

Space assets for demining assistance ?

Thomas Bouvet
European Space Agency

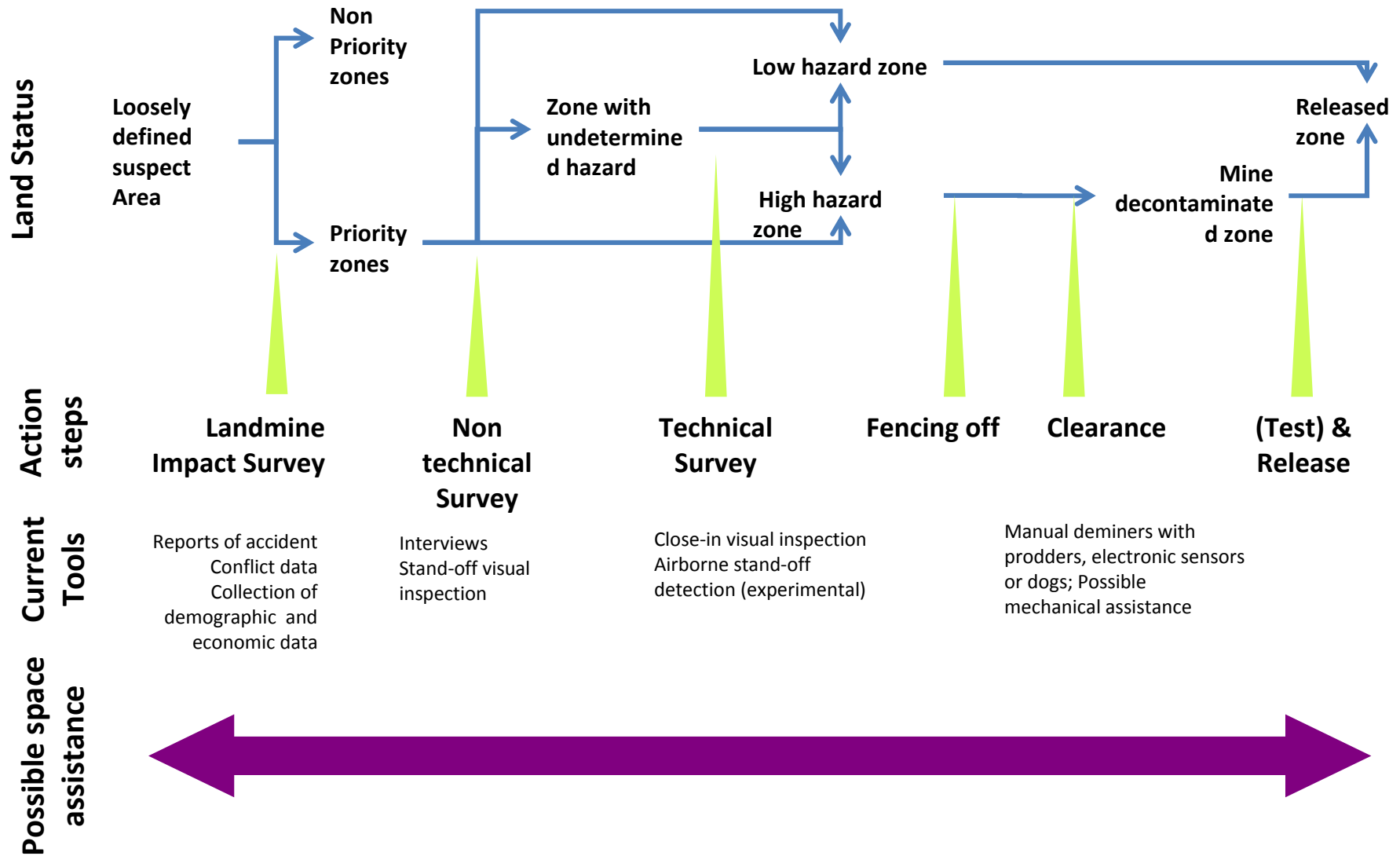
27 April 2010

- ✦ We believe that the efficiency of the land release process could still be **improved, thanks to existing space technologies and assets**, in particular Space borne Earth observation, navigation, telecommunication.
- ✦ ESA is about to **fund a feasibility study**, to pave the way to new services to assist land release for improved socio-economic impact.
- ✦ **Involvement of relevant stakeholders** within the landmine / ERW community is sought.

