

INTRODUCTION AND SUMMARY OF SURVEY RESULTS

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EUROPEAN ACTUARIAL CONSULTATIVE GROUP

- Consultative Group established in 1978
- mutual recognition agreement in 1992
- Education Committee established in 1992
- core syllabus adopted in 1998
- endorsement by member associations in 2001
- implementation by 2005

MUTUAL RECOGNITION

- mutual recognition of higher education diplomas a requirement of EU legislation from 1992
- agreement between actuarial associations in 1992
- full mutual acceptance of fully qualified actuaries
...subject to adaptation period of one year
- common code of conduct requirement
- coordination of syllabus for actuarial education

OBJECTIVES FOR EACG

- strong actuarial education throughout EU
- firm basis for mutual recognition
- clarity for regulators in definition of actuary
- development of common educational materials
- increasingly European education process
- European actuaries

QUESTIONNAIRE : Q2

Assn. runs own exams	GR, I, LV, NL, UK
Univ. + assn. exams	CH, D, ES, LV, NL
Universities alone	B, DK, E, F, I, P, SL
Univ. credits for assn. exams	CH, D, ES, NL, UK
Other exams not accepted	CA, D, E, IRL, HR, LV, NL, P, SF
Govt. has responsibility	DK, F, GR, HR, I, SF, SL
Other system	CA,HR,IRL,LV,LT,S,SL

QUESTIONNAIRE : Q2.2-2.4

	New members in 2000	Students of assn. in 2000	Univ. act. sci. students in 2000
Austria			
Belgium	55		85
Catalunya	40	20	100
Croatia	8	28	
Denmark	229		130
Estonia		20	7
Finland	3	20	
France	100	90	300
Germany	141	1000	
Greece	3	65	250
Italy (Trieste)	35		300

QUESTIONNAIRE : Q2.2-2.4

	New members in 2000	Students of assn. in 2000	Univ. act. sci. students in 2000
Ireland	31		220
Latvia		6	32
Lithuania	14		??
Luxembourg			
Netherlands	29	533	195
Portugal	5		105
Slovenia	27	5	15
Spain	124		350
Switzerland	29	24	60
Sweden	16		50
United Kingdom	318	5266	450

ALTERNATIVE ROUTES OF ACTUARIAL EDUCATION

- professional body sets full set of examinations
 - Greece, Netherlands, United Kingdom
- university plus professional examinations
 - Germany, Netherlands, Sweden, Switzerland, UK
- government controlled examination
 - Italy, Finland, Greece
- university education only
 - Austria, Belgium, Catalunya, Denmark, Portugal, Spain
- actuarial university or other university plus dissertation/jury
 - France
- reliance on qualification routes in other countries
 - Ireland, Luxembourg, Channel Islands, Cyprus

CORE SYLLABUS IMPLEMENTATION - already

- new university degrees (HR, LT)
- changes to university courses (CH, F, I, S)
- working party with 13 universities (E)
- increased number of professional exams (GR)
- quality control on what students study (CA)
- addition of professionalism (B), English (F)
- addition of Financial Maths and Accounting (D)

CORE SYLLABUS IMPLEMENTATION - planned

- review syllabus regularly with universities (CH)
- further changes to university courses (I)
- structured post-univ. system by association (DK)
- changes needed as a result of legislation (D)
- two-tier membership (CA)
- economics, inv. maths and financial theory added (SF)

CORE SYLLABUS

IMPLEMENTATION - difficulties

- limited capacity for concepts of practice (E)
- shortage of teachers with practical knowledge (LT)
- too much detail with little room for local aspects(S)
- getting universities to run courses (SF)
- need to be able to allow some specialisation (UK)
- pension experts still separate (CH)
- insufficient lecturers (SL); funded pensions (F)

READINESS OF OTHERS TO CHANGE

	Yes	No
Have the universities been prepared to make changes?	10	1
Has the government made changes (where relevant)?	3	6
Has there been good joint working with universities/govt.?	9	

SHOULD GC MONITOR?

- every few years
- after 2005
- would help in future bargaining with govt/univs
- GC should verify content
- GC should set minimum standards for exams
- common examination system
- rely on self-certification
- promote seminars and educational material

WHAT NEEDS UPDATING?

