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*Defining Quality – The Relevance of Field - specific
Approaches to Quality Assurance in Higher Education
Bonn 2-3 November 2009 -*

*European market of Geology, Italian Higher
Education in Geology and Market of Applied Geology*

Marino Trimboli

(EFG EU Delegate - Secretary General National Council of Italian Geologist)



*Defining Quality – The Relevance of Field - specific
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M. Trimboli*

- 1) European market of Geology*
- 2) Italian Higher Education in Geology after Bologna
Agreement (case history)*
- 3) Italian Market of Geology*



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Country	N. of Prof.Geologists	Graduated/yr	Geol. Vacancies/yr
Russia	50.000	4.000	5.000
Germany	21.000	500	400
Italy	15.369	619	316
United Kingdom	15.000	1.000	1.000
Turkey	10.000	n.d	n.d
France	6.000	400	300
Spain	5.500	500	550
Netherlands	5.000	200	100
Greece	3.600	250	100
Poland	2.000	n.d	n.d
Switzerland	1.500	50	50
Hungary	1.500	30	15
Portugal	1.400	100	30
Denmark	1.200	100	100
Austria	1.000	100	100
Czech Republic	1.000	55	60
Finland	1.000	60	500
Sweden	900	120	200
Slovakia	800	n.d	n.d
Belgium/Luxembourg	500	90	80
Ireland	400	50	100
Serbia	350	30	20
Cyprus	139	12	8
Totale	145.158	8.266	9.029

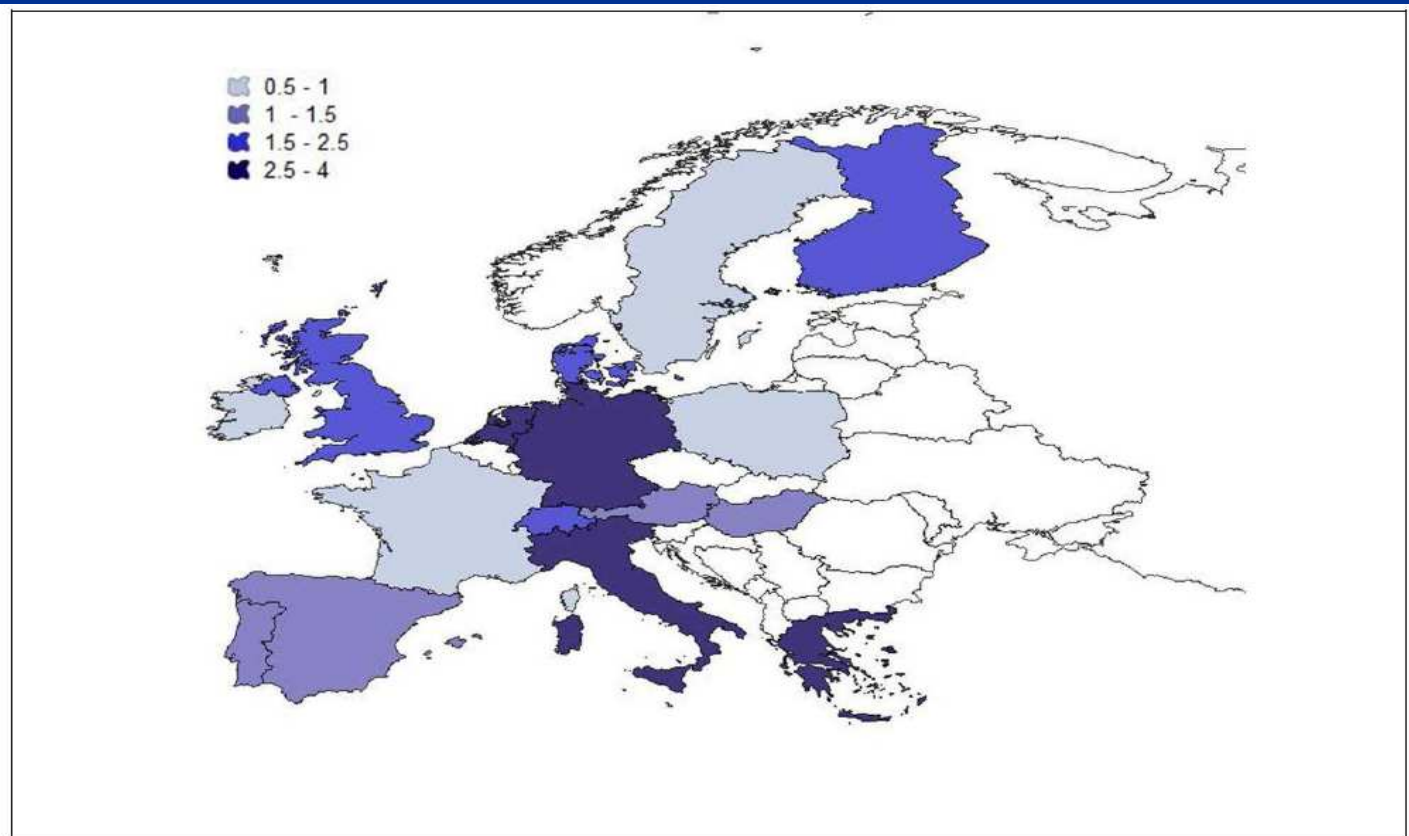
Fonte: Elaborazioni CRESME su dati Federazione Europea dei Geologi, Consiglio Nazionale dei Geologi, MIUR, Almalaurea (2007)