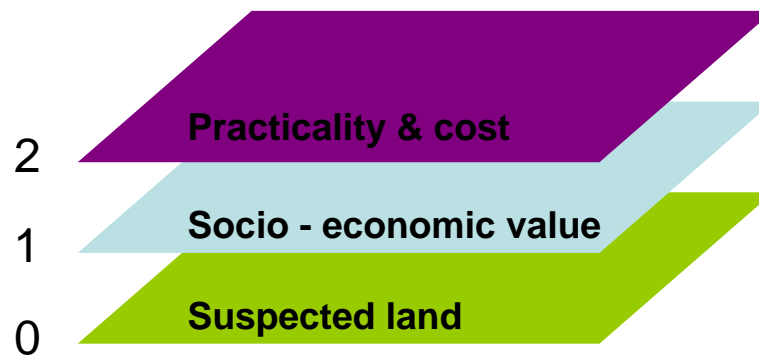
OUTLINE

- ✦ How space could be relevant to land release ?
- ✦ Introduction to the IAP programme of ESA
- ✦ Highlights of the ITT for a feasibility study

How could space
be relevant to
land release ?



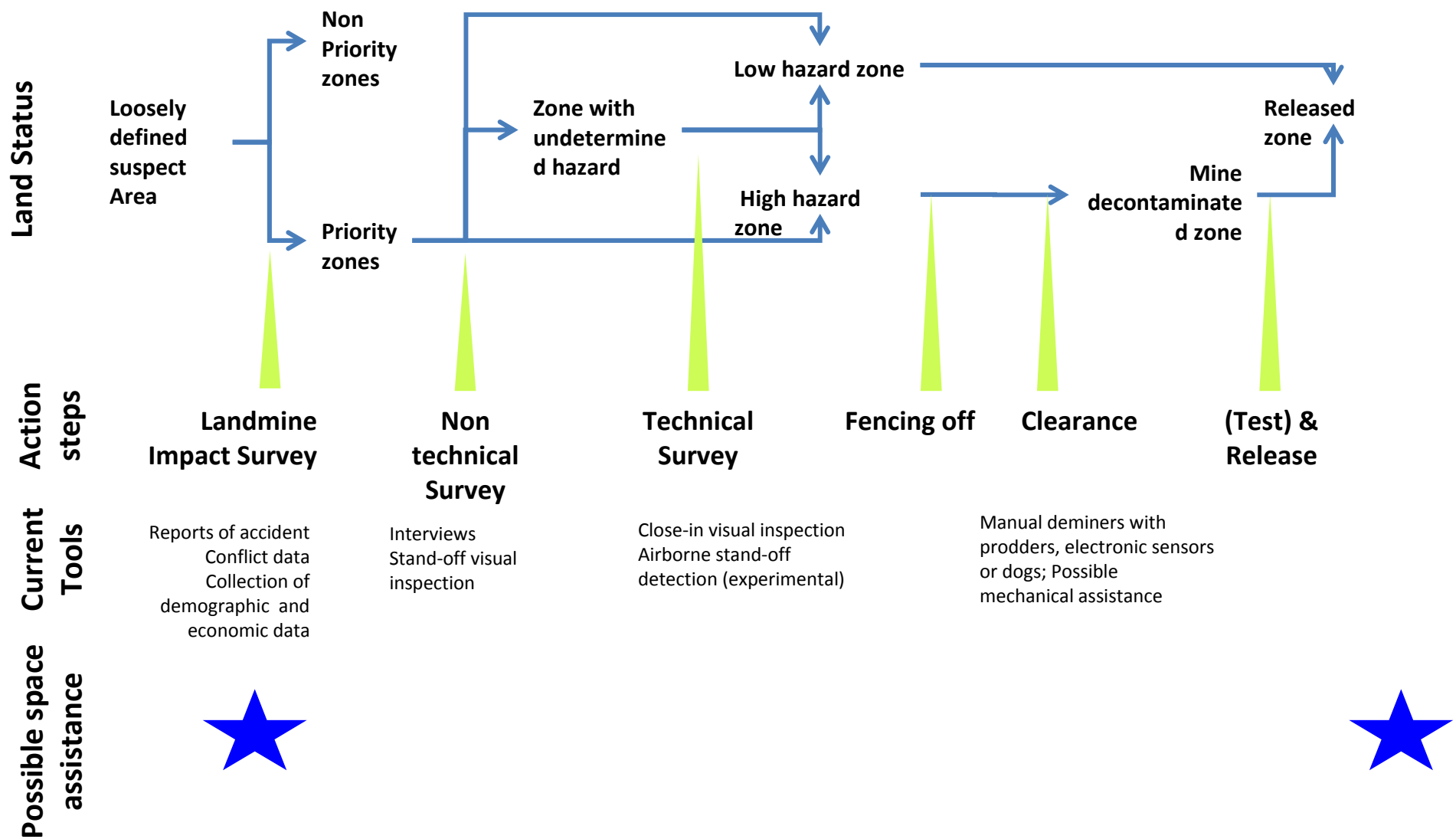
Priority setting & assessment



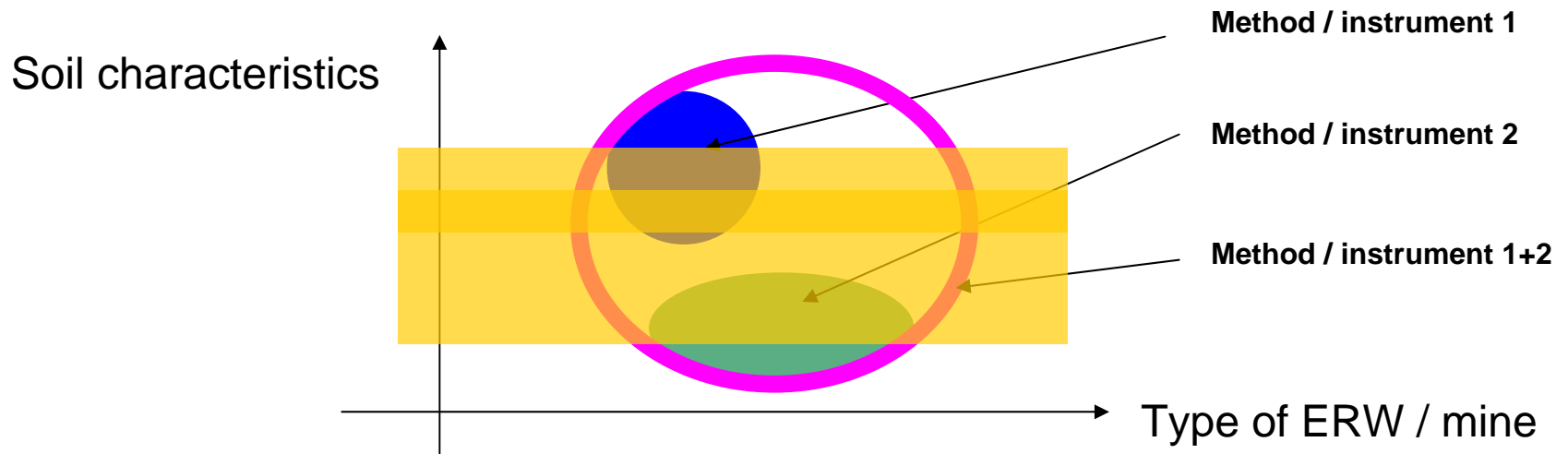
For each euro spent...

- Evaluation of how much **socio-economic value** will be released.
- Evaluation of fit with priority **development goals**

(e.g. food autonomy ? Load on health system? Development of infrastructure?)



Selecting the right detection tool(s)



