

# TOWARDS INTELLIGENCE-LED ENVIRONMENTAL ENFORCEMENT

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## **I. INTRODUCTION**

Environmental protection agencies are typically responsible for administering numerous laws and regulations that apply to diverse regulated communities, while operating under broad mandates and finite budgets. When faced with the responsibility of enforcing laws on such diverse entities as hazardous waste exporters, multinational mining companies, local hunters and fishers, logging operations, or companies involved in the trade of wildlife, it can be challenging for decision-makers to determine where to focus resources. Agencies are increasingly asking themselves which companies or individuals are responsible for the most serious non-compliance and how best to intervene. Attempts to answer these questions have driven innovation in environmental enforcement strategies and techniques, including an emerging trend: the adoption of ‘intelligence-led enforcement’ by environmental protection agencies.<sup>1</sup>

This chapter will introduce the model of intelligence-led enforcement by exploring its evolution and key concepts. It will discuss how this model, which was originally developed for criminal policing, can be applied to environmental enforcement. Finally, the chapter will present practical considerations for implementing intelligence-led enforcement in an environmental protection agency.

## **II. INTELLIGENCE-LED ENFORCEMENT**

### **What is Intelligence?**

Intelligence is commonly understood as information and raw data that has been assessed, evaluated, and analyzed for the purpose of informing decision-making. The process of transforming raw data into intelligence has been characterized by the ‘intelligence cycle’, which includes five key steps:

1. Identification of intelligence needs through planning and direction;
2. Collection of information and data;
3. Collation, processing, and analysis of data and information into intelligence;
4. Dissemination of intelligence; and
5. Application, review, evaluation, and process improvement.

Intelligence personnel draw information from a variety of sources including statistical data, confidential human sources, surveillance, and open source information to generate intelligence products. The role of an intelligence product is to inform decision-makers of risks to public safety or resources so they can better support enforcement work and make strategic decisions to mitigate the greatest harms.

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<sup>1</sup> INTERPOL (2012) at 7.

Whatever the reason behind the inspector's presence in the lobby, an inspection is likely to feel like a medical exam: intrusive, unpleasant, and somehow unfair. You'd rather not have to go through with it. You ask yourself if everyone has to put up with this. You may feel anger mixed with resentment, especially if the inspector appears to be younger than your grandchildren and seems to understand not a word of what you're saying. You probably wonder if you are being given the same treatment as your neighbours and competitors, especially if you are foreign or from out of province. The fact is, your feelings are valid, and the government knows it.

There are several types of intelligence, including business intelligence, military intelligence, signals intelligence, criminal intelligence, and so forth. This chapter focuses on 'criminal intelligence' and defines it as intelligence that relates to the behaviour of wrongdoers. In the case of environmental enforcement, this means the behaviour of the organizations or people who contravene environmental laws and regulations.

There are three commonly identified types of criminal intelligence: tactical, operational, and strategic.<sup>2</sup> In practice, the work of intelligence does not always fall neatly within only one of the three categories but may more often appear somewhere along a continuum.

*Tactical intelligence* is produced primarily for front-line officers. Tactical analysis provides collated and evaluated information to support enforcement staff in their daily duties and on specific investigations.<sup>3</sup> Tactical intelligence products include assessments, target profiles, bulletins, and referrals, and offer tangible, immediate benefits critical to advancing enforcement actions and demonstrating the value of intelligence to front-line staff. Tactical intelligence could result, for instance, in the location of a suspect, thereby contributing to a successful prosecution.

*Operational intelligence* is used by mid-level managers to guide enforcement actions and allocate resources based on probabilities and trends of non-compliance within geographical boundaries.<sup>4</sup> Products that fall in this category include operational assessments and problem profiles. Operational intelligence can be used to identify or disrupt a trend or cluster of crime.

Finally, strategic intelligence is "... a specific form of research that addresses any issue at the level of breadth and detail necessary to describe threats, risks, and opportunities in a way that helps determine programs and policies."<sup>5</sup> The primary clients of strategic intelligence are most often senior managers who make decisions about strategic priorities and have the authority to allocate the resources of an agency or a unit within an agency. These products include strategic assessments and briefs, early warning assessments, and

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<sup>2</sup> For a thorough discussion of the types and uses of criminal intelligence products, consult Evans (2009).

<sup>3</sup> Lehane (2011) 384.

<sup>4</sup> *Ibid* at 884.

