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QUIZ4YOU PACOPAR



The APP Mini PACOPAR Games integrates three types of educational games:
• Silly Pieces (Peças Tontas) - with 9 puzzles. • Quiz - one quiz about PACOPAR,
with more than 200 educational questions. • Puzzle - 8 puzzles about PACOPAR.
This application is aimed for all ages.

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MORE COMMUNITY IN PACOPAR

PEDRO GONÇALVES
HEAD OF THE PACOPAR SECRETARIAT
CIRES INDUSTRIAL DIRECTOR

The rotation rule dictates CIRES should undertake the secretariat of PACOPAR for the following two-year period 2015-2016. Responsibility from the long history of this Panel is, this time, accrued by the excellent performance of the previous secretariat, to whom we offer due recognition for the efforts and initiatives taken and which we want to continue.

It will be our priority to encourage greater and more active involvement from all constituents of the Panel, in order to fulfil one of the most important purposes of this organisation which is to be aware and respond to the concerns and aspirations of the community, in particular with regard to the activities of the companies of the Estarreja Chemical Complex (CQE).

The central theme for this issue of the magazine is Safety, a subject which, despite being ever-present and a priority in the activities of PACOPAR, had not yet been discussed in detail in this publication. The opportunity for the theme came with the External Emergency Plan of Estarreja made effective in 2014. Through this plan, we integrate and coordinate the several entities and resources mobilised in an emergency situation.

When approaching the safety subject, we tend to discuss actions in case of accident, without giving proper relevance to accidents prevention. This is the very aspect we aim to point out, featuring the principles of accident prevention methodologies that companies apply and which translate into very significant technological changes. In particular, we highlight the high degree of automation and moni-

toring implemented in their processes, which allow for the identification and early detection, often redundant, of potentially dangerous situations and which, if applicable, will trigger actions to restore safety conditions.

Businesses investment in this field has been significant in recent years, especially since it was made in a context of huge economic hardship. In the case of CQE companies, these difficulties are mainly associated with the difference in energy costs that occur in different parts of the globe and that negatively affect all of Europe, but with particular severity in Portugal. APEQ highlights this issue quite well, in their brief analysis of the critical factors for the chemical sector competitiveness.

Within this framework, integrates the great interview with the Member of European Parliament Carlos Zorrinho, who is a permanent member of the Committee on Industry, Research and Energy. That is where the European and Portuguese perspectives in terms of energy policy are discussed, in this politician's view.

Complying with the undertaken duty of transparency, the usual environmental performance and safety indicators are available. This practice, started by the CQE companies almost 20 years ago, is prior to the existence of PACOPAR itself. To the most interested readers, we recommend that these more detailed indicators are referred, including the first joint publications of CQE companies, all available on the PACOPAR website.

Finally, a special reference to the performance of the Secondary School of Estarreja, which, having been classified in the 80 percentile of the 2014 national school ranking, made the whole community proud. They are all to be congratulated, particularly the board of directors, teachers, and non-teaching staff, and students.





MEMBER OF THE EUROPEAN PARLIAMENT FOR THE SOCIALIST PARTY, CARLOS ZORRINHO IS A MEMBER OF THE COMMITTEE ON INDUSTRY, RESEARCH AND ENERGY

FOR A EUROPEAN ENERGY MARKET

As Member of European Parliament (MEP), elected in the last European elections by Socialist Party (PS), Carlos Zorrinho is the only Portuguese member with permanent representation in the Committee on Industry, Research and Energy of the European Parliament. Given the high energy costs the Portuguese industry is up against, which threaten its competitiveness, PACOPAR interviewed Carlos Zorrinho, in order to assess perspectives and possible solutions discussed in the European Parliament for energy competitiveness, at a time when the Portuguese and European financial crisis seems to be overcome and when the new European Commission takes on ambitious goals for the energy sector in Europe. The Portuguese socialist MEP points out the need to create a genuine European energy market, to end national distortions of the energy policy.

What is the importance of the Portuguese chemical industry and particularly the Estarreja Chemical Complex (CQE) for the national and European economy?

The chemical industry is a base industry without which the industrial chains are vulnerable. The significant weight in the creation of direct and indirect jobs at the European and national level evidences its relevance at both levels. Moreover, more than 10% of the national exports result from this important industry, mainly based in Estarreja, where three of the ten largest chemical companies operating in the country are located.

Europe is paying a heavy price for its de-industrialisation, resulting from the companies running off to more appealing regions in terms of factor cost and environmental permissiveness.





I do not advocate that Europe should loosen their industrial processes' quality standards, but I do argue that international agreements and rules must ensure, as far as possible, balanced competition rules.

The Portuguese State's role in the industrial plan is mainly to ensure good regulatory framework conditions for the activity, but the industrial policy benchmarks definition shared with the stakeholders, with consequences on incentive mechanisms, is important. The chemical industry should play a major role when it comes to incentive mechanisms.

A recent study by AIPQR (Associação das Indústrias da Petroquímica, Química e Refinação or Association of Petrochemical, Chemical and Refining Industries) has concluded that despite its small size on a European scale, the petrochemical and chemical industry in Portugal has made an important contribution to employment and exports, being a strategic pillar of the national economy. And despite the growing trend of relocating to emerging markets, the industry managed not only to retain production, but also to grow, as shown by the example of the polyurethane chain in Estarreja. However, high energy costs make for an uncertain future. The Portuguese industry has one of the highest energy prices in Europe. From 2010 to 2012, the Estarreja Chemical Complex has suffered yearly average increases of 17%. All companies view this problem as an alarming loss of competitiveness. What are your comments on this?

I have been a Secretary of State for Energy and Innovation and I am well aware of the impact energy prices have, both on the budgets of families and on the dynamics of companies. They also have an additional impact on companies that compete on an international level.

Thus, and within the legally established regulatory framework, mitigating measures that have generated a competitive mix are usually found.

Some rules, mostly imposed from abroad, have unbalanced prices over the past few years. I believe that strengthening interconnections and the evolution of global markets will help to create a true internal market for energy on a national and European level in the future.



In a single European market, should the EU play a role in energy prices harmonisation?

The role of the European regulating entity (ACER) will be increasingly decisive. On the other hand, the Commission's decision on Energy Union recently presented, will breathe new life into a harmonisation generated by market dynamics itself. Only after there is a European energy market will it make sense to, with the necessary impact on national and local policies, attempt to correct its failures and eventual asymmetries at a European level.

However, States have national sovereignty to legislate in terms of industrial policy and may distort an eventual harmonisation. France makes individualised electricity supply contracts with industries, Germany grants network access fee exemptions to certain consumers and funds some industries in the exports segment... How can we get around it? What could Portugal do in order to minimise the energy cost issue?

It is the lack of a European energy market that allows for tolerating these distortions. An ideal plan should include a European industrial policy that made the best out of every national industrial policy. In this case, there might be global competitiveness-friendly contexts without distorting the internal market.

The cost of energy at a European level is also an issue. You have admitted to this in an article published in *Diário do Sul*: Europe has the cleanest and most expensive energy on the planet. And the investment in new petrochemical units has been made in the Middle East and Asia. When presenting strategic guidelines for the new Commission mandate, Jean-Claude Juncker advocated the need for energy independence and for strengthening the share of renewable energies in the EU. The construction of a "European Union for Energy", in order to make energy more affordable, combining industrial competitiveness and climate goals has been mentioned. What proposals does the European Parliament (EP) have in store for a European energy strategy? Will the EU be able to implement a timely strategy to save the competitiveness of the European industry?

In this particular mandate, the Commission has prioritised energy issues, whether for reasons of industrial competitiveness, or security issues, well evident in the impacts of the conflict with Russia on the subject of Ukraine.



In this area, we must make a core choice. Should Europe return to pollutant or dangerous energy sources in the name of competitiveness or should it lead the industrial revolution to create a more competitive and environmentally sustainable industry? While recognising that this second path is longer and difficult, I also believe that it is the best in a medium and long-term perspective, making European industry a global reference in terms of methodologies and innovative production processes.

Another competitive weakness of the chemical industry in Portugal is the high logistic disintegration between its poles (Estarreja, Sines and Matosinhos), as opposed to European competitors. On one hand, Estarreja gathers favourable conditions (proximity to the port of Aveiro, the sea routes from Northern Europe and the Middle East), on the other hand, it depends strongly on the highway for the transportation logistics. For example, Benzene transportation from the aromatics plant in Matosinhos as well as the transportation of several products to the port of Aveiro is carried out via highway. Alternatively, there are plans to build a pipeline, or use the railway, which is the most economically viable alternative. Ironically, the EU Trans-European Transport Networks plan, focused on the railway, has been neglected by the EU States. Does the EP plan to pressure governments in order to gather investment for the railway?

The European Parliament is a multifaceted body, which represents many peoples and visions. Nonetheless, I have no doubt that the EP, for the most part, will support the prioritisation of railway investment by the European Commission. Personally, I believe it is vital to, in conjunction with digital networks and port policies, fade the downsides of our peripheral location when compared to the major consumer markets.

You have said in a speech in Strasbourg, regarding the Horizon 2020 programme, that Europe needs a new industrialisation, "industrialisation 4.0, based on clean innovation and on the exploitation of the information cloud". What is the basis of this idea? And will there be funding?

Perhaps the revolution will not start in the heavy industries, but it will get there. Industrialisation 4.0 allows the creation of production lines





PROFILE

Born in Óbidos and Business Management professor at the University of Évora, Carlos Zorrinho was elected by the Portuguese Socialist Party (PS) in the last European elections, integrating the Group of the Progressive Alliance of Socialists and Democrats of the European Parliament (the political group that includes the elected members from the Socialist and Social Democrats parties).

With a distinguished political career in Portugal, Zorrinho has already been a member of the Assembly of the Republic in various legislatures, elected by the constituency of Évora. He also held a few government offices, as Assistant Secretary of State for Internal Administration, between 2000 and 2002, National Coordinator of Strategy for Lisbon and of the Technological Plan, between 2005-2009, and Secretary of State for Energy and Innovation in the last socialist government. As a Member of the European Parliament, he currently integrates the Committee on Industry, Research and Energy of the European Parliament, in addition to other functions. Zorrinho has a Business Management PhD, and has published several works, both academic and political.

networked with the end-product distribution to the market, benefiting from the competitive advantages of each location to optimise the value chain.

For now, these dynamics will impact more on the precision chemistry industries. I believe that a significant part of the funding for the Innovation of Horizon 2020 will be dedicated precisely to this opportunity of making the European industry competitive by eliminating some of the obstacles, such as spatial barriers and the asymmetries of knowledge or access to raw materials.

The Portuguese chemical industry makes ongoing investments to remain competitive, sustainable and safe. But, as previously mentioned, the governments of other European countries have much more positive policies for the sector. How can Portugal achieve 20% of GDP in the industrial



sector with problems such as lacking energy at a competitive price and lacking subsidies and infrastructure projects?

By correcting this gap of industrial policy in conjunction with stakeholders, making the necessary investments in energy and access infrastructures to eliminate competitive disadvantages. It is a matter of choices. There isn't enough money for everything, but the strengthening of the industrial base and the production of tangible goods have long been considered national priorities. It is time

to resume the effort of transforming words into concrete actions.

What recommendations/advice would you give to entrepreneurs and suppliers of the chemical industry in Portugal? Do you see a positive future for the Portuguese industry, the chemical sector in particular?

It all depends on the industry's resilience and vision, and its ability to impose an agenda that enables a new level of competitiveness and added

value. Nothing happens by accident. Competition for public and private resources is greater than ever. Sellers are those who know where they want to go and are willing to fight and take chances in order to win. I have faith in our industrial network and, in particular, in the Chemical Industry, and I will be a demanding but available ally, while on my current functions.

SAFETY: FUNDAMENTAL PILLAR OF THE CHEMICAL INDUSTRY



The approval of the new External Emergency Plan of Estarreja (article "The External Emergency Plan of Estarreja is now more agile and operational") motivated this issue of the PACOPAR Magazine, exploring safety in the municipality in several dimensions. From the priority that chemical companies give to this area in order to ensure the integrity of their employees, suppliers, the local community, and the city council, which acts in connection with municipal civil protection authorities, as well as the legal scope, in order to realise at what point did the State begin to legislate on safety.

In addition to its most obvious scopes, manifested in drills or in the performance of some works that require the use of equipment with clear visibility, safety also has a "hidden" scope, which is not seen when observing a plant, but that is clearly there and begins long before its existence.

The number one goal of chemical companies of PACOPAR is never having to activate the External Emergency Plan of Estarreja (PEEE), much less its internal emergency plans. Therefore, safety in the Estarreja Chemical Complex (CQE) is a priority. Rather, it is an assumption without which plants and production could not exist. Security begins at the design stage of a production unit construction project, with the prediction of risks associated with its operation, in order to establish the best choice of equipment and technological systems which are most appropriate to the characteristics of products that will be used, or to the pressure and temperature they will be subjected to on a daily basis. This feature is common to all companies in the CQE - Air Liquide, AQP, CIRES, CUF and Dow Portugal. In the following paragraphs we will figure out how four of them (except AQP, by having different characteristics), classified as Seveso companies make security a priority area.

Prevention in design

CIRES, CUF and Air Liquide use HAZOP (Hazard and Operability Study), an international method for the identification of dangers that may cause accidents in the distinct areas of a plant. "When designing a project or when planning for a change in the plant, we must perform this HAZOP analysis", explains António Santos, Director of Automation and Systems of CIRES. CUF follows the same international method. "Thus, we know which critical situations may arise. Depending on the risks detected and evaluated by the methodology, corrective and preventive actions are planned in the project design stage," said António Mesquita Sousa, Chief Operating Officer of CUF. He adds that the company "follows the industry's best practices", adopting the "most advanced solutions in terms of technology, to address such risks."

