

Doc. 300.1.2

Date: February 8, 2021

# Higher Education Institution's response

- **Higher education institution:**

European University Cyprus

- **Town:** Nicosia

- **Programme of study (Name, ECTS, duration, cycle)**

**In Greek:** “Επαγγελματική Ασφάλεια και Υγεία”,  
90 ECTS, 18 μήνες (Μεταπτυχιακό)

**In English:** “Occupational Safety and Health”, 90  
ECTS, 18 months (Master of Science)

- **Language of instruction:** English

- **Programme's status**

- **New program:**

- **Currently operating:**

The present document has been prepared within the framework of the authority and competencies of the Cyprus Agency of Quality Assurance and Accreditation in Higher Education, according to the provisions of the “Quality Assurance and Accreditation of Higher Education and the Establishment and Operation of an Agency on Related Matters Laws of 2015 and 2016” [N. 136 (I)/2015 and N. 47(I)/2016].

#### A. Guidelines on content and structure of the report

- *The Higher Education Institution based on the External Evaluation Committee’s evaluation report (Doc.300.1.1) must justify whether actions have been taken in improving the quality of the programme of study in each assessment area.*

*The Department of Computer Science and Engineering of European University Cyprus wishes to express its sincere gratitude to the External Evaluation Committee (EEC) for the evaluation of the postgraduate programme of study Occupational Safety and Health (M.Sc.).*

*It is with great pleasure that the Department and the School of Sciences noted the positive feedback of the EEC and we appreciate its insightful recommendations, which provided us the opportunity to further improve the quality and implementation of the programme. In the following pages, we respond in detail to all recommendations for improvement suggested by the EEC and we provide all relevant information to explain the actions taken to ensure that the newly accredited programme is of high quality.*

## 1. Study programme and study programme's design and development

*The EEC has raised the following issues. The response for issue is shown below each point that is raised.*

### Comments by the EEC:

#### **Findings:**

1. Besides the Program Evaluation Review which is carried out every five years, a formal definition of the yearly reviews (apparently already in place) based on student opinions and other KPIs is advised
2. Establishing a formal procedure for the collection of students' opinion, warranting that opinions are collected anonymously, is advised
3. Besides the PER, which is an internal-only review process, establishing a formal procedure for the regular involvement of external stakeholders and external experts in the periodic review of the program is advised
4. Revising the objectives, learning goals and contents of the courses, to assure their coherence, and to avoid repetition of topics is required. Establishing a formal procedure for this review is advised.
5. Reassuring that all the public data required for accreditation are actually available to the public, e.g. on the program website, is required.
6. Assuming that all the KPIs collected for the program are available in specific reports, that should be made available to the program committee and that should be considered in the PER as well as in the short-term review process is advised

### Response by EUC:

*We would like to thank the EEC for these important recommendations, which we have taken into account thoroughly, as indicated below:*

1. *The Program Academic Committee which is consisted of two Faculty Members, a Researcher (in the area of Occupational Safety and Health employed at CERIDES – Excellence in Innovation and Technology) and a Representative of the student body regularly convenes, at least once a year. Reviews, yearly plans and other initiatives are discussed. In its latest meeting (15 December 2020) the Program Academic Committee decided to establish an additional procedure where students will have the opportunity based on qualitative*

- research to voice their opinion on the M.Sc. in Occupational Safety and Health (MOSH) specific issues. Minutes from the meeting are attached (ANNEX 1).*
- 2. EUC conducts on a semester basis a procedure of student evaluation survey named ‘Students’ Feedback on their Learning Experience’. As discussed in the previous point, an additional layer of student participation is currently being designed. In this additional layer, results and KPIs will be discussed on a qualitative basis in order to identify any issues to act on based on the findings of the student feedback. In addition to that input to the program and its courses will be achieved.*
  - 3. MOSH is supported by a prestigious advisory board (ANNEX 2). In a typical OSH fashion, a tripartite representation is evident. Trade Unions, Employers Federations and Labour Inspection take an active part. The advisory board has a central role in the life of MOSH. Due to the current pandemic an informal round of communication with its members took place.*
  - 4. A course-by-course overlapping exercise was performed. Results are presented in an additional rebuttal file (ANNEX 3). For OSH605 Risk Assessment and Management (We added ISO45001 as an example of Occupational Health and Safety System that should be analysed in depth. The final output as a learning outcome for students is the development of their own Risk Assessment in a real workplace), OSH610 Safety Technology and Professional Practise (We added all the categories of hazards to be analysed (physical, safety, biological, chemical, psychosocial, ergonomics). Those that are covered by other courses such as ergonomics and psychosocial hazards, will be briefly described in this course), OSH615 Human Factors (We added tools such as KIM (for ergonomics), WAI (for well-being) and new emerging risks such as ageing) and OSH625 Project Management (Elements of OSH are inserted. Principles of Strategic Management and Leadership are also inserted) all changes indicated by the EEC were made and are illustrated. All courses syllabi (under the new format) are presented in ANNEX 10.*
  - 5. To facilitate the process additional data (e.g. ERASMUS agreements) is now available on the EUC website at <https://euc.ac.cy/en/programs/master-occupational-safety-health/>*
  - 6. This has been addressed in previous sections (see point 1 above).*

### **Comments by the EEC:**

#### **Specific:**

1. Consider a better balance among health and safety topics in the program, e.g. introducing a specific course addressing occupational health and occupational hygiene
2. Consider widening the list of electives, also creating synergies with other programs and/or selecting electives from other programs and schools at the university
3. The existing course of ergonomics and psychological factors is not also including elements from occupational hygiene and others. There is a need to revise the course to strengthen the teaching of the core elements of ergonomics and psychosocial factors (including a new name)
4. Consider a wider use of original scientific literature as a basis for coursework compared to the present strong emphasis on text books
5. Consider introducing specific software for quantitative analysis to students in the courses, by specific project works or by the introduction of specific electives
6. The role of OSH professionals in companies requires them to interact with managers, workers and others internally in the organisation as well as a number of external stakeholders. It is therefore important the students acquire a thorough understanding of management and organisation theory. A possibility could be to revise the course on project management, which now – judging from the description – focuses on basic project management methodology with little interaction with OSH.
7. Consider the introduction of an elective activity allowing the students to undertake an internship in at least one company
8. Consider widening the exchange opportunities (e.g. by establishing new Erasmus+ agreements) and promote exchange periods abroad, both for taking courses and for carrying out the Master Thesis work

#### **Response by EUC:**

1. ***An additional course in MSH 645 - Occupational Hygiene and Occupational Health (ANNEX 9) has been developed. This has been developed in collaboration with the Medical School of European University Cyprus.***
2. ***As electives the following classes will be offered (from other Accredited master programs of EUC): CYS600 - Introduction to Cybersecurity (Distance Learning); MG645 -***

- Human Resource Management and Leadership, and; MPH610 Introduction to Public Health (Distance Learning)*
- 3. This will be partially addressed by the introduction of the new course on “OSH 645 - Occupational Hygiene and Occupational Health” (ANNEX 9). In addition to that the existing “OSH615 Ergonomics and Psychosocial Factors” course has been revisited and enriched according to the suggestions of the Committee. The course has been renamed as “OSH 615 - Human Factors” (ANNEX 10).*
  - 4. Leading academic journals (Scopus indexed) have been added to all courses syllabi reading material: OSH 600 - Safety Management & OSH Legislation / Safety Science; OSH 605 - Risk Assessment & Management / Risk Analysis & Journal of Research in Risk; OSH 615 - Human Factors / Applied Ergonomics; OSH 630 - Loss Prevention and Process Safety in the Oil, Gas, Petrochemical and Chemical Industries / Journal of Loss Prevention in the Process Industries*
  - 5. European University Cyprus operates a dedicated SPSS lab with a number of licenses available. This lab can be used by the students and can also be booked for teaching purposes. In addition to that, for the purposes of the Safety Management course, the FDS software is provided to all students enrolled (with or without add-ons). FDS is available free of charge. It should be noted that licenses for SPSS (for quantitative analysis) and NVIVO (for qualitative analysis) are also currently available for use in their personal computer for all MOSH students.*
  - 6. It should be noted that leadership and basic management theory is already covered in the “OSH 600 – Safety Management and OSH Legislation” class. Yet, a number of new elements that highlight the integral role of OSH in project management have been included in “OSH625 - Project Management” (ANNEX 10).*
  - 7. “OSH610 – Safety Technology and Professional Practice” has been designed to reflect the need for a stronger bond between MSc students and the professional world. The course description mentions: “Part of the course will be based on the acquaintance with practical aspects of OSH. In particular, OSH professionals will be invited in class, targeted visits to organizations will be arranged. Part of the course grade will come from a focused mini-project on a practical OSH issue of an existing organization.” In addition to that the University, the School and the Department actively encourage all students to undertake industry related final thesis projects. The involvement and*

*contribution of the professional world is acknowledged in the form of assigning the role of thesis co-supervisor to the representative of the industrial organization. It should be noted that in the past, organizations offered paid internships to MSc in OSH students. In addition to the formal Student Services Office of the University an informal (social media) channel of job postings and internships to the students exist.*

8. *A list of previous and current ERASMUS agreements is attached (ANNEX 4).*

## 2. Teaching, learning and student assessment

### EEC recommendations:

#### Areas for improvement:

1. There is a need to promote a stronger social integration of students, particularly during pandemic, allowing them to better work as a group or team.
2. There is the possibility to improve the quality and quantity of internships/field work during the programme.
3. The use of external examiners should be considered to ensure some external perspective to the assessment process.

### Response by EUC:

***As far as these three important points raised by the EEC, we have attempted to take into account effectively, as indicated below:***

1. ***Every semester a number of scientific events that bring together OSH (M.Sc. and Ph.D.) students is arranged. Well attended seminars are organised with international and national experts. A list for the events of last semester (Fall 2020) is attached (please note that in Fall 2020 Semester all events took place purely online; ANNEX 5.1) The events program of previous semesters (Fall 2017, Spring 2018, Summer 2018) are also presented as an example (ANNEX 5.2). In addition to that, it has been decided that an induction meeting will be arranged in the beginning of each semester starting in the Spring Semester 2021. During this induction meeting a presentation of an OSH Practitioner, a presentation from the ERASMUS Office, and a presentation from the Career office will be included. It should be noted that an induction “fireside chat” is already part of the annual enrolment. Spring 2021 Semester will be kicked off on the 18<sup>th</sup> of February with a full day online event in collaboration with the Monash University Accident Research Center, WHO, the Minister of Public Order and Justice of the Republic of Cyprus and the Minister of Transportation of the Republic of Cyprus. The main theme of the event is: “Addressing Road Safety during the Pandemic”.***
2. ***CERIDES – Excellence in Innovation and Technology operates a dedicated working space for the Department Ph.D. students and Research Associates. Prior to the pandemic, CERIDES – Excellence in Innovation and Technology offered internships. An example is attached (ANNEX 6). These internships led to the development of certain deliverables, such as technical reports. Internees are given specific scientific tasks to carry out in a specific timeframe. Internees are required to present specific deliverables further to consultation***



*and collaboration with their scientific supervisor. Examples of that are evident in ANNEX 7 and ANNEX 8.*

- 3. Further to the recommendation of the Committee, a change is introduced in the Master Thesis examination procedure, in accordance with a Department Council Decision. An external examiner will be recruited for the purposes of the thesis defense. Hence, the composition of the examination committee will be as follows: 1. Supervisor, 2. Internal Examiner, 3. External Examiner.*

### 3. Teaching Staff

#### **Comments by the EEC:**

2. The number of the teaching staff seems to be limited, which might result in some overload of teachers and in a single teacher offering several compulsory courses. The recruitment of further teaching staff or the allocation of other faculty to the program needs to be considered.

#### **Response by EUC:**

1. ***New teaching staff have been hired and are now engaged (Dr. Christos Argyropoulos and Dr. Cleo Varianou Mikellidou) in offering the courses. Both of them are Research Fellows at CERIDES – Excellence in Innovation and Technology at European University Cyprus. Dr. Argyropoulos is an expert in the area of Process Safety and Dr. Varianou–Mikellidou is an expert in the area of pure OSH with an emphasis in emerging risks. The Department anticipates that they will significantly contribute in teaching and research efforts. If further recruitment is required, action will be taken by the Department/School/University.***



#### 4. Student

*No comments were indicated by the EEC*

## 5. Resources

### **Comments by the EEC:**

The inclusion on the report of some further information about students' mobility is advisable.

### **Response by EUC:**

*It has been requested from the EUC webmaster that reference to the list of ERASMUS Agreements (<https://euc.ac.cy/en/academics/erasmus/erasmus-agreements/>) is provided in the MOSH webpage. In consultation with the Erasmus Office of EUC, dedicated time will be provided during the induction. The website has been updated as suggested here <https://euc.ac.cy/en/programs/master-occupational-safety-health/>*



## 6.Additional for distance learning programmes

N/A



**7. Additional for doctoral programmes**  
N/A



**8. Additional for joint programmes**  
N/A

## B. Conclusions and final remarks

### Comments by the EEC:

1. The quality assurance process, requiring a higher attention to the publication of data and to the use of specific performance indicators in the periodic revision of the program.
2. The number of the faculty dedicated to the program, that presently seems limited, at least when considering the application documents.

### Response by EUC:

***We would like to thank the EEC for the positive feedback and its constructive recommendations. As described in the previous sections of the report, the Department of Computer Science and Engineering has made a focused effort to address each one of the EEC's recommendations. As such, we believe that these actions enhance the quality of the M.Sc. in Occupational Safety and Health under accreditation. By making these changes, we believe that we are now able to offer a significantly improved program of study which is in line with the European Qualifications Framework and which builds on our strengths and our readiness to implement the programme in an attractive student-friendly environment.***

1. ***As indicated further up in this report, more data is available to the public with regards to the program (already in the website). Further action is, also, proposed by the Program Academic Committee in order to take remedial actions and promote the periodic revision of the program.***
2. ***Cognisant of the current lack of enough full-time academic personnel with expertise in the core courses of the programme, and in accordance with the suggestion of the EEC, the School of Sciences, Department of Computer Science and Engineering has recruited two new qualified colleagues to the teaching core of MOSH.***

***In closing, we would like to say that the Department of Computer Science and Engineering found the EEC's candid discussions, a constructive learning process. We all believe that this review was a positive experience and feel that we were provided with important input on how to move effectively forward. By embracing the EEC's comments and suggestions, we are convinced that our programme will be able to more effectively ensure the learning outcomes of its students. In this regards, we are grateful to the EEC for their candid discussions regarding our programme, and the insightful comments and suggestions throughout their report.***





### C. Higher Education Institution academic representatives

<i>Name</i>	<i>Position</i>	<i>Signature</i>
<b>Prof. Georgios Boustras</b>	Program Coordinator Department of Computer Science and Engineering	
<b>Dr. Marina Appiou Nikiforou</b>	Chairperson, Department of Computer Science and Engineering	
<b>Dr. Panagiotis Papageorgis</b>	Dean, School of Sciences	

Date: 08/02/2021

## **ANNEX 1**

### **Program Academic Committee Meeting Tuesday 15 December 2021**

#### **Present**

**Prof George Boustras, MOSH and POSH Coordinator (Chair)**

**Dr Christos Dimopoulos (Faculty Member)**

**Dr Cleo Varianou Mikellidou (Part Time Faculty and Research Fellow)**

**Ms Olga Nicolaidou (MOSH and POSH Student Representative)**

1. The Chair welcome the Committee Members and presented the latest information about the MOSH and POSH programs, including intake, teaching assignments etc
2. The Committee discussed the recent visit of the EEA in detail
3. The Committee decided to introduce a yearly program specific assessment in order to provide to both academics and students the opportunity to voice their opinion with regards to the program, syllabi and course related activities
4. Further to the advice of the EEA report it was decided that a number of KPIs should be introduced. Among them:
  - Graduation Rates: The percentage of students who graduate and the amount of time it takes them.
  - Course Success Rates: Monitor completion rates on a course-by-course basis.
  - Student Outcomes: Keep track of students after graduation to see where their education takes them.
  - Transfer Rates: How many students who apply and are accepted are transferring from other institutions?
  - Year-Over-Year Enrollment: Monitor daily enrollment data to make year-over-year comparisons.
  - Retention Rates: What percentage of students return for the next semester?

It should be noted that a number of these KPIs are already documented – centrally – by the University.

## ANNEX 2



### MEMORANDUM

**Program Name:** MSc and PhD in Occupational Safety and Health

**TO :** Dr. Panos Papageorgis,  
Acting Dean, School of Sciences

**FROM :** Prof. George Boustras  
Coordinator

**DATE :** 25 January 2019

**SUBJECT :** **ADVISORY BOARD** committee members  
(3 years term)

Please find below the Advisory Board committee members for the above program:

	Name / Surname	Affiliation	Email	Phone Number
1	Γιώργος Μπούστρας	Κοσμήτορας Σχολής Διοίκησης Επιχειρήσεων	G.Boustras@euc.ac.cy	22713157
2	Πιερής Χουρίδης	Καθηγητής στο Πρόγραμμα	P.Chourides@euc.ac.cy	22713249
3	Λέανδρος Νικολαΐδης	Πρόεδρος Συμβουλευτικο ύ Σώματος/ Πρώην Διευθυντής Τμήματος Επιθεώρησης Εργασίας	leanic@cytanet.com.cy	99350413
4	Αιμίλιος Μιχαήλ	Εκπρόσωπος ΚΕΒΕ	freedom@ccci.org.cy	22889800
5	Γιώργος Σιδέρης	Γενικός Διευθυντής Τσιμεντοποιία Βασιλικού	g.sideris@vassiliko.com	24845555
6	Αναστάσιος Γιαννάκη	Διευθυντής Τμήμα	ayiannaki@dli.mlsi.gov.cy	22405623

		Επιθεώρησης Εργασίας		
7	Αλέξανδρος Μιχαηλίδης	Γενικός Διευθυντής RTD TALOS LTD	am@talos-rtd.com	22454333
8	Κώστας Γρηγορίου	Διευθύνων Σύμβουλος ΓΡΗΓΟΡΙΟΥ ΑΕ ΛΤΔ	kostas@grigoriou.com.cy	25393238
9	Σταύρος Σπανός	Αντιπρόεδρος Hyperion Engineering Group	<a href="mailto:s.spanos@hyperionsystems.net">s.spanos@hyperionsystems.net</a>	22840700
10	Σώτος Λόη	Γενικός Διευθυντής Lois Builders	<a href="mailto:sotos.lois@loisbuilders.com">sotos.lois@loisbuilders.com</a>	22778777
11	Όλγα Νικολαΐδου	Εκπρόσωπος Σύνδεσμος Ασφάλειας και Υγείας Κύπρου	olgacivil@hotmail.com	99493518
12	Πολυβίου Πολύβιος	Εκπρόσωπος ΟΕΒ	<a href="mailto:ppolyviou@oeb.org.cy">ppolyviou@oeb.org.cy</a>	22665102
13	Νίκος Ανδρέου	Εκπρόσωπος ΠΕΟ	<a href="mailto:nicos.andreou@peo.org.cy">nicos.andreou@peo.org.cy</a>	22877673
14	Νίκος Σατσίας	Εκπρόσωπος ΣΕΚ	<a href="mailto:nikos.satsias@sek.org.cy">nikos.satsias@sek.org.cy</a>	22849673
15	Στέλιος Χριστοδούλου	Εκπρόσωπος ΔΕΟΚ	<a href="mailto:schristodoulou@deok.org.cy">schristodoulou@deok.org.cy</a>	22872177
16	Ανδρέας Χαραλάμπους	Εκπρόσωπος ΟΣΕΟΚ	<a href="mailto:andreasc@gcccy.com">andreasc@gcccy.com</a>	22877700 99635117
17	Ακης Πηγασίου	Τέως Διευθυντής Ελληνικά Πετρέλαια Κύπρου ΛΤΔ (ΕΚΟ)	<a href="mailto:akis.pegasiou@gmail.com">akis.pegasiou@gmail.com</a>	99651755

## ANNEX 3

A/A	Course Name	Course Code	Number of ECTS
1	Safety Management & OSH Legislation	OSH600	No major changes. OSH600 is focused on OSH legislation. Students will learn basic information related to Occupational Health and Safety Management Systems, safety culture etc
2	Risk Assessment & Management	OSH605	We added ISO45001 as an example of Occupational Health and Safety System that should be analysed in depth. The final output as a learning outcome for students is the development of their own Risk Assessment in a real workplace.
3	Safety Technology & Professional Practise	OSH610	We added all the categories of hazards to be analysed (physical, safety, biological, chemical, psychosocial, ergonomics). Those that are covered by other courses such as ergonomics and psychosocial hazards, will be briefly described in this course
4	Human Factors	OSH615	The course was renamed as requested. We added tools such as KIM (for ergonomics), WAI (for well-being) and new emerging risks such as ageing
5	Research Methods	OSH620	No changes
6	Master Thesis	OSH650	No changes
7	Project Management	OSH625	Management and leadership elements were added. The importance of OSH as an integral part of project management was added.
8	Loss Prevention and Process Safety in the Oil, Gas, Petrochemical and Chemical Industries	OSH630	No changes
9	Critical Infrastructure Protection and Reliability	OSH635	No changes
10	Fire Safety Management	OSH640	No changes

## ANNEX 4

More specific we have Erasmus agreements in OSH with the following Universities:

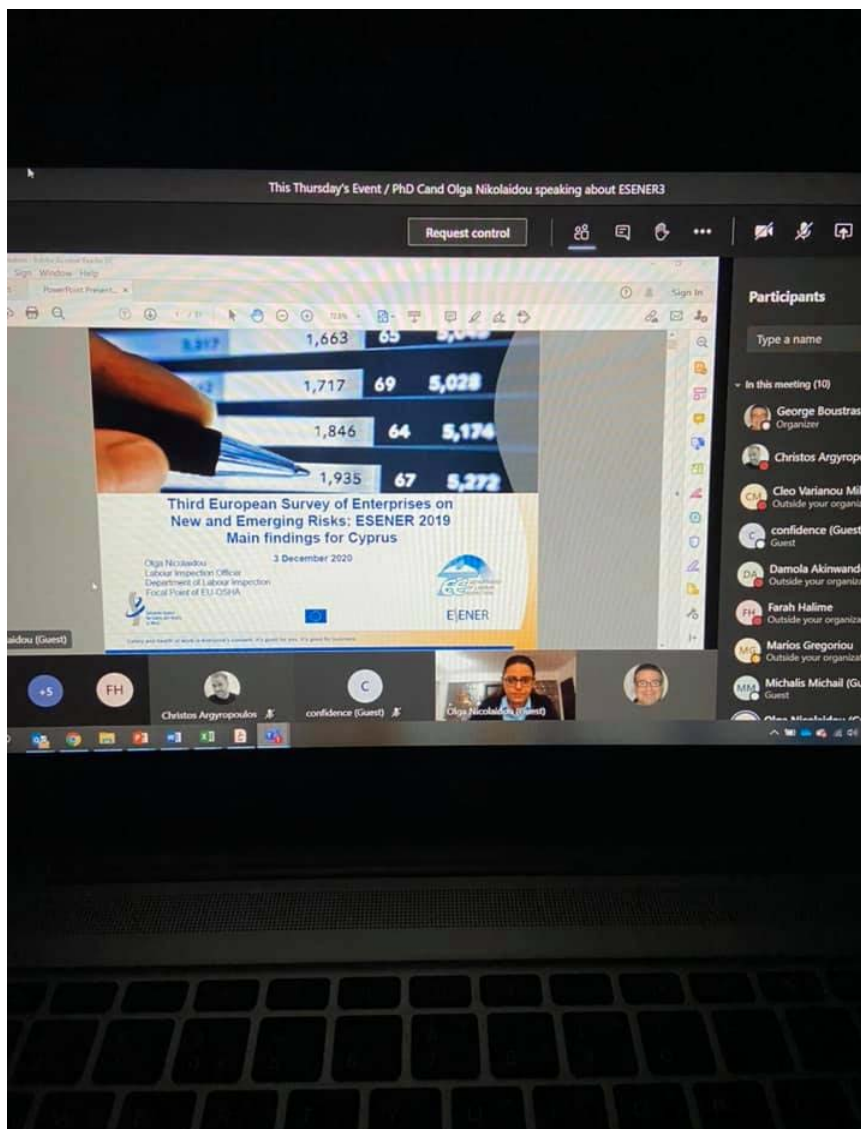
Instituto Politecnico do Porto - Escola Superior de Saude	P PORTO05	Portugal
Ludwig-Maximilians-Universitat Munchen	D MUNCHEN01	Germany
The College of European and Regional Studies	CZ CESKE03	Czech Republic
Tomas Bata University in Zlin	CZ ZLIN01	Czech Republic
Amsterdam University of Applied Sciences	NL AMSTERD05	The Netherlands
Hellenic Fire Academy	G ATHINE57	Greece
Universita Degli Studi Di Palermo	I PALERMO01	Italy

## ANNEX 5.1

### List of MOSH and POSH Events in Fall 2020 (all online)

**December 10, 2020:** PhD Cand , EUC, Eleni Stamatogianni, “Validation of ESENER3”

**December 3, 2020:** PhD Cand, EUC, Olga Nikolaidou, “The role of EU OSHA”



November 26, 2020: Nicosia Risk Forum (70+ speakers)



**Nicosia Risk Forum #NRF2020**  
Preparing for the Next Pandemic  
The important role of Civil Protection: A Regional View  
Thursday, 26 November 2020  
[READ MORE](#)

November 19, 2020: Dr Eleni Leontidou, Oxford University, “The History of Occupational Safety and Health in Cyprus”

Zoom Meeting | 2 people entered the waiting room | View X

**FOURTEEN MILES DOWN TO THE SEA... FROM A MILE IN THE SKY**

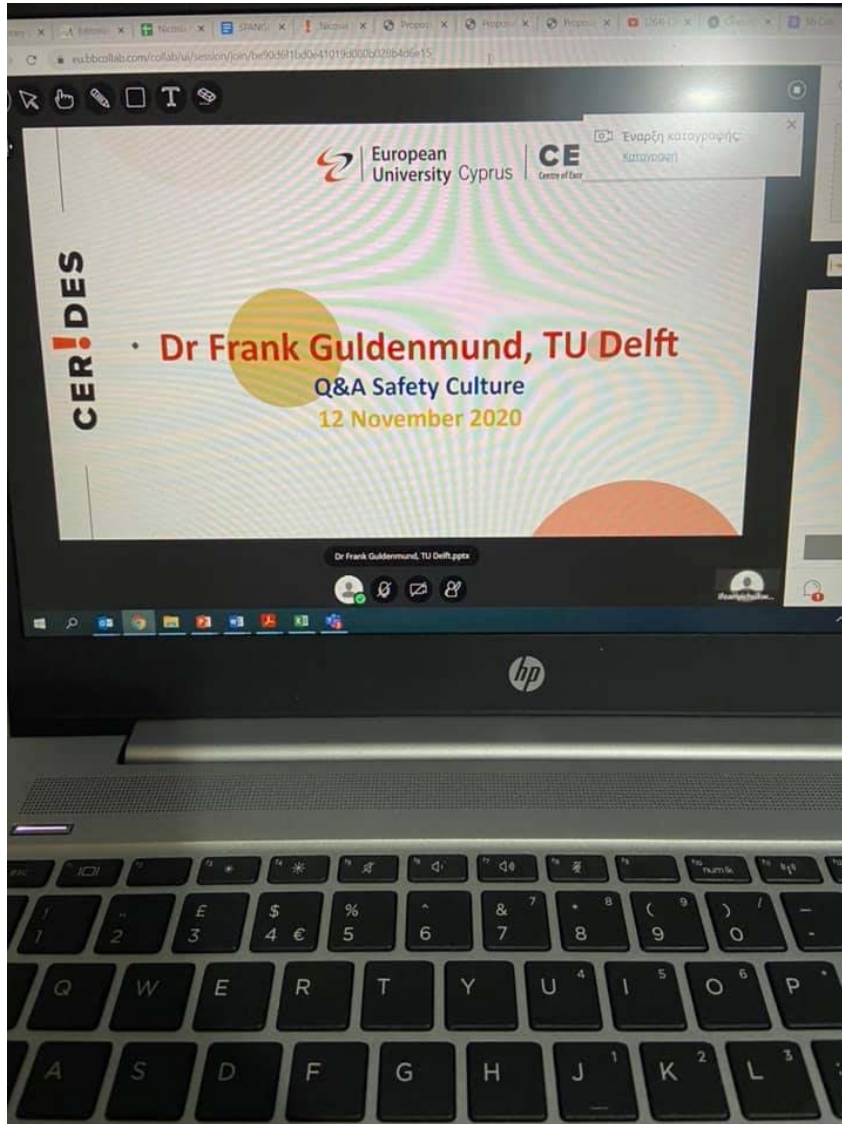
**OCCUPATIONAL HEALTH AND SAFETY IN CYPRUS: A HISTORICAL OVERVIEW**  
Dr. Eleni Leontidou

elentleontidou

CYTA\_r11z\_5G | 6:19 PM | 11/19/2020



**November 12, 2020:** Dr Frank Guldenmund, TU Delft, “fireside discussion on Safety Culture”



**November 5, 2020:** Tom Nichols, “Introduction to the work IOSH”

The screenshot shows a Zoom meeting interface. The main window displays a presentation slide with the following content:

- iosh** logo
- IOSH Student Membership**
- Tom Nicholls**  
Education Account Manager
- Charlotte Langley**  
Education Account Coordinator

Below the slide, the Zoom control bar shows the title "IOSH Student Membership - E... (1/22)".

On the right side, the "15 Συμμετέχοντες" (15 Participants) list is visible:

- Συντονιστές (4)**
  - Charlotte Langley (IOSH)
  - Cleo Varianou-Mikellidou
  - George Boustras
  - Tom Nicholls
- Συμμέτοχοι (11)**
  - Andria Michael
  - Constantina Kyriakou
  - Farah halime ph
  - Idris Ola
  - ifeanyi-chukwu confidence
  - Judith
  - Konstantinos
  - Marios Grigoriou
  - Marios Krommydas
  - Michalis Michail
  - Nathalie Gebara

The bottom of the screenshot shows the Windows taskbar with the date and time: 8:31 PM, 05/11/2020.

**ANNEX 5. 2**

[EUC]

### **11-7-2018**

Reminder for Next Wednesday - don't miss it

MSc in OSH Series of Seminars - Case studies of Fire Engineering

On Wednesday 11/07 we offered to current and previous MOSH and POSH students the opportunity to discuss some case studies, that FEC International, domain experts in Fire Safety, presented.

- On Wednesday 11/07 at 17:00 in Room 207 we invited Mr Surren Dakessian, CEO of FEC International and Dr Klelia Petrou, Fire Engineer. More about FEC at <http://www.fecint.com/>

The presentation was open to current and past MSc and PhD students.



### **17-5-2018**

MSc in OSH Series of Seminars - Principles and Practice of Fire Engineering

On Thursday 17/05 we offered to current and previous MOSH and POSH students the opportunity to get in depth analysis of "Principles and Practice in Fire Engineering".

- On Thursday 17/05 at 18:00 in Room 207 we invited Mr Suren Dakessian, CEO of FEC International and Dr Klelia Petrou, Fire Engineer. More about FEC at <http://www.fecint.com/>

The presentation was open to current and past MSc and PhD students.





**6-3-2018**

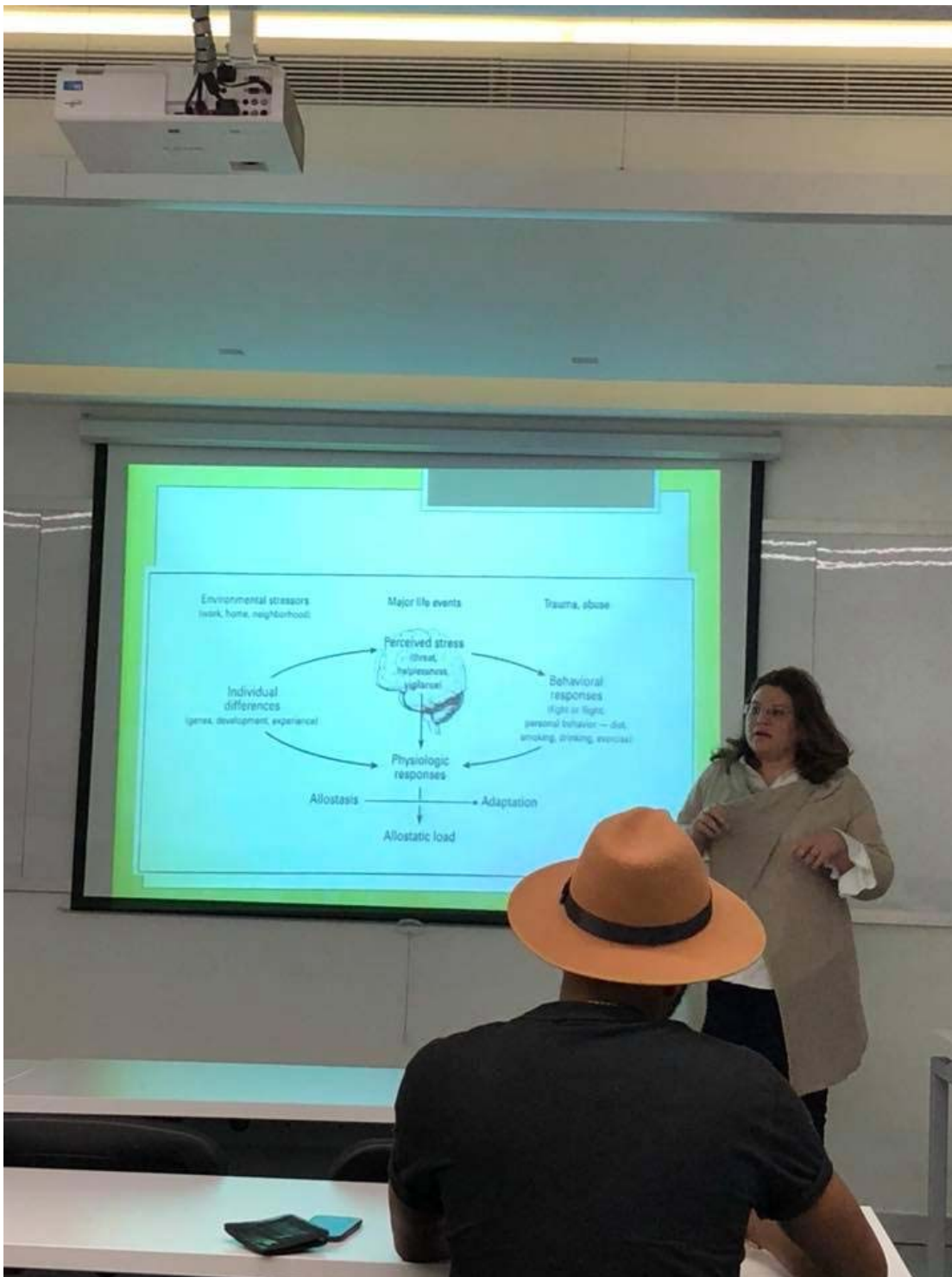
MSc in OSH Series of Seminars - Neurobiology and Stress Management in the Workplace



On Tuesday 06/03 we will offered to current and previous MOSH students the opportunity to get in depth analysis of “Neurobiology and Stress Management in the Workplace”.

- On Tuesday 06/03 at 18:00 in Room 207 we invited Dr Stella Nika. Stella is a Psychiatrist. Stella is the Head Psychiatrist of the National Guard.

The presentation was open to current and past MSc and PhD students.



**27-2-2018**

MSc in OSH Series of Seminars - Noble Energy

On Tuesday 27/02 we offered to current and previous MOSH students the opportunity to get in depth analysis of “Energy Safety”.



- On Tuesday 27/02 in Room 207 we invited Ms Christiana Kenta. Christiana is a member of the Cyprus Health and Safety Association. Christiana works for Noble Energy as Chief OSH Officer. Christiana presented the latest in Safety Technology in Energy Installations.

The presentation was open to current and past MSc and PhD students.





### **14-12-2017**

MSc in OSH Series of Seminars - “Energy Safety”.

On Thursday 14/12 we offered to current and previous MOSH students the opportunity to get in depth analysis of “Energy Safety – the SEVESO Directive”.

- On Thursday at 18:30 14-12-2017, in Room 126 we invited Mr Glafkos Theodotou. Glafkos is a member of the Cyprus Health and Safety Association. Glafkos works for the Cyprus Petroleum Storage Company Ltd, Cyprus. Glafkos presented the latest in Safety Technology in Energy Installations.

The presentation was open to current and past MSc and PhD students.



