D-NOSES

Distributed Network for Odour Sensing, Empowerment and Sustainability

MOOC on Odour Pollution

D7.4

NOVEMBER 2019

Deliverable

PROJECT ACRONYM	GRANT AGREEMENT #	PROJECT TITLE
D-NOSES	789315	D-NOSES

DELIVERABLE REFERENCE NUMBER AND TITLE

D7.4
MOOC on Odour Pollution

Revision: v1.1

AUTHORS

Vicky Malotidi
MIO-ECSDE

Anastasia Roniotes
MIO-ECSDE

Alaa Aboudaher
MIO-ECSDE

Funded by the Horizon 2020 programme of the European Union

Grant Agreement No 789315

DISSEMINATION LEVEL

✓ P **Public**

P Confidential, only for members of the consortium and the Commission Services

Revision History

REVISION	DATE	AUTHOR	ORG...	DESCRIPTION
v1.1	30.06.2019	Rosa Arias	Ibercivis	Final revision of the contents

STATEMENT OF ORIGINALITY

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

Index

SUMMARY

DESCRIPTION

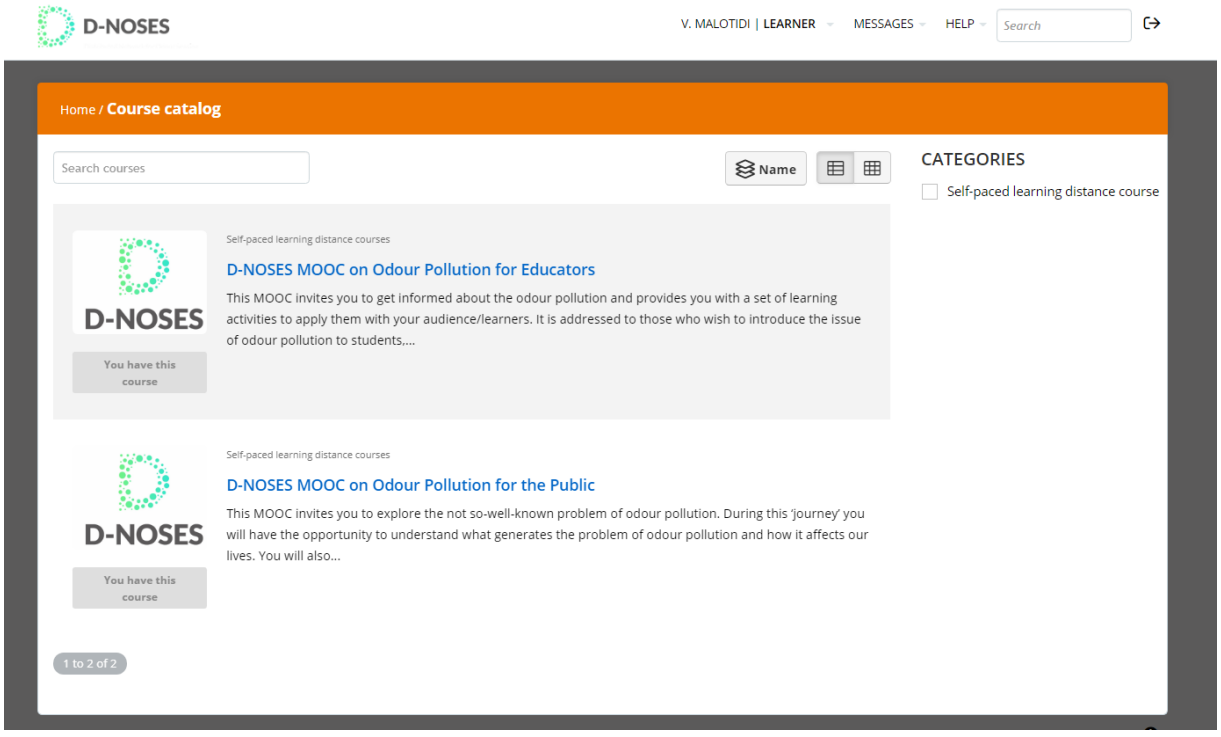
1.1 Learning Objectives
1.2 Principles of content development
1.3 Structure
1.4 Characteristics
1.5 Gender inclusion approach
1.6 Dissemination and Engagement Plan
1.7 Upcoming MOOC for Educators

APPENDIX

Analytical list of MOOC contents

Summary

The D-NOSES MOOC (Massive Open Online Course) on Odour Pollution was developed by the educational team of MIO-ECSDE in cooperation with the D-NOSES partners. This MOOC offers open access to information on the issue of odour pollution, in line with Principle 10 of the Rio Declaration (1992), and aims to empower citizens and stimulate public participation in odour monitoring processes - a central element of the D-NOSES project. The MOOC has been developed applying a participatory approach and is based on Education for Sustainable Development (ESD) principles and gender inclusiveness. It lasts approximately three hours and leads to a certificate of completion. Another D-NOSES MOOC targeting formal educators (school teachers) and non-formal educators (NGO staff dealing with Education) is in an advanced stage of development.