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N. of geologists/10.000 hab.



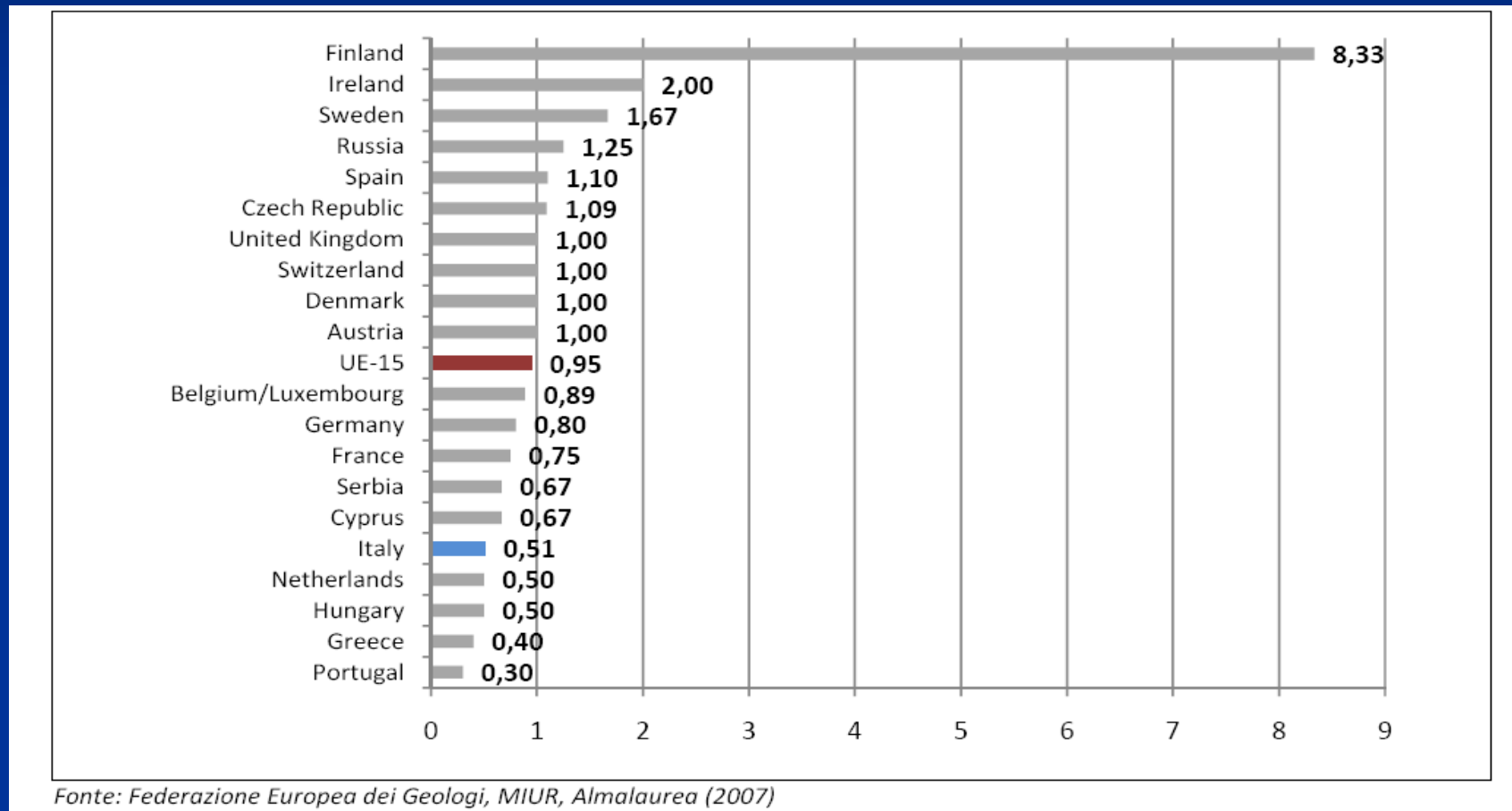
Fonte: Elaborazioni Cresme su fonti varie



