

**International consultancy services
to provide technical and advisory services
for development of e-portals under the project
“Sustainable Environment-friendly Industrial Production”**

**Report
Environmental Self-Assessment Tools for Industry**



**Report on international case examples and
best practices related to the following
as per Sub-task 1:**

- Environmental Self-Assessment Tools for Industry -

Your contact:

INTEGRATION Umwelt & Energie GmbH
Bahnhofstrasse 9
D-91322 Gräfenberg / GERMANY

Tel. +49(0)9192-9959-0
Fax +49(0)9192-9959-10

Direct Contact Person:

Florian Bemmerlein-Lux
Fbemmerlein-lux@integration.org
Tel. +49 1601564066

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List of Abbreviations

ASEM	Advisory Service for Environmental Management
CETP	Common Effluent Treatment Plant
CII	Confederation of Indian Industry
CPCB	Central Pollution Control Board
ETP	Effluent Treatment Plant
FGD	Focus Group Discussion
FICCI	Federation of Indian Chambers of Commerce and Industry
GIZ	Gesellschaft für internationale Zusammenarbeit GmbH
HRDP	Human Resource Development Platform
ICT	Information and Communication Technology
IGEP	Indo-German Environment Programme
InWEnt	Internationale Weiterbildung und Entwicklung gGmbH
IT	Information Technology
LMS	Learning Management System
MIS	Management Information System
MoEF&CC	Ministry of Environment, Forest and Climate Change, Government of India
MOOC	Massive Open Online Course portal
NIT	National Informatic Centre
NMCG	National Mission for Clean Ganga
NSDC	National Skills Development Corporation
SCGJ	Skills Council for Green Jobs
SEIP	Sustainable and Environment-friendly Industrial Production
SME	Subject Matter Expert
SOP	Standard Operation Procedure
SPCBs	State Pollution Control Boards

1 Background

The industry contributes to about 23% of India's GDP. India has nearly 36 million MSMEs (as in the year 2017). A good fraction of these industries may have relevance to complying with environmental laws. A self-assessment tool (SAT) could help industries assess their status with environmental compliance as take suitable action accordingly. An environmental self-assessment tool based on environmental legislation could help industry in decision making on compliance. The Environmental Agencies of Scotland and Northern Ireland of have introduced "Environmental Business Self-Assessment Tool" Another example is an "Environmental Business Self-Assessment Tool" from Wisconsin Department of Natural Resources (USA).

There is a need to develop a similar Environmental Self-assessment Tool for the Indian industries. It is proposed to develop the Web-based Environmental Self-assessment Tool for Industries under SEIP Project and host at CPCB.

Integration has been given the task to provide technical & advisory services to the national consultants engaged by GIZ for development of an Environmental Self-assessment Tool for Industry as a part of capacity building of CPCB for strengthening of pollution prevention & control and environmental compliance in India:

Overall scope of services is as below:

Concept development: Providing of concepts for the development of above-mentioned self-assessment tool, technical concept on the overall purpose, contents, functions required etc.

Design and development: Providing of inputs to the national consultants engaged by GIZ for planning and designing of the SAT.

Manuals/guidance documents: Providing of inputs to the national consultants for the development of user manuals and reference documents.

Training: Be resource persons for conducting of training courses to enable CPCB, SPCBs and users understand the functioning, usage and operation of the portal.

This report is related to:

Main Task 1: Concept Development for national environmental self-assessment tool for industry

Sub Task 1: Provide international case examples and best practices on the following to the national consultants so as to use as reference for developing the environmental self-assessment tool for industry

Sub-task 2: Provide guidance to the national consultants for the development of concept including functionalities, design etc. for the self-assessment tool

First Deliverable of this project is a report related to task 1: Concept Development for self-assessment tool:

Reports on Main Task 1:

Report on international case examples and best practices related to the following as per Sub-task 1:
- environmental self-assessment tool for industry

Report on concepts as per Sub-task 2 for the environmental self-assessment tool for industry as above.

2 Content of this Report

This Report describes the results of the assessment of international environmental self-assessment tools and provides a concept for an Indian SAT. The first part of the report (chapter 3 to 6) describes the content and main features of each international SAT and makes an assessment of the advantages and disadvantages of each tool. In the following section (chapter 7) a quantitative comparison of these e-portals has been performed. In chapter 8 the results are combined in recommendations on issues which should be considered when developing the self-assessment tool.

The SATs assessed are:

1. Self-assessment tool for gaseous industrial effluents of the European Commission
2. Environmental Guidance for Business (Northern Ireland and Scotland: NetReg)
3. Ontario SAT
4. Small Business Environmental Assistant Program Wisconsin



Archived - Air Self Assessment



3 Self-Assessment Tool (SAT) for gaseous industrial effluents (GIEs) of the European Commission

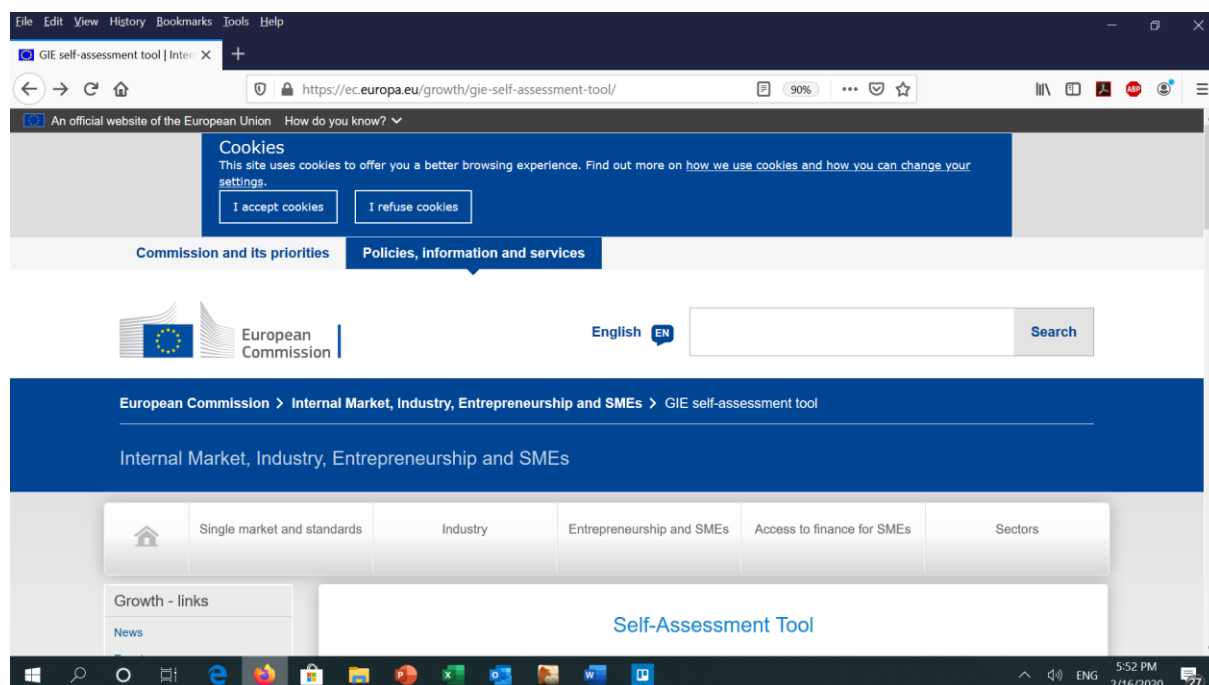


3.1 E-Portal Description

Objective:

