9 Information integration

Data and information sharing allow regulatory delivery agencies to increase co-ordination and efficiency, helps inspectors target better site visits and reduces administrative burdens for citizens and businesses. This chapter goes over the technological tools and internal arrangements that OEFA has set in place to promote information integration, exchange and management. This chapter also provides recommendations with the objective of facilitating data availability and interoperability among institutions.

Information and communication technologies should be used to maximise the focus on risks, promote co-ordination and information sharing and ensure an optimal use of resources (OECD, 2014[1]), (OECD, 2018[2]).

Inspection and enforcement structures need adequate and up-to-date data and IT tools allowing for effective risk-based planning and follow-up on previous inspections. Proper risk-based targeting requires a comprehensive database of objects under supervision, including their fundamental characteristics with regards to risk – activities, scope, location, track record. For effective enforcement, a system of case management, records and workflow management is a considerable asset. Combining both is the best option to ensure optimal efficiency and targeting.

Data should be shared regularly between different inspection structures and/or records of other structures should be easily available. Preferably, data should be fully integrated in a single database among different inspection structures. This is particularly the case if several inspection structures are active in the same regulatory field. Ideally, several (or all) agencies should use the same database, with different agencies being responsible to fill in different data points, but all able to consult the others' data.

Sharing and exchanging of data should ideally go beyond the "narrowly defined" inspection and enforcement field and include business registration, licensing, public health, amongst others. For instance, obtaining data on contamination cases or illnesses from public health services is essential to improve risk-based targeting. Likewise, to have an up-to-date list of objects under supervision requires a constant interface with business registration, licensing and permit systems.

IT tools to ensure data collection, availability and management of activities

OEFA has invested significant financial and human resources in the development of a variety of information and communication technology (ICT) tools – including core and support information systems, mostly for OEFA internal use, and some other tools aimed at sharing information with the public. Table 9.1 shows the available ICT tools.

Table 9.1. OEFA ICT tools

Main information applications in use by OEFA

	No.	Application name	Functionality description	User	Access link/access
CORE INFORMATION SYSTEMS	1	Information on inspections (Direct Inspection System)	Allows to keep track of inspections, its documents and other related components.	Some directorates within OEFA	https://publico.oefa.gob.pe/sisud Username and password
	2	Sampling system (SIMUES)	Registry of custody chains, sampling points and laboratory results for inspections or monitoring.	Some directorates within OEFA	https://publico.oefa.gob.pe/simues Username and password
	3	Complaints system (SINADA)	Filing of complaints validated and managed by specialist. System for internal use and web form for filing. New system has been developed with better functionalities.	General public/relevant OEFA directorate	http://apps.oefa.gob.pe/sinada http://apps.oefa.gob.pe/sinada/faces/registroDenunciaWeb1.jsp Username and password
	4	PLANEFA recording system	EFAs to record PLANEFA templates. OEFA inspectors have access to this information	Some directorates within OEFA	http://apps.oefa.gob.pe/planefa/ Username and password
	5	Environmental tools registry (RIA)	Registry of IGAs, monitoring reports and other relevant information by regulates.	Relevant OEFA directorates	Client-server Username and password
	6	Environmental information system (SIIA)	Recording of assessments/ inspections planning and of ToRs that may be needed for sampling.	Some directorates within OEFA	http://publico.oefa.gob.pe/siia/Login.aspx Username and password
	7	Environmental surveillance (VIGAMB)	Validation and quality of data from air monitoring stations.	Relevant OEFA directorates	https://sistemas.oefa.gob.pe/oefa-vigamb-aire-pro/ Username and password