- bibliography
- non-life statistical methods
- more on financial maths, financial risk management and solvency methods
- keep up with modern thinking
- reflect convergence of practice areas

WHAT SHOULD BE PRESENTED DIFFERENTLY?

- language requirement should be compulsory
- more emphasis on generic approach to concepts followed by specialisation
- syllabus too wide - allow specialisation
- more indication needed of depth of treatment
- reduce content of living benefits
- make statistics optional

NEW TOPICS TO CONSIDER INCLUDING

- fair value methods (in line with IASB)
- more on investment and corporate finance
- financial mathematics and financial risk management
- solvency methods, risk-based capital
- asset/liability modelling
- topics on border with finance
- stochastic dependency; extreme values

PARTS OF SYLLABUS WITH INSUFFICIENT TEXTBOOKS

- life insurance; general insurance
- fair value methods
- stochastic methods (at appropriate level)
- global rather than national approaches
- practical applications of financial theory
- living benefits
- certain languages not well served

SCOPE FOR GC TEXTBOOKS

- actuarial foundations
- generalised applications
- pensions/ healthcare - generic materials
- fair/market value and implications of IAS
- investments and financial mathematics

E-LEARNING

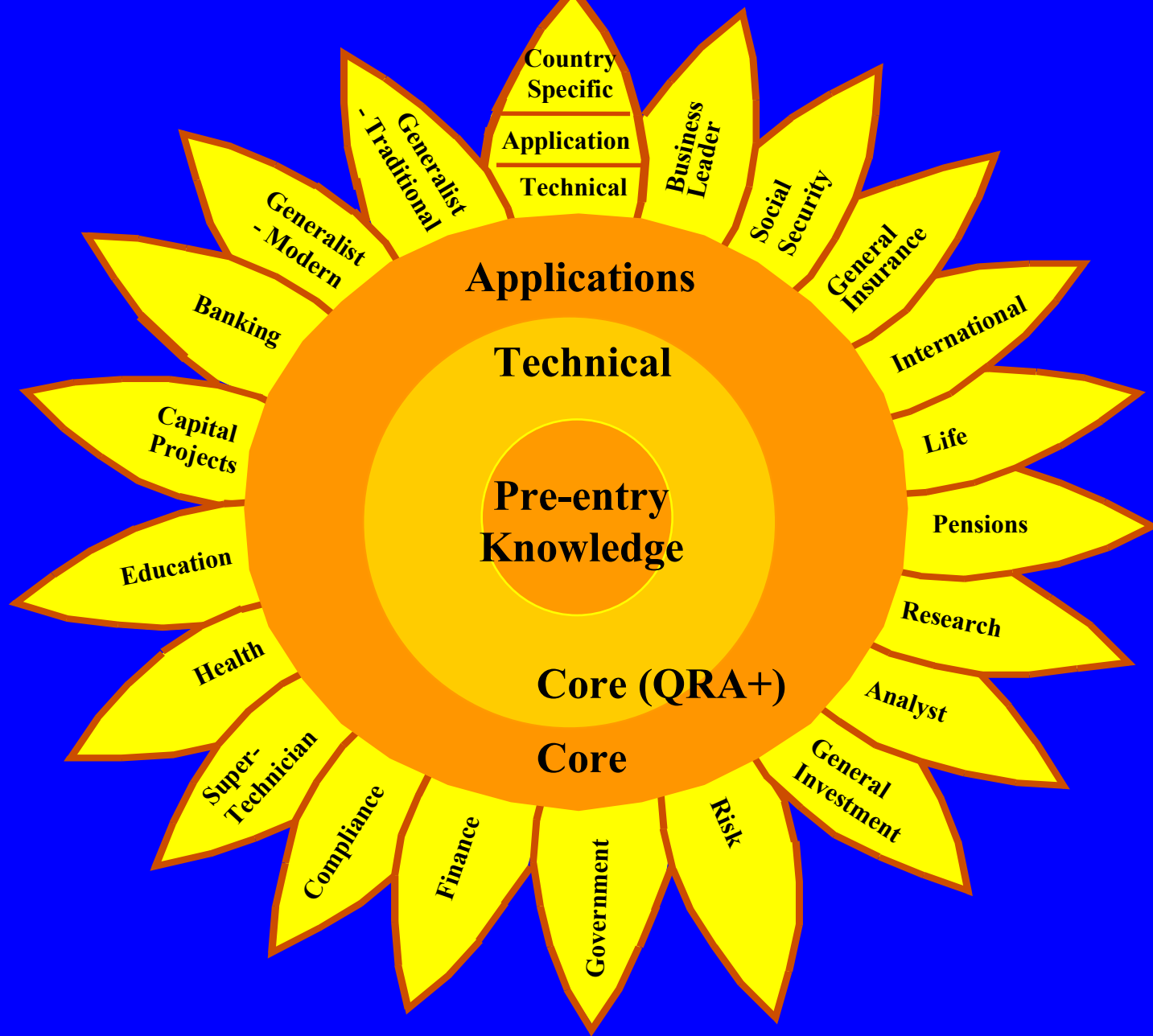
- 13 associations use or intend to use in future
- useful for law, professionalism
- generalised applications course material
- exam papers and answers
- will improve access to materials
- 9 would be prepared to make available materials