The analysis prior to a project's design is a legal and internal requirement that companies must meet, using the methodologies available in the industry. Dow Portugal uses LOPA (Layers of Protection Analysis - defining protection levels). "Risk scenarios that might occur in facilities are defined, and by applying certain rules, each scenario originates an index, which corresponds to a degree of severity," explains José Luís Figueiredo, Operations Leader of Dow Portugal.

This index sets the number of independent protection levels. "It is like onion peel", the several protection and mitigation layers overlap. Examples of protection are the piping specification and other project criteria, safety valves, containment systems, emergency lockout valves, etc. The construction of two containment buildings in 2009 for industrial areas using phosgene is an example of different protection levels. This secondary containment system is an internal global requirement



of Dow, without which a plant using this gas cannot operate.

Although with different names and methodologies, the means used and the intended purposes are common among companies. "We evaluate the situation and, before the possibility of excessive level in a tank occurs, we install a measuring instrument. If the danger is lack of flow, a flow meter is installed", explains António Santos, of CIRES. These evaluations, carried out by a multidisciplinary team, implicate the need to install "a series of parallel instruments to perform risk control" at the factory.

This is what Mesquita Sousa of CUF calls "equipment installation in redundancy to minimise the chance of failure" in any area of the productive process. All these prevention systems, incorporated into the plant itself, normally operate automatically, as is the case at Air Liquide, also subject to this preventive process during the plant design stage.

From prevention to detection

"The plant is very automated. It has, for example, a system of leakage and explosion detection directly connected to our control system that identifies the location of an eventual leak, the type of gas involved, for instance, and this allows for an anticipation of situations," explains Luís Ferreira, Plant Director of Air Liquide in Estarreja.

When we look a CQE plant on the outside, we only see a labyrinth of pipes and tanks. And where is the heart of everything? In a control room, to which all the outdoor equipment is connected, through an automated system, which allows for automatically

controlling the variables of the productive process. The operator is in charge of correcting or anticipating deviations in process control using the PCs (computers) of the DCS control system (control system used at the plant). When these localised anomaly prevention systems act, an alarm is automatically generated, to which the response may be either human or automatic.

"We have a developed automation and industrial control system which, in case of anomalies, can cause controlled outages, avoiding disruptions in the production process," claims Mesquita Sousa,

STRICT SECURITY AUDITS

Security measures implemented by companies meet legal requirements, both on national and European levels. In order to ensure society that this whole set of legislation is applied companies are regularly subject to rigorous external audits and inspections carried out by the competent national authorities in this area, in order to ensure that they comply with the standards. These inspections focus on industrial safety, occupational health and safety, and environmental management systems. Companies also have their internal audit processes, not only because they also have their own internal requirements to fulfil, but because the internal audit acts as a first test to the compliance with all legal standards, before external audits. Behind all this, there is the hiring of highly trained professionals, so that the legal requirements translate effectively into protective measures for employees, suppliers and local communities.





of CUF. This is what happens at Air Liquide and Dow. "The most critical parameters are constantly monitored. If there is a deviation, an alarm is generated which requires action. All actions are predicted for each scenario and any operator knows what to do," said J. Luís Figueiredo, explaining that many of the responses to abnormal

situations can be provided automatically by the system.

"Whoever is in a control room, on a normal shift, will only need to use their hands half a dozen times. But if any deviation should occur, the operator is warned. There are alarms that issue

the warning and the control system itself reacts to alarms, although it also allows the operator to act.", explains Rui Batista, Head of Health, Safety and Environment at CIRES.

In addition to these resources, companies have even installed strategically located environmental

ARE THEY ASTRONAUTS? NO! THEY ARE CQE INTERVENTION TEAMS!

Watching the intervention teams in emergency response training actions or drills can remind us, at a first glance, of a space mission scenario, due to the clothes they wear. The members of these teams who work in chemical accident scenarios have indeed something in common with astronauts: the need to protect themselves from adverse environments that disrupt the normal functioning of the human body. Let's observe a few common points, which require the use of specific equipment:

- CQE intervention teams are prepared to face environments where it is not possible to breathe normally. Thus, team members, like astronauts, use self-contained breathing apparatuses.
- CQE intervention teams are prepared to act in adverse atmospheres, with high temperatures or where there are gases that disturb the vision or the skin. To cope with this, team members must use, like astronauts, special suits and other protective equipment such as goggles and chemical protection and fire-retardant suits. But these are only visual resemblances. There are no astronauts in the CQE!!!

Observation: as a general rule, companies have three action elements in case of emergency, with a more operational character:

- rescuers, whose goal is to provide first aid to eventual victims;
- brigade members, whose goal is to fight the accident occurred in the front line;
- safety delegates, whose goal is to gather the company's workers who have no active role in the resolution of the emergency and lead them to a safe location.

detectors, video surveillance circuits, fire alerts and gas detectors, which allow for obtaining information, in addition to the one collected by operators that circulate on the outside.

From detection to mitigation

As a last resort, if localised automatic processes do not get triggered and the anomaly gets worse, companies have systems that act automatically in a given production area to mitigate the problem.



"We have in our main pipes, namely of natural gas and products, a system called pipe rupture, which, once enabled, isolates and cuts the pipe, with no intervention from the operator. This extraordinarily limits the amount of an eventual leak," explains Luís Ferreira.

At Air Liquide, all piping, equipment, pressure relief valves and safety valves are connected to a common manifold, which leads the fluids to a "flare" (chimney) to allow all gases to be burned, which guarantees that only non-hazardous gases are released into the atmosphere, in the safe zone. Besides, as stated by the factory Director, "If there is a problem in one unit, it can be split into several subunits, isolating a particular block or even the entire unit", so that a situation does not spread and impact the whole factory. Any rejection of products made through this system, for being linked to a tower of flame that makes the burn possible, will not end up in the atmosphere.

At CIRES, the SIS (Safety Interlocking System) can include, for example, "forcing the cooling of a reactor with water or injecting a chemical that prevents polymerisation", explains António Santos. CUF has identical automatic abilities, "such as jamming, emergency stops, which in case of disturbance, work as programmed outages, until it is possible to fully stop the plant."

In addition, there are several equipments scattered throughout the production areas that also act automatically on specific problems, as exemplified by the Dow: "Unload locations of tanks carrying flammable products are equipped with flooding showers. The fire detection is automatic and the shower is triggered accordingly. It all works on an automation basis. For these responses to work, "we must have a network of distribution and pumps installed capable of supplying water, which requires having specific storage for these situations," the company's operations leader states.

That is, besides the necessary equipment to a factory to produce a given product, there are parallel installations to mitigate and eliminate problems that may occur. At this stage, it is no longer about preventing the occurrence of an error (as in the project design phase), but about minimising or preventing its consequences. And



if these actions are not sufficient, we must trigger the emergency plan.

Emergency – last protection barrier

Because these are SEVESO companies (see "Seveso Directive – greater guarantee of community protection" article) and are motivated by their own internal requirements, Air Liquide, CIRES, CUF and Dow have previously established emergency scenarios that may occur on their premises, recording them for the competent authorities. For each scenario, the possible impacts and affected areas are predicted and, on that basis, response procedures are studied and defined in order to minimise the consequences of an unforeseen situation. We are speaking of the existence of internal emergency plans of companies.

"We have a three level emergency plan: first, where we resort to our own means, second, where we respond with our resources and outside aid, and third, where we consider ourselves unable to con-

DOW PORTUGAL

Dow Portugal is a subsidiary of The Dow Chemical Company and has been in the country for over 30 years, with a production unit in Estarreja. This facility produces PMDI (Methyl Diphenyl Isocyanate), an essential raw material for the production of polyurethane rigid foams and polyurethane elastomers. The PMDI unit of Dow Portugal is currently a strategic production Centre for the Dow Polyurethanes business and for Dow, having gradually increased its capacity and optimisation.

Dow combines the power of science and technology to constantly innovate in what is essential for the progress of mankind. The company innovates in areas that provide value through the relationship between the chemical, physical and biological sciences, in order to help solve some of the world's most serious problems, such as the lack of drinking water, clean energy generation and conservation, and increasing agricultural productivity. The company produces over 6,000 products, at 201 manufacturing units installed in 35 countries.

More information: www.dow.com/iberica/pt



control the event and resort to the Civil Protection (Article "The External Emergency Plan of Estarreja is now more agile and operational")," said Sónia Fonseca, Head of Health, Safety and Environment at Air Liquide.

As factories operate 24 hours a day, it is usually up to the operators to decide whether to activate the emergency plan. "On every shift, there is always an intervention team prepared to manage and resolve the emergency," ensures Maria José Alves, Safety and Environmental Coordinator at CUF. Each shift has the capacity for "the three emergency action functions in the company: coordination, direction and intervention." If the situation occurs during the night shift, the shift supervisor will accumulate the three functions.

With all possible scenarios listed, the people responsible for the various components of the plan have all the bases covered to provide a ready response to the emergency. "We have a general emergency coordinator, the person who manages the emergency, not in terms of a response to the specific problem, but in a perspective of integral management of actions. We have the emergency command, which is in the control room to give support to the IRL (Immediate Response Leader), who coordinates the operators that will act in response to the anomaly occurring in the factory. The emergency coordinator is in charge of continuously monitoring and evaluating the situation on site, the evolution of the emergency conditions of the affected areas and, accordingly, aid in the decision making of which action methods and means to use," explains Renata Santos, EH&S (Health, Safety and Environment) Leader at Dow Portugal.

At CIRES, there are similar functions, such as emergency coordination, with the responsibility of, as Rui Batista explains, "requesting support, managing contacts with external entities, providing information to journalists and performing the emergency situation modelling," that is, predicting the scenario's evolution. As for the emergency management, "it has the function of directing the company's internal media to combat the emergency itself." At Air Liquide, the decision to activate the emergency plan is always with the director. In his/her absence, the situation should be immediately reported by the shift supervisor to allow for



CIRES

CIRES Group Shin-Etsu is the only company in Portugal that produces PVC – polyvinyl chloride – with an annual capacity of 200.000 tonnes of production. CIRES was born in 1960, as a joint venture between Portuguese and Japanese investors, and is currently held only by the Japanese multinational Shin-Etsu, a world leader in the production and marketing of PVC suspension resins. CIRES is pioneer in Portugal in the production of thermoplastic materials, standing out from the beginning for the high quality of its products and technical support to its customers. This strategy offered the company a strong position in the market in a period that was decisive for the development of the plastics processing industry. CIRES became one of the most modern and competitive industries in Europe, equipped with the most advanced technologies, which have allowed it to ensure high performance standards, namely in what concerns productivity and quality.

More information:

www.cires.pt • www.shinetsu.co.jp



evaluating which alarm level to trigger. The IEP director (Internal Emergency Plan), together with the emergency coordinator and the shift supervisor, compose the emergency operations centre. "In order to guarantee the plan operation, there is a prevention scale," highlights Sónia Fonseca.

Experts for several scenarios

Companies have highly trained personnel to operate in different scenarios, from firefighting, gases or liquids leak control, spillage containment, confined space rescue and first aid. Each shift has operators prepared and subject to regular training to respond to different emergency scenarios. To ensure that all personnel is permanently fit, companies invest heavily in training of human resources, not only those who work directly in plant operations, but also others performing different functions, but who may also be involved in the resolution of an emergency situation.

"We have, for example, specific training to rescue in confined spaces or toxic atmosphere," says Rui Batista, of CIRES, where there is a specific field for training, often carried out in collaboration with firefighters, such as Santa Maria da Feira, which have means performing in chemical issues. "Last year, we had firefighting and rescue training in confined spaces and we will have, soon, a first aid one," said Daniela Cardoso, HSE Departing Director at Dow Portugal.

According to Luís Ferreira, "at Air Liquide, safety is a priority. There is a strong safety culture, periodic safety meetings and all 23 people on the Estarreja plant have all the necessary training to provide for the correct response to the emergency, from first aid to firefighting, and the knowledge of risk scenarios and adequate actions." In addition to a more comprehensive training, CUF has a weekly training in one of the components of the intervention team's action. "We are preparing them for readiness in use of autonomous breathing equipment, chemical protection suits or radio communications," explains Maria José Alves.

In addition to the specific training of operators for rescue and fighting in various scenarios, several

tests are made to equipment and to the reaction of the plant population. "Every Friday two communication drills are made. In the first, there is a list of entities such as Civil Protection, Firefighters, Hospital of Salreu, GNR of Ovar and Estarreja (national security force in Portugal), CUF, chemical Park, Dow, Air Liquide, who respond to the call depending on a given scale. The goal is to test whether the communication is done effectively and to test the reaction of the people of the surrounding industrial area. In a second exercise, by 11:30 am, communications are tested between Dow and Air Liquide on an available radio frequency between both, explains Sónia Fonseca.

Companies also undertake several drills, which besides the training purposes, also allow to test the operability of emergency plans and identify any shortcomings and improvements to be made. And since the goal is maximum prevention, there is also an External Emergency Plan of Estarreja, for potential situations that may extend beyond the perimeter of the CQE (article "The External Emergency Plan of Estarreja is now more agile and operational").

AIR LIQUIDE PORTUGAL

The Portuguese Society of Liquid Air is a subsidiary of the multinational Air Liquide, which began its activity in Portugal in 1923, selling oxygen and other industrial gases, being the first company in the sector to establish itself on the national territory. Therefore, it has accompanied right from the start the several development stages of the Portuguese industry. Air Liquide Portugal serves more than 35 000 customers through three activities: industrial, medical and welding. Thanks to a network of more than 70 distributors, Air Liquide Portugal is present across the country, leading the Portuguese market from the beginning, driven by its bet on permanent innovation. Air Liquide is the world leader of gases, technologies and services for industry and health.

