

ENFORCEMENT OF ENVIRONMENTAL
LAW: GOOD PRACTICES FROM
AFRICA AND ASIA (VOLUME II)



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CO-OPERATION BETWEEN UNITED NATIONS ENVIRONMENT
PROGRAMME AND CHINA



Acknowledgements

This second volume of selected good practices in enforcement of environmental law from African and Asia countries compiles and documents a set of good practices that were shared from enforcement experts who attended the Second Africa-Asia Expert Meeting on Enforcement of Environmental Law, held in Kunming, China, 1-4 December 2015. The volume was then subjected to a peer review experts meeting held in Beijing, China, 5-6 May 2017.

The Meetings were convened by UN Environment and the People's Republic of China's Ministry of Environmental Protection through its China ASEAN Environmental Cooperation Centre, under the framework of South-South Co-operation, and in collaboration with China University of Political Science and Law.

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Executive Summary

While the first volume of *Enforcement of Environmental Law: Good Practices from Africa, Central Asia and ASEAN Countries* published in 2015 focused on good practices on administrative enforcement, civil enforcement and criminal enforcement in general, this second volume provides another set of good practices on three specific thematic topics: joint enforcement action; legal aspects of environmental damage calculation and compensation; and measuring the effectiveness of enforcement action. These good practices were generated at an Africa-Asia inter-regional meeting of experts on enforcement of environmental law, held in Kunming, China on 1-4 December 2015, and reviewed at an expert peer review meeting held in Beijing, China on 5 and 6 May 2017.

Over the past years, to improve the implementation of, compliance with and enforcement of environmental laws, many countries have adopted and practiced various integrated enforcement approaches including integrated permitting, joint inspection and enforcement, engagement of the public in enforcement, promoting and rewarding good compliance, and partnership with the private sector.

Calculating compensation for environmental damage remains a difficult issue for judicial bodies in their daily adjudications. In an effort to standardize and guide the practice, some countries have used the legal tools to guide judges and enforcement officials in calculating and compensating environmental damage. They enact specific laws on environmental liabilities and compensation of environmental damage creating the legal frameworks for calculation and compensation of environmental damage, and develop the guidelines defining environmental damage. Other areas where countries have adopted regulatory rules and developed guidelines include: who bears responsibility to compensate, compensable costs, entitlements for compensation, procedures, who conduct assessment and methodologies.

There is always an implementation gap between legislative objectives and effectiveness of environmental laws. What is effectiveness of implementation and enforcement actions remains a challenge for policy makers and enforcement agencies to answer. To address this challenge, some countries of the Organization for Economic Co-operation and Development have developed and used performance measurement indicators to measure environmental enforcement. Yet countries in Africa and Asia have limited practices in formally measuring the success of enforcement actions.

This volume compiles selected good practices and presents them in these three categories accordingly: (i) innovative joint enforcement action (Chapter 2), (ii) legal aspects of calculation and compensation of environmental damage (Chapter 3), and (iii) measuring enforcement actions (Chapter 4), with the intention of providing other countries with different perspectives and options that can be used to strengthen their environment enforcement systems. At the end of each category of good practices, the challenges related to that topic are identified and the recommendations are put forward to address those challenges.

Selected good practices in various joint enforcement approaches described in Chapter 2 demonstrate that future environmental enforcement will be more integrated, participatory and compliance oriented. Information disclosure and access, promoting compliance and enforcement guidance and assistance are essential for effective compliance and enforcement.

There is a need to strengthen the legal frameworks for calculating and compensation for environmental damage. The guidance and capacity building in strengthening the legal frameworks will be helpful. Social and human health assessment should also be included in the environmental damage compensation schemes.

Measuring the effectiveness of actions taken can help improve compliance and enforcement, yet it is not an easy task to do so. Some efforts have been made by OECD and some developing countries to develop and use indicators for measuring compliance and enforcement performance. More work and efforts are needed to establish effective enforcement measurement policies and systems so that countries' effort to improve their compliance and enforcement can be improved.

UN Environment wishes to thank all those who contributed in one way or another to support this programme to deliver this second volume of good practices in enforcement of environmental law and hope it will be useful in strengthening capacity of those who wish to develop their national guides on enforcement.

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Chapter 1 : Introduction

1.1 Introduction to this publication

Enforcement of environmental law remains a great challenge especially in developing countries due to factors such as lack of institutional capacity, lack of competence of relevant enforcement officials to enforce legislation, and lack of information and national guidance materials on enforcement. All of these operate to weaken the effectiveness of the law in regards to protecting and managing the environment and environmental degradation is the result. Enforcement therefore is a key factor for enabling national environmental laws to achieve their objectives of managing and protecting the environment from degradation.

In collaboration with the China ASEAN Environmental Co-operation Centre, the UN Environment carried out a project entitled Strengthening Institutional Capacity of African and Asian Countries for Enforcement of Environmental Legislation, which was funded by the China Trust Fund under the framework of South-South Co-operation. This project successfully brought together experts from Africa, ASEAN (Association of Southeast Asian Nations) and Central Asia to meet and share their experiences, success and lessons in environmental law enforcement at the first Asia-Africa Expert Meeting on Enforcement of Environmental Law. As the result, a first set of good practices on enforcement was developed as the first volume of Enforcement of Environmental Law: Good Practices from Africa, Central Asia and ASEAN Countries. The first volume presents good practices in the categories of administrative enforcement, civil enforcement and criminal enforcement, providing readers with guiding lessons shared from developing countries under three different aspects of enforcement.

So far, the set of good practices in Volume I have been used to support enforcement efforts in a number of countries. In countries such Nigeria, Malawi, Tanzania, South Africa, Sierra Leone and Zimbabwe, amongst others, UNEP was able to use the set of good practices to impart knowledge to enforcement officials on the various options that can be used to enforce environmental laws. In Malawi, the country used the set of good practices to develop a ‘train the trainers’ enforcement manual. In Vietnam, a handbook on environmental liabilities under environmental and other laws in Vietnam was developed; and Nigeria has also developed a new enforcement policy using this project’s results and funding.

Based on the success of the first volume, the second Asia-Africa Expert Meeting on Enforcement of Environmental Law: Ensuring Compliance and Enforcement through Partnership was organized by UN Environment and China ASEAN Environmental Co-operation Centre in Kunming, China in December 2015. It provided countries with another opportunity for technical cooperation, and for sharing of knowledge and expertise, under the framework of South-South Cooperation; with the aim of strengthening their institutional and individual capacities for more effective environmental enforcement in their respective countries. This expert meeting focused on three thematic topics: joint enforcement action; environmental damage calculation and compensation; and measuring the effectiveness of enforcement action. Based on this meeting in Kunming, a

second set of good practices in enforcement of environmental law has now been compiled focusing on the above three thematic topics.

This second volume of the publication is to provide information to countries and institutions on the above three topics – innovative enforcement action; calculation and compensation of environmental damage; and measuring enforcement actions. Examples of good practices in these three thematic areas were drawn from countries’ experiences in regards to development of mechanisms that improve enforcement, improve measurement of the effectiveness of enforcement action, as well as improving calculation and compensation of damages and compensation for environmental harm. By ‘good practices’ is meant solutions which have been implemented in particular countries, to particular difficulties of environmental law enforcement, and which have been successful in resolving those difficulties – or have at least shown significant promise. Good practices are proposed from selected countries, as the entire range of African and Asian countries could not be covered. Where no good practices could be found in Asia and Africa, we used examples from other parts of the world.

1.2 Purpose of this publication

This second volume of the publication is a continuation of the first volume of good practices in enforcement of environmental law. It is intended to share a set of good practices generated by experts from selected countries in the African, ASEAN, and Central Asian regions as well as experts from China as a result of the Kunming meeting where one of the recommendation set forth was to elaborate good practices further with respect to innovative integrated enforcement action, calculation and compensation of environmental damage and measuring enforcement actions. The intention is that these can be used under the framework of South-South cooperation to inform countries on options and solutions to remedy deficiencies to address various enforcement challenges.

For the purposes of this introductory guide, ‘good practices’ have been taken to mean practices and procedures, sometimes documented and sometimes undocumented, which countries or enforcement institutions have devised to provide options and solutions to solve enforcement challenges.

For ease of reference, this guide is structured so as to present the selected good practices in three main categories; namely:

- Innovative integrated enforcement action;
- Calculation and compensation of environmental damage; and
- Measuring enforcement actions.

1.3 Readership

This publication, like its first volume, is not meant to be comprehensive. It provokes ideas and gives its readers a sense of the sorts of options that other countries have turned to as solutions for problems related to enforcement of environmental laws.

It is anticipated that a wide range of readers might find this guide useful. They may include Parliamentarians and members of legislative drafting teams; members of the Judiciary; Ministers and Ministerial officials; administrators of environmental enforcement legislation; administrators of environmental assessments and development approvals; and scholars and students interested in environmental enforcement issues generally.

1.4 South-South Co-operation

Environmental laws provide enforcement mechanisms and responsible authorities are expected to enforce these. With most countries having enacted environmental legislation and regulations, however, inadequate implementation of environmental laws is widely recognized as a problem in both developed and developing countries. Developing countries, in particular, have mostly been experiencing weak enforcement.

The ‘old order’, in which the legal systems of developed countries were regarded as representing the world’s most advanced, is inevitably changing. Investment, funding and technology transfer, and guidance as to good practices, are today moving between developing countries. Developing countries in the ‘Global South’ can learn much from each others’ experience and assist each other in adapting these to their own situations – while at the same time considering how best to draw from the experiences of developed countries.

While much can be learned from developed countries, there is a growing understanding that simply adopting either their general approaches or their specific laws might not lead to the most appropriate regimes being implemented in developing countries. The realities of different regions can be very different – in terms of such factors as administrative, institutional and human resource capacity, economic, environmental and social realities and factors related to climate and geography.

Many developing countries face similar development, financial and capacity constraints, and South-South co-operation provides an opportunity to leverage the potentials of countries in the South to learn from each other on what works and what does not in developing countries and countries with economies in transition and adapt these to their own situations for addressing similar challenges they face.

The Bali Strategic Plan for Technology Support and Capacity-building adopted by the Governing Council of United Nations Environment Programme (UN Environment) in 2004 focuses on strengthening the capacity of developing countries’ governments at all levels and specifically embraces the promotion and support of South-South cooperation, stressing the need to promote exchanges of information, expertise, and experiences between the institutions of the South, aimed at strengthening those institutions and developing human resource.¹

1. UNEP/GC.23/6/Add.1

UN Environment's efforts to promote South-South Cooperation on enforcement of environmental laws so far have proved to be fruitful. The first volume of good practices demonstrates that developing countries and countries with economies in transition have had varying successful experiences in the enforcement of national environmental laws. This work will continue.

1.5 Next Steps

It has been widely recognized that calculation and compensation of environmental damage and measuring enforcement actions are the most challenging tasks in the implementation and enforcement of environmental laws. As the results of this publication, it is planned to develop the Guides further with respect to: (1) how to develop clear laws or rules to guide assessment and appraisal procedures, standards and methods, the qualifications of the assessment agencies and individuals; and (2) how to measure the effectiveness of enforcement action. UN Environment wishes to continue engaging developing countries and countries in economic transition in this work through South-South cooperation.

Chapter 2: Joint Enforcement Action

2.1 Introduction

Today, it must be recognized that environmental problems are more complicated than in the past, that more nuanced solutions are needed. Traditional regulatory techniques and mechanisms, in particular command-and-control regulatory approaches, remain the most widely utilized legal technique for environmental quality management and pollution control. Among the most widely used traditional techniques for environmental control are mandatory requirements for meeting environmental standards, the system of authorization by permits, certification or licenses administered by government institutions. These are so-called command-and-control measures.

In response to changes in socio-economic and ecological factors, countries reformulate legislation to meet the challenges they are facing. There needs to be better scientific assessment of the ecological linkages among different environmental areas/media. To respond to such needs, environmental impact assessment and the implementation of abatement measures to minimize environmental pollution and impacts also become a main mechanism for pollution control or reduction and to protect the environment.

In recent years various new approaches and mechanisms are being used to complement the traditional regulatory techniques that aim at enhancing the implementation, compliance and enforcement of environmental law. These include:

- Economic incentives or disincentives to internalize environmental externalities.
- Coordination among relevant governmental agencies with divided responsibility through a high-level advisory council.
- Public consultation mechanisms - undertaken through a range of mechanisms, such as public involvement and participation in environmental decision-making, public hearing on environmental assessment of major projects, ad hoc consultations or internet based social media, to inform governmental decision-making.
- Government environmental policy compliance audits to assess governmental compliance with environmental policy objectives and administrative processes.
- Partnerships with business to comply with environmental laws and regulations.
- Compliance Assistance Programme – providing guidance to the regulated community to comply with the law sector by sector and awarding good performers (less inspection; subsidies for pollution treatment facilities; and faster approval for upgrading pollution control installations).
- Empowerment of NGO and the public through information disclosure and administrative transparency.
- Integrated law enforcement: enforce various regulations.

In addition, the past years have also witnessed other new approaches for enforcement of laws to avoid conflicting interests and to improve the implementation of various environmental related laws. At the second Africa and Asia South-South cooperation meeting on enforcement of environmental law, many other integrated enforcement approaches were shared among enforcement practitioners. The following elaborates some highlights of such new and innovative enforcement mechanisms, including integrated permitting, joint inspection, and public engagement, promoting and rewarding good compliance.

2.2 Integrated permitting

Environmental permitting is a key instrument for reducing industry's environmental impacts, facilitating its compliance with environmental requirements and promoting technological innovation.

The traditional single-medium permitting (for air, water protection, waste management, etc.) is derived from the environmental regulation that is developed to address specific environmental problems, such as for air and water protection, or for waste management. As a result, an operator of an industrial installation is required to obtain a large number of environmental authorizations from a variety of separate authorities that may not necessarily operate in a coordinated or cooperative way.

Integrated permitting may be considered to mean that emissions to air, water and land, as well as a range of other environmental effects (the use of energy, water and raw materials) must all be considered together. It also means that regulators must set permit conditions so as to achieve a high level of protection for the environment overall. (Box 1 provides the details of integrated permitting).

China

In November 2016, China's State Council issued *the Plan for Implementation of the Pollution Control Permit System,*" (the Plan). The Plan provides guidelines and set policy goals for the pollution permitting system to be designed and implemented by the Ministry of Environmental Protection (the Ministry).

The plan aims to cover all stationary sources by 2020, making the permitting system become an effective tool to achieve a high level of protection for the environment overall, backed up by adequate laws and regulations. The implementation of the new permit system will begin immediately for thermal power plants and paper mills, which were required to obtain permits by the end of 2016. The Plan calls for 15 other industries to be subject to its guidelines by the end of 2017, and Licenses will be valid for 3 years after issuance, and for 5 years after the first renewal.

Integrated permitting

Integrated Environmental Permit is a written authorization to operate an installation, according to pertinent legislation, subject to conditions covering all of the installation's known environmental impacts that are considered significant by the permitting authority.

Integrated permitting was introduced in European countries as early as in 1969 (Sweden), and was mandated across the European Union in 1996 by Directive 96/61/EC on Integrated Pollution Prevention and Control (IPPC), which lays out the basic principles on Integrated Pollution Prevention and Control.

All major stationary sources of significant pollution, to be defined in the national legislation, are subject to integrated environmental permitting on a case-by-case basis, where all environmental aspects are considered simultaneously, pollution prevention rather than end-of-pipe control is a fundamental principle, and site-specific issues are taken into account. The Best Available Technology (BAT) is required by all business establishments. The BAT concept suggests that the environment is a disposal route of last resort, to be used only to the extent that it is not practically and economically feasible to do anything else.

Fundamentals of a permitting system:

- Appropriate Permitting Authority
- Public Participation and Access to Information
- Extensive Stakeholder Involvement
- Outreach to the Regulated Community
- Close Interaction with Environmental Impact Assessment (EIA) - EA and permitting should be applied so as to maximize their effectiveness and avoid overlap
- Clear and Enforceable Permit Requirements
- Transparent Permitting

Many transitional and emerging economies are now exploring possibilities of progressively moving toward an integrated permitting system that would replace the current cumbersome and ineffective multitude of permits and licenses for air emissions, water abstraction, wastewater discharges, waste generation, storage and disposal, and other environmental impacts.

The countries of Eastern Europe, Caucasus, and Central Asia (EECCA) plan to use the approach of the European Union's Integrated Pollution Prevention and Control (IPPC) Directive (96/61/EC) as the principal benchmark for this purpose.

In 2017, the Ministry adopted a new regulation on the new permit. The new system will move gradually toward an integrated permitting, which moves away from the traditional single-medium permitting and considers emissions of air and water pollutants, noise, wastes and other related environmental effects together. It will also be linked to the environmental management and monitoring plans as the results of environmental impact assessment. However, this new type of integrated permits will only be applicable for a series of industries listed on the inventory to be developed by the Ministry of Environmental Protection.

Ghana

Under the Integrated Regulatory regime of Ghana, the issuance of environmental permits and pollution abatement notices for controlling the volume, types, constituents and effects of waste discharges, emissions, deposits or other source of pollutants and of substances are linked to the environmental impact assessment(EIA) process. The integration is also in terms of the consideration of social, cultural, health, economic and environmental issues within a single impact assessment framework. Abatement requirements and conditions are set out based on the results of environmental impact assessment of a project. The permitting takes an integrated approach requiring the project proponent to meet all the requirements and conditions related to the management and mitigation of all types of pollutants emitted, discharged or deposited into the environment, the social, cultural, health, safety, economic and other environmental impacts of a project. All environmental permits are issued with a set of requirements and conditions in which the company must abide by.

Failure to comply with all the permit requirements and conditions is an offence and can result in the suspension, cancellation or revocation of an environmental permit. Further sanctions may also apply as per the environmental laws.

The EIA Guidelines and Procedures require that the review of Environmental Assessment Reports are done by a joint EIA Technical Review Committee composed of different institutions, including the Council for Scientific and Industrial Research, Town and Country Planning Department, Forestry Commission, Water Resources Commission, Environmental Protection Agency, Factories Inspectorate Department among others. The committee may also co-opt other institutions

Tanzania

The EIA Regulations in Tanzania provides for cross-sectorial technical advisory committees at national level and where appropriate at a local government authority to advise it on reviews of EIA reports. Also, during site visit inspection or verification for further review, the advisory committees, if it deems fit, may call upon other stakeholders such as relevant Ministries, institutions and the general public especially those likely to be affected by the proposed project to be part of the verification team. The recommendations will be forwarded to the Minister responsible for Environment for final approval and after being satisfied, he will sign the Certificate. The signed Certificate will be attached with the General and Specific conditions that must be adhered to by the Developer. The regular monitoring process which involves a multi-sectoral team is being carried out to ensure that the specified conditions are followed.

The Philippines

Under the Environmental Impact Assessment System Compliance (PEISS Law D.D. 1586), the issuance of the Environmental Compliance Certificate, a green light to allow proponent to proceed with the next state of project planning, to the project proponent is based on the requirements and conditions set out in the Environmental Management and Monitoring Plans as the result of a thorough process of reiterative review of environmental impact assessment by a Multi-disciplinary Review Committee. Such an environmental compliance certificate issued by the Environmental Management Bureau is an integrated approach that obligates the project proponent to comply with all environmental requirements and conditions set out in the environmental management and monitoring plans as well as any other commitment under environmental laws and regulations.

The Environmental Compliance Certificate is the acquisition for the approval of the business license from other governmental agencies before a project can be implemented. The certificate remains valid and active for the lifetime of the project (unless otherwise specified), and the continued validity requires the project proponent to continue meet all the commitments of the certificate and other environmental regulations.

Kenya

Prior to insurance an Environment Impact Assessment (EIA), the proponent would be issued with an approval conditions. The proponent would then be required to write to NEMA confirming if he/she will adhere to the conditions stipulated there in before the license is issued. This administrative practice was not within the law and was stopped about 3 year ago. The practice created a loop hole whereby the proponent would negotiate to have less stringent measures to the detriment of the environment and in some cases, once the approval conditions was issued , the proponent went ahead to implement the project without an EIA license. Since then, the license conditions issued by NEMA are final and must be complied with throughout the project cycle; this practice has ensured that environmental is adhered with for the protection of the environment and social factors

Indonesia

Indonesia's Environmental Protection and Management Law (2009) require that every business and/or activity is obliged to have an environmental impact assessment permit and an environmental protection and management permit. The environmental protection and management permit shall be issued on the basis of decision on the results of environmental impact assessment. The environmental permits shall be obliged to mention all the requirements and conditions contained in the environmental management and monitoring plans and also the outcomes stated in environmental impact assessment. In addition to environmental permits, companies need to have other permits called environmental protection and management permits. These types of permit are for the operational stage as stated in the environmental permit.

The environmental permit shall be issued by the Minister or a governor or a regent (who head regencies) or a mayor (who head cities) by virtue of their authority. Such a permit is a prerequisite for the approval of the business license from other governmental agencies before a project can be implemented

India

All polluting facilities are legally required to obtain permits from a State Pollution Control Board, these permits being consent to establish and a consent to operate. In accordance with a Notification issued by the Ministry of Environment and Forests in 2006, certain new industrial projects/ activities, or those planning major notifications, also require a Prior Environmental Clearance (from the Central Pollution Control Board CPCB for Category A or from a State Pollution Control Board for Category B based on an environmental impact assessment report).