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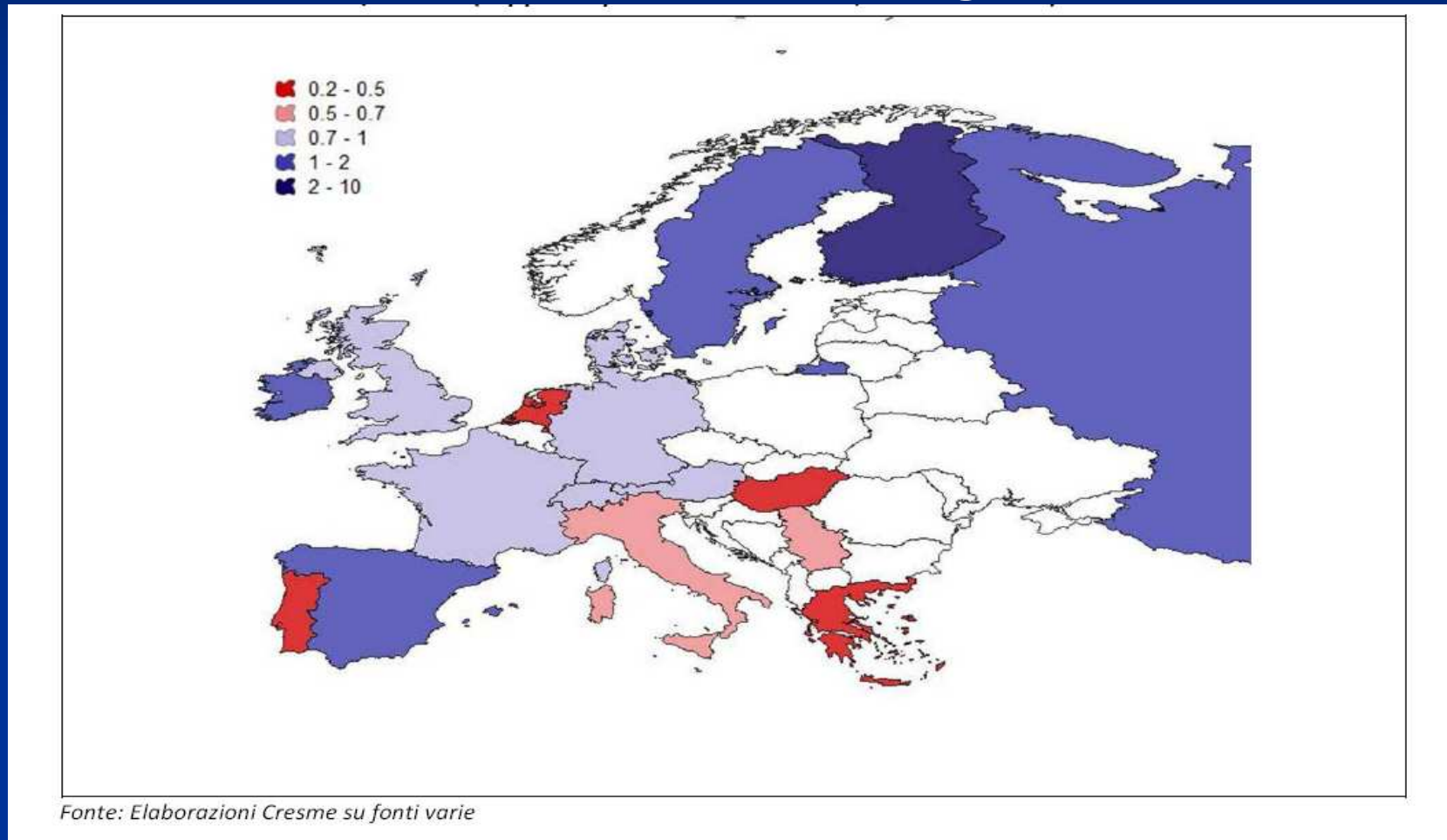
Job vacancies Vs. N. of graduates