The SAT-GIE is an assessment tool for Gaseous Industrial Effluents (GIE). It will help to conduct a first assessment of the investment readiness level (IRL) in a defined region concerning sustainable chemical production and contribute to a roadmap on emissions that are produced in industrial installations, where recovery and utilization could well be possible, and for which in some cases future reduction targets apply. Based on these criteria, carbon dioxide (CO₂), carbon monoxide (CO), nitrogen oxides (NO_x), sulphur oxides (SO_x) and hydrogen (H₂) are selected to be studied in detail.

The SAT-GIE should help Regions in the EU to take advantage of domestically available feedstocks as an alternative feedstock for chemicals production.



Characteristics:

- Free of cost
- It can be used anonymously or with sending the data to EU (mainly for representatives of an organisation /region)
- Fast to complete if own data are available

Which content is covered?

Situation of Gaseous Industrial Effluents and will carry out this first assessment of the **current situation in your region** through eight key factors:

1. Gaseous Industrial Effluents (GIE) availability: Is there a sufficient availability of GIEs in the region?
2. GIE usage: Is there a technical possibility of using GIEs in existing processes in the region?
3. Infrastructure: Is there experience with the transport of chemical substances in the region?
4. Access to finance: Would it be feasible to finance a GIE recovery and utilization project in the region?
5. Knowledge base: Is there local expertise on how to deploy a GIE recovery and utilization project in the region?
6. Political support: Is there political support to deploy a GIE recovery and utilization project in the region?
7. Thriving business community: Is the local business community willing to cooperate to deploy a GIE recovery and utilization project?
8. Industrial symbiosis: Are there opportunities to incorporate the GIE recovery and utilization in the existing business?

3.2 Which functions are offered?

- Selections with sub questions / specifications for each of the key factors
- Organisation filling in the questionnaire is guided through the whole process by explanation and questions
- Detailed report giving summaries and advise for the use of GIE
- Results are saved automatically

3.3 Can the user accomplish the self-assessment fast and successfully?

From 1 (best) to 6 (not possible): 1 out of 6 (1 is highest)

3.4 E-portal Usability

Intuitively usable (1) to Not usable (6): 1 out of 6 (1 is highest)

Special comment about the portal usability:

allows the user to:

- work through it at your own pace
- save and print a feedback report once the assessment tool is completed

However,

- One cannot stop and return later to continue again

The e-portal has been adapted for use on any device (e.g. mobile phone, laptop): yes

3.5 Digital Media Quality

An e-portal user understands the intended meaning of texts, images, features, buttons

Fully understands (1) does not understand (6): 1 out of 6 (1 is highest)

Special comment about the digital media quality:

- The portal is intuitively usable
- Brief explanations are included in each section

3.6 Technology

No bugs (1) Too many bugs and failures (6): 1 out of 6 (1 is highest)

How do you rate the level of software sophistication and technology investment effort?

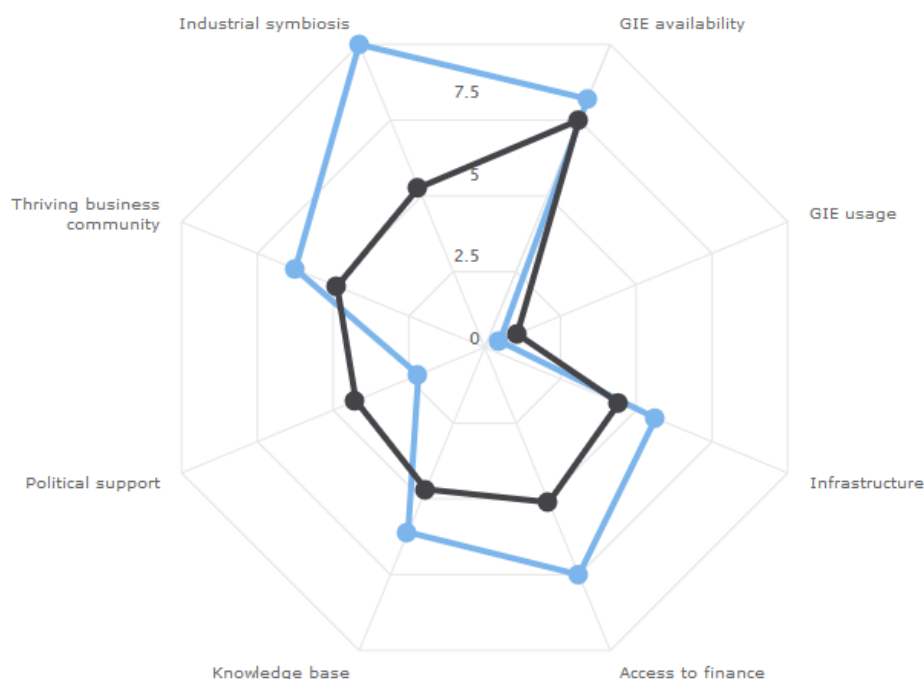
Very high (1) ---- low (6): 2 out of 6 (1 is highest)

3.7 Added Value

High value (1) ... no added value (6): 1 out of 6 (1 is highest)

Special comment about the added value:

- Gives automatically the installations for GIE in a defined vicinity & emissions from the largest installations reported in the publicly available European Pollutant Release and Transfer Register (E-PRTR) and Large Combustion Plant (LCP).
- Uses a spider diagram to visualise the strengths and weaknesses of a region



3.8 Additional information (Who runs the portal? interesting links etc.)

- Operated and maintained by EU
- The European Commission's Executive Agency for Small and Medium-sized Enterprises (EASME) has, as part of its services of the European Sustainable Chemicals Support Service (ESCSS), Self-Assessment Tools (SATs) can be found here: <https://ec.europa.eu/growth/tools-databases/escss>.

3.9 General Assessment, Advantages and Disadvantages

It is a tool for regional assessment to develop a Roadmap on the recovery and utilization of gaseous industrial effluents in which the opportunities for recovery and utilization of GIEs in the European Union can be explored in detail.

Interesting way of the generation of an automated assessment report with insights and recommendations for the region the user did chose.