<sup>5</sup> McDowell (2009) 5.

threat and risk assessments.<sup>6</sup> Strategic intelligence provides direction and supports agency-level planning and prioritization activities. An example is a threat and risk assessment that identifies a significant emerging priority area of crime and leads to a multi-year reallocation of resources to address this priority.

### **The Evolution of Intelligence-Led Enforcement**

While intelligence has always played an important role in national security and military operations, it has only in the past several decades gained traction as a central driver of crime reduction in enforcement settings. This happened first through the formulation of ‘intelligence-led policing’, which was largely borne from policing communities in the United Kingdom.<sup>7</sup>

The most frequently cited definition of intelligence-led policing comes from Dr. Jerry Ratcliffe in his seminal work on the topic. Ratcliffe writes:

Intelligence-led policing is a business model and managerial philosophy where data analysis and crime intelligence are pivotal to an objective, decision-making framework that facilitates crime and problem reduction, disruption and prevention through both strategic management and effective enforcement strategies that target prolific and serious offenders.<sup>8</sup>

Intelligence-led policing is unique in that it is “top-down and hierarchical, and uses crime intelligence to focus on offenders.”<sup>9</sup> Rather than intelligence seen as an *ad hoc* tool to support ongoing investigations, intelligence-led policing sees intelligence as a force to drive enforcement operations.<sup>10</sup>

While initially situated within the context of policing, the idea of ‘intelligence-led’ has been generalized and applied to other settings, such as non-policing and regulatory agencies, with increasing momentum. In fact, in the last decade, there has been a rise in the number of environmental enforcement organizations that claim to be undertaking ‘intelligence-led enforcement’. For instance, the adoption of the principles of intelligence-led enforcement has been promoted by INTERPOL<sup>11</sup> and INECE<sup>12</sup> as a marked departure from traditional regulatory enforcement. Additionally, agencies such as Environment Canada, Fisheries and Oceans Canada,<sup>13</sup> the British Columbia Conservation Officer

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<sup>6</sup> For an in-depth discussion of threat and risk assessments, consult Tusikov & Fahlman (2009).

<sup>7</sup> Peterson (2005) 9.

<sup>8</sup> *Ibid* at 89.

<sup>9</sup> Ratcliffe (2008) 87.

<sup>10</sup> *Ibid* at 6.

<sup>11</sup> INTERPOL (March 2012).

<sup>12</sup> INECE (2011).

<sup>13</sup> Fisheries & Oceans Canada (2015).

Service,<sup>14</sup> and the UK Environment Agency<sup>15</sup> have recognized the benefits of intelligence-led enforcement and have begun to undergo organizational change to adopt the practice.<sup>16</sup>

### **Challenges with the Term**

In some cases, the idea of implementing an intelligence-led enforcement model has led to resistance from enforcement personnel, particularly in non-policing contexts where the use of intelligence is a relatively new practice. Intelligence can trigger assumptions of secrecy, subversion, and even illegal behaviour.<sup>17</sup> It is often closely associated with national security and counterterrorism, which has led to confusion about its application to environmental protection and regulatory enforcement.

Additionally, the term ‘intelligence-led’ can be falsely interpreted as a one-way street where intelligence personnel dictate the work of enforcement operations staff. Alternative names have been proposed to better characterize the reciprocal relationship between intelligence and operations, such as intelligence-supported, -guided, -driven, and -informed enforcement, or intelligence-operations alignment; however, none of these alternatives have yet achieved wide acceptance.

### **How is Intelligence-Led Enforcement Different?**

Traditional models of enforcement often make use of intelligence analysis; however, they generally focus on tactical intelligence to support an investigation that is already underway. For example, officers may ask their intelligence colleagues to help them make links between suspects, assets, and criminal organizations by requesting a target profile. In contrast, the modern intelligence-led enforcement model uses both tactical and operational intelligence to identify criminal networks that enable and facilitate the crimes, as well as strategic intelligence to inform decisions about priorities and how resources should be deployed. This model includes intelligence in every aspect of the operational planning cycle, and planners incorporate intelligence to harness resources to target the worst or most prolific forms of non-compliance with the greatest environmental risk. Information collected from field operations is fed back to intelligence staff, closing the information loop and helping to shape future operational priorities.

Ratcliffe explains this concept (in reference to policing) when he writes:

For most of the history of policing, criminal intelligence was used to support individual, reactive investigations ... The aim was always to gather evidence to support a criminal prosecution. This is not the model of intelligence-led policing. Although achieving a prosecution is rarely discounted,

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<sup>14</sup> British Columbia Ministry of Environment (2015) 7.