Some states (Gujarat, for example) issue consolidated consents for air and water pollution and hazardous waste based on Common Consent Applications, while other states, like Chattisgarh, issue water and air consents as well as waste management authorizations separately.

Recently, the Central Pollution Control Board has drafted Guidelines for Management of Consent and Authorization² which try to streamline the permitting process across the states and stipulate consent validity periods for different categories of industry (red, orange or green) based on their potential environmental impact.

A **Consent to Establish** is granted after an evaluation of the potential environmental impact and of the design of pollution control installations. Conditions for pollution control measures are part of the Consent to Establish. Upon verification of compliance with these conditions, a **Consent to Operate** is issued with emission and effluent limits based on industrial sector-specific standards, as well as self-monitoring and reporting schedules.

2.3 Joint Inspection

Once environmental requirements are put in place through environmental legislation, standards, permits conditions, guidelines and procedures, they have to be enforced to ensure compliance. Major processes that are required to achieve compliance with the said environmental requirements include monitoring by the industrial establishments, and inspection by environmental authorities.

Quite often, environmental inspectors from environmental protection agencies lack critical powers of effective enforcement, such as the right to enter into sites to take samples, collect relevant evidence, detain or arresting violators, etc. Increasingly, environmental authorities combine their powers with those of police forces, public prosecutors and other related enforcement agencies to conduct environmental inspections, or conduct cross-sectoral or targeted inspections, and run enforcement campaigns. In some countries, there is increasing collaboration between

2. At the time of this rapid assessment the authors were unable to secure a copy of these Guidelines, and it is unclear whether they have indeed been adopted.

environmental authorities and other relevant agencies to improve compliance and enforcement. Such joint and integrated approaches help to enhance the effectiveness of environmental enforcement actions

China

Nation-wide cross-sectoral environmental inspection campaigns

Increasingly, China has practiced nation-wide cross-sectoral environmental inspection campaigns against environmental non-compliance as special environmental enforcement efforts. These are conducted by several central government agencies in cooperation with local environmental protection bureaus. Almost every year, the Ministry of Environmental Protection initiates nation-wide campaigns to address specific environmental problems, in collaboration with the National People's Congress (the Parliament in China), the National Development and Reform Commission, the Ministry of Public Security, the Ministry of Justice and the State Business Administration. The campaigns often result in “shutting down, suspending production, merging and converting production” for non-compliant enterprises; with decisions often being made by local governments, depending on the seriousness of the violations of environmental law. If such enforcement actions are taken against State enterprises directly under the central government, the decisions are subject to approval by the State Council.

Joint enforcement by environmental authorities and enforcement agencies

The level of compliance by enterprises with pollution standards, permits, and payment of charges is traditionally checked through environmental inspections carried out by inspectors from environmental protection bureaus at local levels in China. Private enterprises are inspected by the jurisdiction where they are located. Recently, realizing that lack of judicial enforcement power by environmental inspectors in civil and criminal cases leads to ineffective enforcement; police have combined with environmental inspectors to carry out joint enforcement operations in many provinces and cities in China. In other provinces and cities, joint enforcement is even carried out together with public prosecutors as well as other relevant agencies, such as business administrative agencies and quality supervision and quarantine inspection agencies.

Beijing Environmental Police

On 18 January 2017, an Environmental, Food and Drug and Tourism Protection Police Corps was established formally under Beijing Public Security Bureau. The Corps is known as the Environmental Police, and is comprised of more than 150 policemen responsible for detection and investigation of environmental crime involving environment, food and drugs and tourism, and the corps works with relevant agencies for effective enforcement

These approaches have mobilized broad and deep support from the judiciary, prosecutorial services, police, Parliament (the NPC), local authorities and state business in strengthening environmental enforcement, enhancing their enforcement credibility in the eyes of polluters and demonstrating their accomplishments to higher level authorities.

Other long-term standing cooperation arrangements

To ensure long-term integrated enforcement collaboration between environmental authorities and police, public prosecutors and other enforcement institutions, the Supreme People's Procuratorate, the Ministry of Environmental Protection and the Ministry of Public Security adopted *the Operation Measures for Integrated Administrative and Judicial Environmental Enforcement* in February 2017. The Measures formally establish the long-term standing cooperation mechanisms for necessary linking administrative law enforcement to criminal justice.

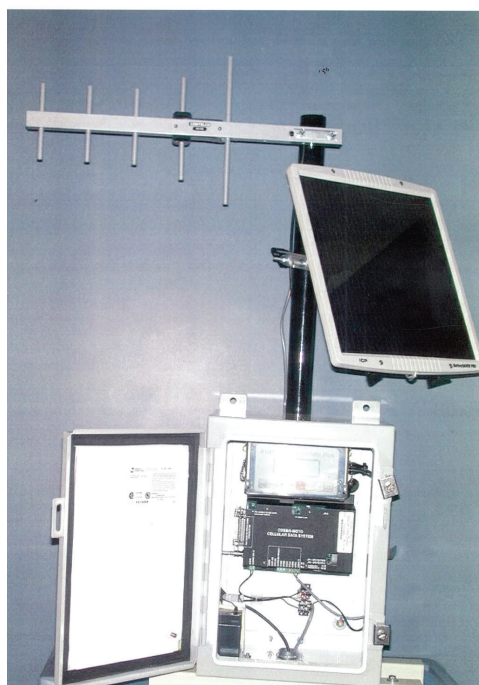
The Measures require that environmental authorities, police and public prosecutors at all levels establish the long-term standard collaborate mechanisms and the two-way consultative systems, including an information sharing platform and e-channels for easy and quick transfer of environmental cases from environmental authorities to police and public prosecutors. The Measures also mandate environmental agencies to provide support related to environmental monitoring and technical support to police and public prosecutors in their handling of environmental cases.

Hubei Joint Environmental Enforcement Mechanisms

Pursuant to the *Circular of Strengthening Efforts to Combatting Environmental Crime* (2013), Hubei Superior People's Court, the Peoples' Procuratorate, the Public Security Bureau (police) and the Environmental Protection Bureau jointly established a number of innovative joint environmental enforcement mechanisms, including 1) Environmental Cases Report and Transfer System between environmental authorities to judicial institutions; 2) Environmental Cases Consultative System; 3) Regular Joint Environment Conferences between the Environmental Protection Bureau, the Public Security Bureau, the Peoples' Procuratorate and the Superior People's Court; and 4) the Information Sharing Platform.

Ghana

The EPA is mandated under its laws to act in liaison and cooperation with government agencies, district assemblies, and other bodies and institutions to control pollution and protect the environment. It is also required to secure in collaboration with such persons as it may determine the control and prevention of discharge of waste into the environment and the protection and improvement in the quality of the environment. The Agency in this regard collaborates with the National Security Services to including the Ghana Police Service to ensure compliance and enforcement of environmental laws and also prosecute environmental offences. The Agency has collaborated with the Ghana Police Training School to educate police officers on environmental issues before they enter into duty or when they are promoted. The agency also provides technical



Installation of Outdoor Mine Blast Equipment for Regulatory Compliance

advice to assist them in the prosecution of environmental offences. The Agency also provides technical advice and expert witness to courts in their adjudication of environmental cases.

The Minister responsible for Environment is authorized to use reasonable force available including the Ghana Police Service to ensure compliance and enforcement.

The Agency also, in collaboration with the Geological Services Department, installs Mine blast equipment in mining the communities throughout the country to ensure proper monitoring under seismic network program for noise, blasting and pollution.

Indonesia

In Indonesia, the monitoring of compliance with permit conditions is conducted by government authorities who took charge after the merger of the Ministries of Environment and Forestry. A multi-instrument monitoring system has been implemented, with its starting point being that there should be both impromptu and regular monitoring. If there is a violation of the permits this can attract litigation and sanctions of different types, depending on the nature of the violation. There are four types of administrative actions, ranging from warnings through permit suspensions, to permit revocations. This system which was started in 2015 after the merger of the Ministries and it appears to have resulted in improvement in compliance levels.

Kenya

Negotiating compliance

In very rare occasion and with the approval from the Director General, NEMA can enter into a negotiated compliance with a regulated facility. Negotiations can commence at any given stage during the process of compliance and enforcement. It can also run or operate in dual track when prosecution has been instituted or closure of the regulated facility has been affected. The regulated facility wishing to enter into a negotiated compliance with NEMA, writes a formal letter to the Director General stating the purpose and requesting consideration. The management may request for:

- Delay in enforcement to allow management of facilities to work out a program towards compliance within limited time and resources;
- As a sign of willingness to comply with NEMA's enforcement options to ensure performance of requirements under the law;
- An opportunity to comply before the Authority institute criminal proceeding;
- Some period of time to enable the affected established put in place the required inputs

The negotiated compliance program must have punitive sanctions or disincentives for non-compliance. The binding agreement must be achievable, within a relatively short-period, and must be known to all, including the public. The intention is to create partnership in the care of environment

Out of court settlement

Out of court settlement will detail the terms of settlement in writing. The offender must show willingness in writing to settle the matter out of court at no cost to the Authority. Out of court settlement will have conditions including; immediate compliance, refund of the cost incurred by the authority. There will be no out of court settlement for

- Chronic offender
- Obstruction/assault to environmental inspectors
- If offence has adverse impact to the environment and public health.
- No evidence of effort to prevent the environmental crime.

Joint Enforcement

Kenya's National Environment Management Authority (NEMA) has since 2010 run a successful inter-agency joint enforcement programme. The success of this collaboration is linked to the NEMA's role as the host of the East African Network for Environmental Compliance and Enforcement (EANECE), a cooperative network formed in 2010. The network has promoted cooperative/joint enforcement actions by its members which include NEMA and other law enforcement agencies. The type of support provided by each agency depends on the potential violations and can include personnel, expertise, financing and equipment. Under this arrangement, government

agencies and officials cooperate, interact and operate with their peers directly with minimum regard to bureaucratic red tape. This has greatly enhanced environmental law enforcement in various regulated sectors in recent years. For example, successes have been documented with respect to Kenya's seaports inspections especially on interceptions of illegally imported Ozone Depleting Substances (ODS) where the main agencies involved in the joint inspections were NEMA, the Customs Services Department (a branch of the Kenyan Revenue Authority), the Kenya Ports Authority, and the Police. The Customs Service Department is the primary import inspection agency but relies on NEMA's technical expertise regarding environmental violations. In the past, the Customs Service Department called in environmental experts from NEMA only when violations were suspected. Today, as a product of the enhanced cooperation encouraged by EANECE, two senior NEMA environmental inspectors have been posted to the Port of Mombasa and work together daily with customs officials, port authority staff and the police. Indeed, there is a dedicated Environmental Police Unit (a formation of the Kenya Police Service) attached to NEMA to assist with enforcement of environmental laws.

India

To support monitoring and enforcement efforts, Gujarat has introduced a third-party Environmental Audit Scheme aiming at ascertaining the performance of environmental management systems in various industries in the state. One objective of the programme is to arm the Gujarat PCB and the association of industries with necessary performance information to support compliance Monitoring. Introduced under the direction of the High Court of Gujarat and implemented under the direction of a technical committee consisting of experts from the National Institute of Occupational Health, the Central Pollution Control Board and the Government of Gujarat, the scheme requires industries to submit an annual environmental audit report through designated auditors recognized by the Board. If a specified industry does not submit its audit report according to the prescribed time schedule, the Board issues a notice of direction to the defaulting unit; failing which the Gujarat Pollution Control Board can request the concerned authority to disconnect water or electricity services. According to the Gujarat PCB, the Environmental Audit Scheme has resulted in improved compliance and enforcement of environmental laws, creating an effective mechanism for supplementing legal monitoring of industries with a third party audit

The Philippines

Joint inspection team

According to the Philippines Environmental Impact Statement System Compliance and its Implementing Rules and Regulations (2003) and the Revised Procedural Manual, (2007), subject to the Revised Guidelines (2014) of the Environmental Management Bureau under the Department of Environment and Natural Resources, multipartite monitoring teams (MMTs) have been formed to keep under close watch for environmentally critical projects and for projects within environmentally critical areas due to the nature and scale of operations. The joint inspection and sharing of expertise between sectors has resulted in improved environmental compliance and enforcement in the Philippines.

Multipartite Monitoring Teams involve the Environmental Management Bureau under the Department of Environment and Natural Resources, and its relevant field offices, the project

Multipartite Monitoring Teams

The official definition of a ‘multipartite monitoring team’ (MMT) is that it is a community-based multi-sectoral team organized for the purpose of monitoring a proponent’s compliance with the Environmental Compliance Certificate conditions, the Environmental Management Plans and applicable laws, rules and regulations.

According to the implementation of the Rules and Regulations, , a multi-partite monitoring team shall be formed immediately after the issuance of an Environmental Compliance Certificate. Proponents who are required to establish a Multipartite Monitoring Team are required to put up an Environmental Monitoring Fund not later than the initial construction phase of the project. The Multipartite Monitoring Team is to be composed of representatives of the proponent and of stakeholder groups, including representatives from concerned local governmental units, locally accredited non-governmental organizations, the community, concerned Environmental Management Bureau Regional Office, relevant government agencies, and other sectors that may be identified during the negotiations. This team is to be tasked to undertake monitoring of compliance with the Environmental Compliance Certificate conditions as well as the Environmental Management Plan; and to submit a semi-annual monitoring report within January and July of each year. The Environmental Management Bureau is to formulate guidelines for operationalizing area-based or cluster-based Multipartite Monitoring Teams; and the Bureau may also develop guidelines for delegating, monitoring responsibilities to other relevant government agencies as may be deemed necessary. For projects whose significant environmental impacts do not persist after the construction phase or whose impacts could be addressed through other regulatory means or through the mandates of other government agencies, the operations of MMT may be terminated immediately after construction or after a reasonable period during implementation.

proponent, other relevant government agencies, local government units, as well as non-governmental organizations and other stakeholders. The establishment and operation of the multipartite monitoring teams can be stipulated in the Environmental Compliance Certificate issued to proponents of environmentally critical projects and some projects within environmentally critical areas. The operations of multipartite teams has helped considerably in improving the level of compliance of industries/projects not only with the conditions under environmental compliance certificate and the requirements under the Environmental Management and Monitoring Plans, but also with air and water quality standards and hazardous wastes management regulations. This approach does appear to have had success and to have achieved ‘buy in’ from different stakeholders.

Joint enforcement oversight

In 2004 the Philippines established an Environmental Ombudsman (EO) within its general Ombudsman Office. The task of this EO includes overseeing a task force which monitors both national and local governmental units and promotes compliance with environmental laws; also, filing complaints against public officials who breach environmental laws. The EO has a team of investigators and prosecutors which investigates breaches of environmental laws.³

3 A. Tolentino & A. Tolentino, ‘Environmental Law and Justice: Developments and Reforms’, *Environmental Policy and Law* 41:3 (2011).

The Office of the EO in 2013 launched a 3-year nationwide programme, in conjunction with a number of international and national, inter-governmental and non-governmental partners, to increase awareness of, and promote voluntary compliance with the *Ecological Solid Waste Management Act of 2000* (or RA 9003 under the ‘Solid Waste Management Law Voluntary Compliance Assessment and Promotion Program’). Three years later, the Office is investigating local governmental units (LGUs) that continuously defy the provisions of RA 9003. Phase two of the project aims to improve compliance through the submission of the respective LGUs Priority Corrective Action Plan (PCAP) to be implemented within six-month period and/or submission of 10-Year SWM Plans and safe closure and rehabilitation of open and controlled dump sites. Close to 600 local government executives in the 13 administrative regions are set to be investigated by the Ombudsman.⁴ The Environmental Ombudsman has already filed complaints against 150 local government units that are still maintaining open dumpsites.⁵

However, the Environmental Ombudsman initiative seems to be operating in reactionary fashion to complaints, where it might be more useful working with local government units to prevent non-compliance from occurring.⁶

Nigeria

Enforcement dialogue

The National Environmental Standards and Regulations Enforcement Agency initiated the Federal-State Regulatory Dialogue on compliance monitoring and enforcement. The Dialogue provides a forum for participants from various regulatory agencies at both federal and state levels to share experiences and consider possible best practices in environmental compliance and enforcement, as well as to operationalize published National Environmental Regulations and review draft new Regulations. The Dialogue has been successful in bringing together different Regulatory Agencies in the implementation and enforcement of various regulations developed by the Agency.

Multi-agency enforcement

Another important innovation by the National Environmental Standards and Regulations Enforcement Agency is the activation of a multi-agency Toxic Waste Dump Watch Programme. This programme resulted from the ongoing clandestine import into Nigeria of hazardous chemicals and wastes, including non-serviceable second-hand goods (especially electrical and electronics equipment– sometimes called ‘e-waste’). It involves the continuous monitoring of the coasts of the Economic Community of West African States with exchanges of signals between, and alerts given to, relevant regulatory bodies and enforcement agencies at both national and sub-regional levels so that action can be taken on any suspicious shipments. The members of the National Committee for the programme comprise, the Agency (the Coordinator), the Nigerian Navy, the State Security Service, the National Intelligence Agency, the Defence Intelligence Agency, the

4 Tolentino, *ibid.*; DENR, ‘Office of the Environmental Ombudsman Set to Investigate Non-compliant LGUs for Violations of the Ecological Solid Waste Management Act of 2000 or R.A. 9003’, (2016), <http://nswmc.emb.gov.ph/?p=128>.

5 M. Desacada, ‘Ombudsman warns LGUs of charges vs violation of solid waste management laws’, (2016), <http://www.philstar.com/region/2016/04/27/1577254/ombudsman-warns-lgus-charges-vs-violation-solid-waste-management-laws>; M. Barahan, ‘Environmental Ombudsman to file raps vs 100 LGUs’, (2016), <http://newsinfo.inquirer.net/853581/environmental-ombudsman-to-file-raps-vs-100-lgus>.

6 Tolentino, *supra* n3.

Nigerian Customs Service, the Nigeria Port Authority, the Nigeria Maritime Administration and Safety Agency, and the Nigeria Police. Following an alert, the Agency contacts all members of the National Committee to engage in surveillance, and convenes meetings urgently to discuss modalities required for tracking and intercepting suspect vessel. The programme is a successful cooperation and collaboration framework between the relevant enforcement agencies in the country.

South Africa

One method which South Africa has adopted in an effort to enhance integrated compliance and enforcement is the designation of officers from various Ministries and departments as Environmental Management Inspectors pursuant to Section 31 of the National Environmental Management Act. The Ministries of Environmental Affairs, Water Affairs, Mineral Resources, and provincial Members of the Executive Council responsible for environmental affairs, may designate any staff member of their own department or of any other organ of state as Environmental Management Inspectors.

Environmental Management Inspectors may be designated with mandates to enforce only provisions of certain Acts or to enforce environmental statutes generally. The functions and general powers of these Inspectors are provided, with these generally encompassing matters such as investigation of matters, questioning of persons, search of premises, seizure of items, and conducting of routine or exceptional inspections. EMIs' powers may, however, be extended to include the power to issue compliance notices calling on persons to take certain steps within certain prescribed time periods, and there are significant penalties provided for the failure to comply with such notices. Further integration of functions is provided by a provision which gives police officers the powers of Environmental Management Inspectors.⁷ The intention is that with the establishment of the Inspectorate, environmental enforcement officials will be part of a nationwide intelligence network sharing experience, information, standardized training and procedures.⁸ Informally, the Environmental Management Inspectors are known in South Africa as 'Green Scorpions' – and when designated by the Minister of Water Affairs as 'Blue Scorpions'.

Within the sphere of municipalities (i.e., local government), the success or failure of the Environmental Management Inspectors initiative is likely to depend to a large extent on whether or not sufficient local government officials are designated and trained as Inspectors; and on whether or not the Inspectorate in general will focus on municipalities (as opposed to corporate polluters, for example), as contraveners of environmental law.⁹ It has been said, generally, that both the government and the private sector are inclined to resist change – 'the government sector often resists the adoption and use of a combination of alternative environmental governance instruments' as bureaucrats fear erosion of their powers; while the private fears 'potential cost implications, weakening of competitive advantages, and potential unknown risk exposures'.¹⁰

⁷ *National Environmental Management Act, 1998, Ch. 7, s 31.*

⁸ A. du Plessis 'Environmental Compliance and Enforcement Measures: Opportunities and Challenges of Local Authorities in South Africa' in L. Paddock, L. Kotzé, D. Markell, K. Markowitz, D. Qun, and D. Zaelke (eds) *Compliance and Enforcement in Environmental Laws: Towards More Effective Implementation* (2011).

⁹ du Plessis, *ibid.*

¹⁰ du Plessis & Nel, *supra*, n7.