Link: https://dnoses-mio.talentlms.com/

1
Description

In the following paragraphs the special features of the MOOC are described, namely the learning objectives, the principles behind its content development, the structure and characteristics, the gender inclusion approach as well as the dissemination plan.

1.1 Learning objectives

Upon completion of the MOOC, the e-learners will have acquired:

(a) Knowledge about odour pollution and its causes. Awareness on what the odour pollution issue is and what its causes are.

(b) Understanding about the main environmental, social, health and economic impacts of odour pollution.

(c) Information on what citizens can do about odour pollution.

(d) Familiarization with the D-NOSES methodology and e-tools: the International Odour Observatory (IOO) and the OdourCollect App.

The follow-up MOOC targeting teachers and educators will offer knowledge and skills on how to meaningfully embed odour pollution in their teaching: in a cross-cutting Education for Sustainable Development or citizen science activity, in school curricula, etc.

1.2 Principles of content development

The MOOC's content was developed based on:

(a) A participatory approach: MIO-ECSDE and the other D-NOSES partners discussed and shared ideas in several meetings (both virtual and physical) from September 2018 to July 2019 i.e. the monthly D-NOSES meetings, bilateral meetings, dedicated session at the Porto partners meeting, etc. In this way the main contents and general objectives of the MOOC were co-created by the D-NOSES consortium.

(b) Education for Sustainable Development (ESD) principles: ESD seeks to transform society by reorienting education to help people develop knowledge, skills, values and behaviours needed for sustainable development. ESD is about including sustainable development challenges and issues into teaching and learning; pays attention to learners' transformation processes towards sustainability principles and responsible lifestyles and thus, focuses not only on cognitive skills but also on stimulating community and citizenship action.

(c) Gender Inclusiveness: the language used and the content itself are gender inclusive making the MOOC (and D-NOSES) attractive to any gender; the approach aims to entice more girls and women in addressing and engaging in science and scientific matters.

(d) The D-NOSES material (presentations, articles, e-tools, etc.) and D-NOSES visual identity .

1.3 Structure

The MOOC on Odour Pollution is divided into three modules:

- **Module 1** focuses on how odours are perceived, what characteristics and parameters odours have, what causes odour pollution.

- **Module 2** is dedicated to the impact that odour pollution has on our lives, in terms of environmental, social, health and economic aspects.

- **Module 3** deals with regulation aspects of odour pollution and emphasizes the role of citizens in raising awareness, reporting, presenting and monitoring the problem. The D-NOSES methodology and tools are explained in this module.

1.4 Characteristics

The MOOC is self-paced and thus, there is no tutoring needed. However, users may contact the MIO-ECSDE/MEdIES team for any matter related to the MOOC itself or the D-NOSES project for any further information about the project.