TOPICS FOR CPD SEMINARS

- solvency and risk-based capital
- fair value methods
- projecting mortality improvements
- alternative risk transfer
- asset/liability modelling and simulation
- pensions and healthcare (European approaches)
- stochastic dependency; extreme value methods
- risk classification and mapping
- professionalism

FUTURE DISCUSSION TOPICS FOR COMMITTEE

- common international examination system
- breadth or specialism after common core
- role of universities and associations
- sharing of knowledge of actuarial education/CPE
- helpline for implementation of core syllabus
- educating members on role of Groupe



QUANTITATIVE RISK ANALYST (QRA)

- material which is not uniquely actuarial
- align with courses typically taught in univs.
- consider possibility of exemptions
- internationally accepted syllabus
- mutual recognition of qualification

TECHNICAL SUBJECTS

Probability and Mathematical Statistics (QRA)

Financial Mathematics (QRA)

Modelling (QRA)

Mathematics of Contingencies (non-QRA)

Statistical Methods (QRA)

Economics (QRA)

Financial Accounting (QRA)

Investment Mathematics (QRA)

CORE APPLICATIONS

- Actuarial Control Cycle
- Stakeholders
- Investment and assets
- Specifying the problem
- Input validation
- Producing the solution
- Living with the solution
- Monitoring
- General Environment
- Professionalism

KEY ELEMENTS

- meeting the needs of clients/customers
- awareness of risk
- consistency through pricing, valuation, etc
- measurement of value, profit and return
- holistic approach
- principles rather than practice area based
- examples from a wide range of applications

SPECIALIST AREAS - 1

- Life insurance
- General insurance
- Pensions
- Finance and investment
- Health & Care

SPECIALIST AREAS - 2

- partly country-specific
- oriented towards business applications
- underpinned with professionalism concepts
- professional development component
 - communication skills
 - management skills
 - project management

CONSULTATIVE GROUP SYLLABUS STRUCTURE

- Stage 0: Preliminary Stage
- Stage 1: Actuarial Foundation Stage
- Stage 2: Generalised Applications Stage
- Stage 3: Country/Practice Area Stage

PRELIMINARY STAGE

- mathematics
- probability & statistics
- stochastic processes
- computing
- economics
- accounting & reports

ACTUARIAL FOUNDATION STAGE

- financial mathematics
- survival models and simple applications
- risk mathematics
- investment and asset management

GENERALISED APPLICATIONS STAGE

- actuarial control cycle
- life insurance
- general insurance
- pensions and social security
- health insurance & living benefits

PRACTISING STAGE

- country specific terminology
- commercial environment
- legal & accounting environment
- practical applications in this context
- advanced applications
- professionalism & standards
- continuing professional development