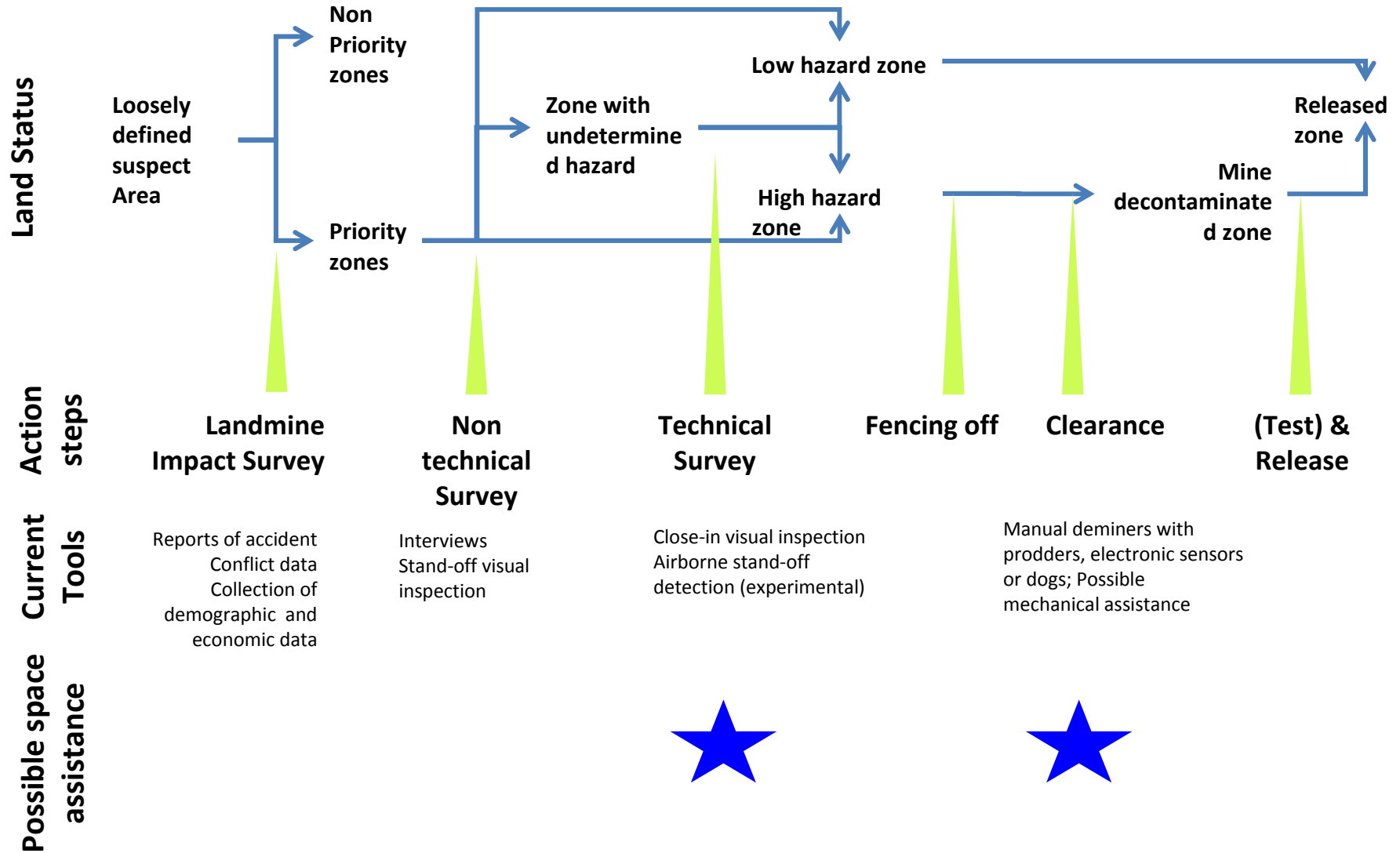
★ Characterize the operational scenario.

★ Choose the tool(s) that will best work for your purpose (stand-off