Tanzania

To enhance environmental compliance, Tanzania has put into place some innovative compliance and enforcement measures, such as the establishment of an Environment Desk at the Police Force to assist environmental authorities; remuneration for whistleblowers; a compensation mechanism for persons injured in protecting the environment; the Memorandum of Understanding on Environmental Enforcement and Compliance among the Vice President's Office, the National Environmental Management Council, the Ministry of Natural Resources and Tourism, the Police Force and the Attorney General Chambers; and the formulation of specialized task forces to combat environmental crimes

Formation of different National Multi-Agency Task Force Teams (MATT) on inspection, intelligence and investigation incorporating cross-sectoral Ministries and Agencies on curbing environmental crimes and ensure compliance. Such teams are organized and formed depending on the nature of the environmental harm. Teams are given the TORs for the task and time to accomplish the same though some of the teams are permanent in nature. The teams are co-financed by the respective Ministries or Institutions.

For example, during the earlier stages of the Mkuju River mining project of uranium in the Selous Game Reserve, Tanzania Government realizes the need to conduct baseline studies on water resources in the area with a view to subsequently monitor water resources pollution as a result of mining activities should the project commence. In this context, as a preparatory measure, a national Inter-ministerial Team of multi-disciplinary experts was appointed with a key duty of monitoring the operations of the Mkuju River Project. The team comprises of experts from different Ministries and Agencies in areas of inter alia, radiation physics, biodiversity, mining, water resources, sociology and occupational health and safety.

Uganda

Joint multi-agency and multi-medium inspections are carried out in Uganda to enhance effectiveness of environmental enforcement and to create synergies, but also to reduce duplication of efforts. It is a requirement under the Environmental Impact Assessment Regulations, 1998 that project proponents carry out Environmental Audits between 12 to 36 months from the time of the approval of environmental impact assessments, while inspection carried out by multi-agencies on multi-mediums helps to ensure compliance. Uganda has established an Environmental Protection Force to support the enforcement of environmental laws. The Environmental Protection force is under the Ministry of Water and Environment but with liaison units in the National Environment Management Authority and the National Forestry Authority. There are also Officers in Charge of Regions.

Memoranda of understanding have also been signed with a number of institutions to ensure compliance with environmental law; such as the Uganda National Roads Authority, the Electricity Regulatory Authority, the Uganda Revenue Authority, the Uganda Communication Commission, the National Agricultural Research Organization, the Directorate of Government Analytical Laboratories, the Ministry of Information Communication and Technology, among others. The National Environment Management Authority has appointed (through formal Gazetting)

375 Inspectors from different Government Agencies who have been trained in issues related to compliance and enforcement of environmental laws. Staff from the Judiciary, especially the Office of Directorate of Public Prosecution, Registrars and Magistrates, is being trained in compliance and enforcement of environmental laws. The National Environment Management Authority is also training and providing technical support to Districts and Municipalities to come up with their own bylaws on environment.

India

Multi-colour coding inspection

Monitoring and inspection are a key function of State Pollution Control Board SPCBs. The frequency of on-site visits to verify compliance is determined by the pollution potential (red/orange/green) and size (based on the value of capital investment) of the industry. The Central Pollution Control Board CPCB guidance on the frequency of regular inspections is presented in Table 2. However, individual states have differing interpretations of the guidance and have not regarded the guidance as binding. For example, red category facilities are supposed to be inspected once a month in Gujarat, once per quarter in Orissa, and once every two years in West Bengal.

In addition to inspections to evaluate compliance, SPCBs conduct inspections in response to complaints and sometimes as part of the consent renewal process. Most inspections are multimedia (covering air, water and waste) and unannounced. After inspection, inspecting teams prepare written reports.¹¹

Size of Industry	Category of Pollution Potential	Inspection Frequency
Large and medium-sized	Red	Once every 3 months
	Orange	Once a year
	Green	Once in two years
Small scale (capital investment below 10,000 rupees)	Red	Once a year
	Orange	Once in 3 years
	Green	Once in 5 years

2.4 Public engagement

The public plays a critical, if informal, role in supervising both environmental agencies and the private sector for the implementation of, compliance with and enforcement of environmental law. Quite often, insufficient sharing of information can hamper public involvement in environmental decision-making and public supervision of the implementation, compliance and enforcement of environmental law, and is not conducive to enabling access to justice.

¹¹ <https://www.oecd.org/env/outreach/37838061.pdf> Environmental Compliance and Enforcement in India: Rapid Assessment

Public engagement is increasingly becoming an integrated feature of compliance and enforcement of environmental law and a good practice in many countries. Particularly, what are needed are information disclosure, to empower the public; and relaxation of rules on standing (the capacity to litigate), to enable access to justice.

Information disclosure and public complaint

China

Information disclosure regulations

Improving environmental information disclosure is increasingly a feature to bring a variety of stakeholders, including members of the public and businesses, into environmental compliance and enforcement efforts in China. China's disclosure of environmental information has recently progressed significantly, especially since the implementation of the *Regulation on the Disclosure of Government Information issued by the State Council* in 2008¹² and the *Measures for the Disclosure of Environmental Information (For Trial Implementation)*¹³ issued by the former State Environmental Protection Agency (now the Ministry of Environmental Protection) on the same day as the above Regulation. This has significantly changed environmental governance and improved environmental transparency in China.

In 2012, the Ministry of Environmental Protection also issued the *Notification of Further Enhancing the Work of Environmental Information Disclosure*, which requires that disclosure of information relating to the supervision of pollution sources be promoted.

Furthermore, the *new Environmental Protection Law* (2014) for the first time includes a special chapter on Information Disclosure and Public Participation. The Law requires: 1) that the government at all levels shall disclose environmental information (including for examples, laws and regulations, standards, planning programmes, the State of Environment reports, enforcement, EIA approval and licensing, even environmental quality); 2) that enterprises shall truthfully disclose their emissions, including total volumes of emissions and the concentrations thereof, non-compliance, and the construction and operation of pollution prevention and control facilities, etc.;¹⁴ and 3) that citizens shall have the right to obtain environmental information, participate in decision-making, and supervise the activities of environment protection.¹⁵

Environmental data monitoring network

To facilitate sound information disclosure, the General Office of the State Council in July 2015 published an *Eco-environmental Monitoring Network Development Plan* (the Plan), as is required by the new *Environmental Protection Law*¹⁶, which should be put into place by 2020. This monitoring network is a unified, nationwide operating network.

12 Zhonghua renmin gongheguo zhengfu xinxi gongkai tiaoli (中华人民共和国政府信息公开条例). An English version of the regulations translated by the China Law Center of Yale Law School is available online at: www.epa.gov/ogc/china/open_government.pdf.

13 Huanjing xinxi gongkai banfa shixing (环境信息公开办法(试行)), available at: www.gov.cn/jifg/2007-04/20/content_589673.htm. An unofficial English translation of the Environmental Information Measures is available online at: www.greenlaw.org.cn/files/laws/open_environmental.pdf.

14 Article 55, the Environmental Protection Law of People's Republic of China (2014).

15 Article 55, the Environmental Protection Law of the People's Republic of China (2014).

16 Article 62, the Environmental Protection Law of the People's Republic of China (2014).

Regulations on Award to Whistle-blowers

To implement the new *Environmental Protection Law* (2014), the Beijing local Environmental Protection Bureau adopted the Regulations on the Award to Whistle-blowers for Reporting Environmental Illegal Actions in the same year. The Bureau also issued the Measures for the Disclosure of Environmental Information by Enterprises and Public Institutions in January 2015. Art. 9 of which stipulates that key pollutant-discharging entities must disclose information to the public – including information on discharges of pollutants, the status of pollution

Real time water and air pollution maps

A Beijing-run non-governmental organization called the Institute of Public and Environmental Affairs (the Institute) uses China's new information transparency laws as a tool for empowering the public.

Established in 2006, the Institute runs real time water and air pollution maps which use publically available data to expose factories that are breaching pollution limits based on a series of reforms between 2005 and 2007 to improve public access to information.

The Institute's pollution maps have also been transferred into a smartphone app called 'Blue Sky Map'. This app allows users to monitor in real time a company's emissions data for air and waste water. Any member of the public can then select an option on the app to report a company that is violating the pollution limits to the local authorities via Chinese social media sites to pressure them to act to penalise the company. For example, Shandong province has established different weibo accounts for each level of local government. As a result of the Blue Sky app, over 200 factories in Shandong have published statements about taking corrective actions after being reported to the local government via the app.

The Institute's maps give the public an alternative way of engaging in environmental protection, to supplement the government's task in enforcing environmental violations. It recognises that information transparency is key to empowering the public to participate in environmental issues, and it supplements the limited resources of local EPBs to target polluting enterprises.

Note: weibo is a Chinese microblogging website. It is one of the most popular social media sites in China, used by well over 30% of Internet users, with a market penetration similar to the United States' Twitter. It was launched by Sina Corporation in 2009.

China is also developing a national environmental monitoring network of creditable enterprises, which is now posted on the website of the Ministry of Environment Protection. This network promotes those enterprises that have good environmental performance and punishes those that have been found guilty of data fraud. In an effort to warrant the accuracy of monitoring data, the Plan, pursuant to Article 62 of the revised Environmental Protection Law, warns of severe punishment for data falsification.

Currently, the variety of environmental information disclosure has been greatly diversified. The Ministry of Environment Protection's website has a number of information disclosure platforms, including the following:

Environmental quality disclosure

The Ministry of Environmental Protection publishes daily national and local urban air quality indexes, and air quality forecasting. Four colors are used to indicate air quality. Green means excellent; yellow indicates good; orange signifies slightly contaminated; and red shows contaminated. Also, three kinds of red, from light to dark red, signify light contamination, mid-level contamination and heavy contamination respectively. This site also provides real-time monitoring data of underground water.

Public complaint platform

The most common channel for direct citizen participation in environmental protection is the environmental complaint mechanism. One specific measure is the provision of a 24-hour (number '12369') hotline, which is used as a nationwide channel for the public to make environmental complaints to both central and local governments as well as to local environmental protection bureaus. The 12369 public complaint platform can also be accessed online at the Ministry of Environmental Protection's website.

Corporate environmental credibility disclosure

This is an information disclosure platform for making information on corporate environmental performance available to the public and financial institutions. As early as 2008, the Ministry of Environmental Protection and the China Bank Regulatory Commission jointly adopted the Green Securities Policy, which is aimed at enhancing the environmental sustainability of business development by recommending listed companies which disclose information regarding their environmental performance. In an effort to standardize the evaluation of corporate environmental performance, the Ministry of Environmental Protection, cooperating with the National Development and Reform Commission, the Bank of China and the China Bank Regulatory Commission, adopted the Appraisal Measures for Corporate Environmental Credibility (the Trial Implementation) in 2014. The Measures provide guidance to the environmental protection bureaus at local level on how to evaluate environmental performance of corporates, encourage environmental compliance and social responsibility, and to deter and publish details of those corporates that do not comply with environmental laws and regulations. (See more details in the section on promoting and rewarding enterprises for good performance)

Kenya

Disaster reporting hotline

Kenya's National Environment Management Authority (NEMA) has established a system to manage environmental incidents by setting up an incident management and disaster prevention unit. This unit has a hotline telephone number that is manned 24 hours and which the public may use to report environmental incidents. The objective of the unit is to manage environmental incidents and hazards that may lead to disasters. The unit implements NEMA's incident management system using a risk based classification system. The duties of officers manning the unit include:

- Receiving incidents reported to NEMA by the public and others.
- Recording reported incidents in the Incidents Register.
- Classifying the incident according to the National Incident Classification Scheme.
- Allocating resources to respond appropriately to the incident.
- Closing incidents when investigations are complete or where prosecution or other enforcement action has commenced.
- Giving feedback on the results of the investigations to the person reporting the incident, unless such person has requested no further contact.

This system aims to manage environmental incidents in a longer term to ensure appropriate follow up action and improve environmental performance.

National environmental complaints committee

Kenya's National Environmental Complaints Committee (NECC) is established by the *Environmental Management and Co-ordination Act, 1999*. Its mandate is to receive and investigate complaints against any person in respect to the condition of the environment in Kenya and/or any suspected cases of environmental degradation. The NECC also undertakes public interest litigation on behalf of citizens in environmental matters. The NECC has over the years investigated several cases of environmental degradation and made appropriate recommendations for enforcement action by NEMA and other law enforcement agencies.

Thailand

Public disclosure programme

The programme "Thai Environment Truth" combines data from industrial self-monitoring and inspections reports, uses historical pollution profiles of factories, and tests for accuracy based on correlation of pollution data with treatment system and sector and parameter. The programme releases the results based on accurate information from primary data collection, processed with a reliable information system.¹⁷

The program considers the following rating criteria:

Criterion 1: Compliance with Biochemical Oxygen Demand (BOD) and total suspended solids TSS standards¹⁸

Criterion 2: Does the plant exercise effort to reduce its pollution (e.g. is there a treatment system in place or are there cleaner production efforts)?

Criterion 3: Complaints by local communities.

Criterion 4: Maintenance of records and submission of information as required by laws.

Criterion 5: The state of compliance of the plant with ISO. 14000 standards.¹⁹

India

Information disclosure

India has also experimented with environmental information disclosure and performance rating schemes to exert public pressure on non-complying industries. The Green Rating Project for the pulp and paper industry was launched in 1999 by the Centre for Science and Environment with support from the Confederation of Indian Industries. Its approach is in terms of voluntary data disclosure by companies which include data from both who participate and those who do not participate.²⁰ The exercise has achieved impressive results in terms of motivating industries to adopt environmental policies but did not get widely replicated.²¹

Citizen complaints

Citizen complaints to the Pollution Control Board PCBs are an important mechanism for triggering compliance monitoring and enforcement response. In Maharashtra, for example, between April 2004 and March 2005, citizens filed 761 complaints with respect to air (306), water (292), solid waste (31) and noise pollution (132). State Pollution Control Boards adopt different approaches to respond effectively to citizen complaints. For example, the Andhra Pradesh Pollution Control Board created a Task Force cell to respond to public complaints, conduct surprise inspections and require corrective action. In West Bengal, the public can lodge a complaint by approaching the Board office directly or by submitting a complaint on the Board's website along with the necessary accompanying information. The complaints are acknowledged, investigated and subsequently redressed during a hearing at the Pollution Control Board in the presence of both parties

18 Textile industry wastewater discharge quality standards zero discharge of hazardous chemicals programme literature review rev1 <http://www.roadmaptozero.com/fileadmin/pdf/WastewaterQualityGuidelineLitReview.pdf>

19 <http://www.buildinggreen.net/assets/cms/File/iso14001.pdf>

20 Green rating project benchmarking environment performance of Indian industry: Chandra Bhushan,

21 Associate Director; https://www.unido.org/fileadmin/user_media/UNIDO_Header_Site/Subsites/Green_Industry_Asia_Conference__Maanila_/Green_Rating_Project.pdf

Nigeria

The National Environmental Standards and Regulations Enforcement Agency has taken a number of initiatives in this regard, such as through advisory committees, document reviews, informational meetings, public fora, public reviews of environmental impact assessments, citizen monitoring and voluntary environmental corps marshals, such as the Agency Green Corps which serves as an environmental watchdog.

Tanzania

In Tanzania, every citizen have freedom of accessing publicly held information relating to the state of environment and actual and future threats to the environment including emissions to water, air or land as well as disposal and storage of hazardous waste.

In the event of a request for information being refused, the body so refusing is obliged to furnish written reasons for the refusal.

There is also a Central Environmental Information System at the National Environment Management Council (NEMC), which enables for bringing together findings, data and statistics generated by both public and private institutions in the course of environmental observance and management. The lead institution coordinates all of the activities of the team.

Environmental Public Interest Litigation

China

Environmental Public Interest Litigation (EPIL) in China permits qualified environmental non-governmental organizations (NGOs) to file litigation to protect the public interest in safeguarding the environment and natural resources from pollution and ecological destruction. Under the new amended Environment Protection Law, Article 58 sets out rules to govern EPIL. It prescribes that “only social organizations that satisfy the following two requirements may file lawsuits with the courts against acts that pollute the environment, cause ecological damage, or harm the public interest: (1) Be registered with a government civil affairs department at or above the level of a city with districts; (2) Be engaged specifically in public service activities in environmental protection for five consecutive years without any record of violation of laws.

Chinese courts can issue remedies in respect of environmental public interest litigation which include, without being limited to,: “stopping the infringement, eliminating obstructions, removing danger, restoring original conditions, paying compensation and making formal apologies”. As another initiative, a pilot programme currently underway (the Supreme People’s Procuratorate (SPP) pilot programme) allows prosecutors to initiate public interest litigation in cases of pollution, food safety, and other harms to public interests.

The Philippines

The 2010 *Rules of Procedure for Environmental Cases*, Rule II, Section 5 provides that: “Any Filipino citizen in representation of others, including minors or generations yet unborn, may file an action to enforce rights or obligations under environmental laws”. This may be done through:

- 1) The Writ of Kalikasan. This is a special remedy against environmental damage of such magnitude as to prejudice the life, health, or property of inhabitants in two or more cities or provinces.
- 2) The Precautionary Principle. This principle applies only when the link between the causes that is the human activity is sought to be inhibited, and the effect that is the damage to the environment cannot be established with full scientific certainty.
- 3) Strategic Lawsuit against Public Participation. This is a defense which an environmental advocate may raise against an action that is meant to harass, vex, exert undue pressure on, or stifle any legal recourse that such advocate has taken or may take in the enforcement of environmental laws or the protection of the environment.
- 4) Citizen suits. These give communities the power formally to request that a court suspend or halt destructive environmental and development activities.
- 5) Consent decrees. With these, a court may order a settlement among parties to avoid lengthy litigation, as well as to limit the number of cases that are filed before the court.
- 6) Environmental Protection Orders (EPOs). The courts (apart from the High Court) may also prescribe injunctive relief, in contexts where a government agency is ordered to stop performing an act that causes environmental harm, which may come in the form of ex parte Temporary Environmental Protection Orders (TEPOs), as well as long-term Environmental Protection Orders (EPOs)

In respect of Community-oriented Public Interest Litigation (PIL), sometimes also called social action, locus standi ('legal standing') means that public-spirited persons could file petitions on behalf of marginalized individuals who may not be in a position to come to court. Also, environmental groups can compel polluting industries not just to compensate the victims of their toxic wastes, but also to pay the costs of any remedial measures needed to repair the environment—a practical application of the “polluter pays principle”.

South Africa

South African environmental jurisprudential developments boast a progressive and robust environmental regulatory framework, since the adoption of the National Environmental Management Act in 1998. The *Constitution of the Republic of South Africa*, 1996 provides a framework for public participation in decision-making generally and creates the foundation from which participation in environmental decision-making is then expanded on in the *National Environmental Management Act*, 1998 (NEMA). NEMA provides for any person or group of persons to approach a court - to enforce any breach or threatened breach of any law concerned with the protection of the environment. Such litigation may be in that person's or group's own interest; in the interest of, or on behalf of, a person who is, for practical reasons, unable to institute such proceedings; in the interest of or on behalf of a group or class of persons whose interests are affected; in the public interest; and in the interest of protecting the environment. Participation of all interested and affected parties in environmental governance must be promoted and decisions must be taken in an open and transparent manner. Access to information must be also be provided in accordance with the law.

India

Public interest litigation on environmental matters has a long history in India. Indian citizens benefit from a unique approach for enforcing environmental law by exercising a constitutional right to a healthy environment before the Supreme Court and the High Courts. The Constitution of India, provides that “No person shall be deprived of his life or personal liberty except according to procedure established by law”, but this has been interpreted by court decisions to include (inherently) the right to a healthy environment, free of the danger of disease and infection.²²

As detailed in Section 3.1, however, although Public Interest Litigation has advanced India’s environmental agenda and resulted in some environmental improvements, it has resulted in more work for Pollution Control Board (PCBs) because of court-ordered directives and ultimately contributed to confusion in their compliance and enforcement efforts.

Ghana

Public disclosure acts as the third pillar of Ghana’s environmental regulatory system. Through disclosure of environmental performance ratings of companies, the Environmental Performance Rating and Public Disclosure Programme (AKOBEN) AKOBEN uses public pressure to motivate companies to follow environmental regulations and improve environmental performance. AKOBEN Environmental Performance Rating and Public Disclosure programme will be introduced in the next section on page 39).

2.5 Promoting and rewarding good compliance

To encourage and enhance environmental compliance, many countries have promoted and rewarded good environmental performance, at the same time to name and shame companies that have bad environmental performance.

China

To encourage compliance with environmental law, China has introduced various enterprise appraisal systems at the national, provincial and local levels as well as in specific sectors over the past years. For example, at the national level, these include listings of National Excellence Enterprises for Environmental Protection, National Excellence Units for Energy-Saving, National Advanced Enterprises for Environmental Protection and National Advanced Enterprises for Public Health. The Ministry of Chemical Engineering has a listing of Clean and Civilized Enterprises. At the city level, cities such as Beijing and Shanghai list Garden Enterprises. Shenyang has the Best Environment Enterprises and the Top Ten Worst Environment Enterprises appraisal initiatives.²³

22 K. Priyadarshini & O.K. Gupta, ‘Compliance to Environmental Regulations: The Indian Context’ (2003) 2:1 International Journal of Business and Economics.