Advantages:

- Very easy to use
- Intuitively understandable
- Results are saved automatically
- Organisation filling in the questionnaire is guided through the whole process by explanation and questions

Disadvantages:

- One cannot stop filling out the form and return later to continue again

To go back to the report: <https://ec.europa.eu/growth/gie-self-assessment-tool/report/U2ZIT1FHen-BESGVJeWxRTzdpMUxMZz09>

Online overview, filled in assessment form (access code required):

https://docs.google.com/forms/d/e/1FAIpQLS-drNeNK1YmGICst2rHQA2g6tYVucYy5CYjP0G6jNPIsS2Px2g/view-form?edit2=2_ABaOnudsndXGbTObWLFbAc4I1eTvnLj8_5ktTwh_FmuzaZWxvZvYD6RmUYiAr-nZdRKUgj5k

4 Environmental Guidance for Business (Northern Ireland & Scotland)



NetRegs
Environmental guidance for your
business in Northern Ireland & Scotland

<https://www.netregs.org.uk/tools/environmental-self-assessment-tool/>
PIN 69675179

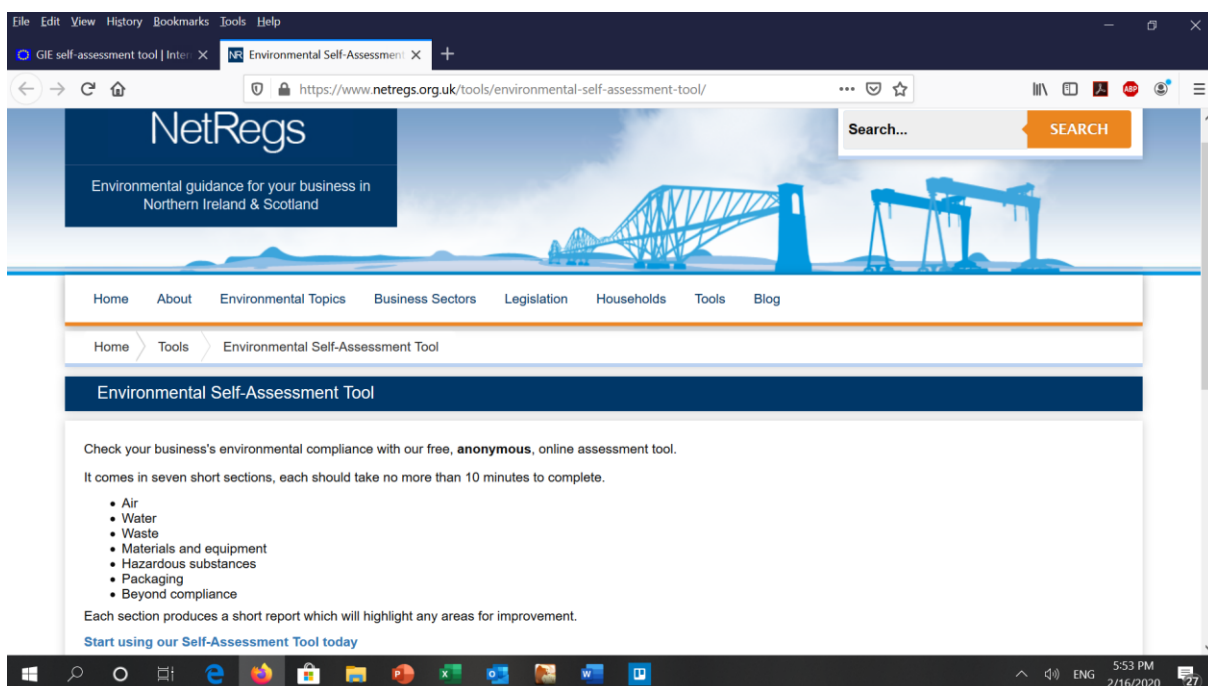
4.1 E-Portal Description

Objective:

NetRegs is a website for small and medium-sized businesses throughout the UK to check a business's environmental compliance.

It is designed as a means by which a business can

- check their compliance with the main pieces of environmental legislation
- print out or save a summary report
- demonstrate environmental awareness
- start a programme of environmental improvement.



Characteristics:

- Free of cost and anonymous
- Fast to complete (each section 10 min)
- Each section produces a short report which will highlight any areas for improvement.
- The produced report will direct the user to a detailed guidance on the NetRegs website.
- NetRegs provides the most up-to-date information on environmental legislation and regulations to businesses across Scotland and Northern Ireland.

Which content is covered?

It covers seven sections

1. Air
2. Water
3. Waste
4. Materials and equipment
5. Hazardous substances
6. Packaging
7. Beyond compliance

To work through the assessments, click on your answer (A, B or C). The answer will turn blue. You can change your mind and click on another answer, which will then turn blue while the initial one will turn grey again. Once you are sure you selected the answer you want, click NEXT.

Assessment Name	Status	Last Launched	Report	Launch
Air	Not Started			Launch Assessment
Hazardous Substances	Completed	04/02/2020 14:30:52	View	Launch Assessment
Materials & Equipment	Not Started			Launch Assessment
Packaging	Not Started			Launch Assessment
Sustainability	Not Started			Launch Assessment
Waste	Not Started			Launch Assessment
Water	Not Started			Launch Assessment
Watercourse Management	Not Started			Launch Assessment

4.2 Which functions are offered?

- Self-assessment with selection of choices (explained briefly)
- More guidance on NetRegs
- work through it at your own pace
- stop the assessment and return to complete it
- return and retake the assessment at any time
- Comprehensive report providing the statement the company made, a explanation what is necessary and a link with suggestions and further guidance
- save and print a feedback report once the assessment tool is completed

4.3 Can the user accomplish the self-assessment fast and successfully?

From 1 (best) to 6 (not possible): 1 out of 6 (1 is highest)

4.4 E-portal Usability

Intuitively usable (1) to Not usable (6): 1 out of 6 (1 is highest)

Special comment about the portal usability:

allows the user to:

- work through it at your own pace
- stop the assessment and return to complete it
- return and retake the assessment at any time.
- save and print a feedback report once the assessment tool is completed

The e-portal has been adapted for use on any device (e.g. mobile phone, laptop):

Desktop computers and laptops only

4.5 Digital Media Quality

An e-portal user understands the intended meaning of texts, images, features, buttons

Fully understands (1) does not understand (6): 1 out of 6 (1 is highest)

Special comment about the digital media quality:

- The portal is intuitively usable
- Brief explanations are included in each section

4.6 Technology

Bugs:

No bugs (1) Too many bugs and failures (6): 1 (No bugs, no failures)

How do you rate the level of software sophistication and technology investment effort?

3 out of 6 (1 is highest)

4.7 Added Value

High value (1) ... no added value (6): 1

Special comment about the added value:

E-learning short courses are free to use, provide proof of completion and can be used as often as required. They cover the following topics:

- General guide to preventing pollution
- Duty of Care (Scotland)
- Duty of Care (Northern Ireland)
- Sinks, drains and sewers
- Waste electrical and electronic equipment (WEEE)
- Generate your own renewable energy

4.8 Additional information (Who runs the portal? interesting links etc.)

- Operated and maintained by NetRegs – long term stability assured. NetRegs is a partnership between the Northern Ireland Environment Agency (NIEA) in Northern Ireland and Scottish Environment Protection Agency (SEPA) in Scotland.
- NetRegs does not provide detailed guidance on Part A of the pollution prevention and control (PPC) permitting regime. For further information, see our PPC permits guidance and the information produced by your environmental regulator.