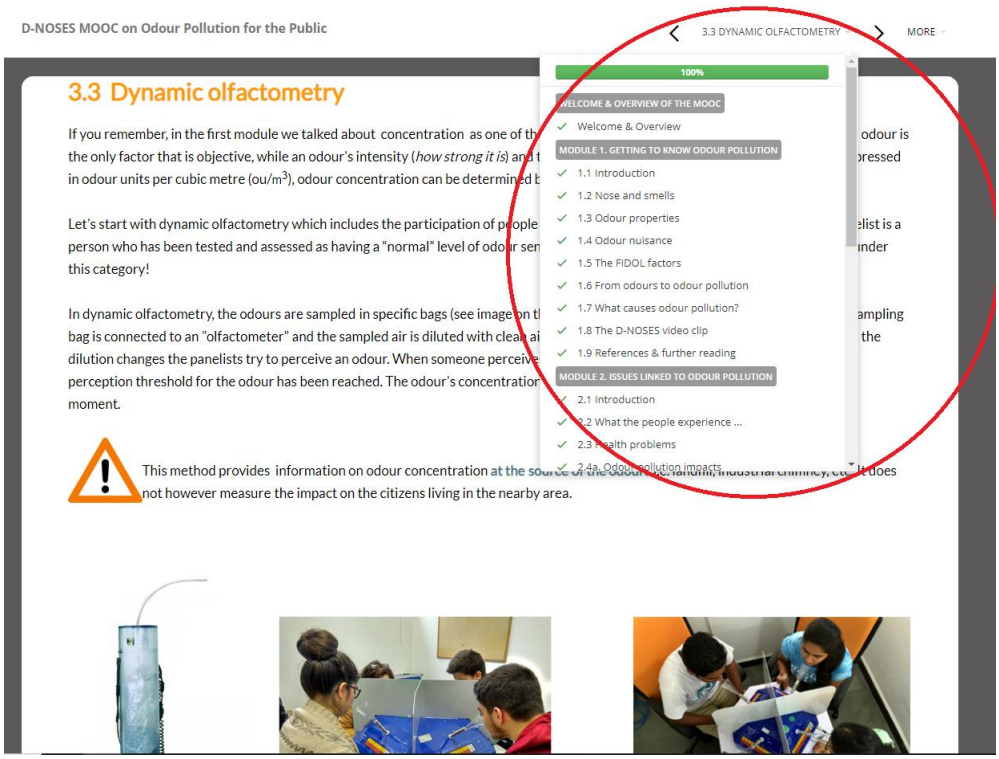
The MOOC is free (no registration fees required) and accessible to anyone interested in odour pollution. The training content is delivered fully online.

The personal data collected via user registrations (name, surname, email, age and gender) are treated in line with GDPR and Ethics principles.

The Code of Conduct of the MOOC is clearly presented in the very first welcome screen.

The MOOC has an approximate duration of three (3) hours.

In each unit the user can easily navigate using the Menu on the top right bar and can also check on her/his level of participation: the units in the Menu that have been completed successfully (texts read and questions answered) are marked as “checked”.



The material presented in the MOOC includes:

- D-NOSES presentations from conferences & seminars
- D-NOSES materials and adapted texts (policy brief, scientific articles, etc.)
- Press articles & various resources on odour pollution
- Videos: extracts from D-NOSES events, the D-NOSES video clip, other carefully selected videos
- Direct links to D-NOSES products and main tools: the International Odour Observatory (IOO), community maps, the OdourCollectApp.
- Interactive questions as food for thought or for digestion of new knowledge: multiple choice, true/false, gap filling, short text, mix and match.

The e-learners obtain a Certificate of completion upon finishing the MOOC with the prerequisite of taking the quizzes and completing the Final Test.

1.5 Gender inclusion approach

The MOOC aims to raise awareness and empower the learners, regardless of gender, on the odour pollution issue and stimulate their actions through the tools and methodologies created by the D-NOSES project. It was developed having gender inclusiveness as a main axis. The language used throughout, in all learning units, is gender neutral. Efforts were made to approach the science behind odour pollution in a palatable, accessible and attractive manner i.e. by avoiding long and "hard science" texts, providing explanations and visual aids, including a glossary of terms, etc. Work and examples of women scientists (papers, presentations, etc.) were integrated so that young women can see themselves as future scientists and experts. The general design of the MOOC followed the visual identity of the D-NOSES branding which was developed to be gender neutral. In addition, we made use of non-discriminating photos and images. All images that have been selected could represent women as well as men.

One of the main goals is to attract young women learners to enroll in the MOOC. To measure the degree of meeting this goal, the following basic parameters will be monitored: i.e. the number of women enrolled in the course; ii. The number of young women enrolled. More sophisticated analysis will also be made (how many women/young women complete the course, etc.).

The aforementioned parameters will be tracked via the e-platform's built-in metrics monitoring. In terms of tracking the age of enrolled learners we have defined 4 age groups: 15-18; 19-25; 26-35, and >35 years old.

1.6 Dissemination plan

This first D-NOSES MOOC has been designed to target the general public (citizens). In view of the second D-NOSES MOOC being complementary to the first and designed for educators, they are a key target group within the general public.

Citizens

The MOOC has the dual purpose of instructing members of the public on odour issues and also of promoting a citizen science approach to address those odour issues. Since signing up for the MOOC will have required the learner to have knowledge of the project or the Odour Observatory, it is natural to conclude that the major channels for acquiring participants will be mostly the Observatory and to a lesser extent the project website. All associated social media channels can be used to invite/attract visitors to the websites, and from there to the course, or directly to the MOOC in the first place.
The main messages to be communicated to attract participants will be based on the possible motivation they may have:

Affected Citizens - those that are being directly affected by odours and would like to know more about what they could do about the situation. *"Learn how you can use citizen science to help your community tackle odour issues."*

Community Activists - people that are generally interested in being active in their community and how they can contribute to a better/healthier environment. "*Learn how persistent odours affect communities and how you can help protect them.*"

Central to their motivation will be their belief that they will be more able to do something, more empowered. We can use messaging around the existing pilots to encourage participation by pointing out the actions happening mainly around Europe, and encouraging citizens that they can replicate similar actions in their own community.

