

The potential for Environmental Intelligence to support impact assessments

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Abstract

This paper provides an elaboration of the usefulness and potential for environmental intelligence including to support impact assessments in developing regions. In particular it discusses one product, the environmental vulnerability assessment (EVA) and the framing of the EVA within the Swedish Armed Forces Medical Intelligence. The methodology of the EVA is described as well as some techniques used to facilitate the analysis. From practical experiences drawn by developing and using the EVA, it is concluded that the EVA already consists of information useful for civilian actors, law enforcement and corporate organizations. It could furthermore easily be modified even further facilitate accurate impact assessments in crises and post conflict contexts.

Introduction

Intelligence is a discipline in support of decision making utilized by military, law enforcement agencies but also by businesses. It is a product from a four phase process; direction, collection, processing (analysis) and dissemination. The term is also applied to the activity which results in the product and to the organizations engaged in such activity.¹ Intelligence can be conducted at all organizational levels - tactical to operational and strategic - and may include a variety of areas of interest, including medical and environmental issues.

Environmental and medical intelligence are thus subsets of intelligence and should be an integral part of an overall intelligence assessment. In Sweden, environmental intelligence is performed by the Swedish Defence Research Agency (FOI) within the framework of the Swedish Armed Forces (SwAF) Medical Intelligence (MedIntel).² This intelligence subset has evolved dramatically in recent decades and its benefits are currently highlighted by the Swedish Armed Forces, which utilize it to generate data when planning for overseas operations, but also e.g. the North Atlantic Treaty Organisation (NATO) and United Nations

¹ NATO 2014

² The general definition of medical intelligence is the “product of collection, evaluation, analysis, interpretation and dissemination of foreign medical, epidemiological, bio scientific, environmental or other information related to human and animal health.”(NATO 2012) A similar definition of environmental intelligence has yet to be developed.

Peacekeeping.³ Whereas medical intelligence addresses health related concerns, environmental intelligence can provide early indications of the types and magnitudes of environmental crime in a region but also be utilised in early warning capabilities i.e. anticipating future events, weak signals detection and trends analysis.⁴

The experience that environment and health in reality are two sides of the same coin, with strong inter-dependencies, makes a joint assessment routine highly valuable. Techniques used to facilitate the analysis include satellite imagery, Geographic Information Systems (GIS, see Figure 2), dispersion modeling of air, soil and water or forensic fingerprint analysis of chemicals. The bulk of the work is however performed by environmental intelligence analysts, operating the interrelated areas of environmental change, environmental health, security and socio-economy/ livelihood issues

SwAF Environmental Intelligence

When Sweden deploys personnel in overseas peace and crisis-management operations they regularly face an environment that has been negatively affected by the consequences of conflict or disaster as well as poverty and poor livelihood opportunities.⁵ Such operations constitutes numerous challenges related to the environment such as potential health risks to the personnel, the risk of further damaging the environment as a result from the operation but also that environmental drivers of the conflict, crisis, corruption or crime situation is poorly understood and may negatively impacts the strategic end state of the mission.⁶ The role of SwAF Environmental Intelligence is to support mission planning and the operational cycle of an operation, as it is critical to ensure that the implications of environmental considerations such as availability of fresh water, or the potential role of natural resources fuelling the conflict or contributing to the crises itself, is adequately understood.^{7,8}

Apart from assessing the current situation it is crucial to look into potential future situations, and not look only at present conditions, but future situations, including the potential effects from i.e. climate change. For instance, access to land, quality of the land available for various purposes, precipitation and recharge of aquifers as well as the

³ NATO 2013

⁴ Liljedahl et al 2012

⁵ UNEP 2009

⁶ Waleij et al 2011

⁷ Waleij et al 2015

⁸ Bosetti et al 2008

lengths of growing periods, may change drastically due to e.g. projected climate change.⁹ Thus, a geographical area of relatively little value today might become an important and possibly contested resource twenty years ahead. This will be of high importance when assessing potential links between the environment, conflict, governance and corruption in conflict or post conflict areas such as Africa or the Middle East.

The environmental vulnerability assessment (EVA)

As mentioned, there are several applications for environmental intelligence. This section provides an elaboration of the usefulness and potential of the environmental vulnerability assessment (EVA) for the purpose of planning and executing peace support and crises management operations. EVA reports assesses vulnerabilities, highlighting the most significant ones. This type of assessment has been performed for all recent SwAF considered deployment areas such as Mali, Libya, Democratic Republic of Congo, the Horn of Africa and Afghanistan and are subject to constant development and validation.¹⁰ Presently the assessments constitute a table format assessment (Figure 1), GIS imageries and an elaborated report.

<i>Environmental vulnerability cutoff date June 1, 2011*</i>	<i>Vulnerability without mitigation</i>	<i>Expected vulnerability with mitigation</i>	<i>Reliability of the source</i>	<i>Credibility of the data</i>	<i>Comments</i>
Environment and conflict relations					
Competition for natural resources	HIGH	ELEVATED	C	2	Scarce land, food, and water resources.
Illegal trade in natural resources	ELEVATED	LOW	A	1	CITES ^b violations.
Environmental crime	HIGH	LOW	A	1	Illegal off-coast dumping of toxic waste.
Institutional capacity and legal framework					
Legal framework	HIGH	ELEVATED	A	1	Environmental legislation exists but is outdated.
Monitoring and control	HIGH	ELEVATED	A	1	Lack of enforcement and monitoring capabilities; general environmental awareness low.
Illegal trade in natural resources	VERY HIGH	ELEVATED	A	1	Poor waste management infrastructure.
Natural resources and environmental changes					
Climate and extreme weather	HIGH	LOW	C	2	Total annual rainfall extremely low; climate change affects crop production, food security, water resources, human health, population settlement, and biodiversity.
Water resources	VERY HIGH	ELEVATED	B	2	Absence of usable fresh surface water resources; locally extreme arid conditions; saltwater intrusion near the coast.
Land and soil	HIGH	ELEVATED	B	2	Salinization caused by improper irrigation and drainage practices; soil erosion caused by excessive overgrazing and shrub clearing.
Oils and minerals	VERY HIGH	NA	B	2	Majority of commercial mining is for oil; production disturbed by conflict.