4.9 General Assessment, Advantages and disadvantages

Advantages:

- Very useful for the Indian context because it is simple, easy to use and without “fancy” gadgets
- Short courses are of special value
- Reports give first advice

Feedback	Notes
<p>If you begin any new discharge, you may need permission from SEPA. If you intend to discharge anything other than clean, uncontaminated surface water to surface water drains or directly to surface waters, land or ground waters, you must first get formal authorisation from SEPA.</p> <p>Read guidance on water pollution on NetRegs: Preventing water pollution</p> <p>Contact SEPA</p>	
<p>WATER EFFICIENCY</p> <p>You stated that you want to find out more about using water efficiently.</p> <p>You can save money and help the environment by using water more efficiently. Read environmental guidance on water use and efficiency on NetRegs: Water use and efficiency.</p>	

related website:

<https://www.e-assessment.com/resources/diagnostic-tool-using-online-assessment/>

- Reports provide links to deeper explanations

Online overview, filled in assessment form (access code required):

https://docs.google.com/forms/d/e/1FAIpQLS-drNeNK1YmGICst2rHQA2g6tYVucYy5CYjP0G6jNPIsS2Px2g/view-form?edit2=2_ABaOnueXUF8HC78egohB8zEWvD_IZN7cuJJ0mUt8GRErOEVG-sUUXGz35Ek6vIKj3SqqKIN0

5 Ontario SAT



The page is no longer current and is provided for archival and research purposes only. However, the page is an interesting example of a self-assessment tool.

The aim of this self-assessment tool is to help companies to evaluate their facility's compliance level with Ontario's air-related environmental legislation. Consequently, this tool is voluntary and anonymous.

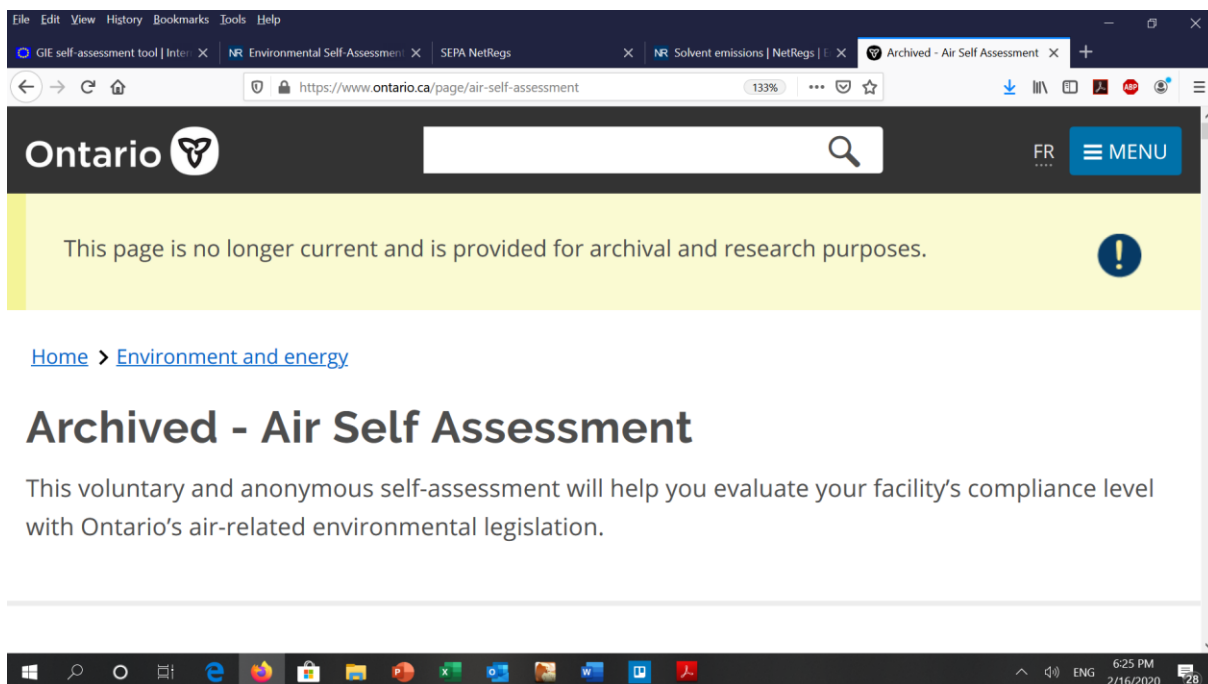
5.1 E-Portal Description

Objective:

Ontario is a website for all kind of businesses in Ontario to check their compliance with air-related environmental legislation.

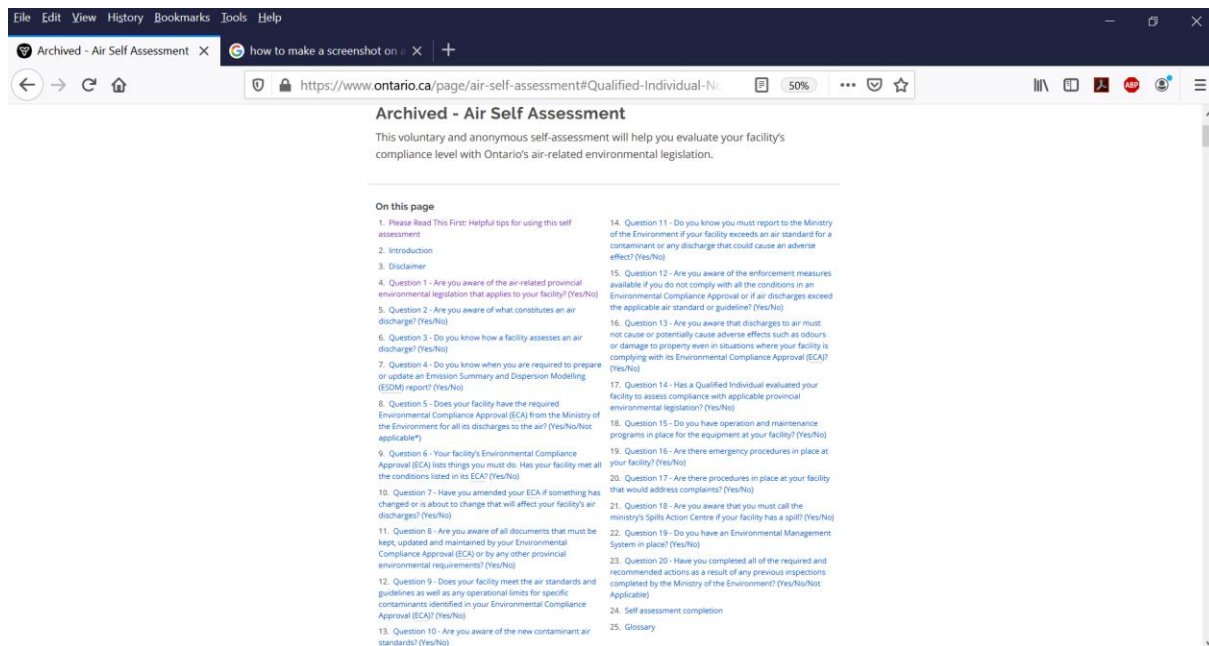
Characteristics:

- Free of cost and anonymous
- Fast to complete. However, reading and understanding of the comprehensive explanation can take some time
- Questions are answered only with YES and NO
- Since portal is no longer current no report is provided anymore
- Previously the report could be saved and could be altered from NO to Yes in case of improvement



Which content is covered?

