



**FINAL**

# **IMPACT ASSESSMENT**

**OF PROJECT LIFE-READ**



**SUSTCHEM  
ENGINEERING**



**HELLENIC  
ASSOCIATION OF  
CHEMICAL  
INDUSTRIES**



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# FINAL IMPACT ASSESSMENT

## Executive Summary

**The purpose of the Final Impact Assessment is to demonstrate the present and future actions and advantages of the project “READ”. The technical approach of the assessment analyses the benefits into the following focal points:**

- **Environment**
- **Sustainability**
- **Replicability, demonstration, transferability**
- **Best practices**
- **Innovation**

**For each of the points, a comprehensive analysis is performed, which demonstrates the values and benefits of the project “READ”. The main long term indicators, are:**

- **Increasing the use of Workplace Instruction Cards (WICs) in the market.**
- **Increasing the total number chemical products and product categories available on the READ platform.**
- **Increasing the stakeholders (industries and professional users) using the READ platform through dissemination activities.**

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## Introduction

The objective of the proposed project is the creation of a public database with information for professional users on the safe and responsible use of chemicals during their full life cycle.

READ demonstrated a technically feasible and more effective alternative to the communication of safety information throughout the supply chain from the manufacturer - importer of a chemical product to the professional end user. In addition, the project enables specific industry sectors (paints, varnishes, construction materials, detergents for professionals etc) to meet their legal obligation for communication of the Safety Data Sheets (SDSs).

SDSs are voluminous documents that provide workers and emergency personnel with procedures for handling or working with a substance / mixture in a safe manner and include information, such as physical data (melting point, boiling point, flash point, etc.), toxicity, health effects, first-aid measures, reactivity, storage, disposal methods, protective equipment, and spill-handling procedures.

There is a constantly growing number of Regulations and Directives that affect the issue of a Safety Data Sheet (SDS). Major companies have specialized personnel assigned with the task of monitoring the dynamic regulatory framework of Europe. Small companies usually can't afford to have their own regulatory department and are usually either misinformed or completely ignorant of the European legislation. The main regulations and directives that affect the issue of the SDSs:

- Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).
- Directive 1999/45/EC of the European Parliament and of the Council of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations (DPD)
- Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (CLP).
- Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).
- COMMISSION REGULATION (EC) No 790/2009 of 10 August 2009 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures.

Other regulations, concerning specific types of products, which affect the issue of the SDSs are:

- Directive 98/8/EC of the European Parliament and of the Council of 16 February 1998 concerning the placing of biocidal products on the market
- Council Directive 76/768/EEC of 27 July 1976 on the approximation of the laws of the Member States relating to cosmetic products.

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- Regulation (EU) No 528/2012 of the European parliament and of the council of 22 May 2012 concerning the making available on the market and use of biocidal products.
- Regulation (EC) No 1223/2009 of the European parliament and of the council of 30 November 2009 on cosmetic products.
- Council Directive 1999/13/EC of 11 March 1999 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations.
- Regulation (EC) No 648/2004 of the European Parliament and of the Council of 31 March 2004 on Detergents.
- The quality of the WICs is highly dependent on the quality and compliance of the SDSs which they derive from. There are two types of companies that handle SDSs: Importers and Manufacturers. Initially, an evaluation of the current average quality of the SDSs was made.

The preliminary evaluation (preparatory action of the project) showed that the quality of the SDSs of the manufacturers was a lot higher than the quality of the SDSs of the importers, although only few of them met the quality standards the WICs required.

Actions were taken by the READ consortium, such as publication of guidance books and training seminars, in order to improve the quality and compliance of the companies to the Greek and European legislation.