More information: www.airliquide.pt

CUF-QI

CUF-QI, a company of the CUF holding, specialises in the production and marketing of organic and inorganic industrial chemicals, raw materials used in the manufacture of products that are essential to people's daily lives. CUF is the leading private Portuguese chemical industry group, with a presence in international markets, following a culture of quality in environmental protection, so as to develop its companies, shareholders' satisfaction and performance of employees. Founded in 1865, CUF – Companhia União Fabril – enjoys a presence in Portugal that intertwines with the very history of the country, having started its activity in the production of soaps, stearin and vegetable oils. CUF is currently represented by four companies, in addition to CUF-QI, AQP (production of aluminium salts), Elnosa (production and marketing of chlorine and derivatives) and Renoeste (extraction and purification of salt).

More Information: www.cuf.pt





NEW DOCUMENT ENTERED INTO FORCE LAST YEAR

THE EXTERNAL EMERGENCY PLAN OF ESTARREJA IS NOW MORE AGILE AND OPERATIONAL

The External Emergency Plan of the Estarreja Chemical Complex (PEEE) has entered into force on April 30th 2014, ensuring the municipality greater agility and operational readiness in response to emergency situations. Subject to a drill exercise during 2015, the new document revises the previous plan that had been in place for about nine years, establishing a reformulation of measures arising from legislative changes and from the guidelines of the National Civil Protection Authority. The most important update concerns the health sector.

"The issue of health is now better explained in the current plan, which clearly defines which entities have a direct intervention in that scope in case of a chemical accident, and which hospitals can receive victims", explains Diamantino Sabina, president of the City Council of Estarreja (Câmara Municipal de Estarreja) and plan director.

The PEEE aims to organise the involvement of available organisations and resources, with responsibility in the area of security, in emergency situations originated at the Estarreja Chemical Complex (CQE) and whose consequences go beyond their perimeter and can impact the city. The

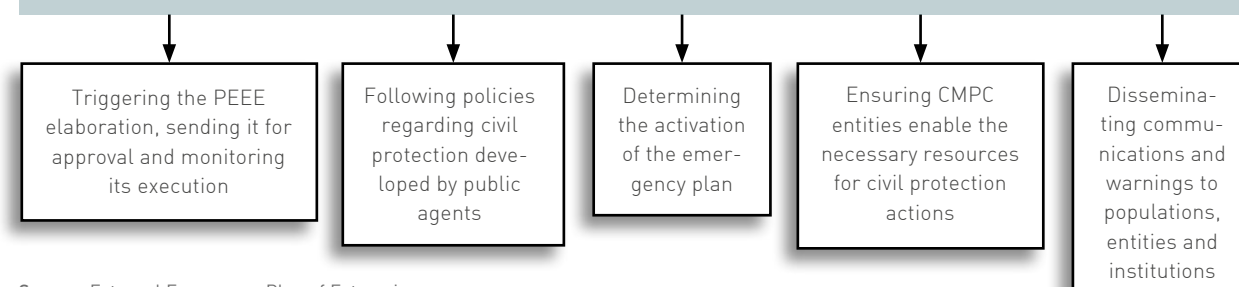
companies Air Liquide, CIRES, CUF and Dow, as Seveso companies, are objects of study in the plan and play an important role in its operation, as they should be in permanent communication with the city council and provide technical advisory.

The drafting of the document meets the requirements of the Seveso Directive, thereby fulfilling State obligations arising from this European stand-

MUNICIPAL CIVIL PROTECTION COMMISSION

- President of the CME / City Council of Estarreja
- Commander of the Rescue Operations
- Commander of the Estarreja firefighters
- Commander of the GNR (National Guard) – Ovar Territorial Detachment
- Municipal Health Authority
- Speaker/Representative of the Estarreja Health Centre
- Representative of the Board of Directors of Centro Hospitalar do Baixo Vouga – EPE
- Representative of the Social Welfare Institute
- Representative of the Estarreja Social Network
- Presidents of the Parish Councils

CMPC ATTRIBUTIONS



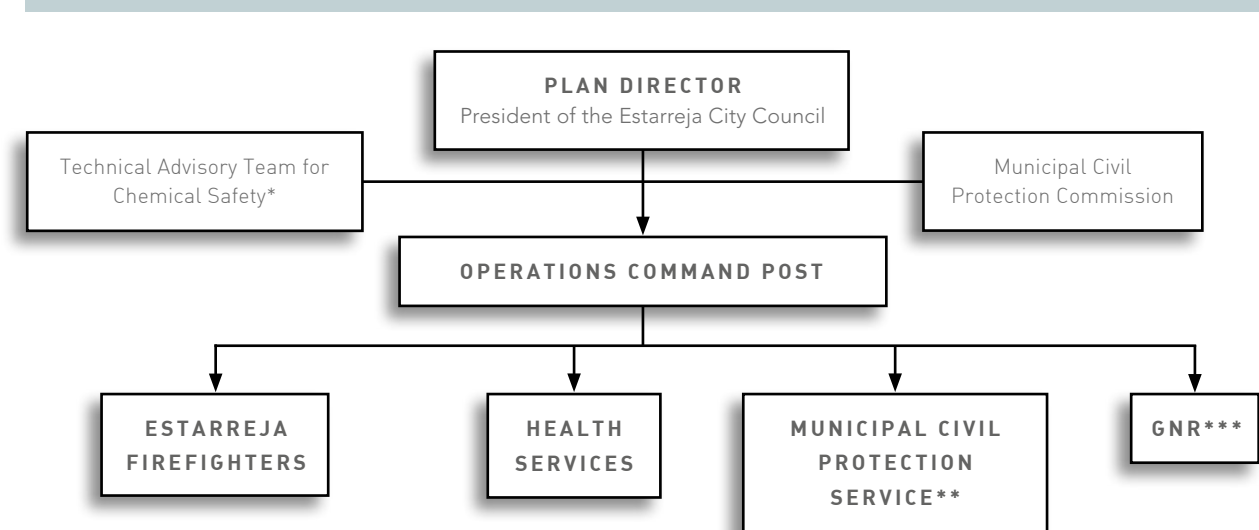
ard (article "Seveso Directive – greater guarantee of community protection"). The plan identifies two types of occurrence as potential sources of risk, "which are serious industrial accidents and transportation of dangerous substances," explains Diamantino Sabina.

Emergency response

As director of the plan, the Mayor occupies the highest hierarchical level of the document, counting with the support of advisory bodies, such as the Municipal Civil Protection Commission (which he also presides) and the technical team of corporate chemical safety consultancy (see diagram/infography) for the decision making process.

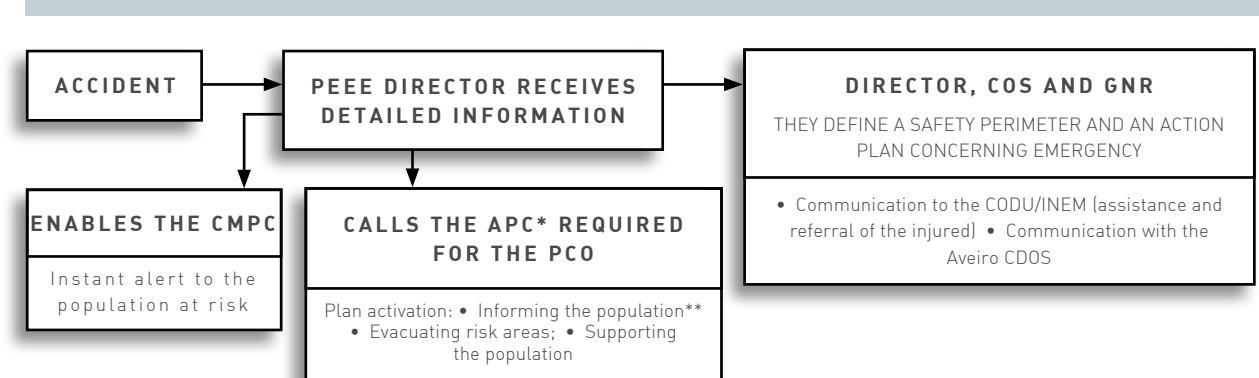
One of the amendments of the new plan results in facilitating decision-making for the activation of an emergency state. The previous PEEE activation was the responsibility of the Plan Director. In accordance with the legislation currently in force, the CMPC (Municipal Civil Protection Commission) is in charge of the plan activation. To boost the plan activation and to eliminate the need for consent from all elements of the CMPC at the moment of emergency, we have innovated by creating a Subcommittee. Thus, the will of the President of the GNR (National Guard) and the firefighters of Estarreja will be sufficient to launch the plan, and the other entities will subsequently ratify the decision," explains the Director.

PEEE OPERATIONS ORGANISATION



* CQE companies • ** Composed of the Director of the Plan, Picket, Technical and Communication Teams.
*** Territorial Detachment of OVAR, GNR (National Guard) station of Avanca and the GNR of Estarreja.

PEEE ACTIVATION – COMMUNICATION AND TAKING ACTION



Acronyms: CMPC – Municipal Civil Protection Commission • APC – Civil Protection Agents • PCO – Operations Command Post
COS – Rescue Operations Commander • CODU – Urgent Patients Guidance Centre • CDOS – District Centre for Rescue Operations
* in the county, the Firefighters of Estarreja, GNR, INEM (national emergency service) and other health services are considered.
** through Rádio Voz da Ria (local radio), portable megaphones and other social media • Source: External Emergency Plan of Estarreja.



THE SCIENTIFIC BASIS OF SAFETY

SAFETY AT WORK IS CRITICAL



What is safety?

Safety is the study of methods and the implementation of measures to protect people (and equipment/materials) from suffering injury, disease or other consequences to their health and physical integrity. In companies, safety focuses on the protection of its workers, suppliers, visitors and local communities. To develop a safe work environment, organisations have to acknowledge the existence of danger.

What is danger?

According to the legislation, danger is the intrinsic property of a facility, activity, equipment, an agent or other material component of a work with the potential to cause damage. Therefore, danger is a potential source of injuries and other negative effects. Danger may be permanent or occur under certain circumstances and working conditions. Danger at work is present in a wide variety of sources. In objects and substances whose use may cause an injury, in places, processes and specific situations.

The way in which the danger arises depends on the conditions of use of the object/substance or of the job execution. The cautions taken in the usage/work can decrease the risk.



SOURCE OF DANGER AT WORK	EXAMPLE OF DANGER	CONSEQUENCE/INJURY
Object	Hammer	Crushing
Material	Asbestos	Mesylation (cancer)
Substance	Chlorine	Toxic- irritation of eyes, nose, lungs, skin burns
Condition	Work at a height	Fall
Energy Source	Electricity	Electrocution
Practise	Work in Mines	Silicosis (lung disease)

What is risk?

Risk is the possibility of a damage occurring, depending on the conditions of use, or exposure or interaction of the material work component which presents danger. That is to say, the likelihood of a person being injured or having health consequences when exposed to a given danger. Danger is permanent, but may not have consequences if we adopt given behaviours and implement protection measures. When it happens, we are decreasing risk. Unlike danger, risk can be measured and ordered according to a given hierarchy. Therefore, priorities are set when taking measures to protect people. The degree of risk is influenced by the time a person is exposed to the danger and how he/she is exposed (wears a mask, gloves, is exposed briefly...).

Mission of the safety technicians

The purpose of work safety technicians in chemical companies is, therefore, to minimise risk. These professionals deal with the assessment of dangers and risks, to adopt techniques, technological means, processes and rules that minimise the risk. One of the essential components of safety in the chemical companies of Estarreja is training. Safety technicians receive and provide ongoing training to employees and companies, as well as collaborating with partner companies and civil protection authorities and other PACOPAR companies for a continuous improvement in this area. In addition to safety at work, the companies of the Estarreja Chemical Complex also apply industrial safety (article: "Safety: fundamental pillar of the chemical industry").