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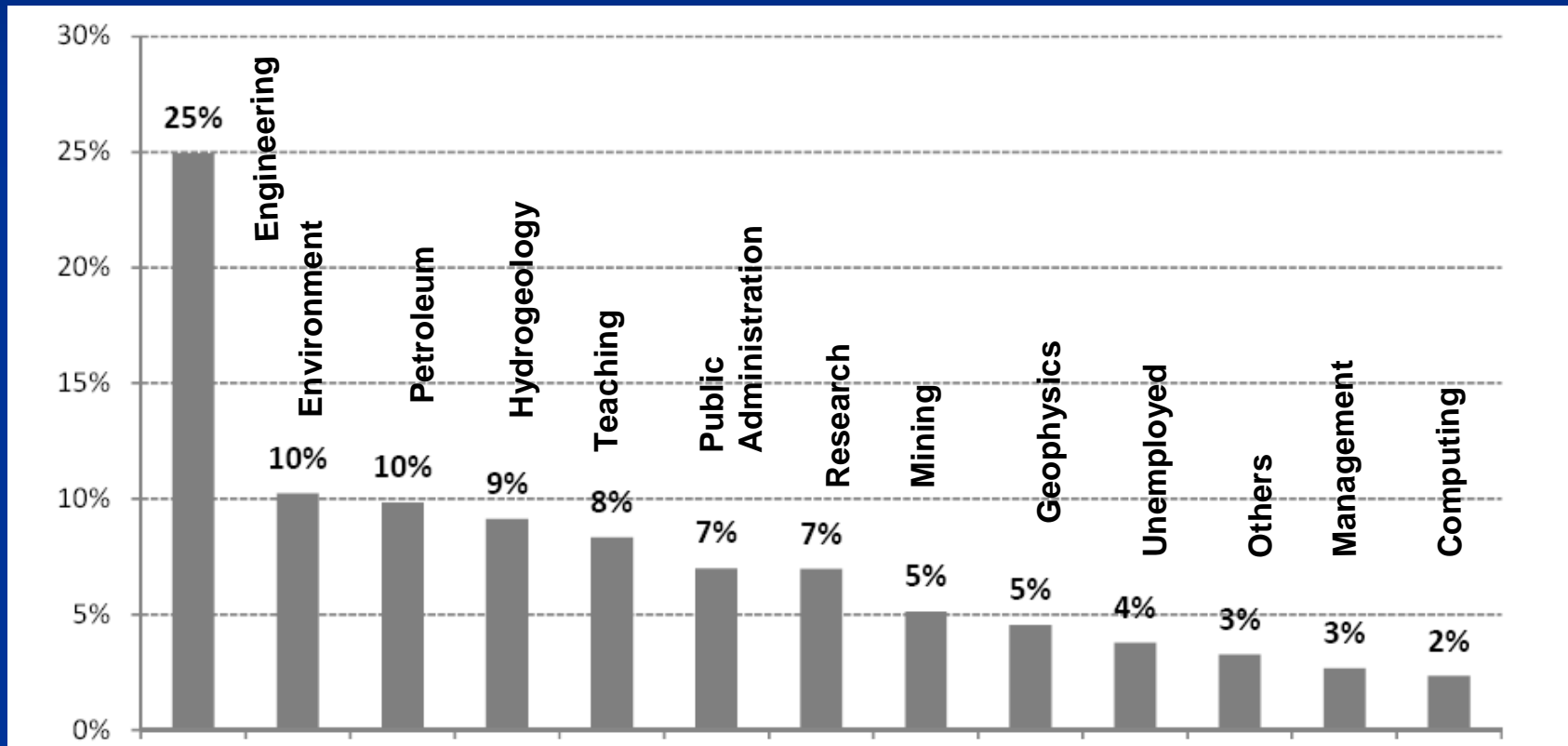
Job vacancies VS. N. of graduates