## **READ objectives included:**

- Development of a public database, where companies upload their Safety Data Sheets and provide specific information for their products, such as:
  - Potential content of substances classified as SVHC, PBT, vPvB, Carcinogenic, Environmental pollutant, etc.
  - Carbon footprint estimation
  - ECO-label or / and carbon neutral certification
- Transformation of more than 10.000 SDSs into Workplace Instruction Cards (WICs) for the convenience of professional users, due to their brief character.
- Translation of WICs to Albanian, Serbian, Bulgarian and English for immigrant professional users / consumers.
- Training of participating companies (especially SMEs) on new EU Regulations, such as REACH & CLP (new classification / labelling / packaging framework)
- Promotion of products certified as eco, according to EU Ecolabel criteria
- Estimation & offsetting of READ carbon emissions (Carbon Neutral Project)
- Development of a methodology that can be easily transferred to other countries in Europe
- Dissemination of READ project results to National Competent Authorities and professional users / consumers, to persuade more companies, contribute with their SDSs and raise the awareness of professional users / consumers
- Reduction of both injuries / accidents and chemical releases to the environment

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## HOW TO FIND THE WICS?

Workers, professional users and consumers can access all of the 10.000 products that are registered on the READ Online Platform via:

### THE WEBSITE

[WWW.LIFE-READ.GR](http://WWW.LIFE-READ.GR)

In the webpage of the project LIFE-READ the users can use the dedicated tool and search through the list of the brands of the participating companies and find the WIC that they are looking for.

### THE SMART SEARCH ENGINE

[WWW.WIC.GR](http://WWW.WIC.GR)

The [www.wic.gr](http://www.wic.gr) has a google-styled search bar that is able to autocomplete the terms that the user will be searching through the platform making it very easy for everyone to find the product or the brand that he requires.

### THE MOBILE APPLICATION

[WIC.GR](http://WIC.GR)

The WIC.gr application is available to android and iOS smartphones, where users can access the full range of the READ Online platform products via a smart search.

The unique feature of the application is that allows the user to find the WIC he needs by scanning the products barcode or QR code, instead of searching lists or typing product names.

In order to provide to the professional users a synopsis of the most useful SDS's information for a chemical product, SDS is transformed using the READ platform into a Workplace Instruction Card (WIC) which is available on line using the project websites [www.READ.gr](http://www.READ.gr) and [www.wic.gr](http://www.wic.gr) and the related "WIC" app accessible for Android and iOS smart mobiles and tablets.

## READ Platform use the following special e-tools developed exclusively for the project needs:

- **Parsing tool:** This tool is used for syntactic analysis of the imported data. Particularly it determines data structure with respect to the given formal structure of the Guidance for the SDSs and the legislation related to the SDSs' content.
- **WICs reproduction tool:** The tool handles the necessary information given in specific sections of each SDS and automatically generate the related WIC.
- **WICs translator:** This tool is used to translate the Greek version a WIC into other languages based on Google translate tool.

WICs are provided in several different languages such as Greek, English, Albanian, Serbian and Bulgarian and include practical information from the SDSs concerning the safe use, emergency measures and disposal of chemical products etc.

WICs are simplified documents, friendly to the professionals, easily readable or printable.

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READ succeeded in convincing the companies to put more effort in raising their compliance and quality level of their safety documents. Companies have embraced READ and are already using WICs to communicate the safe use of chemicals in their facilities and their downstream supply chain. The following table shows the major companies that have joined READ.