GROUPE CONSULTATIF EDUCATION COMMITTEE

EDUCATION SURVEY 2001-2002

1. Responses from 22 associations

For a summary of results see attached table as Appendix A

2. Education system

2.1 Please tick as many of the following statements as apply to your current education system.

(1) Professional association runs its own examination system in all subjects for admission.	Yes 6	No 15
(2) Professional association offers additional examinations for admissions following university education.	Yes 5	No 15
(3) Universities are fully responsible for actuarial education. Partly 1	Yes 5	No 14
(4) Professional association runs its own exam system but allows university credits.	Yes 6	No 14
(5) Professional association admits members based on examinations of other associations.	Yes 13	No 9
(6) National Government has responsibility for actuarial education and actuarial designation.	Yes 6	No 15
(7) Other system	Yes 7	No 9

2.2 How many actuaries were admitted to your association as full members in 2000?

See chart

The numbers vary from 0 – 318

2.3 How many students were studying actuarial science under an education system administered by your association in 2000?

See chart

The positive entries vary from 5 – 5266

2.4 How many students were studying actuarial science at university in your country in 2000?

See chart

The positive entries vary from 7 – 450

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3. Groupe Consultatif Core Syllabus Implementation

3.1 Have any changes been made to your national education system as a result of the adoption of the Groupe Consultatif Core Syllabus in 1998?

Yes 10

No 10

Two associations (Lithuania and Croatia) have brought in university degrees. Three associations (Switzerland, Sweden, Italy) have changed their university courses.

Greece is increasing the number of examinations.

Germany has added Financial Mathematics and Accounting.

Catalonia is introducing a quality control system on courses and what individuals study.

Catalonia Association has responsibility for education requirements but most of it is provided through the university.

Belgium is adding professionalism.

3.2 Are you planning any further changes based on the current Core Syllabus to bring your education system in line by 2005?

Yes 12

No 7

Spain: 13 universities that offer actuarial science are adopting programmes Association has set up a joint working party with universities on process of recognition as a full member of Instituto.

Lithuania: Vilnius Masters degree. Stage 2 General Applications stage.

Latvia: Organised group of actuarial science.

Sweden: Association looking at this.

Finland: Economics, investment mathematics and financial theory added.

Italy: Further university changes.

Cyprus: Make 15, 16, 17, 18 compulsory whereas now one of 15, 16, 17 required).

Croatia: Not decided.

Switzerland: Syllabus SSA reviewed regularly with universities.

Germany: There will be changes but caused by legislation changes not core syllabus.

Catalonia Association is planning two types of membership. International and university qualified member. International members will have taken additional seminars.

Denmark: A structured post-university system administered by the professional association and ready by 2004.

3.3	Are there any aspects of the Core Syllabus that your association finds difficult to implement?	Yes 8	No 14
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Spain: Areas in preliminary stage will be covered pre actuarial study. Limited capacity to develop some of the concepts of actuarial practice.

Lithuania: Shortage of actuarial teachers with understanding or practical applications.

Sweden: Too detailed with little room for local requirements and personal specification.

Finland: Getting universities to lay on courses. No textbooks in language.

UK: Students will need to specialise from a generic base.

Switzerland: Pension scheme experts kept separate because the examinations in this area are supervised by the government.

Slovenia: Problem with sufficient lecturers.

3.4	Have the universities been prepared to make changes to comply with the Core Syllabus?	Yes 9	No 1
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3.5	Has the government made changes (where relevant)?	Yes 3	No 6
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3.6	How has the association been able to work with the universities (or the government) in order to bring about conformity to the Core Syllabus?		
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9 associations described good joint working (Croatia, Finland, Italy, Latvia, Lithuania, Portugal, Spain, Switzerland, Sweden).

3.7	Does your association think that the Groupe Consultatif should engage in more active monitoring of educational systems to check conformity with the Core Syllabus?	Yes 9	No 10
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Lithuania: Maybe

Latvia: Common examination system.

Finland: Difficult to implement because of language.

Italy: Period checks every 2 – 3 years.

Cyprus: Set minimum standards for learning approach and exams.

Portugal: After 2005.

Greece: Would help smaller associations in future bargaining with universities and government.

Slovenia: Groupe Consultatif should verify content.