The MOOC will be widely communicated and promoted to citizens across Europe and elsewhere in the world, through:

(1) Networks & Platforms

I. The MIO-ECSDE Network of NGOs for Environment and Development that reaches thousands of citizens in their countries.
II. The MEdIES Network of Educators for Education for Sustainable Development (ESD) for the Euro-Mediterranean region. This platform has approx. 6.000 registered educators with a continuous and genuine interest in the SD/ESD field.
III. The Mediterranean Network on Sustainable Development focusing on ESD (MedUnNET) counting 20 university members (in Greece, Lebanon, Spain, Albania, Turkey, France, Egypt, Cyprus, Morocco, Italy, Slovenia, Bosnia and Herzegovina, Tunisia, and Croatia). The MedUnNET technical secretariat is supported by MEdIES/MIO-ECSDE.
IV. Affiliated International Educational Networks to MEdIES such as (a) the Baltic University Network (BUP) (b) the Euro-Mediterranean University Network (EMUNI) (c) the UNESCO GAP (Global Action Programme on ESD) Partner Networks (MIO-ECSDE is co-chairing the GAP Partner Network on ESD Policies through MEdIES)
V. The EU Adult Learning Platform " EPALE" (MEdIES is a registered member);
VI. Europe's online platform for school education (MEdIES is a registered member)
VII. D-NOSES' Consortium and affiliated Networks (ISWA, ECSA , IBERCIVIS).

(2) Media Channels of

I. D-NOSES: webpage, the International Odour Observatory , project newsletters, and social media posts.
II. D-NOSES Partners: institutional webpages, newsletters and bulletins, social media posts, and network mailing lists.
III. Relevant EU projects: project webpages and newsletters e.g. WeObserve.

(3) Multiplier events

I. Exploitation of events organized by the D-NOSES partners, e.g. capacity building events organized by MEdIES/MIO-ECSDE (for teachers, youth leaders, young professionals, NGO staff, staff of Environmental Management Bodies, post-graduate university students, non-formal educators and trainers, SD experts, etc.)

Educators

Teachers and educational institutions provide a valuable channel to school children, and by proxy, their parents. The main messages to attract educators will be based on two main motivations to introduce odour pollution to their students: the MOOC's science focus and the MOOC's community focus. This will be addressed by the upcoming MOOC for Educators (see below)

1.7 Upcoming MOOC for Educators

The MOOC for Educators will be addressed to formal and non-formal educators who wish to introduce the issue of odour pollution to students and schools. A set of learning activities will be available in a complementary MOOC (fourth Module). They will be divided into three age groups (kindergarden, primary and secondary school). Educators are encouraged to adapt and use the activities in school classes as well as in cross-curricular projects on Education for Sustainable Development (ESD) and Citizenship Education.