Product Category	Companies	Brands
<b>Paints</b>	Druckfarben, Vechro, Yannides, Berling, Vernicol, Berling, BASF, Marmolux, Neokem, Chrotex	Kraft, Vechro, Vitex, Berling, Vernicol, Berling, BASF, ML, Neokem, Chrotex
<b>Varnishes</b>	Vechro, Druckfarben, Yannides, Berling, Marmolux, Chrotex	Vechro, Kraft, Vitex, Berling, ML, Chrotex
<b>Adhesives</b>	Henkel	Henkel
<b>Primers</b>	Vechro, Druckfarben, Yannides, Berling, Chrotex	Vechro, Kraft, Vitex, Berling, Chrotex
<b>Solvents</b>	Berling, Oil Chem	Berling, Oil Chem
<b>Building materials</b>	Alfa Energy, Neokem, Nordia, Penetron, Sika, Viopol	Esha, Neokem, Marmoline, Penetron, Sika, Viopol
<b>Coatings</b>	FYFE Europe, Alfa Energy, NanoPhos, Neokem, Penetron, Sika, Viopol	FYFE, ESHA, NanoPhos, Neokem, Penetron, Sika, Viopol
<b>Detergents</b>	Unilever, Elton, Eurochartiki, Home & Camp	Cajoline, Cif, Klinex, Omo, Proderm, Skip, Svelto, BU, Endless, Home & Camp.
<b>Disinfectants</b>	Prime Solutions	Prime Solutions
<b>Lubricants</b>	Abs Plus Aegean Oil	Zollex, Kent, Aegean Oil
<b>Fertilisers &amp; Plant Protection</b>	BASF, FarmaChem, ELFE, Elton, K+N Efhymiadis, Agria	BASF, FarmaChem, Elfe, BU, K+N Efhymiadis, Agria
<b>Car care products</b>	Abs Plus, HB Body	Abs Plus, HB Body
<b>Cosmetics</b>	Farcom	FARCOM
<b>Room deodorants</b>	Guru Aromas, Spring Air	Guru, Spring air
<b>Marine Chemicals</b>	CHEMO	Chemo
<b>Water Treatment</b>	Feri Tri, Elton	Feri tri, BU
<b>Various Chemicals</b>	BASF, Coral, Ecolab, Megara Resins A. Fanis, Oil Chem, Organometal, S & B, Elval, Bufa Hellas, Lime Factory Olympus, Kalogeropoulos Chemicals, Kapachim	BASF, Coral, Shell, Ecolab, Megara Resins, Oil Chem, Organometal, S&B, Elval, Bufa, Kalogeropoulos, Kapachim

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The project demonstrates that safety and compliance with legal obligations can be met at the same time by a more efficient way of interactive communication and extensive collaboration between public sector, private sector, trade unions and professional users.

Several dissemination activities, have been taken place during the project period in several regions of Greece which raised the public awareness and ensured that the platform is familiar to the end users (professional users).

Dissemination activities are also planned for the after-LIFE period under the supervision of HACI and HCA.





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## Environmental Benefits

The READ project aims to educate professional users on the safe usage of chemicals and on environmentally friendly disposal ways.

**Both SDSs and WICs** provide information related to the *protection of the environment*. Sections 12 & 13 of the SDSs and Part 6 of WICs inform users about the ecological properties of chemical products and ways to dispose or recover them, to assure environmental protection.

The READ project prioritizes ECO-labeled products, due to their low environmental impact. According to EU ECO-label policy the use of hazardous substances and substances that may be harmful to the aquatic environment should be minimized. Substances contained in eco-products are highly biodegradable as well, so their impact to the aquatic environment is not as severe as the one of conventional chemical products. Their packaging is eco-friendly, biodegradable and disposable, non-toxic, non-wax coated and made from recyclable material.

Another contribution of READ for the protection of the environment is the feedback provided to users of the platform regarding the carbon footprint of several chemical products of the database.

The completion of Carbon Footprint Calculator was developed to give a precise overview of carbon footprint emissions of chemical products. The development of this tool was a great challenge to READ Consortium, as READ personnel should be trained on ISO relevant to the calculation / offsetting of carbon emissions and process significant knowledge in short time. Finally, considering that each chemical category (eg. cleaning agents, biocides, plant protection products) require different fields for the estimation of CO<sub>2</sub>e, made our task more challenging. It shall be mentioned that no other free tool is available on the website for the estimation of carbon footprint emissions for chemicals.

The project aimed at covering different aspects on the safe and responsible use of chemicals throughout their life cycle. Specifically, except the chemical risk, environmental risks associated with the use of chemicals were also examined. The project contributed in solving the following environmental problems:



### Waste disposal:

- WICs provide sufficient information on waste disposal chemical products, which. After reading a WIC, professional users are aware on how they should dispose the packages and the residues of the products they had used.
- The project promotes eco labeled** and carbon neutral products, whose packages are biodegradable, disposable, non-toxic, non-wax coated and made from recyclable materials.