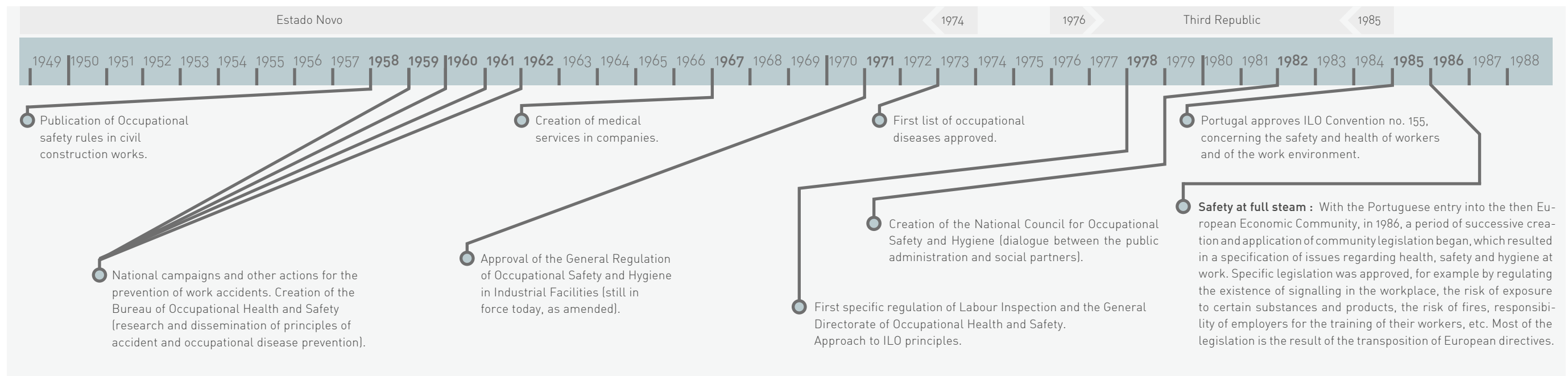
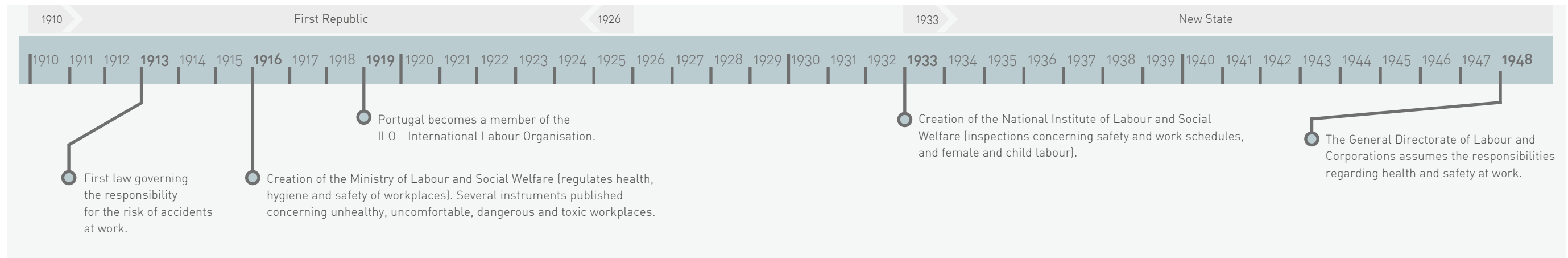
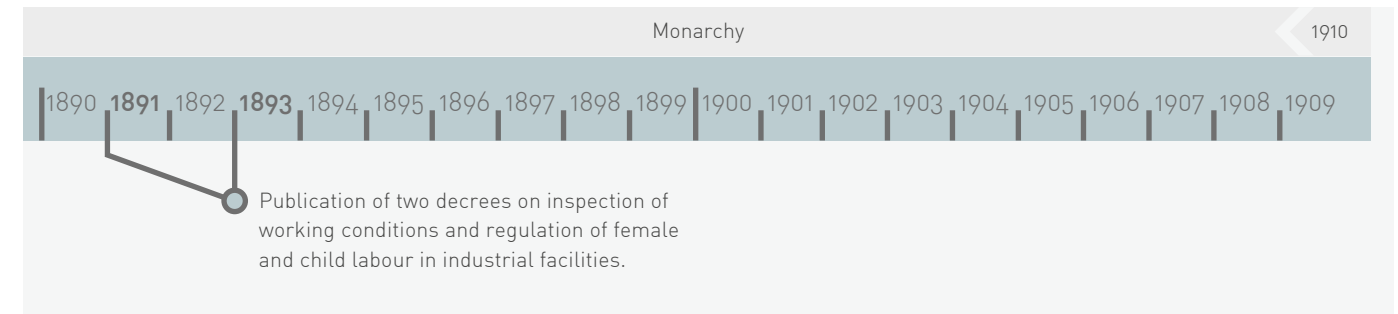


A HISTORICAL REFLECTION

SAFETY: FROM MONARCHY TO THE EUROPEAN UNION

Portugal is currently under a demanding industrial and labour safety legislation, within a framework comparable to most European countries, since a large part of the national legislation and practices

derive from the standards and policies of the European Union. However, when did we begin to discuss safety in companies and at work in our country? As early as during the monarchy!





FOUR OF FIVE COMPANIES OF CQE ARE SEVESO COMPANIES

SEVESO DIRECTIVE – GREATER PROTECTION ASSURANCE FOR THE COMMUNITY

There is chemistry in all goods and equipment we use in our daily lives, from simple shampoo to the telephone and the car we use to move around. In order to manufacture these goods, several chemical substances are necessary, whose production begins in companies like the ones in the Estarreja Chemical Complex (CQE). The European Commission recognises that the use and storage of chemicals "is inevitable for some industrial sectors that are vital to modern and industrialised society." This inevitability led to the creation of the Seveso Directive.

It is a fact that in Portugal, as shown by the statistics of competent State authorities, the chemical industry is among the economic activities with fewer work accidents. This is due not only to its own operative nature but also to continuous investments in training, technological upgrades

THE DIRECTIVES

- 1982 – Directive 82/501/EEC (Seveso I)
- 1996 – Directive 96/82/EC (Seveso II)
- 2012 – Directive 2012/18 / EU (Seveso III)

and equipment that are more effective in terms of safety and environmental protection. This ongoing investment is mirrored by a continuous decrease of accidents frequency and severity rates in the industrial chemical sector, in recent years, in Portugal (see chart).

However, considering the need for storage of chemical substances, the European Commission has defended, since the 80s, the adoption of additional measures to minimise risks, prevent ac-





accidents and ensure an immediate and effective response to protect communities and the environment, although it is expected that an accident will never occur. It was in this context that the European Union approved the Seveso Directive, which requires Member States to identify risk-prone industrial facilities and take appropriate measures to prevent major accidents with hazardous substances, in order to limit negative impacts to people and the environment. This is the framework of all security measures of CQE's

CITIZENS RIGHTS

The community must be consulted and involved in the decision-making process on individual projects; in this regard, Member States must make the information standardised by the Seveso Directive available to the public.

For more information on the Seveso directive, see the web pages of the European Commission/UE and APA:

- http://europa.eu/legislation_summaries/environment/civil_protection/l21215_pt.htm
- <http://ec.europa.eu/environment/seveso>
- <http://www.apambiente.pt/index.php?ref=17&subref=304&sub2ref=612&sub3ref=946>

OBLIGATIONS UNDER THE DIRECTIVE

a) of Operators:

- notification about all facilities covered by the directive;
- ensuring an effective policy for the prevention of accidents;
- elaborating a safety report of top level facilities;
- maintaining internal emergency plans for top level category facilities;
- supplying information in the event of an accident;

b) of the State and public authorities:

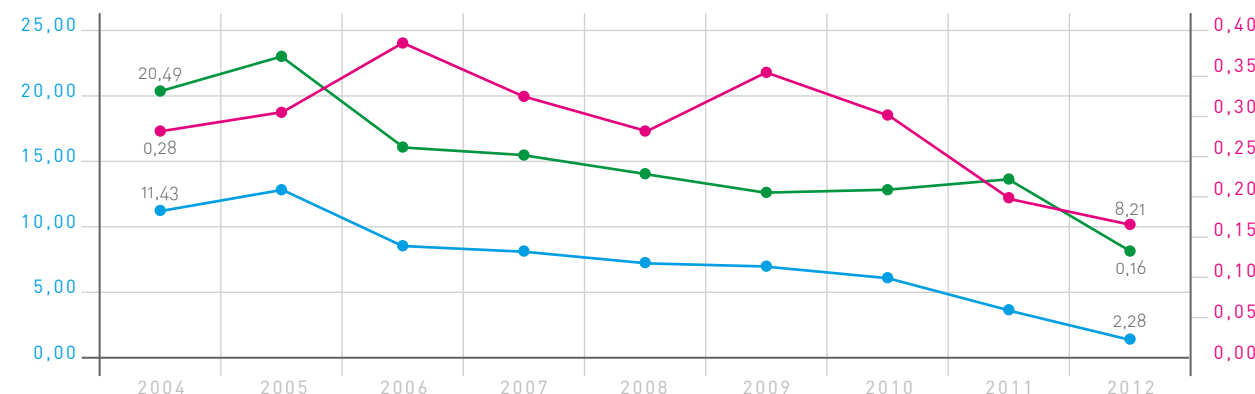
- drawing up external emergency plans for top level facilities (article "The External Emergency Plan of Estarreja is now more agile and operational");
- ensuring territorial planning for industrial facilities;
- disclosing relevant information to the public;
- ensuring additional measures after an accident are implemented (emergency measures, remediation measures, ...);
- sending accident reports to the European Commission;
- prohibiting the use of illegal facilities;
- performing inspections.

several companies (article "Safety: vital chemical industry pillar") and the External Emergency Plan of Estarreja (article "The External Emergency Plan of Estarreja is now more agile and operational").

Currently, the Seveso III Directive amending previous ones is in force and Portugal is in the conception stage of the legislation that will make the national transposition of the standard. CQE com-

panies Air Liquide, CIRES, CUF and Dow Portugal are covered by the directive since its first version, thus, Seveso III does not bring major changes to what the companies have previously made. Besides, the companies voluntarily apply various measures for safety and environmental protection that go far beyond what the law requires. Their own internal requirements and voluntary commitment with the responsible care programme, which is in the genesis of PACOPAR, is an example.

OCCUPATIONAL SAFETY TF - TI - TG (2004-2012)



TF - Accident frequency rate - Number of accidents with sick leave / million of man-hours worked
 TG - Severity rate - Number of work days lost per every 1000 workers
 TI - Incidence Rate - Number of accidents with sick leave / 1000 workers

Source: APEQ - Associação Portuguesa das Empresas Químicas

INSIGHTS OF 2014

CHEMICAL INDUSTRY: GOOD AND BAD NEWS



THE GOOD NEWS

REVERSAL OF THE RECESSIVE TREND

APEQ has published a set of indicators for the national chemical sector which highlight a slight reversal of the recessive trend in our economy since 2008.

In the particular case of chemical industry, there is still a strong export momentum. The fact that chemicals occupy second place in the ranking of Portuguese exports reflects just that.

Efforts of modernisation and restructuring undertaken a few years ago by many companies in the sector have contributed for that to a large extent.

We also hope that the fall in oil prices lasts, decreasing the difference in energy costs compared to other areas of the globe and giving a boost to competitiveness.



TRUST IN THE NATIONAL CHEMICAL INDUSTRY

According to the "Edelman Trust Barometer™", a study conducted in 26 countries on "trust" which annually collects more than 31,000 testimonials, the results of trust in 2013 for the sectors of automotive, energy, chemistry (CI) and metallurgy lead to the conclusion that these deserve, generally speaking, the global, European and Portuguese public's trust.

The automotive sector is the most trusted on a global level and, in Portugal, with trust indexes always above 60%.

As for "trust" in the National Chemical Industry in 2013, the results show that 53% of the inquired do trust the CI, against 45% in other European Union Member States.

THE BAD NEWS

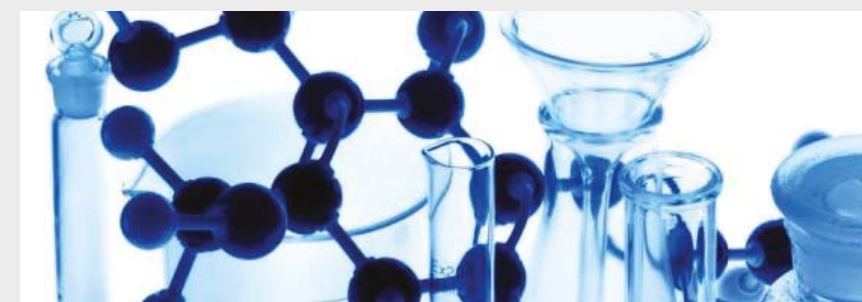
LOSS OF COMPETITIVENESS

A recent report performed by "Oxford Economics" for the CEFIC (European Chemical Industry Council) reveals that the European Chemical Industry, while maintaining its strong export position in the global market and having recovered the past two years sales volume, in absolute terms, has been losing market share in the last 20 years, consistently and significantly, from values around 30% in 2002 to less than 20% in 2012.

A detailed analysis shows that the origin of this loss of market share is the loss of competitiveness and that the cost of energy is the key factor in that loss of competitiveness.

The Portuguese Chemical Industry is no exception regarding this problem, since the cost of energy in Portugal is not below the European average. Portugal is located on the half of EU countries where industry pays the most for electricity, especially in the first two ranks (8th highest price), those of small and medium-sized enterprises. The recent closure of two industrial chemical units in our country, subsidiaries of multinational companies, is a clear reflection of that reality.

This report strongly supports, in a quantified manner, the dominant perception of chemical companies, and corresponding representative entities, and has proven the alerts sent to European authorities right. These same authorities, from the end of last year, began to consistently acknowledge the need to create conditions for what was called the "Renaissance" of the industry in Europe. However, these intentions have not yet translated into practical actions, except for the announced measures for "energy corridors" improvement, particularly regarding the South of Europe.



ENERGY POLICY AND CLIMATE

The European Commission (EC) adopted a mandatory European goal of at least 40% reduction of domestic greenhouse gas emissions (GHG) by 2030 compared to 1990 values. This objective predicts the reduction of GHG in the sectors covered by the emissions trading and not covered by this scheme of 43% and 30%, respectively, compared to 2005. From 2021, the annual reduction factor of maximum permissible emissions limit will go from 1.74% to 2.2%.

On the other hand, measures are being prepared that aim to force the rise in emissions licenses costs, in particular by setting up a reserve fund which will reduce the offer.

Measures under study may even affect the availability of free licenses to assign to activities more cost-sensitive to emissions ("carbon leakage").

Apparently, the EC ignores the negative effects of these measures on the competitiveness of companies by means of induced increases in the cost of energy, maybe on the wrong assumption that the increase in energy efficiency is unlimited for all types of industrial activities. The problem is, as someone has already said, the laws of thermodynamics are not revocable by the European Parliament.



IMPRESSIONS ON THE THREE-YEAR PERIOD 2012-2014

PACOPAR: A SUCCESSFUL PROJECT

We are at the end of a cycle, so a note about our long experience following this Community Panel will be timely.

From its genesis, in 2001, it was clearly assumed that the project should be developed gradually, step by step, advancing to a new stage just after the previous one had been consolidated, "not biting more than we could chew", as they say in slang.

And so we have built our own path, since there were no similar examples in the country and it was hard to convey realities, developmental stages and very different cultures from abroad.

Can we say this is a very successful project? Let's see.

Does the Panel integrate the most relevant institutions in the Estarreja society? Certainly. Right from the start, representatives of the civil protection, rescue and medical assistance, security forces, the school community and the University of Aveiro, economic and industrial activities and environmental associations and residents.