<sup>15</sup> UK Environment Agency (2015).

<sup>16</sup> Other examples include India, the US Coast Guard, and Dutch West-Africa. See *ibid.*

<sup>17</sup> Ratcliffe (2008) 7.

intelligence-led policing ... uses crime intelligence for strategic planning and resource allocation, so that investigative action is used to target the right offenders and predicts emerging areas of criminality ... This move from investigations-led intelligence to intelligence-led policing is revolutionary for modern policing.<sup>18</sup>

An agency that has adopted intelligence-led enforcement should see an increase in the percentage of inspections that identify non-compliance because intelligence has identified the sector where non-compliance is most likely to occur, the location where it is most likely occurring, and how it is taking place in a given locality. Rather than selecting targets for inspection based on random sampling, targets are chosen based on indicators of non-compliance. The aim is to uncover non-compliance proactively, in contrast with focusing on random inspections or incident response.

### III. APPLYING PRINCIPLES OF INTELLIGENCE-LED ENFORCEMENT TO ENVIRONMENTAL ENFORCEMENT

#### **Making the Case for Intelligence-Led Environmental Enforcement**

Environmental laws and regulations apply to a range of actors. Some of these actors were either behaving in the desired way before legal instruments were enacted, or come into compliance quickly after the publishing of regulations. Other actors are non-compliant. Some of these non-compliant actors would comply if regulations were user-friendly<sup>19</sup> while some need assistance to comply, such as education or technical support.<sup>20</sup> Others require a minor intervention or nudge to change their behaviour.<sup>21</sup> Some exhibit negligence. Finally, some are criminals who may also be involved in other types of crime. The relevance of criminal intelligence to this latter group is fairly straightforward; however, the rationale for applying criminal intelligence techniques to the entire spectrum of non-compliant actors requires some consideration.

One of the difficulties of applying criminal intelligence to environmental protection is that environmental non-compliance is not always understood, conceptually, by law enforcement officials and judges as a *crime*. In addition, the perpetrators of environmental infractions may not be seen as criminals, or adversaries,<sup>22</sup> by the public. Regardless of whether or not violations of environmental laws and regulations are considered crimes, and the perpetrators as criminals, criminal intelligence analysis can be an effective tool to understand and correct the behavior of the actors responsible for environmental non-compliance.

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<sup>18</sup> *Ibid* at 8.

<sup>19</sup> Sunstein (2013).

<sup>20</sup> Paddock (2005) 68.

<sup>21</sup> Sunstein & Thaler (2009).

<sup>22</sup> Sparrow (2000) 255-256.

There is no single intervention that can achieve optimal environmental protection outcomes when applied equally across all regulated actors. However, in the last decade, agencies have started emphasizing processes that empower their personnel to select a tool, or set of tools, from a range of options to design tailored interventions to suppress and prevent environmental harms. This has been described as ‘regulatory craftsmanship’.<sup>23</sup> Criminal intelligence techniques expand this toolkit by enabling officials to identify trends, *modi operandi* of perpetrators, points of intervention, and opportunities for disruption.

Along with a shift to become more tailored and targeted, many agencies are attempting to become more proactive and strategic when it comes to detecting and suppressing non-compliance. Reactive enforcement has been characterized using an analogy of the arcade game of whack-a-mole. Whack-a-mole players use mallets to strike mechanical moles as they pop up, much as officials, in reactive enforcement settings, use enforcement actions to address incidents as they occur. In order to develop targeted interventions and escape reactive enforcement, an intelligence-led approach leads officials to step back from the whack-a-mole game and ask various strategic questions about the harms, or, following the analogy, the moles. Where is the next mole most likely to pop up? Are some moles more recurrent or dangerous than others? Why are we whacking moles? Are there more effective mole-reduction techniques? Are there trends in mole behaviour that we could exploit to whack groups of moles? Are there other, more pressing harms that deserve our attention? Are we the best-placed agency to deal with this problem or is there another agency that would have the ability and mandate to unplug the whack-a-mole machine entirely?