UK: Current position on self-certification should be ok.

Catalonia: Help to promote several seminars and education material.

Denmark: Not every year but every 5th year.

Belgium: Advantages to encourage the transfer of people between countries.

Bologna agreement will also help.

4. Groupe Consultatif Core Syllabus Updating

- 4.1 Are there any parts of the Core Syllabus that your association believes need updating?

Yes 8

No 11

Spain: Update bibliography.

Sweden: Non-life update statistical methods.

Portugal: Financial risk management.

Channel Islands: Ensure up-to-date.

Greece: More on financial mathematics, financial risk management and solvency methods.

Germany: Regularly update readings.

UK: Review syllabus to ensure it reflects modern actuarial thinking.

Denmark: Core syllabus should reflect convergence between Finance, Investment DFA, Life and Pension Insurance. Practical market mechanisms such as strategy management information, marketing/PR/communications.

- 4.2 Are there any parts of the Core Syllabus that your association believes should be presented differently?

Yes 5

No 13

Sweden: Make language requirement compulsory (2 languages).

Cyprus: 4, 7, 8 and 9 may be developed at a later stage of actuarial training.

UK: Change emphasis in guidelines generic approach to concepts followed by specific in specialism.

Switzerland: More indication of depth of treatment is needed.

- 4.3 Are there any parts of the Core Syllabus that your association believes are covered in too much depth?

Yes 5

No 13

Spain: Living benefits (18).

Sweden: Total syllabus too wide.

Allow for specialisation (choice 11, 17, 18).

Finland: Make statistics optional.

Ireland: Current approach to stochastic processes in Faculty/Institute syllabuses is difficult for students.

- 4.4 Are there any new topics that should be considered for inclusion in the Core Syllabus?

Yes 6

No 13

Italy: Market valuation following international accounting standards.

UK: More on investment and corporate finance.

Greece: Financial mathematics, financial risk management, solvency methods

Slovenia: Risk based capital approach, pensions ALM, international accounting standards.

Belgium: Topics on border of actuarial and financial sciences.

5. Learning Materials

5.1 Are there any parts of the Core Syllabus which you feel are poorly served by existing textbooks and tuition material?

Yes 11

No 9

**Spain: 16 General Insurance
15 Life**

Latvia: Textbooks in national language.

Sweden: Understanding in finance of weakness of theory in practical applications.

Finland: Textbooks in Finnish (pensions, life, living benefits).

Cyprus: Living benefits.

UK: Global approach.

Ireland: Stochastic methods.

Germany: Lack of German textbooks.

Denmark: Market value in life assurance.

5.2 Textbooks

Are there any parts of the Core Syllabus where you feel that it would be desirable to develop a 'Groupe Consultatif' textbook?

Yes 13

No 7

Spain: 1 Actuarial Foundation.

2 Generalised Applications.

Lithuania: Stage 2.

Finland: Generic pensions, investments, financial mathematics.

Italy: International account standards.

Cyprus: Subject 7.

UK: Pensions/healthcare.

Greece: Some collective material would be useful but not mandatory.

Slovenia: Risk based capital/pensions/international accounting.

Denmark: Market value in life assurance.

5.3 Textbooks

Please give details of helpful textbooks that your association uses for actuarial subjects.

This information can be used to update the bibliography attached to the syllabus.

Please indicate which subjects each book is relevant for

11 associations gave details

5.4 E-learning

Do you or do you intend to use any Internet based materials?

Yes 12 Future 1

No 8

Please indicate which subjects you believe this could be useful for
Generic Applications subjects

Italy: Law, Actuarial Guidance.

UK: Generic applications.

Netherlands: Exam papers and answers.

Catalonia: It is in future but will give ease of access to information.

5.5 <u>E-learning</u> Would you be prepared to make copies of your electronic materials available via the Groupe Website?	Yes 6 <i>Future</i> 3	No 5
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Most countries have yet to develop any material.

5.6 <u>Other learning materials</u> Please give details of other learning materials used for actuarial students in your association that could be made more widely available through the Groupe Consultatif.