**25 & 26/10/2017**

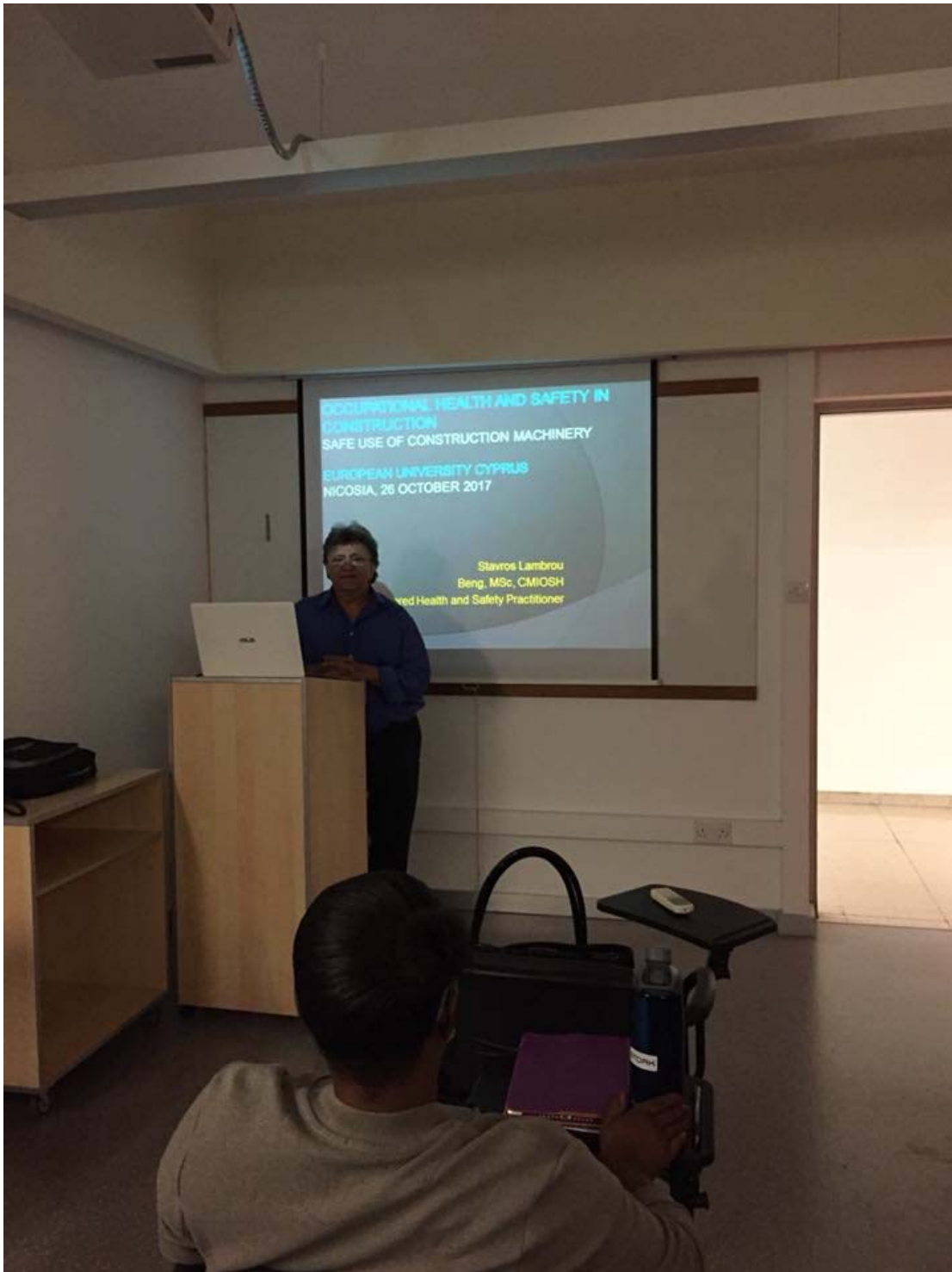
MSc in OSH Seminar Series - "Construction Safety".



- On Wednesday 25/10/2017 at 18:30 in Room 207 we invited Ms Olga Nicolaidou to discuss Construction Safety Legislation. Olga is a BSc and MSc in Civil Engineering and a PhD Candidate in OSH. She is also a Labour Inspector.

- On Thursday 26/10/2017 at 18:30 in Room 126 we invited Mr Stavros Lambrou. Stavros is the Past Chairman of the Cyprus Health and Safety Association. Stavros has a BSc and MSc, he is also a chartered member (CMIOSH) of the Institution of Occupational Safety and Health, he is a Safety Consultant and was a Labour Inspector. Stavros presented the latest in Safety Technology in Construction.

The presentation was open to current and past MSc and PhD students.



## ANNEX 6



### **CERIDES – EXCELLENCE IN INNOVATION AND TECHNOLOGY to offer 3 internships to excellent graduates**

The Center for Risk, Innovation and Decision Sciences (CERIDES) of European University Cyprus aims to offer 3 internships to recent University graduates. Accepted students will have the opportunity to acquire experience in working as a functional part of a highly productive research team. This internship will be particularly useful for graduates aiming for a research career.

Selected students will be expected to perform their internship work in the following areas: Risk Assessment, Safety Management, Natural and Manmade Hazards, Internet of Things, Big Data and Cybersecurity. Excellent students with strong numerical skills, an excellent command of the English language and a problem solving ability, are encouraged to apply.

#### **European University Cyprus**

European University Cyprus operates six Schools, namely, the School of Arts and Education Sciences, the School of Business Administration, the School of Humanities and Social Sciences, the School of Sciences, the Medical School, and the School of Law with the mission to educate students for successful careers and life achievement, to understand and serve the needs of society, and to create knowledge through research and innovation. EUC is the only university in Cyprus and Greece to be rated by QS TOP UNIVERSITIES (QS Stars), which ranks many of the most prestigious universities in the United States, Canada and Europe. The University has been assessed with the highest distinction of 5-Stars in Teaching, Facilities, Inclusiveness, Social Responsibility and Internationalization. Its 4-Star distinction in the field of Employability is also considered a remarkable success, a result of the close association of its academic programs to the job market.

#### **The Center for Risk, Innovation and Decision Sciences (CERIDES - EXCELLENCE IN INNOVATION AND TECHNOLOGY**

The Center for Risk and Decision Sciences aims to become the reference point for Risk and Decision Science related subjects in South Eastern Europe. The Center provides a holistic offer to the academic and business world. The Center is based on the offering of educational (taught), research and consulting solutions.

The areas of focus of the CoE revolve around the following basic pillars; risk and decision science with an application to a number of horizontal areas such as: Artificial Intelligence, Cybersecurity, Security, Safety, Telecommunications, Internet of Things, Critical Infrastructure Protection and Industrial Processes. CERIDES has already participated in a large number of EU Funded projects and has amassed significant experience. CERIDES has provided training and consulting for the Government of the Republic of Cyprus, the World Bank and private organizations. CERIDES currently, employs 15 researchers.

#### **Internship particulars**



Selected students will work 30 hours a week (on average). Duration of their work will be in June and July. An honorarium is not foreseen.

### **Required Qualifications**

A Bachelor degree. Excellent numerical and IT skills. Excellent command of the English language.

### **Applications, supporting documents and admission procedure:**

1. A motivation letter and a copy of the candidates CV should be send to [safety@euc.ac.cy](mailto:safety@euc.ac.cy)
2. Deadline for submission of applications: XX May 2019
3. The final selection is based on the assessment of the qualifications and personal interview(s).

More information on CERIDES can be found at <http://cerides.euc.ac.cy>

## ANNEX 7

# Technical Report 001

## Risk Communication

Sophie Tourenq, Jan M. Gutteling, Georgios Boustras

Center for Risk, Safety and the Environment (CERISE), European University Cyprus





# Study

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## Introduction

Risk communication is a famous field of research in present risk and crisis management. It might be useful during each phase of a crisis, before/during/after, but communicating to the public is first a medium of prevention that may allow the authorities to improve acceptance of measures related to risk, and also make the public to accept technological innovations. After an evolution through the years, from the beginning of research in the 1970's to its current state, risk communication tends to make automatic and maintain preventive behaviors and protective actions by informing and educating populations about the risks they live with, giving them warnings and emergency information during an event (crisis communication), and combining problem solving and conflict resolution <sup>(1)</sup>. It places the individual and society as key players in prevention and enables the individual to react by himself, giving the opportunity to the authorities and the emergencies to solve a crisis more efficiently.

Whichever the country is, even if it has a developed risk culture, disaster communication is still difficult. The more society tends to take measures to limit risks, the more people seem to feel threatened <sup>(2)</sup>. The question is how to arouse adaptive reactions for most of them, whether in information seeking, in adopting preventive behaviors, or in building a strong risk culture to make the process fall within the general culture through generations.

The Cypriot system is not very clear in terms of risk communication. Risk culture seems to be relatively poor or non-existent and one might wonder whether the measures taken to raise awareness really convince the Cypriot population and the authorities.

Indeed, if nowadays the main approach of risk communication systems is a bottom-up one, called a double-way communication, the Cypriot system has not reached this evolution and keeps informing the public through “enlightenment”. Disaster communication to the public is carried out with a top-down approach, with many resources and forces deployed to control the crisis, but also to direct and channel people during events. No preventive behavior is explicitly requested, and information about risks is not easy to find for general public.

This is in a will to improve these points and effectiveness of measures taken to involve citizens in the system that fits this research project. It will show to the authorities some differences between systems that have more than thirty years of experience, and the current Cypriot system that does not use the dynamic and the capabilities of the population.

The study is based on a comparison between policies on risk communication in three European countries: two of them have gained experience over time - France and the Netherlands - and a country willing to set up a system which would have better results than the current system - Cyprus.

This is the opportunity to define a better system based on policies of other countries. But thanks to this initiative, Cyprus can avoid repeating the same mistakes the elders have made before, using an invaluable feedback.

#### Cyprus and risks

Cyprus is a Mediterranean island close to the Middle East, one of the last members composing the European Union (2004). It experiences several risks on its territory, typical of Mediterranean lands: earthquakes, forest fires, tsunamis, flashfloods, heat and cold waves, water shortages, industrial risks and transport of hazardous substances. Compared to other countries or regions of the world, this island has not a heavy past with disasters, with events punctuating its history on a relatively small scale in matter of consequences. Most of the measures taken related to risk appeared following the events pulling apart the Republic of Cyprus and the Northern part of the island, the Turkish Republic of Northern Cyprus. Following to the event, Civil Defense Department was created to be ready to deal with crisis. The latest event was the Evangelos Florakis Naval Base explosion that took place on 11<sup>th</sup> July 2011, blowing the Vasilikos Power Station, the largest power facility on Cyprus, and inducing frequent electricity shortages. Due to its history poor of natural and industrial disasters, Cypriots seem to avoid the questions related to risks and the precautionary measures given by the authorities.

However, following a particularly large fire in early June 2014 in Limassol, a member of parliament demanded an inquiry about the measures taken by the authorities on population’s health in the area. An attack from the opposition can be identified, but the article from the Cyprus Mail shows that people want access to more information than is currently provided on risks and preventive measures. “No one told us whether to keep windows closed or not,” he said, nor were they given any form of advice: “Nothing” <sup>(3)</sup>. However, information about fires can be found on the Civil Defense website: presumably the people could not find it or were not aware of the

existence of such a website. Here are highlighted some limits of the one-way communication.

Why such a reaction from the citizens whereas information is provided on the Internet and the fact that the authorities use many means to deal with the threats?

One-way and double-way risk communication

Most of the people do not possess sufficient knowledge in science and technology to be able to evaluate a threat, its possible aftermath and benefits<sup>(4)</sup>. Then, they must rely on the authorities and experts, and the information they provide<sup>(5)</sup>; the more risks are complex and difficult to understand for common people, the more they will be dependent. That is the reason for the development of risk communication systems by the governmental agencies. Two different types of communication systems are the most widespread: one-way communication and double-way communication (also called top-down and bottom-up approaches). The differences between the communication systems are significant and indicate the advance of risk and crisis management in a country.

Usually, a one-way communication system will evolve into a double-way communication through history and disasters or incidents that the country has faced; most of the current double-way systems were once one-way communication. Indeed, communicating to the public through a top-down approach allows the government to control the whole situation without wasting time and funds trying to establish a dialog between the authorities and the citizens. More importance is given to security and intervention plans than to prevention means, and the communication is mostly done during the “hot phase” (crisis communication) in order to channel and monitor the public. Little basic information is provided in a preventive way but trust in the authorities is the cement of such a communication. But it is now widely acknowledged that the public is not irrational and ignorant<sup>(6,7)</sup> and still too many measures and campaigns are led with the idea that educating people is the major stake in communicating about risks. Information is directly provided by experts who select the knowledge they think necessary to face a threat<sup>(8)</sup>. The opinions and perceptions of people are not taken into account while there is a difference between technical experts, who have to lead objective assessments, and people directly affected by a disaster, who have totally different risk perceptions<sup>(9)</sup>. The only way that would be efficient is to provide information taking into account the concerns of people<sup>(10)</sup>; otherwise, they will be frustrated and disappointed<sup>(11)</sup>, believing the authorities want to ignore their opinions and are reluctant to give them a role in risk management<sup>(12)</sup>. The top-down approach neglects the role of people and rather than communicating just inform the general public without any interaction<sup>(13)</sup>.

The double-way risk communication is a long-term ongoing process, which aims at building a relation between the authorities and the general public. Dialog is the centerpiece of this communication, through which the institutions attempt to understand the emotions and perceptions of people, build and modify the management thanks to this knowledge, and try to maintain trust. It must be interactive, playing on objective data provided by experts and also on subjective data gathered through studies about populations, their characteristics, their behaviors and their

opinions on risks. By knowing what kind of information people want, adopting preventive behaviors will be durable <sup>(14)</sup>. This type of approach, a bottom-up approach, is urged by research in risk communication <sup>(7,15,16)</sup> and gives to the public a key role in risk management by assigning them more responsibilities. It incites people to adopt preventive behaviors and in the long term, limits human but also economic consequences of disasters, even avoids some of them. Even if this double-way communication seems to be the most adaptive to the current trends of thinking of the population, motivating people to participate and act on their own scale to prevent risks remains an issue. The ways an individual will react to a real crisis are still uncertain and if studies attempt to understand the process of reaction to a threat, there is still a margin of uncertainty. Effectiveness of measures and information to the public is one of the main measures double-way communication studies tries to assess but it is a delicate and complex stage for the same uncertainty concerning the answers of the public before any crisis. Arouse preventive behaviors is a key aspect of the communication but it is also one of the main issues. More particular in the Cyprus situation, with its relative lack of experience in disasters and incidents and its presumed low level of risk culture, one might wonder how it would be possible to stimulate a two-sided communication.

Risk perception and trust

Trust and risk perception have the main roles in an individual's reactions to a threat <sup>(17)</sup>.

### Risk perception

Risk perception is a subjective notion which varies from person to person and which influences the way an individual responds to a risk <sup>(18)</sup>. While experts pay attention to rational and objective assessments in order to define response procedures to a threat, the general public trusts its own visions, opinions and perceptions. The factors such as gender, age, education level, occupation, and household income influence people's perceptions and acceptance of risks <sup>(19)</sup>. High to moderate levels of risk perception can induce changes of behaviors and adoption of preventive measures <sup>(20)</sup>.

### Trust

As it was mentioned previously, a lack of knowledge about risks and their benefits compels people to rely heavily on governmental agencies and the information they provide, especially when it comes to complex risks. Institutional trust is 'the willingness to rely on those who have the responsibility for making decisions and taking actions related to the management of technology, the environment, or other realms of public health and safety' <sup>(21)</sup>. Trust is one of the main factors to create cooperation and to have an efficient risk communication; for that reason, risk communication tends to maintain a good link of trust between the authorities and the general public, a very tough task because trust is difficult to earn and very easy to destroy <sup>(6,22)</sup>. But if people trust an organization, positive information will grow trust and negative information will be put aside <sup>(23)</sup>. Among the perceptions that have influence on trust can be found 'the organization's ability to care, commitment to resolving the risk, competence or expertise, and openness and honesty'<sup>(11)</sup>. A lack of trust may amplify risk perception

(7,24) and may provoke anxiety and worry among people (25,26). This lack will then counteract the measures taken to motivate people adopting preventive behaviors because they will not trust the information provided. Institutional trust shortage limits the effectiveness of risk communication measures (7).

A work on risk perception is compulsory to provoke the adoption of preventive behaviors; first, the authorities have to study risk perception among the populations and after study how risk perception level can be aroused. Maintaining trust is also essential because without, risk communication would be worthless.

Using fear appeals

One well known way used to increase the level of risk perception is the use of fear appeals messages (27,28). Fear appeals are persuasive messages provided to a goal population (receiver) that evoke fear and motivate people to adopt recommendations given. A fear appeal message is delivered in two parts: the first is a personally relevant threat (concrete representation of danger) which insists on the severity and the probability linked to this threat. The second part provides response recommendations for the individual to face the issue, insisting on their efficacy and their ease of use whichever are the skills of the concerned person. For instance: a smoker can get a lung cancer (deadly disease); the message would show him a picture of lungs affected by cancer (threat) and say to quit smoking (recommendation).

Fear appeals are composed of two dimensions: threat and efficacy. These two dimensions can also be separated in two pieces: the threat is divided into perceived vulnerability (how susceptible an individual feels to the communicated threat) and perceived severity (how serious an individual perceives a particular threat to his or her life); efficacy is composed by self-efficacy (beliefs in one's capabilities to organize execute the courses of action required to produce to given attainments) and response efficacy (individual's belief about whether the recommended response will be effective in reducing the threat to the individual) (29). Perceived threat determines to which extent the individual will fight against the fear aroused by the message and perceived efficacy determines whether the response will be adaptive or maladaptive to the threat (30).

Many theories try to explain the answers to a fear appeal and its influence on risk perception and adopting protective behaviors. Among them are the EPPM (Extended Parallel Process Model) and the PMT (Protection Motivation Theory).

## EPPM

The EPPM was developed by Kim Witte (27,31). This main model explains three potential outcomes of a fear appeal.

### Threat appraisal

First, people will appraise the message threat: they evaluate the severity of the threat and if it is personally relevant (vulnerability). If the threat is perceived as irrelevant or insignificant (low or trivial), the individual will not be motivated to make further analysis and he will ignore the fear appeal: he will not give an answer to the message. If the threat is perceived as serious, personally relevant and believable, the individual will feel fear and will be motivated to reduce or remove his fear. The more

the threat will seem to be great, the more he will be motivated to a second appraisal: the efficacy appraisal.

### **Efficacy appraisal**

People evaluate the efficacy of the recommendations provided by the message and they will compare perceived efficacy to perceived threat. If their perception traduces high levels in both efficacy and threat, they will be motivated to control the danger. Otherwise, if they believe that the threat is great but the efficacy low, they will follow a fear control process. If the individual has no data to judge the recommendations efficacy, he will use his own experience and past beliefs to evaluate efficacy <sup>(32)</sup>.

### **Control processes**

Depending on the levels of perceived threat and perceived efficacy, the individual can experience two different behaviors: danger control or fear control.

Danger control is a deliberate process in which the individual perceives the threat as strong and its possible aftermath as heavy. He will be frightened by this threat and will feel fear towards its seriousness and severity, and will think about how to protect himself from the danger. Believing that he is able to implement efficient measures to face the threat (high perceived efficacy), he will fight against it. He will also tend to adopt preventive behaviors and adaptive measures using the advice and recommendations provided by the message. When someone feels frightened by a severe risk and believes that something efficient and easy can be done to prevent it, then he will tend to protect himself from the threat <sup>(33)</sup>.

Experiencing the fear control process, the individual will be plagued by his emotions and will try to face not the danger but the fear he feels. He will reject the advice given through the recommendations, develop strategies to resist to the persuasion used in the message by employing defense mechanisms (denial, defensive avoid, reactance). When someone feels frightened by a severe risk and believes that nothing can be done to stand against the threat, he will deny it, avoid ask questions about it or react with anger to the advice provided. Following this process, the fear appeal would not have any impact on the behavior and thoughts of the individual <sup>(27)</sup>.

### **PMT**

The PMT (Protection Motivation Theory) was founded in 1975 by Rogers <sup>(34,35)</sup>. It explains the conscious and deliberate response of an individual to a persuasive message, such as fear appeal, by appraising costs and benefits of the threat. The result is an adaptive or maladaptive behavior depending on the protection motivation arousal.

The individual will assess the threat conveyed by the message (severity and vulnerability) and the coping through its efficacy (self-efficacy and response efficacy). Response cost and benefits related to the adoption of maladaptive behavior will influence negatively the costs and benefits relation. If both coping efficacy and threat

levels are high, the individual will be motivated to adopt preventive behaviors and take protective measures. Otherwise, if the threat is strong whereas the coping is evaluated as inefficient and invalid, he will react differently by adopting maladaptive behaviors. The reviewed version of 2004 modifies some mechanisms and gives to fear a more important role: the threat appraisal (severity, vulnerability) generates more or less fear that can influence the change of behavior. The more the fear is strong, the more the individual will change his behavior to an adaptive one.

Both of these models illustrate the response of an individual to a fear appeal using different appraisals and comparison between the levels of threat and efficacy of the message. Fear appeals are commonly used, consciously or not in a subtle and persuasive way, and encourage a change of the receiver's behavior. During a crisis, advice may be given to the population in case they were not aware of protective measures about how to cope with the threat. It is called action perspective and aims to motivate people to adopt self-protective behavior. It has similar effects to fear appeals and tends to raise risk perception through high levels of threat and efficacy<sup>(36)</sup>.

Efficacy beliefs, divided into self-efficacy and response efficacy, affect the way people behave, their feelings, their wills, their response to threat and risk communication. This perception influences their welfare and actions: the ones who believe in their own skills and ability to cope with a risk will be more willing to transcribe their knowledge into real actions<sup>(25,33)</sup>. It evolves depending on people and their own experience with risks. Efficacy beliefs are then important when it comes to convey the right information to the public, especially information provided by the websites and through direct messages.

Preventive behaviors and information seeking

### Preventive behaviors

Knowing how an individual will react during a crisis is essential; but it is complicated to study and know for sure because he will not answer to the threat just using a logical reasoning and his knowledge, he will be the prey of his emotions and instincts while relying on his own experience acquired during similar events<sup>(37)</sup>. Preventive measures and behaviors have here their importance because they prepare the individual to a possible crisis while making him aware of risks around him. The governments look forward to give more responsibilities to people and ensure their relatives' safety, with more or less success (in a double-way communication). According to studies, high levels of risk perception, self-efficacy and response efficacy would promote adoption of preventive behaviors<sup>(27,38)</sup>. To motivate people adopting adaptive behaviors, information provided has to be adjusted in order to palliate the global lack of information seeking. Without seeking, the individual will not be exposed to danger and messages disclosed by the governments, and he will not be affected by risk communication<sup>(30)</sup>.

### Information seeking

Information seeking is one of the preventive behaviors governments try to motivate through their campaigns and several efforts; it can be define as a deliberate



effort to acquire information in response to a need or gap in one's knowledge <sup>(25,39,40)</sup>. Most of informative campaigns are led supposing people's sensibility to some risks and possible information seeking by their own <sup>(41)</sup> because of an easier and continuous access to knowledge through new technologies, especially with the Internet. But scarce are these individuals <sup>(18)</sup> and people in general are not so predictable: sometimes they do not see the point in seeking or just avoid information <sup>(42)</sup>. But the main reasons leading people to seek information are when the topic becomes relevant <sup>(43)</sup>, when they get involved in safety and risks <sup>(44)</sup>, when they miss knowledge or understanding (ISP model), when they feel a gap between what they know and what is necessary for them to face a risk (ASK model), or when they want to reduce uncertainty (the more uncertain they are, the more they will seek information <sup>(45)</sup>) <sup>(25)</sup>. Another reason for adopting information seeking behavior is because of social pressure: an individual is always comparing himself to other people around him to be a part of society <sup>(46)</sup>, and this process helps him to improve his relations <sup>(47)</sup>. His environment urges him to acquire knowledge <sup>(48)</sup>. A study <sup>(49)</sup> found which pattern is usually followed by people when they do some research about a risk: first they want to understand the risk itself and its possible aftermath, methods of self-protection, or how to positively influence ongoing actions. When they believe it is not possible to act at their own scale, they will seek information about the action of competent authorities and how they minimize risk. RISP model, developed by Griffin, Dunwoody and Neuwirth <sup>(40)</sup>, resides in the fact that an individual will be satisfied by his knowledge when it will reach a threshold, different from person to person: he will have his proper information sufficiency. Seeking information attitude will be motivated when his knowledge will be under this limit: this shortage is called information insufficiency. Emotional reactions influence the way the individual deals information: feelings such as anxiety or concern will change his perception of his lack of information and thereby encourage him to seek further; if he is worried about a topic, he will tend to seek information. The initial amount of information he possesses will play in its ability to find new ones. If he detains a great knowledge, he will want to improve it regardless of his initial amount of information on the particular topic. The RISP is based on the individual self-efficacy beliefs and institutional trust. If good clear and practical information is broadcast with an easy access, understandable and applicable in everyday life, people will be more willing to adopt adaptive preventive behavior on the long-term and believe in their capacities and their abilities to respond adequately to risk.

Using the Internet in information seeking

Internet is frequently used by the general public to be aware of the news <sup>(50,51,52)</sup> as well as the social networks <sup>(50,53)</sup>. Their use is simple, fast, and accessible all the time. A lot of information may be put online with a baffling easiness. The point is to understand the way people manage their research in order to provide the information truly desired by the publics <sup>(25)</sup>. Social networks allow people to overcome the differences between the society's and the authorities' opinions (objective/subjective) <sup>(54)</sup>. On the other hand, from social networks can result maladaptive behaviors if the feedback goes against the information provided by official sources <sup>(55)</sup>. To avoid a possible wrong impact on people's behaviors, messages and information must use efficacy beliefs because otherwise, the public will not be satisfied by the initial

message and social networks will have a negative or positive impact <sup>(36)</sup>. Information directly provided then must be adaptive to the populations as well as information disclosed on the official websites in order to avoid this trend and possible misconducts.

The Internet is the first communication means used by the authorities in many countries who post information for the general public, just to inform people in the case of a one-way communication or to motivate people to take self-protective measures and promote more information seeking about the risks and prevention in the case of double-way communication. That is why official websites may be the reflect of a communication system depending on the information provided, the way it is communicated, the backing on credible sources and the supplying of more information if desired, but also simply through the presenting of the webpages.

This study

This study aims at underlining differences between risk communication systems and opinions of the authorities in the Netherlands, France, and Cyprus. Based on theoretical risk communication notions described above and given their past regarding disasters, it will confirm a main variance between the systems: the Cypriot one-way risk communication against the Dutch and French double-ways communication. With this comparison, it will be possible to find ways to stimulate the beginning of a double-sided communication in Cyprus, using the existing measures and studying the noted differences.

It is an opportunity to learn about risk communication policies in different ways: an indirect way through a reflection on the information provided by official websites and a direct way through interviews with risk communication officers from governmental agencies. First, the websites review will establish a preliminary state of the information disclosed online and note the similarities and differences between the websites. Then, interviews and questionnaires will supply further information about the policies, especially about the visions of risk communication and the role of the public. They will also confirm the different ways of sharing risk information, whether through “enlightenment” or through a dialog. Measures taken and the way they were designed will be found to vary given the type of risk communication.

Methodology

### Websites review

A qualitative comparison of the Cypriot, Dutch and French official websites was done studying first contents and design, then evaluating them using risk communication notions and advice given by researchers in this field to governments.

The websites were identified for each country through a short list of supposed actors in risk communication: ministry of Defense, Civil Defense, ministry of the Interior, ministry of the Environment, ministry of Labor and ministry of Health. Other websites were determined by examining the relevant links and researching on the search engine Google using the key words ‘risk’ and ‘prevention’ with the name of the country. The study confines the findings to a non-exhaustive list of official websites, trying to list sites existing in each of the three countries. Extra websites were added for the

Netherlands and France whereas no equivalents were found in Cyprus given the different nature of risk communication in this country. In this study, the websites were not examined by viewing the content, instead it was examined the same way an average person would do. A list of comparison elements was drawn out using the first review and information found, classified into different twelve fields, and then the information was gathered in an Excel table. Employing a literature review, a non-exhaustive list of advice given by researchers on risk communication was outlined. This list was used to further comments on each field relying on risk communication notions (11,18,19,26,27,28,30,36,56,57,58). Following are the lists of comparison elements fields and the consulted websites in different countries.

### List of the different comparison fields

- overview,
- home,
- main menu,
- secondary pages and menus,
- presentation of information,
- accessibility,
- preventive means of communication,
- videos,
- sounds,
- preventive information,
- risk information,
- warning systems,
- FAQ,
- emergency numbers,
- authorities actions,
- right to information,
- extra information,
- news and activities,
- downloads,
- education.

## List of consulted websites

### Cyprus

- Ministry of the Interior (<http://www.moi.gov.cy/>)
- Civil Defense  
([http://www.moi.gov.cy/moi/cd/cd.nsf/index\\_gr/index\\_gr?opendocument](http://www.moi.gov.cy/moi/cd/cd.nsf/index_gr/index_gr?opendocument))
- Public Health Services  
([http://www.moh.gov.cy/MOH/mphs/phs.nsf/DMLindex\\_gr/DMLindex\\_gr?OpenDocument](http://www.moh.gov.cy/MOH/mphs/phs.nsf/DMLindex_gr/DMLindex_gr?OpenDocument))
- Ministry of Labor  
([http://www.mlsi.gov.cy/mlsi/dli/dli.nsf/dmlindex\\_gr/dmlindex\\_gr?OpenDocument](http://www.mlsi.gov.cy/mlsi/dli/dli.nsf/dmlindex_gr/dmlindex_gr?OpenDocument))
- Department of Environment  
([http://www.moa.gov.cy/moa/environment/environment.nsf/index\\_gr/index\\_gr?opendocument](http://www.moa.gov.cy/moa/environment/environment.nsf/index_gr/index_gr?opendocument))
- Fire services ([http://www.fs.gov.cy/fs/fs.nsf/index\\_gr/index\\_gr?opendocument](http://www.fs.gov.cy/fs/fs.nsf/index_gr/index_gr?opendocument))

### The Netherlands

- Ministry of the Interior (X)
- Ministry of Defense (<http://www.defensie.nl/>)
- Ministry of Health (X)
- Ministry of Labor (X)
- Ministry of Infrastructure and the Environment  
(<http://www.rijksoverheid.nl/ministeries/ienm>)
- Central government website (Security and Terrorism)  
(<http://www.rijksoverheid.nl/onderwerpen/veiligheid-en-terrorismebestrijding>)
- NCTV (<http://www.nctv.nl/>)
- TwenteVeilig (<http://www.twenteveilig.nl/>)
- ZeelandVeilig (<http://www.zeelandveilig.nl/>)
- Risicokaart (<http://www.risicokaart.nl/>)
- “Think ahead” campaign (<http://www.denkvooruit.nl/>)

### France

- Ministry of the Interior (<http://www.interieur.gouv.fr/>)
- Ministry of Health (<http://www.sante.gouv.fr/>)
- Ministry of Labor (<http://travail-emploi.gouv.fr/>)
- Ministry of Sustainable Development and the Environment  
(<http://www.developpement-durable.gouv.fr/>)
- Risques.gouv (<http://www.risques.gouv.fr/>)
- Prim.net (<http://www.risques.gouv.fr/>)

- IRMa (<http://www.irma-grenoble.com/>)

The websites with the cross (X) do not contain information about risk and crisis: they were eliminated from the list after consultation.

Note: the risks kept for the selection were natural, health and industrial risks. Other risks like road safety issues or security in general were not taken into account in this approach.

### Interviews/Questionnaires

Two semi-structured interviews took place in Cyprus<sup>(59)</sup> and two questionnaires were sent in the Netherlands between July 2014 and August 2014 to gather data from multiple sources to improve the validity of the findings<sup>(60)</sup>. It was not possible to gather data from France. A list of questions was prepared in advance in order to analyze the risk communication systems and understand the respondents' perception of the public. For the interviews, some questions were posed during the conversation depending on the answers provided. The questions were asked in English and the interviews were recorded and transcribed verbatim in English as well. The topics selected for the interviews and the questionnaires were: communication in risk management, measures and actions taken, measuring impact and effectiveness, the role of the population and impressions on people.

The respondents were chosen not only due to their experience in their country and their role in risk communication, but also because of the websites review which identified the main risk communicators in each country. Analyzing the process of risk management, the Civil Defense was found as the main actor in risk communication in Cyprus as well as the NCTV and the Safety Regions in the Netherlands and the Ministry of Environment and sustainable Development in France. Table 1 lists the respondents to the interviews and questionnaires.

Table 1 - Respondents to the interviews and questionnaires

Country	Respondent
<b>Cyprus</b>	
1	Director of Nicosia District in Civil Defense
2	Director of Press and Information Office
<b>The Netherlands</b>	
1	Policy advisor for disaster and crisis management to the director and board of the Safety Region of Zeeland
2	Coordinator of Risk Communication at Safety Region of Twente

The questions asked during the interviews are the following ones:

### Questions asked

- 1 – What is your role in risk management?
- 2 – What is your definition of risk communication?
- 3 – On which principles was built risk communication?
- 4 – What are the actions and measures taken in relation to risk communication?
- 5 – What are the means used for communication?
- 6 – How do you promote preventive behaviors?
- 7 – How do you estimate the impact on people and the effectiveness of the measures taken? Or, when available, is there any data on effectiveness?
- 8 – Do you pretest the messages on a representative sample of the population before disclosing them?
- 9 – What is the role of the population in risk management?
- 10 – In particular, what do the authorities expect from people?
- 11 – In your opinion, do you think people are interested in risk management? If not so, can they be convinced? Why?

### Websites

After collecting data and storing it in an informational grid, two analyses were led: first about the contents and presentation of the websites, and second about the use of risk communication tenets. The selection of websites is far from being exhaustive, but it aims at giving an idea of the repartition of risk information provided to the public.

## Contents and presentation

### France

Other websites like the regional websites were not taken into account because of a lack of information specifically about risk or because they just give references to show their role in general risk management at a regional scale. So were the unofficial websites they recommend for risk and safety because it is out of the frame of the study.

Three types of websites can be characterized: the ones of the ministries with general information, the ones created by the ministries but specialized in risk, and the ones from other organizations dedicated to risk and backed up by the authorities. For the first category, information provided is very general and mainly about the ministries, their actions and activities, especially administrative information. They provide more or less preventive advice depending their sector: for example, we can suppose that the ministry of the Interior recommends specific responses to a warning broadcast by an alarm system inherited from the World Wars (depending on the place where is an individual while the

sirens sound) because they control the network, the ministry of Health provides information about how to prevent the consequences of heat waves or flue spreads, the ministry of Labor gives information about risk within a company, and the ministry of the Environment devotes an entire section to risk because usually, natural or industrial disasters have impact on the environment. For the second category, or websites created by the authorities but only dedicated to risk and prevention, information provided is about risks, prevention and action of the authorities. Some information is redundant with the ministries' websites but it is piled up in a particular place and tools for identifying risks in immediate environment are supplied. Most of time, information and tools differ from the advice given by the first category's websites probably in order to not overload the authorities' sites which are already and usually full. Among this type of websites can be found [prim.net](#) which is a gate to particular tool websites and [risques.gouv](#) which provides information about risk and preventive measures; they differ in their objectives and information they provide. For the third category, or independent associations like the Major Risks Institute of Grenoble (IRMa) backed up by the authorities, information provided is redundant with the second category but it is an another source of information with an external experts' point of view. One can consider redundancy as a proof of inexistent communication between the ministries about the subject, but no conclusion can be done at this point. Thanks to these redundancies of information, the user can find a way to check their trustiness but on the other hand, finding different information between the websites he consulted may confuse him.

The French websites are generally well presented and combine information with practicality thanks to simple homepages and shortcuts to the most important or most consulted sections of the websites. The sections often found on homepages are news, links to additional and useful websites and images presenting current campaigns or topics. The main menus were mainly found practical and dynamic. The French homepage is not a presentation of an organization but a meeting point where the user can understand the meaning of the website and quickly reach what he wants to consult. Probably, a work was done to keep the user on the website through this first page like for [risques.gouv](#) and very website tool of [prim.net](#) through their pleasant and aerated presentation. However, some homepages (e.g. the ministry of the Interior or the IRMa) are similar to a first page of a newspaper providing dense information, and they might lose the reader from the beginning of his information seeking. Sometimes, the menus are not practical enough to find easily information about risk, especially if the website is not entirely dedicated to risk communication (e.g. the ministry of the Interior and Labor). About the presentation of contents, most of the websites chose to classify those using thematic sections. The ministry of the Interior has chosen to use a presentation of subjects through articles: the good point is a possible and frequent update of articles, going with a suggestion of related articles that can lead the user to seek complementary information or totally different information he did not think about before; the bad point is the poor classification of information at the opposite of [risquesmajeurs.fr](#) which provides a simple menu with a list of articles' themes. The website of the ministry of Health proposes a

classification using the alphabetic order, useful when the user knows exactly what he is looking for, dissuasive when he is looking for general information without a predetermined pattern. Usually, the main difference between the first category and the two others is the contents: preventive advice and instructions can be found to certain extent in every website but information about risk and about the authorities' action not. Table 2 presents a brief summary of the contents provided in the websites.

Table 2 - Repartition of information for French websites

Website	About risk	About prevention	About authorities' actions
Ministry of the Interior		X	X
Ministry of Health		X	X
Ministry of Labor		X	X
Ministry of the Environment	X	X	X
Risques.gouv	X	X	X
Prim.net	X	X	
IRMa	X	X	

Common sections found are “topics”, “news”, “organization’s role” and particularly for the dedicated websites “prevention” and “risk”. The use of bold sentences, attractive titles and summaries of most of contents is found in every website.

The websites offer some interactivity with the public, through abundant FAQ reflecting the consideration of public’s wonders, and contents that need intervention of the user to be revealed (e.g. finding existing risks in a city through a zoom on a map in cartorisque or risques.gouv, answering questions about risks in a little educational questionnaire in risques.gouv, presentations of preventive measures through animations like in IRMa website or about risk like for the ministry of the Environment). Interactivity the websites helps to keep the user because he is involved in the process and do not only passively read texts.

## The Netherlands

Only two websites of the safety regions of the Netherlands directly addressed to the population were selected because they provide approximately the same information through a slightly different presentation and classification. Other websites like the ones of the teams working in safety regions were not taken into account. The websites of the Ministry of the Interior, Health and Labor were not selected because of their lack of information related to risk and prevention



Two main types of official websites were found: the ministries' websites and the regional safety websites. NCTV website is assumed to be a part of ministries' websites because NCTV is a part of the ministry of Security and Justice. The two other ones were kept because of the similarities with the French websites and their singularity. The ministries' websites are actually grouped into a single big website which provides a lot of information, generally about the ministries themselves, their policies, different topics related to each of them. Everything is connected and common to all the ministries (e.g. there are no distinctions of ministries depending on the subject of the section: if a topic is common to two ministries, both of them provide a link to the section). But concerning provided information about risk, the ministry of Defense provides little information about risk, but explains the action of the authorities, their approach of risk and crisis management and the organization of management especially about the safety regions; the Security and Terrorism part of the central government website proposes preventive and risk information about several main subjects (e.g. CBRN risks, floods, radiation) with downloads; the ministry of Infrastructure and the Environment sends the user to similar contents because of the existing links between the ministries; the NCTV websites explains precisely the Dutch risk and crisis management because NCTV is the unit responsible for it, and even if information about risks and prevention measures is provided, it is mainly about the management and the way of thinking of this unit. The Veilig websites are made for each of the twelve regions of the Netherlands and provide information about the three main subjects by a practical way and adapted to each region (e.g. announcements are the ones of a particular region). The way they give information is less formal and closer to the individual. The two last and particular websites are smaller and provide specific information: the Risicokaart shows the risks on a map with a little information and the website of the "think ahead" campaign, quoted in almost every website talking about risks, provides practical information about how to prevent a risk. The central ministries websites avoids redundancies by using the same data and even if each website provides information about risk, prevention and action of the authorities, they complement one another using links between them; similar information can be found on the regional safety websites just because one individual will consult exclusively the one of his own region.