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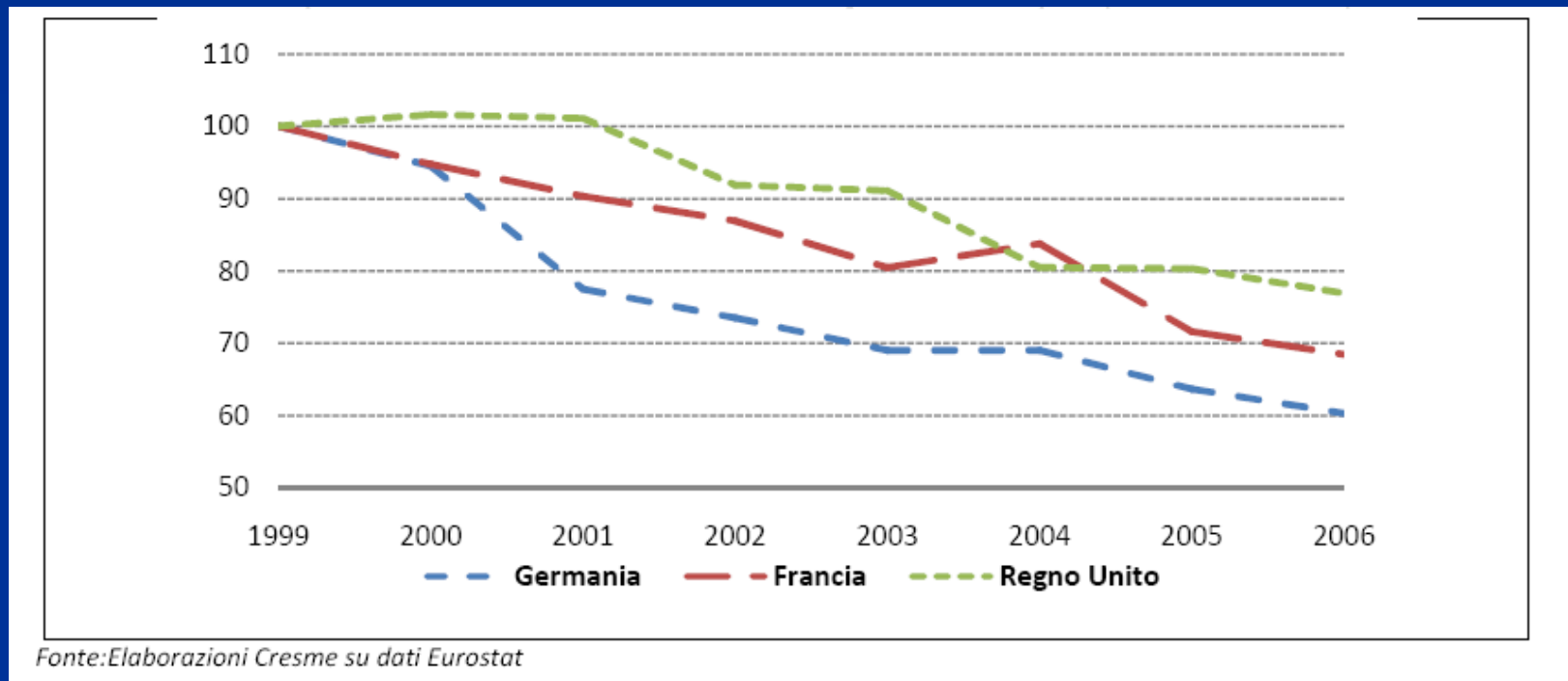
Distribution of Geologists in Economical Activities



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“Mining Geologists” each 1.000 employed geologists in Germany, France and UK





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- 1) *European market of Geology*
- 2) *Italian Higher Education in Geology after
Bologna Agreement*
- 3) *Italian Market of Geology*



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1st Cycle: Bachelor in Geoscience (180 ECTS)

2nd Cycle: Master in Geoscience (120 ECTS)

3rd Level Doctorate



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“Old 5yr Cycle”
 Students 1st Cycle
 Students 2nd Cycle
 Stud. in App.Geology
 Total

