The social acceptability of a mining project, from
development to closure, is among the major key
levers to be dealt with. EO-MINERS scientific and
technical objectives are to: 1) assess policy
requirements at macro (public) and micro (mining
company) levels and define environmental,
geo-economic, societal and sustainable
development criteria and indicators to be possibly
designed using Earth Observation (EO). 2) use existing
EO Knowledge and carry out new developments on
demonstration sites to demonstrate the capabilities of
integrated EO-based methods and tools in
monitoring, managing and contributing reducing the
environmental and social footprint of the
extractive industry during all phases of a mining
project and 3) contribute making available reliable
and objective information about affected
ecosystems, populations and societies, to serve as
a baseline for sound “trialogue” between
industries, governmental organizations and
stakeholders.

Approach and Methodology

The need to assess policy requirements and define criteria and indicators
to be possibly dealt using EO methods and tools will be first addressed
through an analysis of policies related to the environmental and social
aspect of mining. EO-MINERS project will constitute to develop
high level EO-based data products applicable to the different stages of
mining activities within the life cycle of mining operations, over three
demonstration sites (Czech Republic, South Africa and Chile). From these
developments, it is subsequently intended to contribute to the development
of guideline EU data integration schemes, in particular in view of
characterizing effective ecosystems, populations and societies and prepare
related documents for stakeholders, governmental organizations and
stakeholders. To this end, the project will continuously take care of robust
and reliable standards and protocols that guarantees the replicability of the
methods deployed.

EO tools and Methods

Satellite data:
- Conventionally optical sensors: Landsat Thematic Mapper, ASTER,
Hyperion, etc.,
- Very high resolution optical sensors, such as Envisat, QuickBird, SPOT
5, etc,
- Radar sensors, in particular for INSAR applications

Airborne data:
- Airborne imaging spectroscopy (hyperspectral) survey
- Airborne geophysics: radiometric, electromagnetic, aeromagnetic

In situ monitoring methods:
- Time-Averaged Electrical Resistivity Tomography (ALERT)
- Ground monitoring networks
- In situ point measurements
- Field spectrometry campaigns
- Information and/or measurements about vegetation, soil, groundwater and
dust
- Chemical Model and 3D Characterization of the contaminated soil

Expected Results

The aim of the project aims to develop EO-based tools for helping
monitoring and assessing the impact on the environment and on the society
of the exploitation and exploration of mineral resources. It also links-integrates
GEOS (Global Earth Observation System of Systems) processes and tools, by using these outputs to define
policy drivers of an “environmental monitoring system” and exploit its
value within a GEO and to contribute to building of GEO. Means for an
expert “trialogue” will be: “An Interdisciplinary and discussion of issues
among these include mining, environmental, social, economic, etc.,
between the three main groups: the mining, governmental, non-governmental
organizations and other stakeholders; the NGO’s are expected.

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EO-MINERS and GEO

Objectives
- Filling a strategic gap in GEO, an initiative which does not address minerals in any meaningful context, based on:
  - Mining and Environmental CI System developed in EO-MINERS
  - Identification of synergies and gaps between EO-MINERS and GEO

Strategy
- Review the existing GEO Tools covering the 5 societal benefit and 6 trans-
sverse areas defined by GEO work plan 2007-2010,
- Maintain a dialogue with GEO, involve GEO interested and participating
organizations in ACP countries and Europe as necessary.
- Participate in GEOSS conferences and workshops, making presentations on
the contribution of mining and environmental observations to specific societal
benefit and transverse areas
- Run a minerals workshop with GEO members and making the GEO Secretariat

Deliverables
- "EO-MINERS to GEOSS Mapping Database and Reports" including
  - A proposal for a follow-on project to deliver against common EO-MINERS
  and GEO targets
  - Proceedings of EO-MINERS presentations at GEO Workshops and Confer-
ences.