The same uncluttered and quite practical presentation is found for the ministries' webpages but the way they chose to put the information in common for every ministry may lose the user while he seeks information. Homepages are a portal to different types of information and are punctuated by various links to other organizations or ministries. Shortcuts to other sections are formulated like suggestions which allow the user to see the overall contents of the website plus give them proposals of research. The menus are understandable propose a research by topics through a list of themes which lead to other pages. NCTV unit homepage is different but built according a same way of thinking. Some indicators point out the current state of situation, and many shortcuts help the user to access quickly to main information. They propose a short list of subjects and at the same time a list of topics classified by alphabetic order: this way, the user cannot be lost and

choose the way he wants to seek information. The presentation of regional websites, especially for Zeeland Veilig, seems to be closer to the individual and customized: the presentation is really elaborate in order to make the user willing to seek information. Practical and efficient, they provide the current state of alert with the instructions adapted to the situation. The Risicokaart and “think ahead” presentations are very functional, with a useful menu, even if they are very different. The current sections of information are “news”, “topics”, “organization” and “downloads”, but “risks” is common for the regional and particular websites. Table 3 presents a brief summary of the contents provided in the websites.

Table 3 - Repartition of information for Dutch websites

Website	About risk	About prevention	About authorities' actions
Ministry of Defense	X		X
Central website (security and terrorism)		X	X
Ministry of Infrastructure and the Environment	X	X	X
NCTV	X	X	X
Zeeland Veilig	X	X	X
Twente Veilig	X	X	X
Risicokaart	X	X	
Campaign “think ahead”	X	X	

Closeness to the individual can be seen with the regional websites and the two particular ones through the advice given and their practicality (e.g. the colorful indicators on Zeeland Veilig website, the summarizing aspect of “think ahead” or on Twente Veilig), just the opposite of the formal governmental websites which still provide clear information to the public. Risicokaart displays interactivity through its maps on which the user can identify the risks he lives with, similar to Geographic Information Systems (GIS).

## Cyprus

For the ministry of Agriculture and the ministry of Health, only two departments were taken into account because of the poverty of risk and preventive information found on both general websites. The police department website was not studied for the same reasons,

but a use of social networks was observed as a will of dialog with people thanks to a useful webpage and specific information provided.

No specific types of website can be found for the Cypriot case: every website is the website for a department or a ministry. No website entirely dedicated to risk and prevention was found. Like the other ministries' websites, information provided is mostly about the ministry/department, its actions, and its policy. On the list, the one which provides the most of information about self-protective measures is the Civil Defense website. Fire services provide specific information about forest fires and measures to take, and the Public Health Services talk about their activities and the way they work to prevent sanitary incidents; documents can be obtained at the premises of the ministry and the major interest of this website is the news about health and possible warnings. For the ministry of Labor, most of the information exclusively concerns safety and health in the companies but also the laws applied to prevent industrial disasters by inspecting installations. For the Environment Department, some information about pollution control or protection of nature is provided, mostly about the laws applied and the missions of the department. Because information is only given by a few sites, there is no redundancy at all or perceived will to avoid it through communication between departments. The Cypriot websites seem to be still in construction for most of them.

A single and simple presentation is adopted by all of these official websites with slight differences such as some shortcuts to main sections (e.g. on the Civil Defense homepage) or a summary of the last news. Homepages provide links to other governmental websites and partnerships, and usually a brief description of the ministry/department. The menus are easy to understand and to employ; the menus directly indicate the themes developed in the website. The current sections are "news and activities", "ministry/department" and "downloads", with some specific sections for the risks in the Civil Defense and the Fire Service websites. Table 4 presents a brief summary of the contents provided in the websites. An interesting presentation of the announcements can be noted for the Environment Department website, with a small calendar providing a quick access to the announcements ordered in chronological order. Otherwise, significant lack of completeness seen for many sections of all the websites may make the user suspicious and disappointed in his information seeking process. Moreover, most of the websites provide information only through documents to download. It was difficult to understand the information on the documents because it was only in Greek and so no online translation was possible.

Table 4 - Repartition of information for Cypriot websites

Website	About risk	About prevention	About authorities' actions
Ministry of the Interior			
Ministry of Agriculture			X
Ministry of Health	X		X
Ministry of Labor			
Civil Defense		X	X
Fire services	X	X	X

No particular interactivity was seen in the websites and especially the FAQ were not completed. The Environment website is alike the Dutch and French website in the presentation, making the user to seek information, but it is relatively poor of information.

## Risk communication point of view

### Kinds of information

One of the first pieces of advice provided by risk communication studies is to 'attend to what kind of information people say they need in order to deal with the potential risks in their lives' <sup>(18)</sup>. Websites usually provide FAQ sections, made of questions from people seeking complementary and missing information. Their presence and completeness may show that the authorities are aware of people's needs. Most of the Dutch websites and some of the French ones contain elaborate FAQ sections, which seem to be a tool in communication. It is not the case for the Cypriot websites, in which can be found empty FAQ sections. Another sign might be the quick links leading to the main sections of a website that can be found in homepages because they may have been created according to the statistics gathered on the webpages. But the sections may have been selected to highlight topics that simply should interest the user, without conducting any study. Still, many websites give shortcuts to the main sections, like the Cypriot website of Civil Defense with 'self-protective measures' and 'links'.

### Three types of information

However, most of the publications studying risk communication recommend to 'provide the public with information about hazards', 'what one could do to protect the self from possible harm' and 'information about what governments and other managers of risk are pursuing to minimize possible risks' <sup>(11)</sup>. As it was shown in the tables above, the websites do not provide the same type of information or not in the same quantity. The risk dedicated

websites (e.g. Veilig and risques.gouv) are the most complete; on the other hand, the Cypriot Civil website is relatively poor of information about risks.

### **Characteristics of information**

Talking about information, the researchers suggest to 'make useful, understandable information readily available' <sup>(18)</sup> to people, 'easily accessible' as well as 'personally relevant and appropriate' <sup>(11)</sup>. Generally, the reading level is relatively low in the websites; an exception must be done for the websites of the ministries of Labor, and for some contents of the ministries of Health websites which speak to a well-informed public (e.g. for doctors, or directors of companies). For the usefulness of information, it can be seen through the instructions and advice provided: it is again a matter of knowing what kind of information people are looking for. Closeness and practicality are mainly found in the Veilig websites and the French website risques.gouv. But when it comes to evaluate the access to information, all the websites providing information about risk were a little difficult to find. An in-depth consultation of the ministry of the Interior or equivalent is generally useful in the seeking process, and when the individual understands which governmental agencies are responsible for dealing with the threats, he will then easily find the related websites. On the websites, most of the menus are simple to use and provide an easy access to information. However, browsing becomes an issue in some websites, like the one of the French ministry of the Interior (whose menu is in the middle of the webpage) or for the Dutch ministries websites because they are all connected together. Access to disabled people is also assured by the possibility to change the font size, to increase the contract of the webpage, or sometimes the reading of contents like in Risicokaart. Cypriot websites do not allow this flexibility. Talking about the access to information, the Cypriot websites (except the still in construction Environment website) always give the information through downloads and never write the essential directly on the webpages, like the Dutch or the French do. It can be seen as a small detail, but usually when someone does research on the Internet, he expects the information to appear directly on the website. Plus, there is no possibility to translate the documents online for foreign people. Restraining the information to documents to download is not a proof of accessibility.

### **Presentation**

According to an analysis studying the modes of communicating risks to the public, the authorities should 'incorporate text with visuals (pictures, diagrams)' <sup>(57)</sup>. Illustrative pictures can be found on almost every website, some diagrams summing instructions can be found on IRMa, French ministry of the Environment, or representative icons on Zeeland Veilig. The Cypriot flyers use a lot of diagrams to illustrate the information provided.

## **Complementary information**

It was explained above that the more risks are difficult to understand for the general public, the more it will rely on the information provided by the authorities. That is why it is recommended to provide additional information to the public in order to incite it to broaden its knowledge <sup>(11)</sup>. The French website prim.net and the one of the ministry of the Environment provide portals to other and useful websites, as well as all the websites dedicated to risk. The Cypriot websites also provide links but usually, it is for partnerships rather than for extra information on risk. Downloads are also an additional source of information, but in the case of Cyprus, it cannot be considered this way. To access to complementary information, the user can follow the organizations through the social networks, like Twitter directly integrated in NCTV or the Veilig websites. It is an opportunity to provide updated information using new technologies, in normal times or during crisis. This presence on social networks allows the authorities to reach more people and set up an official source where the individual can be lost in advice provided by other users. Cyprus uses only the news section, present in every website. French websites, such as the ministry of the Interior and the ministry of Health, propose a subscription to breaking news on their websites. Sometimes, videos may complete the written information, providing instructions, explanations on risks or disasters for the dedicated websites. The governmental websites usually post videos in relation with their activities and their own news, and it is the case for Cyprus.

## **Self-efficacy and response efficacy**

Again about the contents, ‘the advised actions [have to be] perceived by the public as high on self-efficacy (yes, you can do it) and high on response efficacy (yes, it works)’ <sup>(30)</sup> because the messages delivered are said to be effective under these conditions. In other words, the instructions must be explained and show that they are useful to deal with the threat and then, reassure the individual about his capacities to implement the measures. It is the case for the instructions provided by the “think ahead” campaign website, the Veilig websites, risques.gouv or the IRMa website. The simplicity of the protective measures may help the individual to believe he is able to implement them, and he will understand their utility in his fight against the threat (e.g. risques.gouv explain exactly what to tell on the phone in case of emergency, to be understandable and help the emergency services to be efficient). The Cypriot Civil Defense flyers provide simple measures to take but no further explanation on their usefulness.

## **Feel confident in seeking information**

It is also said that the authorities should provide information that would ‘help the public feel confident about getting and using that information on their own’ <sup>(18)</sup>. In this idea, the French and Dutch authorities try to enable the individual to find the risks that surround him providing the Risicokaart and the Cartorisque, and also devices to identify risks with a postal code.

## Social pressure

Social pressure is also suggested to promote information seeking: the individual feels then it is his duty because it is a part of their social role <sup>(18)</sup>. It is useful because an individual will always try to be a member of society and then will compare himself to other citizens. If society asks the individual to be knowledgeable about risks, he will tend to be. Noticeable examples are found in the French ministry of the Interior when the authorities use titles like 'when there is an emergency case, the first actor is you' or 'I learn how to protect myself and my family', or when in come to realize your proper emergency plan with your family and your neighborhood in [risques.gouv.fr](http://risques.gouv.fr). It is not really perceptible in the other websites.

## Fear appeals

To increase risk perception and to motivate people to adopt preventive behaviors, the risk communication publications quote fear appeals as a tool for this purpose. It is about disclosing messages containing a threat but also recommendations compatible to the threat. For example, in some news from Twente Veilig, the journalist informs the user of a disaster and just after put a quick link to a section of the website talking about the measures to take in such an event. Juxtaposing information about a risk containing a certain threat and advice to deal with it may be a way to increase risk perception and the adoption of relevant behaviors. But such appeals cannot be easily found in the websites. The use of pictures tinted with fear, or pictures showing dramatic aftermath of a catastrophe, is another way to convey a fear appeal. But this kind of pictures is not usually used by the authorities, which have chosen to simply illustrate the contents (e.g. organizations' exercises, fire and containers symbolizing industrial risks). However, it is found in websites from the portal [prim.net](http://prim.net) (e.g. [memoiredescatastrophes.org](http://memoiredescatastrophes.org) or [phototheque.prim.net](http://phototheque.prim.net)) where the public shares experience and testimonies as well as pictures people took during an event worldwide.

The websites are the reflection of the risk communication policies, especially if it is the first means used. That is why it is interesting to gather data directly from representatives of governments in charge of risk communication in the studied countries in order to reinforce the observations done.

Interviews/questionnaires

## Communication in risk management

### Definition

The definitions provided by the respondents are personal, showing several points of view about risk communication. Even if the difference between the Dutch and the Cypriot answers can be clearly observed, the idea of a talk, a dialog between the authorities and

the public is always mentioned, either through a wish or a statement on the current communication system.

The Dutch respondents have a precise idea of what risk communication is or should be. The Coordinator for Twente uses references to Covello publication <sup>(1)</sup> to express that ***“risk communication is a two-way, interactive and ongoing process between the public and risk communicators (e.g., government agencies). It can be broken into four areas: (1) information and education; (2) behavior change and protective action; (3) disaster warnings and emergency information; and (4) joint problem solving and conflict resolution.”*** She draws a rough chronical of risk communication changes, from ***“a one-way form of communicating, with the public being told what the experts think to be important”***, to ***“a two-way, interactive and long-term process, one where the public and risk communicators are engaged in a dialog, rather than acting as senders and receivers.”*** She insists on the fact that people want to be a part of the system by stating that isolation ***“is no longer considered acceptable or sufficient by the public; the public wants to be involved.”*** On the other hand, the Policy Advisor for Zeeland provides a more personal definition saying that risk communication is ***“informing about dangers and how to cope with these.”*** But he conveys the idea that the system wants ***“to tell the people about the dangers they can encounter in their daily live and give them some ideas or guidelines to follow if they meet that danger.”***

The Director of Nicosia District provides a definition that is derived from official documents, in other words what risk communication should be ***“communicated with the public before an event just to get them aware of it and how to protect themselves and how to manage things during crisis.”*** He concedes that risk communication in Cyprus is ***“generally down-graded”*** and therefore, Civil Defense ***“reduces it to ‘enlightenment’ of the population.”*** By saying that, he shows that he is aware of the advantages of a bottom-up approach, but states that the field is not well cultivated at the moment in Cyprus. The approach of the Director of PIO is a transcription of what communication is for her but applied to risk, especially applied to a crisis situation. She dictates that ***“it’s a talk, something will happen and we will be called in to say how, what do we have to do, we have this problem: how do we address it? And we make a plan”***. She seems not to be informed about the differences between the risk communication systems, but she expresses a partly similar concept through planning -or not- in communication. By saying ***“we try to gage what society needs to hear”***, she demonstrates the intention to know what kind of information people want (two-ways approach), but also the fact that the authorities grope for finding it. Thus, it is more about educating people concerning what they need to know (one-way approach).

The respondents are aware of the approach developed in their countries: the Cypriot definition is clearly centered on crisis communication first and on giving information to the public. The Director of Nicosia District understands entirely the limits of the ‘enlightenment’ they give to the public. However, the Dutch definition uses the double-



way approach, based on providing information to the public as a preventative measure and during a crisis, listening to people and maintaining a dialog.

## Description

The description of the systems is also different and one can perceive that the Cypriot system is blurred, not really precise and depends on punctual actions. The Director of Nicosia District states that **“communication is a basic element of every plan”**. He mentions that Civil Defense communication **“is carried out through our Internet page, through flyers and booklets”** as ways to convey preventive instructions. In case of a crisis situation, intervention plans were designed in advance; yet, he does not quote specific means of keeping people informed. Apparently, it is a matter of trust and of instant communication between the authorities and the public. The Director of PIO states that she first employs her own experience in communication but the initiative is not hers. Time to time, departments and ministries ask her office to set up campaigns about prevention in the risk area referring to the fact that **“they usually come to us for specific projects”**. She wishes there was a closer cooperation to define a long-term plan about risk communication: **“I think there should be more cooperation in that because civil defense, their expertise is in one area of that, in the nitty-gritty, not in the communication. It would be wrong to leave the people who are actually dealing with it on the day to day out of it.”** But she also adds that **“this hasn’t been done until now, we are beginning slowly.”** She expresses the emergency of a crisis situation and explains what needs to be done: **“If you have a crisis to deal with instantly, a problem, you address the problem but you supplement as well, I mean you come back and give some background for that, what is the aim for this, where is it going, why did it start, yes this went wrong but... [...] In a crisis you cannot wait for the complete story. It develops all the time and you have to stick your neck out, tell the truth, tell it nicely but tell the truth.”** The description she makes about communicating during a crisis may corroborate that there is no precise plan of communication. During the interview, it was repetitively mentioned that the Florakis Naval Base explosion is one of the major events Cyprus has known after the invasion.

The Dutch system seems to have accurate objectives and ideas when it comes to communication. The Policy Advisor of Zeeland refers to a law **“in which the local authorities are forced to form a Safety Region organization, there is a chapter in which the mayor of a municipality is obligate to inform the public about risk which can threaten them.”** He also mentions publications and studies **“which have given the communication the shape it has now”**. Then, it can be understood that the communication system is already and entirely created. The coordinator for Twente insists on the fact that was created by using the **“receivers’ perspectives: their risk perceptions, information needs, and self-protective actions taken”**. In other words, the authorities used and still use the people concerns to modify its policy about risks. The Coordinator and the Policy Advisor provide a same purpose for risk communication: **“we**

***inform the public of the dangers in our region (like flooding, nuclear incident/radiation, incident with hazardous materials, wildfire) and what can be done in case of an incident, to limit the effects (not only on health but also housing, business etc.).”***

## Measures and actions taken

### Measures and means

Some of the means used and measures taken are similar from one country to the other, such as informative campaigns or webpages.

But the Netherlands are developing further and customized ways of communicating about risks and crisis. First, the Coordinator talks about three areas of which the measures can be a part:

***“Our work can be broken into three major areas:***

- 1. Informing about risks and precautionary measures through general means, like e.g., the website [twenteveilig.nl](http://twenteveilig.nl) and a campaign “What do you do when...?”***
- 2. Promoting and stimulating protective action and behavior change, through various local risk communication projects***
- 3. Preparing disaster warnings and emergency information for various situations and through various communication means, including innovative means.”***

She and the Policy Advisor do not mention problems of funding when it comes to list the means used for risk communication. Direct interactive means and general indirect means are used as they mention that ***“internet, mass media campaigns, interactive gatherings with citizens, mobile applications, crisis exercises and interactive workshops, newspaper ads and articles, social media”***. The Policy Advisor provides further specifications on the measures: ***“we frequently have campaigns in newspapers, instigated by the national government. They also have commercials on television. In our region we try to be at events which have to do with safety like 'rescue Vlissingen' which is every two years.”*** But he admits that ***“the center for the risk communication is the website [Zeeland Veilig](http://ZeelandVeilig.nl)”*** for his safety region. Technology advancement is also used to automatically update the alert indicators of Zeeland Veilig website. It is worth mentioning that the NL-Alert (people in the immediate environment of a disaster receive information by text messages on their mobile phones) is present and a new app is in development ***“for mobile devices which can push messages about dangers to (groups of) the public.”*** In case of a disaster, the authorities also use regional media such as TV or radio. By using various means to communicate about risks, the authorities increase the chances for the message to be heard.

About the main measures taken in Cyprus, the Director of Nicosia District cites the Civil Defense website that provides ***“basic things”*** like ***“how to act during different types***

*of disasters, during heat waves, during cold waves, during earthquakes, during floods, forest fires, both in English and Greek*". But he adds that, even if it is the first means they use, **"our website is not accessible by all"**, because of the remote areas of Cyprus. The Director of PIO mentions that **"it depends how much money we've got, our budget. So if we have no money at all for a specific thing, we will use webpages, I will go on TV, on a program. [...] presentations here or use one of the universities and do something there that doesn't cost very much. [...] Sometimes we will invite people to write back and give ideas"**. When it comes to talking about other media or advanced campaigns, problems of funding are underlined: **"if you have money then, it's heaven because then you can have spots, you can have radio, you can do a lot of things"**. But it is about communication in general for her office. The Director of Nicosia District also mentions difficulties to set up programs on TV because **"TV stations do not feel it is necessary to give time for Civil Defense to talk about risk communication."**

### Preventive behaviors

No preventive behavior is expressed by the Cypriot government, the Director of Nicosia District mentions the Civil Defense website as the first means for prevention. Talking about setting the bases of a risk culture in Cyprus, in other words making the adoption of preventive behaviors durable (among other things), he is quite skeptical and highlights the difficulties to set a this long-term process. The Director states that **"it's going to be a quite complex project because this risk communication has to be cultivated among the children, students, and founding on different studies concerning risk communication, research, development, and also a sort of advertising it to the population through TV programs."**

On the contrary, promoting protective and preventive behaviors is a key point in the Dutch policy on risk communication. The Coordinator mentions two different scales of preventing behavior. The first is a general scale and it is about providing general explanations of the preventive measures as he clarifies that **"it is done by 'simply' promote and explain general preventive behaviors through standard means, such as newspaper ads or articles, websites, social media"**. The second scale, closer to the population, is about the interactive communication of a specific risk: **"when preventive behaviors around a specific hazard are to be communicated, we prefer a more two-way interactive approach. This includes questionnaires, meetings with citizens, interactive workshops, etc."** The Policy Advisor notices that promoting preventive behaviors remains an issue even if they combine the two scales. He explains that **"the main problem we have is that the general public is only interested in the information as something has happened to them or near them."** That is why promoting preventive behaviors is a concern for the authorities because all their communication efforts may be worthless unless people are sensitive to risk issues or affected by them in their past or present.

A note about messages disclosed: respondents from both countries insist on providing simple, clear, basic and repetitive information. But for the Dutch, the information needs to be **“ready-to-use, practical and simple (what is the risk/danger, what does this mean specifically for you, what can you do to prevent harm, what to do when something happens, where to go for more information?).”**

## Measuring impact and effectiveness

### Impact and effectiveness

In communication, the measure of effectiveness is very important to set up the communication system and to understand people. Factors like risk perception or social pressure can influence not only the way a message will be received and understood, but also many other social factors.

The Coordinator mentions the two-step communication again when she states that **“we now choose to have general risk information available for all citizens, but communicate (in contrast to inform) through customized means and ways. In doing so, we work on pilot projects on specific (off-site) safety issues, in which we develop more interactive and two-way communication means.”** This type of communication was chosen to counterbalance the theoretical fact that **“most of the time, people are not really into risk information, unless it involves a hazard that can have personal impact or when people have higher risk perceptions.”** She finally says that **“it seems that people then are more open to risk information and more willing to prepare for a disaster or crisis”** when the authorities aim at increasing personal relevance by using this two steps communication that accommodates **“the receivers’ perceptions and needs regarding a specific risk topic.”** She does not precise a particular measure of effectiveness, but she relies on the findings in risk communication to explain the impact of communication on them. For the Policy Advisor, measuring effectiveness is limited to measure if **“the information given has reached the public and if they would respond to it as suggested”**. He underlines another issue about the answers provided by the individuals questioned: **“personally, I think that answers given in questionnaires about what they would do in case of incident or disaster is not how they would respond in reality because than it is instinctive reaction instead of a rational answer.”** He mentions that it would be interesting and more reliable to have studies on real incidents and therefore **“know the response of the public for real”**. But for the moment, the authorities have not gathered such data.

The Director of Nicosia District admits, talking about enlightenment of the population, that **“we have never measured its effectiveness, how effective it is.”** Then, he adds that **“there should be an ad-hoc study for evaluating this enlightenment process but there has never been one.”** For the Director of PIO, this missing evaluation is the result of a lack of money and a lack of people to conduct it. But if the campaigns focus on important topics or if the office has funds available, an evaluation is sometimes done

using phone calls and they ***“judge by the result, if we have people calling us, they hits on our webpage, people coming to us for the material, if we get phone calls [...] how many people used this service before and how many are using it now, so how many were aware of that it existed.”***

### Pretesting

In the Netherlands, ***“messages are always pretested”***. According to the Policy Advisor, the methodology used to conduct pretesting is that they ***“have surveys in a selected group of the population but also have discussions with specific groups of the population (like disabled persons)”*** and this step results in ***“changes of length of text, used symbols etc.”*** But pretesting messages is not the only activity that the authorities have to carry out and the obvious lack of time questions the reliability of the findings: ***“the pretest population is not always representative due to (time) constraints”***. But the Coordinator of Twente mentions that ***“during the publication or disclosure time, feedback is generated through e.g., social media”***. The pretesting activity is then an ongoing process to compensate the representation issue.

For Cyprus, the Director of PIO declares that she does the pretesting ***“not officially, not rigidly. What I do here, I use my staff as guinea pigs.”*** On the other hand, the Director of Nicosia District refers to his knowledge in risk communication to answer: ***“all of my books referring to risk communication ask to pretest the messages. You know on interest groups, ad-hoc studies.”*** He also adds that for him ***“it is logical and mature to pretest the messages”*** but ***“it’s an element of two-ways communication that does not exist in our case.”*** The Cypriot answers underline again a lack of funding and the fact that pretesting messages is believed to be worthless for a simple one-way communication.

### Role of the population

One of the main differences between the two approaches in risk communication is the role left to the public. Sometimes, people have nothing to do but listen carefully to the advice provided; on other times, they are the main actor in their own safety at a low scale.

In the Netherlands, the authorities ***“are working on getting the public more self-reliant and resilient.”*** The Coordinator of Twente assures that ***“in general, the role of society and citizens in risk management tends to grow.”*** Giving an example, she states that ***“in earlier days, our regional risk profile was set up by the experts, mainly based on objective information (number of potential victims, probability numbers).”*** But she mentions again the U-turn that took risk communication in the Netherlands by taking into account ***“society’s opinions, perceptions and feelings.”*** Moreover, the Policy Advisor says that the Netherlands are ***“in a process of changing it and giving responsibilities back to society”*** because it is no longer possible to keep the image that ***“the government would always take care if something happens.”*** This fact is reinforced by the words of the Coordinator: ***“governments and emergency services***

*work hard to guarantee or maintain a certain safety level, but a 100% safe society is impossible. There's always a chance of something going wrong, which might result in a disaster or crisis.*" Therefore, *"these publics are encouraged to think and prepare adjusted to their personal situation"* while the authorities *"take into account that special needs make the publics to respond differently to risks and have different needs regarding information and precautionary measures or protective behaviors."* This way, the authorities want to provide support as emergency services, but also give more responsibilities to people, making them the first actors in their own safety. *"People therefore are expected to take preventive actions and knowing the risks in their living environment."* But according to the Policy Advisor, it is more about a hope rather than an expectation that *"in case people come in a dangerous situation they react in majority based on what they know."*

For the Cypriot authorities, and according to the Director of Nicosia District of Civil Defense, the population doesn't have a specific role in risk management: the authorities just expect from people to listen and follow the instructions to be aware of the situation during a crisis. He also concedes that *"some of our instructions are quite vague"*. For the Director of PIO, the authorities *"don't want people to make a lot of noise just go with the flow, whatever they decide."* These statements are another proof of the one-way status of the Cypriot risk communication. Like it was said before, the authorities do not expect people to adopt preventive behaviors; for example to seek information about risk. The reason for the different design of the Cypriot official websites is that they do not have the same concept of what people should do.

### Impressions on people

General impressions on the public change with the country; therefore, it was interesting to ask the respondents about their opinions on the public and its capabilities.

The Director of Nicosia District in Civil Defense says *"the Cypriot society is not very sensitive to risks"* but they have never done a study to understand the population, *"it's just a feeling"*. Talking about the enlightenment provided to the public, he says that it *"is quite simplistic as written down in different plans for coping with different disasters, but this is the level of awareness here in this country"*, highlighting a supposed low level of risk perception. He explains the situation by mentioning Cypriot history: *"it's obvious from the history of Cyprus that the people are not aware of the risks. The society is faced with."* The Director of PIO notices that risk communication is very important but that *"nobody is going to listen"* at the precise moment of a crisis. She describes the Cypriot population as *"not very demonstrative, more stoical, more traditional"*, and when it comes to risk information, *"Cypriots are interested in discussions, in listening and analyzing, but it runs over them."* She also refers to the fact that people are interested in information seeking just when it becomes relevant: *"they are interested only when their house is beginning to burn because they are real human beings. You stop being right brain and you become left brain: you find the*

***door and you get out. People are like that. You will pay attention when it affects you personally and at the moment. Only when the fire is outside your door.***” She is then a little pessimistic on the impact risk communication would have on people if it is improved: ***“Yes, certainly it would be useful, it would be a beginning. Is it going to change the way people think or the government’s factions? No. It’s going to be a step in the right direction.”*** According to the Director of Nicosia District, ***“in Cyprus, people are unprotected and unprepared”***. Then, with an improved and further cultivated risk communication, ***“people will be more aware and disasters may be avoided in the future.”***

The Coordinator of Twente believes that ***“in general, people are interested in risk management. In fact, safety is one of people’s first necessities of life.”*** She explains the lack of ***“sense of urgency”*** because of the idea promoted before by risk communication, ***“that the government took complete responsibility for a safe(r) society.”*** As a result, people have lost the instinct to be responsible for their own safety by ***“thinking about the topic or taking precautionary measures”***. But according to her, ***“in more recent times, people are more aware of their own task and responsibility in personal safety and the boundaries of governmental actions.”*** The Policy Advisor is also confident about the fact that people will be more and more active and states that, for the moment, ***“people react based on what a certain incident means for their on life, the life of family/friends, neighborhood, social groups they’re member of etc. If they get the right information on the right time they will make choices for saving their live, help other and prevent themselves and others for more dangers.”*** Both of them insist on the length of the process, but are confident and hope that citizens will be ***“more active citizens regarding protective behavior and precautionary measures.”*** As a result, this type of communication will enable the citizen to act in his own scale for his proper safety, but also provide a leeway to the authorities because they will not need to channel the public while facing a disaster as much as they do for the moment.

## Discussion

### Definitions

The definitions provided clearly show a gap between the Dutch and the Cypriot risk communication systems. Cyprus seems to be late compared to the Dutch system, but respondents know the advancement in risk communication in other countries and in relevant research. Factors like history, people, management and lack of funds are usually given to explain the stagnancy of the system. In the Netherlands, the system tries to give more responsibilities to the public, changing the image of a strong government which they used to show years ago. The authorities encourage the individual to be self-efficient and responsible for his own safety at a low scale by promoting preventive behaviors, while facing a global lack of interest in the area. If the Netherlands want to give the individual the first role in risk management, it would be a tough task to accomplish because the

citizen is not compelled to act the way indicated by the authorities. By giving a simple advice, the government restrains its action and impact on the population's behaviors. That is why the authorities hope that people will adopt preventive behaviors without assurance that it will be effective. The Cypriot authorities simply avoid the question referring to the communication mainly led during the crisis phase, without entrusting people with a role in risk management.

### **Kind of information**

Risk communication experts underline the importance of knowing what kind of information people need to face risks in their daily lives. This knowledge allows determining the amount of information they need, also called information sufficiency. The Dutch authorities seem to have taken into account the particular concerns of the publics by studying their risk perceptions, opinions and feelings. However, the Cypriot authorities still implement a system based on educating people and providing the information they and experts think is necessary to deal with these potential risks. The way people seek information is then unknown, and even if information is given on the Internet, it may be impossible for people to fulfill their specific needs, maybe because the Internet is not usually a mean used for seeking, or because the information provided is not suitable for their needs. Plus, it is impossible to design a single communication reaching all the audience because individuals have different perceptions of risk depending on many factors. It is important to 'tailor communication' according the audience targeted<sup>(57)</sup>, like the Netherlands try to do with a two-step communication approach. Even if the Cypriot system will not change dramatically into a double-way one in the coming years, studies aiming at understanding the different groups of population seem to be a key measure to upgrade the current system. However, it is interesting to see the same characterization of the disclosed information by both Dutch and Cypriot respondents. Nevertheless, the practical and ready-to-use criteria are particular to the Dutch system and seem to be obviously a distinctive feature of a double-way communication.

### **Pretest and effectiveness**

Pretesting messages before their disclosure is classified as a must in risk communication by the experts. This way, the authorities can be sure of reaching the population and adjust the message if it is not the case, saving efforts and money. Usually, the test is conducted on samples of the population and some questions are asked after the exposure to the message, as per the Policy Advisor's statement. A similar checking process is also recommended to evaluate the effectiveness of the measures in risk communication, yet it is difficult to implement. The samples, the questions, the answers by the public and even the time spent on conducting these evaluations, may cause issues when it comes to assess the reliability of the studies. Indeed, as it was highlighted by the Dutch, people will have different behaviors and reactions in front of a real threat. In addition to a rational reaction which relies on the knowledge gathered by the individual, he will also be the prey of his emotions. Then, he will take decisions according to his feelings and his knowledge



together. That is why even if pretesting allows checking the exposure to the message, its impact cannot be measured for sure. The Coordinator mentions an ongoing process to evaluate further the impact of the messages on population using the feedback provided by social networks. Pretesting is not conducted by the Cypriot authorities, neither is the measure of effectiveness; the reasons behind that are a lack of funds and the worthlessness of the one-way communication process. Even if reliability remains an issue, pretesting is another way to understand people and provide them with information according to their needs.

### **Means**

The websites analysis revealed the use of multiple communication means, especially for the Netherlands and France. The latter is confirmed by the Dutch respondents who mention more means than the Cypriot punctual campaigns and poor information webpages. Frequent communication is necessary to overcome the trend of forgetting knowledge when it is not repeated on a regular and ongoing basis <sup>(57)</sup>. The Director of PIO underlined the planning issue in collaboration with other ministries. The webpages seem to be the best means that the authorities can use without substantial funds. It is still a problem because the employment of several means of communication aims at motivating a seeking and protective behavior whereas people are not naturally interested in risk information.

### **Population**

A great discrepancy is experienced when it comes to the public and their abilities to face a risk and to be interested in the area. The various opinions can be a result of a better understanding of the people in the Netherlands thanks to different studies led on their perceptions, opinions and reactions to a threat. Such factors were not evaluated in Cyprus, making the opinions of the respondents simply subjective and drawn out of their experience in their respective field. Even in the hypothesis of a difference between people because of their nationality, studies should be conducted to understand the Cypriots and adapt risk communication depending on the results found.

### **Conclusion**

The aim of this study was to underline the differences of risk communication systems between three European countries by looking for proper information. This is done by directly consulting the official websites, which are usually the first means used to communicate about risks, and by conducting interviews/questionnaires to gather opinions from representatives.

### **Websites**

It was found that the Netherlands and France have created risk dedicated websites besides the ministries' websites. These special websites provide information on risks,

prevention and the authorities' actions. The ministries' websites generally dedicate a section to risk in their particular field of action and refer to complementary official and experts' websites. Furthermore, information is directly written on the website and further information or factsheets is given to complete it. For Cyprus, the most complete website is the one of Civil Defense, which only provides downloads about instructions to face some risks. But the risk communication notions explained at the beginning of the study seem not to be used in the Cypriot policy for risk communication. The big difference between the quantity and the quality of information provided demonstrates the different approaches of risk communication. The French and Dutch websites reveal a will to make the information understandable, practical and available on attractive and well-presented websites. In general, people will not have a particular interest in risk, unless they are very interested by nature or if they are concerned by a certain risk. The use of fear appeals increases risk perception and thus makes people more receptive to the messages. But the authorities seem to not use fear appeals in their raw form to motivate people to adopt preventive behaviors like information seeking. For example, hinted pictures of fear are not found on every websites, especially not on ministries' websites, but information about the risks and the measures to be taken in prevention is provided.

Although the Cypriot risk communication is a one-way system, and even if there is a lack of funds specifically dedicated to risk communication, the websites about risk must be at least attractive and useful for the people consulting the pages. First, it would help keeping people interested during their information seeking if they are looking for explanations and would make them willing to consult again the website in case of changes, updates, or just to remind them of the instructions provided. Secondly, having a nice website could incite people to talk about it to their relatives and then help improve the communication through word of mouth. Then, even if there are a few people interested in risk and crisis, it would be an anticipation of the changes in risk communication and in people's behavior that may occur in the future.

According to the differences observed, efforts on the websites should be done with:

- **Information about risk:** more information about all the risks in Cyprus, their nature, the possible aftermath or feedback about previous disasters in Cyprus and abroad.
- **A way to identify risks:** it is done thanks to the Riscokaart and the Cartorisque; maps could help the user to identify the personally relevant risks for him.
- **Completeness:** the sections should be completed in order to answer to the user's information seeking and not disappoint him because he will maybe not know where to look for the information; for example the FAQ.
- **Links and complementary information:** links to experts' websites should complete the information provided to enhance its credibility, and to help the user in his research.

- **Presentation:** the presentation should attract people, using pictures, summed up contents, lists, bold words and any other element that could catch the user's attention.
- **Pictures:** instead of mainly showing the actions and exercises of the authorities, they should illustrate the risks and show a certain threat to make people react to the message.
- **Downloads:** they should complete the information provided on the website, not be the main part of it.
- **Think about a Twitter account or a Facebook page:** it would be the occasion to reach more people and provide regularly updated information on social networks.

These examples are given according to the comparison, but to attest their validity and complete these items, studies should be done to simply know what people want and what would interest them.

### Interviews/questionnaires

It was found that the respondents have different opinions about risk communication and about people in their countries. The kind of approach adopted is well known by the respondents: two-way for the Netherlands and one-way for Cyprus. The Dutch system is characterized by an ongoing communication, based on frequent studies and actions implying the public and well-supplied websites. If the main issues for Cyprus seem to be the lack of funds and a possible lack of motivation among Cypriots. As for the Netherlands, the issues faced when motivating people and when measuring whether what the authorities do is efficient or not. Another difference is the Dutch are solely use many studies to understand people and modify the system according to the findings. The Cypriot respondents are skeptical about the public interest in risks but hope for a parallel change with improvement of risk communication. The Dutch respondents hope that people will adopt measures and adaptive behaviors by giving them responsibilities. It is a key point in risk policy in the Netherlands to make the individual the first actor in his own safety. Giving more responsibilities to the public may be the best way to motivate people, especially because of the uncertainty linked to human behaviors.