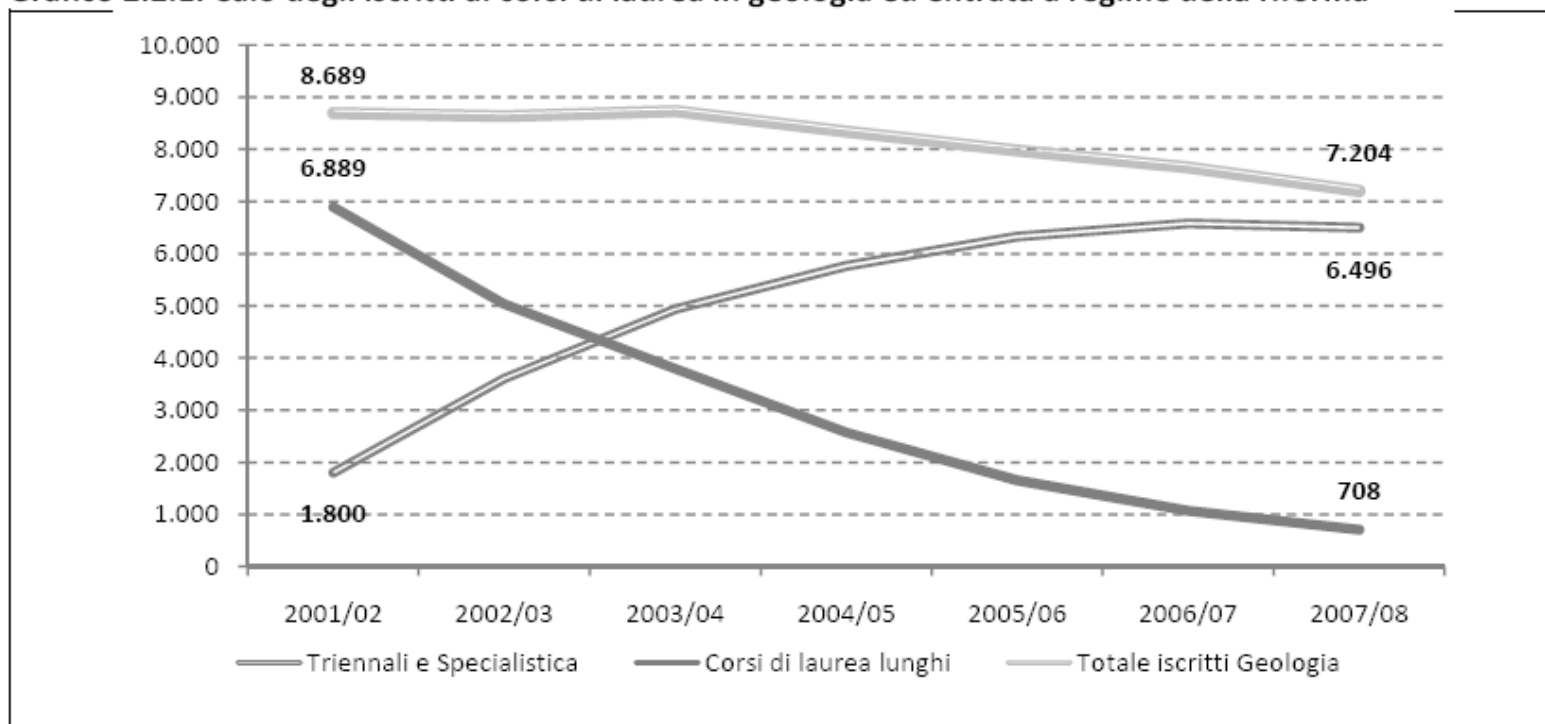
	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	Variazione 2008/2002
“Old 5yr Cycle”	6.889	5.031	3.788	2.572	1.652	1.070	708	-6.181
Students 1 st Cycle	1.800	3.588	4.764	5.237	5.396	5.352	5.054	3.254
Students 2 nd Cycle	0	15	177	530	933	1.228	1.442	1.442
Stud. in App.Geology	0	4	75	230	462	627	788	
Total	8.689	8.634	8.729	8.339	7.981	7.650	7.204	-1.485

Variation of the Number of Students in Geology after Bologna Agreement



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Fonte: elaborazione CRESME su dati MIUR

Number of Students in Geology after Bologna Agreement



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Bachelors in Geology

M.Sc in Geology

M.Sc. In Appl. Geology

“Old Cycle” graduated

	2002	2003	2004	2005	2006	2007
Bachelors in Geology	33	114	312	504	519	632
M.Sc in Geology	0	5	13	39	178	277
M.Sc. In Appl. Geology	0	1	4	8	47	96
“Old Cycle” graduated	1.140	1.018	1.083	913	663	352



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Graduated in
28 Universities