6. Continuing Professional Development (CPD)

6.1 Does your association have a requirement for CPD?	Yes 6	No 6
		In the future 10

6.2 It has been suggested that the Groupe Consultatif could facilitate an extended series of seminars on particular topics. Are there any topics either as pre-or post qualification topics that the Groupe might consider?

There are 10 positive responses here.

Spain: Solvency and stability of insurance undertakings.

Latvia: Professionalism.

Italy: Rapidly changing areas: Solvency requirements, Accountancy standards, moving mortality, healthcare, alternative risk transport.

Cyprus: Current developments in European practice.

UK: (Institute and Faculty) Pensions, healthcare (European approach).

Latvia: Professionalism, new topics in actuarial science and practice.

Netherlands: General insurance, health insurance, European pensions accounting methods, fair value.

Slovenia: Risk based capital, Pensions ALM, International accounting.

Catalonia: New topics or particular topics where there are only a few actuaries involved in a particular association.

Denmark: Financial risk insurance, asset liability modelling, statistical and computational methods for insurance. Furthermore catastrophe insurance, reinsurance, event history analysis, simulation in asset liability modelling, optimisation, market values, rating and benchmarking, dependence concepts in insurance, loss reserving, modelling of sickness insurance, genetic testing.

Belgium: Fair value, Risk based solvency, IAS, FAS.

- 6.3 Please give details of any particular expertise within your association that might be helpful in developing a programme of events as mentioned in 6.2.

Italy: Moving mortality and longevity risk in living benefits.

Netherlands: Fair value, Derivatives, Value at Risk, Profit testing, Claims reserving, Benchmarking in general insurance.

Catalonia: Dynamic solvency.

- 6.4 Would your association or a university in your country be interested in organising regular or one-off seminars which would be open to participants from all Groupe Consultatif member associations? Are there particular subject areas which you would be prepared to cover?

Fifteen associations offered to help.

Swiss runs summer schools open to all participants.

Plans for a Nordic summer school have started.

7. Work of the Group Consultatif Education Committee

Are there any issues that you would like the Groupe Consultatif Education Committee to discuss or develop in the future?

The following comments were made:

Lithuania: Common international education system.

Latvia: Common examination system.

Netherlands: Development of actuarial education, Breadth or specialism following a Common core.

Portugal: Helpline for implementation of core syllabus.

Ireland: How to make the membership more aware of the work of the Groupe Consultatif.

Greece: Discussions on what part of education is appropriate for universities and what for the professional association.

Slovenia: International internet examination with international licensing.

Catalonia: Serve as a forum of sharing knowledge of actuarial education, CPD and Research.

Belguim: Work of Groupe Consultatif is appreciated.