	No.	Application name	Functionality description	User	Access link/access
SUPPORT INFORMATION SYSTEM	8	Online inspection system (SISO)	Regulatees can register their requirements checked during inspections (for the moment, regulatees from hydrocarbons internal trade)	Relevant OEFA directorates	https://sistemas.oefa.gob.pe/oefa-siso-web/ Username and password
	9	Directorate for enforcement and incentives imposition operator (GESTOR DFSAI)	Management of DSAI files	Relevant OEFA directorates	Client-server Username and password
	10	OEFA Integrated administrative management system (SIGA-OEFA)	Requests related to services and goods from all OEFA sectors. Recording of needs through POI registry. Budgetary control of needs from all sectors	OEFA	https://sistemas.oefa.gob.pe/sigaoefa Client-server Username and password
	11	Electronic management system for documents (SIGED)	Automation of documents management with digital signature.	OEFA	https://sistemas.oefa.gob.pe/siged/ Username and password
	12	Integrated human resources system (SIA RRHH)	Employees management (recruitment and training; attendance control; salaries and holidays)	OEFA	http://publico.oefa.gob.pe/oefa-portal-web/comun/paginas/login.jsfClient-server Username and password
	13	Interoperability (INTEROPERABILIDAD)	Services published by state interoperability platform that can be useful	Some directorates within OEFA	http://publico.oefa.gob.pe/interoperabilidad/Page/Login/login.xhtml Username and password
	14	New fines settlement system (NCONMUL)	Recording, control and follow-up of fines.	Some directorates within OEFA	http://sistemas.oefa.gob.pe/oefa-nconmul-frontend Username and password
	15	Regulatory contributions system (SAPR)	Monthly sworn Declaration by businesses. Implements regulatory contributions collection process	Relevant OEFA directorates	https://apps.oefa.gob.pe/srcar/ Username and password
	16	Implementation of online collection system regulatory contributions system (ASBANC)	On line collection of payments	Relevant OEFA directorates	http://servdesajbossesb1.oefa.gob.pe:9000/cxf/pasarelaOEFA?wsdl http://10.1.1.171/pasarela-pagos-apr-ws/restAPR/administradows/ http://10.1.1.171/pasarela-pagos-apr-ws/restAPR/deudaws/ http://10.1.1.171/pasarela-pagos-apr-ws/restAPR/pagows/ http://10.1.1.171/pasarela-pagos-apr-ws/restAPR/anularextornarws/ Username and password
INFORMATION	17	Intranet	Institutional information of OEFA's employees	OEFA	https://intranet.oefa.gob.pe/ Username and password
	18	Interactive environnemental inspections portal (PIFA)	Inspections procedures Interactive platform	General public	https://publico.oefa.gob.pe/Portalpifa/ Public
	19	OEFA Open data portal (PDAO)	Open data from OEFA	General public	http://datosabiertos.oefa.gob.pe/home Public
	20	Digital repository (REPDIG)	Decisions on sanctions, public reports, administrative measures decisions from Environmental Inspections Tribunal	Some directorates within OEFA/general public	https://publico.oefa.gob.pe/repdig Public
	21	Consultation Service of Competencies in Environmental Inspections (SECONFIA)	Research of competent EFA and legal basis for a given environmental issue.	General public	https://sistemas.oefa.gob.pe/oefa-seconfia-web/#/invitado/inicio Public

Source: OEFA (n.d.[3]), *Organismo de Evaluación y Fiscalización Ambiental*, https://www.gob.pe/minam/oefa (accessed 14 October 2019).

The status of these tools vary as some of them are still partly under development, are being upgraded or improved, or are being created (for example SUPEREFA – see Chapter 4 on Risk focus and proportionality). The Applied Information System for Supervision (INAPS) is the tool used by OEFA to collect information on inspections, regulated businesses, documents and other components developed during the inspection process. Although the INAPS is used by OEFA to plan inspections, it appears that assessing priorities for planning requires data from a number of other systems. Inspections are monitored on a monthly basis, and the relevant information is summarised and published in the quarterly statistical reports. Efforts to systematise data started in 2016. Previous information is considered incomplete and/or unreliable.

The database of establishments under supervision (housed in the INAPS system) aims at being comprehensive for the sectors initially under the competence of OEFA. Data on competence sectors that have recently been transferred to OEFA still need to be completed (e.g. industry sector). Apart from data on "fully formal" businesses, information on subjects against which a complaint was filed and/or have already undergone an inspection by OEFA, censuses are carried out in an attempt to have a full picture of regulated entities, including informal businesses. It remains to determine how effective censuses are at gathering data on illegal businesses.