It covers only air related environmental legislation



5.2 Which functions are offered?

- Self-assessment with answer YES and NO (explained comprehensively with links and glossary)
- Report (not available anymore)
- Guidance in the explanation for each question (different to the NetRegs website where the explanations are linked in the report)
- Many related links

5.3 Can the user accomplish the self-assessment fast and successfully?

From 1 (best) to 6 (not possible): 1 out of 6 (1 is highest)

5.4 E-portal Usability

Intuitively usable (1) to Not usable (6): 1 out of 6 (1 is highest)

Special comment about the portal usability:

allows the user to:

- work through it at your own pace
- stop the assessment and return to complete it
- return and retake the assessment at any time.
- save and print a feedback report once the assessment tool is completed (feature now closed)

The e-portal has been adapted for use on any device (e.g. mobile phone, laptop):

Yes, it can be assessed by laptops, desktops, mobile phones.

5.5 Digital Media Quality

An e-portal user understands the intended meaning of texts, images, features, buttons

Fully understands (1) does not understand (6): 1 out of 6 (1 is highest)

Special comment about the digital media quality:

- The portal is intuitively usable
- Comprehensive explanations are included in each section

5.6 Technology

Bugs:

No bugs (1) Too many bugs and failures (6): 1 out of 6 (1 is highest)

(however, reporting function not working anymore due to website closure).

How do you rate the level of software sophistication and technology investment effort?

Very high (1) ---- low (6): rather low 4 out of 6 (1 is highest)

5.7 Added Value

High value (1) ... no added value (6): 1 out of 6 (1 is highest)

Special comment about the added value:

- The website provides a very comprehensive overview and explanation about any sub-point

5.8 Additional information (Who runs the portal? interesting links etc.)

- Operated and maintained by Ministry of Environment of Ontario
- Many relevant links are provided

5.9 General Assessment, Advantages and Disadvantages

- Very useful for the Indian context because it is simple and easy to use
- Most relevant are the explanations provided to each topic

Advantages:

- Relevant links on the topics are directly provided in the question part
- Very useful references given
- The user can get informed before answering

Online overview, filled in assessment form (access code required):

https://docs.google.com/forms/u/0/d/e/1FAIpQLS-drNeNK1YmGICst2rHQA2g6tYVucYy5CYjP0G6jNPIsS2Px2g/viewform?usp=form_confirm&edit2=2_ABaOnucbK4bwCjYRDQUIRjQc_LSDkMMSLh5o8L-YEHC7OYAOJqemp4iUNg7g-OwMyGgls-k

6 Small Business Environmental Assistant Program Wisconsin



6.1 E-Portal Description

Objective:

Wisconsin DNR is a website for small -sized businesses throughout Wisconsin to check a business's environmental compliance. The website shall help small businesses in identifying, measuring and managing environmental impacts. The DNR created this interactive "one-stop shop" Permit Primer to help small business owners manage their environmental requirements. The tools are sorted by industry, specific processes and environmental topic.

It is designed as a means by which a business can

- check their compliance with the main pieces of environmental legislation
- start a programme of environmental improvement.



The screenshot shows the website's navigation bar with links for Business, Licenses & Regulations, Recreation, Env. Protection, Contact, and Join DNR. A search bar is also present. The main content area features the title "Small Business Environmental Assistance Program" and a sub-header "Doing the right thing for the environment and your business. We can help!". Below this are three interactive buttons: "Check" (to see if your business is eligible for confidential, non-regulatory assistance), "Explore" (all DNR permits to see which may be required), and "Find" (resources to help you comply). A section titled "Confused by environmental regulations?" provides guidance for new property purchasers and offers a video resource. Another section, "Our tools can help you make sure you are doing the right thing for your business and the environment," describes the tools' benefits and provides a link to a summary of all DNR's environmental programs (SB-003). A sidebar on the right contains a "Learn about us" section with links to program components, the small business team, the Small Business Environmental Council, and the Small Business Advisor newsletter. Below this is a "Subscribe" section with a link to the Small Business Advisor newsletter and a "What's new" section listing recent advisories from December, October, and September 2019. At the bottom, there are two buttons for "Industry specific resources" and "Process specific resources".

Characteristics:

- Free of cost and anonymous
- Fast to complete (each section 10 min)
- No report produced, but many links to information and also to apply for permits.
- Wisconsin DNR provides the most up-to-date information on environmental legislation and regulations to businesses in Wisconsin.

Which content is covered?

It covers seven sections:

- Water supply
- Storm water
- Wastewater
- Solid waste
- Hazardous waste
- Waterway and wetland permits
- Air

6.2 Which functions are offered?

- Navigation tips how to use it
- Self-assessment with selection of choices (explained briefly)
- More guidance on Wisconsin DNR
- work through it at your own pace
- Provision of links to regulations and further information

6.3 Can the user accomplish the self-assessment fast and successfully?

From 1 (best) to 6 (not possible): 1 out of 6 (1 is highest)

6.4 E-portal Usability

Intuitively usable (1) to Not usable (6): 1 out of 6 (1 is highest)

Special comment about the portal usability:

allows the user to:

- work through it at your own pace
- very easy to find the way through the site
- clear questions which can be answered with YES or NO



Business

Licenses & Regulations

Recreation

Env. Protection

Contact

Jo

Water supply

When starting a small business, you will need to consider all of your water needs. This can include any basic services such as restroom facilities (toilets, sinks, showers), breakrooms (coffeemakers, sinks) or fire suppression (sprinkler systems, standpipes) to process water needed for complex business operations.

Once you have identified your water needs, you need to explore what your water source will be. Will you be able to hook up to a municipal water system or will you need to install a new well? This section of the primer will help you work through those questions as well as offer you information on water saving techniques, appropriate permits and staff contact information.

1. Will you need water or access to a water supply?

Yes No

[Print text version](#)

The e-portal has been adapted for use on any device (e.g. mobile phone, laptop):

Yes

6.5 Digital Media Quality

An e-portal user understands the intended meaning of texts, images, features, buttons

Fully understands (1) does not understand (6): 1 out of 6 (1 is highest)

Special comment about the digital media quality:

- The portal is intuitively usable
- Comprehensive explanations are included in each section
- Introductory video provided
- <https://p.widencdn.net/el5pq6/Introduction-to-the-Small-Business-Environmental-Assistance-Program>

6.6 Technology

Bugs:

No bugs (1) Too many bugs and failures (6): 1 out of 6 (1 is highest)

How do you rate the level of software sophistication and technology investment effort?