### CO<sub>2</sub> emissions:

- A Carbon Footprint Calculator has been developed for chemical products. This tool can be used from the industry to calculate GHG emissions for each chemical product. As a result, users of chemicals can be informed about product's environmental impact. READ reduced CO<sub>2</sub> emissions from chemicals' usage by promoting carbon neutral products, products with low carbon emissions or ECO - labeled products.



### Hazard substances:

- One of the long-term aims of READ is to reduce the use of hazardous chemical products. Even if a professional user is not sensitive on environmental topics, it is quite sure that he would choose a product with less severe hazards, in order to protect its health and the environment. As a result, more and more companies will be pushed to produce less or even non hazardous products.

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## Long term benefits and sustainability

a. As already mentioned, READ project aims to increase social awareness, to offset social and economic isolation, to increase the viability of the local community, to help SMEs deal with the obligations of EU legislation without extra administrative costs and to increase the level of protection for professional users and the environment (re-using of chemical waste products, recycling or appropriate disposal of packages).

The project succeeded in recycling 1.000 chemical packages (based on the available questioners from the participating companies). In the years to follow, it is expected an increase of at least 150 new entries (chemical products) per year, which means that at least 10% of them (i.e. 10 new products) will be added in the recycling list. This is a minimum target and it is expected to rise, as all stakeholders will become more concerned on environmental protecting issues following to a new national waste legislation.

Project also led to a decrease in professional chemical accidents (based on the available questioners from the participating companies) since they have been eliminated by 10% during the project period.

b. In order to develop Europe's environmental policy, the general EU objective of achieving a "high level of protection and improvement of the quality of the environment" has been defined.

From 01.06.2015 chemical mixtures are classified according to CLP Regulation 1272/2008. This directly affects the content of the SDSs and especially the part of the Classification and Labeling of the products.

Moreover, the Associated Beneficiaries organized several workshops concerning the CLP adaptation to inform stakeholders about their responsibilities arising from the implementation of the Regulation CLP 1272/2008. Also, during these workshops professional users became familiar on the use of the READ Platform and the new CLP criteria (new hazard pictograms, precautionary statements etc). Additionally, guidance, leaflets and written instructions were given to the stakeholders for CLP, READ Platform and WIC app.

From February 2015 and under the supervision of the Coordinator Beneficiary, participating companies started to update their SDSs according to CLP demands. As a result, the related WICs were also updated.



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Project actions contributed to the achievement of European environmental objectives as following:



**Promotion of eco-labeled chemical products, in order to increase environmental sustainability by manufacturing products of good quality with reduced environmental impact.**



**Promotion of low-carbon footprint chemical products and reduction of GHG emissions. This tool will be used to measure the CO2 emissions produced per product.**

Professional users are now informed about the product environmental impact. At the same time, participating companies benefit from having an effective solution to achieve sustainability and to effectively differentiate their products.

The tool was designed based on GHG Protocol Standard and ISO 14064 and helped to the:

- Enhancement of companies' Social Responsibility and EU environmental policy and legislation. Especially according to the directive 2000/60/EC which was developed in order to identify priority hazardous substances, achieve their elimination and contribute to achieving concentrations in the marine environment near background values for naturally occurring substances. According to the same Directive, Member States should adopt measures to eliminate pollution of surface water by the priority substances and progressively to reduce pollution by other substances which would otherwise prevent Member States from achieving the objectives for the bodies of surface water. For the priority substances, the Commission submit in proposing controls for the progressive reduction of discharges, emissions and losses of the substances concerned.
- Aims of the Water Framework Directive, as it contributes to the progressive reduction of emissions of hazardous substances to water. As already mentioned, WICs provide sufficient information on waste disposal of chemicals and promote nonhazardous formulas with recyclable and easily biodegradable packages. As a result, chemicals' residues and packages after their usage, even if they are not handled and disposed appropriately, are expected to contain mild or nonhazardous substances (non-Persistent, non-Bioaccumulative, non-Toxic) so as to avoid any serious damage to the marine environment.
- Communication and publication of potential risks for the workers' health & safety and for the environment arising from the use of chemical products.