OEFA could benefit from introducing a simple notification system for all businesses to indicate the start of their operation, which could be made part of a broader reform where such a notification replaces licenses and permits for a number of low-risk businesses. Otherwise, it could request a notification restricted to formal businesses, i.e. based on actual start of operations upon obtaining the required licenses and permits – or while license/permits applications are still pending, as it can be reasonably assumed that a number of businesses that have not obtained a license/permit, but have applied for it, are operating anyway. Ideally, OEFA would obtain an automatic notification of license/permit applications from the competent authorities, rather than imposing the notification obligation on businesses.

ICT tools introduced by OEFA aim at systematising data about their activities, which include data on inspections and businesses, sampling and monitoring, IGAs, sanctions and measures. They also gather information needed for the functioning of the organisation such as human resources and training, and provide a platform to oversee the performance of all EFAs, by recording the PLANEFAs. As general principle, data points needed on establishments should be reviewed and revised for all areas of competence in line with the risk-based approach. Currently OEFA uses primarily indicators related to socio-environmental conflicts, so more assessment of data and measureable evidence is needed to achieve a balanced risk-based planning of inspections. A review of data points would allow ensuring that all the information required for the improvement of risk-based planning is available.

Furthermore, available information, including inspection minutes and reports, should be systematically recorded in a way that allows for their further analysis and use. This is an issue that has been taken into account and OEFA is actively working on a tool to be used by their staff during inspections allowing this. Introducing inspection checklists is a useful practice that could be considered to this aim. Finally, whenever possible, automated risk-based planning of inspections based on the database of establishments, risk profiles and scoring is a good practice that could be implemented. See Box 9.1 for examples of shared inspection management solutions.

ICT tools to support the management of complaints and payment of duties by regulated entities subject to the Regulatory Contribution also exist. Advanced technologies and instruments already in use include geographic information system and geo-localisation equipment or automatically generated codes allowing businesses to verify online the identity of inspectors.

> ## Box 9.1. Common features and functionality of shared inspection management solutions
>
> *Basic solutions:* incorporate information about businesses and entrepreneurs, their characteristics (e.g. locations, size, and industry, amongst others) and previous inspection results to allow for simple planning of future inspection activities. These systems typically provide a full inspection history by business and location and use a checklist to obtain consistency across inspections. Solutions in this category may share information across several inspectorates; however, there is typically very limited automation or system-to-system integration.
>
> **Intermediate solutions** have functionality to trigger follow-up activities based on the outcome of an inspection and allow for automated integration of inspection practices across inspectorates. Ideally, they are integrated with government business registries or other sources of enterprise information to identify the location, sector and other key attributes of a business. Intermediate solutions may also include limited mobile inspection capabilities and support some level of automated inspection plan creation based on previous inspection results.
>
> **Advanced solutions** include a variety of other features and functions such as:
>
> - **Risk-based inspection planning** allows for the scheduling and planning of inspections based on a risk assessment of the business. It includes key information such as size of the business, previous inspection results, industry, geography, and data form other inspectorates or government information sources.
>
> - **Automated of real-time integration with other information sources,** which generally fall under two broad categories: (i) registry information (e.g. business/company registration information, licences and permits); and (ii) risk information (e.g. business/company risk based on its activities and profile, results of inspections or reports from other inspectorates).
>
> - **Comprehensive mobile inspection capabilities** include tools and technologies that give inspectors the ability to view schedules and inspection records as well as record inspection results while onsite. The study revealed that a number of jurisdictions leveraged mobile computing platforms to support inspections in the field. The approaches varied from using notebooks, tablets and handheld devices to full online access using web-based applications. Technology adoption by inspectors, however, proved to be a challenge in many jurisdictions as significant training was required. The age and technical background of the inspectors were typically contributing factors.
>
> - **Performance management capabilities enabled through business analytics** aligned with risk-based planning and provides capabilities for inspectorates to monitor the efficiency and output of their inspection programme and individual inspectors.
>
> - **Public portal capabilities** involves providing access to businesses and the general public to view inspection requirements and results, submit complaints, and appeal an inspection.
>
> Source: Wille and Blanc (2013[4]), *Implementing a shared inspection management system: insights from recent international experience, Nuts & bolts*, World Bank Group., Washington D.C.