detection / close in detection / post release assessment).

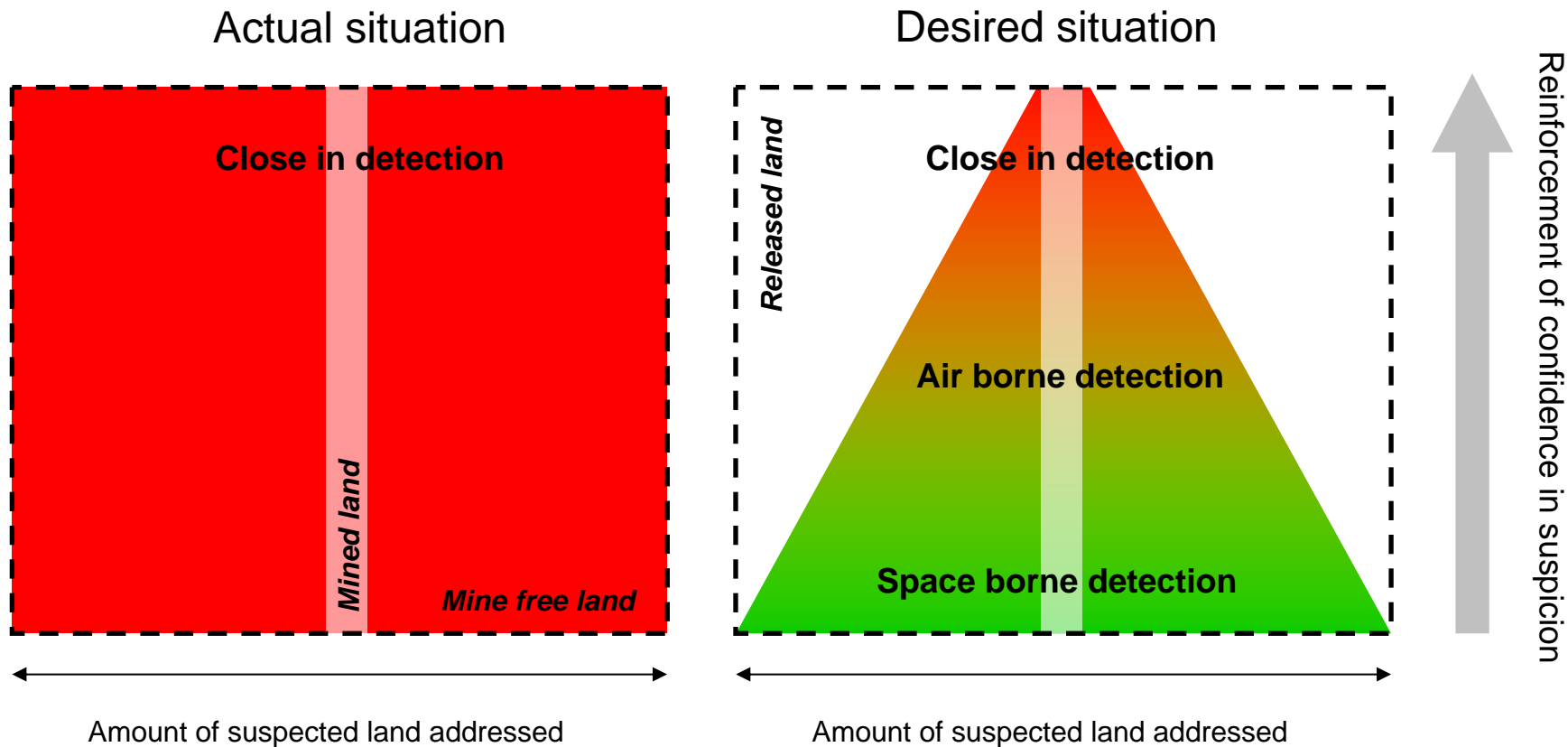
★ Chose the time in year when it is best.