c. The platform has a positive effect in many social aspects. In Greece, many users of chemical products for professional use are immigrants (especially from Eastern Europe), which have a little or even none professional experience in terms of handling, using and environmental concern. The platform allows them to gain more professional experience as it is focused on the most important matters and it's available in five different languages so that they will be able to understand the WICs content. In addition, chemical industry experts gained knowledge to follow chemical regulations and legislation demands. This knowledge will help companies to build and / or create

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new methods (e.g. more effective supply chains) and technologies (e.g. use safer alternatives as ingredients to their chemical products, extend the Life Cycle of their products by finding alternative uses and to establish a Circular model of use for their products). As for the environment, a more proper and sufficient use of chemicals help in decreasing chemical pollution in general, while increase interest in terms of recycling.

**d.** After the end of the project the READ Platform will be handled by HACI and HCA. The costs for the hosting of the database, the update of its contents and WICs reproduction and translation will be included in their annual budgets.

The associations will continue the communications with the companies of the chemical sector to participate in READ by providing their SDSs to the Platform. The target for after-LIFE period, is to extend database with additional chemical products categories such as agrochemicals, water treatment chemicals, petrochemicals, polymers etc. This will be implemented by dissemination actions through their members and non-members (website announcements, press releases, workshops etc).

HACI and HCA are going to disseminate the results, the impacts and lessons learned from the READ project to:

- Companies - Members of HACI and HCA.
- Technical journals to raise the awareness of professional users.
- Hellenic Association of Chemical Engineers.
- Association of Greek Chemists.
- Universities students.
- General Confederation of Greek Workers (GSEE).
- Hellenic Association of Expanded Polystyrene (HEPSA).
- Hellenic Association of Industrial and Medical Gases.
- Synergies of professional users (painters, building contractors).

in order to establish READ as a unique method to address risks rising from the use of their chemical products to the supply chain and the end users.

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## Replicability, demonstration, transferability cooperation

The READ Platform will fully functional in the coming years to become a useful tool not only for participating chemical companies and professional users, but also for the end users, industry professionals, students and public in general so that they will be able to trace useful information in very short time.

On one hand, participating companies of the chemical sector are interested in having a sufficient and easy accessible database where they can include all their products safety information. On the other hand, the platform can be used from foreign chemical associations to provide services to their members – chemical companies as a good practice.

Another important aspect from the READ project is the limitation of the obstacles to place chemical products into the market, as all products will share, more or less, the same piece of safety information according to the common EU chemical legislation.

READ is already associated with two other LIFE programs “PROTEAS” and “3X ENVIRONMENT”, which play a great role in updating our data info.

During the implementation of the project, beneficiaries had the opportunity to inform stakeholders and other national sector associations from other countries on the benefits of READ approach. Travels to European Countries such as Bulgaria, Slovenia and Belgium had been organized and carried out to signify the importance of the platform as it can be used by foreign companies as well. These actions have led to results with “AGRIA S.A.” (Bulgarian’s largest agrochemical company) being added to the list of participating companies.

As for the commercial part of the project it is expected to take place in 5 years from now for every new chemical product entering the platform.

Throughout this period the chemical sector will be benefitted from the reducing of chemical risk. With the help from the other chemical associations across Europe, the main target to persuade the competent authorities to accept READ Platform as a concrete solution for producers/importers and downstream users of chemicals to cover their legal demands to address risks arising chemicals, will be achieved and the benefits (environmental and safety) will be multiple.