23 Government of India, ‘Environment Protection under Constitutional Framework of India’, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=105411> (4 June 2014).

In some provinces, the compliance performance rating system is used by the banks as a guide for granting loans to individual enterprises. For instance, Jiangsu Province considers itself as a leader in granting loans to enterprises based on the rating of their environmental compliance performance.²⁴

As a measure to standardize the evaluation of corporate environmental performance, the Ministry of Environmental Protection, in conjunction with the National Development and Reform Commission, the Bank of the China and China Bank Regulatory Commission, adopted *the Appraisal Measures for Corporate Environmental Creditability (the Trial Implementation)* in 2014. The Measures provide guidance to the environmental protection bureaus at local level on how to evaluate environmental performance by corporates, encourage environmental compliance and social responsibility, and deter and publish those corporates that do not comply with environmental laws and regulations²⁵.

Ghana

Ghana's Environmental Performance Rating and Public Disclosure Programme (AKOBEN), as mentioned in the previous section on public information disclosure, is an environmental performance disclosure initiative by the Environmental Protection Agency. It is also a corporate environmental performance rating programme that helps promote compliance with the national environmental regulations by companies.

Under the AKOBEN initiative, the environmental performance of a mining and manufacturing company is assessed using a five-colour rating scheme which represent five specific levels of environmental performance. These colours are GOLD, GREEN, BLUE, ORANGE and RED, representing the best to the worst performance range. ORANGE and RED ratings pertain to regulatory compliance only, and accordingly these colours indicate the performance of a manufacturing company relative to the mandatory national regulatory requirements related to environmental issues and the reclamation bond. In comparison, the GOLD and the GREEN ratings indicate the quality of social and community initiatives undertaken by manufacturing companies to further enhance its environmental and social performance.

The highest level of performance—a GOLD rating—goes beyond the requirements of formal regulations and it signifies that a mining and manufacturing company applies international best practices for environmental management and properly follows its corporate social responsibility policies. In contrast, the worst possible rating a manufacturing company could get is a RED rating which is assigned to those sites that do not have a valid permit or certificate as per an environmental management plan as outlined in the Environmental Assessment Regulation LI 1652. A company could also get a RED rating if its discharges toxics and its hazardous waste management practices cause serious risk to physical or human environments.

24 <https://www.oecd.org/env/outreach/37867511.pdf>,

25 <https://www.oecd.org/env/outreach/37867511.pdf>

The three intermediate rating categories are GREEN, BLUE and ORANGE. The GREEN rating signifies that a mining and manufacturing company has excellent environmental compliance, it applies environmental best practices and is responsive to public complaints but there is room for improvement regarding the implementation of its social responsibility policies. A BLUE rating is also sign of good environmental performance showing that a mining and manufacturing site has complied with the mandatory environmental regulatory requirements. Failures to meet the operational regulatory requirements related to environmental emissions and ambient quality could demote a mining and manufacturing site to an ORANGE—an unsatisfactory rating. And if the violations are severe and create a credible risk of damage to the environment or the humans, the environmental performance of a mining and manufacturing company could be downgraded to a RED level, which indicates a poor environmental performance.

The following table shows the methodology for evaluating mining companies.

Rating Level	Performance	General Description
RED	POOR	Has not fulfilled the requirement of L1 1652, and creates risks from toxics and hazardous wastes mismanagement and discharges.
ORANGE	UNSATISFACTORY	Exceedence of regulatory standards for conventional pollutants, non-toxics and noise pollutions
BLUE	GOOD	Edequate compliance with environmental standards
GREEN	VERY GOOD	BLUE + company is responsive to public complaints
GOLD	EXCELLENT	GREEN + company follows its corporate social responsibility policies

These ratings are then disclosed to the public and the general media on a day set aside and also posted on the Ghana EPA Website (www.epa.gov.gh). Some of the high performing companies use the ratings as a marketing tool.

Indonesia

Indonesia launched the Programme for Pollution Control, Evaluation, and Rating (PROPER) to enhance enforcement of environmental law in 1995. It is a national-level public environmental reporting initiative and an innovative attempt to mitigate the problems associated with pollution under the umbrella of the Government of Indonesia’s Environmental Impact Agency (the Agency). The objective of this novel regulatory tool is to promote industrial compliance with pollution control regulations and to ensure a better environmental management system. This program is built on the premise that the mechanisms of public disclosure and accountability, transparency in operations, and community participation will empower local communities to achieve effective and sustained pollution control practices.²⁶

26 Environmental Performance Rating and Disclosure: China’s Green Watch Program <http://siteresources.worldbank.org/NIPRINT/Resources/EnvironmentalPerformanceRatingandDisclosure.pdf>

The program uses a color-coded rating to grade factories' environmental compliance performance against the regulatory standards. The rating system is based on five colors—gold, green, blue, red, and black (see the table below).

Methodology Mining: Color Code requirements		Below cut-off point on even on gets a RED	Below cut-off point on even on gets an ORANGE	Must meet the benchmarks for all applicable rating categories to get a BLUE, GREEN or GOLD		
Rating Category		RED	ORANGE	BLUE	GREEN	GOLD
1	Legal	<100%	N/A	=100%	=100%	=100%
2A	Hazardous/toxic wastes-on-site management	<100%	N/A	=100%	=100%	=100%
2B	Compliance rate-toxic discharges	<98%	N/A	≥98%	=100%	=100%
3	Compliance rate-non-toxics and noise pollution & vibrations	N/A	<75%	≥75%	≥90%	=100%
4	Monitoring and reporting rate	N/A	<75%	≥75%	≥90%	=100%
5	Best practices-environmental management	N/A	<75%	≥75%	≥90%	=100%
6	Complaints management	N/A	N/A	N/A	≥90%	=100%
7	Corporate social responsibility	N/A	N/A	N/A	N/A	=100%

These colors correspond to the different levels of performance in terms of pollution control. Gold is awarded to facilities that demonstrate excellent performance by going beyond the requirements of regulatory standards, and also by exhibiting similar results in control of air pollution and hazardous waste. Green implies that the factories' environment management procedures go beyond the expected compliance level, while Blue signifies compliance with national regulatory standards. Red indicates poor performance, in which the factories do not fully comply with the regulatory standards. Black ranks lowest in performance. Factories are assigned black if they do not make any attempt to control pollution. The incentive associated with factories rated gold and green is public praise, which would enable them to gain a competitive edge in the market, whereas the deterrents for factories rated blue, red and black are public pressure and legal enforcement.

PROPER has had a significant effect in shifting factories from noncompliance to compliance. Over two years (June 1995–March 1997), the compliance level of the pilot program factories, selected from the three river basins, increased from 35 percent to 51 percent.

PROPER has also contributed to voluntary participation by factories in conducting compliance ratings and has increased awareness regarding environmental issues. Additionally, PROPER helped promote an integrated control system of nongovernmental organizations, local community groups, the Government of Indonesia's Environmental Impact Management Agency (Agency), and the media. Finally, PROPER exerted pressure on the Agency to improve its rating methodology and refine its process to ensure that its ratings are trustworthy for initiating action against non-compliance.

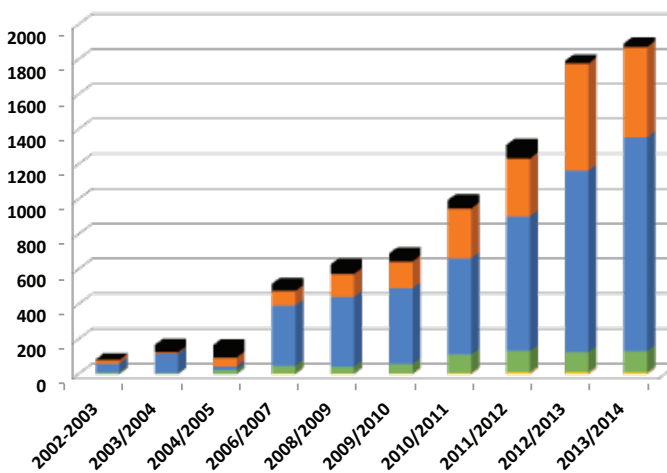
In the pilot study conducted in early June 1995, BAPEDAL rated 187 plants, including medium- and large scale polluters from several river basins on the islands of Sumatra, Java, and Kalimantan.

Level of Compliance	Rate	Performance Evaluation Criteria		Type of Compliance
		Area	Method	
Beyond Compliance	Gold	Environmental Management System	Process / Effort Oriented	Voluntary
	Green	Natural and Waste Utilization (3R)		
		Corporate Social Responsibility		
Comply	Blue	Marine Pollution Control	Result Oriented	Obligatory
Not Comply	Red	Water Pollution Control		
		Air Pollution Control		
	Black	Hazardous Waste Management		
		Environmental Impact Assessment Implementation		

By 1998, the program expanded to cover 350 factories. There are currently 28 sectors and 14 provinces covered by PROPER nationwide²⁷

The public disclosure process incorporates three distinct steps: data collection and verification from different sources at the participating plants, data analysis, and assigning ratings with subsequent public disclosure. The performance rating process includes the following steps: select the polluters; gather data through mail surveys; verify and inspect plants; develop a pollution database; analyze and verify data at the Agency; obtain rating from the advisory board; obtain rating approval from the Environment Minister; report ratings to the President, and finally; release the information to the press

NUMBER OF MONITORED COMPANIES VIA PROPER (2002-2-14)



Source : MOEF, Indonesia

27 http://siteresources.worldbank.org/INTEMPowerment/Resources/14825_Indonesia_Proper-web.pdf.

Key elements of empowerment include: 1) access to information – by ensuring high-quality, reliable information, BAPEDAL has succeeded in empowering the community to help environmental protection through greater awareness about the poor performance of the firms and the environmental threat they pose; 2) inclusion and participation – the transition from a single regulatory body to a collaborative regulatory mechanism has resulted in giving a substantial degree of responsibility to the community stakeholders including local community groups, NGOs, and the media; and 3) accountability - the information disclosure strategy has led to good governance practices by integrating the efforts of the community groups, NGOs, the media, and the Agency. This strategy has been operationalized as a process of imposing accountability on both the regulators and the regulated.

Kenya

In Kenya, the National Environment Management Authority (NEMA) and Kenya National Cleaner Production Centre (KNCPC) have since 2013 run a joint programme on compliance promotion and assistance towards meeting laid down environmental requirements – this has targeted various industrial enterprises within the Lake Victoria Basin and the Nairobi River Basin. The programme addresses industrial pollution challenges in relation to consumption of resources in manufacturing processes and promotes resource efficiency. The idea is to encourage voluntary compliance with environmental requirements by demonstrating (in a practical way) to the enterprises that they can (by applying cleaner production technologies and techniques) increase the competitiveness of their businesses through waste reduction and resource optimization.

The programme entails generating pollution intensity baselines from target enterprises, developing informational materials and quick guides, conducting industry training on applicable pollution prevention laws, regulations, standards and resource efficiency and cleaner production technologies and techniques; conducting in-plant assessments and recommending improvement measures for compliance and beyond-compliance; and developing monitoring and evaluation systems. The object of these efforts is to measure successfully the results/outcomes of compliance assistance activities per enterprise.

The Programme has been a major success with many industrial enterprises voluntarily participating. There has been marked voluntary compliance with environmental requirements without the need for inspection or other enforcement actions, and most of the industrial enterprises continue to report increased revenues due to waste reduction and resource efficiency in their production processes.

Tanzania

Environmental performance bond

The *Environmental Management Act* 2004 provides for the situation that all of the activities or processes which threaten the environment of which environmental performance bond/deposit may be required and deposited to the National Environmental Trust Fund to act as security for good environmental practice until it's refunded to the operator upon the satisfaction of the conditions set by the Minister responsible for Environment. The deposit shall be confiscated in

whole or in part when it has been satisfied that an operator's practices violate the provisions of the EMA, including the conditions of any certificate, license or permit issued under it. Upon confiscated, it shall be used by the Trust to rehabilitate a degraded environment.

But also, the sectoral Ministries can have got their own arrangement of the same nature in accordance with their specific legal and regulatory requirements. For example in the forest sector, in case you want to perform any permitted activities in a forest reserve, you must remit a certain amount of money to act as a performance bond.

The Philippines

The Industrial Eco-Watch program is a public disclosure program of the Department of Environment and Natural Resources (DENR). The program aims to promote mandatory self-monitoring and compliance among industries by encouraging pollution reduction beyond compliance through public recognition and praise, and creating incentives for industrial compliance to environmental laws.

- The Eco-Watch program makes use of color codes to rate the environmental performance of industries. There are six color codes namely Gold, Silver, Green, Blue, Red and Black. Industries are rated Gold or Silver for environmental efforts that go beyond legal requirements. Other ratings include Green or Blue for sufficient efforts to comply with Department of Environment and Natural Resources (DENR) standards, Red for insufficient effort to abide by environmental regulations and Black for companies that make no effort to improve their compliance. For the initial implementation, water quality is monitored and the parameters for consideration are: Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS).

Rating	Criteria	Performance Indicator	
GOLD	<ul style="list-style-type: none"> SILVER rating for the past 2 years in all media; EMS or waste reduction program in place; and Community environmental outreach program in place 	Efforts beyond legal requirements	
SILVER (Excellent)	<ul style="list-style-type: none"> The firm meets all the DENR requirements; GREEN rating in the previous rating; and Clean technology, energy & water conservation program in use. 		
GREEN (Very good)	<ul style="list-style-type: none"> Meets all DENR requirements; BLUE rating in the previous rating period; Effluents/emissions better than standards by 20%; Well-functioning monitoring equipment e.g. Flow meter/CEMS; and Easily accessible discharge/emission point/s. 	Effort level sufficient to comply	
BLUE (Good)	<ul style="list-style-type: none"> Pollution level of effluent/emission is within standards within the rating period of one year; Well-maintained pollution control facility/system; Self-monitoring report (SMR) complete and accurate; Shall submit within fifteen (15) calendar days after the end of each quarter Full compliance with ALL DENR regulatory requirements 		
RED (Bad)	Failure to comply with effluent/emission standards despite presence of fully-operational pollution control devices	Effort not sufficient for compliance	
BLACK (Very Bad)	<ul style="list-style-type: none"> Failure to comply with effluent/emission standards; Discharges toxic and hazardous waste beyond allowable limits; Under a Cease and Desist Order (CDO); Willful manipulation of effluent discharge or air emissions/misrepresentation or falsification of report/s; Absence or lack of required pollution control device/s; Inaction to an existing and legitimate complaint; and Obstruction of inspection activities. 	No effort to comply	
Total no. of firms rated			
Number of sectors			
	Accidental disclosure	No. Public disclosure	No. public disclosure

2.6 Partnerships with Business

More and more growing importance is being given to compliance promotion and to engage the regulated community to self-monitor and report their rates of compliance with environmental law and regulations. This has become a more efficient, even a “win-win”, solution to increase compliance with environmental requirements, not only in the OECD countries but also gradually in some developing countries.

China

Industrial self-monitoring and information disclosure

As a form of integrated enforcement, in 2014, the Ministry of Environmental Protection (MEP) issued *the Measures for the Self-Monitoring and Information Disclosure by the Enterprises subject to Intensive Monitoring and Control of the State (for Trial Implementation)*. These measures, together with new requirements for pollution source monitoring under *Article 55* of the new *Environmental Protection Law* (2014), require enterprises on the list of key state-monitored enterprises to report in real time their emissions data for air and water pollutants. This information must also be published and available to the public.

Article 55 of the new Law also specifically requires that key pollutant-discharging enterprises must install and use their own pollutant monitoring equipment according to national regulations and guidelines, and must disclose all original monitoring records. The new law also contains provisions requiring key pollutant-discharging enterprises to establish environmental management systems, apply for a license to discharge certain pollutants, and follow control indicators of total emissions of key pollutants as allocated to them.

Serious legal consequences ought to follow for those who make fraudulent reports. The new *Environmental Protection Law* (2014) allows environmental authorities to give managers administrative detention if they falsify data. The Ministry of Environment Protection also issued the *Measures for Determination and Handling of Environmental Monitoring Data Fraud* in 2015, which provide a framework for local environmental protection bureaus to crack down on environmental data fraud resulting from interference with pollution monitoring equipment and the falsifying of data records. Furthermore, under the judicial interpretation issued by the Supreme People's Court in 2016, tampering with or falsifying results from environmental monitoring equipment is deemed to be a serious crime.

ISO 14000 and other mechanisms

Some businesses have applied modern approaches to limit their environmental impacts, including cleaner production, ISO14000 environmental management standards, and eco-labeling. Environmental enforcement agencies have adopted some concrete measures for compliance which include: a) granting certificate to products produced by businesses with sound environmental performance; enhancing influence and market recognition of environmental rewards so as to link products to environmental protection; b) strengthening education and publicity to encourage green consumption, making business environmental performance a consideration in the purchase

of a product; encouraging purchase of products from businesses with good environmental performance levels; c) enhancing rights awareness, particularly in the vicinity of businesses; and setting up environmental supervision teams to conduct consultation with businesses, with the participation of enforcement agencies, to achieve improved compliance on the part of such businesses.

Industry is required to provide reports on their pollutant discharges. The reporting frequency is usually annual but can be increased by some local environmental protection bureaus, such as to be required quarterly for better supervision of their environmental performance and pollution control targets. For example, in Jiangsu Province, continuous monitoring facilities are installed in large enterprises. Their monitoring equipment is licensed every year by an official monitoring station to ensure its proper functioning. A company's environmental specialist is also licensed by the Jiangsu provincial environmental protection bureau, so that he/she can endorse the company's self-reporting forms for them to be accepted by the local administration. Most small and medium-size enterprises do not have their own monitoring equipment and hire state-owned or private monitoring service providers to take measurements and then report the data to their local environmental bureaus. All monitoring facilities of the government, trade associations, and individual enterprises, as well as their staff must be certified by the State Quality and Technology Supervision Administration. Personnel of an official monitoring station conduct regular and unannounced inspections of these monitoring service providers for quality assurance²⁸.

Industries in China are improving their environmental management practices, in the face of increased pollution, increased awareness of the effects that pollution has, and increased awareness from the side of government. Companies have begun to adopt cleaner technologies, higher standards, and better labeling practices – and industries are increasingly being required to provide information on pollutant discharged to both the national Ministry of Environmental Protection (MEP) and to local Environmental Protection Bureaus (EPBs), usually annually but occasionally even quarterly (the shorter the reporting intervals, the better the supervision that is possible).

An example much recounted is that of Jiangsu province on the coast in eastern China, where a form of self-monitoring is reportedly followed by some large companies, through continuous monitoring facilities being installed in their factories. To ensure proper functioning, the monitoring equipment is licensed every year by an official monitoring station. The company's self-reporting forms, submitted to the local administration, may also be endorsed by its internal environmental specialist, if this person has been licensed by the Jiangsu provincial EPB. Smaller enterprises often hire either state-owned or private monitoring service providers to take measurements and report the data to the local EPB. All monitoring facilities, and relevant staff, must be certified by the State Quality and Technology Supervision Administration. Regular, unannounced inspections are made of these self-monitoring schemes.²⁹

28 http://siteresources.worldbank.org/INTEMPowerment/Resources/14825_Indonesia_Proper-web.pdf.

29 Controlling Industrial Pollution, Shakeb Afsah, Benoît Laplante, David Wheeler, <http://web.worldbank.org/archive/website01004/WEB/IMAGES/MULTI-25.PDF>

Ghana

Under *Act 490* of Ghana, the companies are required to conduct self-monitoring of the conditions and requirements set out in the environmental permits. An environmental permit is valid for 18 months effective from the date of issue. Before it is renewal, the company will have to submit an Annual Environmental Report, which will be reviewed by the Environmental Agency, part of the review process is a site verification of information in the report before an Environmental Permit is renew.

The Philippines

Non-compliance technical conference

The Environmental Management Bureau (the Bureau) has practiced an administrative enforcement procedure, which requires working closely with a project proponent when receiving a complaint. The Bureau conducts field validations, site inspections and verifications in order to validate the complaint. Within 72 hours, the Bureau sends to the proponent a Notice of Alleged Violation or Notice of Adverse Findings, and requests an official reply giving reasons “why the proponent should not be penalized”. The case handler may call for a technical conference to clarify issues and to request additional information. The purposes of the technical conference are to provide an opportunity to the project component to explain why there is non-compliance, to simplify the procedure, and to clarify the facts. It also aims to determine fines (at least on a tentative basis), and to obtain a commitment from the respondent to abate or mitigate the pollution complained of, including implementation of appropriate remedial measures within a period as agreed (but not exceeding 90 days). The commitment needs to be signed by the respondent or by its managing head.

If the proponent fails to attend the technical conference, the case is deemed to be submitted for decision. The case handler then drafts and issues the Case Decision Document to the proponent. For a non-compliant proponent, the Bureau then issues a Notification of Violation and an Order of Payment. For a compliant proponent, the Bureau issues a letter of clearance.

Environmental partnership programme

There are two tracks or categories of companies participating in the Philippines Environmental Partnership Programme. These are:

Track 1 - Large companies with proven or demonstrated superior environmental performance that go beyond compliance and are driven by competitiveness, image, and supply chain requirements to improve their performance (generally these are large companies).