Optimal detection
reliability given
available technologies

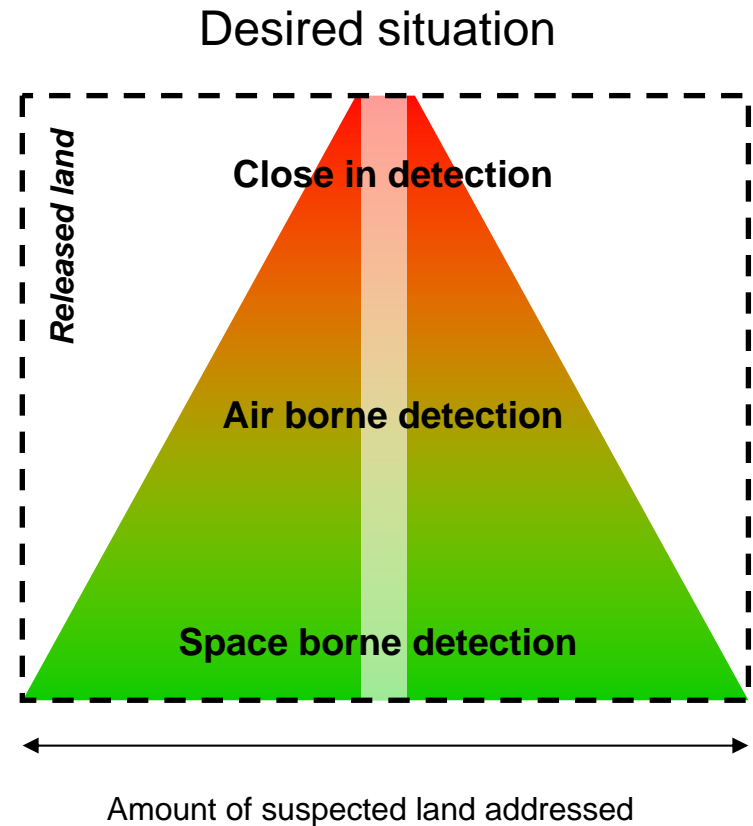


Discriminating mine free / contaminated lands



Discriminating mine free / contaminated lands

- Selection of sensing technology
- Navigation assistance
- Payload data downlink to processing centers
- Direct detection of mine field signature
- Characterisation of scenario, to help define indicators
- Detection of indirect indicators of mine absence / presence



Assisting navigation to and within the operation area

Combination of readily available and updated elevation + land use maps and a GPS navigating tool, for any field operation:

