mining, reliable data is difficult to find or it does not exist. Through story maps, stakeholders can share real time information, such as photos, and connect these descriptions with geographical locations.

Users can build interactive stories using text, photos and videos linked to dynamic maps. Here depicted: newly established artisanal mining sites identified by local communities and researchers.



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# Potential Benefits to Stakeholders

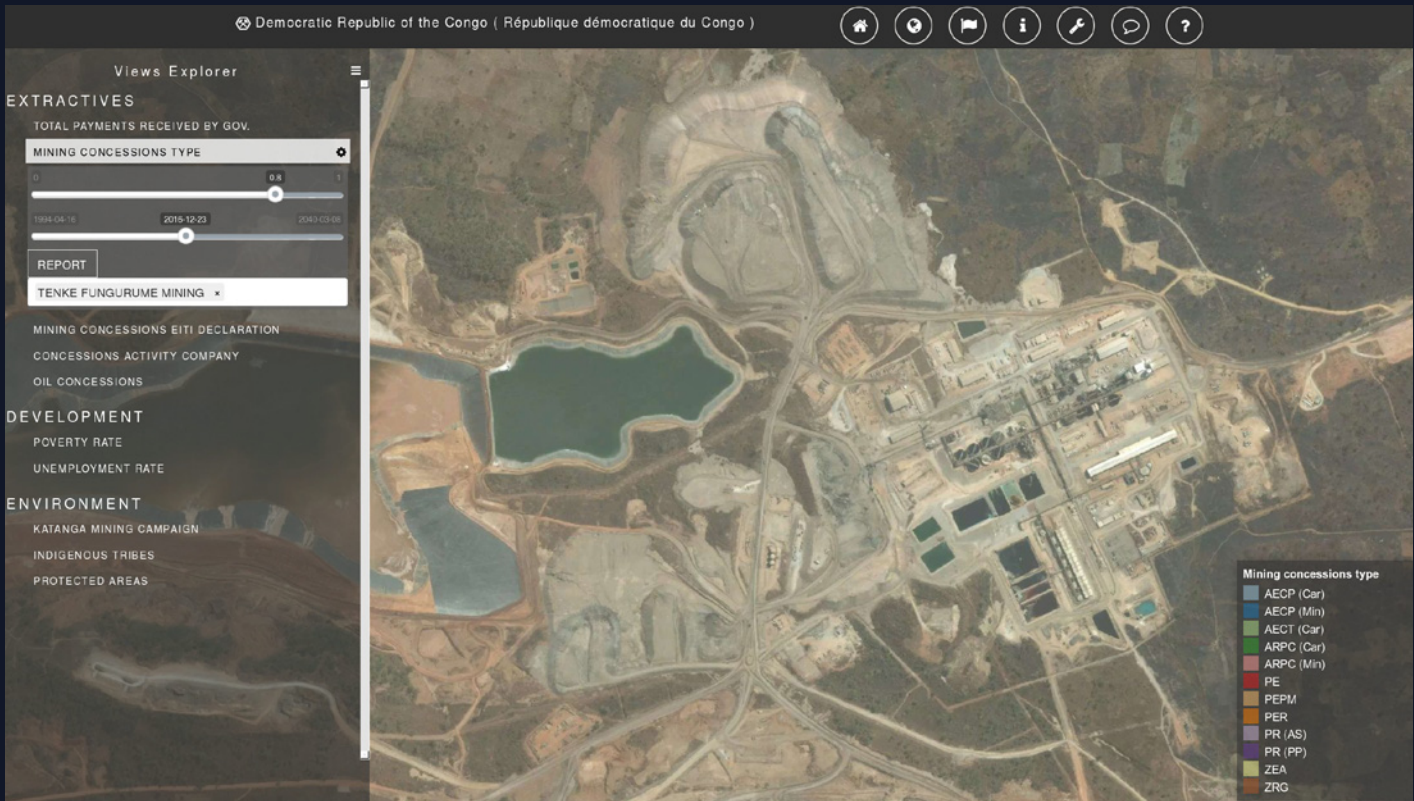
- Introduce transparency initiatives with the world of open data and new dimensions covering social and environmental performance;
- Consolidate existing concession-related information, e.g. contracts, environmental impact assessments and benefit sharing agreements into a single platform;
- Improve stakeholder dialogue and the quality of consultations with local communities;
- Facilitate identification of operational risks and conflicts with competing land use types and support due diligence;
- Communicate positive social development projects and other CSR initiatives undertaken by companies;
- Improve grievance and impact monitoring (economic, social and environmental) across the entire extractive industry value chain;
- Serve as an early warning system to monitor the evolution of local conflict drivers over time and identify where mediation support is needed.

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# MAP-X and Sustainable Development Goals

The potential application of MAP-X is not limited to fragile states. Any resource-rich country that wants to improve the capacity of stakeholders in the extractives sector to consolidate, analyze and visualize transparency data and other contextual information could adopt it.

In this regard, MAP-X could make a direct and substantive contribution to the implementation of SDG 16 on peaceful societies, access to justice and inclusive institutions as well as to the Financing for Development (FFD) process.



MAP-X can provide access to high resolution satellite images to monitor land use change over time.

## CONTACT

**Mr. David Jensen**  
david.jensen@unep.org  
UNEP, Post-Conflict and  
Disaster Management  
Branch

**Ms. Ozong**  
Agborsangaya-Fiteu  
ozong@worldbank.org  
World Bank, Fragility,  
Conflict and Violence

**Dr. Nicolas Ray**  
nicolas.ray@unepgrid.ch  
UNEP, Global Resource  
Information Database  
(GRID-Geneva)

**Mr. Michael Jarvis**  
mjarvis@worldbank.org  
World Bank, Extractives  
Governance