GRUPE CONSULTATIF EDUCATION COMMITTEE SURVEY 2001 - 2002

Question No	1	2	3	4	5	6	7	2.2	2.3	2.4	3.1	3.2	3.3	3.4	3.5	3.7	4.1	4.2	4.3	4.4	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.4	7
Country																													
Belgium	N	N	Y	N	Y	N	N	55	-	85	Y	Y	N	N	-	Y	N	N	N	Y	N	N	-	N	-	Y	Y	Y	N
Catalonia	N	N	N	N	N	N	Y	40	20	100	Y	Y	N	Y	-	N	N	N	N	N	Y	Y	-	Y	Y	N	N	Y	Y
Channel Islands	-	-	-	-	Y	-	-	0	-	-	-	-	N	-	-	-	Y	N	N	N	N	N	-	N	-	N	-	-	-
Croatia	N	N	N	N	N	Y	Y	8	28	-	Y	Y	N	Y	N	Y	-	-	-	-	-	-	-	N	-	F	Y	Y	N
Cyprus	N	N	N	N	Y	N	-	1	-	-	N	Y	N	-	-	Y	N	Y	N	N	Y	Y	-	N	-	F	Y	Y	N
Denmark	N	N	Y	N	Y	Y	N	229	-	130	N	Y	N	Y	N	N	Y	N	N	N	Y	Y	✓	Y	Y	F	Y	Y	-
Estonia	N	Y	N	Y	Y	N	N	-	20	7	N	N	N	N	N	-	N	N	N	N	N	N	✓	Y	N	F	-	-	-
Finland	N	N	N	N	N	Y	N	3	20	-	N	Y	Y	-	N	N	N	N	Y	N	Y	Y	-	Y	F	F	-	Y	N
France	N	N	Y	N	-	Y	N	100	90	300	Y	N	Y	Y	-	N	N	N	N	Y	N	N	✓	-	-	F	Y	Y	-
Germany	N	Y	N	Y	N	N	-	141	1000	-	Y	N	N	-	-	N	Y	N	N	N	Y	N	✓	N	N	N	-	-	-
Greece	Y	-	N	N	Y	Y	-	3	65	250	Y	N	N	Y	Y	Y	Y	N	N	Y	N	Y	✓	F	Y	N	Y	-	Y
Italy (Trieste)	Y	N	Y	N	Y	Y	-	35	-	300	Y	Y	N	-	-	Y	N	N	N	Y	N	Y	-	Y	N	N	Y	Y	N
Ireland	N	N	N	N	N	N	Y	31	0	220	-	-	N	Y	-	N	N	-	Y	N	Y	Y	-	N	-	Y	-	Y	Y
Latvia	Y	Y	N	N	N	N	Y	-	6	32	N	Y	N	-	N	Y	N	N	N	N	N	✓	Y	Y	Y	Y	Y	Y	Y
Lithuania	N	N	P	-	Y	N	Y	14	-	?	Y	Y	Y	Y	-	Y	-	-	-	-	Y	Y	-	Y	N	F	-	Y	Y
Netherlands	Y	Y	N	Y	N	N	N	29	533	195	N	N	N	-	-	Y	-	-	-	-	-	-	-	Y	-	Y	Y	Y	Y
Portugal	N	N	Y	N	N	N	N	5	0	105	N	Y	N	-	-	Y	Y	N	N	N	N	N	-	N	Y	F	-	Y	Y
Slovenia	N	N	Y	N	Y	Y	Y	27	5	15	Y	N	Y	-	Y	Y	N	N	Y	Y	N	Y	✓	Y	Y	F	Y	Y	Y
Spain	N	N	Y	N	N	N	-	124	-	350	N	Y	Y	Y	-	N	N	N	Y	N	Y	Y	✓	N	-	F	Y	Y	N
Switzerland	N	Y	N	Y	Y	N	N	29	24	60	Y	Y	Y	Y	N	N	N	Y	-	N	N	N	✓	Y	N	F	-	Y	-
Sweden	N	N	N	N	Y	N	Y	16	-	50	Y	?	Y	Y	Y	N	Y	Y	Y	N	Y	Y	✓	Y	-	N	-	Y	N
UK - Faculty	Y	N	N	Y	Y	N	N	59	752	150	N	N	Y	-	-	N	Y	Y	N	Y	Y	Y	✓	Y	F	Y	Y	Y	N
- Institute	Y	N	N	Y	Y	N	N	318	5266	450	N	N	Y	-	-	N	Y	Y	N	Y	Y	Y	✓	Y	F	Y	Y	Y	N

GROUPE CONSULTATIF EDUCATION COMMITTEE SURVEY 2001 - 2002

Question No	4.1	4.2	4.3	4.4	5.1	5.2	5.3	5.4	5.5	5.6	6.1	6.2	6.3	6.4
Country														
Spain	N	N	Y	N	Y	Y	✓	N	-	-	F	Y	Y	N
Lithuania	-	-	-	-	Y	Y	-	Y	N	-	F	-	Y	Y
Latvia	N	N	N	N	N	N	✓	Y	Y	-	Y	Y	Y	Y
Sweden	Y	Y	Y	N	Y	Y	✓	M	-	-	N	-	Y	N
Finland	N	N	Y	N	Y	Y	-		F	-	F	-	Y	N
Italy (Trieste)	N	N	N	Y	N	Y	-	T	N	-	N	Y	Y	N
Cyprus	N	Y	N	N	Y	Y	-	N	-	-	F	Y	Y	N
UK	Y	Y	N	Y	Y	Y	✓		F	-	Y	Y	Y	N