The last question above – why are *we* whacking moles – underscores the need to work with other agencies to determine the ideal solution to a given problem. Environmental crime does not always present itself neatly packaged according to bureaucratic silos, which makes interagency cooperation essential.<sup>24</sup> Intelligence-led enforcement provides the processes and tools necessary to produce reliable intelligence, which increases an environmental protection agency’s credibility and ability to work with other enforcement agencies.<sup>25</sup>

Continuing this analogy, intelligence analysis focuses on mole behaviour, rather than the intrinsic harm<sup>26</sup> posed by moles. Where scientific analysis can measure the health risks posed by, say, a pollutant, intelligence analysis provides an understanding of the actors responsible for polluting and can provide insight on how best to detect and stop them, as well as how to prevent future occurrences.

This is a departure from how environmental protection, and other regulatory agencies, have traditionally operated. Many agencies have some sort of risk-based priority setting process;

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<sup>23</sup> *Ibid.*

<sup>24</sup> INECE (2011) 2; Sparrow (2008).

<sup>25</sup> Guidetti (2009).

<sup>26</sup> Analysis of harm is equally important but this is not the focus of criminal intelligence, which is primarily concerned with the behaviour of wrongdoers.



however, the day-to-day reality is that officials are too busy responding to incidents to take a step back and invest the time and resources into proactively identifying trends of non-compliance and designing tailored interventions. Applying criminal intelligence techniques to environmental and regulatory enforcement provides agencies with an established methodology to identify and disrupt patterns of non-compliance.

### **Building an Intelligence-Led Environmental Enforcement Program**

Applying intelligence-led enforcement principles and practices to environmental enforcement requires reorienting the operations and intelligence units in an existing environmental protection program.<sup>27</sup> When doing so, the following key elements should be given special consideration. These elements make up the core of a well-functioning and comprehensive intelligence-led environmental enforcement program.

**1. Processes to inform decision-making and align intelligence and operations:** In criminal intelligence parlance, these processes are often called ‘tasking and coordination’.<sup>28</sup> They are processes that map out how, and when, intelligence will inform different levels of decision-making (strategic, operational, and/or tactical), how intelligence staff will receive their work assignments (tasking), and how information will flow in a cyclical manner between intelligence staff and operations staff (coordination). This is the information and decision-making business process for an organization.

Aligning intelligence and operations can be more complicated in an environmental protection agency than in a traditional policing setting. There are often more considerations that go into decision-making in an environmental protection context, such as scientific expertise, and competing priorities. Particularly in the early stages of adopting intelligence-led environmental enforcement, decision-makers may not understand or value the input of intelligence staff, and may not know what to do with intelligence products. A well-articulated process that includes the consideration of best-available intelligence, as well as intelligence training for senior and mid-level managers, is necessary to ensure that intelligence staff are empowered to inform decisions about the allocation of an agency’s resources.

**2. Intelligence products tailored to the needs of decision-makers:** Intelligence products are created to inform the right decision-makers at the right times and should be designed with clients in mind. In an environmental protection agency some decision-makers will have a law enforcement background and may be comfortable with the general principles of intelligence; however, most others will be scientists, engineers, and economists. Particular care must be taken by intelligence staff to speak a language that can be

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<sup>27</sup> ‘Operations’ typically refers to the officers who conduct inspections and/or investigations, whereas intelligence units collect and analyse information to produce intelligence products that support officers and inform decision-making.

<sup>28</sup> Association of Chief Police Officers (2005) 74-84.

understood by decision-makers with diverse experience. Additionally, given the sensitive nature of intelligence, intelligence personnel must identify to whom a product should be disseminated, and if there are any caveats that should accompany the dissemination of the product. A best practice is for intelligence staff to act as consultants, advising their clients on which intelligence products will best suit their needs.

**3. Tools and technology to facilitate analysis and information-sharing:** Information management and information technology investments are critical for any intelligence-led agency. Intelligence personnel need access to relevant data to produce analytical products. In an environmental context this could include import and export records, water and air quality monitoring data, observations from field officers, compliance information from partner agencies, etc. Investments in technology are necessary to ensure that data is easily accessible, securely stored, evaluated, and analyzed.

In addition, information-sharing agreements are required to facilitate information-exchange with partner agencies and to guarantee that officials understand and respect privacy laws. These agreements also formalize key partnerships, which may have previously been based entirely on good working but informal relationships between staff, so that relationships are institutionalized and will outlast staffing changes.