Tabella 2.2.3. Laureati di secondo livello per ateneo

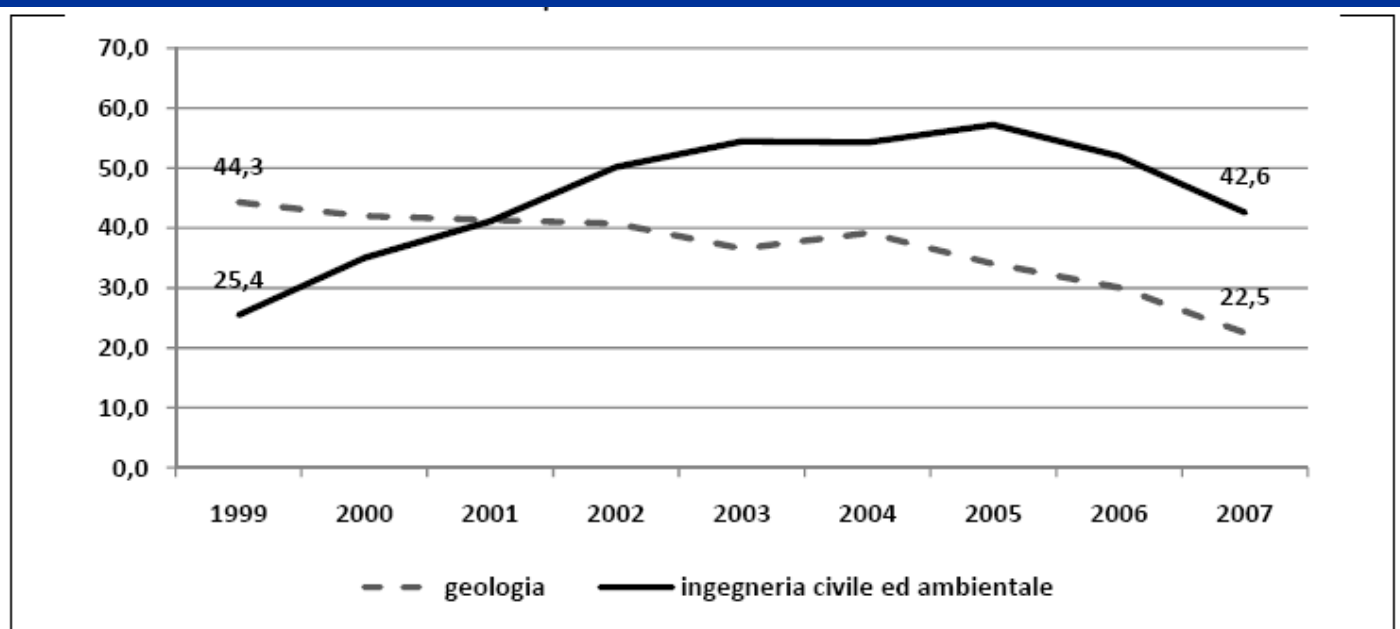
	1999	2000	2001	2002	2003	2004	2005	2006	2007
Bari	32	28	33	24	27	27	31	23	17
Basilicata	14	15	33	24	19	25	13	18	9
Bologna	67	66	59	42	43	53	52	45	15
Cagliari	41	39	38	37	37	31	28	29	16
Calabria	39	33	44	84	76	72	61	62	34
Camerino	22	20	29	18	16	20	11	15	17
Catania	118	82	61	57	60	41	56	46	29
Chieti e Pescara	16	21	40	37	44	50	46	33	23
Ferrara	43	36	32	31	28	28	21	13	23
Firenze	54	56	40	29	26	38	39	30	22
Genova	33	24	42	40	29	25	35	28	23
Milano	86	104	80	92	65	78	43	52	36
Milano Bicocca	0	0	2	9	11	11	4	15	12
Modena e Reggio Emilia	24	16	18	13	14	13	12	11	4
Napoli Federico II	102	83	105	78	73	63	69	60	63
Padova	50	33	39	45	47	45	40	27	22
Palermo	76	84	68	64	88	115	84	64	39
Parma	32	31	25	21	17	22	16	18	10
Pavia	38	45	41	61	51	38	27	24	23
Perugia	44	30	31	30	26	47	37	21	25
Pisa	66	51	49	59	42	37	33	19	12
Roma La Sapienza	88	103	79	72	48	64	67	68	43
Roma Tre	11	24	18	18	20	26	25	20	27
Sannio	1	9	9	9	9	17	6	13	15
Siena	27	31	34	36	29	27	20	13	20
Torino	48	44	52	62	41	39	42	43	35
Trieste	45	39	37	29	25	22	19	22	10
Urbino	23	29	20	19	12	22	15	9	5
Totale	1.240	1.176	1.158	1.140	1.023	1.096	952	841	629
Numero medio Laureati	44,3	42,0	41,4	40,7	36,5	39,1	34,0	30,0	22,5

Fonte: elaborazione CRESME su dati MIUR



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% of Graduated in Geology and in Civil & Environmental Engineering