Figure 1a. Sample assessment form for an environmental vulnerability assessment

⁹ Adger et al 2014

¹⁰ Liljedahl et al 2012

<i>Vulnerability estimate</i>	<i>Reliability of the source</i>	<i>Credibility of the data</i>
No observable	A Fully reliable	1 Confirmed by another source
LOW	B Normally reliable	2 Probably true
ELEVATED	C Sometimes reliable	3 Possibly true
HIGH	D Normally not reliable	4 Doubtful
VERY HIGH	E Not at all reliable	5 Improbable
NA – Not assessed	F Cannot be assessed	6 Truth cannot be judged

Figure 1a. Scoring system for the environmental vulnerability assessment (EVA)

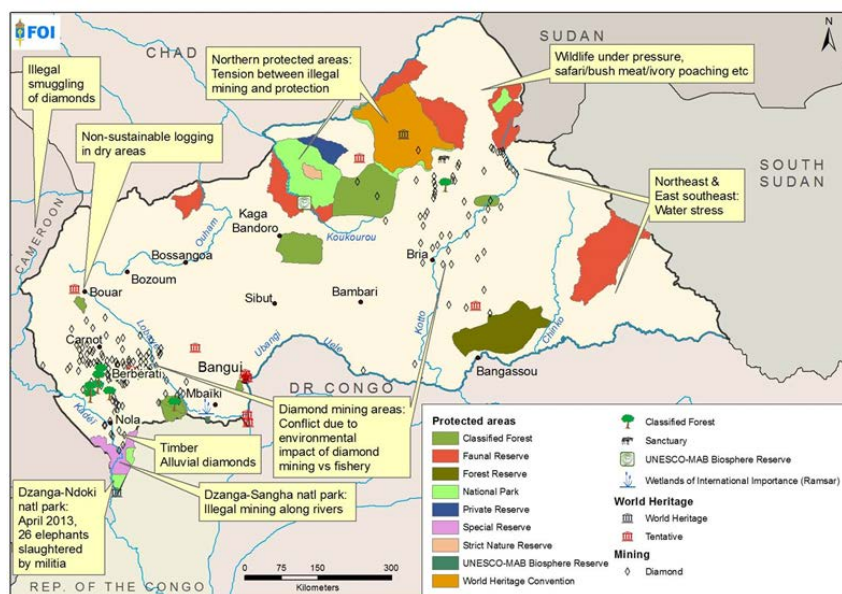


Figure. 2 GIS visualisation of the environmental and security nexus in Central African Republic (SwAF) 2014.

The EVA provide means to minimize the impact (environmental, cultural and social) from the mission on the local community. Moreover, the idea is further to indicate where environmental challenges may be turned into opportunities and positive interventions by e.g. development aid. The first phase of the assessment is performed in a rapid manner at the outset of the intelligence process and is generally based on quality-assessed sources of secondary information. As the process transitions into phase two, information from reconnaissance and field data is added when such data are made available.¹¹

EVA's developed for countries such as Mali, South Sudan, Central African Republic, Democratic Republic of Congo and Libya have addressed security implications of a wide range of topics such as water access, solid and sanitary waste management, energy infrastructure, corruption, wildlife crime, cultural and historical resources and land use and

¹¹ Liljedahl et al 2012

the impact of climate change. Most recently, an EVA for areas controlled by the Islamic State in Iraq and Syria (ISIS) have reviewed the tactical use of hydropower dams and wheat stocks for controlling and instilling fear among the population as well as control over oil fields as sources of funding insurgency.¹²

Way forward

Although the primary purpose of the environmental vulnerability assessments is to provide military planners with timely environmental intelligence, the information is already utilized by other actors and for other purposes, such as impact and assessments. The EVA product already consists of information useful for civilian actors, e.g. law enforcement, humanitarian aid and corporate organizations and could easily be modified even further to facilitate accurate impact assessments. For instance, the methodology have supported Environmental Impact Assessments for UN peacekeeping¹³ as well as Strategic Environmental Assessment for the Swedish Armed Forces.¹⁴

In fact by pairing various assessment tools interoperability in its widest sense: within and between nations, between military and civilian participants in a mission, and between scientists and operators such as planners and people working in the field can improve. It is important however to bear in mind that the EVA is work in progress and that specific topics do not, at the present, take into account any cumulative impacts.¹⁵ Inter-linkages also need to be considered in order to undertake a comprehensive approach to environmental governance, conflict resolution and application of anti-corruption measures

¹² Swedish Armed Forces 2015

¹³ Liljedahl et al 2013

¹⁴ Waleij et al 2015

¹⁵ That is, impacts which are caused from one or several separate events, but together magnify each other

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