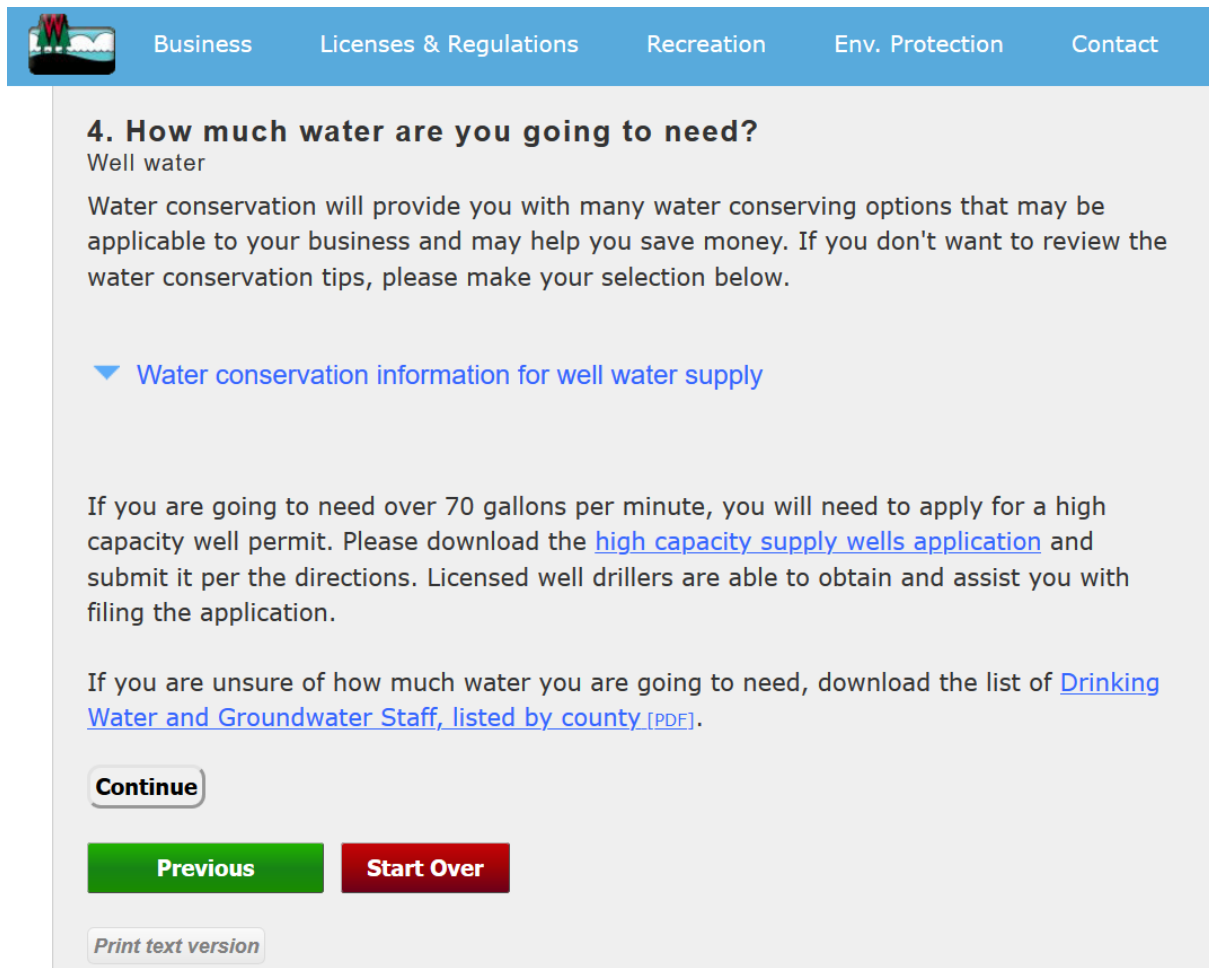
Rather low, 4 out of 6 (1 is highest)

6.7 Added Value

High value (1) ... no added value (6): 1 out of 6 (1 is highest)

Special comment about the added value:

Many links not also to regulatory websites but also to sites related to more efficient production, e.g. water saving



The screenshot shows a web page with a blue navigation bar at the top containing icons and links for Business, Licenses & Regulations, Recreation, Env. Protection, and Contact. The main content area is light gray and features a section titled "4. How much water are you going to need?" with a sub-heading "Well water". The text explains water conservation options and provides a link to "Water conservation information for well water supply". It also mentions a high capacity well permit application and a link to "Drinking Water and Groundwater Staff, listed by county [PDF]". At the bottom, there are buttons for "Continue", "Previous", "Start Over", and "Print text version".

4. How much water are you going to need?
Well water

Water conservation will provide you with many water conserving options that may be applicable to your business and may help you save money. If you don't want to review the water conservation tips, please make your selection below.

▼ [Water conservation information for well water supply](#)

If you are going to need over 70 gallons per minute, you will need to apply for a high capacity well permit. Please download the [high capacity supply wells application](#) and submit it per the directions. Licensed well drillers are able to obtain and assist you with filing the application.

If you are unsure of how much water you are going to need, download the list of [Drinking Water and Groundwater Staff, listed by county \[PDF\]](#).

Continue

Previous **Start Over**

Print text version

6.8 Additional information (Who runs the portal? interesting links etc.)

- Operated and maintained by government of Wisconsin – long term stability assured.

6.9 General Assessment, Advantages and disadvantages

Advantages:

- Useful for the Indian context because it is simple, easy to use and without “fancy” gadget
- Links provided to contact directly the organisation issuing a permit needed
- Links to cleaner production action provided

Disadvantages:

- No reports provided

Online overview, filled in assessment form (access code required):

https://docs.google.com/forms/d/102xGYNVfye-p4EtpTxJU5tMLzbmmDuM_VmJLOX1dIQA/edit#response=ACYDBNjRnqXfXVEQeq4_aU9jzuOsF6-QeOucd5Vh68mpVXG-yh1bYNZlcfwSYIi5m0UQccQ

7 Quantitative Comparison of Best Practices

7.1 Top task accomplishment

Question have been asked as a likert scale format, e.g.