### Limits

The websites selected may not be representative of all the websites existing on the Internet for the different three countries. Some particular ones can be missing, the selection was made in a subjective way because it was about putting oneself in the seeking individual's shoes. Referencing the websites through a simple research on a research engine or using the links provided by the websites found may have set aside interesting and representative websites. Moreover, the contents were not entirely read or watched just as in the case for a regular individual. In addition, the comments made may be slightly different from the reality, especially for the downloads suggested by the Cypriot websites because it would have taken a lot of time to translate each document. It was a

choice not to talk about all the contents, but a more precise study would have restrained the number of websites studied and axed the analysis on all the contents found. Regarding the interviews and the questionnaires, data was not gathered the same way depending on the country. For instance, a simple dialog can lead to extra data and the respondents do not think about what they are going to reply, opposing the case where a list of questions has be answered by mail. This heterogeneity in the ways of collecting data may have distorted the information and questions the validity of the findings. Unfortunately, no data from France could have been gathered and it would have been interesting to obtain a complete analysis of the websites and the interviews/questionnaires. A different communication can be implemented near from industrial plants because of their obligations according to the law. Local communication was not taken into account but it would have been interesting to focus on this type of communication which may be a double-way approach independently of the country.

It can be considered that, according to Slovic <sup>(6)</sup>, people are mainly not interested in risk because they were not exposed to risk communication for a long time. Indeed, the more the authorities try to prevent risk by communication, the more the people will react and ask for greater measures. It may be partly because of this that Cypriots seem not to be interested by risk and prevention. In the Cypriot context, a better understanding of the public seems to be essential to enhance the current system of risk communication. It may also show the authorities that people are more interested in risks than they think. Implementing means to measure impact on people and effectiveness may be a second step to be sure that the findings were correctly taken into account. Reliability of the measures will remain an issue that only observations and studies will allow to improve. Given that all the respondents concede that risk communication is a long-term process, it is highly recommended for Cyprus to begin a slow change as soon as possible.

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## ANNEX 8

# Technical Report 002

## Health and Safety Communication in the workplace and how fatigue, stress and bullying affect the work place in Cyprus

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Center for Risk, Safety and the Environment



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Constantinos Hadjistephanou

## Abstract

Health and safety at the workplace are two primary rights of workers in Cyprus. There are several dangers that can lead to occupational diseases or accidents that will cause damage to health; this can have serious consequences for a worker's income, life quality and even his/her life itself.

Despite the legal framework that has been established by the European Union and which all Member States must adopt, health and safety rules at the workplace are not being followed to such a point as to eliminate the danger of workplace accidents and serious diseases. In this project we would like to present another element at work that causes health and safety problems: psychosocial factors such as fatigue, stress and bullying. These 3 factors can have dramatic consequences for the health and safety of the workers if nothing is done to identify, address and prevent them. Another element we would like to bring to your attention is the one of communication at the workplace and analyze in which way it affects the smooth and safe working of the employees. The feeling of safety at work is achieved with the correct communication between the workers as well as with the management.

Despite the significant efforts of the relevant service, Cyprus is lagging behind other countries in health and safety. The improvement of health and safety at the workplace must be a primary goal for enterprises/companies/organizations in Cyprus, not only due to the importance of human life but also because of the importance this has for the decrease of occupational diseases and workplace accidents.

The key for the health and safety of the workers is to create a pleasant working environment, to ensure the health, safety and information of the workers, achieved with an effective communication, by taking stricter measures and perform more controls in relation to psychosocial factors.

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## CHAPTER 1

### 1.1 Introduction

Millions of people worldwide are exposed to various dangers at the workplace, which threaten their health and safety. According to the International Labour Organization, two million people lose their life from work accidents and related disease every year. This equals a death every fifteen seconds, or six thousand deaths every day.

Modern technology uses more and more advanced procedures which entail dangers; new materials, chemical substances not fully tested hence not knowing how they might affect humans. In the last few years, efforts have been made towards the minimization of the accidents at the workplace but without apparent improvement, most probably as a result of the insufficiency of the measures taken, of the lack of communication between employers and employees as well as due to the fact that natural factors such as stress, fatigue and bullying, which in their turn may cause accidents, are not being recognised and properly evaluated in order to be combated.

In the light of the above, it is necessary for every organization to take all appropriate measures both in theory and in practice. In other words, each organization needs to ensure that there is proper communication and support of the management team as well as between managers and employees. Managers, in collaboration with specialists, need to take the appropriate measures for all health and safety matters. Communication is very important to ensure health and safety at the workplace and to minimize the chances of accidents.

Enormous changes which have taken place at the workplace in the last few decades, have led to the emergence of dangers in the health and safety department at the workplace. Among the dangers emerged are the so-called psychosocial dangers, which could be considered as one of the most important challenges in the field of health and safety and relate to problems at the workplace, such as fatigue, stress and bullying.

Prevention, limitation and elimination of such risks through proper communication are the most important elements for protecting the health and safety of people at the workplace.

### 1.2 Research aims

The aim of this study is double. The first objective is to identify and register which problems relate to bad communication, which has as a result problems in health and safety at the workplace and find ways to address them; the second is to identify and register the most important psychosocial factors that affect employees as far as their health and safety is concerned.

The research aimed at an in-depth literature review, through which the researcher developed a questionnaire. This questionnaire targeted answers to the questions raised above and also looked into various factors which affect employee health and safety at the workplace. According to Joshua (2004), employees as people have multiple needs, which give rise to Health and Safety.

### 1.3 Communication

By the word 'communication', «reaction to a stimulus» is meant. (Theofilides, 1997). To achieve proper communication, a transponder should send a message to a receiver and the two need to synchronize. Communication is vital for health and safety at the workplace, because it aids in learning and in getting informed. It is one of the most essential and crucial factors affecting safety at the workplace. Also, innovations and new technologies have pushed communication even further and it became possible for messages to be communicated across.

Communication is defined as «*the process of exchanging information between two or more parts for which the information is meaningful, which affords meaning to the interaction*». (Theofilides, 1997)

The goal of communication at the workplace is for change to be effected and for effect the course of action towards the organization's well-being to be altered, via the procedures of communication which ensure the employees' health and safety. All types of businesses need information from outside sources, which will enrich them. Such knowledge will form the basis for their decision making regarding the business in general, as well as regarding employee training.

Communication also has other purposes, like the creation of a positive working environment, cooperation, delegation and work satisfaction. It is thus a bridge linking goals, efficiency, performance and success.

In modern businesses, communication is two-dimensional: it is organizational in the sense that it relates with the way in which the management of the business promotes or restricts effective communication, and it is interpersonal, when it concerns the effectiveness of communication as a function between two people.

#### 1.3.1 The process of communication

As mentioned above, communication at the workplace is to be considered as the process through which employers and employees exchange messages and transfer their ideas and emotions. At the workplace, people communicate either in person or by using

various technological means. How does communication relate to health and safety at the workplace though?

### **1.3.2 Communication's components for employee health and safety**

Communication is accomplished by people, namely the message instigator and the receiver of the message. This is the subject of communication. The communication process at the workplace is a chain of thoughts and actions. In the communication process, the conductor follows certain continuous phases, each affecting the other, and deals with any problems arising.

### **1.3.3 Communication process phases**

#### Message

Information collection and organization is a task of human perception, resulting in the collection of information from the environment, depending on experience, current needs, and interests of the person. This is a cognitive function, during which the human mind collects various pieces of information which relate to the message it is about to send back.

Moreover, messages can be verbal, non-verbal, or symbols used in communication. They can also be the idea of the information that the safety officer or the employer will transfer to the employees.

#### Coding information in a message

Here, the conductor will come up with the symbols via which the message will be transmitted. Transforming information into codes is the essential for completing communication. Language is the best and main means of coding a message. People can additionally use movement, the way of speech, or a combination. The biggest problem with coding of a verbal message is word meaning. Every person may interpret things differently. Hence, in coding a message, the conductor needs to keep in mind the receiver's ability to decode the message. For example, the safety officer needs to be unambiguous in transmitting information to the employees, without using technical language. It is imperative that employees perfectly understand health and safety issues and how to deal with them at the workplace in order for chances of accidents in case of an event to be minimised.

#### Communication channel

The transmission of a message from the safety officer to the employees takes place via communication channels. How the message is to be transmitted depends upon

the receiver, and mainly upon their ability to decode the message. The means of communication may vary and may be light waves in non-verbal messages, sound waves in interpersonal communication, or electronic signals in case of a phone or electronic communication.

### Message decoding

This is the function via which the employee interprets the message. If communication is successful, the decoded message approaches the message sent by the safety officer. If not, then the decoded message is misinterpreted. The employee's needs, psychological state and type of message are all involved in the decoding of a message.

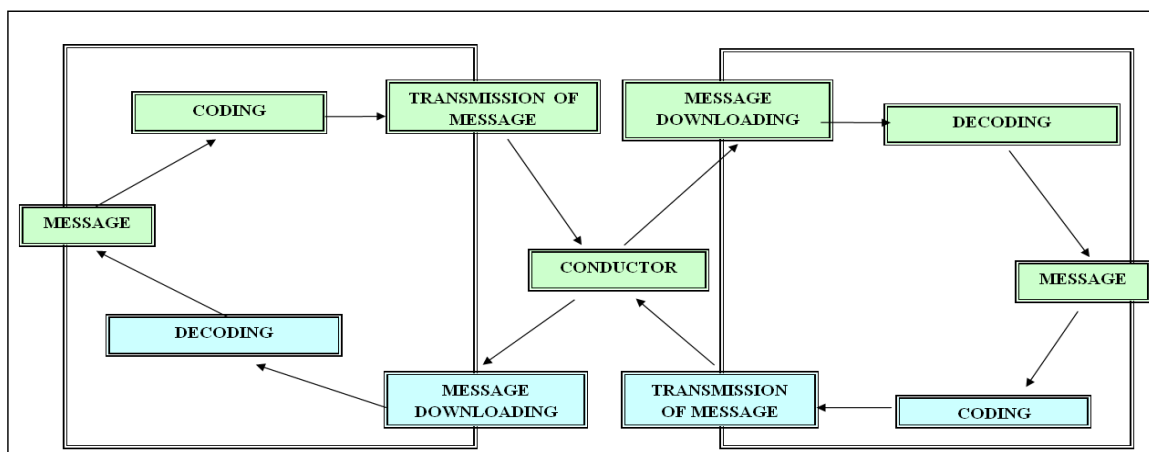
### Transmittance

Information transmittance is divided in one-way communication (e.g. the safety officer transmits a message to employees by using a notification) and in two-way communication (e.g. the safety officer transmits a message directly to the employees by looking at them).

The receiver's role in one-way communication is passive, hence feedback is incomplete. The employee may not be able to understand and may need further explanation. This kind of communication is incomplete because the employee's role is minimized. Two-way communication on the other hand is a complete form of communication, since transponder and receiver are at the same place, interacting.

### Feedback

This is the information leading to possible corrections. This eases the interpretation of a message.



## Figure 1.1: Two way movement of information and messages, communication process

Summarizing, the health and safety officer (transponder) codes a message and transmits it via a channel to the employee (receiver) who, in turn, decodes it and provides feedback to the safety officer. This process involves interaction and is hence a two-way process.

### 1.3.4 Health and Safety: Process of communication in the workplace

The purpose of the existence of communication in organisations is to cause change and to affect action toward the well-being of the business under safe and healthy work conditions. All types of businesses need information from outside sources in respect of the practices (legal or not) they need to follow so that employees' health and safety are ensured. This information will provide them with knowledge which will form the basis for their decision making and actions regarding safety regulations.

Employees demand special treatment, since they will be asked to receive the information from external sources, understand them and take action. In cases of large groups, problems arise and solutions are never entirely satisfactory. This happens because each person is unique and interprets information in different ways, which results in different opinions. Good communication is essential for managerial and organizational success. Communication bridges goals, performance and success.

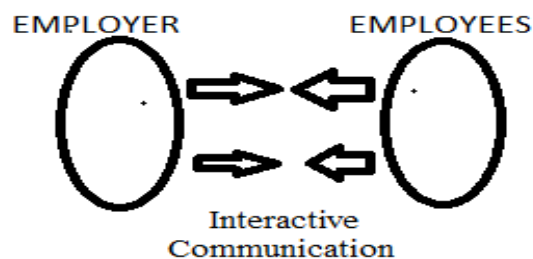


Figure 1.2

Figure 1.2 shows the communication process between employer and employee at the workplace. This process is vital for health and safety at the workplace.

The Communication Process at work

shows the communication process between employer and employee at the workplace. This process is vital for health and safety at the workplace.

### 1.3.5 Health and Safety: Types of communication in the workplace

Generally, communication can be divided into verbal/non-verbal and typical/a-typical. These types relate to information exchange and are met in written and spoken interaction.

#### Verbal Communication

Theofilides (1997) stresses that verbal communication is based on the use of the «language», by which words are used in certain ways, so that people can efficiently share information. Verbal communication includes oral and written communication.

Oral communication may be speeches, conversations, either face-to-face (e.g. when the health and safety officer is in discussion with an employee, one can see the other's movements and

expressions, and when there is the possibility of immediate feedback) – or via the phone. The difference between the two is that in the latter, the message is only acoustic, and any paralinguistic features (e.g. expressions) remain hidden. According to Chouris (2013), the main disadvantage of oral communication is that the more people are involved, the bigger the possibility for misinterpretations.

Written communication involves memos, letters, informational leaflets and announcements. Both the health and safety officer and the employee have a record for the communication taking place. The message can be saved infinitely and be consulted if questions arise in the future. Written communication is also more detailed and succinct. Despite the advantages of this type of communication, there are also limitations.

Some advantages and limitations of written communication, according to a Journal by Smriti Chandre (2011) are:

### Advantages

- *It provides us records, references etc., on which important decisions.*
- *It builds up the legal defenses of the organization through records, letters, instructions etc.*
- *It promotes uniformity of policy and procedure on health and safety issues and builds up proper guidelines for the working of the organization.*
- *It builds up the image of the company.*
- *It makes for accuracy and dependability (Oral communication may be changed or interpreted in different ways. But in written communication the message/information is stated very clearly or unambiguously).*
- *It is permanent.*
- *Responsibility can be easily assigned.*

### Limitations

- *It is time consuming. Immediate feedback is not possible.*
- *It is costly in terms of money and man-hours.*
- *Absence of immediate clarification.*

## **Non-verbal communication**

According to Vardacosta, (2001), «*Non-verbal communication involves all elements relating to human communication and which are not expressed orally or in writing. Most times it transmits notions rather than words... it includes facial expression and body movements, both conscious and subconscious*».

Non-verbal communication is one of the most common workplace communication types (typical and no typical) between employers and employees. According to Segal (2014), non – verbal communication is divided into categories: sounds (tone of voice), body language (movement, posture, eye contact), environmental factors (touch, distance). It is crucial that the safety officer clearly transfers the message to the employee; on the other hand, the latter has to be focused in

to receive the message as it was intended to be understood by him. In the case of mistaken decoding and in case the safety officer does not receive feedback so that it is ensured the message was received as it was intended, then negative consequences ensue regarding the employee's health and safety. Hence, the safety officer needs to ensure that the message has been properly received, by talking to the employee or by asking them to apply certain verification practices. Beyond typical, there is also a-typical communication (*whispering, transmitting*) *carrying information outside the usual channels and the business' typical organizational system* » (Katsalis, 2008). A-typical communication is characterized by transferring information faster since bureaucracy is avoided, it is usually oral and it mostly concerns particular issues. Most times, it is controlled by employees.

### 1.3.6 Health and Safety: Principles of communication in the workplace

To achieve good communication between two or more people at the workplace, the following should be in effect:

-The use of unambiguous, simple language between the safety officer and the employees, so that the latter can easily understand and decode messages. Using more than one way of transmitting a message is better, since it is a way of ensuring that if one way fails, another can be employed. Also, many times a repetition of the message is needed so that the message is understood. Finally, control is needed via special techniques and practices to ensure that messages have been properly transmitted and understood.

According to Jeganathan (2013), communication is a two-way process of giving and receiving information through any number of channels. Whether one is speaking to or training employees, the following basic principles apply:

- Know your audience. It is important that the safety officer knows the people they talk to. In cases of large audiences, it is possible that the safety officer is unaware of each person's education.
- Know your purpose. The safety officer should know the purpose of a talk they are giving; they need to know exactly what they need to transmit through a certain message.
- Know your topic. It does not suffice for safety officers to transmit information regarding workplace safety. It would be better if a specialist was also needed who would be better equipped regarding more complex issues of workplace health and safety.
- Anticipate objections. Many times it makes sense to have objections and disagreements between safety officers and employees. So it is important that before communication commences, for the former to prepare a plan with anticipated objections and ways to deal with them.
- Present a rounded picture. Presenting and transmitting a message needs to be completed so that it is comprehensible by employees.
- Achieve credibility with your audience. The safety officer needs to transmit valid messages and to be able to support them if needed.
- Present information in several ways. The safety officer needs to transmit information in more than one ways and practices, so that employees receive the message in the most comprehensible way possible.

- Develop a practical, useful way to get feedback. Communication should be carried out via certain practices so that there is feedback by employees.
- Use multiple communication techniques. Various communication techniques need to be employed so that messages are transmitted properly and as intended.

### 1.3.7 Successful communication at the workplace

Successful communication is essential so that employees are safe. Employees need to know the prevention measures to be taken, any emergency actions as well as any risks they might be facing. This information should be provided in an easily comprehensible way, using simple language. The ability of employee's και safety officers to communicate properly is one of the main pillars for workplace health and safety. Developing skills for effective communication is hence very important so that safety officers can interact positively with employees.

Effective workplace communication between safety officers (or employers) and employees is one of the most important components in order to avoid any dangers relating to the latter's health and safety such as psychological risks which lead to unwanted outcomes. Effective communication is accomplished when employees interpret messages the way these were intended by safety officers or by employers to be interpreted.

In order to properly communicate, one needs to be a good listener. What Aaltio-Marjosola and Takala (2000) observed is that employees satisfied by workplace communication, tend to be more motivated and contribute more than unsatisfied employees.

Through effective communication greater will to work and to cooperate is achieved and accidents are reduced, since it develops:

- Dignity, a sense of security, social coexistence and harmony
- Ease of objections between employers-employees
- Greater ability for efficient work
- Faster and more correct information transmittance from the inside to the outside

Effective communication is the key to a healthy and safe organization. The way in which employees and employers communicate between them, as well as the way in which both communicate with customers, not only affects work efficiency, but also working conditions and interpersonal relations. To ensure effective communication, certain conditions can be set:

1. The quality and coding of a message: coherence, length and mutual interest.
2. Achieving the needed outcomes: transmitting the message the way it was intended.
3. The right time to transmit a message: messages need to be transmitted on time.
4. Feedback and listening: in all communication there should be reciprocal feedback between senders and receivers. Receivers need to feel free to provide honest feedback. Listening is the most important dimension of communication. If listeners do not properly adhere to it, then it remains incomplete (Antoniades, 1992)
5. Honesty: when designing communications with their subordinates, managers need to keep in mind that any lack of honesty will be easily discernible.



6. Proper channels and means: to achieve maximum efficiency in communication, channels and means employed need to be the right ones (Kakoulides, 2009)

According to Zoogahand and Beugré (2012), the «10 commandments for good communication» are as follows:

1. *Clarity of ideas*
2. *Examination of purpose*
3. *Understanding of human and physical environment*
4. *Planning, consultation and discussions*
5. *Request for support and approval*
6. *Weigh and consider the content and also the overtones of the message*
7. *Communicate helpful and palatable messages*
8. *Actions must be congruent with communication*
9. *Listen well to get the organization move forward*

### **1.3.8 Obstacles to the communication process with regards to employee health and safety**

Ineffective communication makes it tough for big units to function properly. This usually happens when there is bad quality of incoming information. Organizations then react instinctively and understanding between employees ceases.

#### Messages that are badly expressed

Regardless of the way communication takes place, message ambiguity is common. Errors like badly expressed words, omissions, repetitions and clichés can lead to accidents, costly corrections and to the need for disambiguation. Message ambiguity in matters of workplace health and safety for preventive measures is very dangerous and raises the possibilities of accidents.

#### Erroneous translations

Safety officers may translate certain information in a simpler language; however, if the translation is erroneous, this can affect the employees' health and safety.

#### Losses resulting from message transmittance

Repetitive transmittances of the same message become less and less specific, because in oral communication a large chunk of the information is lost, while in written communication the exact meaning atones.

#### Carelessness

Employee's failure to transmit informational material, notifications, minutes and reports is very common. Regarding their failure to listen to oral communication, this happens because they do not really listen while they may also be busy or preoccupied. All this happens because of carelessness.

#### Noise

According to Arapantzanis (2003), obstacles such as noise can occur. This is something that needs to be dealt with by those responsible for workplace communication.

According to the same author, obstacles are divided according to their cause, and can be grouped under personal and organisational. Some of the former include mistaken «filtering, language problems, lack of attention, etc.", while some of the latter include a lack of a communication policy, information overloading, complex messages, a lack of trust etc.

According to the Handbook for humanitarian field workers, some techniques for effective communication include:

- *Good communication is the basic building-block of participation.*
- *By using both formal methods and taking informal opportunities to communicate with the employees, the employers will be able to improve the understanding of the situation and build the kind of relationships needed for successful understanding.*
- *Communication is a two-way process and involves listening, learning and adapting on the part of employers.*
- *The personal behavior and attitudes will determine the quality of the communication and the relationship to the employees with whom you are communicating.*
- *Why, how, when and with whom you communicate should all be part of a participation strategy.*

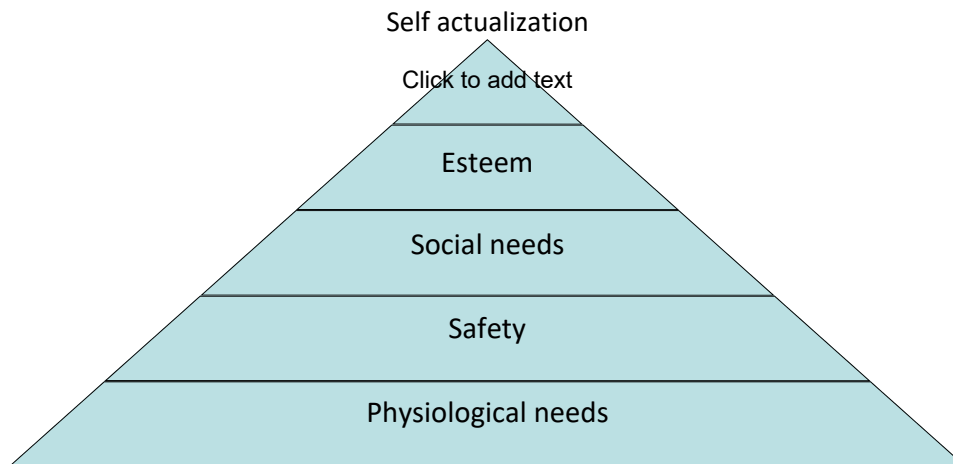
Communication is vital for the employees' satisfaction, health and safety. Research shows the existence of two related theories.

### **1.3.9 Motivation theory**

Employee work satisfaction and physical/psychological health and safety is the link between motivation theory and its application at the workplace.

Many researchers believe that this theory, attributed to Maslow, has set the foundations for theories on work satisfaction. According to the motivation theory, all people have needs which they strive to fulfil. Maslow placed these needs on a pyramid. On its base, he placed survival needs. Security needs, social needs, recognition and self-actualization follow. According to Maslow, people wish to satisfy needs that relate to their evolution. These are the needs for self-actualization and the need for respect and appreciation. Self-actualization refers to areas like creativity, self-expression, self-development and the realization of a person's abilities. The need for respect and appreciation refers to recognition, appreciation and respect by the person towards others and towards themselves. To satisfy the higher needs, lower needs should be satisfied. The two categories cannot coexist. How needs emerge is strictly hierarchical and no overtaking is allowed. According to Maslow, a precondition for the creation of further motives is the satisfaction of the lower order needs. At the top of the pyramid, needs are more abstract and concern a person's internalized values. Therefore, a movement from the particular to the abstract and from the social to the personal can be seen. Maslow is of the opinion that a satisfied need does not possess the motivational power it once had. Satisfying one need leads the employee to move towards satisfying a new need. What Maslow suggests thus, is that businesses should satisfy their employees' needs, so that their motives turn toward satisfying higher order needs, such as recognition and self-appreciation. This, of course, does not exclude the possibility for the person to turn back to lower needs in case work conditions change.

extremely important for organizations to know their employees' needs, since this shows respect toward the latter's personality. It creates a positive workplace environment and helps in the organization's harmonious operation. It also develops the appropriate conditions for health and safety. The workplace becomes creative, safe and affords the opportunity for people to develop. Social and psychological needs and the need for self-actualization are needs that are not expressed orally. So, it is difficult for employers to understand. This is why the latter needs to be alert and to be sensitive to such needs. The aforementioned theory is seen in figure 3.



**Figure 1.3:** Maslow's hierarchy of needs

Employee health and safety depends upon their psychological and physical health, hence it is imperative that their needs are satisfied.

Although this theory was not intended for the workplace, it has been adopted by many theoreticians. At the same time, it has been criticized, mainly on whether it can apply to everyone and in respect of the extent to which it can be applicable to the workplace (Kantas, 1998). Kanellopoulos (1991) considers that Maslow's theory does not describe the way in which these motives are activated and that all motives are considered as equally powerful for everyone. Bloisi et al. (2003) emphasise what Maslow himself had observed and more particularly that the model may not be applicable at the workplace. Hadjipanteli (1999) argues that this theory is limited in its oversimplification of categorizing the needs and that it ignores the cognitive and sensory needs and their interaction. Needs that are not satisfied do not show people the way to satisfy them. They simply cause a sense of discomfort and insecurity, resulting in developing psycho-social problems like stress and fatigue, which further carry negative consequences with respect to employee health and safety.

### 1.3.10 Herzberg's two-factor theory (motivation-hygiene theory)

Herzberg (1966) developed a theory similar to that of Maslow, the two-factor or motivation-hygiene theory. This theory, resulting from research, examines the motives and the factors rendering a workplace «healthy». The factors relating to professional satisfaction are divided into two categories. In the first category one can find the motives which ensure greater employee satisfaction, while in the second category one can find «hygiene» conditions which need to coexist with motives so that the person is fully satisfied. The first category includes five factors which according to Herzberg, create positive feelings of satisfaction. These factors are achievement (the employee's possibility to work successfully, to solve problems, and to feel creative); recognition (referring to the

material and/or ethical reward; this does not need to come from a particular person, as long as the employee is rewarded for their effort); work itself (this relates to employee responsibilities); responsibility (referring to one's responsibilities and authority to execute work functions); and growth (referring to the progress and rise on the organizational hierarchy). Herzberg called these factors motives, because they motivate people to improve their performance and to raise their efforts.

The other category involves the factors causing dissatisfaction: company policy and administration (the organizational structure and related policies); supervision (referring mainly to leadership issues); interpersonal relationships (these refer to workplace among peers, supervisors and subordinates. It is important that these are smooth and that collisions are avoided, which would place employee health and safety at risk); work conditions (these regard work climate in general and include all areas of health and safety); and salary (payment). Herzberg calls these 'hygiene factors', since they relate directly to the environment and aid in preventing discomfort. Factors which relate to positive feelings are endogenous, while factors relating to negative feelings are exogenous. A lack of hygiene factors does not relate directly to professional satisfaction; rather, hygiene factors help towards professional satisfaction, through the factors which directly relate to positive feelings. This means that businesses should consider the two mechanisms for creating motives, since they are both important, albeit in different ways.

Figure 1.4 (Theofilides, 1994) illustrates Herzberg's theory and shortly describes the aforementioned motives and factors.

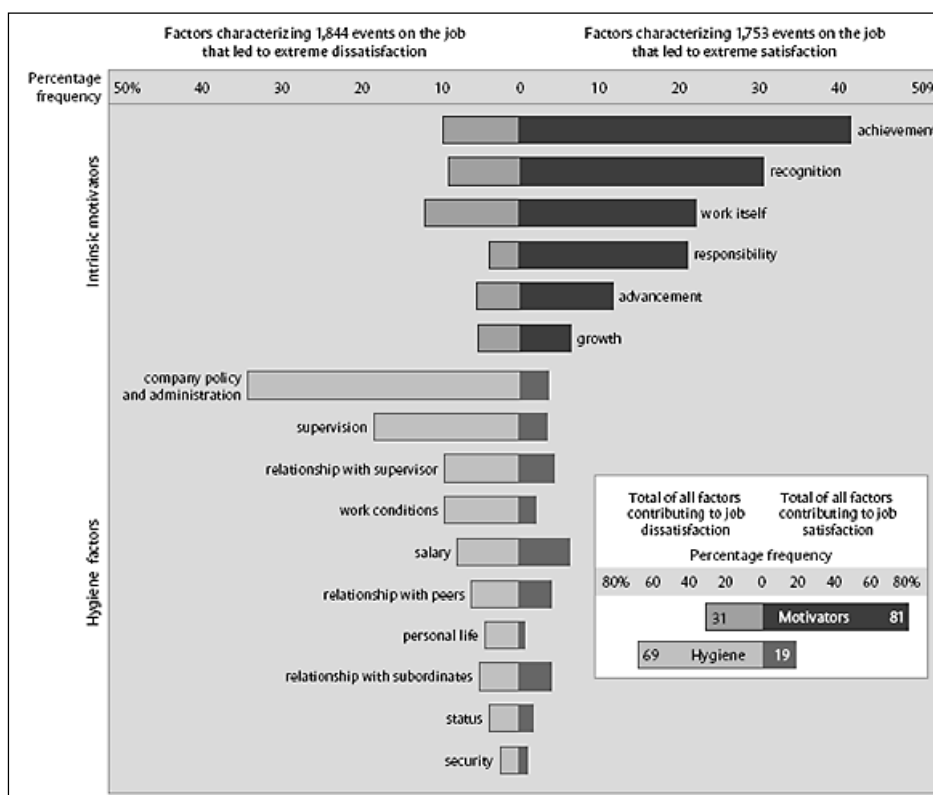


Figure 1.4: Herzberg's motives and factors affecting employee stances toward their work.

### 1.3.11 Professional cooperation and Communication

When safety officers and employees communicate properly and effectively, their cooperation is efficient. These two categories of professionals need to secure proper communication conditions so that quality is improved, tensions are reduced, skills are maximized and the best possible outcomes are achieved. All these will result in lower stress and fatigue levels for employees, hence a safer and healthier workplace. Both employers and employees need to systematically communicate in all areas of their work, especially in matters relating to workplace health and safety. The target would be for employees to ensure effective cooperation and communication with employers, while the latter can see whatever issues exist at the workplace. Safety officers need to understand employee expectations and demands regarding workplace safety. Also, they need to be in constant contact and discuss any issues before they become bigger and more dangerous. Criticism needs to be accepted from both sides and needs to be considered as a way of improving the cooperation. Both sides need to actively work towards the improvement of their relation; the key to that is mutual respect and professional consistency.

### 1.3.12 Workplace clashes – Professional Clashes

Clashes at the workplace may cause negative consequences for employee health and safety and for the organization in general. Such clashes are often a result of bad communication policies and of problems in the hierarchy. However, these clashes can also be regarded as competitive and may be proved positive for employee and organization safety. Hence it can be argued that clashes can have both positive and negative repercussions.

#### Main positive consequences: Clashes at the workplace:

- Create new ideas for a safer and healthier workplace.
- Leading to innovations and changes for a safer and healthier workplace.
- Contribute to taking better decisions regarding employee safety.
- Stress the need to adjust managerial procedures regarding health and safety.
- Render the causes of health and safety-related problems more understandable.
- Bring about instinctive reactions (communication).
- Strengthen relations when the outcome is positive for both sides.
- Can possibly elevate a sense of security.
- Contribute to focusing on issues at the workplace.

#### Main negative consequences:

- Development of psycho-social factors like stress and fatigue
- Energy loss
- Groups and individuals grow further apart
- Cooperation is limited
- Harassment and irresponsible behaviour
- Suspicion and lack of trust
- Reduction of work, increase of insecurity levels
- Erroneous decisions regarding employee health and safety

Managers are the ones responsible for looking into and solving any clashes. There are many sources of objections; the main ones, which lead to clashes, are as follows:

- communication issues
- structural issues
- differences between groups
- human factors
- cognitive differences
- participation of employees in decision making
- other sources

### 1.3.13 Communication issues

Communication within a group is one of the most vital factors for the smooth operation of a business. When communication is bad, this is often the main source of clashes, increasing workplace accidents mainly due to developing psychosocial factors and to raising levels of insecurity. When these relate to issues of health and safety, difficulties in communication can result from notional differences, namely issues resulting when words are misinterpreted, especially when these are complex. The insufficient exchange of information regarding health and safety issues causes problems in communication. These are due to the fact that when an employee does not possess explicit information in order to fully understand and work under safety conditions, then we end up with clashes. Another communication problem results when there is lack of interest regarding workplace health and safety on behalf of the safety officers, employers and employees. Managers pass on a message, not caring whether employees will comprehend it or not, while employees may ignore the message.

## CHAPTER 2

### LITERATURE REVIEW

The aim of this chapter is to describe the situation regarding workplace health and safety in Cyprus with particular focus on the psychosocial factors, taking into consideration the increasing business competition. The chapter also aims at sketching the current national and European health and safety policies within the wider context of the existing financial crisis and to study perspectives and trends for the future, especially now that the crisis has affected businesses as well as human behaviour. The literature review of the psychosocial factors is divided in three parts, a) Stress related with workplace, b) Bullying related with workplace and c) Fatigue related with workplace.

#### Psychosocial risks

Important changes have emerged these last few years at the workplace, which have led to a number of health and safety risks. These changes have given rise to physical, biological, chemical, and psychosocial risks and to their resulting effects. According to the European Agency for Safety and Health (2000), the term 'psychosocial' is commonly defined as «the interaction between psychological and social factors». According to a 2012 campaign by Senior Labour Inspectors (SLIC), the work-related psychosocial risks were recognised as one of the greatest challenges for health and safety since they correlate with problems at the workplace, such as stress, fatigue and bullying.

Examples of workplace conditions that may lead to psychosocial risks according Canadian Centre for Occupational Health & Safety are:

- *Increased workload*
- *Non-effective communication*
- *Clashing claims and lack of clarity regarding the employee's role*
- *Non-participation in decision making*
- *Insecurity*
- *Lack of support from management or from colleagues*
- *Psychological and sexual harassment and violence*

#### Links between psychosocial risks and health

According to a joint report from the European Foundation for the Improvement of Living and Working Conditions and the European Agency for Safety and Health at Work, three influential theoretical concepts establish a relationship between psychosocial risks and health:

- *Karasek's job demand and control theory: Karasek and Theorell (1990) hypothesised that "jobs with high levels of demand (for example, a heavy workload) coupled with low levels of control or decision-making latitude were associated with increased exposure to stress and negative health effects".*
- *The effort–reward imbalance model by Siegrist (1996): "The premise of this model is that psychological stress results from a mismatch between efforts made by workers and the rewards they receive from their employer in terms of pay, esteem, job security and career opportunities".*
- *The organisational justice concept: This is a more recently developed theory of the psychosocial work environment. It focuses on issues of fairness, justice and equity in the*

*workplace, which may have significant influences on the path between work-related stress and ill-health (Elovainio et al, 2002).*

Effectively dealing with the psychosocial risks builds a healthy work environment where employees feel appreciated. In such an environment, work can be beneficial for the employees' mental health since it offers them many advantages like recognition, opportunities for development and strengthening of their self-belief. On the contrary, a problematic psychosocial environment may have negative repercussions on their health. What follows is a focus on these psychosocial factors (stress, fatigue, bullying).



## PART A - Workplace Stress

### Stress

According to Selye (1993), stress is a combination of a person's mental and physical reactions when the person is under pressure. It is a mental state arising when the demands exceed a person's abilities or are taken to be so (Lazarus, 1990). It is also defined as a clash between an employee's internal and external environment, usually caused when the available resources are not sufficient to satisfy personal goals (Ministry of Health and Social Solidarity, 2005).

According to the European Organization for Health and Safety (EU-OSHA), people feel stress when they realize the existence of an imbalance between the demands they need to meet and the available resources to do so. Stress at the workplace is a result of inadequate adjustment, bad interpersonal relations, bad communication, clashes between roles and of the existence of psychological or physical violence.

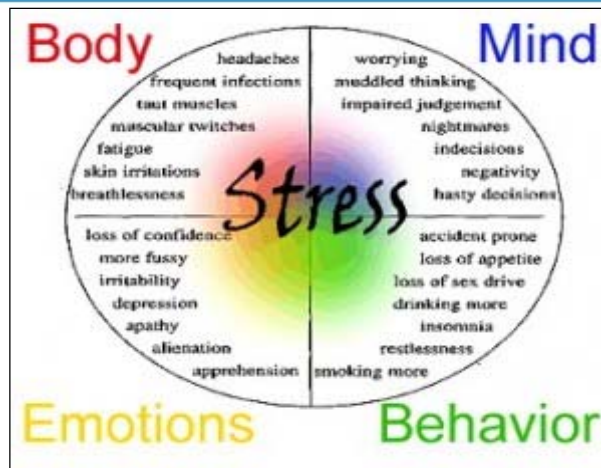
#### 2.1.1 Causes - Consequences

According to a poll by EU-OSHA (2014), more than half of the employees consider stress as a common occurrence at the workplace. The most common causes of stress are insecurity, reorganization, overtime, excessive workload, bullying and harassment. Around 4 in 10 employees consider that they are not properly dealing with stress at the workplace. Overall, more than 40 million people suffer from workplace stress. The same study has shown that *“Cyprus has the highest percentage in Europe of employees considering stress as a ‘very common’ phenomenon – 51% (EUC-OSHA 2014). This is three times the average in Europe (16%)”*. These results show that by approaching the matter in the correct way, prevention and successful management of the psychosocial risks and workplace stress may be achieved.

Workplace stress is responsible for the loss of millions of workdays every year. A study taking place in member states of the EU revealed that 90% of participants considered stress to be the main cause of diseases in their countries and attributed it to a fatigue, pressure and bad organization standards at work (World Health Organisation, 2005). Workplace stress may lead to rapid deterioration of a person's psychosocial health and to collapse.

Workplace stress symptoms can be split in two levels: at a business level and at a personal level (EU-OSHA). In *business level* stress is a possibility when the following occur: absence from work, indiscipline, bullying, limited productivity, accidents, mistakes and increased costs for healthcare (EU-OSHA). In personal level, stress is a possibility when the following occur: emotional reactions (anger, uneasiness, sleep disorders, depression, hypochondria, alienation, burnout, trouble at home).