Appendix

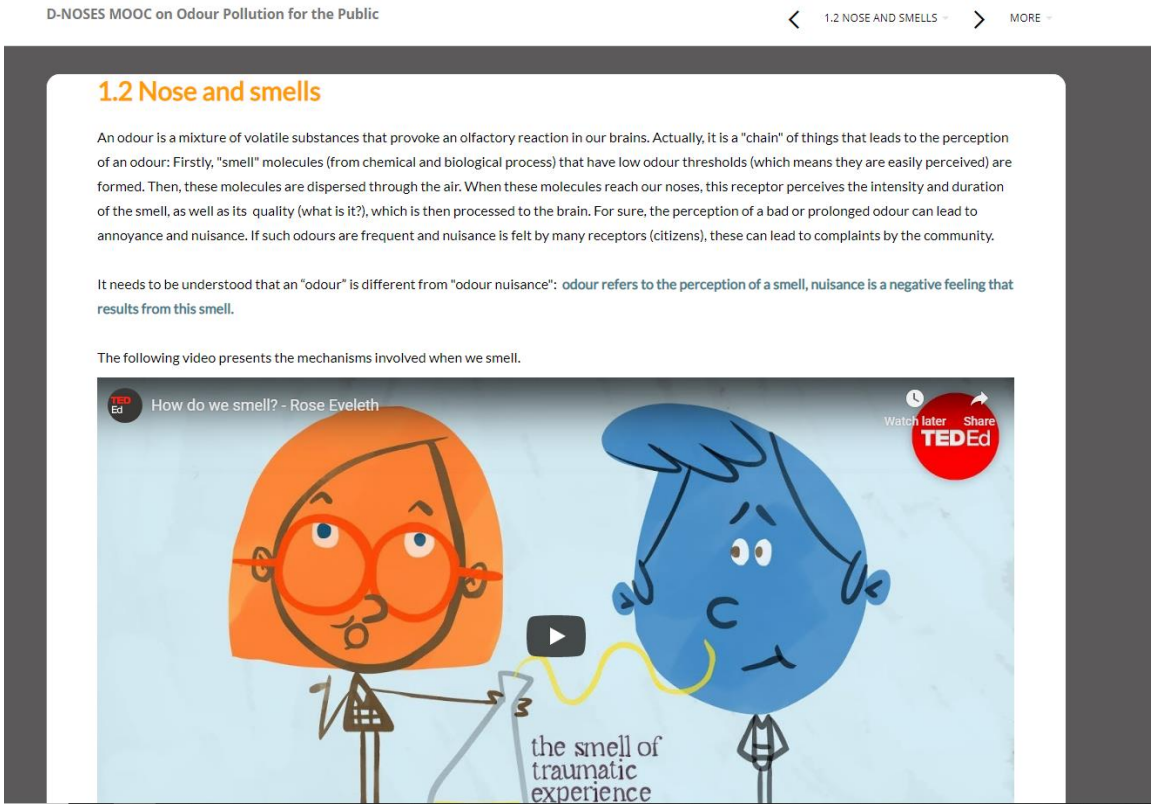
Analytical list of MOOC contents

Welcome & Overview: the main features, goals, and methodology of the course are presented.

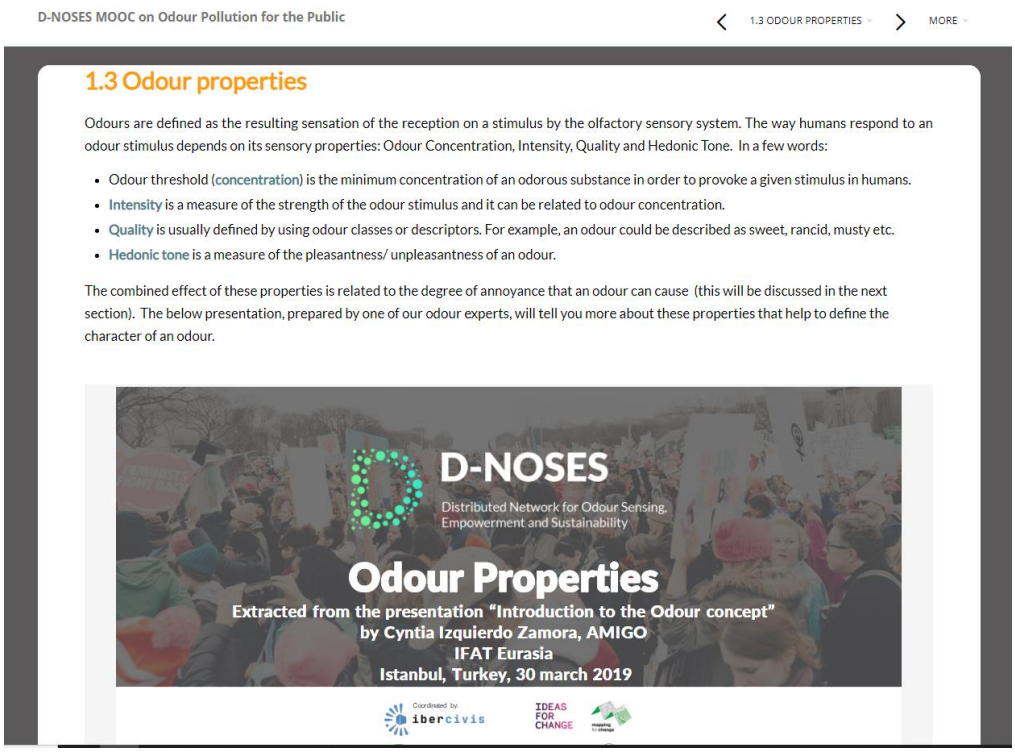
Module 1. Getting to know odour pollution