Data sharing

As shown in Table 9.1, most of the ICT tools (either core or support applications) introduced by OEFA are for internal use. The INAPS covers inspection objects and subjects under OEFA's competence and can be only accessed by OEFA (including regional delegations of OEFA). As previously mentioned in Chapter 7 on Co-ordination and consolidation, access to other EFAs is not considered as an option as OEFA is not allowed to disclose information related to ongoing inspections and enforcement procedures.

From a review of the contents of the law, it is not clear why this clause should be held to apply also to information on past, closed inspection procedures, and to information-sharing within government bodies and not with the public.

Information on OEFA's activities that can be disclosed (including monitoring data, fines, and inspection reports, amongst others) is shared with other authorities and the public through PIFA. The latter is the Interactive Environmental Monitoring Portal, where OEFA has built a viewer that is currently used for emergencies and allows interacting with information from other organisations and sharing data in real time.

However, it must be highlighted that not allowing access to the INAPS database is a barrier to a real consolidation of SINEFA, to its efficiency, as it does not allow for an optimal use of resources and effectiveness in terms of protection of the public well-being. Having an integrated database, or granting EFAs access to it, is all the more important given that a significant number of local EFAs do not seem to have an adequate database. In some cases, EFAs do not have any electronic database, information on establishments is very partial, and often do not really know which type of data on businesses they should be collecting.

The objective of the National Environmental Information System (SINIA) is to be a technological and institutional integration network to facilitate the systematisation, access and distribution of environmental information (Ministerio del Ambiente, n.d.[5]). However, it requires further development to meet its goals, as it only provides a limited number of information items. The system includes environmental indicators (concentration of specific air and other pollutants in specific areas), thematic maps, common documents, but does not contain information on economic establishments, inspection, amongst others,

Art. 76 of the Single Consolidated Text of the Law on General Administrative Procedure foresees that public authorities shall collaborate with each other by providing data and information they possess, regardless of their legal nature.

To implement the latter, the Peruvian government has implemented interoperability solutions through the State Interoperability Platform (PIDE) that allows OEFA to access information from the National Identification Registry, Customs and Tax administration and National Meteorology and Hydrology Service of Peru, among others. Recently, access was granted to platforms of SENACE. This means, among other things, that a) OEFA has committed to provide SENACE with access to the database on environmental consultant/consulting companies, and that b) OEFA can enter the licensing registry of SENACE on "environmental certification".[1] This creates new opportunities for OEFA to obtain up-to-date data on active businesses, and thus, to build a much more comprehensive database, as well as to obtain additional information to build establishments' risk profiles.

The organisations involved in the interoperability system in February 2019 were the following:

Table 9.2. Authorities operating on PIDE

Authority
Ministry of the Presidency of the Council of Ministers
Ministry of Women and Vulnerable Populations
Ministry of Production
Ministry of Transport and Communications
Ministry of Foreign Trade and Tourism
Ministry of Culture
Ministry of Energy and Mines
Ministry of Defence
Ministry of Foreign Affairs
National Meteorology and Hydrology Service
Environmental Assessment and Enforcement Agency

Authority
National Centre for Strategic Planning
Peru Sea Institute
Purchase Agency of the Armed Forces
Ministry of Agriculture And Irrigation

Such interoperability provides the possibility to exchange information in a digital form easily, but does not mean that all involved ministries and institutions have transformed their systems to make use of it yet. As a result, OEFA depends on other agencies to have the data available and the technology that allows it to be accessed. In addition, an agreement is in process with the Ministry of Health for the exchange of information on public health in areas where OEFA has warnings of negative impacts on the environment.

Assessment

OEFA has made significant progress in the development, introduction and use of ICT tools, including GIS-related. As additional competences are transferred to OEFA, active work has been done to collect data on regulated subjects mainly by performing censuses on the universe of establishments covered. However, risk data on establishments are to be further completed. Planning of inspections is insufficiently automated. Moreover, other EFAs have considerably less developed data and information management systems.

Finally, OEFA may suffer from a proliferation of different IT systems, with incomplete inter-operability among them. This situation makes it more difficult to improve risk-analysis, risk-focus, and overall efficiency and effectiveness.