What is the intrinsic logic – as they say nowadays, what is the rationale of their participation in the PACOPAR? All fulfil, although differently, the common goal of turning the strong and long last-

ing presence of the industrial chemical activity in Estarreja, an anathema to the local society, as it was understood in the past, for a relationship of mutual benefits and interests to ensure the sustainability for the development of the municipality, with respect for the three scopes: economic, social and environmental.

Is the industrial activity of the Estarreja Chemical Complex (CQE) companies, from the products produced and handled to the technologies used and the prevention and safety media deployed, disclosed to all elements of the Panel? It is, indeed, in regular plenary sessions which take place, in the visits and on the open doors day the CQE companies promote, complemented by the annual edition of the magazine and Website on the internet, where information required is provided and due clarifications are made.

Is the exchange of actions and activities within the Panel, to effectively promote mutual knowledge and cooperation between the parties, real? There are many examples. Various activities with the firefighters, primarily from Estarreja, but also from other municipalities of the Aveiro District, in classroom sessions, for the exchange of information and practical knowledge of the different industrial realities, visits to factories, training actions, and training and direct support in specific rescue means. Similar activities involving health institutions and the corresponding medical bodies focused on intervention in situations of contact with chemicals. Actions with school communities, whether in the schools, in school or laboratory environment or in visits to industrial units, or even in programmed joint actions, as the one held a couple of years ago with a "living science" show in the Cine-theatre of Estarreja, for a week, involving 3500 children. Environmental studies requested from the University of Aveiro. Support to several IPSS (Private Institutions of Social Solidarity) of

the municipality. CQE Open Doors actions aimed at different audiences.

Has the action developed by PACOPAR been acknowledged outside the boundaries of the Estarreja municipality? The first and best example must be the European Prize for Responsible Care 2005, of the European Chemical Industry Council – CEFIC – given unanimously to PACOPAR for the "development of an innovative program and of effective range with the local community." APEQ, Portuguese Association of Chemical Companies, Panel moderator for many years, through its general-director, who has always seen the action of PACOPAR as an example to follow and to defend. COMSINES, newly created community Panel in Sines, which has seen PACOPAR as an unquestionably valuable example to follow. The Engineers Association, which on several occasions has requested collaboration to raise awareness in their own environment, about the Estarreja experience.

PACOPAR depends essentially on financial contributions for its activity? No! The essential is the commitment and the availability of the Panel members. Financial resources are, for the most part, channelled to support social and education projects, and other projects requested by local institutions and associations from PACOPAR, which, although a noble and valuable activity, are not central to the Panel's mission. Most of the actions taken are led and executed by the people at the companies and other Panel entities that develop this work in addition to the roles they play in their institutions. This reflects how PACOPAR is impregnated with the entrepreneur spirit of its members.

People are the main drive for the success of PACOPAR's community actions.

So it has been, and we are sure it will continue to be in the future.



DIOGO ALMEIDA SANTOS
SECRETARY OF PACOPAR IN THE PERIOD OF 2012-2014

ANTÓNIO CASTRO VALENTE
CHAIRMAN OF PACOPAR IN THE PERIOD OF 2012-2014



SECONDARY SCHOOL OF ESTARREJA IN THE 80 PERCENTILE OF THE NATIONAL RANKING

SATISFACTION, BUT A LONG WAY TO GO

The Secondary School of Estarreja (ESE) was ranked in 128th position, out of 612 schools with examinations of Year 11 and 12, achieving a position in the 80th percentile of the school ranking of 2014, meaning that 80% of schools achieved equal or lower ratings.

Of all schools (20% of the universe) who obtained the same or better results, 66 are private, which indicates that on a national level, only 62 public schools have equal or higher ratings than the head of Estarreja Group of Schools (AEE), in 2014. Of these, only 16 are in the same context and all others belong to more favourable contexts. Of the 1247 schools where Year 9 national exams were made, the Secondary School was positioned in 185th, which places it in the 85 percentile [in Público, "Secondary School Ranking", Nov. 29 14].

The results follow an improvement trend that ESE has shown in recent years, becoming an even more significant element in the socio-economic context of Estarreja, given the unfavourable learning factors. Ahead, there is a need for continuous improvement, namely in terms of average grading of students in all establishments of the AEE.

Jorge Ventura, director of the Group in which the ESE has been integrated for two years, frames these results into a historical evolution that "classifies both the school and the Group, in light of any



GROUP OF ESTARREJA SCHOOLS IN NUMBERS:

8 educational institutions

3161 students and trainees

410 professionals (about ¾ teachers)



parameterised evaluation system, as providing a very good service." When reading the results, we must also consider the diversity of courses. "The Group has a very broad learning offer, the broadest I know in the region," notes Jorge Ventura, concluding that "the trinomial students / teachers / parents has developed an assertive work that promotes success and development, in addition to non-teaching elements that are also contributing very positively."

Community – basis for success

Although set in a socio-economic background whose features are not exactly enhancers of school success, the community seems to share a transversal and conducive learning factor. "Even though we realise that the way the community understands the school is very heterogeneous, we can find a pattern of correct perception of the school values and principles," said Jorge Ventura. Results arise because "students, parents and teachers see the school as a means and instrument for the development of the individual and society. The community continues to entrust school with the best expectations for their children: school as a means of social development and mobility."

Is it possible that the director is belittling his role in school management? "I do not ignore the work of the Group's directorate and its contribution to success, being fair to admit a small share of responsibility in the positive results. The merit of the directorate is to be able to look at the system as a whole, making a correct reading and diagnosis, to define an operation and organisation policy that leads to meeting the needs and interests in question, and to finding the answers that guarantee results," says the teacher.

"The possibility of improvement is huge"

In spite being positioned in a very good percentile, the average student ratings should be incremented. "We are far from what we want to achieve. The possibility of improvement is huge," admits Jorge Ventura.

This is the first year of full operation of the AEE, with the establishment of organs operating under the law. Jorge Ventura sees advantages in



this new management organic. "When the Group reaches a level of performance that its Director considers correct and better, the aggregate will add a lot to the improvement of the educational service provided."

The Director defines a period of two years for the situation to reach that state, essential to the fulfilment of the AEE's mission. "Ensuring that, notwithstanding the extrinsic factors, school can enhance the capabilities of each of its students, by ensuring fairness and the constitutional principle of equality of opportunities in access to success. Ensuring that the educational action mitigates the less positive influence that the socio-economic and family context can have on a child." In the end, it is about leading the school to fulfil its constitutional role. "This still is not a reality today."

Ensuring all students, parents, teachers, non-teaching and the community "a school that promotes practices and results worthy of merit" is the objective that the directorate warrants will be "continued and pursued with determination."

DIVERSIFIED EDUCATIONAL OFFER

In addition to the third cycle of basic education and secondary education, the AEE provides vocational and professional courses, EFA courses (education and training for adults), PIEF classes (Integrated Programme for Education and Training – a governmental programme that presents itself as a measure of exception for the completion of compulsory education in youth, applied as a measure of remediation when previous measures have failed) and PCA classes (Alternative Curricular Path).

"Students are truly fantastic. Enabling is not merely achieving an excellent average score or classification. The major challenge is to convince the community and the parents that students are truly fantastic. In effect, when children are born they have a huge potential. They learn everything. We must persuade the community that we have a long way to go."



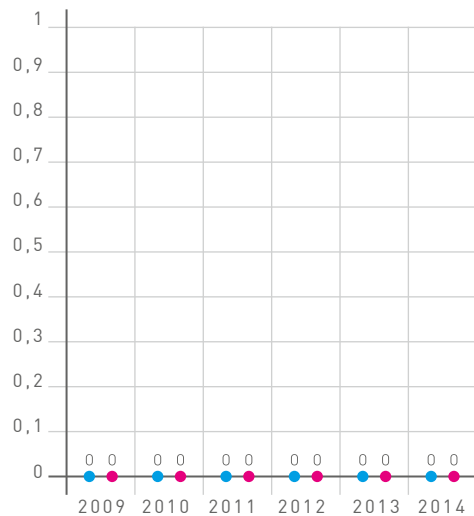
SAFETY PERFORMANCE OF CQE COMPANIES

The majority of the Estarreja Chemical Complex (CQE) companies have null rates of accidents in the last years and even those presenting higher values are in very low levels. As it is evident in several articles of this magazine, these results reflect a policy of priority given by chemical industry to safety, either at the production process level or in the working procedures. Besides the state-of-art technology implemented, which allows a high

control over the production process, CQE is ruled by very strict hygiene, health and safety measures at work, which are in continuous improvement. The accident frequency rate expressed in these graphics reflects the number of accidents resulting in absences occurred in a year for each million person hours worked, while the severity rate represents the number of workdays lost per year for each thousand person hours worked.

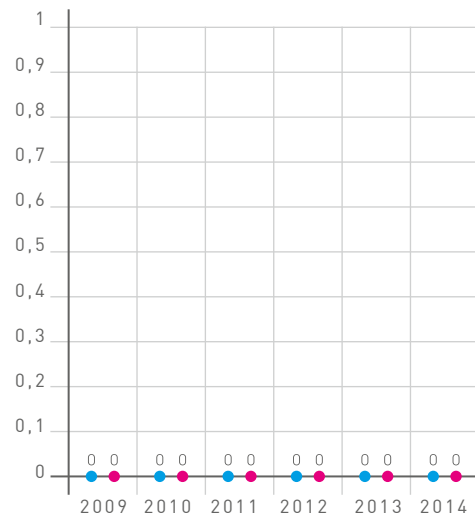
AIR LIQUIDE

In 2014, as in previous years, there were no accidents, so the indexes have zero value.



AQP

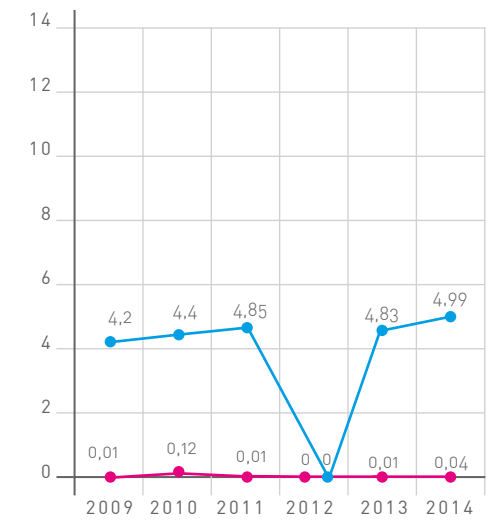
There were no accidents in 2014.



● Accident frequency index
● Severity Index

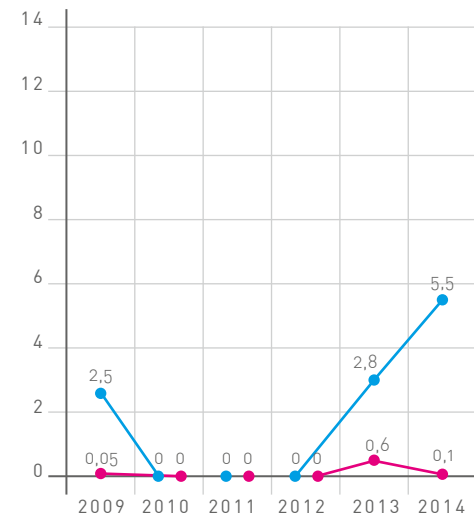
CIRES

We can still verify the trend of a very low accident severity index, as is characteristic of the chemical industry.



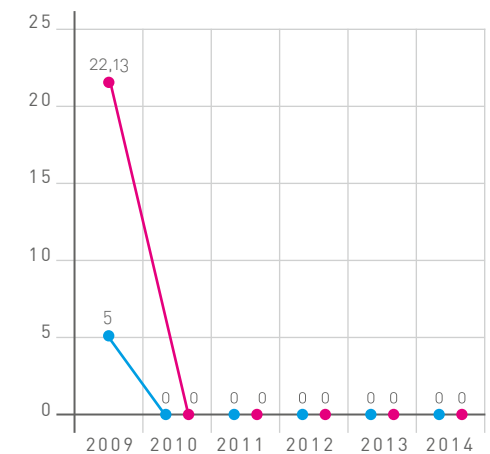
CUF

In 2014, two accidents have occurred not as severe as in 2013, which justifies an increase in the frequency index and a decrease in the severity index.



DOW

At Dow Portugal, health and well-being of workers is a priority shared by all. In 2014, no personal injury has occurred. These results demonstrate the quality of the commitment of all those working at Dow Portugal.





ENVIRONMENTAL PERFORMANCE OF CQE COMPANIES

By observing the several indicators of environmental performance, one can conclude that the Estarreja Chemical Complex (CQE) has revealed a continuous improvement in this field. Following the previous years trend, in general, CQE registers a decrease of atmospheric pollutant emissions from 2013 to 2014. The only case of increase is due to the rise of production. Water and energy consumption indexes reflect the chemical companies environmental concern to mitigate the explora-

tion of planet natural resources, as one observes a decrease of consumption in the majority of the indexes. This trend shows evidence of a permanent implementation of techniques to rationalize production processes.

Some cases of increase are registered, mainly due to production growth or to deactivation of own energy cogeneration units. In the case of solid waste production, there are some indexes

showing an increase, which is not a result of the production process itself, but of plant shut downs situations and other maintenance operations that sporadically generate peaks of waste production.