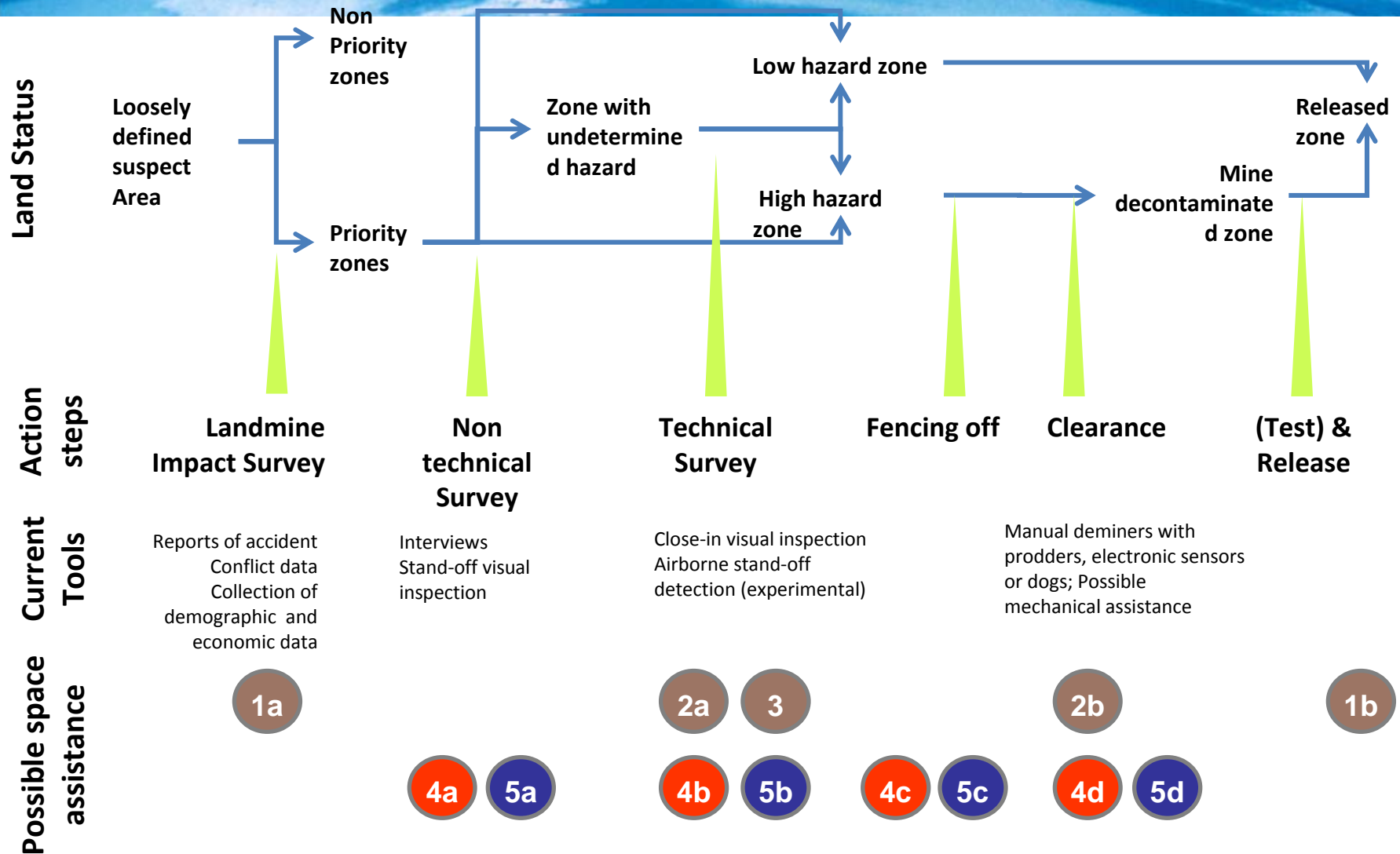
- Interviews
- Field observations
- Stand off detection
- Demarcation
- Clearance

Geo-referencement of collected data

Real time communication between field data collectors and IMSMA

- ✦ For the field operator to get the right information, at the right place, at the right time.
- ✦ To upload in real time field data collected into IMSMA (quality management)

Could Space be relevant?



Legend	Service enabled by satellite Earth Obs.	Service enabled by satellite Navigation	Service enabled by satellite telecommunication
	XX	XX	XX

Introduction to the ESA IAP programme

IAP = Integrated Application Promotion

New ESA programme (2008), established to



- ✦ Meet increasing demand for **sustainable end-to-end services** using integrated **space & non space** technologies and assets
- ✦ Designed to overcome two major obstacles:
 - Cultural gap and lack of dialogue potential users and the space sector.
 - Compartmentalisation of space technologies

IAP objective:

"The development of Operational services for a wide range of users through the combination of different systems"

IAP funds

feasibility studies and pre-operational demonstration projects,
to facilitate the **set up of new services**
leveraging on several space assets.

