

EUCEET GROUP H

DEVELOPING SYNERGIES BETWEEN THE ACADEMIC AND PROFESSIONAL WORLDS

THE STATE OF THE ART, PORTUGAL 2009

SKILLS SHORTAGES

Portugal is presently facing a large internationalization within the construction industry, with companies working in East Europe, Northern Africa, Angola and Mozambique and South America. This allowed for a high level of employment for Portuguese engineers, namely in construction activities and working abroad. Design offices are also with work as they are working for the construction companies working abroad.

Civil engineers in Portugal have a broad education, so they can easily adapt to any job from design, to construction management, as soon as they face the working world.

Presently we have only a slight excess of civil engineers, has we have some unemployment for young engineers namely coming from lower rate universities.

In the next years, with the public works planned by the government to face the economic crisis (6 hospitals, 1000 km of highways, 9 dams and 700km of TGV lines) it is expected to have again a shortage of civil engineers.

In Portugal we do not face lack of candidates for civil engineering. In fact almost all our courses in public universities (7 universities plus several polytechnic at an average of 100 students) reach each year their clausus number for admissions.

Civil engineering is considered by the public as a quality profession, as we have been able to perform with quality several major public works in Portugal and abroad. Our associations try also to promote our profession (not as much as we should do). As an example with have a week TV program describing major construction works.

Skills Shortages: presently a slight unemployment, some shortage envisaged in near future

Skills Gaps: not significant due to the broad university education

THE SKILLS PIPELINE

In Portugal this type of problem is not significant as we have a broad education for civil engineers. In the 5th year students may choose a profile (among structures, construction, hydraulics, geotechnics and urban planning) but this means that only 4 disciplines (in the total graduation) may be different among them.

With this schema all our students have a basic formation that allows them to perform any act of civil engineer and their specialization will come with professional life.

This type of education was maintained, even with Bologna, as it corresponds to the industry desire and it agrees with our professional association.

QUALITY AND STANDARDS

The quality of the civil engineers coming out of the universities is checked by our National Association (Ordem dos Engenheiros) that is entitled to give the title of Engineer with which engineers may be responsible to practise acts of civil engineering.

The Ordem dos Engenheiros performs periodical evaluations of the Civil Engineering Courses at the Universities (accreditation) and if approved, students from those universities may enter directly to the Association. Those that come from non approved universities need to perform an admission examination.

Presently the evaluation of the universities is being done within the European Network EURACE.

Related to Quality in Industry, most of our important construction companies have adopted the Quality ISO Standards. The problems of quality arise in small construction companies (usually up to 10 persons), but there the skills do not come from university.

In Portugal the girl-students in civil engineering are increasing reaching numbers above 30%. It is frequent to find a women directing a construction site, so we do not consider this a problem.

THE ROLE OF GOVERNMENT

1. Facing the Construction Industry

Government is always between two situations: public opinion and public jobs. It is a fact that public opinion (namely intellectuals, environmentalists, etc.) tend to be against public works, defending investments in culture, environment protection, etc.

But governments know that when a crisis arrive (as it is now) the only solution to increase quickly jobs is to implement public works. In fact civil engineering works develop a multitude of jobs (reaching even non skilled workers) and they are the best engine to put economy working again.

Civil engineers have a lack of know-how in defending their image. In fact they should bring much more to the public the advantages of the public works they perform. The importance of the construction companies working abroad in the country exportations is never referred as compared with classical industry. The employment associated with construction industry never is presented, but when a car company employs more 100 persons it appears in TV. We should begin to have classes about the Civil Engineering image.

2. Putting together Universities and Industry

Government subsidizes the universities in Portugal, but imposes low fees for the students up to the master level. This allows the industry to receive cheap (for free) engineers and they do not feel the need to involve with the universities. The only slight exceptions are:

a) Post-grad education – Where industry feels the necessity to achieve specialization in some sectors and comes to the universities to have specialized courses. There are already some University-Industry associations for specialized education in civil engineering.

b) Research – Here construction industry is not prepared to make significant investments in research. Usually they perform their own developments and they consider research a cost and not an investment. This leads to some difficulties to have PhD Students in this area as they are not recognized by the industry and their employment is usually related to Research Centres or Universities. Usually there are Government PhD scholarships, but few students candidates.

Recently Government imposed to companies winning public works an investment on research of 0,5% of the contract value. It is a good idea if companies decide to invest that amount in research with universities.

THE CURRENT ECONOMIC CRISIS

The Government as a vast plan for public works (6 hospitals, 1000 km of highways, 9 dams and 700km of TGV lines), most of them in Concession schema.

This is the classical solution to create jobs and put the machine working again. It must be said that to create jobs building construction is better than other public works. Typically in building construction the salaries cost around 30% of the total amount and in roads, TGV, etc, that number reduces due to the increase in cost of machines.

In parallel the investment in universities was reduced around 11% what leads to management difficulties. Public universities begin to feel that they need to adopt a privatized policy to keep their quality levels.