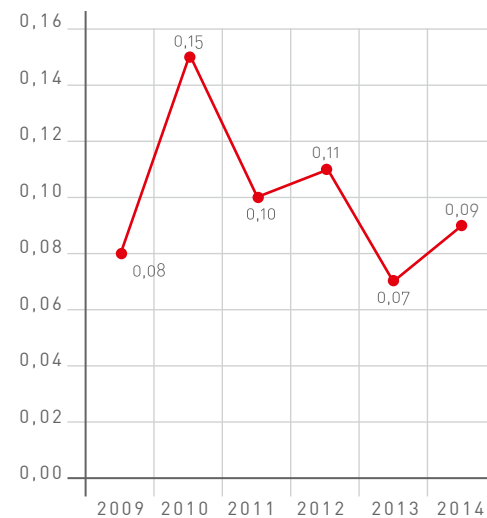
These indexes are calculated by the relation of production quantity with the amount of emissions and consumptions. Air pollutant emissions relate the total emissions of particulates, nitrogen oxides,

carbon monoxide, and volatile organic compounds to the production total. The solid waste indicator represents the relation between the production total and the waste production total. The water and energy consumptions are respectively represented by the relation between water (m3) and energy (MJ) consumed and the amount of production (in tons). You can check all the environmental performance indicators for the CQE companies on PACOPAR's website (www.pacopar.org).

AIR LIQUIDE

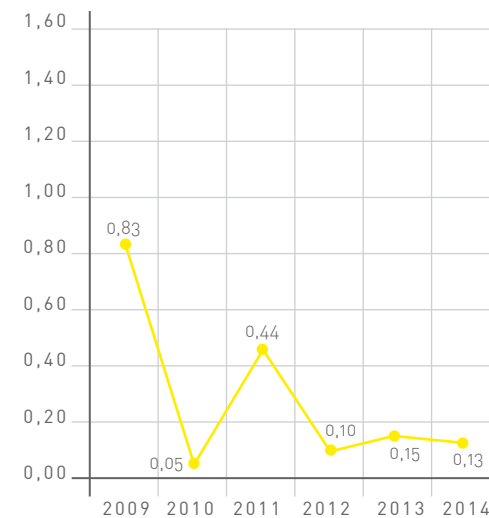
ATMOSPHERIC POLLUTANT EMISSIONS

In 2014, emissions per ton were higher than in the previous year due to the production increase recorded.



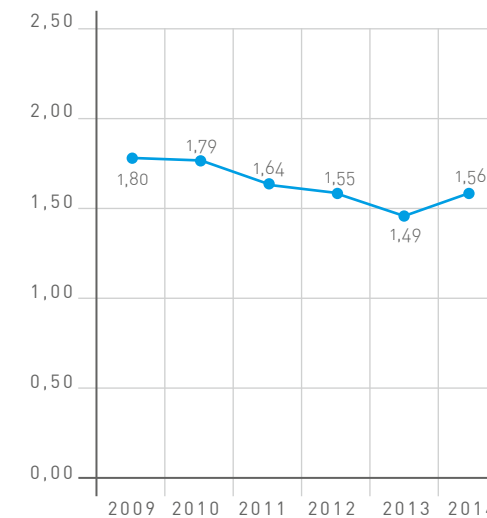
SOLID WASTE

Since 2014 was not an outage year, the amount of waste produced was lower.



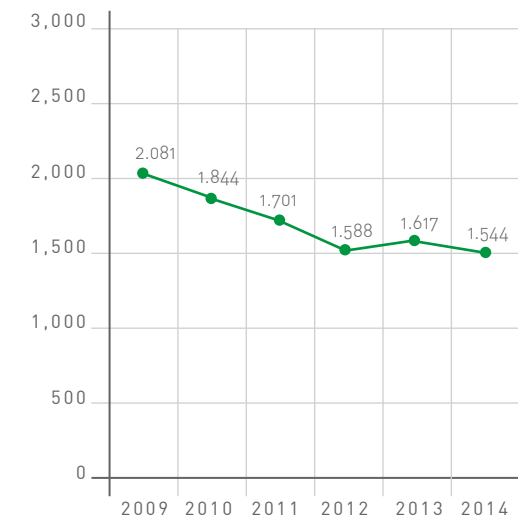
WATER CONSUMPTION

Water consumption rose 4%, while production rose only 2.4% compared to the previous year.



ENERGY CONSUMPTION

Energy consumption by production ton was 4,5% lower than previous year.

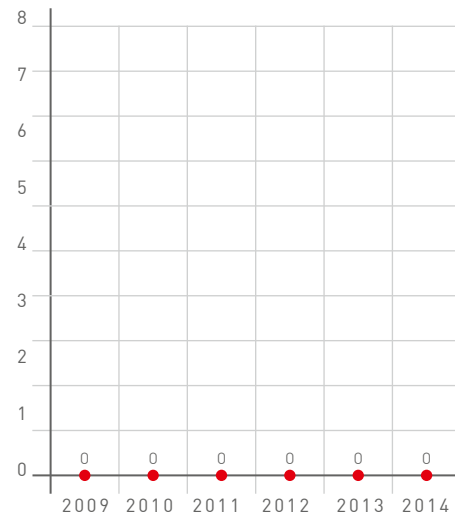




AQP

ATMOSPHERIC POLLUTANT EMISSIONS

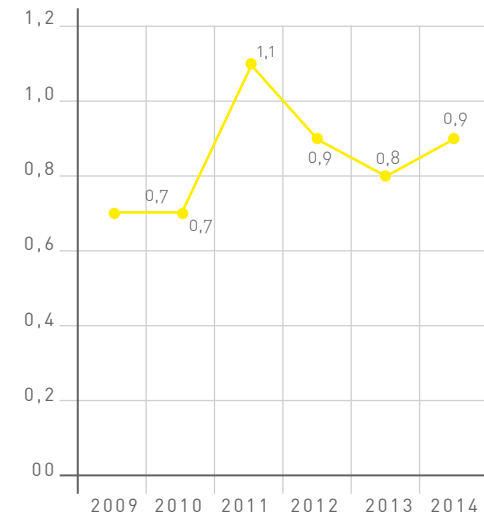
In line with previous years, emission values are still very low.



● Emissions Kg / production ton

SOLID WASTE

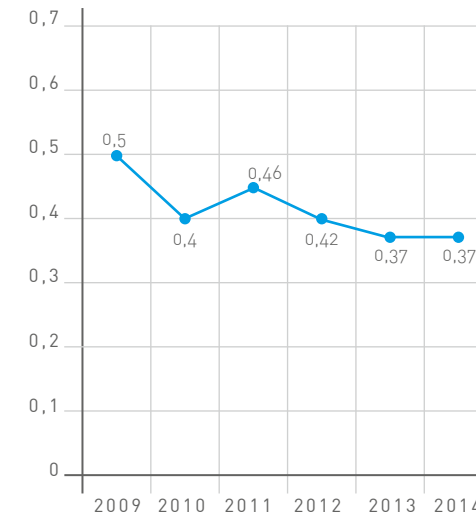
There has been a slight increase in this indicator compared to the previous year, motivated by some maintenance operations.



● waste Kg / production ton

WATER CONSUMPTION

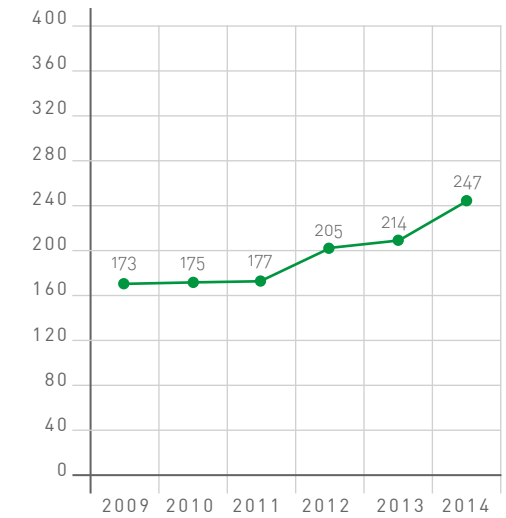
Specific water consumption kept at the same level as the previous year.



● Water (m3 / ton)

ENERGY CONSUMPTION

The increase of this indicator was due to the increase in the production of products with higher energy consumption.

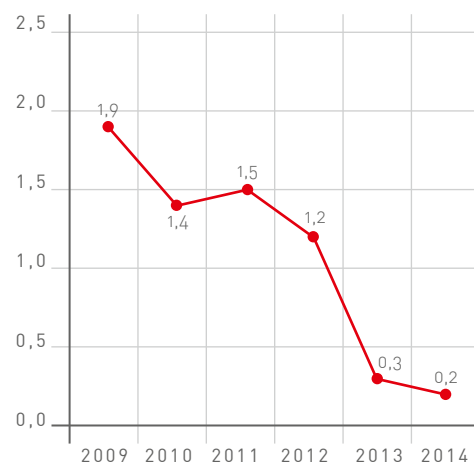


● Energy (Mj / ton)

CIRES

ATMOSPHERIC POLLUTANT EMISSIONS

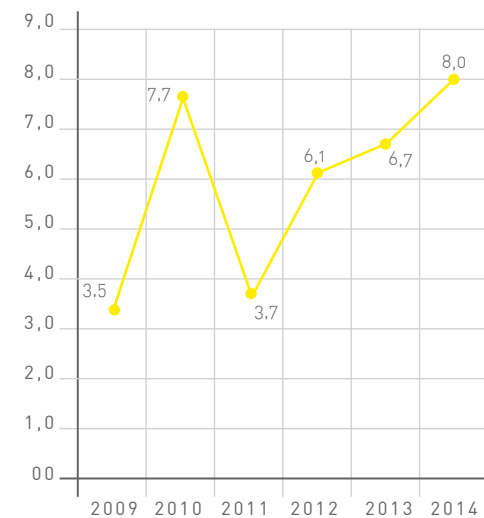
Emissions suffered a significant decrease from 2008 until 2011, due to the investment made in the conversion of fuel oil boilers for burning natural gas, as well as the co-generation unit's partial stop in 2012 and full stop in 2013.



● Emissions Kg / production ton

SOLID WASTE

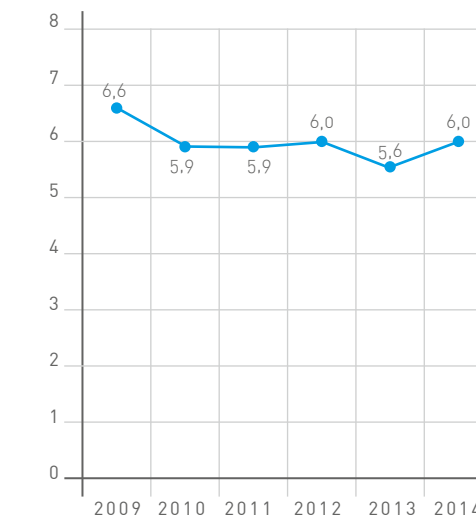
Of all solid waste produced in the company and reported here, the dangerous waste are about 1% and about 90% are sent for recovery.



● waste Kg / production ton

WATER CONSUMPTION

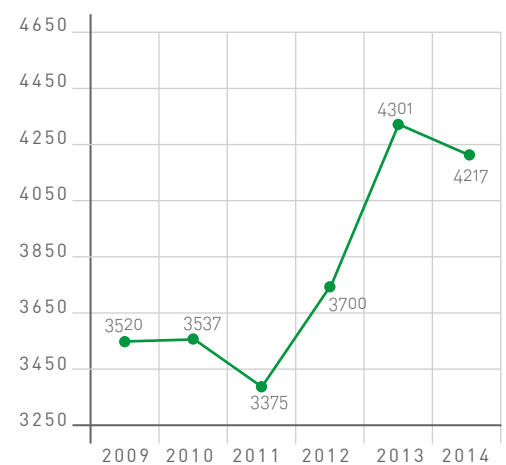
Despite efforts to reduce water consumption carried out in 2013, in 2014 we have returned to the previous consumption.



● Water (m3 / ton)

ENERGY CONSUMPTION

The increase in specific energy consumption in 2012 and 2013 was due to the stop of the co-generation unit, partial in 2012 and total in 2013, which implied a higher consumption of natural gas, as well as a reduction in the emission of air pollutants.



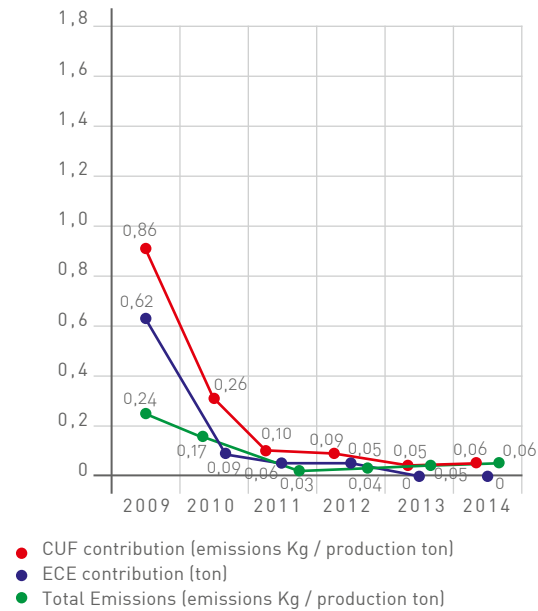
● Energy (Mj / ton)



CUF

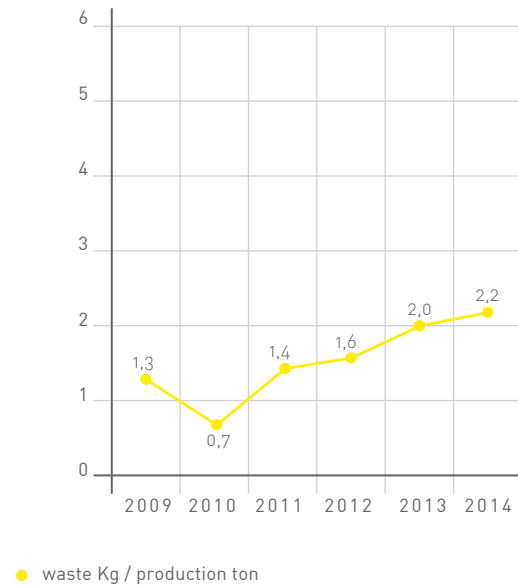
ATMOSPHERIC POLLUTANT EMISSIONS

The specific emission of pollutants (Particles, COV's, CO, NOx, SOx and heavy metals) is still low.