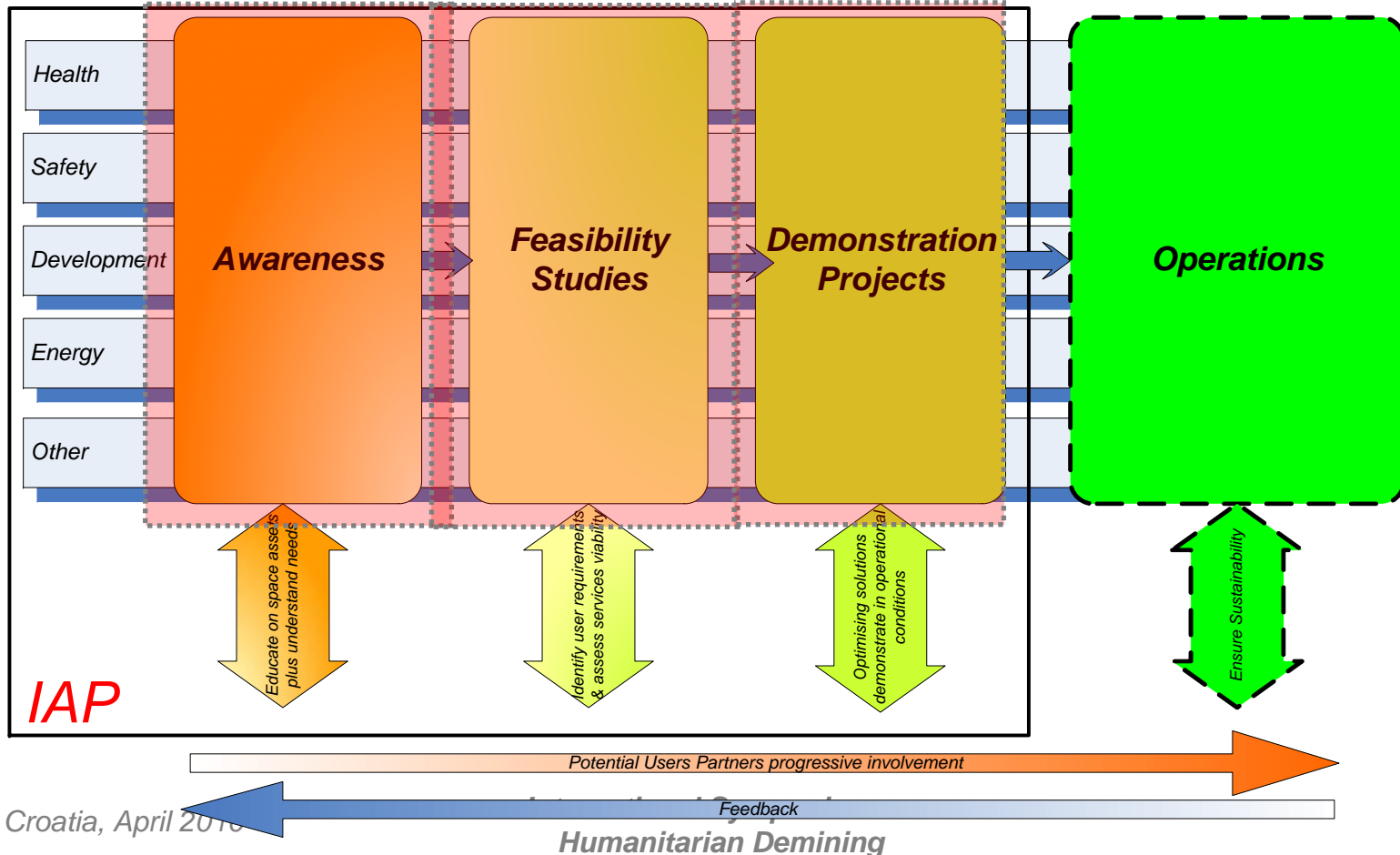
Incubator for services



- ★ **Cross sectorial / topical** programme, to address global challenges:
Health, Safety, development, transportation, energy, etc...
- ★ IAP activities are implemented through **partnerships** of users and relevant stakeholders across the value chain.
- ★ IAP activities are **user - driven**.
- ★ **Short term to market** services
i.e. enabled by mature technologies / existing system elements