According to Douklias (2014), workplace stress causes various problems which may be psychological (e.g. Fatigue, headaches, increased blood pressure), spinal problems, ulcer, heart problems, hypertension), psychosocial (e.g. Sadness, apathy, depression) and behavioural (e.g. Absenteeism, intolerance, mood swings, substance abuse, destructive behavior). Stress could also cause cognitive reactions like difficulty in concentration, trouble with memory, difficulty in learning new things and uncertainty in decision making.



**Figure 2:1** Stress

Factors  
control at the  
demands and a

and from management. Also, the factors aiding in the occurrence, maintenance and increase of stress can differ based on the type of work. Some types of work cause stress if they are physically dangerous (e.g. working at a construction site), if they relate to issues of life and death (e.g. medicine), depending on the employee's role (e.g. when one's role does not align with one's specialties or does not align with one's needs), and depending on the workplace environment (colours, light, temperature) (Stress Management, 2011)

Effects

causing stress are a lack of workplace, inappropriate lack of support from colleagues

According to Dalakoura (2011), some ways employees can use to deal with stress are the following:

- avoidance of involvement in clashes
- good working relations with colleagues
- ability to deal with various situations
- small breaks
- limiting the consumption of caffeine
- organizing and prioritizing their tasks
- emphasis on the positive side of things

It could be suggested that the following are adhered to by Health and Safety departments in Cyprus businesses, in collaboration with the management, in order to improve workplace environment and hence minimize stress (and consequently risks and accidents):

- have normal workload
- organizational support and recognition
- change the work environment, e.g. more/less light, temperature, quality of air
- communication/staff participation (the more communication you have with your staff, the less stress you have)
- shift schedules/flexible work arrangements
- advice from external scientific collaborators

### Practical ways of dealing with workplace stress

Employees should be given the opportunity to participate in decision making, especially when particular decisions affect them directly.

The workplace should be set in such a way so that it motivates and affords employees with opportunities to maximize their abilities.

Employers should delegate explicitly and allow employees (both higher and lower ranked) the opportunity to socially interact between them, both at the workplace and also outside the workplace, so that proper communication is built.

## 2.1.2 Studies

According to older studies, men experience workplace stress more intensely than women. Also, men have difficulties in employing appropriate strategies for dealing with stressful situations (Hadjichristou, 2000, Leontari et al., 2000).

A more recent study by the European Association for Safety and Health at the Workplace shows that more than 25% of European employees experience workplace stress (EASHW, 2007). More specifically, 20% of the European sample feels fatigue and 13% suffers from headaches. Also, 80% of the Belgian sample presented psychological problems during the last five years, while 40% of British computer operators feel that their psychosocial stress has increased. Other European studies on work conditions show that between 9-12% in the men sample and 9-11% in the women sample in EU member states are subjected to pressure at the workplace for most of the day (the highest percentages were found in Germany, Greece and the Netherlands)( EASHW, 2007).

The extent of the phenomenon is mainly attributed to the existing work conditions. More than a third of the employees have no extra duties besides their assigned roles. More than a third cannot have a break when needed, while 40% are not allowed to decide by themselves when to take a leave. About half the employees in EU states are employed in what they consider to be 'dull jobs'. This is something found mostly in France, Greece and Spain.

Stressful factors especially affect working women. Women and younger employees face the most limitations (Platis, 2010). Women earn less and have a lower status than men. A lot of tasks fulfilled by women involve contact with customers, which means tension and stress. Women control the rate at which they work less than men while overtime is also more stressful for women. Platis (2010) maintains that it is essential for organisations to analyse the current work conditions and to take measures to minimize or eliminate stress. Employees need to be afforded the chance to make their own choices in areas related with their leave or vacation. It is also important that employees are often granted the opportunity to deal with different aspects of their jobs and bear different duties in order for dullness to be minimised and knowledge to be enriched. It could be suggested that positive results will ensue if employers manage to have a good communication with employees, by following certain practices to eliminate work stress.

According to a report by the Eurobatometer regarding mental health (2010), "work stress is directly linked to the socioeconomic framework". This particular report sheds light on the effect of the financial crisis on Cyprus: Cypriot participants particularly worry about securing a job while employees express a worry of losing their job. The same findings are shown by other reports as well.

According to statistics by EASHW (2012), workplace stress is one of the most commonly cited causes of disease, affecting over 40 million people in the EU.

A European study on companies (ESENER, 2009), shows that workplace stress is one of the basic concerns of managers and employers; 79% of European employees express a concern about workplace stress and state that it is a factor equally crucial to that of accidents. Data on stress from various member states show that in the areas of education and health, work stress is more common in Slovenia (60%), Greece (54%) and Latvia (52%). Even in countries where stress levels were below the EU average, like in the UK, the Czech Republic and the Netherlands, over 20% of employees reported work stress. 65% of employees in the areas of transport and communications in Greece, around 50% in Slovakia and Sweden and over 40% in Poland and Portugal regarded stress as having a negative effect on their health and safety. According to Eurostat, for the year

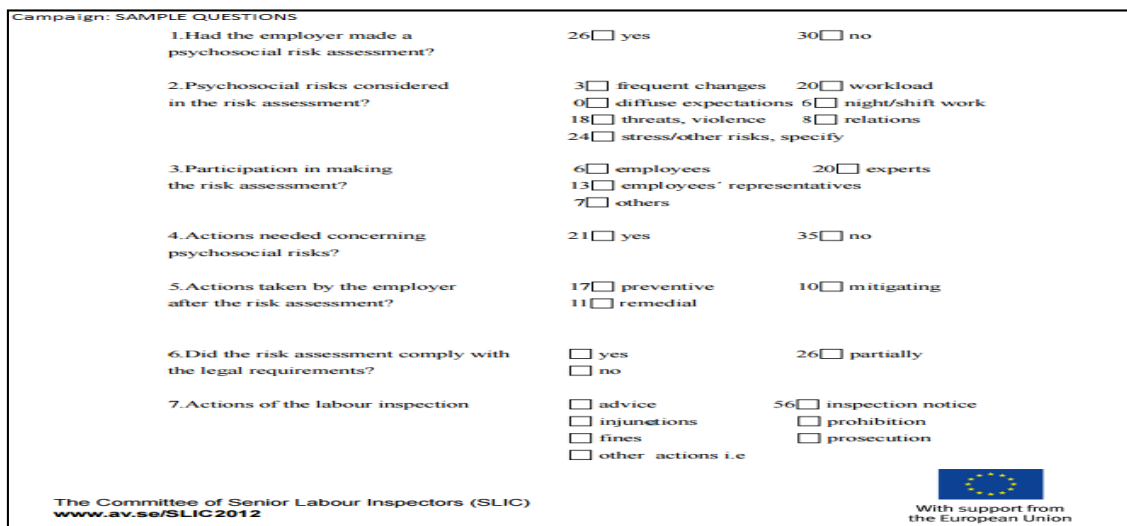
“stress, depression and nervousness” were the most common reasons for sick leaves longer than 14 days.

“Managing stress in safe and healthy workplaces” is a campaign by EU-OSHA that got underway in 2014 and is to be completed by the end of 2015. The prime goal of this campaign is to aid employers and employees in recognizing and managing the psychosocial risks at the workplace. According to statistics collected by the European Organization on Safety and Health (2015), the extent of the problem is worrying. Studies show that 50-60% of the total number of lost workdays can be attributed to work stress and to the psychosocial risks relating to the workplace (EU-OSHA, 2000).

Work stress is the second most common health problem at the workplace in European countries. In a 9-month period, 28% of European employees reported being exposed to psychosocial risks which had affected their mental health (European Commission, 2010). The same study revealed that psychosocial risks and work stress prove costly for businesses and for the economy in general. Stress and psychological problems cause employees to be absent from the workplace for long periods. It is common that a number of those employees return to the workplace while not being in a position to work effectively. The total annual cost of the aforementioned (whether these relate to the workplace or not) is estimated to stand at 240 billion euro in Europe alone (European Network for Workplace Health Promotion - ENWHP, 2009). Less than half of that amount covers healthcare, while another 136 billion euro is the estimated cost in productivity losses (this includes sick leaves).

Based on a related European campaign by EU-OSHA in 2012, work stress is more common in Cyprus than in any other EU member state. Results showed that half the employees who participated in the study believe that stress is well controlled at the workplace. Labour inspectors visited 56 workplaces and met with employers in the presence of a health and safety officer. Questionnaires were filled in during those visits. Following that, the inspectors inspected the workplace and distributed questionnaires to employees. These were subsequently returned directly to the inspectors. All questionnaires were evaluated and employers received personalized reports on the conditions met at their respective organizations.

Figure



2.2:

Sample questionnaire by the Department of Labour Inspection (DLI)

The campaign aimed at inspecting about 60 workplaces and disseminating information to as many employers as possible informing them about their obligation to assess psychological risks. Other goals included the raising of awareness of employees and the training of inspectors (SLIC, 2012). Following the completion of the campaign and the evaluation of results, a report was

prepared for Cyprus which was shared with the SLIC committee (The Senior Labour Inspectors' Committee). Results were as follows:

To the question whether the employer assessed risks psychosocially:

- 54% of employees responded negatively
- 46% responded positively

To the question as to which psychosocial risks were taken into consideration for risk assessment purposes:

- 43% named stress
- 36% named workload
- 32% named threats and violence
- 30% named relations, diffusing expectations, frequent changes and night/shiftwork

To a question on whether *Actions are taken concerning psychosocial risks*:

- 37,5% responded positively
- 62% responded negatively

Conclusively and taken the above into consideration, it could be said that employers in Cyprus do not really consider the psychosocial risks while, when doing risk assessment, employers only take into consideration a minimum number of factors, enough to keep them running a legitimate business. In practice, employers in Cyprus need not only consider these risks but also take the necessary precautions and measures for controlling, minimizing and eliminating all psychosocial risks.

### 2.1.3 Workplace Stress in Cyprus

In 2013, EU-OSHA (2013) conducted a study on workplace health and safety. The sample included full-time, part-time and self-employed personnel. The study was conducted in 31 European countries taking a total of 16.622 interviews between November 2012 and February 2013. The study concluded that workplace insecurity is the most common cause of workplace stress in Europe.

Regarding Cyprus, 51% of employees consider work stress as very common. 61% regard working hours or workload as the most common causes of work stress while 88% of the sample believes that work stress is a very common occurrence at their workplace. The perception that work stress is a common phenomenon is higher between employees aged 35-54 (91%), in full-time employees (92%) and in employees in managerial or secretarial posts (94%). Finally, the possibility that stress occurs in employees holding managerial or administrative posts is twice that of the European average (20%).

#### Work stress – insecurity and financial crisis

One of the main factors for work stress nowadays, is the insecurity and the perceived threat which employees experience because of high unemployment rates. These factors could easily lead people to panic, giving rise to work stress.

#### Insecurity

According to a study by “GNORA Communication Consultants” which was held in Cyprus in May 2013 on the effects of the financial crisis, more than 56% of employees reported high levels of insecurity for their jobs. This affected women, young people and people nearer the retirement age. Moreover, the study showed that insecurity mostly affects employees in the private sector (64%), the semi-governmental organizations (58%), the public sector (35%).



Figure 2.3:

GNORA

Communication Consultants, study results

## PART B - Bullying at workplace

### Bullying

Bullying at the workplace is a real problem for employees in Europe and in Cyprus, and entails high costs for employees and businesses alike. Bullying at the workplace negatively affects the victims, raises the levels of stress and fatigue they suffer and leads them to mistakes at work which lead to health and safety risks. Preventing bullying at the workplace in Cyprus needs to be dealt with and eliminated by businesses themselves.

Workplace bullying is defined by the Canada Safety Council, as follows:

*“Workplace bullying is a repeated pattern of behavior intended to intimidate, offend, degrade or humiliate a particular person or group—the bully’s target. Although it can include physical abuse or the threat of abuse, bullying usually causes psychological rather than physical harm. Because workplace bullying is often psychological, it can be hard to recognize. The most harmful forms of bullying are usually subtle rather than direct and verbal rather than physical.”*

According to the Canadian Center for Occupational Health and Safety:

*“Bullying is usually seen as acts or verbal comments that could ‘mentally’ hurt or isolate a person in the workplace. Sometimes, bullying can involve negative physical contact as well. Bullying usually involves repeated incidents or a pattern of behavior that is intended to intimidate, offend, degrade or humiliate a particular person or group of people. It has also been described as the assertion of power through aggression.”*

Finally, according to the Work Bullying Institute (2009):

*“Bullying is usually seen as acts or verbal comments that could “mentally” hurt or isolate a person in the workplace. Sometimes, bullying can also involve negative physical contact e.g., pushing, throwing objects”.*

### 2.2.1 Forms of bullying at workplace

#### Supervisors to subordinates

This is one of the most common forms of workplace bullying. Because of their authority, supervisors can bully employees. There are various causes leading to workplace bullying. The supervisor may feel insecure and fear of losing control or of losing their position to a more able subordinate (Hirigoyen, 2009).

#### Between colleagues

Ethical bullying between colleagues may be caused by hatred or jealousy, or even competition (Hirigoyen, 2009). According to the Workplace Bullying Institute, ethical bullying is mainly observed in places where there is competition and spreads easily to other employees, resulting in extensive occurrences of the phenomenon.

#### From subordinate(s) to a supervisor

This is rarer than the previously mentioned forms. It is evident when the supervisor is not being respected by subordinates (Ferrari, 2004). Lack of recognition in such instances may occur due to the fact that the person is younger but more qualified (Hirigoyen, 2009).

#### Between managerial staff

This is more common and aims at affecting the performance of a person by setting impossible deadlines or limited responsibilities.

### From the management to the employees

The management of an organization systematically sets about a 'psychosocial war' against the employees, targeting their resignation. In order to justify some of its choices or mistakes, the management provides various excuses like the financial crisis, external pressures, pressing loan payments. This is the case when there are changes to the legal framework of a business (e.g. privatization, merging) as well as in cases of restructuring and modernisation (e.g. as it happens in Greece in the last few years with the privatization of formerly semi-governmental organizations – similar trends are currently observed in Cyprus). In such cases, the management targets towards the resignation of highly paid employees or of staff deemed surplus.

### **2.2.2 Ways of Workplace Bullying**

Workplace bullying usually takes place through personal attacks and threats regarding one's professional advancement. Douklias (2014) mentions a number of bullying tactics:

- Laughing at someone, especially in the presence of colleagues or supervisors
- Spreading of false information
- Demeaning comments in front of others
- Alienation and exclusion from internal events
- Uneven treatment
- Directions only via memos and notes
- Violence threats
- Sexual bullying
- Humiliation
- Others (threats regarding one's career, excessive control, coercion, lack of communication, lack of recognition, disciplinary threats etc.)

### **2.2.3 Consequences on the employee**

According to Avgoustatos (2008), workplace bullying has the following consequences on employees:

*Depression and nervous disorders...emotional disorders, panic attacks, apathy, migraines, headaches, balance disorders, pulses, hypertension, arthritic pain, asthma attacks, hair loss, dietary disorders, social alienation, loss of sense of humour, insomnia, nightmares, insecurity, oversensitivity, inability to focus, consumption of alcohol and drugs (especially sedatives), excessive smoking.*

### **2.2.4 Consequences on the organisation**

Bullying also affects one's organization and work environment. It negatively affects production and performance. According to Ferrari (2010), *receivers of unwanted behaviours produce 60% less and cost their employers 180% more.* Resulting financial costs include increased healthcare costs, more sick leaves, higher rates of quitting one's job (Douklias, 2014), raised hiring and training costs to replace the personnel that left and costs to cover any resulting legal expenses because of potential lawsuits. According to a study conducted in England, it was estimated that the annual costs for bullying is 1.5 billion euro (GigaSI. Etal. 2008). The consequences on organizations are not limited to the aforementioned costs; sales also suffer as a direct result of the bad publicity accusations of bullying brings along. The morale of the employees is low, work is not being



promoted under ideal and safe conditions and further psychosocial factors like stress and fatigue occur, between others. All the above negatively affect workplace safety. This is a vicious circle, leading to the worsening of all health and safety conditions within the organization. Another issue is that colleagues do not always stand by another employee who has been subjected to bullying, because they fear that they might be targeted and because they wish to protect their position within the organization.

### 2.2.5 The extent of bullying internationally

There are laws and directives in every country regarding the prevention of bullying at the workplace. The Workplace Bullying Institute conducts a lot of research on workplace bullying. Within the context of this thesis, the last three studies held in the USA in 2007, 2010 and 2014 will be referred to. The 2014 study had a sample of 1000 employees. 27% of the sample reported being subjected to bullying and 72% of employers reported to have refused, ignored, encouraged, rationalized or even excused ethical bullying. In most cases, bullying is executed by supervisors, which is a cause for concern. The American society is aware of the problem of workplace bullying (72%). Finally, 93% of respondents supported the enactment of more laws for a healthier workplace.

The 2010 study applied over a sample of 4210 employees and revealed that 35% of the employees participating in the study had experienced bullying. 58% of women sample and 62% of the men sample were targeted. Woman-to-woman bullying reached 80%. Finally, 68% of bullying targets same-sex employees.

The 2007 had a sample of 7,740 employees. According to Namie (2007), the study showed that 37% of the sample had been subjected to bullying. 24% of the respondents reported experiencing bullying in the past while 13% was currently experiencing it.

More detailed results are as follows:

- *37% of workers have been bullied: 13% currently and 24% previously*
- *Most bullies are bosses (72%)*
- *More perpetrators are men (60%) than are women(40%)*
- *Most Targets (57%) are women*
- *Women bullies target women (71%); men target men (54%)*
- *Bullying is 4 times more prevalent than illegal discriminatory harassment*
- *62% of employers ignore the problem*
- *45% of Targets suffer stress-related health problems*
- *40% of bullied individuals never tell their employers*
- *Only 3% of bullied people file lawsuits*

### 2.2.6 Extent of the problem in the EU

The European Union is making efforts since 1995 to deal with workplace bullying. In 1995, studies took place regarding work conditions and workplace bullying and its consequences. The study showed that 8% of employees in Europe experienced bullying within a year.

According to a study by the European Institute on Improving Living and Working Conditions on work conditions (2000), 9% of employees in EU countries have been subjected to bullying during 2000. This percentage was 1% higher compared to a previous study taking place in 1995.

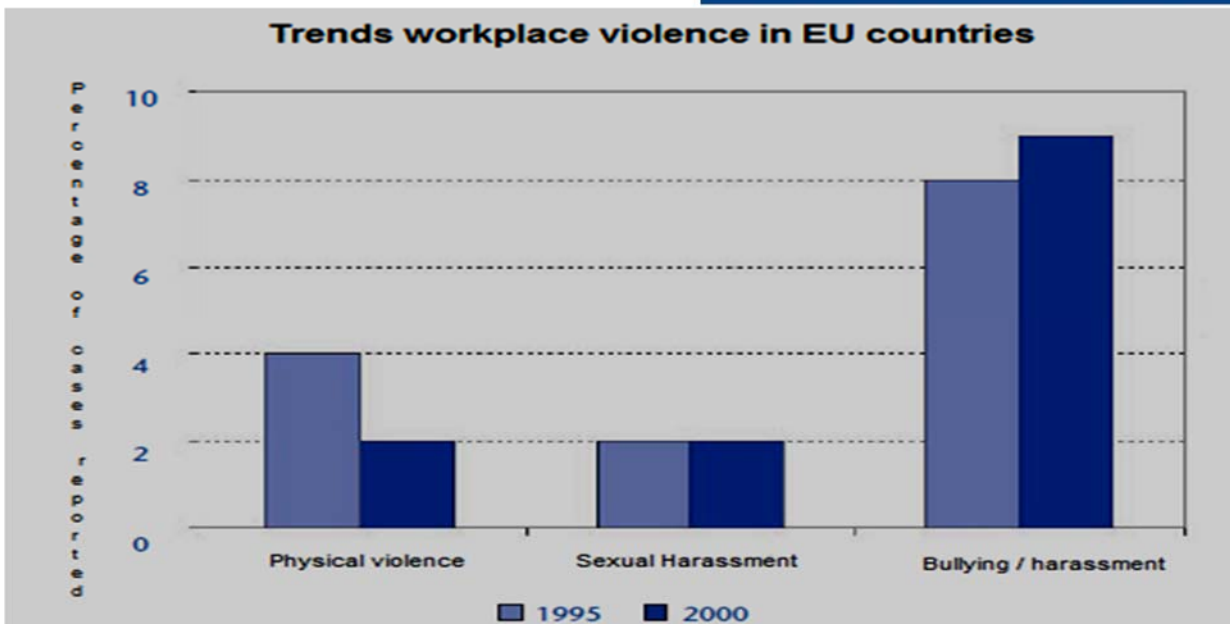


Figure 2.4: Trends workplace violence in EU countries

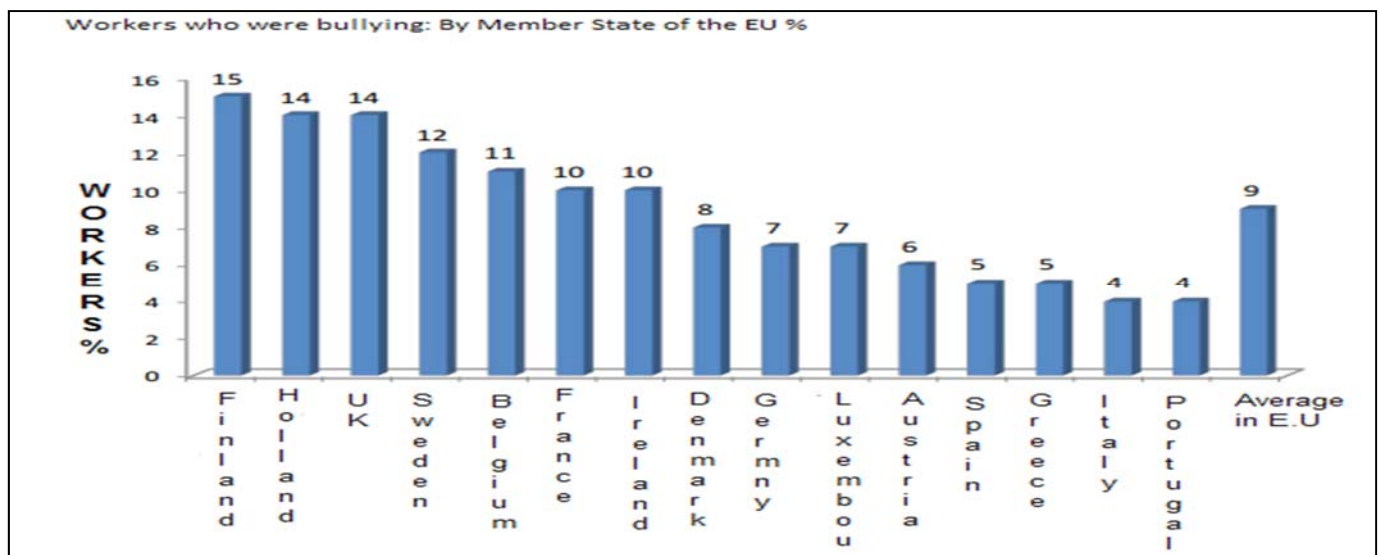


Figure 2.5: EU workers who were Bullying, Third European survey of working conditions 2000, Eurofound

The figure above shows the results of the study in EU countries. The differences between countries range from 15% in Finland to 4% in Portugal. These differences are due to the *varying degree of realization between countries, of the existence and way of expression of bullying, as well of the knowledge and social sensitivity towards its consequences*. Another cause is *the cultural differences ... leading to different perceptions regarding which behaviours are considered aggressive and which are not* (Third European survey on working conditions, 2000).

Based on the above results, it can be concluded that in some countries there is limited education on workplace bullying, even a lack of care on the phenomenon, as well as tolerance; as a result, studies do not exhibit the phenomenon in its true dimensions.

### How do EU countries deal with workplace bullying

#### Examples:

In some EU states, legal framework is in force or one is underway. Sweden, Finland and Norway recognize the employee's right for physical and psychological health. Sweden has been a

pioneer and legally regulated related issues in 1993, implementing directives regarding workplace risks and victimization at the workplace (Hoel, et al., 2009). The goal was to strengthen employee rights concerning workplace bullying (Richards et al., 2012). The abovementioned directives were implemented following a study by Leymann. In this study, it was found that 3.5% of the population in Sweden experienced workplace bullying. This resulted in directives, which forced employers to organize the workplace in a way that prevented bullying and also to adopt policies to ensure a healthy workplace culture.

In the UK, the Protection from harassment Act, no 40 in 1997, criminalized bullying. Even though this Act does not refer specifically to workplace bullying, it is applied extensively too many areas, including the workplace area (Richards et al, 2012).

In France, an amendment was added in 2001 which covered the notion of ethical bullying. Other countries in the EU like Portugal and Belgium have criminalized workplace bullying in the last few years (Richards et al, 2012).

In the Netherlands, a related law is in effect since 1994, which includes bullying, racism, and aggressiveness, forcing employers to protect their employees from such phenomena (Pinkos, 2012).

There is no specific related law in Greece. In 2005, the law on employment and in accordance with European Directives (2000/43, 200/78 και 2002/73) forces employers to apply the principle of equal treatment irrespective of race or ethnicity age, etc. (Spiridakis, 2009). No specific line regarding bullying is adhered to in Greece and it is imperative that a more effective and particular directive is applied.

### **2.2.7 Prevention – ways to deal with bullying**

It is essential that stricter measures are taken across Europe and that certain laws are amended so that workplace bullying is better controlled. Penalties need to be more severe not only against those who exercise bullying but also against businesses which do not sufficiently control such phenomena. , It is necessary, in order to deal with workplace bullying, that every business adds and implements instructions and practices in respect of on what executive staff should be doing in order to prevent and deal with such phenomena, aiming at minimizing and eradicating them.

According to “Dealing with workplace bullying- a worker’s guide”, examples of reasonable management action that can be included in the policies of a company to avoid any types of bullying at their workplace are:

- Setting reasonable performance goals, standards and deadlines,
- Rostering and allocating working hours where the requirements are reasonable,
- Transferring a worker for operational reasons,
- Deciding not to select a worker for promotion where a reasonable process is followed, Informing a worker of their unsatisfactory work performance,
- Informing a worker of their unreasonable or inappropriate behavior in an objective and confidential way,
- Implementing organizational changes or restructuring,
- Taking disciplinary action including suspension or termination of employment.

### **2.2.8 Extent of the issue of bullying in Cyprus**

The levels of workplace bullying in Cyprus cause concern, not because of the numbers involved but because of the incapacity for research that would look into the phenomenon. It could be argued efforts are made to deal with bullying and that the procedures to eliminate it are adhered to. Based on existing studies, it can be seen that an effort is made to deal with the issue of bullying from an early age, by educating students. To that end, in these last few years, special programs have been implemented in schools. Such programs are structured and operate in three levels

(school unit, classroom, individual). Educators have been receiving training in respect of locating and recognizing instances of bullying and violence, how to deal with such instances and applying preventive measures at a school level. These programs were implemented following a national study by the Ministry of Education and Culture.

Such programs could be considered as a start to deal with the issue of workplace bullying. At the current stage though, a lot of money and many studies are needed so that the main causes of the phenomenon and ways to deal with it are found. A temporary solution would be an amendment to the existing law or the enactment of a new legislative framework regulating the workplace bullying and also the implementation of stricter measures and controls both by businesses as well as by state officials.

### 2.2.9 The Law in Cyprus

There is limited research on workplace bullying in Cyprus. There is a law which could be considered as relating to workplace bullying, the *Equal treatment in labour* law of 2004. This law has been implemented in May 2004 and specifically refers to prohibiting discriminations based on religion, beliefs, age, sexual orientation, race or ethnicity (Ministry of Labour, Welfare and Social Insurance). The purpose of this law is to set a framework to deal with the aforementioned discriminations so that equal treatment is applied. The law defines

*‘bullying’ as “unwanted behaviour expressed in words or in actions, aiming at or resulting in offending one’s dignity and in building an intimidating, hostile, humiliating, or aggressive environment”.*

The law is applied to all organizations and businesses in the private and public sectors in Cyprus.

*According to the LIC (2007), “European social partners, seeing that workplace bullying and violence are unacceptable, completed a framework Agreement on Bullying and Violence at the Workplace. This agreement includes a description of bullying and of violence and ways to prevent, trace, and manage such issues”. Aiming at ensuring that every workplace works by a policy which deals with the issue of violence by third parties, the European Social Partners agreed upon a set of directives for dealing with violence and bullying at the workplace. These directives state the practical steps that employers, employees and syndicates can take, to minimize and prevent such issues.*

## PART C - Fatigue at the workplace

Another important psychosocial factor affecting employee health and safety and which needs further research is that of fatigue.

### Fatigue

#### Definitions

According to the Canadian Centre for Occupational Health and Safety,

*Fatigue is the state of feeling very tired, weary or sleepy resulting from insufficient sleep, prolonged mental or physical work, or extended periods of stress or anxiety. Boring or repetitive tasks can intensify feelings of fatigue. Fatigue can be described as either acute or chronic.*

The Australian Safety and Compensation Council (ASCC) defines fatigue as  
*a multidimensional state that entails a reduction in functional capacities due to the cumulative effects of physical and/or psychological effort expenditure in the absence of sufficient recovery time or rest.*

#### 2.3.1 Causes

Fatigue reduces attention and productivity at the workplace, leading to unpleasant situations because of the increased risk for accidents, injuries and health issues. According to the WHO, employee fatigue is the main cause for 18% of all accidents and injuries at the workplace. It is hence necessary that every organization takes into account this factor in its practices and suggests ways to deal with it. The Journal of Occupational and Organizational Psychology cites a number of reasons leading to fatigue, namely extended work hours, long hours or physical or mental activity, insufficient break time between shifts, inadequate rest and excessive stress. The health and safety department of each organization needs to prepare a list with fatigue symptoms which should be distributed to employees. Furthermore, it needs to educate them in relation to the issue of fatigue.

According to a guide of managing the risk of fatigue at work(2013), there are employees who are at a higher risk of fatigue because their work typically involves the factors that contribute to fatigue, for example:

- shift workers
- night workers
- fly-in, fly-out workers (FIFO)
- seasonal workers
- on-call and call-back workers
- emergency service workers
- medical professionals

#### 2.3.2 Consequences

Some fatigue symptoms according to Bountouri are memory or concentration disorders, muscle pain, arthritic pain, headache, problems with balance and fading, fatigue following sleeping, exhaustion lasting for more than 24 hours following physical or mental activity, visual disorders, psychological symptoms (mood swings, panic attacks, stress), etc.

### 2.3.3 Workplace fatigue stages

According to Shore (1999), workplace fatigue is a 3-stage degenerating process. The syndrome presents itself gradually, as long as the conditions that caused it continue to affect the employee. The employee suffering from workplace fatigue attempts to eliminate it or to convince themselves that all is well, until this surfaces violently, causing a loss of control.

**First Stage:** at this stage, employees are restless, which affects their effectiveness in doing their job. This stage sees a disruption of daily activities, both at the workplace and at home. The person makes an effort to resist the fact that they are near exhaustion and tries to show they are being healthy, and that they enjoy working, because they are afraid to realize their exhaustion and because they do not wish others to know about it. Stress emerges concurrently, which leads to exhaustion even faster.

**Second Stage:** this stage is characterized by alienation because the person's environment cannot recognize the existence of workplace fatigue, hence they are unable to support the person. The latter attempts to remain calm, distancing themselves from their colleagues and from anything that relates to their workplace. This behaviour is perceived by colleagues to be negative, resulting in further alienation.

**Third Stage:** the person experiences exhaustion intensely. The fatigue leads the person toward deviating behaviour or toward apathy. The workplace ignores or remains indifferent towards the reasons that have led the person to this stage and this results in possible disciplinary action against the person or a letting off. Most time, such measures raise the employee's stress levels.

### 2.3.4 Prevention – Dealing with workplace fatigue

Here are some measures proposed within the context of this research in order to deal with workplace fatigue:

- Regulation, control and limiting of work hours in high risk positions
- Assessment of the company's workforce, aiming at more suitable timetables which would be less tiring and which would increase productivity and safety
- Daily inspections at workplaces and evaluations of employee health and safety, aiming at creating and implementing programs which would minimize the risk of accidents because of human factors
- Measuring fatigue levels during work hours and the provision for alternative timetables

According to Work Safe Victoria (2008) (edition 1), successful prevention of fatigue includes consultation between employers and workers and health and safety representatives and committees. The points at which consultation must occur include:

- *when the organisation identifies fatigue is a hazard in the workplace*
- *when the organisation checks how fatigue is currently managed*
- *when changes are proposed to work schedules and working procedures*
- *prior to new work schedules and working procedures being introduced*
- *each step of the risk management approach*
- *when there are indications of fatigue affecting the health and safety of workers*
- *after an incident (or 'near miss') occurs.*

According to a guide for managing the risk of fatigue at work(2013), steps to deal, Preventing and Managing Workplace Fatigue are:

- defining the risks that may lead to fatigue
- evaluating the resulting risks
- applying and maintaining risk control measures, and
- re-evaluating the effectiveness of risk control measures

### 2.3.5 The law in Cyprus - EU

There is no specific legislation to deal with workplace fatigue. There are some European directives that are adhered to in relation to employee health and safety.

Finally, some legislation is mentioned below that applies in Cyprus and the EU, which relates to the psychosocial factors and to the workplace health and safety in general.

A number of nations in the EU implement different legislations regarding employee health and safety. There is however a common framework (89/131/EOK). Article 5 of this directive states that:

*«Employers are obliged to secure the health and safety of employees at the workplace»* (LIC, Cyprus).

According to Article 6 of the framework, *«employers assess risks which cannot be avoided»* and according to Article 9,

*«employers are obliged to possess an assessment of the existing risks, including those involving employees who are under higher risk». Prevention measures and work and production methods need to be implemented in all of the company's activities, at all levels, Article 6.3* (LIC).

Cyprus has aligned with the directive by implementing the Safety and Health at the Workplace Laws of 1996 to 2011 and the Security and Health Issue Management at the Workplace Regulations of 2002.

*It is noted that in the aforementioned laws, health at the workplace is defined as «not only the absence of illness or disability but also includes the physical, mental, and psychological elements like the psychosocial factors affecting health and which directly relate to the safety and health at the workplace». Also, according to Article 13 of the aforementioned health and Safety law, every employer needs to ensure the safety, health and well-being of all employees* (LIC).

In 2004, the European Social Partners agreed upon the Framework Agreement on workplace stress. Article 4 of the agreement states that if a related problem is located, immediate action needs to be taken in order to prevent, minimize or eliminate it. The employer bears the responsibility for such measures.

In the following chapter, the methodology of the current study will be analysed and explained.

## CHAPTER 3

### 3.1 Research Questions

An organized, scientific study presupposes detailed and complete research, based on a representative sample. The current study relates to employee health and safety at the workplace and how this is affected (a) by the global financial crisis which in turn affects businesses and workplace communication and (b) by the psychosocial risks affecting employees in Cyprus.

The topic of this study is not a randomly selected one since nowadays, business and worker income is at particularly low levels and are expected to shrink even more because of the crisis. Workers and businesses realize that the crisis has caused a number of problems and see that there are fewer jobs, that more employees leave their jobs and that people are more careful in their spending. Moreover, business -people realize that these are tough times since the world is in the middle of a global financial crisis where organizations face massive issues resulting in budgetary cuts in all areas, even in areas regarding employee health and safety. Health and safety officers are given extra responsibilities and as a result, they somewhat neglect their primary duties. The crisis keeps global financial progress back and both businesses and workers are pressurized to adjust to a degree that affects their psychological health and safety. Businesses and organizations need to cut their operational expenses, lower product prices, re-examine their company strategies and investments and minimize costs to the maximum degree possible; all these affect employee health and safety. According to Ulrich, Rogovsky and Lamotte (2009), “there are massive consequences resulting from the current attempts to restructure businesses”. Numerous companies have halted recruitment while letting offs have increased; employees are thus under stress which in turn gives rise to psychosocial factors, negatively affecting workplace health and safety as a result. Based on this fact, it is obvious that the global financial crisis has dramatically changed work and market conditions. The crisis is threatening the viability of businesses as well as employee health and safety.

The researcher has hence conducted a literature review which was adjusted so as to cater to the needs of the framework as described above and to the resulting research questions. Following that, a questionnaire was employed; this focused on employee health and safety and on the degree these two issues affect businesses and employee behaviour. The questionnaire was administered to 100 employees and included a number of qualitative and quantitative questions. The questions were grouped in four broad categories: demographics, workplace communication, employee health and safety and psychosocial factors. Upon their return, the completed questionnaires were collated and statistically analysed.

In particular, the aim of the research questions has been twofold. The first objective was to identify and register which problems relate to bad communication that results in problems related to health and safety at the workplace and find ways to address them; the second was to identify and register the most important psychosocial factors that affect employees in their health and safety.

### 3.2 Methodology

The main target of research is to add new knowledge to an existing body of knowledge. Surely, the value of the added knowledge depends upon the researcher’s experience and ability, the study’s innovation and uniqueness and the approach followed, which links to the study’s final outcome. There are two main schools of thought in social science research: the positivist (quantitative) approach and the phenomenological (qualitative) approach.



In social science research, various methodological approaches have been established, which vary according to how studies are conducted and which underline the researcher's stance and scientific allegiances. Every scientific approach adopts a stance on what constitutes knowledge, on its presuppositions and foundations and on its credibility.

Logical positivism maintains that knowledge is objective and that it exists beyond and above the human mind. It regards humans and the phenomena they observe, as separate and independent. It attempts to apply the natural sciences methodology on human behaviour and on social phenomena. It aims to record any observations, employing causal relations to link the individual and social behaviours, ignoring any possible background knowledge. Essentially, this is an examination of phenomena, not of unobservable situations. At the same time, it encourages researchers to draw hypotheses, which can be validated or not inductively using countable results, which arise from empirical data analyses. Such data can result from experiments the researcher conducts in order to examine certain facets of reality. According to logical positivism, a research can be valid when the data measures reality and is credible when these may be reproduced under the same circumstances.