**4. Appropriate staffing and training:** Human resources can be challenging for an intelligence-led environmental enforcement agency. For example, the agency may have to make extra efforts to attract experienced intelligence personnel to work at a less traditional intelligence unit. The agency's intelligence unit is likely to be significantly smaller than that of a Customs or police agency, which can make it difficult to create a varied career path for intelligence personnel. Additionally, the training requirements for staff in an intelligence-led environmental enforcement agency are extensive. Staff will require training on environmental laws and regulations in addition to typical intelligence training. This can be expensive and time consuming.

One solution to these challenges is to establish partnerships with other regulatory enforcement agencies, including rotational assignments, so that intelligence personnel can have opportunities for a robust career path within a collection of like agencies. In addition, training costs can be shared by jointly developing courses tailored to regulatory enforcement. Such partnerships would also pay dividends for interagency cooperation generally.

**5. An effective governance structure to ensure accountability:** Since intelligence-led enforcement is a business model, not just a tool, it requires a comprehensive governance structure to embed its principles in the foundation of the organization. This means having an appropriate organization structure, where the right people report to the right managers to facilitate intelligence-operations alignment. In many cases, this may look like a matrix reporting-structure.

A central element of good governance is performance management to assess the demonstration of key behaviours by staff at all levels. For example, some intelligence personnel may be reticent to share information with operations staff or even other intelligence staff. This is detrimental to intelligence-led enforcement because “information that is held in only the head or notepad of a single officer is of little or no use to effective enforcement.” Similarly, operations staff may be hesitant to support the implementation of intelligence-led enforcement because they do not understand the concept or its value. Setting clear expectations about behaviour, including the rationale, and backing this up with written objectives and periodic performance assessments can begin to change habits and break down silos.<sup>29</sup>

**6. A consistently communicated shared vision:** Change management is partly a sales job. Adopting intelligence-led enforcement involves reallocating scarce resources, and other difficult decisions, and these changes may be met with resistance. An effective way to overcome this is to raise awareness about the benefits of this new approach and ensure that senior management remains consistent in the messaging around it.<sup>30</sup> Creating a shared vision for the agency is essential to demonstrate the benefits of intelligence-led enforcement and engage staff to make the necessary behavioural changes to make it work. This vision should be based on contributions from staff at all levels, supported and led by the most senior management, and consistently communicated using a variety of communication channels.

### **Implementing an Intelligence-Led Environmental Enforcement Program**

A common criticism is that some agencies claim to be intelligence-led but in practice have not embedded key tenets of the philosophy within their operating structures or priority-setting processes. Building an intelligence-led environmental enforcement agency requires more than adding criminal intelligence techniques to the environmental enforcement toolkit. It involves reorienting an organization by changing its managerial philosophy to ensure that data analysis and intelligence inform decision-making at all levels and lead to effective environmental enforcement strategies that target those who may be causing the most significant environmental harms. Organizational change of this depth can take years of sustained effort at all levels of the organization.

Implementing an intelligence-led enforcement program requires an investment in capital and human resources or a reallocation of existing resources. Reallocating resources may mean reducing the number of front-line officers in order to free up resources to increase the number of intelligence personnel. This trade-off, coupled with the fact that there is often a lag period between implementation and realization of benefits, may make an intelligence-led program a difficult case to sell to staff.<sup>31</sup> To be successful at intelligence-

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<sup>29</sup> For advice and techniques to change the habits of organizations and individuals, see Duhigg (2014).

<sup>30</sup> Carter (2008) 124.

<sup>31</sup> INECE (2011); Peterson (2005) 16.

led enforcement, change must be “deliberate and must be tailored to meet the needs and resources of the agency.”<sup>32</sup>

#### **IV. INTERAGENCY COOPERATION AND INFORMATION-SHARING**

There is an intrinsic international dimension to environmental crime; pollution or migratory wildlife, after all, does not respect borders. While environmental law enforcement agencies must work within their jurisdictions, cooperating with international counterparts can improve agencies’ abilities to deliver on their own domestic mandates.

Environmental crime includes trafficking in protected wildlife species and controlled hazardous substances in contravention of domestic law and multilateral environmental agreements. This is often referred to as ‘transnational environmental crime’.<sup>33</sup> The demand for iconic wildlife species and controlled substances, combined with relatively low penalties for non-compliance, has made transnational environmental crime a profitable venture. Globally, the proceeds of environmental crime are estimated to be hundreds of billions of dollars.<sup>34</sup> There is evidence to suggest that organized crime groups may be involved in transnational environmental crime.<sup>35</sup> Interagency cooperation is necessary to ensure a coordinated and coherent response to this complex problem.