The user can accomplish the top tasks fast and successfully when using this e-portal. *

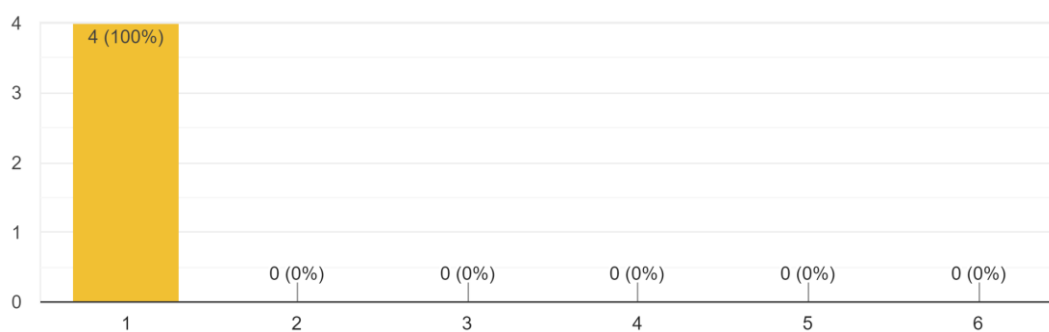
1 2 3 4 5 6

Fast and successful accomplishment possible No accomplishment possible

All e-portals allowed for fast task accomplishment:

3. Can the user accomplish the self-assessment fast and successfully?

4 responses

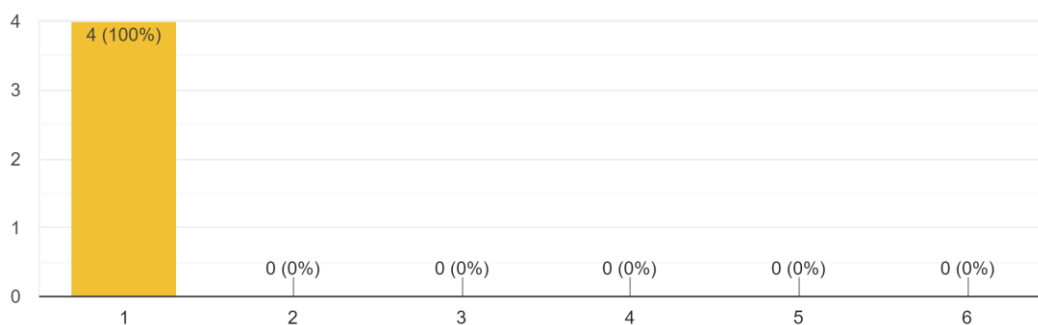


7.2 4. E-portal Usability

All e-portals are intuitively usable:

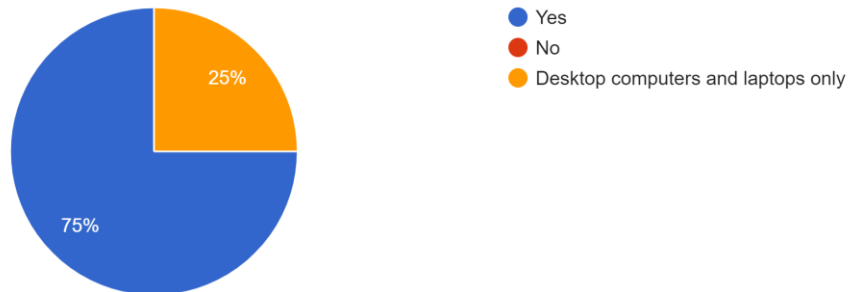
The e-portal is intuitively usable:

4 responses



7.3 Responsiveness

The e-portal has been adapted for use on any device (e.g. mobile phone, laptop):
4 responses

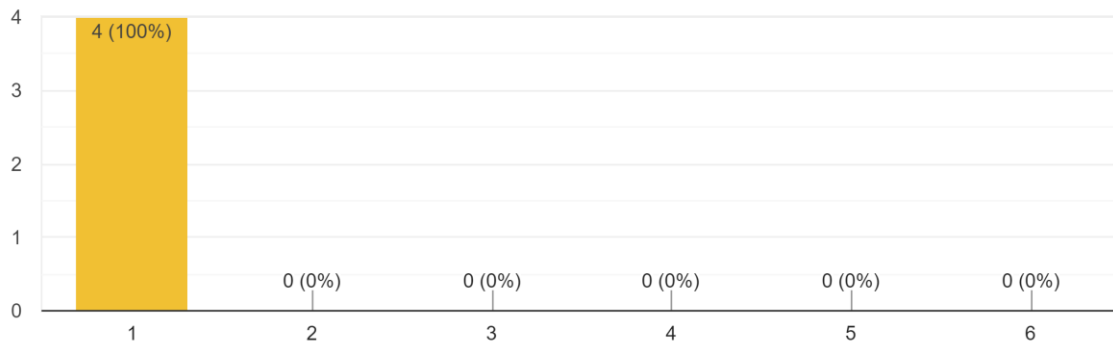


3 out of 4 e-portals have been developed for all devices

7.4 Information quality

All e-portals offered very well understandable information:

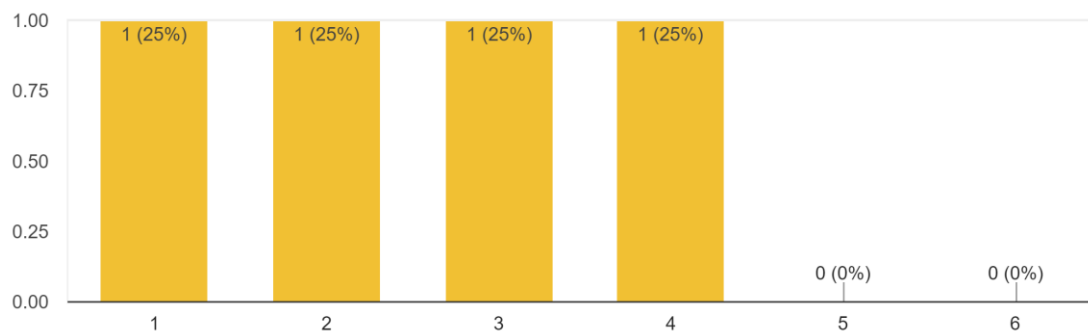
An e-portal user understands the intended meaning of texts, images, features, buttons
4 responses



7.5 Technology

How do you rate the level of software sophistication and technology investment effort?

4 responses



The level of the technological sophistication varies a lot.

7.6 Conclusion of the quantitative assessment

Four issues have been assessed quantitatively: top task accomplishment, usability, Responsiveness and information quality. The results are:

- all 4 e-portals allowed for fast task accomplishment
- all 4 e-portals offered an intuitively understandable usability
- 3 out of 4 e-portals have been developed for all devices
- All e-portals offered very well understandable information:
- The level of technological sophistication varied a lot.

It can be concluded that fast task accomplishment, intuitively understandable usability and content do not depend on the technology effort. Even low-tech can achieve the goals and should therefore also be considered as relevant solution for the Indian e portal. In addition, also most portals have been developed for all devices (laptops, desktops, and cell phones).