1.1 Introduction, welcome.

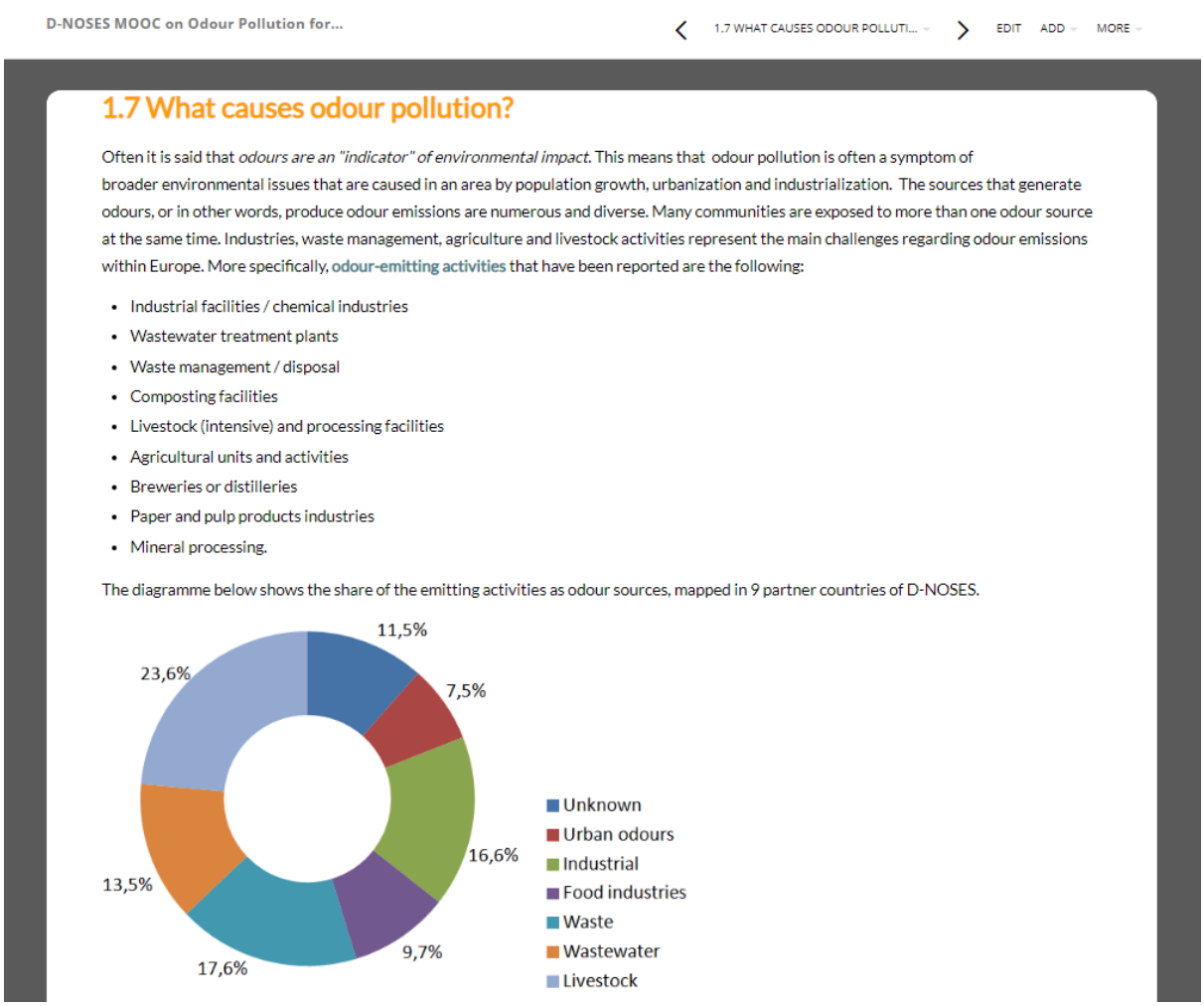
1.2 Nose and smells: introduction to the sense of smell & how it works, through a video.



1.3 Odour properties: concentration, intensity, quality and hedonic tone are explained through a D-NOSES expert's presentation.