Track 2 - Companies that are currently unable to comply with regulations and are driven by survival needs (generally these are small and medium-sized business enterprises).

Colour Code		Sanction	Incentives
Red	Black	<ul style="list-style-type: none"> Filing of appropriate case/s in the Pollution Adjudication Board (PAB) for violation/s of applicable guidelines on environmental standards; For firms with accredited Pollution Control Officer(PCO), the investigation of responsibilities or culpabilities of the PCO concerned and the application of administrative sanctions upon conclusion of the investigation; and For firms without accredited PCO, the filing of case/s in the PAB for violations of DAO26. 	<ul style="list-style-type: none">
Blue			<ul style="list-style-type: none"> Shall be allowed to submit its quarterly SMRs on a semi-annual basis;
Green		<ul style="list-style-type: none"> Regular permit renewal shall only be based on said SMR submission for two (2) consecutive years. 	<ul style="list-style-type: none"> Shall be allowed to submit its quarterly SMRs on annual basis; and;
Silver		<ul style="list-style-type: none"> Regular permit renewal shall only be based on said SMR submission for three (3) consecutive years; and When applicable, the DENR Official Seal of Approval (as provided for in Section 5.1.1 of Dao 2003-24) shall indicate the rating. 	<ul style="list-style-type: none"> Shall be allowed to submit its quarterly SMRs on an annual basis;
Gold		<ul style="list-style-type: none"> Regular permit renewal shall only be based on said SMR submission for five (5) consecutive years; and 	<ul style="list-style-type: none"> Shall be allowed to submit its quarterly SMRs on annual basis; When applicable, the qualified firm may also avail of Regulatory assistance and Other assistance as provided for in Section 5.1.2 to 5.1.5 of DAO 2003-14 (PEPP).

Thailand

The Thai Environmental Compliance Assistance Center (the Center), established in 2006, encourages regulated business owners to comply with environmental laws. The Center has established a network between assistance providers and business owners in order to enhance compliance with environmental law. It is expected that this will increase the number of business owners who comply with the environmental laws on their own. The Center started with a pilot project in the pig farm sector and has now expanded to other sectors and 16 regional environmental offices.

The outcome of the environmental compliance assistance programme is increased numbers of business owners complying with environmental law

Vietnam

To meet the requirements of the global supply chain, many companies have increasingly established their environmental management systems and corporate social responsibility mechanisms in Vietnam. To encourage the establishment of environmental management systems by such companies, the Ministry of Natural Resources and Environment has developed a *Circular on Certification of Environmental Management Systems*, 2016. *The Circular* specifies and defines the detailed procedures required to be followed, and the process for the certification of environment management systems. Vietnam's Environment Administration shall be responsible for disclosing publicly the list of the entities granted environment management system certificates on its Environment Protection Journal and through its Portal at: <http://vea.gov.vn>.³⁰

India

Self-monitoring and reporting

According to the national Environmental (Protection) Rules of 1986, each polluting facility must submit an Environmental Statement at the end of each financial year (April through March). The Environmental Statement should include the following information:

- water and raw material consumption;
- air and water pollution discharged by parameter (average daily quantity and concentration as well as percentage of variation from the prescribed limits);
- hazardous waste generation (total quantity from the production process and pollution control installations) and methods of disposal;³¹

Charter on corporate responsibility for environmental protection

One voluntary initiative aimed at reducing industrial pollution is the Charter on Corporate Responsibility for Environmental Protection. In 2003, the Ministry of Environment and Forest and the Central Pollution Control Board, in consultation with industry, launched the Charter to promote waste minimization and adoption of clean technologies. Eight task forces comprising representatives of the Ministry, the Board, State Pollution Control Boards, industry associations and experts monitor implementation of the Charter. The Charter recognizes that some of the 17 category sources were not in compliance with all requirements and set new industry sector-specific compliance dates. As part of this process, non-complying facilities submitted bank guarantees (see Section 3.6) with their action plans.³²

30 See <https://www.oecd.org/env/outreach/37867511.pdf>, page 38.

31 183 [172] OECD, *Environmental Compliance and Enforcement in China: An Assessment of Current Practices and Ways Forward*, (2006), <https://www.oecd.org/env/outreach/37867511.pdf>.

32 <http://vea.gov.vn>.

33 *Environmental Compliance and Enforcement in India: Rapid Assessment*; page 17. <https://www.oecd.org/env/>

2.7 Others

Provision of sectoral technical guidelines for compliance

China

To promote environmental compliance by industries, the Ministry of Environmental Protection has developed and circulated various technical guidelines for monitoring, including electrolytic manganese, paper mills, power plants, electric plating, lead battery, copper smelting, lead smelting, coking, livestock and poultry breeding. In addition, the compliance guidelines are also developed for the following sectors: cement, power plants, paper mills, livestock and poultry breeding, and electrolytic manganese.

To ensure environmental compliance, the environmental quality standards exist for air quality, ambient noise quality and effluent discharges. These were developed from guidelines which were tested over a period of time. Authorities develop a series of sectorial specific guidelines for effluents of all environmental activities. Project proponents are required to incorporate these standards into the design and planning of their projects and to ensure compliance in the operations. The Agency also applies these standards in the review of environmental assessment reports, environmental management and monitoring reports. They are also integrated into environmental permits as conditions. Failure to comply with these standards attract sanctions

Compliance assistance information

Ghana

A National Action Plan for Cleaner Production has been adopted by the Ministry of Environment and Forestry to help industries develop and adopt cleaner production technologies. The Central Pollution Control Board provides targeted technical assistance to the regulated community by developing and distributing industry-specific technical documents for major industries, including the Comprehensive Industry Document Series, Resource Recycling Series, and Information Manual on Pollution Abatement and Cleaner Technologies Series. These documents provide industry-specific descriptions, best practices and opportunities for pollution prevention and waste minimization. According to the Pollution Control Boards, the Central Board technical documents target primarily large industry and do not address compliance promotion among SMEs. None of these documents provide the regulated community with summary information about regulatory requirements.

National Cleaner Production Centre

The UNIDO/UNEP Programme for the National Cleaner Production Centres is a unique programme of capacity development to help achieve adoption and further uptake of the cleaner production concept at the national level.

In Ghana a National Cleaner Production Centre has been legally established since 2012 as an autonomous institution playing a significant role in promoting Sustainable Consumption and Production as well as the adoption of cleaner production technologies in industry. This is one of

the compliance promotion tools being promoted by the EPA to ensure sustainable environmental management in Industry. The National Cleaner Production Center is working with industry to systematically identify opportunities for conserving raw materials and energy, eliminating toxic materials and reducing the quantity and toxicity of all emissions and wastes. The Centre promotes the adoption of cleaner production technologies through:

- Awareness creation of the applicability of Cleaner Production to any industrial sector of the country, resulting in economic as well as environmental benefits;
- Training and providing Technical Information including In-plant Cleaner Production assessments; and
- Providing policy advice to national and local governments.

National enforcement guideline

Nigeria

The *National Environmental Enforcement Guideline 2017*, which replaced and enriched the Environmental Enforcement Policy in 2010. The scope of this new document has been broadened to provide a better understanding of the legal implications of compliance monitoring and enforcement bearing in mind the best environmental practices in other countries.

It explains the actions to be taken to ensure compliance; the various enforcement procedures; the types and methods of enforcement; as well as the benefits of cooperation and collaboration in effective environmental enforcement. The new *National Environmental Enforcement Guideline* will promote good environmental governance through better enforcement practices and procedures, which will assist in ensuring a sound environmental control regime for achieving a cleaner and safer environment for all. It will also inspire public confidence in our enforcement programmes.

This Guideline covers matters relating to Purpose, Guiding Principles, Types and Methods of Enforcement, Guidance on Enforcement Actions, Actions to ensure Compliance, Cooperation and Collaboration, as well as a glossary of terms. The changes brought into the new enforcement guideline include the following areas:

Guiding principles

Achieving sustainable development and environmental protection are guided the following overarching principles:

- (a) Precautionary Principle – Where there are suspicious threats of serious or irreversible damage to the environment, lack of full scientific certainty shall not be used as a reason for postponing cost effective measures to prevent environmental degradation.
- (b) Polluter Pays Principle – Those responsible for environmental damage must be held liable for the repair caused both to the physical and human environment.
- (c) Inter-generational equity – Every person has the right to live in an environment adequate to his or her health and well-being, and in association with others, to protect and improve the environment for the benefit of present and future generations.

- (d) Participatory Principle – Citizens are entitled to participate in decision-making and have access to information and justice in environmental matters.

The enforcement activities are guided by the following enforcement principles:

- i. Proportionality
- ii. Consistency
- iii. Targeting
- iv. Transparency
- v. Accountability

Action to ensure compliance

Actions to ensure compliance include:

- i. Compliance Awareness;
- ii. Compliance Monitoring;
- iii. Compliance Incentives; and
- iv. Compliance Assistance (technical and advisory)

Enforcement actions

The factors that need to be considered in determining how to respond to a violation and what enforcement action to be taken include: the nature and severity of the harm done; the applicable law; the integrity of the regulatory system; and aggravating or mitigating circumstances.

Types and Methods of Enforcement

- Administrative Enforcement;
- Civil Enforcement; and
- Criminal Enforcement.

Administrative Enforcement

This includes institutional coordination and collaboration, inspection and monitoring, public awareness and engagement. Administrative measures which fall within the scope of this Guideline include:

- requiring a person or organization to take a particular action;
- formal advisory or warning letters requiring future compliance;
- varying, or imposing further conditions on permits, licenses or approvals;
- suspending, revoking or cancelling permits, licenses or approvals;
- Orders to correct a contravention; and Forfeiture of items (e.g. illegal specimens).

What are the elements of administrative enforcement measures?

Administrative measures may include:

- Warning letters;
- Awareness and educational messages;
- Requiring a person to take a particular action;
- Formal advisory or warning letters requiring future compliance;
- Infringement notices;
- Varying, or imposing further conditions on permits, licences or approvals;
- Suspending, revoking or cancelling permits, licences or approvals;
- Requiring environmental impact assessment reports;
- Retaining bonds or securities lodged as a condition of permits, licences or approvals, to remediate any harm caused by a violation;
- Directed environmental audits;
- Conservation or other agreements to compensate for the contravention or to prevent future contraventions;
- Enforceable undertakings;
- Orders to correct a contravention; and
- Forfeiture of items (e.g. illegal specimens).

What options are available if administrative enforcement action fails?

If administrative action does not achieve its goal the regulatory authorities may pursue other enforcement actions such as civil or criminal enforcement actions.

Civil Enforcement

Civil enforcement refers to a set of actions that can help a regulatory authority, persons or organizations to use civil or alternative remedies to ensure compliance with, and enforcement of, environmental regulations, standards etc.

Civil enforcement options range from court orders (injunctions, claim for compensation for damages) and Alternative Dispute Resolution (ADR) mechanisms, etc.

Applications for Court Orders are generally appropriate in circumstances where there has been a major or serious breach of the law or regulations. Such orders may include actions to suspend activities or seal a facility where there is likely to be, or has been a major or serious breach of the legislation causing environmental damage.

Criminal Enforcement

Criminal enforcement is generally used when a person or a facility has knowingly or willfully committed violations of the law.

Cost recovery as an enforcement action

One of the fundamental principles of environmental protection is that the polluter must pay. Those who violate environmental laws shall pay for society's costs in responding to those violations. These costs include expenses incurred by the regulatory authorities in taking action to end or control pollution or address non-compliance in situations that include the following:

- investigating the offence resulting in the notice of intent to serve the penalty being issued;
- assessing representations made including any assessment of financial benefit;
- carrying out further investigatory work after the notice of intent but before the penalty is imposed;
- administering the imposition of the penalty;
- cleaning-up contaminated area; and
- any legal or other advice obtained as part of that process.

These costs are in addition to any damages to the environment that the regulatory agency is also authorized to recover. While compliance and enforcement work is not expected to be self-supporting, for many reasons these costs should be recovered to the extent possible.

In addition, third parties may be damaged and may seek recovery of economic damages. While the regulatory authorities may not be a party in third party damage actions, the regulatory authorities may have documents sought by the parties involved and will make them available according to the law.

The regulatory authorities are responsible for the general oversight of environment and natural resources operations in the country, and the cost of these activities are reasonably paid through a number of sources. Where violations exist, however, the additional costs associated with those violations are to be tracked and recovered. This includes:

- follow-up site visits and inspections;
- employee efforts in preparing enforcement actions; and
- support for litigation.

Cooperation and collaboration

Cooperation and collaboration are essential tools in the enforcement of environmental standards and regulation in Nigeria. The benefits of cooperation and collaboration include:

- a. Enhancement of enlightenment and awareness;
- b. Increase in voluntary compliance;
- c. Reduction in duplication of efforts and institutional/intergovernmental conflicts;
- d. Minimization of wastage of resources;
- e. Ensuring better enforcement results;

- f. Creation of adequate intelligence and information sharing;
- g. Promoting of participation in environmental decision making; and
- h. Attracting of technical assistance, advisory services and funding.

In order to achieve coherent environmental enforcement, bearing in mind the benefits of cooperation and collaboration, it is necessary for the regulatory authorities to partner with relevant Ministries, Departments and Agencies (MDAs) at the Federal, State and Local Government levels, law enforcement and security agencies, International Community, Development Partners, the private sector, the Media, the Academia, and relevant professional bodies, as well as Civil Society Organizations (CSOs), for effective enforcement mechanism.

Checklist on enforcement action

	Restore/remediate harm	Secure compliance	Stop harm/ reduce risk	Deter future non-compliance	Remove financial benefits
Advice and guidance	✓	✓			
Notification of compliance concerns	✓	✓	✓	✓	
Final notification letter					
Suspension/ sealing order	✓	✓	✓		
Civil actions	✓		✓	✓	✓
Criminal Sanctions	✓				

2.8 Challenges

Despite various innovative and integrated actions taken by different countries, compliance with and enforcement of environmental law remain relatively weak in many countries. The following are identified as key challenges for effective compliance and enforcement:

- Readiness of regulatory bodies to enforce all sectors.
- Decentralization i.e. multiple agencies regulating with different mandates, laws etc.
- Transparency in self-compliance and enforcement; low information disclosure, violations, PIL, state of environment (lack of baseline information at source levels) therefore the public cannot access accurate information in regards to the environment.
- Revenue consideration in permitting systems overrides environmental protection i.e. competition amongst regulators in the collection of revenue.
- Challenge of linking all the integrated permit systems together i.e. it's not working in some countries.
- Does the regulated community have knowledge or are they aware of what is expected of them i.e. requirements to be issued a permit.

2.9 Recommendations

- Strengthening public interest litigation so as to assist in compliance and enforcement monitoring. Government should assist and promote efforts in initiating public interest litigation i.e. providing advocates/lawyers. Involvement of NGOs in financing PIL.
- Create a one stop shop (centralized centers) or other mechanisms in the issuing of all the relevant permits in regards to environmental protection. This will reduce the burden on the regulated community in being compliant to all the environmental laws and regulations.
- Special rules and regulations for environmental cases i.e. ombudsman system.
- Command center/ center of excellence on environmental enforcement with the objective of collaboration on information center, effective decision, state of enforcement report.
- Promote compliance and enforcement guidance/assistance i.e. developing sector specific guidelines which can be published in pamphlets or software (online information centers).
- Information disclosure and access and public participation are key to effective compliance and enforcement.

Chapter 3: Calculation and Compensation of Environmental Damage

3.1 Introduction

Environment compensation is a form of charge paid to offset or mitigate adverse effects or losses arising out of polluting or damaging actions on the environment, or destruction of land, plants or animals. There is no uniform practice for calculating environmental damage and compensation, which remains a difficult issue for judicial bodies in their daily adjudications.

The legal character of liability for compensation for environmental damage is often found in countries' civil, tort or environmental laws. More recently, it becomes a subject of specific laws on liability and compensation for environmental damage. For example, *the EU Directive on Environmental liability with regard to prevention and remedying of environmental damage (2004/35/CE)* provides that environmental damage is compensable when the adverse effects on the conservation status of protected habitats and species, on the ecological, chemical and/or quantitative status and/or ecological potential of the water and on the risks to human health associated with land contamination are significant and measurable and caused by dangerous activities, without the need of proving the responsible party to be at fault or negligent (strict liability).³³

Given the complexity of environmental issues (air, water, and land contamination, damage to agriculture, forest, ocean, fisheries, plants and wildlife), wide ranges, the perishable and diffusible nature of pollution, and the long-term impacts on the environment and ecological system, a number of extremely difficult questions arise. These include 1) how to define and quantify damages to be paid; 2) how to demonstrate the existence of the damage and the cause-effect link between the damage and the illicit and faulty or negligent activities; and 3) how to calculate compensation for something that cannot be valued as it has no comparator – such as the existence of a particular animal, or a particular species. Calculating how much compensation should be paid for a degraded view in an otherwise pristine environment is almost impossible to do with any precision.

More 'ordinary' legal issues do arise too, such as whether a wrongdoer should be required to pay greater ('punitive') compensation for willful damage, or grossly negligent damage, as opposed to conduct of a lesser degree of negligence – or whether the assessment should simply be evidence-based.

33 Environmental Compliance and Enforcement in India: Rapid Assessment; page 17. <https://www.oecd.org/env/outreach/37838061.pdf>

In general terms, the amount of compensation should be certain, fixed known and with a methodology based on environment-economic-social assessment of a particular environment adequate for implementing measures intended to rehabilitate, restore or enhance the concerned environment. The presence of a law or regulation on the standard and amount of compensation is important as this affects rights and obligations of individuals, society and third parties and therefore the need for the standard to be enforceable and justiciable. Compensation for environmental damage does not necessarily have to be commensurate with the amount of environmental damage.

The calculation of environmental damage for purposes of compensation is not an area that has a uniform practice. It is usually adjudicated based on the tort law or the law relating to land. In recent years, there is increasing recognition of the value of ecological systems. At a higher level, there are three known methods of calculating environment damage, or the value of environment and natural resources, based on scientific and economic data and methodologies to determine extent of damage or to assess the value of ecological system and natural resources. These are valuation, assessment of ecosystems and natural capital accounting.

Valuation is pertinent to this issue of assessing environmental damage. It is a useful tool for assessing environmental value, which requires multidimensional and multidisciplinary approaches and methodologies, combining law, socio-economic, insurance, environment, ecosystems, and livelihoods. Since environmental damage is a multidimensional and multidisciplinary problem, par excellence, a multidisciplinary approach is required.

Assessment of ecosystems has been done and reported on repeatedly, for purposes of general knowledge and increasing data base on what the ecosystem consists of. It should, however, be applied for economic reasons in order to know the value of a certain ecosystem or a part of the environment. For instance, if an assessment of a forest was done, then the loss of the same forest could be quantified in monetary terms based on the assessment.

Natural capital accounting is a new way of economic valuing the benefits derived from natural resources (including tropical forests, oceans, and mangroves, etc.), that provide ecosystem services such as food, water, timber, pollination of crops, etc. It is a process of calculating the total value of natural resources and services in a given ecosystem or region in physical or monetary terms. This process can subsequently inform government, corporate and consumer decision making as each relates to the use or consumption of natural resources and land, and sustainable behavior.

These higher-level methods can be used to determine the amount needed to compensate and the compensatory terms in general. However, specific assessment is still needed for particular cases. Often, assessment opinions based on scientific and other factors usually only serve as a kind of evidence in court and as a tool for the judge to bridge 'the knowledge gap' backed with scientific evidence. There should also be clear laws or rules to guide the assessment and appraisal procedures, standards and methods, the qualifications of the assessment agencies and individuals.

The following section provides various practices of selected countries in using legal tools to guide calculation and compensation of environmental damages.

3.2 General laws on compensation for environmental damage

EU

The EU parliament and the Council adopted the Directive on Environmental Liability with regard to the Prevention and Remedying of Environmental Damage on 21 April 2004 (2004/35/EC). It establishes a common framework of environmental liability, based on ‘the polluter pays’ principle, to prevent and remedy environmental damage.

The Directive shall apply to: 1) environmental damage caused by any of the occupational activities defined in Annex III, and to any imminent threat of such damage occurring by reason of any of those activities; 2) damage to protected species and natural habitats caused by any occupational activities other than those defined in Annex III, and to any imminent threat of such damage occurring by reason of any of those activities, whenever the operator has been at fault or negligent.³⁴ It also states that environmental damage also include damage caused by airborne elements as far as they cause damage to water, land or protected species or natural habitat.³⁵

As environmental damage also involves “ecological damage”³⁶, the Directive is based on the powers and duties of public authorities (“administrative approach”) as distinct from a civil liability system for “traditional damage” (damage to property, economic loss, personal injury).³⁶

However, the Directive shall not cover environmental damage or an imminent threat of such damage caused by: a) an act of armed conflict, hostilities, civil war or insurrection; and b) a natural phenomenon of exceptional, inevitable and irresistible character. It shall not apply to activities the main purpose of which is to serve national defense or international security, nor to activities with the sole purpose of which to protect from natural disasters.³⁷

The Directive also provides for risk assessment procedures to determine the extent of likely adverse impacts on human health. The fundamental principle of this Directive is that “an operator whose activity has caused the environmental damage or the imminent threat of such damage is to be held financially liable, in order to induce operators to adopt measures and develop practices to minimize the risks of environmental damage...”(the ‘polluter-pays’ principle).³⁸ The law further creates an obligation on the operator to compensate based on the polluter pays principle. It confers *locus standi* on: natural or legal persons: a) those affected or likely to be affected by environmental damage; or b) those having a sufficient interest in environmental decision making relating to damage; and c) those alleging impairment of a right.³⁹

34 Environmental Compliance and Enforcement in India: Rapid Assessment; page 20. <https://www.oecd.org/env/outreach/37838061.pdf>

35 Directive 2004/35/ce of the European parliament and of the council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage.