Box 9.2. Health and Safety Executive System for Regulatory Targeting (UK)

Use of Evidence Sources in Good International Practice

Measuring outputs

The Health and Safety Executive (HSE) is a non-departmental (autonomous) public body that reports to the Department for Work and Pensions with the core purpose to reduce work related injuries and ill-health. It operates from a number of sites across Great Britain and employs over 2 500 people.

Internationally, the HSE has long been at the forefront of innovation in regulatory delivery methods, in particular in terms of risk-based targeting, risk-proportional enforcement and the use of data and compliance promotion through guidance, collaboration with industry, and long-term engagement. Over time, however, a large amount of data on different topics accumulated in a number of formats and repositories and it became difficult to use them effectively to create intelligence for risk-based decision making.

Features and functionalities of key complementary instruments

In order to improve its regulatory targeting capability, to secure the greatest impact on reducing work-related risk, HSE developed two key complementary instruments. They aim together at improving intelligence on businesses to refine regulatory interventions:

- Organisation and address matching algorithms, which allow HSE to match business datasets together without the requirement for unique identifiers. These approaches utilise the site location and the numerous names used by a business to link regulatory and administrative data held about a business entity.

- A web application (Find-It), which is custom-developed based on open source components, and has a number of ways to interrogate the linked data.

HSE Science Division researchers consulted various regulatory delivery bodies while working on the concept, such as local authorities; Fire and Rescue; Department for Environment, Food and Rural Affairs; and Employment Agency Standards.

Inspectors no longer have to self-select sites to identify high-risk premises. A number of algorithms match GIS information about the location of the site, the numerous names used by a business, regulatory and administrative data about a business kept in various databases within and across organisations.

The main sources for the GIS information tool are:

- HSE Notices & Prosecutions
- HSE Accident database
- HSE Ratings
- HSE Sites
- HSE Concerns
- Companies House – (Limited Companies)
- Adverse Insurance reports
- AddressBase Premium – National Address Database
- Telephone Directory
- Valuation Office Agency Data
- Other regulatory data including:
  - Environment Agency
  - Animal and Plant and Health Agency
  - Rural Payment Agency

HSE has data on almost 150 000 sites related to 'general inspections' (this excludes therefore construction and major hazard sites). The system has the possibility to access other data, from other organisations: Companies House – the Inter Departmental Business Register from which they use data only for statistical purposes – and MINT-UK – a platform which provides access to over 2 000 000 active businesses.

Source: World Bank (n.d.[6]), *The Future of Business Regulation: Case study: Making better use of information* (forthcoming).

Recommendations

- The MINAM could benefit from introducing a simple notification system for all businesses to indicate the start of their operation. This could be made part of a broader reform where such a notification is introduced to replace licenses and permits for certain low-risk businesses. Ideally, the MINAM would obtain an automatic notification of license/permit applications being received/granted from the competent authorities, rather than imposing the notification obligation on businesses in addition to the license/permit procedure.

- Access to at least certain data recorded in OEFA's inspections ICT tool should be allowed within SINEFA. This does not mean publicly disclosing data that are protected by the law, but that access could be granted to EFAs only and with regard to specific data points that are needed.

- OEFA would benefit in particular from fully digitising data and information to ensure that improved risk analysis, planning and automation are possible. Following this, they may consider introducing automated planning of inspections, as the universe of establishments covered in the system and relevant risk data are progressively expanding.

- Whenever possible, interoperability and information sharing should be opened to other public entities (starting with other EFAs). This process has already started and should be continued and strengthened.

- Review internal OEFA systems and assess opportunities for greater integration and/or consolidation – avoid further proliferation of systems for specific tasks. Ways forward could involve greater data sharing between different institutions, gathering of more risk-related data points on each establishment, and gradual automation of processes (in particular planning)–as well as greater internal consolidation and integration of systems. The example of data integration and management in the UK's Health and Safety Executive can provide useful inspiration.

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World Bank (n.d.), *The Future of Business Regulation: Case study: Making better use of information (forthcoming)*.. [6]

Note

[1] See Work plan, framework agreement for institutional cooperation between OEFA and SENACE *(Plan de trabajo, Convenio marco de Cooperación institucional entre el OEFA y el SENACE)*, July 2019.