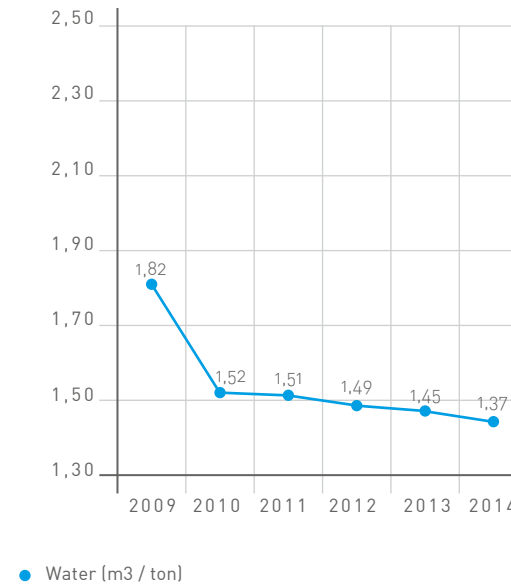
SOLID WASTE

The production of this type of waste has increased due to interventions in tanks and other works.



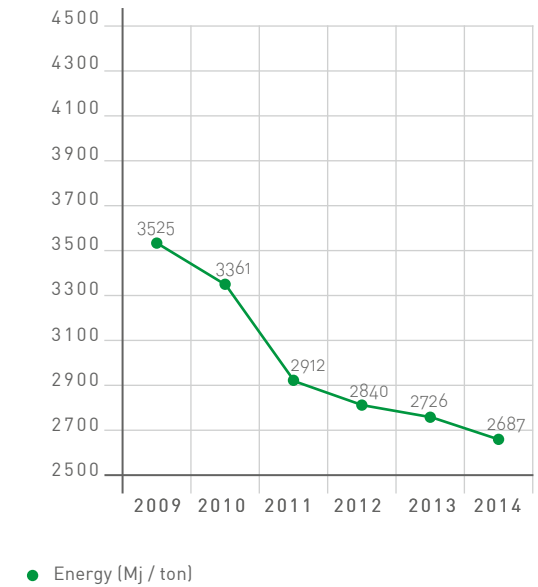
WATER CONSUMPTION

In 2014, the specific global consumption of water has decreased compared to previous years.



ENERGY CONSUMPTION

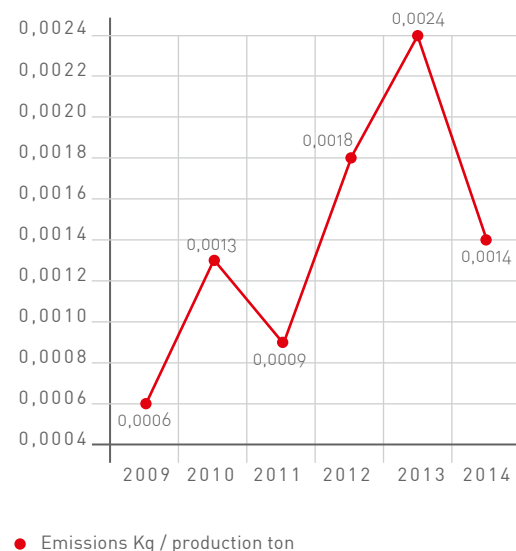
The global specific consumption of energy kept decreasing in 2014.



DOW

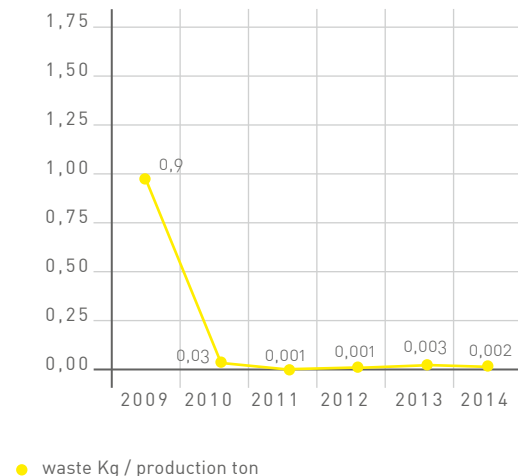
ATMOSPHERIC POLLUTANT EMISSIONS

Dow Portugal is committed to improving its environmental performance in all aspects. Air pollution is a concern to the industry and Dow Portugal has been working on measures to reduce atmospheric emissions.



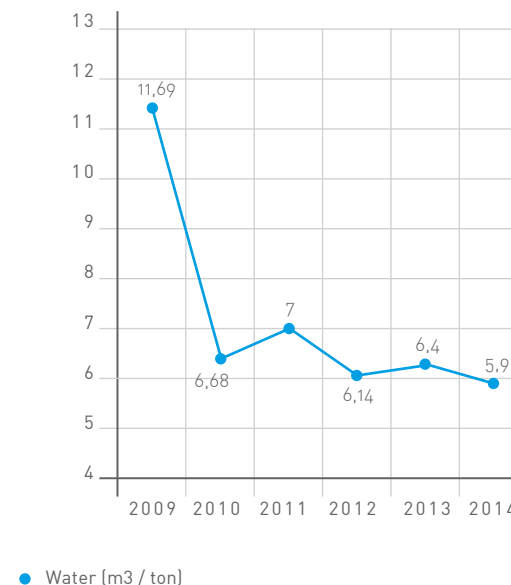
SOLID WASTE

Over the years, Dow Portugal has been committed in achieving better management of their waste from its generation to its elimination. The performance of Dow Portugal in this area has been improving continuously, with just a little increase in waste generation during periods of general maintenance and post-outage.



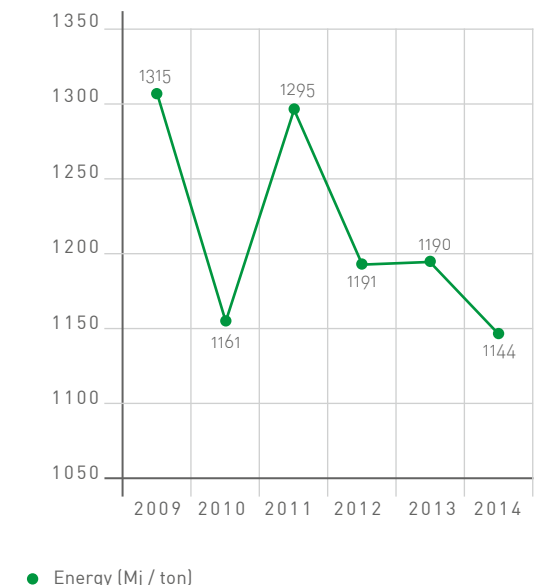
WATER CONSUMPTION

Water specific consumption has been improving in recent years at Dow Portugal.



ENERGY CONSUMPTION

Energy specific consumption at Dow Portugal lowers as the production increases.





PACOPAR NEWS BRIEF

PACOPAR COMPANIES SUPPORT 12 ENTITIES WITH 45 THOUSAND EURO

Last year, PACOPAR chemical companies, Air Liquide, AQP, CIRES, CUF and Dow, delivered financial support amounting to 45 thousand Euros to 12 institutions of Estarreja. The grants, framed within the Panel's annual financial reimbursement program, have contributed to the realisation of projects in the areas of education, social assistance and civil protection, in particular the improvement of infrastructures and acquisition of equipment for social resources, such as nursing homes, day-care centres and kindergartens, the purchase of educational materials and the adaptation of a firefighting vehicle. The beneficiary entities in 2014 were Agrupamento de Escolas de Pardilhó (Group of Schools of Pardilhó), Agrupamento de Escolas de Estarreja (Group of Schools of Estarreja) (Escola EB 2,3, Prof. Dr. Egas Moniz), Associação Humanitária de Salreu (Humanitarian Association of Salreu), Associação da Quinta do Resende (Association of Quinta do Resende), Associação de Solidariedade Estarrejense (Estarreja Solidarity Association), Bombeiros Voluntários de Estarreja (Firefighters of Estarreja), Centro Social e Paroquial de S. Miguel de Fermelã (Social and Parochial Centre of S. Miguel de Fermelã), Centro Paroquial e Social de Santa Marinha de Avanca (Social and Parochial Centre of Santa Marinha de Avanca), Cerciasta, Conferência Vicentina S. Martinho de Salreu (Saint Vincent Conference of S. Martinho de Salreu), Fundação Cónego Filipe de Figueiredo (Canon Filipe de Figueiredo Foundation) and Santa Casa da Misericórdia de Estarreja.



COOPERATION WITH FIREFIGHTERS STRENGTHENED

In order to improve the cooperation and the preparation of district civil protection in response to a potential emergency at the Estarreja Chemical Complex, the PACOPAR Risk Prevention Group promoted in 2014 technical visits of the firefighter corporation commanders of the Aveiro District to companies Air Liquide, CIRES, CUF-QI and Dow Portugal. The action consisted of training for firefighters in which each company explained its chemicals and their inherent toxicological characteristics, potential accident and emergency scenarios, as well as the respective means of detection and response to real situations. The initiative followed a first meeting, held in 2013, between the Panel and the district corporations, where interest was mentioned in getting to know the reality of each company. The action involved corporations of Albergaria-a-Velha, Aveiro (old and new firefighters), Esmoriz, Estarreja, Ílhavo, Murtoza, Oliveira de Azeméis and Santa Maria da Feira. The training was supplemented with detailed visits to the manufacturing facilities of each company.



CQE COMPANIES TAKE FUN CHEMISTRY TO 800 STUDENTS OF ESTARREJA

PACOPAR companies have offered the schools of the municipality one day of playful learning experiences with chemistry, including approximately 800 students. The initiative, held in March, took place in the Secondary School of Estarreja, E.B. 2, 3 of Pardilhó and E.B. 2, 3 Professor Doutor Egas Moniz, of Avanca. Throughout the day, several experimental sessions were carried out by Science4You, which ended with the offer to students of PACOPAR Quiz4you, a game with questions about chemistry, the Panel, the municipality and the companies of the Estarreja Chemical Complex (CQE). The initiative has contributed simultaneously to consolidate Year 7, 8 and 9 students' curricular content and to raise awareness about the presence of chemistry in their daily lives, as well as to the importance that this science has in finding solutions for the main problems that affect the Planet.



UA STUDENTS LEARN ABOUT INDUSTRIAL SAFETY MANAGEMENT

Invited by the Group of Chemical Engineering Students of the Aveiro University (UA), PACOPAR participated in a cycle of lectures in that establishment, carried out with the objective of complementing the training of students in the area of health, safety and environment management in the chemical industry. The event, which exceeded expectations in terms of adherence from the

student community, was held in the Auditorium of the Chemistry Department and counted on the presence of Myriam Lopes, the UA representative in PACOPAR. In the first session, Diogo Almeida Santos, in charge of the PACOPAR Secretariat and administrator of Aquatro/Project Director of CUF, presented the Estarreja Chemical Complex, and the genesis and scope of work of the Panel. In the second session, in charge of the Risk Prevention Group, those responsible for the areas of health, safety and environment of companies CIRES, CUF and Dow talked about the chemical industry production systems, their risks and EH&S – Health, Safety and Environment plans.

THE ENGINEERS ASSOCIATION VISITS THE CQE

The 8th Meeting of Engineers of the Aveiro District have elected PACOPAR and the Estarreja Chemical Complex (CQE) for a visit, which took place last year. The initiative was part of the presentation of PACOPAR, of Estarreja Chemical Complex and of the companies Air Liquide, CIRES, CUF and Dow, which offered a visit to their manufacturing facilities. The Aveiro District delegation of the Engineers Association pointed out the CQE as a "fundamental pole of Portuguese Engineering" and PACOPAR as an example in assuming social responsibility. Approximately 40 visitors had the opportunity to check the technologies applied in the companies' production systems and in controlling safety and emergency responses.





ESTARREJA IS AN ECOXXI MUNICIPALITY FOR THE 4TH YEAR IN A ROW

The Associação Bandeira Azul da Europa (European Blue Flag Association) awarded the 4th Green Flag to the municipality of Estarreja, which stands out once more nation-wide for its sustainable practices. The award ceremony was in September and on October 15th (Green Flags Day) EBI of Pardilhó and Egas Moniz de Avanca were also awarded one more Bandeira Eco-Escola (Eco-School Flag).

ECOXXI is an initiative of Associação Bandeira Azul na Europa (ABAE) which seeks to acknowledge sustainability good practises developed at the level of Portuguese municipalities, valuing a set of main aspects for the construction of sustainable development.

With a rating of 69.6%, Estarreja won another green flag for the municipality, positioning itself above the 50% of the ECOXXI index maximum score, which weighs 21 indicators related to sustainability policies. The municipality of Estarreja achieved maximum score in two indicators – "Waste Selective Production and Collection" and "Air quality and Public Information" – earning an above average rating in virtually all indicators. Also the "Quality of Water for Human Consumption" and the "Employment" are weighting factors where Estarreja stands out very positively.

The ABAE highlighted the Municipality of Estarreja in the October issue of the monthly bulletin "Good Practices in ECOXXI Municipalities," for exemplary work in the area of "Education and Public Awareness for Sustainability."



GROUP OF PARDILHÓ SCHOOLS Students learn Civil Protection

Last year, the Agrupamento de Escolas de Pardilhó (Group of Pardilhó Schools) hosted a seminar to raise awareness on the subject of Civil Protection. Promoted by Marisa Machado, of the Estarreja City Council, the initiative was very enriching for the clarification of doubts and to educate on risk prevention and reduction. The Civil Protection Club consists of Year 9 students (who have cooperated with the Club since Year 7) and is coordinated by the Teacher Berta Dias.