Implementing intelligence-led enforcement can strengthen an agency’s ability to cooperate with its counterparts. The section below will outline some of the mechanisms available to facilitate interagency cooperation and enable the exchange of information between environmental enforcement agencies.<sup>36</sup>

##### **Regional Intergovernmental Organizations**

Trust is an important component of the willingness to share; it is sometimes easier for parties to share information and intelligence with officials with whom they work on a more regular basis. Regional organizations provide mechanisms for information and intelligence sharing, and can play an important role in addressing issues that are of concern primarily in particular geographical areas. The Association of Southeast Asian Nations’ Wildlife Enforcement Network and the North American Commission for Environmental Cooperation are examples of regional organizations that support intelligence-led enforcement by facilitating interagency cooperation and information sharing.

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<sup>32</sup> Carter (2008) 127.

<sup>33</sup> Elliott (2012) 89.

<sup>34</sup> Global Initiative against Transnational Organized Crime (2014) i.

<sup>35</sup> *Ibid* at iii-iv; UNODC (2010) 149-169.

<sup>36</sup> For a more fulsome list of environmental law enforcement networks see INTERPOL (March 2014).

## INTERPOL

INTERPOL, the world's largest international police organization, assists domestic police forces in 190 member countries. Each member country hosts a National Central Bureau (NCB), which is the domestic INTERPOL hub. The I-24/7 system is a global police network that facilitates secure communication between member countries and allows users to access INTERPOL's criminal databases. Environmental crime – including pollution, wildlife, fisheries, and forestry crime – is the purview of the Environmental Security Sub-Directorate (ENS). INTERPOL offers various tools that can facilitate communication between environmental enforcement agencies and their counterparts in other countries.

**Working Groups:** INTERPOL's Environmental Compliance and Enforcement Committee (ECEC) is a forum for senior officials to provide strategic advice and generate global support. The ECEC is supported by working groups from three environmental crime areas: wildlife crime, pollution crime, and fisheries crime. These working groups provide a mechanism for member countries to work together on joint projects, build trust, and share intelligence.

**Notices:** INTERPOL notices are colour-coded alerts distributed by the INTERPOL General Secretariat to police organizations around the world at the request of NCBs and other authorized entities. Notices are increasingly being used to support environmental enforcement. For example, Nepal used a Red Notice (for wanted persons) to obtain information on a suspect wanted for rhino poaching and involvement in international rhino horn trafficking,<sup>37</sup> and Norway requested a Purple Notice (information about *modi operandi*) to assist with an illegal fishing case.

**Ecomessages:** INTERPOL established Ecomessages in 1994 to promote information exchange between environmental enforcement agencies. Information about environmental offences and *modi operandi* is recorded on an Ecomessage form and transmitted on the I-24/7 network via INTERPOL NCBs. Unlike Notices, which are used to request information for an ongoing case, Ecomessages transmit information about events that have occurred in the past.

Environmental enforcement agencies can take full advantage of these venues and tools for international cooperation by strengthening their intelligence capacity and investing in information management, both of which are key elements of intelligence-led enforcement.

## V. CONCLUSION

Within the umbrella of intelligence-led enforcement, intelligence-led environmental enforcement has begun to emerge in regulatory settings as a specific style of environmental enforcement. It informs decision-making, supports priority-setting, and directs an agency's

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<sup>37</sup> See online: <<http://www.interpol.int/News-and-media/News/2015/N2015-014>>.

attention to the worst environmental harms and risks. It is proactive, analytic, efficient, and supports targeted enforcement actions.

Despite its benefits, the intelligence-led environmental enforcement model is not an easy model to adopt and implement in a comprehensive way. It requires a shift in thinking, business practices, and resource allocation. It requires officials to re-envision the role of intelligence in regulatory enforcement settings, and make a concerted effort to reorganize the way operations interacts with intelligence and the way that information and tasking flows within an organization.

Given the relatively recent emergence of this model, there are still many gaps in research. Little is known about broad trends, impacts, and outcomes of intelligence-led environmental enforcement. There are also few resources available to guide practitioners in program development, implementation, and monitoring. It will be interesting to observe how environmental protection agencies adapt the intelligence-led enforcement model to meet their mandates, and where they take the concept in the years to come.