The hermeneutic tradition on the other hand, is more of an attempt to get to the very essence of things. This tradition refuses to separate reality from the observer. It considers that our perceptions about the world are inseparable to our ideas and theories, as these have been shaped through our experience. Thus, theories and perceptions can only be subjective. As a consequence, study objects are interpreted based on the researcher's mental constructs, as these have been shaped by experience. Not a lot of attention is paid on the quantification of data or on the isolation of particular variables, since these are thought to undergo changes because of subjectivity. On the contrary, hermeneutics is after a deeper and fuller understanding of an environment via the researcher's immersion to that environment. Knowledge is deductive via data observation, and a study's validity is judged upon logical arguments, without any absolute certainty.

The current study mainly employs the positivist model, but also uses elements of the hermeneutic tradition. As already mentioned, logical positivism is usually simple, despite the use of statistics, and is not particularly time-consuming, as opposed to the hermeneutic tradition.

This chapter aims to describe the methodology applied in this study. There is discussion on the research design, on the study sample, on the questionnaire and on the statistical analysis.

### 3.2.1 Benefits and drawbacks

Social studies based on the secondary use of data have a lot of benefits compared to studies based on data collection. The former allows the possibility to re-examine the data under a different theoretical approach, which in turn allows for a deeper understanding of findings of the initial studies or disproving those findings or even for further discoveries. Finally, secondary use of data allows researchers to link different documents and create «families» of data to reach useful conclusions.

On the other hand, various concerns are raised regarding the secondary use of data in social studies research. One of those concerns can be traced to the inability to scientifically control the original information. Additionally, the designing and collection of data is a creative process that many times includes innovative techniques. However, the most important reservation has to do with the difficulty or inability to obtain consent from participants whose personal data will be used. The importance of consent as an expression of autonomy and its essentiality in analysing personal data and protecting one's personal life, point to the severity of this particular concern. However, there are doubts concerning whether using secondary data does not violate confidentiality, depending on the extent to which these are used and depending on the corresponding laws which may allow for such a use.

Based on the above, the researcher considers that secondary data is a useful and necessary tool in the present research, in order to identify what truly applies in workplace health and safety and to access the information provided by employees. Hence, the researcher set two conditions which rendered using questionnaires possible: participant anonymity and their consent as to the use of the data.

### 3.3 Research design

The study was conducted with the use of a questionnaire. This was developed following a literature review. The decision to develop the questionnaire was taken in the light of the importance the researcher placed upon study credibility and validity.

The questionnaire was tested in three stages. During the 1<sup>st</sup> stage, the questionnaire was given to the research supervisor for feedback. The revised questionnaire was then given again to the supervisor and to a colleague. The latter was one of the people who provided a lot of material for the study and who gave feedback based on experience. At stage three, the questionnaire was administered to employees of C. A. Papaellinas and of the European University Cyprus.

### 3.4 Sample

The study was conducted in Nicosia, with a sample of 100 employees from two companies: 50 people working at C.A. Papaellinas and 50 people employed at the European University Cyprus. The sample consisted of 30% men and 70% women. Random sampling was employed. The questionnaire was developed by the researcher following literature review and approval by the supervisor. Moreover, pilot questionnaires were administered to five employees, with questions around the comprehensibility of the questionnaire and the level of its difficulty. The questionnaire was administered in March 2015.

### 3.5 Statistical Analysis

The collected data was analysed by using SPSS as well as Excel to create figures. Moreover, two statistical analysis types were employed: (a) descriptive statistics (percentages and means which were used to better understand the data) and (b) comparative statistics, conducted through a series of comparative data. This type of analysis is used by Theofilidis et al. (2004). For example, in order to decide whether there is any difference between the degree of perception and of the general information of each criterion, the statistical criterion was employed by using pairs of questions so that the process would move on to comparative results. Pairs are widely used in cases where «observations stated by the same person, organization or sample, so that these can be analysed and produce new results". (Remenyi, et al., 1998, p. 216).

Findings from statistical analysis are presented in the following chapter. To strengthen the analysis, observations noted by participants regarding the two open questions found in part E of the questionnaire were reported.

### 3.6 The questionnaire

To collect data, a questionnaire was used with the sample. As previously mentioned, this was developed by the researcher for the purposes of this study.

The questionnaire is made up of five parts. Part A includes questions on demographics and on other social issues. Some of the questions from this part are cited below.

## PART A: Demographics

Fill / Answer what applies in your case:

1. Sex:  Male  Γ Female

2. Age: .....

3. Marital status:

a) Married   
Unmarried

b) Do you have children? Yes   
No

4. Educational Qualifications:

Any levels below High School Graduate   
High School Graduate   
Bachelor's Degree   
Master's Degree   
Doctorate

In part B generic questions were included on Workplace Conditions (Communication, Health and Safety). The respondents mainly answered such questions using 5-point Likert scales (1 = minimum, 5 = maximum). Samples of these questions are cited below.

1. Generally how satisfied / are you with your job? Note the answer to the following scale by circling the appropriate number.

Not at All	A little	To some extent	To a great extent	To a very great extent
-	-	-	-	-

2. To what extent do you like to work in your workplace? Note the answer to the following scale by circling the appropriate number.

Not at All	A little	To some extent	To a great extent	To a very great extent
1	2	3	4	5

3. To what extent do you believe that your company gives you comprehensible instructions for carrying out your duties? Note the answer to the following scale by circling the appropriate number.

Not at All	A little	To some extent	To a great extent	To a very great extent
1	2	3	4	5

Part C included three separate types of questions. The first type included 5-point Likert scale questions (1 = minimum, 5 = maximum); the second type needed respondents to rate the degree to which workplace stress and fatigue make them feel pressure (3 = a lot of pressure, 2 = normal pressure, 1 = low pressure, 0 = no pressure); finally, the third type included questions on workplace bullying, where respondents needed to give a 'Yes' or 'No' answer.

### Samples of questions from Part C are cited below.

1. Please state the level of satisfaction as regard the following work elements? Please circle the appropriate number on the scale to the right of each element:

	Not at all	A little	To some extent	To a great extent	To a very great extent
a. Carry out work normally or circumstantially	1	2	3	4	5
b. The time is kept as a rule	1	2	3	4	5
c. You know your duties	1	2	3	4	5
d. Your working hours are restrictive	1	2	3	4	5
e. There are interpersonal conflicts between employees	1	2	3	4	5
f. There are professional issues and problems between employees and managers	1	2	3	4	5
g. There is harassment and bullying	1	2	3	4	5

The second type of questions is as below

1.	A lot of work	
2.	A lot of roles	
3.	Relationships with colleagues	
4.	Salary	
5.	Additional work at home	
6.	Difficult working hours	
7.	Uncertainty as to the competence	
8.	Decision making or planning	
9.	Working relations with the director	
10.	Lack of clear objectives	

**Table 4.1:** Pressure type Questions

Finally, the third type is as below:  
Answer with: Yes or No

Bullying at the workplace	YES (1)	NO (2)
Is there good communication with your superiors at work?		
Is there good communication between with you and your colleagues at work?		
Do you have to work overtime and irregular hours?		
You have the same treatment as other workers?		
In your work, Does anyone puts you on the sidelines, who makes you feel unwanted?		
At your work, is there any colleague or senior manager that causes you fear?		
Are you isolated and excluded from what is happening in your work, e.g. not call you to important meetings?		
Did you get directions without personal contact, only through memos and notes?		
Are you ever receive derogatory comments about your work or your personal life in front of others?		
Do you find that your own responsibilities have increased but your jurisdictions have declined?		
Have you suffered a moral / psychological harassment (bullying); If yes please answer the following question *:		

**Table 4.2:** Bullying at the workplace- Questions

\* By whom you have suffered psychological harassment/bullying?

- Colleagues
- Manages
- Customers
- Others
- N/A

Part D of the questionnaire included questions regarding the level of professional satisfaction in terms of workplace health and safety. Respondents were given 5-point Likert scales (1 = minimum, 5 = maximum). An example of this type of questions follows below.

1. Are you provided with all relevant information, directives and training regarding dangerous substances in your working environment, and the appropriate measures you have to take to eliminate the risk and protect yourself?

Not at All                      A little                      To some extent                      To a great extent                      To a very great extent

–                      –                      –                      –                      –

2. Is there regular consultation with the employees regarding possible health and safety issues?

Not at All                      A little                      To some extent                      To a great extent                      To a very great extent

–                      –                      –                      –                      –

The last part of the questionnaire included questions where respondents could provide a short answer, a comment and/or observations concerning workplace health and safety. An example of such questions is cited below.

*Write an incident involving health and safety at work. Give an example. How you felt about this?*

Some questions were posed twice in different ways, asking for confirmation on certain issues which were more difficult to answer (e.g. workplace bullying).

### 3.7 Data Analysis

The data was analysed using the SPSS statistical package, which is suitable for managing data and its statistical analysis, as well as Microsoft Excel, to prepare the resulting figures.

### 3.8 The role of the researcher

The study is very important and the role of the researcher is equally so. Participants, who were handed the questionnaire, were assured of anonymity and of the fact that the collected data would only be used for the sole purposes of this study.

### 3.9 Ethical issues

The fact that employees would be hesitant to open up and reveal their true thoughts regarding serious issues like workplace communication, health and safety conditions and workplace bullying, was a concern. Hence, everyone was assured that the data would be collated anonymously. Furthermore, everyone was assured that the data would be only used for the purposes of this study, which aims to fulfil the demands of the postgraduate program entitled 'Occupational Safety and Health' that the researcher is attending at the European University Cyprus.

Combining qualitative and quantitative methods was another problematic issue. Many authors consider the two incompatible. However the combination allowed the researcher to triangulate both data and methods. At the same time, the possibility was provided to reveal the reality, but also to interpret data.

## CHAPTER 4

### Results

In the previous chapters the study in depth was discussed and a literature review was conducted. A questionnaire was hence developed. The methodology was designed and following administration of the questionnaire to the sample and data was analysed with the use of SPSS. This chapter presents the findings following that analysis.

Chapter 4 is divided into three parts. In part A, general information on the sample is provided. This information is a result of the demographics collected via the questionnaire. The reason for providing this general information is for both the researcher and the readers to form a picture of the sample. In part B the researcher attempts to answer the research questions while in part C the researcher presents quotes as these were taken by the participants, in order to present their positions in their own ideas and words.

#### 4.1 PART A - General Information

One hundred participants took part in this study, despite their workloads. We therefore thank them for their participation. The figure below shows how many men and how many women participated.

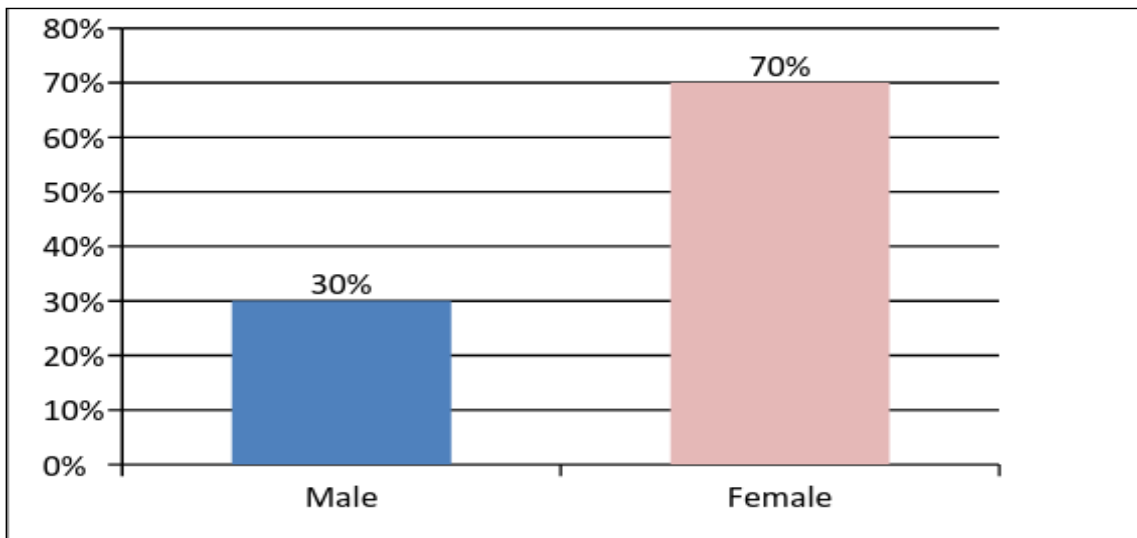
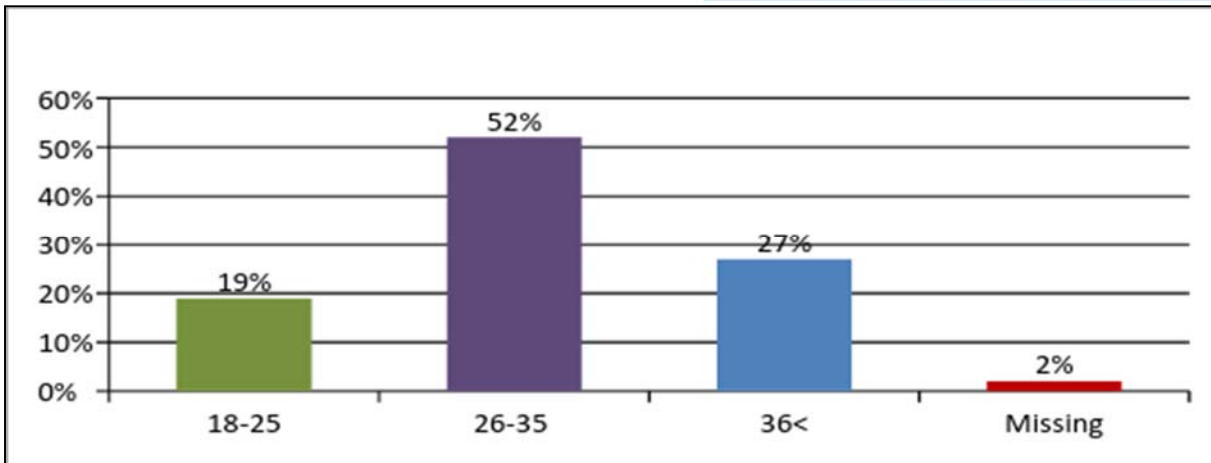


Figure 4.1: Participants by sex

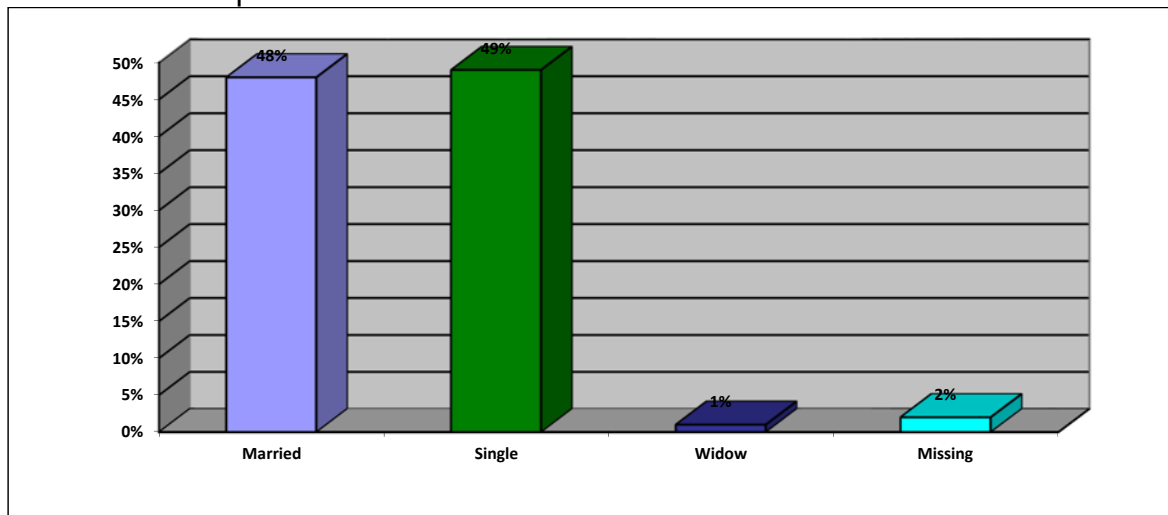
Based on our sample, three age groups are formed (18-25, 26-35, 36<). The figure below shows that 19% of the participants are aged between 18-25, 52% of the participants are aged between 26-35 while 27% are aged 36<. Another 2% did not provide an answer to this question.





**Figure 4.2:** Participants by age

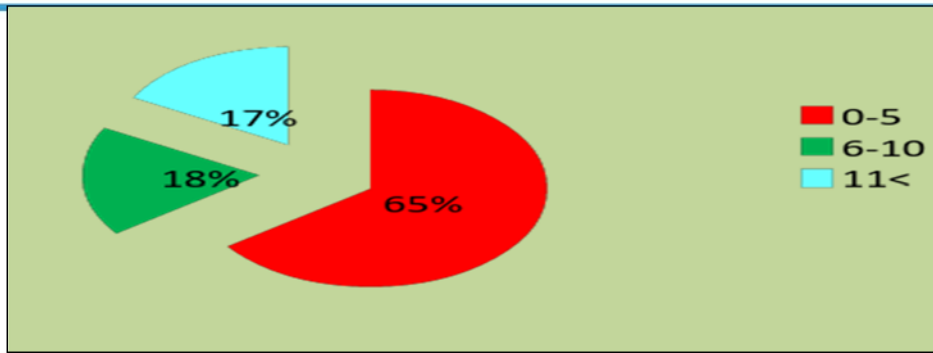
With the questions on a) marital status and b) family obligations-children, the researcher linked marital status with work and workplace safety and health. For example, if a person has children this means more responsibilities; hence, psychosocial risks like stress and fatigue arise both at the workplace and at home.



**Figure 4.3:** Marital Status

It is observed that 1 out of 2 respondents is married and has family obligations. Furthermore, 77% of married participants have children, meaning extra responsibilities.

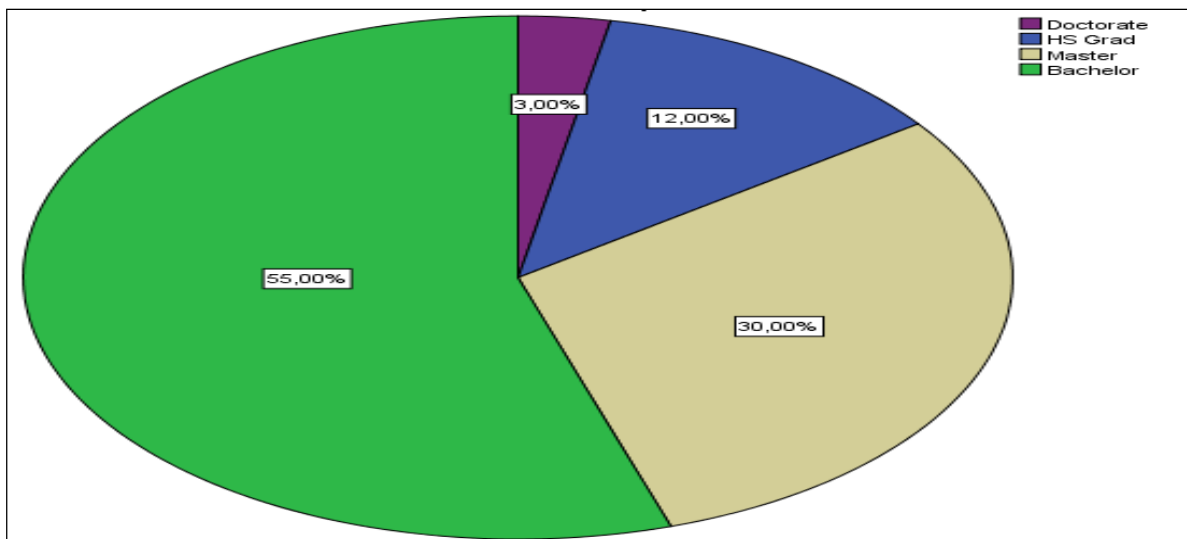
Regarding years of experience, not all participants have prior job experience. Job experience was grouped in three categories; 0-5 years, 6-10 years, and 11+ years.



**Figure 4.4:** Participants by years of job experience

Based on figure 4,4 it is observed that 17% of participants have a working experience of over 11 years, while most participants belong to the first category (0-5). A further 18% have a working experience of between 6-10 years. Taken together, the data here shows that 35% of the sample has a working experience of over 6 years, meaning that more than 1 in 3 employees have satisfactory work experience. The threshold of 6 years is used here because in all advertised job vacancies a minimum of 5 years of experience is needed. Regarding this part of the questionnaire, there were comments from respondents that such vacancies exclude university graduates because of a lack of working experience.

In addition to the above, the education qualifications of respondents were examined. Figure 4,5 shows that 55% of respondents have graduated with a bachelor's degree, 30% have a postgraduate degree, 12% have a high school certificate while only 3% have graduates from doctoral programs.



**Figure 4.5:** Educational Qualification

It can be noted that 9 in 10 respondents are university graduates, with 1 in 3 having completed a postgraduate degree. A further small percentage has not studied at university.

## 4.2 PART B

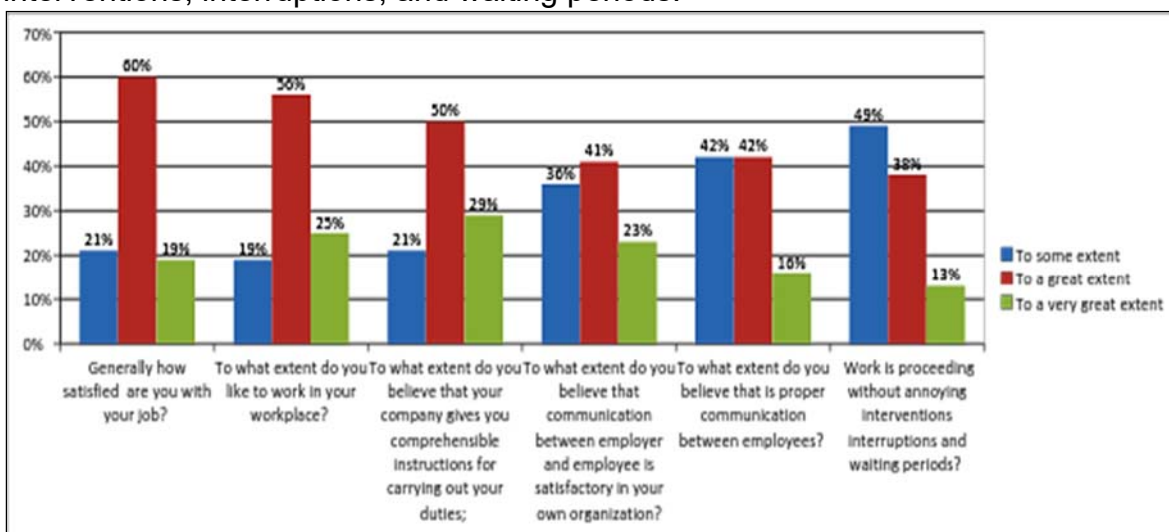
Part A presented general information on respondents so that a more complete picture can be obtained on who has participated in this study.

In the current part, the aim lies in answering the research questions of this study. Some of the questions posed here potentially relate to an overall picture of the respondents' workplace conditions. The researched attempted to see how satisfied employees are, in what degree there is adequate guidance, training, help, support, and communication with respect to their job, and how satisfied they are in relation to their workplace health and safety. In order to be able to use all information collected and to give an in-depth analysis of the data, the researcher disseminated the information collected in 3 levels. First, he focused on the issues of communication, health and safety; then, he focuses on the psychosocial factors and how these affect employee health and safety; finally, he linked communication, health, safety and the psychosocial factors involved, to the level of professional satisfaction.

### 4.2.1 Group A – Communication, Safety and Health

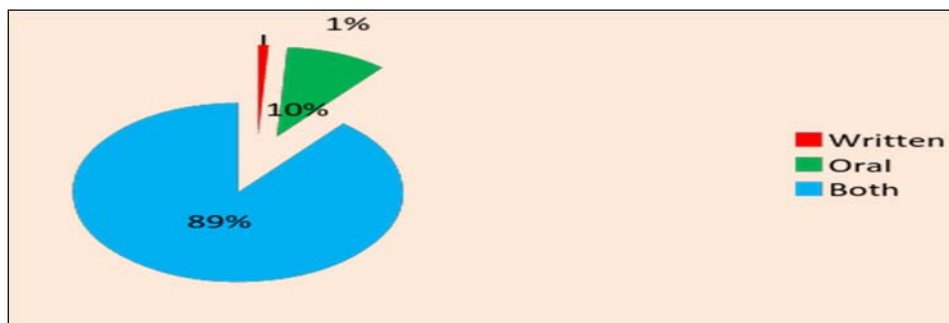
Communication is necessary to ensure employee safety. Organizations are obliged to locate and be aware of the risks facing their employees, to take precautionary measures and to have emergency action plans in place. They should also provide their employees with all this information, in a perfectly understandable way, using non-technical language (EU –OSHA). Good communication between employer and employees may include guidelines and training with regards to workplace risks as well as with regards to the precautions that employees need to be taking to protect themselves and others. Via such communication at the workplace, it should be ensured that all employees understand all precautionary measures taken, to whom they are to direct any questions concerning health and safety issues, as well as possible courses of action in cases of injuries or accidents. It is essential that such communication takes place frequently (EU –OSHA).

The following figure shows some questions regarding the respondents' communication, health and safety issues. More particularly, these questions refer to the respondents' job satisfaction and the extent to which (a) they like working at their current workplace, (b) they believe they receive comprehensible instructions for carrying out their duties, (c) they believe the communication between employer-employee at their company is satisfactory, (d) they believe there is proper communication between employees and whether their work proceeds without annoying interventions, interruptions, and waiting periods.



**Figure 4.6:** Degree of satisfaction regarding employee communication, health and safety

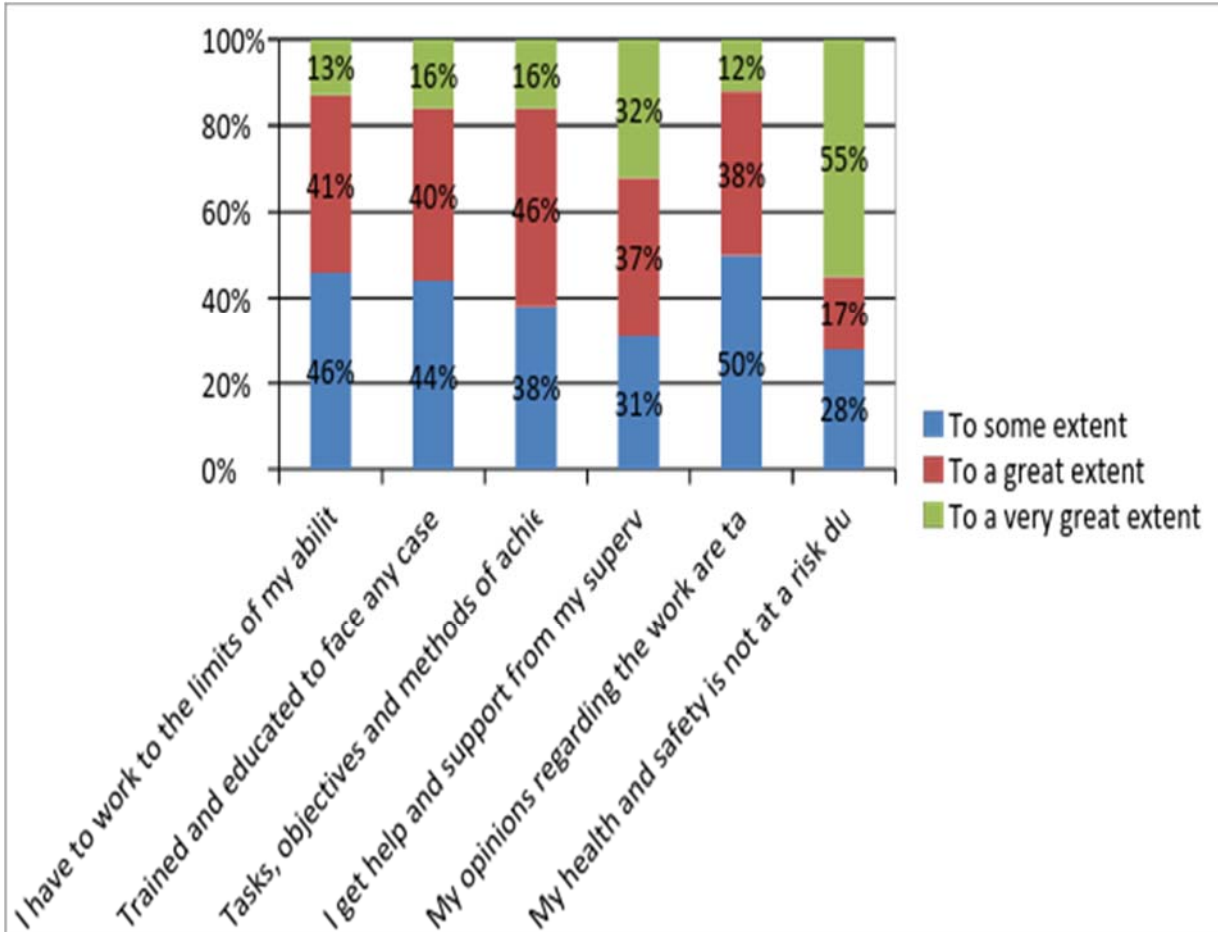
The figure above shows that, employees are not satisfied by their work and that they do not seem too fond of their workplace. Moreover, respondents noted that they often receive incomprehensible instructions by their employers; hence they suggest that communication between them is at low levels. It is noteworthy that only 13% of respondents stressed that they are not interrupted and do not face waiting periods while working. Results from this particular question are of particular concern. Also, it can be argued that employees tend to be satisfied to a large extent regarding duty-related guidance (29%). To triangulate whether communication with employers was as described, the researcher asked respondents to describe the actual instructions given to them by their employers. The figure below is a more detailed map of such instructions and shows whether these were oral or in writing or whether they were a mixture.



**Figure 4.7:** Types of Instructions

The figure above shows that employees mostly get a combination of oral and written instructions (that is 9 out of 10 instructions given), while 10% of the instructions given is oral and only 1 % is only written.

The researcher then asked the respondents to provide personal evaluations and perceptions on the issues of workplace communication, health and safety (figure 8).



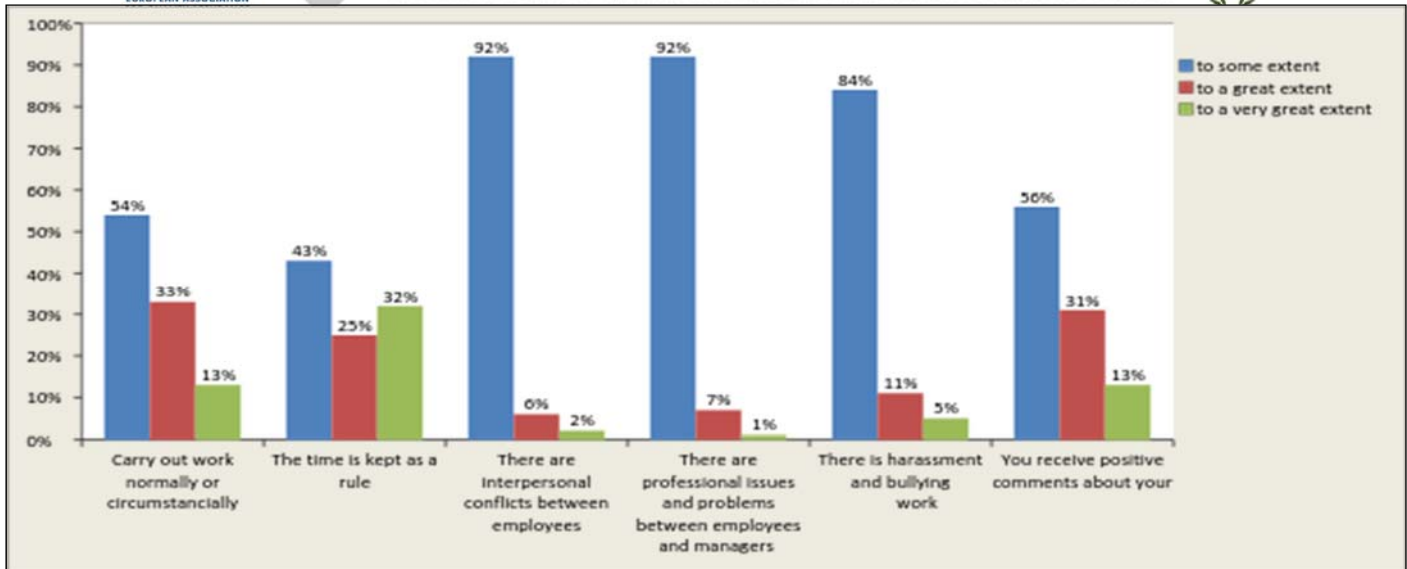
**Figure 4.8:**  
Employee

perceptions on communication, health and safety at the workplace.

Data suggests that 1 in 2 employees believe interruptions and interventions at the workplace endanger their personal health as well as that of their colleagues. Only 12% stated that their opinions are heard while 50% of the sample stated that their opinions are barely taken into consideration. 44% of the sample reported that they receive limited training even for cases that certain risks at work while only 16% stated that they receive adequate training.

#### 4.2.2 Group B - Psychosocial Factors

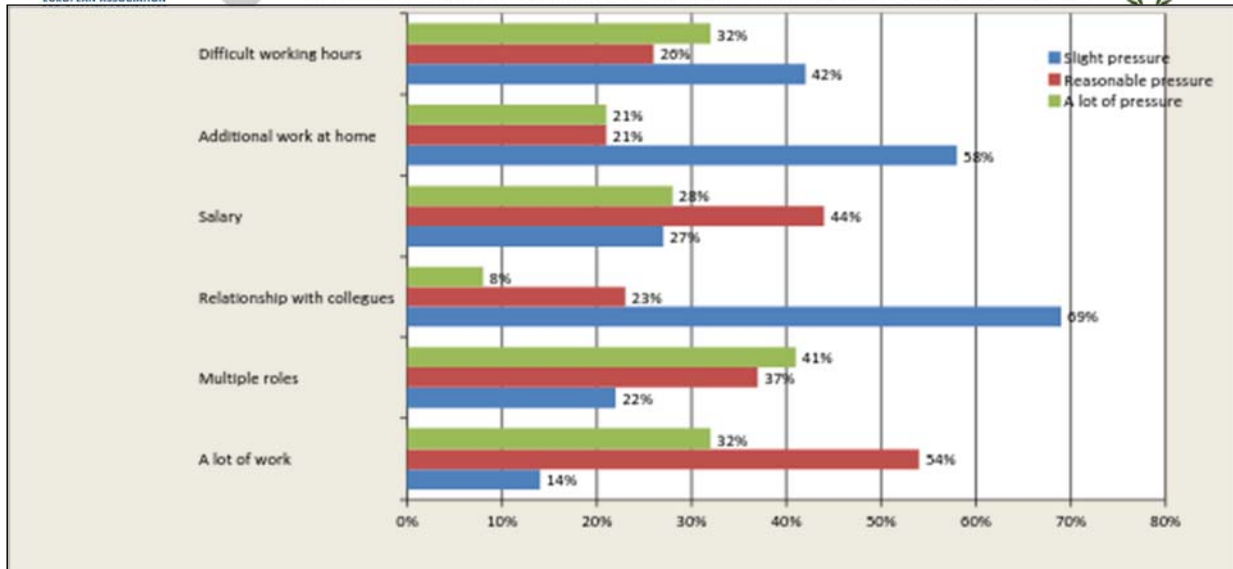
After analysing group A regarding employee communication, health and safety, the researcher looked into 9 work-related elements and studied whether psychosocial factors (stress, fatigue, and bullying) exist at their workplace and at what degree.



**Figure 4.9:** Employee psychosocial factor effects.

The figure above shows that interpersonal clashes and problems between colleagues exist at the workplace. Problems seem to mainly be between superintendents and their subordinates, since 92% of the sample stated that they face problems with their managers. Bullying also seems to be very common, since 84% of the sample stated that they were victims of such behaviours. 57% of the sample stated that work timetables are strictly kept while 2 in 5 respondents maintained an opposite view. The research did not ask whether work hours are exceeded or whether employees break the law by not keeping in line with the timetable. However, when they were asked whether they work under time pressure, 57% responded positively while 2 in 5 responded negatively. It was sad to find out that only 13% are positively criticized or rewarded for their efforts at work. About half the sample stated that they do not receive such positive comments. The researcher attempted to verify these answers by asking a related open-ended question and findings corroborated; despite their efforts, superintendents ignore them, hence the interpersonal clashes.

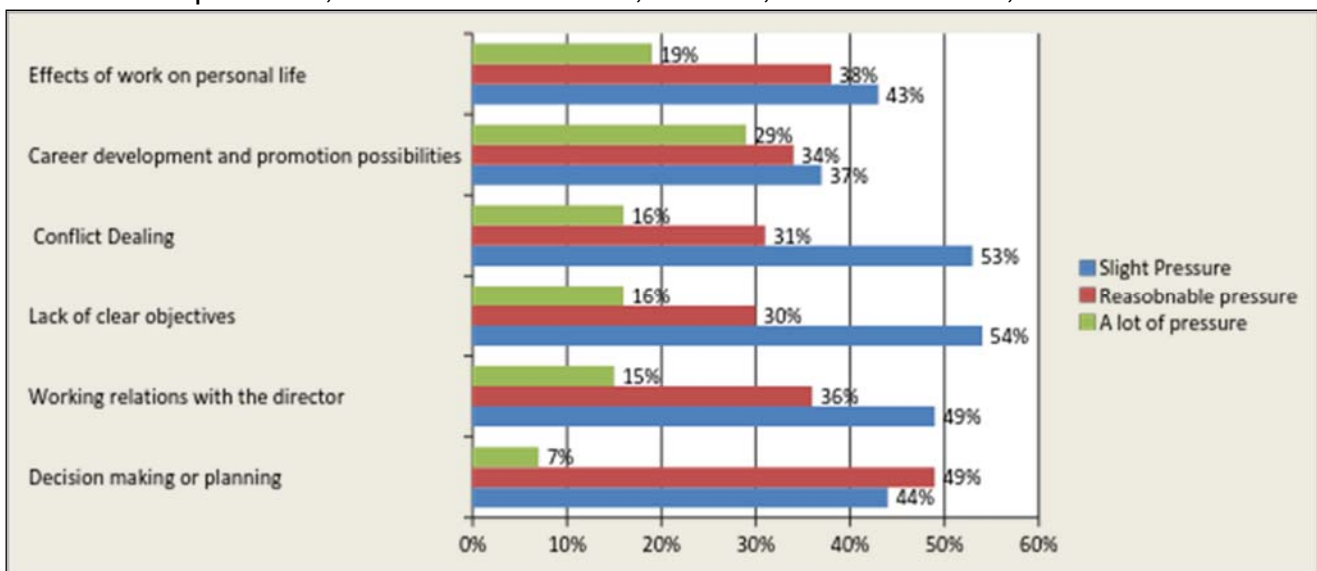
In the figure below, perceptions on work stress and fatigue on a personal level will be described. It is impressive to see that despite the current financial crisis affecting Cyprus and the labour market, employees seem to place the issue of payment at very low levels in terms of stress and pressure. Stressors that greatly affect employees are the multiple roles they exercise at work, the ambiguity regarding their duties, tough timetables and their relations to their colleagues. Such factors cause fatigue due to the constant stress and due to the fear that clashes may occur at any given time.