8 Recommendations for a concept for an Indian environmental Self-Assessment tool for industry

This chapter provides recommendation for the concept of the Indian E-Portal. The recommendations are structures as follows:

- General Remarks and Recommendations
- Content
- Functionality and Usability
- Features and functions to be considered
- Maintenance
- Technology
- Workflow for establishing the self-assessment tool
- Workflow to retrieve documents for the SAT

8.1 General Remarks and Recommendations

- NetRegs, Wisconsin and Ontario provide examples of self-assessments tools which can be assumed as best international practices.
- We compared Government owned self-assessment tools only
- We assume the Indian self-assessment will be used mostly by Small and Medium size industry
- A government owned self-assessment tool fits better than private owned for this purpose (more focused, better performance, knowledge on regulations)
- We assume that government run self-assessment tool ensures long term sustainability
- The host of the environmental self-assessment tool for industry has to be identified
- Some main ideas are compiled in the following table. The sub chapter 8.2 to 8.7 provide more detailed recommendations.

Idea	Comment	Source
Glossary, explanations	The most popular related environmental definitions	Ontario website provides a good example
If possible, use only questions with yes/no answers	This insures easy answers and also evaluation	NetReg, Ontario
Provide comprehensive explanation to each question	Enhances probability of right answer. Explanation can be during the question step (Ontario) or in the report (NetReg)	Ontario, NetReg, Wisconsin
Provide relevant links	Enhances knowledge of participant	Ontario, NetReg, Wisconsin
Provide clear report with clear advices	Makes it easy for the company to improve the environmental performance	NetReg, Wisconsin

8.2 Content

Alef-Eco is considering following tools and categories for the self-assessment tool:

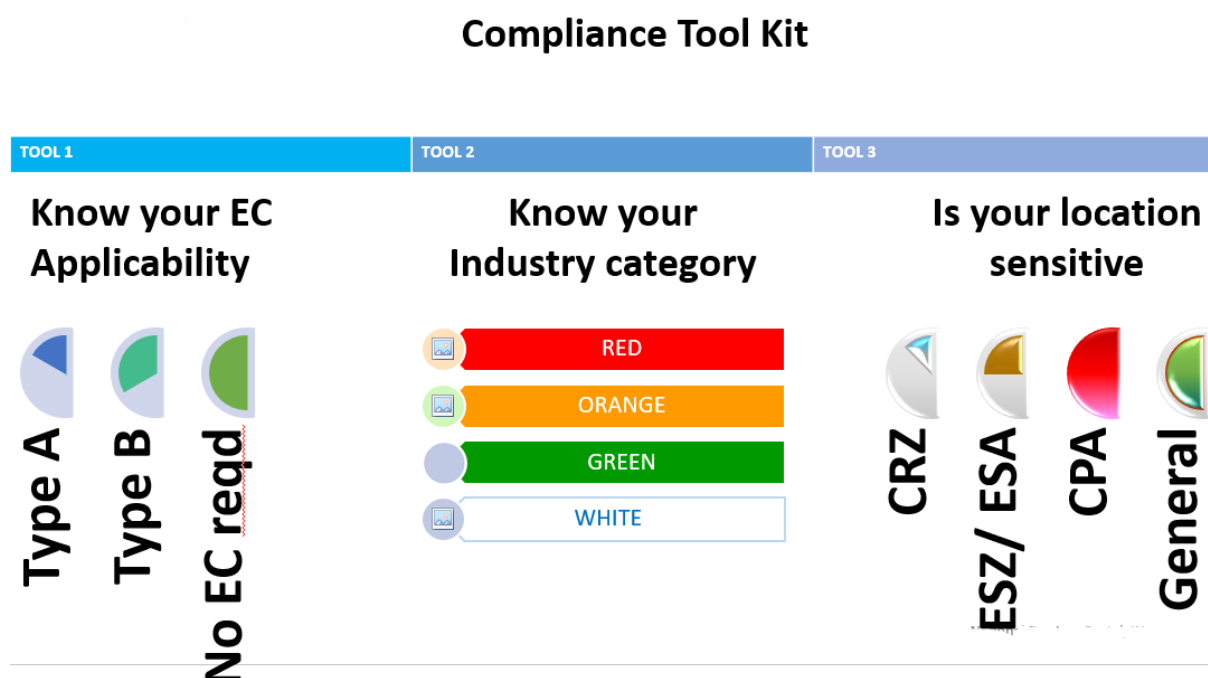


Figure 1: Alef-Eco Approach

The environmental regulations, which shall become part of the self-assessment tool have to be selected by topic, e.g. water utilization, wastewater, solid waste, etc.

For the content following regulations could be considered:

- National regulations
- Local regulations (could be considered)

Parts of the self-assessment tool should be in accordance to the national Indian regulations (and probably state regulations). The regulations should be reviewed. The parts of the self-assessment tool could contain following topics:

- Wastewater
- Water supply
- Solid waste
- Hazardous waste
- Air
- Stormwater
- Packaging
- Material and equipment

However, the final selection of the parts should be made based on the relevant regulations.

8.3 Functionality and usability

Intuitively usable

- work through it at your own pace
- Question, which can be answered with YES or NO are preferred

The following elements we see as essential for easy usability of the portal by non-law experts:

- **Keep it simple**
- Clear user interface, easy to understand for people rarely using this website
- Link to Environmental Glossary (see Ontario)
- Short guidance how to use, if not self-explanatory (see e.g. Wisconsin)

8.4 Features and Functions to be considered

- Comprehensive information about the topics, during the phase of filling in the questionnaire and / or in the report. That should be supported by relevant links.
- The user should be able to save the answers in case the questionnaire cannot be answered at once.
- A report with clear recommendations and links for further information, e.g. laws, guidelines, training, etc. A good example of such a report is in NetRegs.
- Anonym
- stop the assessment and return to complete it
- return and retake the assessment at any time.
- save and print a feedback report once the assessment tool is completed
- Comprehensive report providing the statement the company made, an explanation what is necessary to do, and a link with suggestions and further guidance
- Guidance in written or video should be provided

8.5 Maintenance

If website is not maintained it will become unusable very fast -> Easy maintenance is important. Following issues should be considered:

- One responsible person/team
- Introduce workflow that ensures that all new regulations find their way into the self-assessment tool, including also regulations of the states in case they are becoming part of the tool.

8.6 Technology

1. Design quality:
 - simplify the interface for use on all devices
2. Technology quality:
 - Low tech can serve the purpose already

8.7 Workflow for establishing the SAT

This chapter discusses how a workflow within the host of the SAT could look like. Following workflow could be considered:

1. Selection of topics to be covered
2. Selection of related regulations to be covered (e.g. only national, or also state regulations)
3. Identifying of the main issues of the regulations
4. Develop text of the questions and of the related answers
5. Approval of text
6. Putting text into the tool

8.8 Workflow to retrieve regulations for the SAT

This chapter provides recommendations how a workflow could look like to ensure that all environmental regulations covered in the self-assessment tool are regularly updated.

1. Agreement on what laws and regulations shall be considered in the self-assessment tool
2. Identify owner of these documents which are willing to provide them or can be downloaded
3. Ask owner for the actual related documents
4. Use regulations to develop the self-assessment tool
5. Make a regular schedule (e.g. every 6 month) to ask actively the above identified owners for new regulations (or download them if possible)
6. Adjust the self-assessment tool accordingly