36 Preamble (9), Directive on Environmental liability with regard to the prevention and remedying of environmental damage (2004/35/EC).

37 Preamble (4), Directive on Environmental liability with regard to the prevention and remedying of environmental damage (2004/35/EC).

38 Preamble (11)-(16), Directive on Environmental liability with regard to the prevention and remedying of environmental damage (2004/35/EC).

39 Article 4, Directive on Environmental liability with regard to the prevention and remedying of environmental damage (2004/35/EC).

The Directive requires that Member States bring into force the laws, regulations and administrative provisions necessary to comply with the Directive by April 2007, and shall inform the Commission thereof.⁴⁰

China

Civil liability for compensating environmental damage has been included in several of China's laws and regulations, including the *General Principles of the Civil Law* (1987) amended recently in 2017, the *Environmental Protection Law* (2014), the revision of the *Criminal Law* (1997), the *Law of Prevention and Control of Water Pollution* (2008) and the *Tort Law* (2010). However, these laws only prescribe general legal responsibility for environmental damage in principle, mostly focusing on civil liability for damage to environments from pollution.

Calculating compensation for environmental damage remains a difficult issue for judicial bodies in their daily adjudications. In an effort to standardize and guide the practice in calculating and compensating environmental damage, in May 2011, the Ministry of Environmental Protection issued the *Recommended Methodology for Calculating the Amount of Environmental Pollution Damage (Edition I)*. After some time of practicing, in October 2014, the second edition of the *Recommended Methodology for Calculating the Amount of Environmental Pollution Damage (Edition II)* was adopted.

The Recommended Methodology (Edition II) defines “environmental damages” in a more accurate way; outlines the principles for determining the causal relationship of environmental damages; puts forward evaluation methods of personal, property, and eco-environmental damages and other transactional expenses incurred due to environmental pollution or ecological destruction behaviors (including emergent environmental incidents); and provides for the procedures and methods that may be used for evaluation of damage to ecological environments.⁴¹ Furthermore, to further guide and appraise compensation for environmental damage, the Ministry of Environmental Protection adopted in 2016 two other technical guidelines for environmental damage calculation: *the Technical Guidelines for Environmental Damage Determination and Calculation (General Guidelines)*; and *the Technical Guidelines for Environmental Damage Determination and Calculation (Damage Investigation)*.

The General Guidelines introduce the institutional and legislative development of environmental damage assessment and compensation in China. It covers the whole process of calculating environmental damage and lays out the general principles for environmental damage calculation and compensation. *The General Guidelines* apply to the ecological damage to various environmental elements, including atmosphere, surface water, groundwater, soil and other damage, plants, animals, microorganisms and other biological factors.

The main contents of the Guidelines include the scope of application, normative reference documents, terminology and definitions, general principles (including the principle, content,

40 Preamble (18), Directive on Environmental liability with regard to the prevention and remedying of environmental damage (2004/35/EC).

41 Article 12.1 (a) – (c), Directive on Environmental liability with regard to the prevention and remedying of environmental damage (2004/35/EC).

procedures and appraisals of the assessment and appraisal of the ecological environment), and the relative principles and procedures for ecological environment damage recovery, and ecological environment restoration effect assessment, Appendix and appendix 11, which are the basis of ecological environment damage assessment, ecological environment damage restoration, ecological environment restoration and so on. The General Guidelines clearly define the assessment and assessment of environmental damage, which means that the appraisal and appraisal institution shall, in accordance with the prescribed procedures and methods, comprehensively apply science and technology and expertise to identify the nature of pollutants and assess the environmental damage caused by environmental pollution or ecological damage. The General Guidelines define the scope of the calculation of the personal injury caused by environmental pollution and also provides the calculation methods under the circumstances of environmental damage that cause victims injury or death, which makes specific guidance to judicial bodies.⁴²

The Guidelines also contain: 1) technical guidelines on environmental elements; 2) technical guidelines on calculation methodology; 3) environmental damage investigation and damage determination; 4) cause-effect determination; and 5) damage amount calculation⁴³

Finland

Finland adopted the Act on Compensation for Environmental Damage in 1994 (in force on 1 June 1995). The Law provides for compensation for environmental damage from pollution (water, air or⁴⁴ soil); noise, vibration, radiation, light, heat or smell; or other similar nuisance. According to *the Act*, compensation shall be paid for a loss as the result of environmental damage as defined by the Act. The main thrust of this Act was toward providing compensation for a private owner for loss suffered when land is injured, but it was an early statute which made for an easy transition into the context of compensation imposed by a court for environmental damage which did not cause loss to a particular plaintiff.⁴⁵

In 2009 Finland further promulgated *the Act on the Remediation of Certain Environmental Damages* (in force on 1 July 2009). This Act applies to remediation of damage caused to protected species and natural habitats by considerable pollution of a water body; and by substantially harmful change in the water bodies or groundwater.⁴⁶

The Act applies to natural resources, and provides for three types of remedial measures: **(1) primary remediation:** which means natural resources and natural resource services (the useful effects of a natural resource on another natural resource or on humans) must be restored to the baseline condition by eliminating the harmful change caused by the damage; **(2) Complementary remediation:** if the baseline condition (the status prior to damage to natural resources and natural resource services) cannot be fully restored, the impairment the damage has caused to natural resource and natural resource services should be remedied by measures undertaken either at the

43 Sections 4-8, the Recommended Methodology for Calculating the Amount of Environmental Pollution Damage (Edition II, 2014)

44 Section 6, the Technical Guidelines for Environmental Damage Determination and Calculation (2016).

45 Section 6, the Technical Guidelines for Environmental Damage Determination and Calculation (2016).

46 Section 1, the Act on Compensation for Environmental Damage (1994).

damaged site or elsewhere; (3) **compensatory remediation**: the interim loss of a natural resource or service shall be compensated for by taking measures at the damaged site or elsewhere until primary and complementary remediation have taken full effect.⁴⁷

The Act provides for how to select the remedial measures, requiring the authority to take into account factors such as: the nature, scope and severity of the damage; possibilities of natural restoration; risks to human health; expenses incurred in remedying the damage; and other damage that may have occurred in the area.⁴⁸

The authority may grant the operator who caused the damage permission to perform remedial measures outside of the damaged area – another indication of the international trend toward allowing offsets. The authority can decide to end remediation if the remedial measures implemented guarantee that the risk to human health and natural resources has been eliminated; and the costs of continuing remediation would be disproportionate compared to the environmental benefits gained.⁴⁹

The authority has the right to perform the necessary measures relating to the prevention or limitation of damage, or perform remedial measures in the damaged area, provided that the matter is urgent and the procedure provided cannot be delayed without substantially exacerbating the damage; or the operator who caused the damage cannot be determined without difficulty.⁵⁰

If the operator is not responsible for the costs for a reason, or the liability of the operator who caused the damage has been made more equitable, the authority may perform the remedial measures, or have them performed, as work benefitting the environment.

In addition, in 2009 Finland promulgated a Government Decree on the Remediation of Certain Environmental Damages. This Decree lays out the factors that must be taken into consideration in assessing the significance of adverse effects on the favorable conservation status of a species or natural habitat.⁵¹

Mongolia

The Mongolian Government approved Resolution 309 in 2006 for the implementation of the “Program on Operating Mining Extraction Activities with Minimal Adverse Environmental Impact and Damage”. It also developed and observed experimentally a primary version of the Methodology for conducting ecologic-economic assessment of damages to emerge during mineral resource extraction and processing activities and identifying relevant ecological damage. The development of this methodology has a specific importance in creating a responsibility and accountability mechanism for identifying an extent of damage imposed or likely to be imposed on the environment through a relevant economic assessment as well as for calculating ecological damage assessment and related compensation.

47 Section 5, the Act on Compensation for Environmental Damage (1994).

48 Section 1(1), the Act on the Remediation of Certain Environmental Damages (2009).

49 Section 5, the Act on the Remediation of Certain Environmental Damages (2009).

50 Section 6, the Act on the Remediation of Certain Environmental Damages (2009).

51 Section 7, the Act on the Remediation of Certain Environmental Damages (2009).

The methodology contains an in-depth analysis and lays out formulae on how to calculate land plot damage and ecology-economic assessment and relevant damage for the areas of soil, water, forests, plant cover, and wildlife. The assessment is to be done by the Association of Environmental Assessors.

The assessment process incorporates the law of the land pertaining to the subject matter; for example, when calculating land plot damage the assessors will make use of land charges applied and use that to base their valuation of the land.

To ensure adequate remediation and availability of funds for remediation, some countries have adopted legal instruments to establish the deposit bonds mechanisms, Take an example of Kenya below.

Kenya

Kenya has developed regulations referred to as the environment management and co-ordination (deposit bonds) regulations, 2014 (pending for being gazetted) to ensure environmental remediation measures and funds for remediation.

This Regulation shall be applicable to the activities, industrial plants and undertakings which have or more likely to have adverse effects on the environment. The purpose of these Regulations is to ensure:

- Good environmental practices;
- Adequate remediation is achieved without adversely affecting economic viability;
- Compliance with remediation obligations;
- Availability of funds for remediation; and
- Sustainable development.

Any person operating or proposing to operate an industrial plant and undertaking an activity as stipulated in the Deposit Bonds Register shall be required to prepare a Deposit Bond Assessment Report. The funds deposited will be used to restore the environment in case the project courses pollution in it commissioning and operation phase.

3.3 Defining environmental damages

EU

The EU Directive 2004/35/EC defines environmental damage as damage to protected species and natural habitats, damage to water and damage to soil. It further clarifies that: ⁵²1) ‘damage’ means a measurable adverse change in a natural resource or measurable impairment of a natural resource service which may occur directly or indirectly; 2) ‘damage to protected species and natural habitats’ means any damage that has significant adverse effects on reaching or maintaining the

52 Section 9, the Act on the Remediation of Certain Environmental Damages (2009).

favourable conservation status of such habitats or species; 3)⁵³ ‘water damage’ refers to any damage that significantly adversely affects the ecological, chemical and/or quantitative status and/or ecological potential of the waters concerned; and 4) ‘land damage’ means any land contamination that creates a significant risk of human health being adversely affected as a result of the direct or indirect introduction, in, on or under land, of substances, preparations, organisms or micro-organisms.

China

China’s Technical Guidelines for Environmental Damage Calculation (2016) defines ‘environmental damage’ as: “observable or measurable adverse change in personal health, property value or ecological environment and its ecological services resulting from environmental pollution or any other action damaging the ecological environment”.⁵⁴

The Guidelines further defines ‘ecological damage’ as “adverse changes in physical, chemical or chemical nature of the ecological environment, or damage or weakening the ability of provision of ecological services, that are directly or indirectly caused by environmental pollution or any other action damaging ecological environment”.

Finland

Finland’s *Act on Compensation for Environmental Damage (1994)* defines environmental damage as to damage ranging from pollution of the water, air or soil; noise, vibration, radiation, light, heat or smell; or other similar nuisance.

3.4 Who bears responsibility to compensate?

The obligation to compensate is bestowed on a party depending on different circumstances.

EU

The EU Directive places this obligation on the operator based on the application of the polluter pays principle. It sets as a fundamental principle that “an operator whose activities has caused the environmental damage or the imminent threat of such damage is to be held financially liable”.⁵⁵

The Directive defines as an operator any natural or legal, private or public person who operates or controls the damaging occupational activity or, where this is provided for in national legislation, to whom decisive economic power over the technical functioning of such an activity has been delegated, including the holder of a permit or authorization for such an activity or the person registering or notifying such an activity.⁵⁶

53 Sections 3-4, the Decree on the Remediation of Certain Environmental Damages (713/2009), Finland.

54 Article 2, para 1 and 2, Directive 2004/35/EC.

55 The significance of adverse effects is to be assessed with reference to the baseline conditions, taking account of the criteria set out in Annex I of the Directive.

56 Paragraph 4.1, the Technical Guidelines for Environmental Damage Calculation (2016).

China

Legal liability for compensating environmental damage is found in civil laws and environmental laws. The General Principles of the Civil Law of the People's Republic of China (1986) provides that: "Any person who pollutes the environment and causes damages to others in violation of State provisions for environmental protection and the prevention of pollution shall bear civil liability in accordance with the law."⁵⁷

There is also a special chapter - Chapter VIII: Environmental Pollution Liability in the Tort Liability Law (2009) on legal liability for environmental damage, including Article 65 which provides for: "for damages caused by pollution of the environment, the polluter shall bear tort liability"; Article 67 which states: "If the environment is polluted by two or more persons, the degree of liability shall be determined by factors including, inter alia, the type of pollutants and the quantity emitted; and Article 68, which promulgates that "For damages caused by environmental pollution through the wrongdoing of a third party, the infringed may seek compensation from the polluter and from the said third party. After making compensation, the said polluter shall be entitled to seek reimbursement from the said third party".

The Environmental Protection Law (2014) also promulgated that for those who cause damage through environmental pollution and ecological destruction shall bear liabilities from infringement in accordance with the Tort Liability Law.

Finland

The Finnish Act gives this obligation to: 1) the person whose activity has caused the environmental damage; 2) who is comparable to the person carrying out the activity; and 3) to whom the activity which caused the environmental damage has been assigned, if the assignee knew or should have known, at the time of the assignment, about the loss or the nuisance referred to in section 1 or the threat of the same.⁵⁸

The Finnish Act also provided for joint and several liability, that is, if the damage was caused by more than one operator, the responsibility for the costs shall be allocated among the operators according to their share of the total damage. If this share cannot be assessed, the responsibility shall be divided per capita.⁵⁹

An operator who proves that he or she has acted carefully shall not be responsible for the full amount of the costs and these shall be made equitable where the damage is due to an emission or an occurrence that is in compliance with the conditions of the permit granted for the operation or with another decision of the authority; or the operation that caused the damage was in compliance with the obligations provided in the legislation concerning the operation in question.

57 Preamble, para. (18), Directive 2004/35/EC.

58 Article 2.6, Directive 2004/35/EC.

59 Article 124, the General Principles of the Civil Law (1986)

Kenya

The *Constitution of Kenya*, 2010 and the *Environmental Management and Coordination Act*, 1999 have both adopted the polluter pays principle as a key ingredient of good environmental governance. Both the Constitution and the Act provide that the cost of cleaning up any element of the environment damaged by pollution, compensating victims of pollution, the cost of beneficial uses lost as a result of an act of pollution and other costs that are connected with or incidental to the foregoing, shall be borne by the person convicted of pollution under the Act or under any other applicable law. This provision is quite progressive and, despite there being no guidance and or jurisprudence in Kenya so far on the application of the principle, there is no doubt that the basis is set for future compensation awards arising from environmental damage.

Thailand

The owner or possessor of any point source of pollution shall be liable to pay compensation or damages, if leakage or contamination caused by or originated from the point source of pollution is the cause of death, bodily harm or health injury of any person or has caused damage in any manner to the property of any private person or the state.

3.5 What are compensable costs?

Pre-economic losses in relation to financial damage suffered as the result of the negligent act of another party which is not accompanied by any physical damage to a person or property. (you can quantify), consequential losses (time), pure environmental damage/ecological damage, cost for reasonable restoration.

EU

The EU *Directive (2004/35/EC)* requires: 1) an operator causing environmental damage or creating an imminent threat of such damage should, in principle, bear **the cost of the necessary preventive or remedial measures**; 2) In cases where a competent authority acts, itself or through a third party, in the place of an operator, that authority should ensure that **the cost incurred for taking administrative, legal, enforcement and other action** by it is recovered from the operator; and 3) It is also appropriate that the operators should ultimately bear **the cost of assessing environmental damage and**, as the case may be, **assessing an imminent threat of such damage** occurring. The Directive stipulates that Member States may provide for flat-rate calculation of administrative, legal, enforcement and other general costs to be recovered.

China

China's *Technical Guidelines for Environmental Damage Calculation (Edition II, 2016)* states that compensable costs for calculating environmental damage, should include: 1) costs for personal injuries; 2) property value reduction from property damage; 3) costs incurred for environmental restoration and ecological recovery; 4) costs for contingency and remedial measures; 5) costs incurred for taking administrative, legal, enforcement and other action, as well as costs for assessing environmental damages.

Finland

According to Finland's *the Act on Compensation for Environmental Damage (1994)*, the costs for prevention and reinstatement of environmental damage include: 1) the costs of the measures needed to prevent environmental damage; 2) the costs, incurred by the authorities, of measures to prevent the threat or the effects of a nuisance, or to reinstate a polluted environment to its original state, if the costs are reasonable relative to nuisance or the threat thereof, and to the benefit gained by the measures; and 3) the costs of investigations that proved unavoidable in carrying out the preventive measures or reinstatement referred to above.⁶⁰

An operator who proves that he or she has acted carefully shall not be responsible for the full amount of the costs and these shall be made equitable where the damage is due to an emission or an occurrence that is in compliance with the conditions of the permit granted for the operation or with another decision of the authority; or the operation that caused the damage was in compliance with the obligations provided in the legislation concerning the operation in question.

Senegal

The Regional District Court of Dakar, however, distinguished between damage to humans and damage to the environment. The Court found that “the area abounds in its marine part with fishery resources and constitutes a spawning area for shellfish and other crustaceans”, that in respect of damage to humans this corresponded to “collective damage: breaches of supply services”, and that in respect of damage to the environment this corresponded to “infringements of species and more specifically the ecological functions of species” and “infringements of aquatic environments and their functions”. The Court, in passing judgment, went beyond the penalty range provided by the Environment Code of 2001 and found that penalties for different infringements could be applied cumulatively, and ordered that the amount of 100-million CFA be paid, in addition to a term of imprisonment. Though the Court did not provide a specific breakdown to show how it had assessed the amount of compensation payable, the judgment is highly significant for showing that courts are willing to use the law creatively, to take into account ecological relationships, and look beyond the obvious damage to humans in order to order compensation for environmental damage.

Tanzania

Tanzania has developed a claims manual on damages, which include; cost of cleanup damage and ecological damages. However, there is no specific criterion for reasonable measures of compensation rather the general ones. The general principle is that for the acceptance of claims to qualify for compensation, the measures should be technically feasible, the cost should not be out of proportion to the extent and duration of the damage and that claims are assessed on the basis of the information and data available when undertaken and not otherwise.

⁶⁰ Section 7, the Act on Compensation for Environmental Damage (1994).

3.6 Who is entitled to receive compensation?

Basing their practices on Principle 10 of the Rio Declaration on Environment and Development of 1992 – which provides that states shall offer effective access to judicial and that administrative proceedings, including redress and remedy, shall be provided – most states have put in place avenues that allow their citizens to get justice in regard to environmental issues. States have also drawn their authority from the Sustainable Development Goals, 2015 (the SDGs), of which goal 16 provides for promotion of peaceful and inclusive societies for sustainable development, provision of access to justice for all and building of effective, accountable and inclusive institutions at all levels (16.3: “Promote the rule of law at the national and international levels and ensure equal access to justice for all”).

Courts have often had to adjudicate cases involving environmental damage and the question of compensation arises. In a normal civil or tort case where a party has been injured, the court usually awards damages to the aggrieved or applies a restitutionary remedy.

EU

The issue of who can bring such a matter to court must be considered. The EU directive gives this right to Natural or legal persons: (a) affected or likely to be affected by environmental damage or (b) having a sufficient interest in environmental decision making relating to the damage or, alternatively, (c) alleging the impairment of a right, where administrative procedural law of a Member State requires this as a precondition.

Finland

Finland has an Act on compensation for environmental damage that was passed in 1994 (the *Act on Compensation for Environmental Damage, 1994*). It can be used as a guide to compensation mechanism and more importantly how to achieve the value of the subject matter to be compensated. It also states that compensation shall be paid for environmental damage in accordance with the Act if it is shown that there is a probable causal link between the activities and the loss referred to. This therefore means that when assessing damage, there needs to be a full understanding of who the offender is in order to claim any compensation.

China

The Supreme People’s Court has issued an *Interpretation* document on *Several Issues Regarding the Application of Law in Public Interest Environmental Civil Litigation* which was drafted to clarify ambiguities in the *Environmental Protection Law* (2014). Articles 18 to 24 set out how damages are to be calculated and the scope of different remedies that are available in cases brought pursuant to Article 58 (on public interest litigation) of the *Environmental Protection Law (2014)*. The acts of environmental pollution and ecological harm that have already harmed the public interest or have a great risk of harming the public interest, the plaintiff may demand that defendant have civil responsibilities such as stopping the infringement, eliminating obstructions, removing dangers, restoring original conditions, paying compensation and making formal apologies.