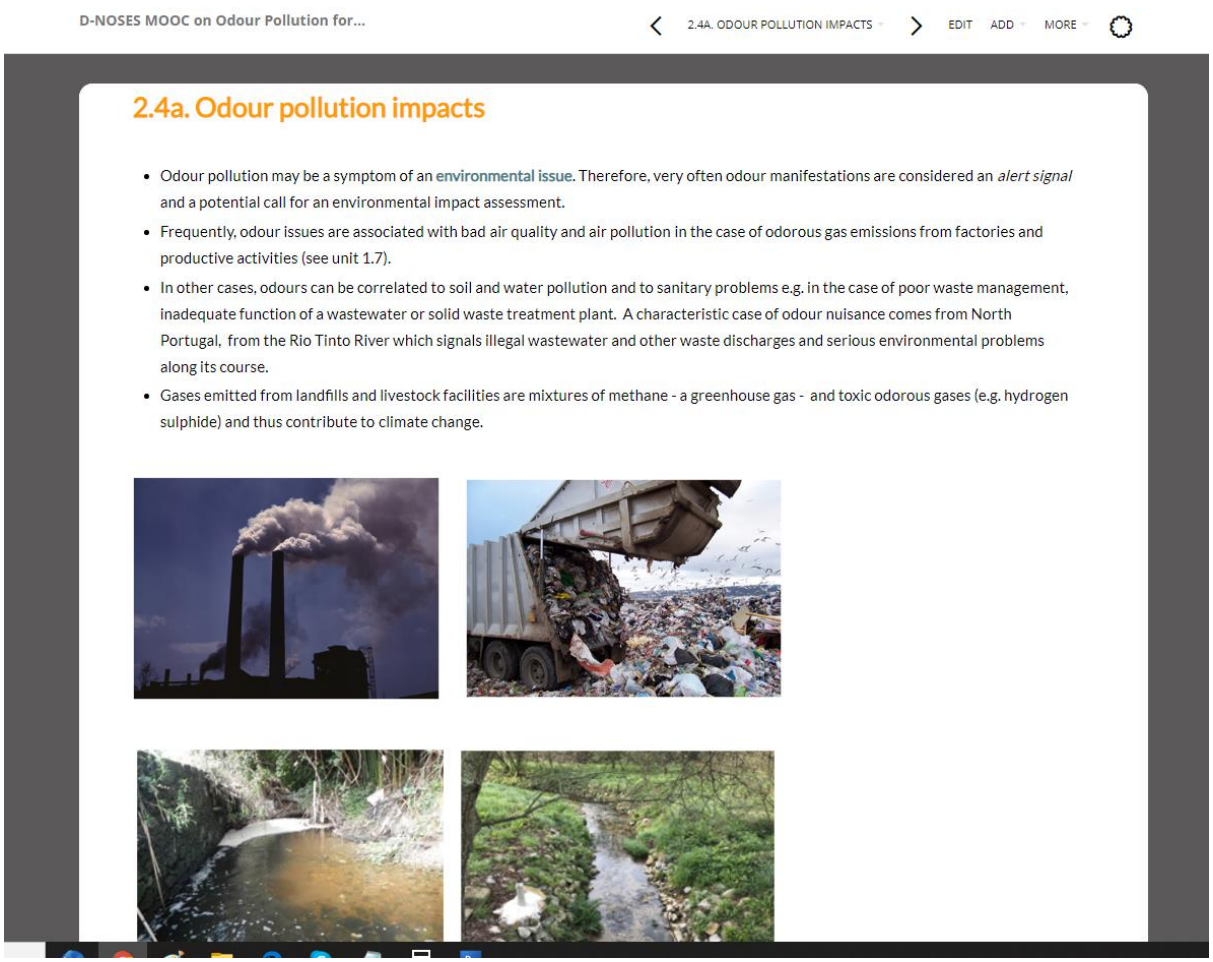
1.4 Odour nuisance: explanation of how we go from smells and odours to people's annoyance and nuisance.
1.5 The FIDOL factors: exploring the factors that describe odour annoyance or nuisance, through a D-NOSES expert's presentation.
1.6 From odours to odour pollution: introduction of odour pollution as the second cause of environmental complaints worldwide.
1.7 What causes odour pollution? Description of the main odour emitting activities.