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## Best practice lessons

The program led to invest a wide range of best practices, emphasizing mostly in terms of environment. The most important where:

- a.** Neutralizing the carbon footprint of the project. The Associated beneficiary succeed in neutralizing the project in terms of its carbon footprint by funding the plantation of trees in "Great Rift Valley" (Republic of Kenya).
- b.** Minimize the use of paper while most of the used paper was from recycled. By taken to account that a printed SDS can exceed even to 100+ pages while a WIC is strictly 1 - page long, has led to a great savings in paper supplies.
- c.** Helping professional users and especially immigrants to be protected from chemical risks.
- d.** The WIC app which exceeded the platform availability and accessibility, not only via pc, but also through tablets and smart phones making the content of the platform practically available everywhere and from anyone.
- e.** The using of recycled paper in all leaflets, guidances , the flexible booklet. along with part of the hardware material make the whole project more environmental – friendly.

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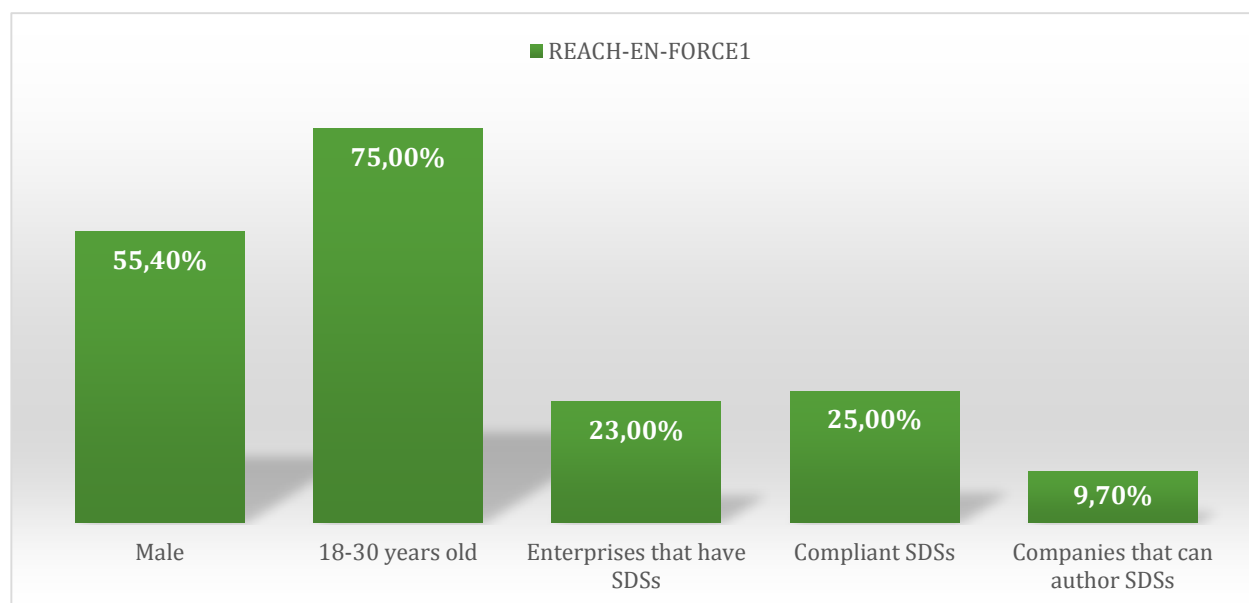
## Innovation and demonstrative value

Previous experience and research shows that only a small percent of professional users worldwide have access to derive that information or the basic knowledge for understanding. This is one of the key parameters that shape the large number of occupational accidents occurring in Greece. Although European legislation requires from industries producing / formulating chemicals to inform professional users about the risks inherent from the use of chemicals products, through Safety Data Sheets and exposure scenarios, the daily practice demonstrates the problematic practice that exists:

- Many companies (mainly SMEs) do not have the knowledge or the ability to fully comply with the legislation requirements.
- Most companies do not communicate adequately the necessary information (Safety Data Sheets) and this leads to inadequate information of the supply chain.