Article 19: Where the plaintiff incurred costs in employing reasonable prevention and handling measures to stop infringement, clear obstructions or eliminate risks, and makes a demand for the defendant to bear these costs, the people's court may lawfully support it.

The Supreme People's Court *Interpretation on Several Questions Concerning Applicable Law in the Adjudication of Environmental Tort Liability Dispute Cases* (2015) clarifies environmental tort law principles, including questions on the standard of liability, evidentiary issues such as acceptance of expert evidence, and appropriate remedies.

Nigeria

In the Ogoni land oil spill case, the Company liable to the accident was taken to court. Those who had resettlement were paid monthly salary, and the affected community was provided a source of livelihood. Oil producing fund 2% (contingency fund for compensation) was given to the community for development purposes. Since the Ogoni land oil spill, a small percentage of mining is embarked for rehabilitation if action resulted in environmental damage the company pays for damage and pays for benefits of the affected community.

3.7 Calculating environmental damage and compensation

By reviewing of various countries' experience, there are often five relatively independent steps for calculating environmental damage for compensation:

- 1) Environmental damage investigation;
- 2) Determining the cause-effect link;
- 3) Damage determination and quantification;
- 4) Monetary valuation of environmental damage; and
- 5) Evaluation and calculation report

Environmental damage investigation

Environmental damage investigation is the basic procedure that needs to be carried out to determine the cause-effect linkage, damage determination and quantification, and the monetary valuation of environmental damage. It involves the determination of the facts that polluting and detriment behavior have taken place, collecting and analyzing the needed information and data, conducting on-site visits, interviewing relevant parties and taking samples of surface and underground water, air, soil and species as well as other aspects of the biological environment.

Determining the cause-effect links

Establishing the causal relationship between environmental pollution and environmental damage is important but can prove to be very difficult in calculating environmental damage.

EU

Causality is a highly pertinent factor in the issue of compensation for environmental damage. The EU Directive requires the establishment of a causal link between the activity and the damage.

Finland

The Environmental Protection Act (527/2014) states that compensation shall be paid for environmental damage in accordance with the Act if it is shown that there is a probable causal link between the activities and the loss referred to. This means, therefore, that when assessing damage there needs to be a full understanding of who the offender is in order to claim any compensation.

China

According to China's Supreme People's Court's *Judicial Interpretation on Several Issues related to the Legal Application in Environmental Tort Liability Cases*, the causal relationship between environmental pollution and environmental damage is determined by the causal relationship between environmental exposure and environmental damage and the establishment and verification of the exposure path of environmental pollutants from source to recipient.

The causal relationship should be determined in accordance with the following general principles:

- A) The polluter has discharged pollutants;
- B) There is a time sequence between environmental exposure and environmental damage. That is, environmental pollutants discharged may reach the recipient of the damaged object;
- C) There is a fact that damage does occur to the victim who suffers from damage;
- D) There is a possibility that pollutants discharged by the pollution or their secondary substances may cause the environmental damage suffered by the victim; and
- E) Polluting action occurs before environmental damage.

Damage Determination and quantification.

Damage determination involves documenting and analyzing the information useful to define environmental damage and its causal link with the illicit and faulty or negligent activities. By documenting the effects of the source on the targets through measurements, photographs, analyses, witness testimonies and other supporting documents, environmental damage can be determined; and by analyzing damage scenarios through the identification and characterization of the source, exposure pathways and targets, the cause-effect link can be established.

Damage quantification refers to the analytical measure of the extent, severity and duration of damage in terms of: 1) **alteration** – an adverse change with respect to the baseline condition of the natural resources and services; 2) **deterioration** – a partial loss of the ability of the natural resource to provide an ecological or public anthropic service; 3) **partial destruction** – the loss of one or more services; and 4) **total destruction** – the loss of all of the services. In practical term, the quantification of the damage can be drawn from valuating a series of indicators, defined between 0 and 1 (or in percentage), and indicating the degree of alteration, deterioration or destruction, which will be calculated by comparing to each other, environmental quality indicators or the present state, reference state and maximum or minimum permissible pollution limits.

Monetary valuation of environmental damage

This is the last step of calculating environmental damage, before preparing a calculation and evaluation report. In practice, there are two commonly used monetary valuation methods: precise or equitable.

Compensation for environmental damage is usually based on 3 categories:

- 1) Primary rehabilitation;
- 2) Rehabilitation through compensation; and
- 3) Expenses related to the damage assessment work

However, in calculating damages for extractives, the compensable amount consists of environmental restoration expenses, a fine for polluting or declining natural resources and expenses incurred to identify the extent of the environmental damage. Due consideration is given to the duration of nuisance or loss, chances of person suffering loss avoiding or preventing the loss. The costs of prevention and reinstatement are paid for:

- a) Measures for preventing environmental damage,
- b) Threatening the person or authorities undertaking measures,
- c) Reinstating a damaged environment to its original state, if costs are reasonable as related to the benefits gained by the measures;
- d) Investigations that proved unavoidable in carrying out preventive measures or reinstatement

China

China's *Recommended Methodology for Environmental Damage Calculation (Edition II)* contains several environmental damage calculation methods including calculation of personal injury, property damage, fixed asset loss, floating asset loss, agriculture product loss, forest loss, and additional costs (including clean up and remedy measures). The Methodology also provides for calculation methods for valuing ecological damage, including alternative equivalence assessment methods and actual environmental value assessment methods.

*Resource equivalence analysis method or service equivalence analysis method*⁶¹

The key to the calculation of damage during the period is to predict the recovery path of resources and services that have been damaged after the basic recovery action, that is, to predict the damage to the damaged resources and services during the period of damage to the restoration of the baseline and the size of the service. Damage is the sum of the annual discounted amount of the loss of resources or services in the damaged period. The formula is as follows: (B-1):

⁶¹ Section 8, the Act on compensation for Environmental Damage (1994).

$$H = \sum_{t=0}^n (R_t \times d_t) \times (1+r)^{(T-t)}$$

H: total damage within a certain period;

t = 0 is a given year (0 to n), t = 0 is the starting year, the beginning of the damage or the beginning of the loss calculation; t = n is the ending year, no longer subject to further damage (either through natural recovery, or through basic recovery measures);

T: the base year, also called the current year, that is, the year when the damage is being assessed;

R_t: the number of units of lost resources or the number of service unit. For resources, this parameter may be an individual measure of individual quantity, biomass, life value, children number, energy, productivity, or other factors that have a significant impact on the organism or ecosystem. For services, this parameter may be affected by the area of habitat (ha), it may be the length of the river or other habitat area;

d_t: the degree of damage, the degree of damage to the resource or service, measured with the selected measure. The degree of damage varies over time, and can be the number of individuals that are damaged, and for sub-lethal effects, it can also be a reduction in life expectancy or biological quantity. If the number of damaged units of resources covers sub-lethal concepts, it is not necessary to list the extent of damage;

r: present value multiplier, it is recommended to use 2% to 5%. Using the present value factor to perform compounding calculations on past resource or service losses and discount the future loss of resources or services. It is important to note that, in some cases, even if a recovery measure is taken, the damaged environment may never be able to return to the baseline level (as shown in Figure B-2). In this case, it is recommended that n to be 100.

*Value equivalence analysis method*⁶²

$$H = \sum_{t=0}^n [(Q_{nt} \times P_{qn}) + (Q_{lt} \times P_{ql})] \times (1+r)^{(T-t)}$$

H: total damage within a certain period;

t = is any given year within the assessment period (0-n), t = 0 is the starting year, the start of the damage or the beginning of the loss calculation; t = n is the ending year, when no longer subject to further damage (either through natural recovery, or through basic recovery measures). Sometimes due to the expected recovery of resources without the expected ending year;

T: the base year, present value is used to calculate the year, usually the year of damage assessment;

62 Page 23, B.1.1, Resource equivalence analysis method or service equivalence analysis method. Appendix B, the Technical Guidelines for Environmental Damage Calculation (Edition II, 2016).

Qnt: is the number of units or units of lost resources. Could be the number of days of entertainment use (such as fishing, beach trips, boating), or some other measures recognized by the public that uses the resource or service;

Pqn: is the unit economy (currency) value of the resource or service; is the unit value (measured in monetary terms) related to the loss of human use. For example, it can be the value of a fishing day or the value to avoid the increased risk of cancer. This value is generally estimated based on existing literature or data collection;

Qlt: the number of units of resources or services used in a degraded state; it is not completely lost, but is provided as a lower quality resource or service. For example, some people may still be contaminated by the site of fishing, but what they get from the value of fishing will be reduced;

Pql: is the unit economy value of the resource or service in the state of quality reduction; for example, the capture rate is reduced due to damage to the ecological environment, which in turn reduces the value of fishing. This value is generally assessed on the basis of existing economic literature or major data collection (e.g., surveys);

R: present value coefficient, it is recommended to use 2% -5%.

Tajikstan

Precise method for calculating environmental damage (site)

The following is a formula of the calculation of the amount of environmental damage caused by the damage of land, which is carried out on the basis of the actual costs of restoration of the state of the environment, taking into account the losses incurred, including loss of profits, as well as in accordance with the reclamation projects and other recovery operations. In their absence calculating the amount of damage to the environment is carried out according to the formula below:

$$\Pi(n) = \sum_n Hc * S * K_3 * K_r$$

$\Pi(n)$ - the size of harm from chemical contamination of land (thous. Rub.);

Hc - standard price of land (thous. / Ha)

S - area of land contaminated with chemical i (n) is determined on the basis of materials of state Inspections and (or) on the basis of material on land survey and (or) other available information;

K_3 - conversion factor depending on the level of pollution of land i chemicals;

K_r - the conversion factor, depending on the depth of soil contamination

3.8 Other general practices in calculating and compensating damage

Sierra Leone

The Mines and Minerals Act, 2009 provides for calculations to compensate various parties for land given over to leaseholds held by mining companies. It is provided that surface rents for land leased to mining companies are distributed according to a set formula:

A land lease or other rights to use land obtained by the holder of a large scale mining licence, shall be subject to surface rent which shall be distributed as follows:

- (a) Land owners 50%
- (b) District Council 15%
- (c) Paramount Chiefs 15%
- (d) Chiefdom Administration 10%
- (e) Constituency Development Fund 10%

It is then provided that if the owner or lawful occupier of land leased for mining suffers any disturbance to his rights, and for any damage done to the surface of the land by the mining operations, is entitled to compensation calculated in the above terms. The basis upon which compensation is payable for damage to the surface of any land shall be the extent to which the market value of the land upon which the damage has occurred has been reduced by reason of such damage⁶³.

Zimbabwe

Compensation for 3rd parties, cost of cleanup/restoration reparation, restitution, repair damage, Principles of operation not to benefit from misdeeds of others.

South Africa

It is possible to impose upon an accused convicted of an environmental crime a range of sanctions which, cumulatively, can have far greater punitive and deterrent value than any one sanction on its own.

In South Africa legislation provides a range of sanctions that are available to prosecutors, including that on conviction of an offender for certain offences which caused damage to the environment a court may on application enquire summarily into the costs of rehabilitation. The court may then order that such amounts be paid, as though a civil judgment in favor of an organ of state or any person, in addition to any fine imposed. Further, such court may summarily enquire into

63 See <http://www.sierra-leone.org/Laws/2009-12.pdf>, s 34A and s 35; and R Fanthorpe and C Gabelle, World Bank, Political Economy of Extractives Governance in Sierra Leone (2013) <http://documents.worldbank.org/curated/en/844041468302424273/pdf/834250WPOPolii0Box0382086B00PUBLIC0.pdf>

and assess any amount gained, or likely to be gained, by the convicted accused through having committed the offence, and the court may order the payment of damages or compensation for such assessed amount. Further, such court may, on application by the prosecutor or another organ of state, order that the reasonable costs incurred by the state in investigating and prosecuting be paid by the convicted accused.⁶⁴

The Philippines

In the Philippines, the Supreme Court's Environmental Rules do give some attention to calculating compensation for environmental damage. The Rules provide that a court may, if it considers it warranted, grant relief to the plaintiff that includes payment of attorney's fees, costs of suit and other litigation expenses. More importantly for current purposes, the Rules then provide that a court may grant relief which includes the 'protection, preservation or rehabilitation of the environment'. The court may require that a violator submit a programme for rehabilitation or restoration of the environment, the costs of which programme shall be borne by the violator, or to contribute to a special trust fund controlled by the court for such rehabilitation or restoration (R5 s1).

Senegal

The judge or the Ministry of Environment can also sponsor an independent expertise report of environmental damage to determine the amount of the injury. According to Senegal's Environment Code (Law 2001-01) a judge or the Ministry of the Environment is entitled to commission an independent expert analysis and report on environmental damage in order to gauge the extent of the damage and the amount of damages payable. According to this Act environmental damage caused by the discharge of oil into the sea is punishable by a fine of 1 to 10 million West African CFA (1 US\$ being approximately 616 CFA) and/or six months to a year of prison.

The former Soviet region

In Russia, the Federal Law 'on Environmental Protection' Article 77 is titled 'The duty of full compensation for environmental damage'. It is provided that: Legal and natural persons are required to pay reimbursement in full if they cause damage to the environment as a result of pollution, depletion, damage, destruction, unsustainable use of natural resources, the degradation and destruction of natural ecological systems, natural complexes and natural landscapes, and other violations of environmental legislation.

A procedure is provided for calculating compensation for environmental damage in violation of environmental legislation. Damage is to be compensated in accordance with the duly approved fixed price and methods of calculation of amount of environmental damage, and in their absence, on the basis of the actual costs of restoration of the state of the environment, taking into account the losses incurred, including loss of profits.

64 Enforcement of Environmental Law: Good Practices from Africa, Central Asia, ASEAN Countries and China: <http://wedocs.unep.org/bitstream/handle/20.500.11822/9968/enforcement-environmental-laws.pdf?sequence=1&isAllowed=y> (page 34)

The compensation amount is calculated on the basis of the actual costs of restoration of the state of the environment, taking into account the losses incurred, including loss of profits, as well as in accordance with the project of remediation and other recovery operations, in their absence, in accordance with fixed prices and methods of calculation of the damages to the environment, approved by the executive power in charge of state management in the field of environmental protection. Based on the decision of a court or arbitral tribunal, environmental damage may be recovered by imposing on the defendant the obligation to restore the disturbed state of the environment, at its own expense. Claims for compensation for environmental damage, caused in violation of environmental legislation, must be brought within twenty years.

Damage caused to the health or property of citizens through environment damage, as a result of the economic or other activities of legal and natural persons, shall be compensated in full.

Similar provisions may be found in other countries in the former Soviet region, such as Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan, Ukraine and Uzbekistan. Some of these make provision for extremely detailed calculations. For instance:

In Belarus the ‘Order of the Ministry of Natural Resources and Environmental Protection of the Republic of Belarus of 08.01.1996 N 18’ provides for a methodology used to calculate damage to the environment through unauthorized waste disposal. Finite formulas are provided, with damage to vegetation, soils and water bodies corresponding to damage caused by certain wastes and the fee payable for unauthorized disposal of wastes. The provision of such detailed calculation methods is obviously intended to create administrative presumptions, obviate the need for expert evidence to be led, and thereby streamline the process. This does not, of course, mean that the convicted wrongdoer will agree with the calculation method in every case.

3.9 Challenges

- Loss of biodiversity and environmental damage cases have dramatically increased in recent years.
- Calculation and compensation for environmental damage remains a difficult issue for judicial bodies in their daily adjudication; Guidelines on calculating environmental damage and compensation are needed. Capacity and knowledge of judges to appreciate the impact of environmental damage and the need for fair and adequate compensation.
- Needs for professional expertise to determine and quantify damage, establish the cause-effect link; and put monetary valuation of environmental damage.
- Lack of harmonized methodology for calculating damages; No clear laws or rules to guide calculation and compensation of environmental damage; the procedures, standards and methods, assessment agencies and professionals; Lack of clear legal norms.
- Lack of baseline information on the state of environmental, human health and social impact assessment (integrated environmental and social assessment).

3.10 Recommendations

- Develop guidelines and procedures to guide the judiciary in regards to compensation of environmental damage.
- Name and shame strategies.
- Strengthening capacity of judges in environmental law and provide knowledge on compensation of environmental damages.
- Develop legal frameworks for guiding the regulation of calculation of environmental damage and compensation including off-sets.
- Development of appropriate technical instruments for systematically determining environmental damage and compensation.
- Develop ecological valuations, economic valuations, sector specific valuation (most critical sectors), and standardization of methodologies.
- Detailed assessment on social and human health as part of the calculation for environmental damage and report to the public (where applicable).

Chapter 4: Measuring Enforcement Actions

4.1 Introduction

Over the past few decades, despite good progress having been made in promulgating environmental legislation in most countries to manage their natural resources and protect their environments, implementation and enforcement of environmental laws and regulations remain extremely challenging for each of them. It seems that there is almost always an implementation gap between legislative objectives and performance. Managers of environmental compliance and enforcement and directors of environmental agencies are quite often asked what the results or impacts of their enforcement actions are and whether their enforcement activities have resulted in the fulfillment of legislative objectives and the improvement of the quality of the environment. Environmental compliance and enforcement programs should be evaluated at regular intervals, and the evaluation can help managers and result in greater awareness of the best ways to improve compliance and enforcement.

However, it is not an easy task to measure the effectiveness of their compliance and enforcement actions. Most countries in Africa and Asia are facing major challenges in accounting for the investments in enforcement actions as they have not developed such measurements.

Many countries in the Organization for Economic Co-operation and Development (OECD) have however developed and used performance measurement indicators to measure the performance of environmental enforcement authorities since early 1990s.

Environmental compliance and enforcement indicators are designed for measuring/evaluating the performance of environmental compliance and enforcement action for the purpose of improving the effectiveness of such action by making information about action taken and the results achieved known. They are an example of societal response indicators.

Environmental compliance and enforcement indicators describe a level of commitment made by government and a set of results which contribute to its goal such as reducing the negative environmental conditions. They are developed to meeting legal and policy obligations and internal management needs, and to justify budget use and external accountability.

There are four categories of indicators, widely used over the years:

- Inputs indicators, e.g., time, interval of inspection, number of staff, how much money spent, types and number of materials and equipment used, and other resources as inputs.
- Outputs indicators, e.g., the number of inspections performed, the number of compliance promotion activities and the number of enforcement actions carried out.
- Intermediate outcomes indicators focus on changes in compliance knowledge and behavior

of the regulated community, e.g., improved environmental management systems and reduced environmental impacts.

- Final outcomes indicators should result in improved conditions of the environment such as, improved ambient water or air quality, reduced soil contamination, etc. Input measures may include the amount of financial and human resources devoted to compliance assurance programmes, such as the number of enforcement officers, the amount of resources devoted to training and of resources invested in technical support systems for enforcement; Output measures may include the number of inspections conducted, the number of promotion campaigns, the number of prosecutions, the amount of fines and penalties imposed and collected; Intermediary outcome indicators may include the number of requests from industry for advice from environmental agencies, the level of investment in “greener” industrial processes, compliance rates, rates of recidivism or reduction of concentration of pollutants from effluent pipes; Final outcome indicators try to capture change of environmental quality, such as decrease of ambient concentrations of pollutants in air and water.

Traditionally, regulatory agencies’ performance has been managed and evaluated largely by references to their level of activity, focusing on inputs and outputs indicators rather than the outcomes they accomplish. In recent years, many environmental enforcement authorities recognize that relying on input and output indicators along does not necessarily account for the effectiveness of various enforcement activities. They are, therefore, making progress in developing more meaningful outcome-based measures to emphasize improvements in environmental conditions or behaviors of the regulated community. Such measures also contribute to the increasing accountability of environment enforcement agencies.

An OECD report⁶⁵ considers six types of intermediate and final outcome performance measures, including:

- Compliance rates;
- Measures of recidivism and duration of non-compliance;
- Pollution release indicators;
- Indicators of improved environmental management practices and reduced risk;
- Measures of effectiveness of individual compliance assurance instruments; and
- Environmental quality (final outcome) indicators.

Experiences from different countries in Africa and Asia show that they have limited practices in formally measuring the success of enforcement action through performance indicators. There are series of environmental enforcement activities, including having appropriate standards and regulations, carrying out routine monitoring, determining compliance or otherwise, and prescribing appropriate sanctions in line with the standards and regulations. However, many

65 OECD Environment Working Paper No. 18 (by Eugene Mazur), Outcome Performance Measures of Environmental Compliance Assurance (2010), available at: http://www.oecd-ilibrary.org/environment/outcome-performance-measures-of-environmental-compliance-assurance_5kmd9j75cf44-en

Experience from OECD countries

There are three approaches to the design of outcome indicators of compliance and enforcement:

- Performance assessment focused on the effectiveness of compliance assurance instruments across regulations and environmental problems. This approach, historically used by the US EPA, allows the competent authority to measure the improved behavior of the regulated community, inspections and enforcement actions as well as to assess the ensuing pollution reductions.
- Performance assessment focused on specific environmental problems reflecting the competent authority's strategic priorities. This approach, predominantly used in the UK, Denmark and Ireland, is used to track high-risk industrial incidents, emissions of priority pollutants, etc.
- Multi-tier performance assessment focused on pollutant-specific results of regulatory actions at the lower level and on the overall programme effectiveness at the higher level. This approach, used by Environment Canada, look first at reductions of individual regulated pollutants as a result of compliance and then aggregate them into a composite measure characterizing the environmental impact of these reductions.