**Figure 4.10:** Perceptions on work stress and fatigue on a personal level

The findings in the figure above render it obvious that the greatest pressure at work comes from the multiple roles employees are designated at the workplace (41%), while 3 in 10 reported that they feel great pressure because of excessive workload and demanding timetables. Less pressure is the result of by relations with colleagues (69%) while it is surprising that 58% of the sample suggested they feel pressure due to the fact they need to take work at home.

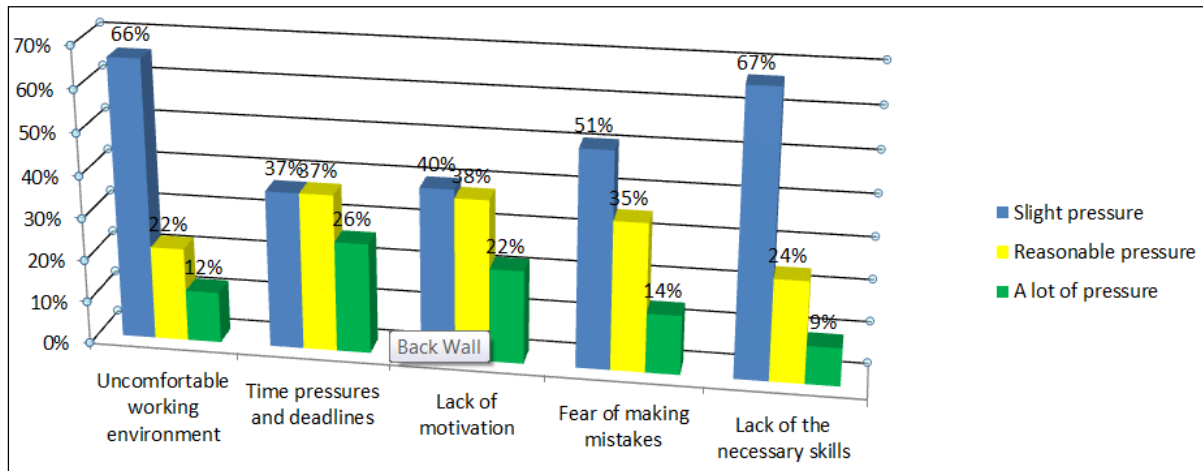
The following figure focuses on the opportunities afforded by employers for future advancement and how these affect them in terms of the emergence of the psychosocial factors of stress and fatigue. Eleven factors were studied regarding workplace design, lack of decisions, relations with supervisors, career advancement, motives, fear of mistakes, etc.



**Figure 4.11a:** Perceptions on work stress and fatigue on a work level

The above figure renders it obvious that employees greatly feel the pressure caused by their professional advancement in terms of promotion and development and that they fear the fact that their work affects their personal life. One in three employees feels pressure with increased levels of fatigue and stress because of career development and promotion possibilities. Dealing with conflicts and a lack of clear objectives causes less pressure (54% and 53% respectively). Nearly half the sample stated that they feel normal levels of pressure at work, because of decision making.

The figure that follows is the one describing time pressures and deadlines, a lack of motives and training, fear of mistakes and the workplace. This figure is a continuation of figure 4.11a, since these factors are part of the perceptions on work stress and pressure.



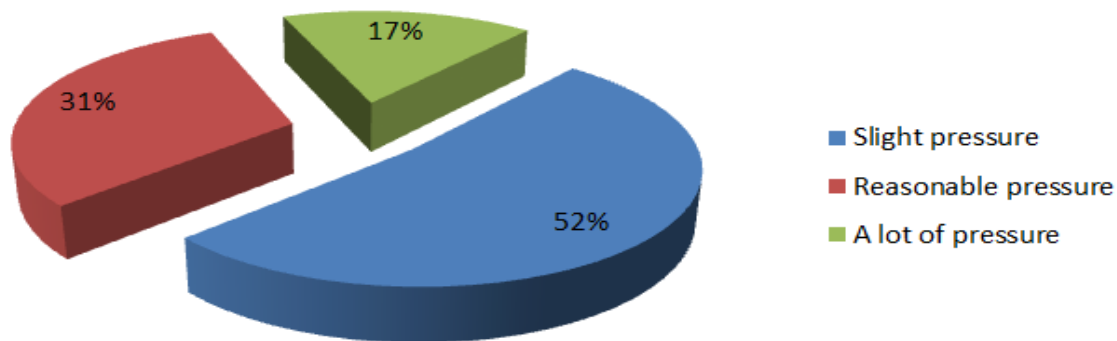
**Figure 4.11b: Perceptions on work stress and fatigue**

On figure 4.11b it can be seen that employees feel the pressure caused to them by time pressures and deadlines (26%) while 2 in 10 stated that lack of motives for work also causes them feeling pressure. On the contrary, the pressure felt is less due to lack of the necessary skills (67%) and due to an uncomfortable work environment (66%).

At a time of clashes, political imbalance, rapid advancements in technology, and of a global financial crisis, an important parameter that needed to be looked into was that of uncertainty and unemployment. The researcher aimed at measuring stress and fatigue caused by high unemployment rates in Cyprus. For this reason, a question was set on whether employees feel the danger of unemployment. The following figure shows that one in two people in the sample feels at risk due to the uncertainty characterizing the labour market today. They know that there are many highly skilled people who are unemployed since unemployment lists are topped with university graduates.



## Uncertainty for the job or risk of unemployment



**Figure 4.12:** Uncertainty for the job or risk of unemployment

One in two employees does not feel the risk of unemployment; however one in three feels a reasonable pressure upon fear of the risk of unemployment the risk while one on five respondents feels great pressure from such a risk. Unemployment rates are on the rise, and this is verified by official statistical measurements in Cyprus in the last few years.

### Bullying at the workplace

FACTORS	YES		NO	
	N	%	N	%
Bullying at the workplace	88	88	12	12
Is there good communication with your superiors at work?	95	95	5	5
Is there good communication between with you and your colleagues at work?	7	7	93	93
Do you have to work overtime and irregular hours?	64	64	36	36
Do you have the same treatment as other workers?	16	16	84	84
At your work, does anyone put you on the side-lines and makes you feel unwanted?	13	13	87	87
At your work, is there any colleague or senior manager that causes you fear?	5	5	95	95
Are you isolated and excluded from what is happening in your work, eg not calling you to important meetings?	17	17	83	83
Did you get directions without personal contact, only through memos and notes?	11	11	89	89
Do you ever receive derogatory comments about your work or your personal life in front of others?	36	36	64	64
Do you find that your own responsibilities have increased but your jurisdictions have declined?	5	5	95	95

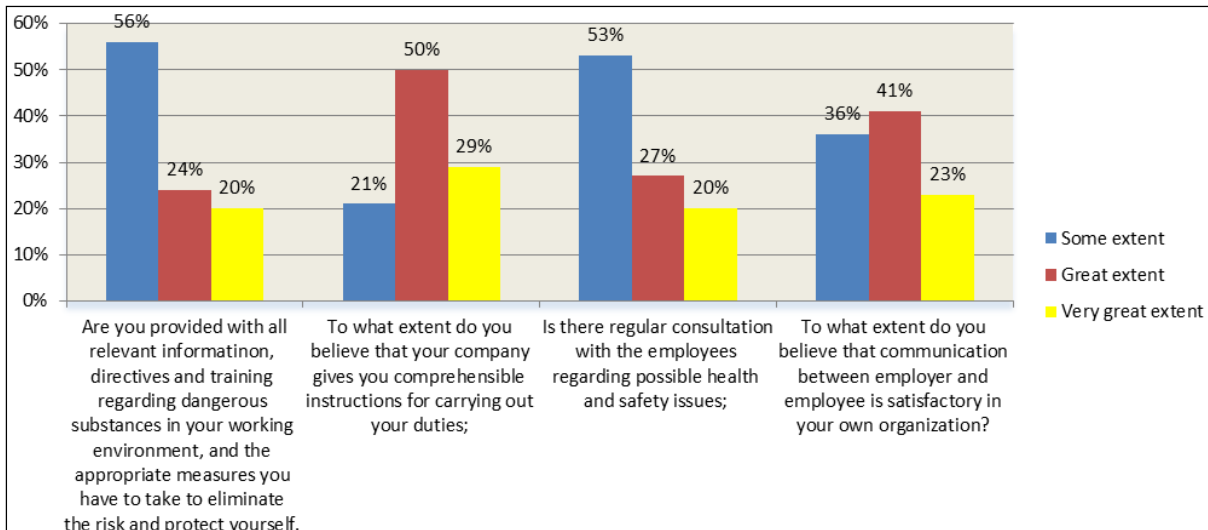
**Table: 4.3:** Bullying at workplace

The above table shows that there are high percentages regarding bullying and forcing one to work overtime. However, it seems that employees communicate quite well with their supervisors, since 95% of the sample responded positively when asked about this. A very high percentage responded that there is no just treatment at the workplace and that they feel being on the side-lines, which makes them feel unwanted. Four in five respondents said that when there is discrimination at the workplace they feel pressure which leads to stress. 95% of the sample stated that there are people at the workplace who cause to them feelings of insecurity and fear and for this reason they prefer to be isolated and not participate in workplace-related social events. Three in five maintained that they publicly received derogatory comments regarding their work and personal life.

#### 4.2.3 Group C - Communication, safety and health, psychosocial factors and level of professional satisfaction

After analysing the findings regarding workplace communication, health, safety and the psychosocial factors, the level of employee professional satisfaction must also be referred to. It was thought as best to link questions from part D of the questionnaire with questions regarding an overall view of work conditions.

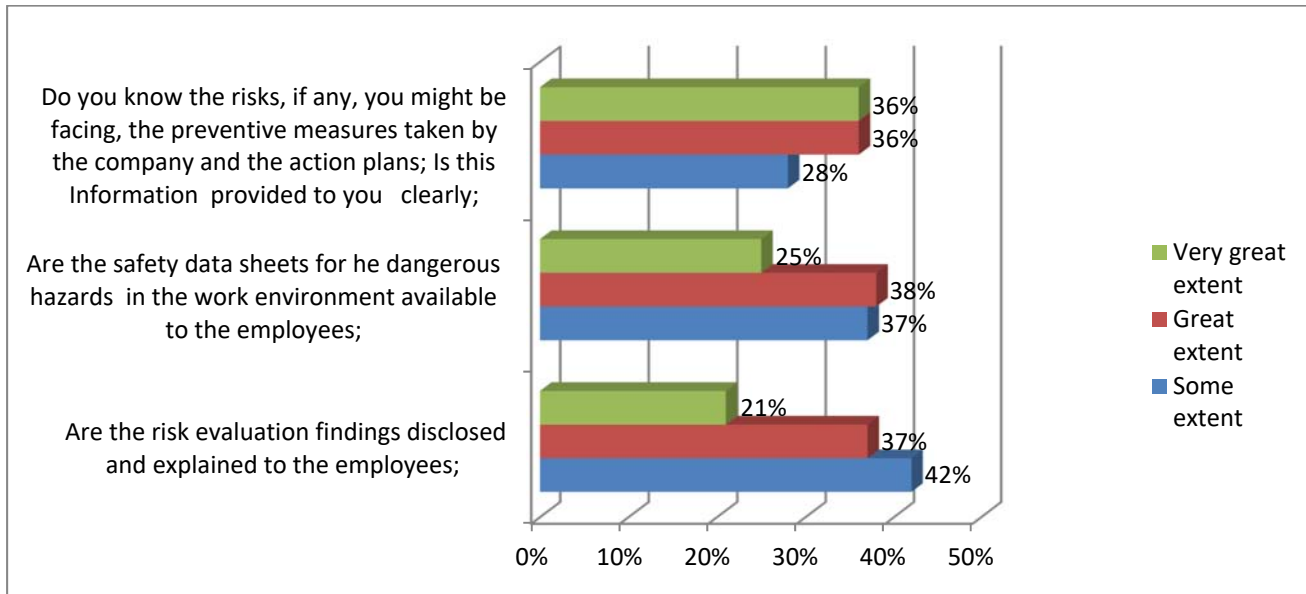
In the next figure, the question on training, information and guidance regarding potentially dangerous substances was combined with the question on the degree to which employers provide understandable instructions for the safe fulfilment of one's duties. Also, the question on frequent communication between employers and employees regarding possible health issues was linked with the question as to whether there is sufficient communication between employers and employees.



**Figure 4.13:** Level of professional satisfaction and overall perception in Health and safety

Questions 1 and 3 from the above figure are derived from the study of questions regarding professional satisfaction, while questions 2 and 4 are derived from employees' overall perception regarding the questions we posed on communication, safety and health. It is important to mention that employees believe that employers should provide them with more instructions and deliver more training concerning health and safety and also that workplace communication is very important to them in order to be able to deal with workplace risks. Communication is at a lower level compared to what they would like it to be. It is also important to them that professional satisfaction derives from a healthy environment which offers them motives in order to put more effort into their job, build healthy relationships and promote protection among them, always within the framework of communication, health and safety.

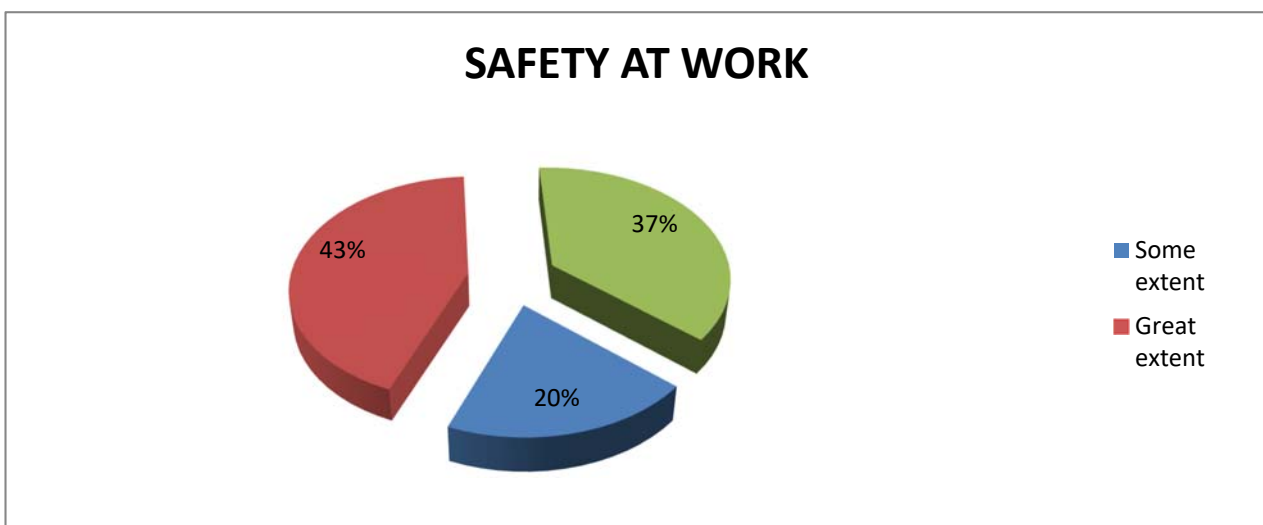
The figure below focuses on the dissemination of risk assessment findings, safety reports and on ways for dealing with such risks.



**Figure 4.14:** Risk Level assessment findings Knowledge

Based on the above figure, it can be concluded that 3 in 5 employees responded that they are aware of workplace risks and take precautions that minimize those risks. It seems that very few employees (1 in 5) seem as not being able to comprehend the information regarding health and safety, i.e. risk assessment findings, safety reports etc. provided by their employer. Three in four employees maintained that they possess such findings and reports, as well as informative materials provided to them by their companies and by other organizations.

A final question was set: 'Is there safety and health at your workplace? If yes, to what degree?'



**Figure 4.15:** Safety at work

The above figure shows that 4 in 5 employees feel secure at the workplace, while 1 in 5 is in fear of unemployment as well as in fear of workplace risks. The researcher believes that such

insecurity is mainly derived from the financial crisis and the increased unemployment rates. However, the respondents also stated that they are ready to work and overcome any communication, safety and health issues, thus contributing in the improvement of the country's financial state. The respondents did not deny being affected by this financial crisis, both in terms of their psychosocial world as well as in terms of feelings of insecurity.

In part C of this chapter respondents actual words which are indicative of incidents relating to workplace health and safety are cited, as well as how the organizations they work for dealt with them. Also any resulting emotions are cited.

## 4.3 PART C

### 4.3.1 In their own words

A number of the respondents chose to answer the open-ended questions of part E of the questionnaire. The analysis of their answers afforded the researcher the opportunity to collect more information and enrich his database, which led to a deeper understanding of the data collected and therefore to more conclusions. Two categories were created as a result of this part, which regarded (a) statements relating to workplace health and safety and (b) accidents taking place at work relating to issues of health and safety.

#### a) Statements regarding workplace health and safety

The qualitative results corroborated what the quantitative analysis showed, i.e. that workplace health and safety is a very important issue for employees. Their comments suggest this, and also that in the middle of the financial crisis, it is difficult to properly deal with workplace accidents and to manage those via the appropriate safety measures. We indicatively cite a number of such responses:

*All establishments at the workplace have a plan to deal with hazards. I feel safe because I know that all precautionary measures are taken and that there is an officer dealing with such issues.*

*Safety exercises take place, and the appropriate instructions and training are provided. A fire incident was properly dealt with.*

*There are frequent informative meetings with employees regarding potential risks and regarding protection signs around the workplace.*

*They force us to use special equipment for some of our activities.*

#### b) Workplace accidents regarding health and safety issues

Safety measures taken at the workplace are vital. Most respondents stressed that because of the crisis, such measures are sometimes inadequate. They realize that an effect of the crisis is that employers spend less money on safety, but this does not mean inexistence of safety measures. It is of interest to note that some respondents claimed that because of a fire at workplace, the health and safety officer of the company was fired because of belated response time. Others stressed that they are satisfied from the preventive measures taken and that some minor incidents were successfully dealt with. There were also many who claimed to be happy from the management's reactions, and especially those of the health and safety office. Some indicative quotes are cited here:

*When a fire broke at the factory, the guard and the safety team responded in time. However, many colleagues observed that no preventive measures were taken and that some of the measures taken were inadequate.*

*It was a problem for me, working in a hot environment which resulted in fatigue and attention deficits. When I reported this, all measures were taken and the issue was dealt with.*

*An incident which took part in a construction site was successfully dealt with. Also, there was informative material distributed after that which called attention to the issue.*

*A girl was under panic attack. The people who were there did not know how to deal with it and some fainted. I believe that this escalated the problem.*

*Someone fainted. There was immediate reaction. I am happy from the health and safety measures taken at my company.*

*A colleague fainted because of fatigue. The personnel was trained to deal such incidents and so they did.*

*A colleague fell because of wet floor in the parking lot. The safety department though had given explicit instructions not to move in that area of the parking lot; the colleague did not adhere to those instructions.*

*A colleague had an accident because he did not properly adhere to the safety signs posted.*

## CHAPTER 5

### CONCLUSIONS-SUGGESTIONS

This study looked into the issue of health and safety communication in the workplace: how fatigue, stress and bullying affect the employees in Cyprus. Every chapter in this study was an opportunity for an in-depth analysis of that issue. This analysis consisted, and was aided, by a rounded study of basic parameters of health and safety communication as well as of the psychosocial factors affecting employees. Thus conclusions were reached by looking at the side-issues of accidents, injuries, psychological effects on employees, prevention measures that should be applied, related legislation, EU stances on the issue, research in the area and ways of dealing with this issue from an organizational/managerial perspective.

The problems relating to bad communication at the workplace have negative repercussions on employee health and safety. The effects are mostly psychosocial and concern the factors of stress, fatigue and bullying at the workplace. It is necessary that those factors are legislated more effectively while existing laws need to be amended so that employers are forced to take extra measures and run proper checks in order to ensure their employees' health and safety via proper communication. New modes of behaviour and culture need to be adopted by organizations, which would not require money or special equipment. The protection of employee health and safety is what can lead organizations towards development; through communication and proper checks, safer work conditions can be achieved, so that the aforementioned psychosocial factors are eliminated.

#### 5.1 Overall results

The purpose of this study was two-fold. The first – as seen in Chapter 1 – was to provide an overview of communication and to address the problems of bad communication which relate to employee health and safety. The second – as seen in Chapter 2 via the literature review – was to determine the most important psychosocial risks affecting employee health and safety. A questionnaire was developed and administered to employees in Cyprus. The aim of the research was to look into the employee's perceptions on the aforementioned issues. Regarding the first goal, it has been found that there is no specific legislation that regulates communication of information on workplace health and safety. The relevant legislation needs to explicitly set a number of clearly-defined criteria which should regulate such processes. Regarding the second goal, the study shows that respondents believe psychosocial factors to exist; what is more, they perceived them to derive from bad workplace communication and from factors relating to their workloads.

The global financial crisis affected all organizational structures, including workplace health and safety, where budgetary and material cuts are observed (e.g. in protective measures, equipment, etc.). This is a huge mistake, a crime even. For no reason should there be cuts in issues like employee health and safety. Employee health and safety depends first and foremost on the organisation itself, and whether the organization is willing to spend money and time in order to ensure proper communication and to take all protective measures necessary. Proper communication and the adoption of precautionary measures also ensure that no psychosocial symptoms surface; such symptoms are interlinked and create a vicious circle, with extremely negative consequences.

Generally, an organization is responsible, legally and otherwise, not only to protect its employees but also to act proactively regarding their health and safety. Organizations in Cyprus should focus on trying to promote their employees' psychological, social, mental and physical health. In our opinion, employers and employees in a way have different, yet matching goals. High productivity levels are the main aim of every organization. If organizations ensure a healthy and safe

working environment, then productivity shall rise. Every organization is obliged to abide by all European and state legislation and by all safety regulations. For this to happen, cooperation is essential between management, managers, safety officers, employees and the state. All this, is possible to be achieved via proper communication between all agents involved. Surely, besides the organization and safety officers, employees should also take responsibility, fulfil their obligations and abide by the safety regulations at their workplace.

It is very important that organizations employ people who are responsible enough to act in key roles (managers, safety officers); such people should promote a sense of responsibility at the workplace, aiming at high productivity levels as well as protecting employee health and safety.

Workplace health and safety is a notion which was not, until recently, being taken into consideration enough by most employers and employees. Nowadays though, this trend seems to have shifted; health and safety has assumed crucial status since the development of psychosocial risks is obvious to employers, who see their employees frequently missing from work. In Cyprus, the alignment of state legislation with the European legislation on the matter has certainly helped. However, the progress made in organizations has not been to the expected degree because the structures to support that legislative framework are still not quite there. The issue of psychosocial risks at the workplace calls for action not only on an organizational level in local organizations, but also on every level that relates to workplace health and safety. Legislation and other regulations are not sufficient on their own to solve the problem; a conscious and collective effort is needed from organizations, their executives and their employees, who need to be informed and actively participate in the attempt to deal with those risks. To make the switch from theory to practice and implement the above, proper communication is needed both within and outside organizations.

## 5.2 Suggestions

In what follows, the researcher cites a number of suggestions on how local organizations and businesses can promote employee health and safety. Thus, management needs to take into consideration the following:

- Modernization of their structure and *modus operandi*, in order to meet the new demands and challenges arising at the workplace.
- The related legislation needs to be implemented; a first step could be the use of health and safety officers in all businesses, from medium-size ones to larger ones.
- Businesses should employ simple, clear language in order to determine their health and safety goals. Health and safety officers could uptake this.
- Risk assessment and risk analysis for all employee positions.
- Adoption of a special, hands-on training on how to deal with risks; setting out and explanation of precautionary measures.
- Individual safety measures need to be taken.
- Systematic internal checks not only by health and safety officers but also by independent agents to ensure that all necessary measures are taken (e.g. emergencies, fire, etc.).
- Creation of internal employee committees whose purpose would be to address health and safety issues and any other related issues like stress, fatigue, bullying and bad communication and to anonymously inform management accordingly every month.
- Support and development of employees via training and specializations in issues of health and safety; this measure would be an answer to the existing professional risks and to the serious insufficiencies recorded at the workplace.
- Regular assessment and re-evaluation of health and safety measures, thus ensuring the use of appropriate tools like health and safety management system specification (e.g. OHSAS 18001, which according to the British Standard Institute (1999) determining regulations on

professional health and safety issues, aiming at minimizing dangers, accidents, and aiding workers in demanding a safer working environment).

- Collaboration with agents who are experts on workplace health and safety issues.
- Collaboration (exchange of ideas, proposal of solutions) between local organizations on health and safety issues, through frequent meetings between health and safety officers. These meetings could take place online to save time.
- Collaboration between local and European organizations (e.g. Cyprus Health and Safety Agency, EU-OSHA, Center for Risk, Safety and Environment).
- The issue of health and safety, as already mentioned in chapter 1, needs to be integrated in the educational framework and be taught at schools.

According to the findings of the current study, employees agree in the need for establishing and implementing a clear, objective map which would include all health and safety procedures that need to be followed. The lack of clear determinants and the inadequate explanation of employees' roles and responsibilities affects cooperation between all parts in an organisation.

Also based on the results of this study, it is concluded that communication between employers and employees is not at the levels required. Through proper communication, employees attempt to determine their colleagues' needs and understand their perceptions. Additionally, findings show that problematic communication is mainly due to excessive workloads, tension at the workplace, insufficient training, relationships with colleagues and to the fact that not everyone is getting similar treatment. Bad communication is negatively related with difficulties in communication between colleagues and between colleagues and their supervisors. This can negatively affect a person's career and lead to their resignation and to clashes between colleagues and their supervisors, which in turn negatively affects work quality, leading to developing certain psychosocial factors. Hence, the strengthening of collaboration between management and employees is a necessity.

Also, it is necessary for an organization's management to understand that its safety culture plays a crucial role in employee safety; this would further reinforce efforts towards rendering the workplace a safer environment. At the same time, recognizing the importance of culture in health and safety issues, as well as the importance of employee knowledge on such matters, is a necessary condition for the smooth functioning of an organization under a safe and healthy work environment. Generally speaking, it seems that employee health and safety is a field which requires collective action from all agents involved. Cyprus in particular, which in the researcher's opinion lacks both in terms of implementing health and safety regulations as well as in terms of related research, should take immediate measures to tackle this problem.

Nowadays, Health and Safety at the workplace is necessary for the protection of human life and the natural environment. The international conventions of the International Labor Organization, the directives of the European Union and the laws and regulations of each country oblige employers and employees to take the necessary safety and health measures in order to prevent workplace accidents and occupational diseases, protect the health of the workers and avoid the creation of dangerous situations. Unfortunately in Cyprus there are many gaps and omissions in the field of communication at the workplace as well as shortcomings with regards to psychosocial factors for the health and safety of workers. In the current research an effort is made to study, search and identify the main reasons of the existence of these psychosocial factors and find ways to address them as well as analyze the conditions needed for the proper communication between employers and employees and the prevention of accidents caused by bad communication. In spite of the instructions and legislation of the EU the control of factors such as stress, fatigue and bullying is non-existent; if they are not addressed immediately this will lead to unwanted results in the future.



For this reason we decided to address this issue in our research. The psychosocial factors related to this project, such as fatigue, stress and bullying must be easily identified and controlled or eliminated with correct communication. The administration, the health and safety department of every company as well as the Government of Cyprus must take the necessary measures by introducing a specific strict legislation and control in order to avoid any health detriment or important decrease of safety in the future.

### 5.3 Limitations

Every effort was made so that findings are valid. Despite the existence of various mainly exogenous factors, it is thought that the above goals have been achieved at a satisfactory level.

The main concern of the researcher stemmed from the level of accessibility with regards to specific pieces of information that organizations do not easily dispense with. For this reason, the questionnaire also consisted of open-ended questions, which aimed at more open discussions, which would yield more data.

Additionally, the data is affected by the respondents' subjectivity. In order to achieve more objectivity, emphasis was paid on getting people's opinions by keeping in line with guidelines with the help of follow-up questions. Given the employees' limited time and the inexperience of the researcher, the conclusions of the present study are considered as being objective.

### 5.4. Suggestions for future research

The current study focuses on bad communication at the workplace and on psychosocial factors emerging in such environments. Certain issues have arisen during this study, which could form the basis for further research. One such issue is that the financial crisis and salary cuts did not seem to greatly affect employees with respect to the psychosocial factors examined here. According to the findings of this study, communication between employees and employers and also between employees themselves is an issue in need of more in-depth examination. This is another issue that could be further explored, in relation to the previous issues raised above.

Finally, future study could focus on deriving primary data through structured questions, on data quantification and on quantitative outcomes.

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March 2015

Dear Sir / Madam,

Your company agreed to administer the questionnaire to a sample of employees serving in various positions in your company. The sample selection was random.

This research is made in the context of the postgraduate program Occupational Safety and Health. . We selected as our topic your opinion about Safety and Health in the workplace.

Your opinion is very useful for the investigation and your cooperation will contribute significantly to its success. Therefore you please spend some of your time to complete the questionnaire anonymously. The supplement requires about 8-10 minutes.

Thank you in advance.

Yours sincerely

Constantinos Hadjistephanou

## “Health and Safety Communication in the workplace and how fatigue, stress and bullying affect the employees in Cyprus”

### QUESTIONNAIRE

#### PART A: DEMOGRAPHIC

Fill / answer what applies in your case

1. Sex:  Male  Female

2. Age: .....

3. Marital status:

a) Married   
Unmarried

b) Do you have child(s); Yes   
No

4. Educational Qualifications:

Any levels below High School Graduate   
High School Graduate   
Bachelor Degree   
Master's Degree   
Doctorate

If you have any academic education, is associated with your job area?

Yes  No  N/A

5. Type of employment:

Full Time  Part Time

6. Your studies are relevant to your current job;

Yes  No



## **PART B: QUESTIONS FOR ACQUISITION OF GENERAL IMAGE OF WORKING CONDITIONS**

1. Generally how satisfied / are you with your job? Note the answer to the following scale by circling the appropriate number

Not at All	A little	To some extent	To a great extent	To a very great extent
-	-	-	-	-

2. To what extent do you like to work in your workplace? Note the answer to the following scale by circling the appropriate number.

Not at All	A little	To some extent	To a great extent	To a very great extent
1	2	3	4	5

3. *To what extent do you believe that your company gives you comprehensible instructions for carrying out your duties;* Note the answer to the following scale by circling the appropriate number

Not at All	A little	To some extent	To a great extent	To a very great extent
1	2	3	4	5

4. *To what extent do you believe that communication between employer and employee is satisfactory in your own organization?* Note the answer to the following scale by circling the appropriate number.

Not at All	A little	To some extent	To a great extent	To a very great extent
-	-	-	-	-

5. *To what extent do you think your work is proceeding without annoying interventions interruptions and waiting periods?* Note the answer to the following scale by circling the appropriate number.

Not at All	A little	To some extent	To a great extent	To a very great extent
-	-	-	-	-

6. *To what extent do you believe that is proper communication between employees?* Note the answer to the following scale by circling the appropriate number.

Not at All	A little	To some extent	To a great extent	To a very great extent
-	-	-	-	-

7. What type instructions you receive from your employer about the implementation of your work?

a. Written

b. Oral

c. Both

8. Mark the option that you think describes better the current situation. Evaluate by circling a number on the scale to the right of each word.

	Not at all	A little	To some extent	To a great extent	To a very great extent
a. I have to work to the limits of my abilities	1	2	3	4	5
b. I trained and compiled to be able to realize all my work even in case of danger disorders or conditions	1	2	3	4	5
c. The tasks, objectives and methods of achieving sufficiently discussed in my workplace	1	2	3	4	5
d. I get help and support from my supervisor	1	2	3	4	5
e. My opinions regarding the work are taken into consideration	1	2	3	4	5
f. My health and safety is not at a risk due work violence or threats	1	2	3	4	5
g. Bullying is a persistent inappropriate behaviour.	1	2	3	4	5
f. Bullying endangers the health and safety of my colleagues	1	2	3	4	5

### PART C: LEVEL SKILLS REQUIREMENTS

1. Please state the level of satisfaction as regard the following work elements? Please circle the appropriate number on the scale to the right of each element:

	Not at all	A little	To some extent	To a great extent	To a very great extent
a. Carry out work normally or circumstancially	1	2	3	4	5
b. The time is kept as a rule	1	2	3	4	5

c. You know your duties	1	2	3	4	5
d. Your working hours are restrictive	1	2	3	4	5
e. There are interpersonal conflicts between employees	1	2	3	4	5
f. There are professional issues and problems between employees and managers	1	2	3	4	5
g. There is harassment and bullying	1	2	3	4	5
h. You receive positive comments about your work	1	2	3	4	5
i. You receive negative comments about your work	1	2	3	4	5

2) Each person is experiencing stress differently. However, we all feel at some point of our life work-related stress and fatigue. If you can locate from where does the work pressure will be able to better understand your responses. The following questionnaire will help you assess what is causing stress in your case. Estimate how much pressure produced by each of the following items. The grades are as follows: 3 = a lot of pressure, 2 = reasonable pressure, 1 = slight pressure, 0 = no pressure.

1.	A lot of work	
2.	A lot of roles	
3.	Relationships with colleagues	
4.	Salary	
5.	Additional work at home	
6.	Difficult working hours	
7.	Uncertainty as to the competence	
8.	Decision making or planning	
9.	Working relations with the director	
10.	Lack of clear objectives	
11.	Conflict Dealing	
12.	Career development and promotion possibilities	
13.	Effects of work on personal life	
14.	Uncomfortable working environment	
15.	Time pressures and deadlines	
16.	Lack of motivation	
17.	Fear of making mistakes	
18.	Lack of the necessary skills	
19.	The atmosphere in the workplace	
20.	Uncertainty for the job or risk of unemployment	

3) Please Answer YES (1) or NO (2)

By

Is there good communication with your superiors at work?		
Is there good communication between with you and your colleagues at work?		
Do you have to work overtime and irregular hours?		
You have the same treatment as other workers?		
In your work, Does anyone put you on the side-lines, who make you feel unwanted?		
At your work, is there any colleague or senior manager that causes you fear?		
Are you isolated and excluded from what is happening in your work, eg not call you to important meetings?		
Did you get directions without personal contact, only through memos and notes?		
Are you ever receive derogatory comments about your work or your personal life in front of others?		
Do you find that your own responsibilities have increased but your jurisdictions have declined?		
Have you suffered a moral / psychological harassment (bullying); If yes please answer the following question *:		

\*

whom you have suffered psychological harassment/bullying?

- Colleagues
- Manages
- Customers
- Others
- N/A

**Part D: PART D COMMUNICATION: Note the answer to the following scale by circling the appropriate number: 1-5**

3. Are you provided with all relevant information, directives and training regarding dangerous substances in your working environment, and the appropriate measures you have to take to eliminate the risk and protect yourself.

Not at All                      A little                      To some extent                      To a great extent                      To a very great extent

4. Is there regular consultation with the employees regarding possible health and safety issues;

Not at All	A little	To some extent	To a great extent	To a very great extent
-	-	-	-	-

5. Are the risk evaluation findings disclosed and explained to the employees;

Not at All	A little	To some extent	To a great extent	To a very great extent
-	-	-	-	-

6. Are the safety data sheets for the dangerous hazards in the work environment available to the employees;

Not at All	A little	To some extent	To a great extent	To a very great extent
-	-	-	-	-

7. Safety at work:

Not at All	A little	To some extent	To a great extent	To a very great extent
1	2	3	4	5

8. Do you know the risks, if any, you might be facing, the preventive measures taken by the company and the action plans; Is this Information provided to you clearly;

Not at All	A little	To some extent	To a great extent	To a very great extent
------------	----------	----------------	-------------------	------------------------

**Part E:**

1. Write an incident involving health and safety at work. Give an example. How you felt about this;

.....  
 .....  
 .....

2. Write an incident which has a lot of discussion in the company about health and safety issues.

.....  
 .....  
 .....