Feasibility Studies: teaching plan on space operations in order to identify the analysis requirements, user requirements and to facilitate their involvement

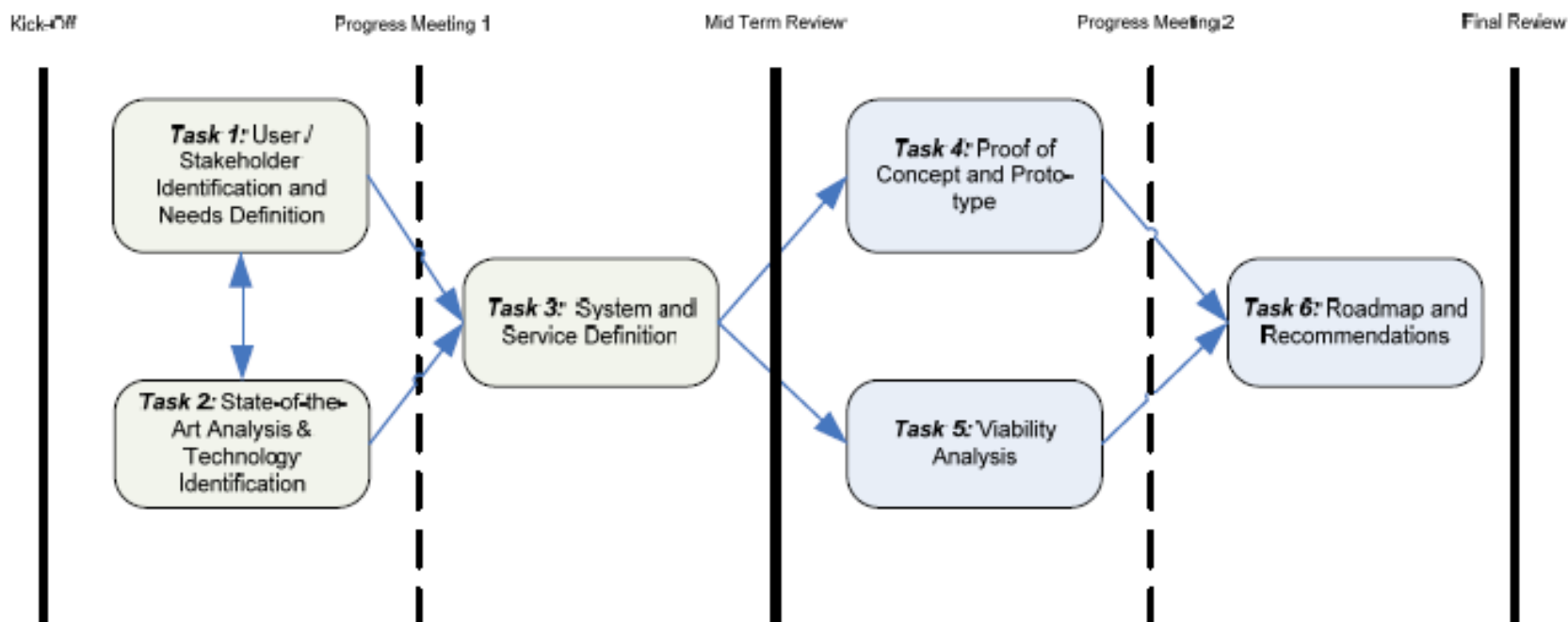


Highlights of the ITT to implement a feasibility study

OBJECTIVES

- ★ **To produce a concept** for a user-driven integrated system and services based on existing space assets supporting the land release process in mine action at its various levels.
- ★ **To assess**, together with the users, the system and its associated services, including its added value and that of the space assets, and analyze its economic and non-economic viability.
- ★ **To prepare a roadmap towards sustainable services**, including definition of a **demonstration project**, the formal involvement of key stakeholders in that demonstration project (such as users, service providers, etc).

STUDY LOGICS



Stakeholders

Any organisation with relevant skills and experience to produce a study steering towards valuable and sustainable services

- e.g. Service end-users: Decision makers / Donors / Operators
- R&D organisations with relevant expertise
- Space service providers

SCHEDULE

Bidding closing date: **14 June 2008**

Study kick-off: **July / August**

Study duration: **15 months**

BUDGET

400 k€

ESA IS WAITING FOR **YOUR BID**

Come to me for ITT documents

For questions and further information:

<http://iap.esa.int>

Claudia.Piesche@esa.int

Questions?