From the scope of the indicators, the experiences of national environmental enforcement and compliance programmes from around the world also show 4 types of indicators:

- Comprehensive National Indicators to assess the overall effectiveness and improve management of the national environmental agency's compliance and enforcement programme. For example, the US EPA's national ECE indicators. For more information see: <http://www.epa.gov/compliance/planning/reuslts/index.html>.
- Comprehensive Sub-National Indicators to assess the overall effectiveness and improve management of the compliance and enforcement programme of a regional or district office of the national environmental agency, a state or provincial agency, or a local municipal agency.
- Focused national Indicators to assess the effectiveness and improve management of a focused national initiative to address a specific non-compliance pattern or environmental risk. Such as water, air etc. For example, Environmental Canada's focused national ECE indicators. For more information, see: <http://www.ec.gc.ca>.
- Focused Sub-National Indicators to assess the effectiveness and improve management of a focused initiative to address a specific non-compliance patter or environmental risk at the regional, provincial/state, or local/municipal agency, use focused sub-national indicators. (http://www.wrc.org.za/Knowledge%20Hub%20Documents/Water%20SA%20Journals/Manuscripts/2001/02/WaterSA_2001_02_1347.pdf)

However, the OECD review of existing outcome indicators indicates some challenges for developing and using compliance outcome indicators, including resources limitation for data collection and treatment, complexity of scope definition, difficulty of designing statistically-valid indicators, uncertainty in linking outputs with outcomes, and low comparability of indicator, etc.

The review also suggests that it is not possible to identify a “best practice” approach or a set of “flawless” indicators. The functionality of individual outcome measures ultimately depends on their purpose and suitability for joint analysis with the enforcement authority's resource (input) and activity (output) indicators.⁶⁶

66 OECD Environment Working Paper No. 18 (by Eugene Mazur), Outcome Performance Measures of Environmental Compliance Assurance (2010), available at: http://www.oecd-ilibrary.org/environment/outcome-performance-measures-of-environmental-compliance-assurance_5kmd9j75cf44-en

countries do require enforcement action reports annually. This kind of enforcement reports arguably equate to the traditional input-output performance measurement of enforcement actions.

4.2 Input-output measurement indicators

Most of the country representatives participating at the Kunming Workshop indicated that they usually have monthly or bi-annual and annual environmental reports, which include reporting on enforcement. This report usually contains the number of enforcement actions taken, the resources used, and the results of these enforcement actions, including the compliance status, the number of violations, the number of relevant cases in court, fines imposed, the nature of offences dealt with, the fees that go to the environmental fund (if there is such), and other remarks, etc.

Uganda

Measures to assess the effectiveness of enforcement actions in Uganda include: increasing self-monitoring and reporting by the regulated community; annual environmental audits; compliance agreements signed with the regulated community; environmental improvement notices issued to violators; administrative letters providing recommendations and time frames for compliance; accepting to carry out eviction of people settled in fragile systems such as wetlands; restoration Orders issued; demolition of structures and restoration; installing sound proofing in noise-making facilities; and the incorporation of environment and social risk procedures by financial institutions in their operations and those of their clients. The National Environment Management Authority publishes an annual report which provides information on targets and achievements in compliance with and enforcement of environmental laws. Environmental management is decentralized and therefore local governments have an obligation to ensure that the law is complied with.

Cameroon

Assessment of enforcement actions are done by each Ministry. Focal points of multilateral environmental agreements are equally obliged to publish progress in compliance with these agreements. Local Government Authorities: Councils have responsibilities to ensure application of environmental laws in their municipalities via inspection, permits, plans, municipal regulations, natural resource management etc.

South Africa

The Department of Environmental Affairs (DEA) publishes detailed annual reports⁶⁷ This annual report includes reports on environmental compliance and enforcement; as well as including the overall national compliance and enforcement statistics; and statistics on environmental inspections, environmental legislative development, industrial compliance and enforcement, national environment complaints and emergency incidents, environmental compliance and enforcement capacity building to ensure the effectiveness of compliance and enforcement. More specifically, the report includes the following information:

⁶⁷ INECE, The Performance Measurement Guidance for Compliance and Enforcement Practitioners, Second Edition (2008), available at: <http://inece.org//indicators/guidance.pdf>

- Legal, Authorizations and Compliance Management.
- Integrated Environmental Authorizations.
- Compliance Monitoring.
- Enforcement.
- Corporate Legal Support and Litigation.
- Law Reform and Appeals.

The Department of Environmental Affairs also releases an annual set of ‘Technical Performance Indicator Descriptions for the Annual Performance Plan’.⁶⁸ This annual set contains reports on measures undertaken to comply with environmental management administrative enforcement actions (e.g. compliance notices issued) taken by the Department against transgressors (individuals/companies). The intention is to monitor whether transgressors are complying with the administrative enforcement actions taken by the DEA.

Tanzania

Normally, NEMC prepares and submits to the Minister responsible for Environment a bi-annual report concerning how it has implemented the provisions of the Environmental Management Act 2004 including compliance and enforcement.

Also, sector Ministries usually submit their bi-annual report concerning the state of that segment of the environment and the measures taken by that sector including aspect of enforcement and compliance issues. In case sector Ministry detects any contravention of an environmental law beyond its line of responsibility reports to NEMC.

Wildlife Sector Report

According to the Wildlife Sector report, between July 2014 and November 2015, a total of 173,902 patrol man-days were conducted involving routine and special operations in and around the property whereby 366 poachers were arrested and scores of weapons and trophies impounded. However, compared to previous years, elephant poaching incidences have dropped in 2015.

Also, in the effort to increase the number of public prosecutors and accelerating the rate of cases in the court, an inter-agency law enforcement symposium on wildlife crimes and the role of judiciary in sustainable wildlife conservation were convened in December 2015. This symposium involved 46 officers from Magistrates, Prosecutors, Wildlife and Police.

Establishment of Tanzania Wildlife Authority (TAWA) in 2015 in order to improve the resource base hence efficiency and effectiveness in managing wildlife resources in wildlife protected areas. Among others, TAWA is undertaking more robust law enforcement activities so as to curb illegal off take of wildlife resources.

⁶⁸ Available on its website: <https://www.environment.gov.za/>. The most recent annual report is available at: https://www.environment.gov.za/sites/default/files/reports/2015_16annual_report_environmentalaffairs.pdf.

4.3 Piloting outcome measurement indicators

Evaluation of compliance assurance programme activities, often using indicators, which can help to understand their impacts and adjust governmental approaches to changing conditions.

The Expert Working Group on Environmental Compliance and Enforcement Indicators of the International Network on Environmental Compliance and Enforcement developed *the Performance Measurement Guidance for Environmental Compliance and Enforcement Practitioners (2nd edition)* in 2008⁶⁹.

The *Guidelines* provides environmental enforcement practitioners with a methodology on how to develop the measurement indicators. The development of the measurement indicators has three stages: (1) identifying potential indicators and selecting an appropriate combination; (2) developing indicators through designing and testing; and (3) using the indicators to improve program performance and enhance accountability to stakeholders (*See the table below*).

Intergraded input –output intermediary outcome indicators

Stage 1 Identifying Potential Indicators	Stage 2 Developing Indicators	Stage 3 Using Indicators
Determine scope	Use internal teams to determine how to design and test	Monitor performance with regular reports
Consult with stakeholders/staff	Conduct pilot projects	Analyze performance of organizational units
Apply logic model	Develop in phases	Review effectiveness of specific Programs
Develop guiding principles	Consult with experts	Report to external audiences
Select criteria for evaluating indicators	Monitor design and testing	Analyze behind the numbers
Develop common definitions for key terms	Create and distribute development plan	Assess and adapt indicators
Inventory existing data Sources	Ensure timely and accurate	

69 DEA, Technical Performance Indicators,

China

Based on this Guideline, China's Ministry of Environmental Protection, in 2012, issued a *Circular on Enhancing the Capacity of Environmental Enforcement Performance Evaluation and Piloting Enforcement Performance Measurement* (MEP/2012/88). The piloting was carried out in seven provinces and cities. These include: Hubei Province, (Wuhan and Huangshi), Shanxi Province, Shandong Province, and others. The measurement indicators of enforcement aim to improve environmental conditions, behaviors of the regulated community, and the effectiveness of environmental compliance and enforcement.

To implement the above *Circular*, Hubei Province issued an instruction for the pilot environmental enforcement performance evaluation. The instruction states that Wuhan and Huangshi will be the two cities that carry out the pilot environmental enforcement performance evaluation.

To ensure the implementation of the pilot project, a small leading group was established to carry out the performance evaluation. A set of evaluation indicators were also developed. *Please see the table below.*

Performance Evaluation Indicators System of Environmental Enforcement in Hubei Province ⁷⁰

Level 1 Indicators	Level 2 Indicators	Level 3 Indicators	Evaluation Standard	Data Sources	Scores
Basic Enforcement Conditions 20 points Law Enforcement Officers (4 points) Funding (9 points)	Institutional Setting (2 points) Coverage	Nature of Institution	For the public management of public institutions or full financial institutions, and set up separately	Evaluated Unit	
		In key towns, industrial parks with environmental protection agencies or environmental protection staff	Evaluated Unit		
	Staff Number	Staff number meets the standardization of construction requirements, all staff in the position	Evaluated Unit		
	Academic Level	Personnel education (college or above) to achieve standardization requirements	Evaluated Unit		
	Professional Composition	Environmental protection, legal and other relevant professional staff meet the standardization requirements	Evaluated Unit		
	Staff Training	Environmental monitoring position training rate meet the standardization requirements	Evaluated Unit		
		Per Capita Working Expenses	Included in the budget, and meet the regional environmental law enforcement needs	Evaluated Unit	
	Per Capita Office Space	Per capita office space meets the standardization of construction requirements	Evaluated Unit		
	Vehicle Configuration	The number of law enforcement vehicles meets the standardization requirements	Evaluated Unit		

70 http://report.hbepb.gov.cn:8080/pub/root8/bgswj/201209/20120912_55703.html

Level 1 Indicators	Level 2 Indicators	Level 3 Indicators	Evaluation Standard	Data Sources	Scores	
Basic Enforcement Conditions 20 points	Funding (9 points)	Law Enforcement Equipment	The score of equipment construction meets the standardization requirements (not less than 85 points)	Evaluated Unit		
		12369 Complaint Acceptance System	Use a 12369 reception system with records, queries, summaries, and analysis functions	Evaluated Unit		
	Information infrastructure (5 points) Sewage Charge System Achieve information management of sewage charges Administrative Penalty System Realize the information operation of administrative punishment procedure Automatic Monitoring System Have a automatic monitoring center or real-time query automatic monitoring data Mobile Enforcement System Equipped with mobile law enforcement system and improve the background database	Evaluated Unit				
		Evaluated Unit				
		Evaluated Unit				
		Evaluated Unit				
		Evaluated Unit				
		Evaluated Unit				

Institutional Settings (20 points)	<p>Rules and Regulations (10 points)</p> <p>Law Enforcement Inspection System</p> <p>The establishment of law enforcement coverage or law enforcement frequency and other internal system</p> <p>Law Enforcement Responsibility System</p> <p>Have a clear job responsibilities, accountability system</p> <p>Law Enforcement Inspection System</p> <p>Municipal law enforcement agencies establish subordinate law enforcement agencies of the audit system</p> <p>Law Enforcement Unannounced Visits to the System</p> <p>The establishment of dark investigation, unannounced visits and other monitoring mechanisms</p> <p>Government Information Management System</p> <p>The establishment of environmental government information system and the requirement of information submission</p>	Law Enforcement Personnel Training System	The establishment of regular training system for law enforcement officers, and meet standardization requirements of certificates rate	Evaluated Unit
		Evaluated Unit		
		Evaluated Unit		
		Evaluated Unit		
		Evaluated Unit		
		Evaluated Unit		

Level 1 Indicators	Level 2 Indicators	Level 3 Indicators	Evaluation Standard	Data Sources	Scores
Institutional Settings (20 points)	<p>Rules and Regulations (10 points)</p> <p>Develop Law Enforcement Plan</p> <p>Reasonable development of annual and monthly law enforcement plan, each time to carry out law enforcement to develop inspection programs or clear inspection of the purpose and focus</p> <p>Post - inspection System</p> <p>The establishment of the system after the inspectors and environmental issues rectification of the inspectors</p> <p>Law Enforcement Officers Integrity System</p> <p>The establishment of law enforcement officers integrity system, regular training of clean government</p>	Law Enforcement File Management System	The establishment of law enforcement files standardized management system, the requirement of the focus of pollution sources to establish a "factory one" file	Evaluated Unit	
		Evaluated Unit			
		Evaluated Unit			
		Evaluated Unit			
	<p>Mechanism Innovation (10 points)</p> <p>Key Industry Standard Management</p> <p>Key industry development law enforcement guidelines or corporate compliance guidelines in the area</p> <p>Classification Supervision System</p> <p>According to corporate pollution or corporate environmental credit on the area of enterprise classification, classification supervision</p> <p>Traces Management System</p> <p>Standardized management of the law enforcement traces, to retain the complete traces</p> <p>Diagnostic Management System</p> <p>The establishment of diagnostic supervision system of key enterprises and key cases</p>	Grid Management System	The establishment of "grid" management to ensure clear regulatory responsibilities	Evaluated Unit	
		Evaluated Unit			
		Evaluated Unit			
		Evaluated Unit			
		Evaluated Unit			
		Evaluated Unit			

Administrative Performance (35 points)	Important Tasks (10 points) Important tasks Assigned by Government The establishment of detailed decomposition of work objectives to specific departments, positions and responsible persons; to carry out stage supervision; and good completed result of task objectives	Important tasks Assigned by Superior Environmental Protection Department		The establishment of detailed decomposition of work objectives to specific departments, positions and responsible persons; to carry out stage supervision; and good completed result of task objectives	Superior environmental protection department	Scores
		Local government				
Level 1 Indicators	Level 2 Indicators	Level 3 Indicators		Evaluation Standard	Data Sources	
Administrative Performance (35 points)	Site Supervision and Check (6 points)	Plan Enforcement		Various types of pollution sources meet the planned regulatory frequency and regulatory requirements	Evaluated Unit	
	Total Number of Supervised Enterprises	Evaluated Unit				
Punishment (8 points)	Disposal of Illegal Environmental Cases	The total number of enterprises included in the scope of supervision within the jurisdiction, and there is a clear list of pollution sources within the area		Evaluated Unit	Evaluated Unit	
		The total number of cases decided to issue administrative penalties shall not be less than 95% of the total number of cases of environmental violations				

				Administrative Penalty Case Close Rate	The proportion of administrative penalties on the number of cases of administrative punishment shall not be less than 90%	Evaluated Unit			
				Deadline to deal with case closure rate	The proportion of on time to complete rectification should not be less than 95%	Evaluated Unit			
				Ordered Rectification Case Rate	The proportion of on time to complete rectification should not be less than 95%	Evaluated Unit			
				Sewage Charges (3 points)	Number of Companies Levied	The proportion of enterprises levied on the amount of sewage charges shall not be less than 85%	Evaluated Unit		
				Sewage Charges Collection Rate					

Level 1 Indicators		Level 2 Indicators		Level 3 Indicators		Evaluation Standard	Data Sources	Scores
Administrative Performance (35 points)		Petition and Complaints (5 points)		Petition and Complaints Rate		Single complaints made more than three times a year should not be higher than 5% than the number of complaints in the total number of complaints (excluding rectification, environmental protection departments can not be resolved and transferred to the relevant departments, etc.)	Evaluated Unit	
		Petition and Complaints Response Rate	Through the complaints have been done on the line of checks on the line visit, the investigation of the satisfaction of the masses of complaints to the proportion of the number of checks should not be less than 95%	Superior environmental protection department				
Law Enforcement Effectiveness (25 points)		Law Enforcement Normative (7.5 points)		Law Enforcement Inspection Normative		The accuracy of site inspection records and other law enforcement records	Superior environmental protection department	
		Case Normative	The accuracy of sampling the administrative penalty cases procedures, evidence, applicable legal provisions and other norms	Superior environmental protection department				

4.4 Other types of performance evaluation

Evaluating effectiveness of laws

China

To ensure the implementation of the new Environmental Protection law (2014), a group of well-known environmental law scholars and practitioners conducted and released an evaluation report on the “Implementation of the New Environmental Protection Law” in 2016. The objective of the exercise is to evaluate the effectiveness of the implementation. The evaluation report shows that the implementation of key environmental management systems has achieved remarkable results, especially in the field of information disclosure and inspection. Since the implementation of the new law, the rate of the EIA approval has dramatically increased. 32% of the provinces rejected the construction of illegal projects.

Senior official environment performance evaluation

China

To ensure that the public officers take into consideration environmental matters in their performance of the public duties, China has enshrined performance measures of its senior officials in its new Environmental Protection Law, 2014. The objectives were to encourage provincial and local senior officials to implement, comply with and enforce environmental laws.

Under Article 26 of the revised *Environmental Protection Law* (2014), the accomplishment of environmental protection targets will be considered as a factor for senior government officials’ performance evaluation, and the evaluation results will be made public. In addition, Article 68 of the revised law provides that government officials will be subject to severe penalties if they fail properly to perform their duties of environmental protection and supervision. In response to the demand of heightened responsibilities for officials to oversee environmental protection under the new law, the General Office of the Central Committee of the Party and the General Office of the State Council have jointly issued *the Measures for Investigation of Liability of Officials of the Communist Party of China and the Government for Ecological Environment Damage (for Trial Implementation)* (hereinafter the “Accountability Measures”). The measures took effect in August 2015, and hold relevant senior officials at all levels liable for adopting policies which contradict environmental protection laws and policies, approving projects which violates environmental protection policies and laws and any serious environmental pollution or ecological damage which has occurred in their jurisdictions. In the meantime, such liability will have a lifetime and retroactive effect on those officials, no matter whether the official is promoted, relocated to other government entities, or even retired. Furthermore, such liability will lead to administrative disciplinary sanctions (which include demotion, no promotion within one or two years, or removal from current post) or even to criminal prosecution. Given that Chinese officials would generally not want to jeopardize their political careers for their negligence in following the laws, it is thus believed that the Accountability Measures may help improve the outcome of environmental protection, if the Measures are strictly enforced.

Vietnam

The National Environmental Agency manages the national Environmental Monitoring Network that was established in 1994 and which carries out monitoring activities at 250 locations in 45 provinces. These locations include environmental hotspots such as industrial zones, large cities, and environmentally sensitive ecological regions. The parameters monitored are basic quality parameters for air, water, land, coastal environment, solid waste, noise, acid deposition, radioactivity and indoor working environment.

Evaluation and appraisal of corporate environmental performance

As mentioned in Chapter 2.5 - Promoting and rewarding good compliance, in order to encourage and enhance environmental compliance, many countries have set up programmes to promote and reward good environmental performance. Such programme all use performance evaluation and appraisal of private companies. These include: China's National Excellence Enterprises for Environmental Protection, National Excellence Units for Energy-Saving, National Advanced Enterprises for Environmental Protection and National Advanced Enterprises for Public Health, etc. Many other countries including Ghana, Indonesia, the Philippines, India and Vietnam have also had similar programmes.

All these programme use certain evaluation methods to measure environmental compliance and performance. In future, measuring performance of either private companies and public authorities will play an increasing role in helping improve environmental compliance and enforcement.

4.5 Challenges

- Fragmented legislation.
- Uncoordinated implementation of existing environmental framework legislation.
- Insufficient information disclosure in matters regarding the state of the environment.
- Insufficient enforcement technology instruments and knowledge.
- Inadequate performance indicators and evaluation to show the success of enforcement activities.
- Uncoordinated enforcement activities.
- Lack of unified compliance and monitoring guidelines for institutions or agencies.
- Inadequate capacity of environmental inspector to conduct compliance monitoring.
- Lack of a legal instruments for determining environmental damage and compensation.

4.6 Recommendations

- Need of coordinated institutions and legislation.
- Improvement of advance enforcement technology and knowledge.
- Strengthening of operationalization of compliance guidelines or monitoring handbook that is applicable to all environmental agencies or any institution that deals with matters relating to the environment.

- Establishment of Information sharing platforms for environmental enforcement institutions.
- Establishment of sharing information networks between countries.
- Establishing and strengthening information disclosure systems/mechanisms between the public and institutions in regards to state of the environment.
- Development of a tool of Key Performance Indicators and Evaluation on enforcement.
- Development of a system to award or incentivize environmental performance and compliant companies
- Development of technical manuals for investigation and prosecution