Thank you for your response

## ANNEX 9

Course Title	Occupational Hygiene and Occupational Health				
Course Code	OSH645				
Course Type					
Level	Master (2 <sup>nd</sup> Cycle)				
Year / Semester	1 <sup>st</sup> year/ 2 <sup>nd</sup> semester				
Teacher's Name	Dr Zoi Dorothea Pana				
ECTS	10	Lectures / week	3 hours / 14 weeks	Laboratories / week	N/A
Course Purpose and Objectives	OSH645 introduces students to the most important concepts around occupational health and the interaction between health and the workplace environment. The various occupational hazards and their effects on human health will be examined, as well as practical issues around risk prevention and management, monitoring, health surveillance and assessing fitness for work.				
Learning Outcomes	<p>Upon successful completion of this course students should be able to:</p> <ul style="list-style-type: none"> <li>• Understand how occupation affects the health of workers in different ways</li> <li>• Identify hazards at the workplace and the environment that pose a threat to human health</li> <li>• Apply methods to monitor and control hazards at the workplace in a rational and effective fashion</li> <li>• Understand the operational complexities around monitoring, maintaining and protecting the health of workers, and managing occupational risks</li> <li>• Identify the most common occupational diseases and their public health significance</li> <li>• Understand the factors that influence a person's fitness for work in general and for particular work tasks</li> </ul>				
Prerequisites	None	Required	None		
Course Content	<ul style="list-style-type: none"> <li>• Occupational hazards (physical, chemical, biological, mechanical, psychosocial, etc)</li> <li>• Occupational hygiene and exposure monitoring; principles of toxicology</li> <li>• Occupational diseases (musculoskeletal, infections, malignancies, respiratory, skin, reproductive, etc)</li> </ul>				

	<ul style="list-style-type: none"> <li>• Assessing fitness for work</li> <li>• Sickness absence, rehabilitation and retirement</li> <li>• Principles of health surveillance and prevention of occupational diseases</li> <li>• Operational and ethical issues in occupational health; risk assessment and risk management</li> <li>• Principles of environmental health</li> </ul>								
Teaching Methodology	Face-to-Face								
Bibliography	<p><b>Required Reading(s):</b></p> <p>Smedley, Julia, Finlay Dick, and Steven Sadhra, eds. <i>Oxford handbook of occupational health</i>. Oxford University Press. Oxford, 2013.</p> <p><b>Recommended Reading(s) :</b></p> <p>Waldron, HA. <i>Occupational health practice</i>. Butterworth-Heinemann, 2013.</p>								
Assessment	<table border="1"> <tr> <td>Examinations</td> <td>50%</td> </tr> <tr> <td>Class Participation and Attendance</td> <td>10%</td> </tr> <tr> <td>Project</td> <td>40%</td> </tr> <tr> <td></td> <td>100%</td> </tr> </table>	Examinations	50%	Class Participation and Attendance	10%	Project	40%		100%
Examinations	50%								
Class Participation and Attendance	10%								
Project	40%								
	100%								
Language	English								



## ANNEX 10

Course Title	Safety Management & OSH Legislation				
Course Code	OSH600				
Course Type	Compulsory				
Level	Master (2nd Cycle)				
Year / Semester	1st Year/ 1st semester				
Teacher's Name	Prof George Boustras				
ECTS	10	Lectures / week	3 hours / 14 weeks	Laboratories / week	N/A
Course Purpose and Objectives	<p>The objective of Safety Management &amp; OSH Legislation is to introduce students to the basics of health &amp; safety management, as well as provide them with an in-depth understanding of the legal background in OSH. A thorough presentation of the national and EU legislation will be given, together with a clear exposition of the essential contribution of safety &amp; health management to an organization's corporate risk management and governance obligations to its various stakeholders. Students will master the legal, policy, financial, organizational and strategic aspects of health and safety legislation and will be introduced to the main national and international policymaking bodies. The importance of applying a holistic, organizational-wide safety management system and plan will be based on an understanding of the importance of risk assessment for determining and directing risk reduction and control measures. Finally, students will be expected to understand the importance of establishing a positive safety culture and the key variables and processes in achieving one.</p>				
Learning Outcomes	<p>Upon successful completion of this course students should be able to:</p> <p>Explore in depth the legal foundations of OSH in a Global (ILO), European (EU-OSHA) and National (DLI) level</p> <p>Identify the philosophy behind the legal background in OSH and highlight the social circumstances (e.g. industrial revolution) that led to its development and adoption</p> <p>Based on National and EU relevant legislation, develop health and safety policies and strategies</p> <p>Design the basic steps of the implementation of an occupational health and safety plan at the organization level, taking into account the results of a relevant risk evaluation</p> <p>Design the basic steps of the implementation of a health and safety management system, taking in account the organization's business and production processes, its employees, visitors, contractors and sub-contractors as well as others who may be affected by the organization's activities e.g. product safety/liability, safety of structures and buildings for end users and the public</p>				

	<p>Establish the necessary and appropriate monitoring, auditing, incident reporting, investigation and analysis mechanisms for safeguarding health and safety</p> <p>Draw lessons and inferences from Safety Science history</p> <p>Discuss in depth safety science theories and identify their relationship with required practice</p> <p>Identify and discuss the importance of safety metaphors</p> <p>Learn how to promote a positive safety culture at individual, group, organizational and inter-organizational levels and challenge attitudes and behaviours which are dangerous for health and safety.</p>		
Prerequisites	None	Required	None
Course Content	<p>Safety Management &amp; OSH Legislation will provide students with all the necessary information and techniques surrounding the design and implementation of a risk-based, tailor-made safety management system (SMS). Legal and organizational issues will be put into context and the importance of feedback mechanisms and risk communication strategies will be illustrated and applied. Safety culture will be explained in detail; risk assessment and control implementation techniques will be imparted and analysed critically in relation to their appropriate application.</p> <p>Topics that will be discussed:</p> <p>Cyprus H&amp;S legislation (Οι περί Ασφάλειας και Υγείας στην Εργασία Νόμοι του 1996 – 2015)</p> <p>EU H&amp;S Legislation e.g. Directive 89/391 Health &amp; Safety Framework, Directive 82/501 Major Hazards (Seveso I) and Directive 96/82 Major Hazards (Seveso II)</p> <p>Relative benefits and effectiveness of (a) self-regulatory goal-directed H&amp;S legislation and enforcement and (b) prescriptive compliance orientated legislation and enforcement</p> <p>H&amp;S Institutions (global, EU and national)</p> <p>Role and contribution of H&amp;S management to Enterprise Risk Management and Corporate Governance</p> <p>First steps of planning and organization of a H&amp;S management system</p> <p>H&amp;S risk reduction and control options, with practical examples</p> <p>Internal monitoring and audit and review mechanisms for H&amp;S, including incident reporting, investigation and feedback to risk assessment and training.</p> <p>The link between risk assessment and safety decision-making in the SMS</p> <p>Risk communication</p> <p>Safety Culture</p>		

	<p>Leadership</p> <p>Influencing safety culture (e.g. leadership, standards, H&amp;S KPIs etc)</p> <p>Human error and accident causation</p> <p>High Reliability Organizations (HRO's)</p> <p>Resilience</p>								
Teaching Methodology	Face-to-Face								
Bibliography	<p>Required Readings:</p> <p>George Boustras, Frank W. Guldenmund Safety Management in Small and Medium Sized Enterprises (SMEs) (The Interface of Safety and Security) Latest Edition, CRC Press, ISBN-10: 1498744729,</p> <p>Recommended Readings:</p> <p>A.C. Neal European Communities' Health and Safety Legislation Latest Edition, Routledge, ISBN-10: 1138430951</p> <p>Safety Science, Elsevier, ISSN: 0925-7535</p>								
Assessment	<table border="1"> <tr> <td>Examinations</td> <td>60%</td> </tr> <tr> <td>Class Participation and Attendance</td> <td>10%</td> </tr> <tr> <td>Project</td> <td>30%</td> </tr> <tr> <td></td> <td>100%</td> </tr> </table>	Examinations	60%	Class Participation and Attendance	10%	Project	30%		100%
Examinations	60%								
Class Participation and Attendance	10%								
Project	30%								
	100%								
Language	English								

Course Title	Risk Assessment & Management				
Course Code	OSH605				
Course Type	Compulsory				
Level	Master (2nd Cycle)				
Year / Semester	1st Year/ 1st semester				
Teacher's Name	Dr Cleo Varianou-Mikellidou/ Dr Christos Argyropoulos				
ECTS	10	Lectures / week	3 hours / 14 weeks	Laboratories / week	N/A
Course Purpose and Objectives	<p>The objective of Risk Assessment &amp; Management is to equip students with the necessary theoretical and practical information regarding such risks. Basic and advanced statistical concepts will be introduced. Students will be provided with information on how to build up a deterministic risk assessment based on relevant health and safety legislation, literature reviews, case data, lessons learned and their professional knowledge and experience. The necessity of life-cycle risk evaluations for designed technical systems and technical processes will be emphasized. Heuristic risk assessment techniques will be taught. In addition, students will also be taught probabilistic and stochastic QRA methods which may be suitable for high risk/major hazard contexts. Risk assessment findings will be put in context with an aim to manage assessed risks across the spectrum of different workplace settings and apply ALARP and SFARP criteria appropriately. Feedback, employee and employer participation in risk reporting mechanisms will also be discussed. Finally, Occupational Health Safety</p>				
Learning Outcomes	<p>Upon successful completion of this course students should be able to:</p> <ul style="list-style-type: none"> <li>Distinguish between pure risks such as H&amp;S and speculative/opportunity risks, in terms of characteristics, outcomes, assessment techniques and approaches to treatment, mitigation and control</li> <li>Categorize and distinguish the various H&amp;S risks and ways of managing them</li> <li>Apply safety legislation in the development of qualitative risk assessments</li> <li>Use effectively statistical distributions</li> <li>Compute statistical, probabilistic and stochastic risk assessment techniques</li> <li>Apply a life-cycle risk evaluation model to designed technical systems and processes.</li> <li>Link and implement the results of a risk assessment in practice</li> <li>Make and advise on risk decisions</li> <li>Use the lessons learnt from the risk assessment exercise in order to mitigate across the organisation</li> <li>Develop and communicate risk assessment results</li> </ul>				

	Learn in practice Occupational Health and Safety Systems such as ISO45001.										
Prerequisites	None	Required	None								
Course Content	Risk Assessment & management will help students differentiate between the various H&S risks in the workplace and the different ways of dealing with them. The presence of major hazards, and the possible impact of a major hazard accident, may dictate the use of probabilistic – stochastic methods in addition to heuristic and deterministic techniques. The relevance of legislation and the existing body of knowledge on cause-effect behaviour of hazards in the development of deterministic risk assessments will be made apparent throughout the course, as will the need for up-to-date quantitative information in building up probabilistic – stochastic models. Results of risk assessment exercises and their use in risk management will be illustrated.										
Teaching Methodology	Face-to-Face										
Bibliography	<p>Required Readings:</p> <p>Lee T. Ostrom, Cheryl A. Wilhelmsen Risk Assessment: Tools, Techniques, and Their Applications, Latest Edition Wiley, ISBN-10: 1119483468</p> <p>Recommended Readings:</p> <p>Terje Aven, Quantitative Risk Assessment - The Scientific Platform, Cambridge University Press, (ISBN:9780521760577)</p> <p>Hyunyi Cho, Torsten Reimer, Katherine A. McComas The SAGE Handbook of Risk Communication Latest Edition, SAGE Publications, ISBN-10: 1452258686</p>										
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Examinations	60 %										
Class Participation and Attendance	10%										
Project	30%										
	100%										
Language	English										

Course Title	Safety Technology & Professional Practise				
Course Code	OSH610				
Course Type	Compulsory				
Level	Master (2nd Cycle)				
Year / Semester	1st year/ 1st semester				
Teacher's Name	Dr Cleo Varianou Mikellidou				
ECTS	10	Lectures / week	3 hours / 14 weeks	Laboratories / week	N/A
Course Purpose and Objectives	<p>The objective of Safety Technology &amp; Professional Practice is to equip students with the necessary technical information that will enable them to identify and successfully manage all categories of hazards (chemical, biological, safety, ergonomics, psychosocial, physical). The emerging importance of the inclusion of technological advancements in terms of instrumentation and software in the identification and control of such risks will be highlighted. As technology moves towards greater automation, the additional demands placed on design safety of both hardware and software will also be emphasized. In depth understanding of all such risks will enable students to understand the causes and impact of small and large scale accidents involving technology and investigate them. The results of all of the above will be made evident in the development of a tailor-made emergency plan for designed technical systems that will make use of the results of risk assessment.</p> <p>Despite the fact that this is a postgraduate degree and prepares students to undertake safety science related posts (professional, managerial, scientific etc.) and not safety technician roles, students should have an understanding of the practical aspects of OSH, the current market needs and shifts.</p>				
Learning Outcomes	<p>Upon successful completion of this course students should be able to:</p> <ul style="list-style-type: none"> <li>Implement precautionary measures as a part of a wider H&amp;S system in order to minimize the risk of occupational accidents and occupational diseases</li> <li>Identification and management of all potential hazards</li> <li>Implement precautionary measures as a part of a wider H&amp;S system in order to manage all hazards such as vibration, noise, radiation etc</li> <li>Integrate practical aspects of OSH in a learning context through targeted projects</li> <li>Identify the causes of a technological accident and perform an accident investigation</li> </ul>				

Prerequisites	None	Required	None								
Course Content	<p>Theoretical and practical knowledge will be offered. Stemming from Risk Assessment, students will explore in depth the application of safety legislation in workplace risks like noise, chemical, biological, radiological, nuclear, vibration, indoor environment, nanoparticle and other risks. On-site visit(s) to organizations already implementing similar safety technology systems will be conducted. Environmental issues with an emphasis on climate change risks to the worker related to safety will be discussed. The importance of the design of a holistic emergency plan taking in account employees, visitors, the general public, contractors and subcontractors will be illustrated.</p> <p>Part of the course will be based on the acquaintance with practical aspects of OSH. In particular, OSH professionals will be invited in class, targeted visits to organizations will be arranged. Part of the course grade will come from a focused mini-project on a practical OSH issue of an existing organization.</p>										
Teaching Methodology	Face-to-Face										
Bibliography	<p>Required Readings:</p> <p>Phillip K. Tompkins, Managing Risk and Complexity through Open Communication and Teamwork, Purdue University Press, ISBN-10: 1557537127</p> <p>Recommended Reading(s) :</p> <p>Jeffrey Rose, Donald Lacher, Managing Public Safety Technology, Routledge; Latest Edition (ISBN 0323296092)</p>										
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Examinations	60%										
Class Participation and Attendance	10%										
Practical Mini Project	30%										
	100%										
Language	English										

Course Title	Human factors				
Course Code	OSH615				
Course Type	Compulsory				
Level	Master (2nd Cycle)				
Year / Semester	1st year/ 2nd semester				
Teacher's Name	Dr Cleo Varianou Mikellidou/ Prof George Boustras				
ECTS	10	Lectures / week	3 hours / 14 weeks	Laboratories / week	N/A
Course Purpose and Objectives	<p>OSH 615 aims to equip students with theoretical and practical knowledge on the important aspect of human and psychological factors in health and safety. Practical methods in the form of ergonomic design for all sectors will be highlighted and successful design methods will be applied. Psychological factors and their impact as well as the inclusion of health and safety in the design of working procedures will be analysed. Quantitative and qualitative methods of including human behavior in the successful design of safety systems among one of the aims of the course.</p>				
Learning Outcomes	<p>Upon successful completion of this course students should be able to:</p> <ul style="list-style-type: none"> <li>Enable students to identify aspects of job tasks that may increase a worker's risk of developing MSDs, recognize the signs and symptoms of the disorders, and participate in the development of strategies to control or prevent them</li> <li>Understand the impact of physiological stress on one's well-being.</li> <li>Identify risks that lead to musculoskeletal pain</li> <li>Relate limitations of human performance to various environmental and interpersonal conditions</li> <li>Apply knowledge of human task performance limitations in the occupational environment with a view to improving safety</li> <li>Apply the basic principles of occupational hygiene, including measurement, control and evaluation</li> <li>Identification of psychosocial hazards and measures to manage them</li> <li>Learn how to apply the theory, principles, data and methods to design healthy, safe and sustainable working environments.</li> <li>Learn how to apply work systems for human well-being and overall system performance</li> <li>Identify new emerging risks such as ageing</li> </ul>				



Prerequisites	None	Required	None
Course Content	<p>Theoretical and practical knowledge will be offered.</p> <p>Indicative focus areas are:</p> <p>Risk cognition and relevance to decision-making and human behaviour in Health and Safety</p> <p>Human factors relevant to H&amp;S and accident causation e.g. attention mechanism, sensory perception, risk cognition including 'hot' and 'cold' cognitions, habituation, expectancy, motivation, stress, learning etc.</p> <p>Group human factors such as safety culture, individual risk decision making and the importance of leadership</p> <p>Interdependence and mutual influence of group human factors and individual human factors such as risk cognition and motivation</p> <p>Risk Homeostasis theory and its application</p> <p>Application of 'person-work fit' principles to the design of organizational structures, business processes, work organization and performance measurement so as to reduce potential stress and mental health problems.</p> <p>Psychology, anatomy, physiology, biomechanics and anthropometry in ergonomics</p> <p>Application of individual ergonomic design principles to the 'person-task interface' in a variety of workplaces and types of work e.g. use of computers, plant control rooms, airline flight decks</p> <p>Application of Key Indicator Method (KIM)</p> <p>Application of well-being tools such as work ability index</p>		
Teaching Methodology	Face-to-Face		
Bibliography	<p>Required Reading(s):</p> <p>Sharon Clarke, Tahira M. Probst, Frank W. Guldenmund, Jonathan Passmore , The Wiley Blackwell Handbook of the Psychology of Occupational Safety and Workplace Health (Wiley-Blackwell Handbooks in Organizational Psychology) Latest Edition, ISBN-10: 9781118978986</p> <p>Gavriel Salvendy, Handbook of Human Factors and Ergonomics Latest Edition, Wiley ISBN-10: 0470528389</p> <p>Recommended Reading(s) :</p> <p>Applied Ergonomics, Elsevier ISSN: 0003-6870</p>		

Assessment	Examinations	60%
	Class Participation and Attendance	10%
	Project	30%
		100%
Language	English	

Course Title	Project Management				
Course Code	OSH625				
Course Type	Optional				
Level	Master (2nd Cycle)				
Year / Semester	1st year/ 2nd semester				
Teacher's Name	Prof Andreas Efstathiades				
ECTS	10	Lectures / week	3 hours / 14 weeks	Laboratories / week	N/A
Course Purpose and Objectives	The course is designed to help students appreciate the issues and methodologies involved in managing major projects, by drawing on a wide range of practical experience in project management. Students will be exposed to practical project management techniques and tools. Particular emphasis in highlighting the role of OSH as an integral part of project management will be paid to.				
Learning Outcomes	<p>Upon successful completion of this course students should be able to:</p> <ul style="list-style-type: none"> <li>Define basic management theories as an important element of running any project</li> <li>Define project management and describe the major tasks duties and responsibilities of the project manager</li> <li>Integrate OSH management as a key priority of Human Resource Management in any organization</li> <li>Discuss the strategic importance of capital projects, through cases studies and real business scenarios</li> <li>Discuss the elements of organizational design and discuss how they are related</li> <li>Define, plan and organize resources associated with capital projects which entail significant H&amp;S risks</li> <li>Identify, plan and organize the sequencing and timetabling for necessary H&amp;S risk assessments within the overall project; explain business metrics and discuss their importance in organizational design</li> </ul>				

	<p>Apply appropriate techniques such as logic and sequence diagrams, Gantt Charts and slip charts and proceed with all the necessary steps for project control and assessment</p> <p>Monitor projects effectively and any associated risks and managerial issues pertaining the projects</p>		
Prerequisites	None	Required	None
Course Content	<p>Project-based management is becoming the new general management tool in the contemporary business world since nearly all managers are involved in projects. The course presents a systematic approach to managing projects, in overall terms that will benefit the student in their day-to-day work as well as in terms of the specific H&amp;S life-cycle requirements for capital projects such as civil engineering and construction projects, the design, fabrication, hook-up and commissioning of onshore and offshore oil and gas installations etc. Topics covered include: project definition, managing time and cost in projects, project organization, resources in projects, managing quality in projects, project initiation and close-out, design safety, H&amp;S risk assessments of as designed/as built progress, special H&amp;S risk evaluations for ALARP criteria e.g. HAZOPS, FTAs, FMECAs, risk management, performance and evaluation.</p> <p>Introduction to Project Management , Modern Project Management,</p> <p>Organization Strategies and Project Selection Organization: Structure, Processes and Culture.</p> <p>Project Organization. Defining the Project. Selecting the Project Manager and Team. Defining the scope and Objectives, planning the project format. Defining the work break down structure.</p> <p>Diagramming the network, Developing the Schedule, Estimating Project Times and Costs, Developing a Project Plan, Managing Risk, Scheduling Resources, Reducing Project Duration. Project Implementation, Project Control and assessment, Risk and Issue management</p> <p>Leadership: Being an Effective Project Manager, Managing Project Teams</p> <p>Management: managing troubled personnel, the importance of OSH in setting a proactive work-life balance in the workplace</p>		

	<p>Managing work-sites: the importance of legislation, safe and efficient use of Personal Protective Equipment</p> <p>Progresses and Performance Measurement and Evaluation Project Audit, Safety Management System (SMS) Audit and Closure</p> <p>Progresses and Performance Measurement and Evaluation Project Audit and Closure</p>								
Teaching Methodology	Face-to-face								
Bibliography	<p>Required Reading(s):</p> <p>Clifford Gray and Erik Larson, Project Management: The Managerial Process, Latest Edition, McGraw Hill, (ISBN 9780073403342)</p> <p>Recommended Reading(s) :</p> <p>Nigel J. Smith, Tony Merna, Paul Jobling, Managing Risk in Construction Projects, Wiley-Blackwell; Latest Edition, (ISBN 1118347234)</p>								
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Examinations	60%								
Class Participation and Attendance	10%								
Project	30%								
	100%								
Language	English								

Course Title	Research Methods				
Course Code	MSH620				
Course Type	Compulsory				
Level	Master (2nd Cycle)				
Year / Semester	1st year/ 2nd semester				
Teacher's Name	Prof George Boustras				
ECTS	10	Lectures / week	3 hours / 14 weeks	Laboratories / week	N/A
Course Purpose and Objectives	<p>Students upon completion will have the necessary academic skills that will be needed for an in-depth research study in the area of their choice. They should have a broad knowledge of various data collection and analysis techniques and appreciate the significance of H&amp;S research to industry and government. In addition, the student should be able to evaluate the effectiveness of the research of others, and will be prepared to conduct his or her own research project and be capable of analysing and interpreting the data from this project. Practically, the student will be in a position to draft a research proposal, to be able to design and implement a H&amp;S research campaign and to carry out a mini-research project as well as present the research report to interested parties</p>				
Learning Outcomes	<p>Upon successful completion of this course students should be able to:</p> <ul style="list-style-type: none"> <li>Plan, develop and deliver a research paper to academic standards</li> <li>Critically appraise literature sources and conduct and compile a critical review of relevant literature to academic standards, which identifies gaps in the literature and proposes further studies to help close those gaps</li> <li>Choose and apply the appropriate methodology to meet the student's specific research objectives for an identified study</li> <li>Design and apply appropriate sampling frames for research purposes</li> <li>Design and apply data collection programmes, including design and use of appropriate data collection instruments</li> <li>Illustrate the difference between quantitative and qualitative research techniques and use them in practical applications</li> <li>Choose appropriate techniques for the analysis of collected data and conduct basic statistical analysis using the computer software package SPSS.</li> </ul>				
Prerequisites	None	Required	None		
Course Content	As stated above, this course aims to familiarize students with the methods of H&S Research and to assist them in the presentation, interpretation and				

	<p>application of research data. It is the course, where students, will prepare for their forthcoming Thesis.</p> <ul style="list-style-type: none"> <li>A. The role of OSH research</li> <li>B. Main styles of research (hypothetico-deductive/quantitative and inductive/grounded theory/qualitative) and their respective applications</li> <li>C. Problem definition and the research proposal</li> <li>D. Research Planning and Design</li> <li>E. Survey research methodology, including pros and cons of surveys</li> <li>F. Experimental research</li> <li>G. Qualitative Exploratory Research e.g. industrial ethnography</li> <li>H. Theory building in ethnographic and other grounded theory approaches</li> <li>I. Action research</li> <li>J. Measurement concepts in research</li> <li>K. Sampling and fieldwork</li> <li>L. Data analysis</li> <li>M. Sources of bias in: selection of cases, sampling frames, sample drawing, data collection instruments, data collection activity, data analysis.</li> <li>N. Techniques for reducing research biases</li> <li>O. The research report</li> <li>P. Ethical issues in conducting research.</li> </ul>
Teaching Methodology	Face-to-face
Bibliography	<p>Required Reading(s):</p> <p>Larry Christensen, R. Burke Johnson, Lisa A. Turner, Research Methods, Design, and Analysis, Latest Edition, Allyn and Bacon, (ISBN0205701655)</p>

	<p>Recommended Reading(s):</p> <p>Christopher A. Janicak, Safety Metrics: Tools and Techniques for Measuring Safety Performance, Government Institutes, (ISBN1605902608)</p> <p>Christopher A. Janicak, Applied Statistics in Occupational Safety and Health, Government Institutes, (ISBN 0865871698)</p>						
Assessment	<table border="1"> <tr> <td data-bbox="480 786 932 853">Class Participation and Attendance</td> <td data-bbox="932 786 1171 853">10%</td> </tr> <tr> <td data-bbox="480 853 932 920">Project</td> <td data-bbox="932 853 1171 920">90%</td> </tr> <tr> <td data-bbox="480 920 932 987"></td> <td data-bbox="932 920 1171 987">100%</td> </tr> </table>	Class Participation and Attendance	10%	Project	90%		100%
Class Participation and Attendance	10%						
Project	90%						
	100%						
Language	English						



Course Title	Loss Prevention and Process Safety in the Oil, Gas, Petrochemical and Chemical Industries				
Course Code	OSH630				
Course Type	Optional				
Level	Master (2nd Cycle)				
Year / Semester	1st year/ 2nd semester				
Teacher's Name	Dr Christos Argyropoulos				
ECTS	10	Lectures / week	3 hours / 14 weeks	Laboratories / week	N/A
Course Purpose and Objectives	<p>Many aspects of process operations and their associated hazard inventories can be improved including, product recoveries, energy utilization, and safety. This cannot be achieved without first an understanding of basic fundamental principles of risk assessment and decision making. For the loss prevention and risk control to be effective, these principles need to be understood in advance of operating and trouble shooting a process unit operation or site. Moreover, as many such processes and substance inventories are defined as major hazards under the EU Major Hazards Directive EC82/96, many aspects of preventing and controlling losses will necessarily contribute to compliance with the Directive thus avoiding, where possible, unnecessary duplication of major hazard risk management effort.</p>				
Learning Outcomes	<p>Upon successful completion of this course students should be able to:</p> <p>Perform Qualitative Risk Assessments (QRA) - Manually and by use of specialist computer software</p> <p>Handle Safety Statistics - the importance, collection and use of published statistics and previous case studies in process safety</p> <p>Establish Safety Management Systems (SMS) - Implementation of effective SMSs and their impact on risks and risk assessment</p> <p>Perform hazard identification - Checklists, Failure Modes and Effects Analysis (FMEA) and criticality identification (FMECA)</p> <p>Apply Hazard and Operability Studies (HAZOPS) and participate as a HAZOP Chairman or Secretary</p> <p>Use effectively Fault Tree Analysis (FTA) and Event Tree Analysis (ETA), including structured development and use of probabilistic trees</p> <p>Use advanced techniques such as: (FMECA), Structured What-If (SWIFT) risk matrix</p> <p>Extend and collate all the above loss prevention techniques and activity into a coherent compliance with EU Major Hazards Directive (Seveso II) EC82/97EC, including Article 7 MAPP (Major Accident Prevention Policy</p>				

	<p>including SMS and risk assessments), Article 8 (preventing domino effects) and Article 9 (detailed safety reports on MAPP and SMS effectiveness)</p> <p>Compile statutory Safety Reports and/or Safety Cases for defined major hazard sites, installations or operations</p> <p>Apply a realistic balance of qualitative information in risk decision making i.e. not based on QRA alone or dominated by it.</p>										
Prerequisites	None	Required	None								
Course Content	<p>Process safety risks. High energy processes and high energy/high toxicity substance inventories. Major accident causes, consequences and preventative action. Personnel health and safety. SMS and MAPP. Process safety analysis. Loss prevention. Process safety in design. Process safety in operations. Defining and quantifying risk. Checklists. Hazard and operability analysis (HAZOP) studies. Hazard analysis (HAZAN) techniques. Human factors and human error in major hazard accidents. Linking HAZOPS, process control, instrumentation and alarm systems. Cost of plant safety. Environmental impact. Case studies of serious plant accidents e.g. Buncefield, BP Grangemouth, Flixborough, Piper Alpha, BP Deepwater Horizon, PetroChina Jilin, Mari-Vassilikos EU Major Hazards Directive 82/96 requirements on site owners and operators. Preparation and content of Safety Reports. Preparation and content of Safety Cases.</p>										
Teaching Methodology	Face-to-Face										
Bibliography	<p>Required Reading(s):</p> <p>Frank Lees, Lees' Loss Prevention in the Process Industries: Hazard Identification, Assessment and Control (3 Volumes), Latest Edition Butterworth-Heinemann, ISBN-10: 0123971896</p> <p>Recommended reading(s):</p> <p>Alan Waring, Corporate Risk and Governance: An End to Mismanagement, Tunnel Vision and Quackery Latest Edition, Routledge, ISBN-10: 9781138274761</p> <p>Journal of Loss Prevention in the Process Industries, Elsevier, ISSN: 0950-4230</p>										
Assessment	<table border="1"> <tr> <td>Examinations</td> <td>60%</td> </tr> <tr> <td>Class Participation and Attendance</td> <td>10%</td> </tr> <tr> <td>Project</td> <td>30%</td> </tr> <tr> <td></td> <td>100%</td> </tr> </table>			Examinations	60%	Class Participation and Attendance	10%	Project	30%		100%
Examinations	60%										
Class Participation and Attendance	10%										
Project	30%										
	100%										
Language	English										

Course Title	Critical Infrastructure Protection				
Course Code	OSH635				
Course Type	Optional				
Level	Master (2nd Cycle)				
Year / Semester	1st year/ 2nd semester				
Teacher's Name	Dr Christos Argyropoulos				
ECTS	10	Lectures / week	3 hours / 14 weeks	Laboratories / week	N/A
Course Purpose and Objectives	<p>The aim of the Critical Infrastructure Protection course is to introduce students to the importance of safety and security threats to large scale major hazard installations, which provide utilities and services that are critical to the functioning of a country or large sectors e.g. energy supplies such as oil refineries, petroleum and gas fuel distribution, electrical power generation and transmission, water treatment and supplies, and gas processing terminals. Environmental, societal, and financial dimensions of security and safety of large scale major hazard installations will also be dealt with. Owing to time limitations, natural disasters and other critical infrastructure such as nuclear power stations, railways and telecommunications will not be the main focus of this course, although their importance is recognized. The process of identification of Critical Infrastructures and their importance to modern societies will be highlighted. Students will be taught how to identify and understand threats. Analysis of interdependencies between CI and the link between safety and security will be explored. Finally, students will develop (a) Major Accident Prevention Policies (MAPPs) for EU Seveso II Directive compliance, (b) Operational Security Plans.</p>				
Learning Outcomes	<p>Upon successful completion of this course students should be able to:</p> <ul style="list-style-type: none"> <li>Identify local / National / EU critical infrastructures</li> <li>Understand major hazard and security threats</li> <li>Identify critical / vulnerable components of CI</li> <li>Evaluate major hazard safety measures/MAPPs</li> <li>Evaluate security measures / Operational Security Plans</li> <li>Report methods to revise major hazard safety and security of vulnerable assets</li> <li>Demonstrate mitigation of a critical infrastructure threat Understand interconnections between CI and societal impacts</li> </ul>				
Prerequisites	None	Required	None		

Course Content	<p>Introduction to CI and their role in modern societies. Local / National / EU critical infrastructures. European and National approaches to CI protection. Directive 114/2008 and its implementation on a national and infrastructure level. Identification and analysis of critical infrastructure systems including major hazards and security threat assessments. Includes mitigation of threats as well as evaluation and revision of major hazards and security measures in order to protect critical infrastructures. Examples of MAPPs, statutory Safety Reports/Safety Cases and Operating Security Plans. Analysis of interconnectivity and interrelationships between CI. Sectoral examples and case studies: Energy (electrical power generation/transmission, oil refineries, gas processing terminals, fuel supplies), Water (bulk chlorine major hazards at treatment installations), Transport (bulk fuel road tankers).</p>						
Teaching Methodology	Face-to-Face						
Bibliography	<p>Required Reading</p> <p>Kelley Cronin, Nancy E. Marion, Critical Infrastructure Protection, Risk Management, and Resilience: A Policy Perspective Latest Edition, CRC Press, ISBN-10: 1498734901</p> <p>Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances, European Commission, Brussels, 2012</p>						
Assessment	<table border="1" style="width: 100%;"> <tr> <td style="width: 60%;">Class Participation and Attendance</td> <td style="width: 40%; text-align: center;">10%</td> </tr> <tr> <td>Project</td> <td style="text-align: center;">90%</td> </tr> <tr> <td></td> <td style="text-align: center;">100%</td> </tr> </table>	Class Participation and Attendance	10%	Project	90%		100%
Class Participation and Attendance	10%						
Project	90%						
	100%						
Language	English						

Course Title	Fire Safety Management				
Course Code	OSH640				
Course Type	Elective				
Level	Master (2nd Cycle)				
Year / Semester	1st year/ 2nd semester				
Teacher's Name	Dr Klelia Petrou				
ECTS	10	Lectures / week	3 hours / 14 weeks	Laboratories / week	N/A
Course Purpose and Objectives	<p>The objective of Fire Safety Management is to equip students will all necessary practical and theoretical that will enable them to prepare a successful, targeted fire strategy. Students will become familiar with performance based aspects of fire safety management and fire safety engineering. The importance of carrying out successful fire risk assessments of deterministic and / or probabilistic nature and the use of their results will be integrated in the learning experience. The use of specialist made software for the calculation of important aspects of fire safety such as radiation, evacuation times and other important aspects.</p>				
Learning Outcomes	<p>Upon successful completion of this course students should be able to:</p> <ul style="list-style-type: none"> <li>Identify risks related to fire in the built environment</li> <li>Use National, EU and International fire safety legislation</li> <li>Distinguish between the different protective measures and means that have to be adopted in the different phases of the building life</li> <li>Develop deterministic and probabilistic fire risk assessments</li> <li>Design a tailor made fire safety protection system based on the outcome of a successful risk assessment</li> <li>Use specialist software to design fire-safe buildings</li> <li>Develop focused fire strategies</li> </ul>				
Prerequisites	None	Required	None		
Course Content	<p>The module will concentrate upon the identification, design and implementation of fire safety management measures and techniques during the design phase and the actual life of the building. A number of issues will be dealt with during the course, among them:</p>				

	<p>e module will concentrate upon the division of lty position once the program is approved. t.II feed into the existing work of Fire Safety Legislation from Cyprus, UK, USA, Japan etc.</p> <p>Fire Dynamics</p> <p>Deterministic and probabilistic fire risk assessment</p> <p>Design of passive fire protection</p> <p>Design of active fire protection</p> <p>Performance based codes versus legislation</p> <p>Design of egress using hand calculations and/or simulators.</p> <p>Evacuation experimentation, modeling and techniques</p> <p>Fire Strategies</p>								
Teaching Methodology	Face-to-face								
Bibliography	<p>Required Reading(s):</p> <p>Daniel E. Della-Giustina, Fire Safety Management Handbook Latest Edition, CRC Press, ISBN-10: 9781482221220</p> <p>Recommended Reading(s) :</p> <p>Ganapathy Ramachandran, David Charters, Quantitative Risk Assessment in Fire Safety, Routledge, (ISBN 0419207902)</p> <p>Michael Hasofer , V.R. Beck, I.D. Bennetts, Risk Analysis in Building Fire Safety Engineering, Butterworth-Heinemann, (ISBN 075068156X)</p> <p>Bjorn Karlsson, James Quintiere, Enclosure Fire Dynamics, CRC Press</p>								
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Examinations	60%								
Class Participation and Attendance	10%								
Project	30%								
	100%								
Language	English								

Course Title	Master Dissertation				
Course Code	OSH650				
Course Type	Compulsory				
Level	Master (2nd Cycle)				
Year / Semester	1st year/ 3rd semester				
Teacher's Name	Prof George Boustras				
ECTS	30	Lectures / week	xxx	Laboratories / week	None
Course Purpose and Objectives	<p>The Master Thesis will be a research investigation into a safety related management issue utilizing primary and secondary investigation, techniques and data sources. The investigation will require the use of all the theoretical and practical skills acquired during the tuition of the students in this Master course. Problem definition, a thorough literature review, methodological decisions, data collection and analysis and finally conclusions and recommendations will be the milestones to be reached during the work. Students will work independently under the supervision of a relevant (research wise) member of staff. Innovation and creation of novel knowledge will be the aim of this study.</p>				
Learning Outcomes	<p>Upon successful completion of this course students should be able to:</p> <ul style="list-style-type: none"> <li>Identify specific substantive problems/issues tasks within organization/business sector placing them in a strategic context in their investigations</li> <li>Formulate a related research question via a review of the activities and operations organization/ business sector and the environment within which it operates</li> <li>Discuss different research methodologies and their limitations, and be able to explain when one might be more appropriate than other in the context of the chosen research project</li> <li>Apply appropriate qualitative and quantitative research methods including action research as necessary to analyze organizational/safety sector strategic problems</li> <li>Record, interpret and analyze qualitative and quantitative data relating to the research topic</li> <li>Explain that the project findings have been logically derived and that conclusions, solutions/recommendations are fully supported by evidence</li> <li>Derive strategic recommendations for changes in organizations or strategies and articulate these in a concise and coherent manner for implementation by management</li> </ul>				

Prerequisites	None	Required	None
Course Content	<p>During the conduct of the Master's project, the following issues will have to be dealt with:</p> <ul style="list-style-type: none"> <li>· independent application of theory to the relevant safety management field</li> <li>· independent conduct of research/generation of a solution to a practical problem</li> <li>· acquisition of more in-depth knowledge and application of it to the field of study</li> <li>· demonstration of skills (including verbal and written communication skills) acquired in completing the Master's program curriculum</li> <li>· finishing of the assignment within the time permitted</li> </ul> <p>To this end, the student independently develops and implements a research-oriented and/or design oriented project. He completes the project within the time permitted; justifies the models, theories, methodology and techniques used, as well as the research/design process as a whole; analyses the work completed; and makes both an oral and written report of his work.</p> <p>Students will be required to produce a report of between 15,000 to 20,000 words excluding appendices.</p>		
Teaching Methodology	Face-to-face		
Bibliography	<p>Required Reading(s):</p> <p>John W. Creswell, Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, Sage Publications, Inc; Latest Edition</p> <p>Recommended Reading(s) :</p> <p>Larry B. Christensen, R. Burke Johnson, Lisa A. Turner, Research Methods, Design, and Analysis, Latest Edition, Allyn and Bacon</p>		
Assessment	Project	100%	100%
Language	English		