1.8 The D-NOSES video clip: presentation of the context of the NOSES Programme.
1.9 References & further reading.

Module 2. Issues linked to odour pollution

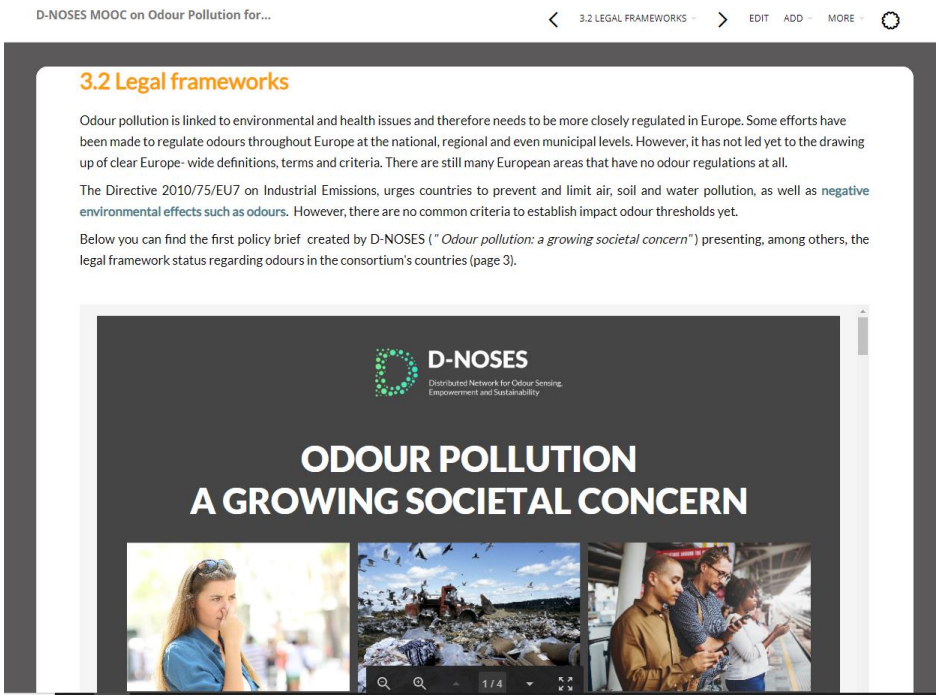
2.1 Introduction.
2.2 What people experience: a video clip on the impacts of odour pollution is used as a teaser for the learners.
2.3 Health problems: linking odour pollution to health problems.
2.4a. Odour pollution impacts: discussion about odour pollution as a possible symptom of environmental issues.



2.4b. Odour pollution impacts: social and economic effects of odour pollution; opportunity to visit the D-NOSES interactive map on "Odours Affecting Communities".
2.5 Odour pollution impact and me: learners are invited to share what personally concerns them about odour impacts.
2.6a. D-NOSES pilot case studies: highlighting stakeholder engagement as one of the main D-NOSES principles.
2.6b. D-NOSES pilot case studies: introduction of the D-NOSES pilots as local cases testing the D-NOSES methodology for stakeholder engagement; three pilots are presented while the weblink to all pilots is provided.
2.7 References & "video-reading"; inclusion of a video clip with the presentation of a D-NOSES expert for learners who wish to explore odour pollution impact further.

Module 3. Inclusion of citizens in the odour management process

3.1 Introduction
3.2 Legal frameworks: information about regulations and framework status regarding odours.



3.3 Dynamic olfactometry: description as one of the methods of odour concentration determination (strong/weak points stressed).
3.4 Dispersion modelling: explanation of the method (strong/weak points stressed).
3.5 Field inspections - the grid method: presentation of the method (strong/weak points stressed).
3.6 Field inspections - the plume method: presentation of the method (strong/weak points stressed).
3.7 Engaging citizens: discussion of the importance of engaging them in tackling/mitigating/dealing with odour issues, stressing that citizens own the most precise and cost-effective sensor to measure odours: their own noses, and a clear motivation for regaining their quality of life.
3.8 D-NOSES engagement principles: brief presentation of the main D-NOSES engagement approach.
3.9 The OdourCollect app: introduction to the app as a tool to empower communities affected by odour nuisance by reporting it and guidelines to use it.
3.10 An Observatory for Odours: a brief presentation of the IOO, its goal and main contents.
3.11 References & "video-reading" (a D-NOSES expert's presentation) for learners wishing to consolidate the new knowledge.
Glossary of the main concepts and terms.
Final test.

UPCOMING MOOC FOR EDUCATORS:

Odour pollution & Education

The module is addressed to formal and non-formal educators who wish to introduce the issue of odour pollution to students and schools. A set of learning activities is provided, addressing three age groups (kindergarden, primary and secondary levels).

Educators are welcome to adapt and use the activities in school classes as well as in cross-curricular projects on Education for Sustainable Development (ESD) and Citizenship Education. The contents of the module are:

4.1 Introduction
4.2 How to use this Module
4.3a. Activities for Kindergarden and early Primary School classes
4.3b. Activities for Kindergarden and early Primary School classes
4.4a. Activities for late Primary School classes
4.4b. Activities for late Primary School classes
4.5a. Activities for Secondary School
4.5b. Activities for Secondary School
4.6 References