Another Green Flag

In 2014, the Group of Pardilhó Schools earned another Green Flag in the Eco-Escolas Programme. In December 2014, the flag hoisting ceremony was held. The honour has been awarded every year, to acknowledge the existence of strong efforts in working in the area of environmental education/education for sustainability, according to the methods set out by the Eco-Escolas Programme. This flag certifies the existence of a Coherent and Quality Environmental Education in this group of schools. The activities carried out in the Group within the Clube Eco-escolas (Eco-schools Club) can be followed on the facebook page Eco Escolas Pardilhó (<https://www.facebook.com/public/Eco-Escolas-Pardilhó>).

"Tell me a story on your country's green pages"

With the support of the Parent-Teachers Association, students in the third cycle of the Group of Pardilhó Schools took part in a drawing competition sponsored by the School Library, under the Eco-escolas programme. The preparation of drawings was sent upon the theme "Tell me a story on your country's green pages." The winning drawings were presented to the public in an exhibition held at the Municipal Library of Estarreja, in September 2014.

SEMA – STRATEGIC GUIDANCE 2015-2017

SEMA – Business Association of the Municipalities of Sever do Vouga, Estarreja, Murtosa and Albergaria a Velha has defined last year, according to the decision of its governing bodies, a strategic guidance for the three-year period from 2015 to 2017, in which it commits to answering new challenges of the national economy, prompting economic players to perform, in conjunction with the Association, an important role in the new Community Framework – Portugal 2020.

Although the definition of a medium-term (a three year period) strategic guidance was not common in the past, it was considered that at the beginning of this mandate, which extends until 2018, its governing bodies should opt for a path that may turn into a strategic goal for the Association in the next three year period. The duration of the new Community Framework – Portugal 2020 will force SEMA to manage and solve new and demanding challenges, for which it will be called upon to participate actively, under penalty of failing.

In order to get the best out of this new period, economic, cultural and social agents will be asked to participate in an available and clever manner, as well as so constant, that associative structures have to be capable of responding with efficiency, quality and effectiveness. This challenge will require SEMA to act in a broader framework in partnership with other agents, not only on a local level, but also regional and national. PACOPAR assumes a major role here, as an institutional partner.

Thus, SEMA is committed to continue to provide quality services, corresponding to natural expectations, needs and demands, believing that its sustainability will result in the ability to create and develop its individual or partnership projects, which will allow for obtaining a more consistent economic capacity.



TJA CONTINUES TO BET ON ENERGY EFFICIENCY

TJA - Transportes J. Amaral, S.A. made a pilot installation of a device called ULTIMATE CELL (Hydrogen cell) in a vehicle, aiming to optimise internal combustion engines, which reduces fuel consumption and exhaust emissions in diesel, gasoline and LPG engines.

The technology consists in the introduction of small amounts of hydrogen in the air intake duct of the engine, in order to optimise the burning of traditional fuels, making the engine more efficient, with reduced environmental impact.

When operated, the ULTIMATE CELL initiates a process of electrolysis controlled electronically, resulting in the chemical separation of hydrogen and oxygen molecules that will be introduced in the engine's air supply. Hydrogen produced will then act as a catalyst inside the engine, allowing for a faster and more complete combustion of the traditional fuel. The result is a better engine performance, which will reveal a quieter and smoother operation, providing a more comfortable driving, reducing fuel consumption and exhaust emissions, as well as engine operating costs, protecting the environment. According to the results of this pilot experience, the application of technology to more cars in the fleet of TJA will be pondered.



DOW PORTUGAL

Support to Habitat for Humanity in Portugal

Following a partnership of more than 30 years, The Dow Chemical Company considered once again, in 2014, the Habitat for Humanity Portugal in its global commitment to contribute to the construction of decent and affordable housing worldwide. Portugal was present, for the second year in a row, on the global support plan of The Dow Chemical Company, amounting to a 1.44 million dollars contribution to Habitat for Humanity. Donations made to Portugal focused on three housing projects: Braga, Amarante and Ponte da Barca.

Safety and Quality Awards

Dow Portugal acknowledged last year the companies Disumeg and Prozinco in the areas of Safety and Quality, respectively. The acknowledgements, which refer to services provided during the production outage of 2013, aim at strengthening relations between Dow and its service providers, so as to contribute to the continuous improvement of its partners' performance and, simultaneously, to a global objective of the company of contributing to the success of local communities.

Visit of the USA Ambassador

Dow Portugal received last year a visit by the USA Ambassador in Portugal, Robert A. Sherman, as part of the promotion of the T-TIP Agreement – Transatlantic Trade and Investment Partnership between the United States and the European Union, that the diplomat performed across the country. Aveiro was the third city in the country to be visited by the Ambassador, who stressed the importance of the T-TIP to eliminate trade barriers, harmonise regulations and address regulatory divergences. At Dow, the Ambassador was received by Anton Valero, President of Dow in Portugal and Spain, by Jacint Domènech, Managing Director of Dow Portugal and by Luís Araújo, Director-General of the Portuguese Association of Chemical Companies (APEQ).



GNR RAISES THE ESTARREJA POPULATION AWARENESS FOR SAFETY

The GNR (national guard force) Territorial Detachment of Ovar, through its Special Programs Section, assisted by the Territorial Stations of Avanca and Estarreja, held, during the year of 2014, several patrol initiatives directed to the social support of the population, in particular awareness-raising actions with the Estarreja population in the context Safe Trade, Safe School and Safe Elderly, among others.

The actions in the context of Safe Trade, intended for the trading community in general, aimed at raising awareness of safety procedures to adopt during the activity, conveying a sense of security, trust and proximity to merchants.

With regard to initiatives in the field of Safe School, aimed essentially at the school community (teachers, students and parents), several subjects were addressed, such as risks associated with the consumption of psychoactive substances, like drugs, alcohol and tobacco; safe Internet; road safety and safety procedures to adopt at home and on the street.

Finally, "Safe Elderly" initiatives that targeted the elderly population, aimed at, through personal contact and with activities carried out in class, conveying safety procedures to adopt, in particular in situations of fraud, such as scams, theft or robbery, in order to enhance the feeling of safety among the elderly.



LUÍS PORTUGAL, MUSICIAN AND CULTURAL PROGRAMMER OF THE ESTARREJA MUNICIPALITY

“IT WOULD BE NICE IF CULTURAL HABITS WERE LIKE BRUSHING YOUR TEETH EVERY DAY”

Luís Portugal has occupied for about a year the office of cultural programmer of the Estarreja municipality, responsible for elaborating the programmes of Cine-theatre of Estarreja (CTE). Not being his début in this kind of professional experience, it is rather curious that the musician who has dwelt on the stage is now on the other side, deciding who goes there. As one of the founders of the band JAFUMEGA, Luís Portugal is one of the voices that marks the history of Portuguese music affirmation. In Estarreja, he intends to continue the work of creating audiences that was already being done, with emphasis on the educational vocation of culture for audiences creation, in particular youth.

You went from protagonist on stage to a decision-maker on who goes on stage. How did that transition happen?

I had already been a programmer at Teatro Municipal Torre de Moncorvo for four years and had collaborated on several productions with the Albergaria City Council, before I received this invitation. These are different functions. My role here is a bit like "Devil's advocate". I must keep "bugging" producers and artists to get them to lower their prices and when I was in that situation, I did not want that. The difference starts there. On the other hand, the fact that I have been inside the artistic medium allows for a wide range of knowledge and friendships, which often makes it easier for me to handle cultural expenses, artists payments and also make a transversal production.

Did you already know Estarreja? What did you think when you got here?

I am giving continuity to what was already done, and it was well done, by Fátima Alçada and Isabel Pinto, the person who was ahead of the Cineteatro Alba team. She has large experience and taste in

these cultural issues and we work as a team. We share our views a lot.

You have been in Estarreja for about a year. What can you say about the cultural habits of the locals?

Audiences do not get formed overnight. It would be nice if cultural habits were like brushing your teeth every day. It is true that there were already some cultural habits in Estarreja, due to the work that was being developed. They must be strengthened, consolidated and increasingly in younger age groups. Starting by creating cultural habits in pre-school is healthy, because these habits are transmitted from generation to generation. We have to captivate the little ones, here and everywhere else.

And what strategies do you have in mind to capture that audience?

My idea, and this Executive, is that having a number of cultural resources, such as the Public Library, the House of Culture, the Egas Moniz Museum and the BioRia area itself, these should work together.





It would be fruitful. The idea is not stepping into each other's land, not questioning the programming and work of one another, but rather working as a team. We can have something here at the CTE or at the Library with which we collaborate. The CTE audience will go to the Library because there is an event they would like to attend there, and vice-versa. For example, on February 27th, we have held at Café Concerto a Declamation event with Rui Reininho. There is a poetry group at the Library who cooperated in this initiative. There is a connection between the Portuguese language, reading and poetry, which is one of the aspects that the Municipal Library promotes and, instead of being held in one of the library rooms, the initiative is done here. That link between cultural resources seems vital to us.

Estarreja has a history of a regular and diversified programming in the area of culture, and has also attracted audiences outside the municipality. What is the strategy for the future?

We think it is very important to capture audien-

ces outside of Estarreja. We have a room with 500 seats and, moreover, it is a way of disclosing our region, including the offer in terms of hotels, restaurants, local businesses, because, whether we like it or not, culture does boost all of these economic aspects. When people come here, they do not only visit the CTE, but also perceive the region, which is also culture. We also try to create transversal programming, for a broader audience, but which always allows us to have that little light at the end of the tunnel, which is audiences creation. With this goal, this Executive and I have created the LAC - Laboratório de Aprendizagem Criativa (Creative Learning Lab), an educational service, in which the motto is celebrating the senses. With LAC we hope for an active intervention from schools and seniors, as they are now called.

And in this context, how do schools get involved?

We do not appreciate events falling from the sky before the audience, without context and being perceived in advance by attendants. We always ask producers or artists to come a day or two be-

fore the event, to have a conversation before or after the event. Miguel Araújo has been in Escola Secundária de Estarreja. He visited classrooms, explained his life, what he did, etc. We have had a beautiful show, Viúva Papagaio, performed by Companhia Circolando, in which Year 5 students were present. Since the show was done in stage box, they have realised a number of situations which otherwise would not have been possible, for example, what is sound design, or who designs the scenarios, the whole production of a show. These values are as important, or more, than the show itself and that is what allows us to captivate and form such audiences.

Does this strategy aim to create young audiences to offer sustainability in the medium/long run for the CTE?

We are discussing a city with nine to ten thousand inhabitants. This is not a metropolis, despite the proximity to other cities. We must realise that it is a city from the province and we must frame the programming we offer in this scope without being populist. I do not care if I have the CTE sold out every weekend if, in a way, that also depletes my audience. We do this popular programming and we have, for example, Fernando Mendes, but we also have contemporary dance, several theatre plays. We try to be that transversal in terms of audience, but always thinking about adding audience and not subtracting it.

In terms of age groups, who is attending the CTE more often?

We always try to perform that study, even in surveys that are released to the public. I believe that with our new offer of digital cinema, which allows us to bring a different kind of audience, we have a very wide and broad audience that includes all age groups. Nowadays, perhaps due to a different type of offer, technological, we may have some difficulty in attracting youth, but we always try our best to do it. I think that, generally speaking, not only here, there is a divorce between culture, programmes and youth. That is why one of the links we find very important is this area with education, as we did with Viúva Papagaio or Orquestra de Brinquedos, where for a month that producer roamed schools to prepare children for the show that would later have a full house. This motto, education through art, is vital. With my coming here, what attracted me the most was trying to make a connection be-

tween these cultural resources and not stick just to the Cine-teatro. This is team work and it is very important.

There has also been some concern in integrating local groups in the area of culture in productions for the CTE, such as Big Band Estarrejazz?

Yes, here we have our own brand, the Big Band Estarrejazz, composed mostly by elements of Philharmonic bands in the municipality, with a great conductor connected to jazz, Pedro Moreira. And the Big Band has done awesome interpretations with soloists, for example, in the last Estarrejazz [Estarreja jazz festival] with Maria João.

JAFUMEGA'S RETURN TO THE STAGE AND THE URGE FOR A NEW ALBUM

In 2014, the mythical JAFUMEGA returned to the stage, with concerts at the Coliseums, which surpassed all expectations and have been replicated in other locations. "It was great because we have a very strong connection. A friendship has grown over the years and despite being apart for 30 years or more, we would meet now and then to warm up our souls in the pubs we attend. This return was already being considered for a few years," says Luís Portugal. Band members have a few "audacious projects in mind, such as giving concerts with line-ups or unlikely guests." And is there a chance for a fifth JAFUMEGA originals album? "Yes. We have a strong connection with a great lyrics writer, Carlos Tê, and he has many lyrics he would like to have turned into music. It is a task we are taking on slowly, with some ideas and, during the brief free times we have, we try to move in that direction," says the musician.

JAFUMEGA AND SOLO ALBUMS

Born in Vila Real, Luís Portugal debuted in the musical element at 12, in bands from the schools he attended, but not until 1977, with the invitation to join the JAFUMEGA, did he begin his career as a musician. With the band, which assumed a major role in the emergence and consolidation of modern Portuguese music in the 80s, he recorded four original albums and a compilation. He took part in international festivals held in Portugal, alongside great names of the world music scene, such as U2 and Ritchie Heavens. In 1986, JAFUMEGA split up and Luís Portugal dedicates himself to other professional activities, getting involved in various musical projects at the same time. In 1992, he returned to albums with his first solo work, "Coisas Simples". Three years later, the album "Alta vai a Lua", which renders a collection from Trás-os-Montes, broadens his musical spectrum. In 2000, he recorded "Luís Portugal ao Vivo", from the live concert held and recorded in Tondela, at ACERT. In addition to solo musical projects, he collaborated with several musicians and got involved in parallel initiatives, such as shows and children's/school books.





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