## **VI. BIBLIOGRAPHY**

- Association of Chief Police Officers. *Guidance on the National Intelligence Model* (National Centre for Policing Excellence, 2005).
- British Columbia Ministry of Environment. *Conservation Officer Service Program Plan* (2015).
- Carter, D. *Law Enforcement Intelligence: A Guide for State, Local, and Tribal Law Enforcement Agencies*, 2d ed (US Department of Justice, 2008).
- Commission for Environmental Cooperation. *Operational Plan of the Commission for Environmental Cooperation 2013-2014* (CEC, 2013).
- Duffy, RF. “Strategic Targeting for Compliance and Enforcement” (Forth International Conference on Environmental Compliance and Enforcement, Chiang Mai, Thailand, April 1996).
- Duhigg, C. *The Power of Habit* (Anchor Canada, 2014).
- Elliott, L. “Fighting Transnational Environmental Crime” (2012) 66:1 *Journal of International Affairs* 87.
- EUROPOL. *Threat Assessment 2013 Environmental Crime in the EU* (EUROPOL Public Information, 2013).
- Evans, RM. “Influencing decision-makers with intelligence and analytical products” in J Ratcliffe, ed, *Strategic Thinking in Criminal Intelligence*, 2nd ed (The Federation Press, 2009).
- Fisheries and Oceans Canada. *Report on Plans and Priorities 2014-15* (DFO, 2015).
- Global Initiative against Transnational Organized Crime. *The Global Response to Transnational Organized Environmental Crime* (Global Initiative against Transnational Organized Crime, 2014).

- Guidetti, R. “Collaborative intelligence production” in J Ratcliffe, ed, *Strategic Thinking in Criminal Intelligence*, 2nd ed (The Federation Press, 2009).
- INECE. “Track C: Proven Compliance and Enforcement Strategies”, *Conference Proceedings* (Ninth International Conference on Environmental Compliance and Enforcement, Whistler, Canada, June 2011).
- INTERPOL. *Intelligence Led Enforcement Manual* (INTERPOL, 2012).
- *Summit Report* (1st Summit of the International Chiefs of Environmental Compliance and Enforcement, Lyon, France, March 2012).
- *National Environmental Security Taskforces, Bringing Compliance and Enforcement Agencies Together to Maintain Environmental Security* (INTERPOL, February 2014).
- *Environmental Law Networks: Overview* (INTERPOL, March 2014).
- *Environmental Crime Resolutions* (INTERPOL, August 2014).
- Higgins, O. “The theory and practice of intelligence collection” in J Ratcliffe, ed, *Strategic Thinking in Criminal Intelligence*, 2nd ed (The Federation Press, 2009).
- Lehane, J. “Integrating Strategic Intelligence with Organisational Risk Management” (Ninth International Conference on Environmental Compliance and Enforcement, Whistler, BC, June 2011).
- McDowell, D. *Strategic Intelligence: A Handbook for Practitioners, Managers and Users* (Scarecrow Press, 2009).
- Nellemann, C *et al*, eds, *The Environmental Crime Crisis – Threats to Sustainable Development from Illegal Exploitation and Trade in Wildlife and Forest Resources* (UNEP, 2014).
- Paddock, L. “Strategies and Design Principles for compliance and Enforcement”, *Conference Proceedings* (Seventh International Conference on Environmental Compliance and Enforcement, Marrakech, Morocco, April 2005).
- Peterson, M. *Intelligence-Led Policing: The New Intelligence Architecture* (US Department of Justice, 2005).
- Ratcliffe, J. *Intelligence-Led Policing* (Routledge, 2008).
- Sparrow, M. *The Regulatory Craft: Controlling Risks, Solving Problems, and Managing Compliance* (The Brookings Institution, 2000).
- *The Character of Harms: Operational Challenges in Control* (Cambridge University Press, 2008).
- Sunstein, C. *Simpler: The Future of Government* (Simon & Schuster, 2013).
- Sunstein, C & R Thaler. *Nudge: Improving Decisions about Health, Wealth, and Happiness* (Penguin Books, 2009).
- Tusikov, N & R Fahlman. “Threat and risk assessments” in J Ratcliffe, ed, *Strategic Thinking in Criminal Intelligence*, 2nd ed (The Federation Press, 2009).
- UK Environment Agency. *Environment Agency continues its clampdown on illegal fishing* (Press Release, June 2015).
- United Nations Office on Drugs and Crime. *The Globalization of Crime: A Transnational Organized Crime Threat Assessment* (UNODC, 2010).

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