It should also be noted that during the tests been conducted by the EU National Competent Authorities for chemicals legislation within the REACH-EN-FORCE1 project of ECHA, proved that:

- Most of professional users (55,4 %) are male, almost three out four between 18-30 years old, while almost everyone has an education level of high school at least.
- Only 23% of enterprises have SDSs for all their products.
- Only 25% of SDSs were complied with the provisions of REACH regulation.
- Only 9.7% of companies can create SDSs for their own products.
- 83.9% of companies found with serious infringements on SDSs contents based on REACH Regulation provisions.



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Concerning the compliance of the SDS after the READ Project implementation, according to the General State Laboratory (Competent Authority for Chemical Legislation for Greece) the level of incompliances decreased from 25% to 11%!

In this complex situation is the READ project provides an innovative method of communication, collaboration and publication which includes:

- Innovative methods of dissemination and trainings which allows distance learning and participation.
- Innovative method for project monitoring and management thought a web administrative tool (REDMine) designed only for the specific purposes of the project.
- Actively promotion of green products, products and services with low or zero carbon footprints.

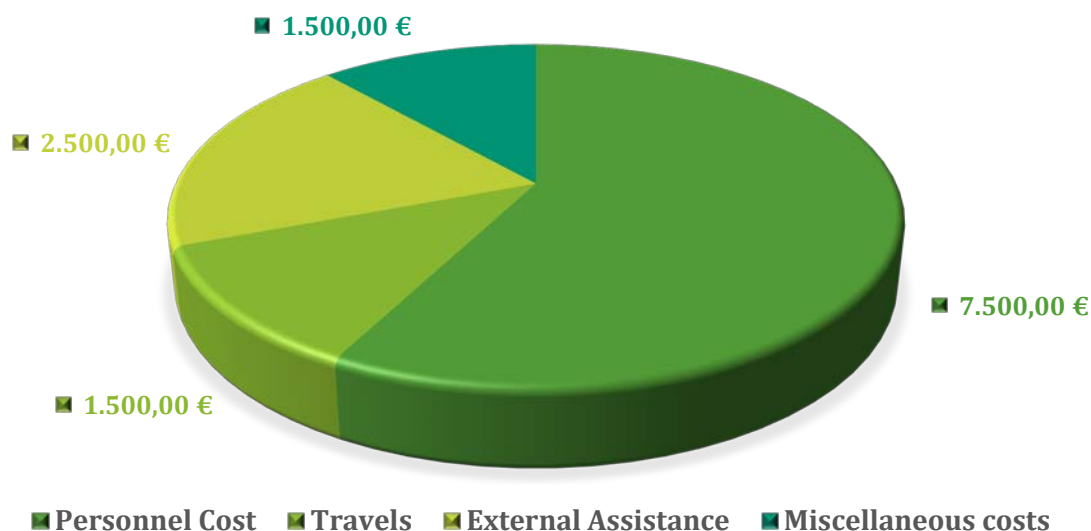


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## Long term indicators of the project success:

As already mentioned, after the end of the project the READ Platform will be handled by HACI and HCA. The costs for the hosting of the database, the update of its contents and WICs reproduction will be charged to their annual budgets which are estimated for a five-year period as follows:

### COSTS



Indicators are as follows:

- Up to this day more than 10.500 SDS have already been imported and almost all of them have been transcended to WIC'S. The uploading of the platform is continuous and moreover the project team has already focused on specific varieties of products that should be uploaded (e.g. "Eco products", "Agrochemicals", "Petrochemicals", "Water treatment chemicals" etc.). All WIC's are translated in four different languages (English, Albanian, Serbian and Bulgarian) while more languages can be added if necessary.
- Communication with professional users Associations for further dissemination of READ project and the yearly monitoring of READ impact to the target audience.

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## Conclusion

This final Impact Assessment demonstrates the values and benefits of the program both in present and in future. READ is actually a multi-stage project. READ Platform and the creation of WICs remains the most important parts of the project, since they are very useful tools to increase safety of the professional users, industries and the public except the protection of the environment.

Raising the awareness of the consumers and professional users on environmental friendly products and proper chemical waste disposal methods are also important achievements of the project.

READ will continue to expand by adding more chemical products into the platform and by creating more WICs in several languages.