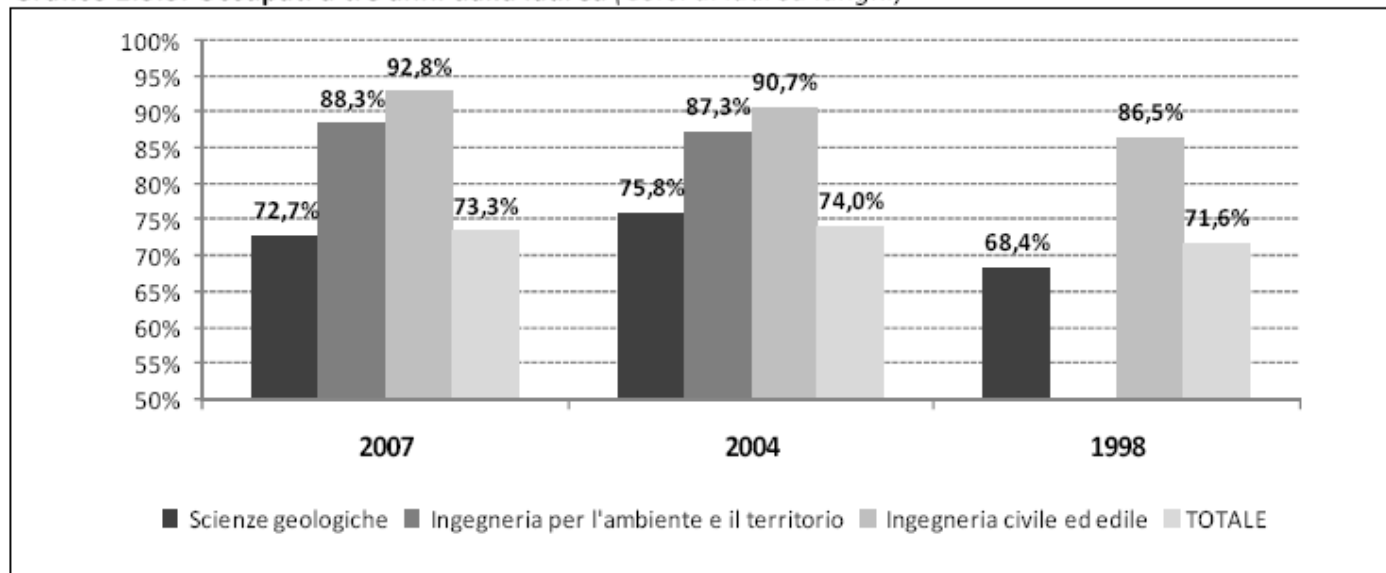
Fonte: elaborazione CRESME su dati MIUR



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% of Graduated employed after 3 yrs.

Gráfico 2.15: Ocupação três anos após a graduação (por área de graduação)



Fonte: elaboração CRESME su dati ISTAT



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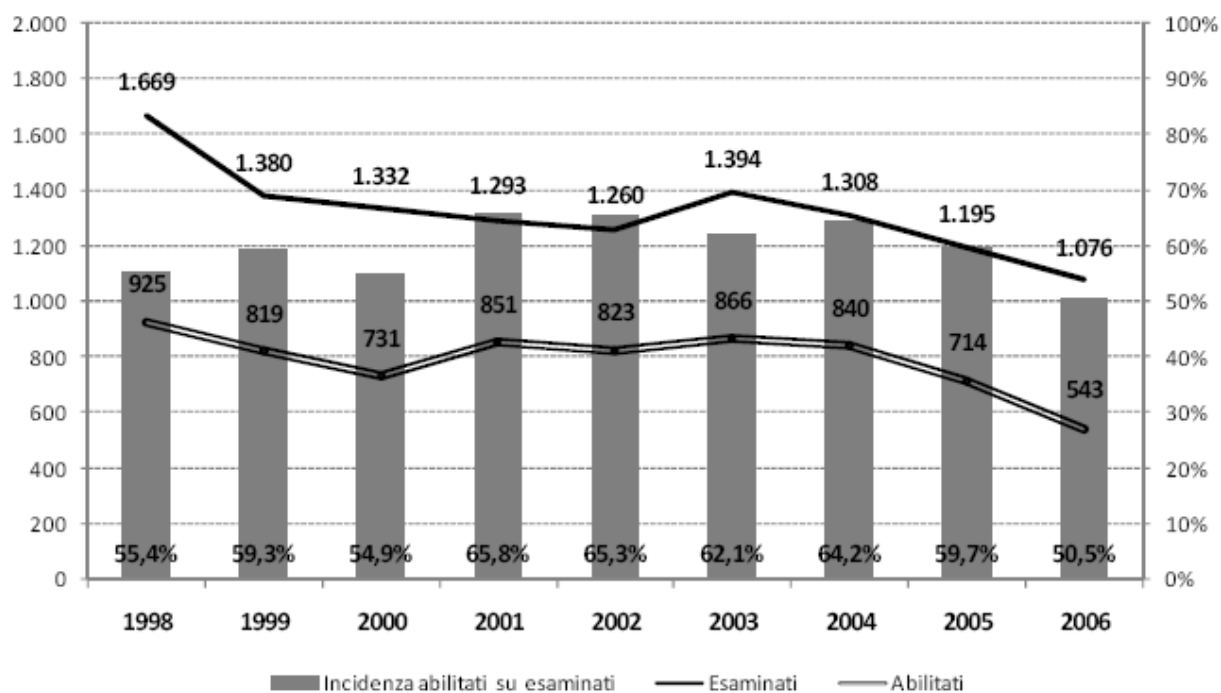
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- **The title of Geologist and the profession are fully regulated by law**
- **Graduated in Italy (or in the EU, in application of the EQF) must take the State Examination before the registration (State's Register of Professional Geologists)**
- **Training periods (depending from *curricula*)**
- **The State Examination is the final test with a complete check of competences**
- **2 different titles (registers and competences) for Bachelors (Junior Geologist) and M.Sc. (Geologist)**
- **Quality level of profession assured by compulsory LLL process**



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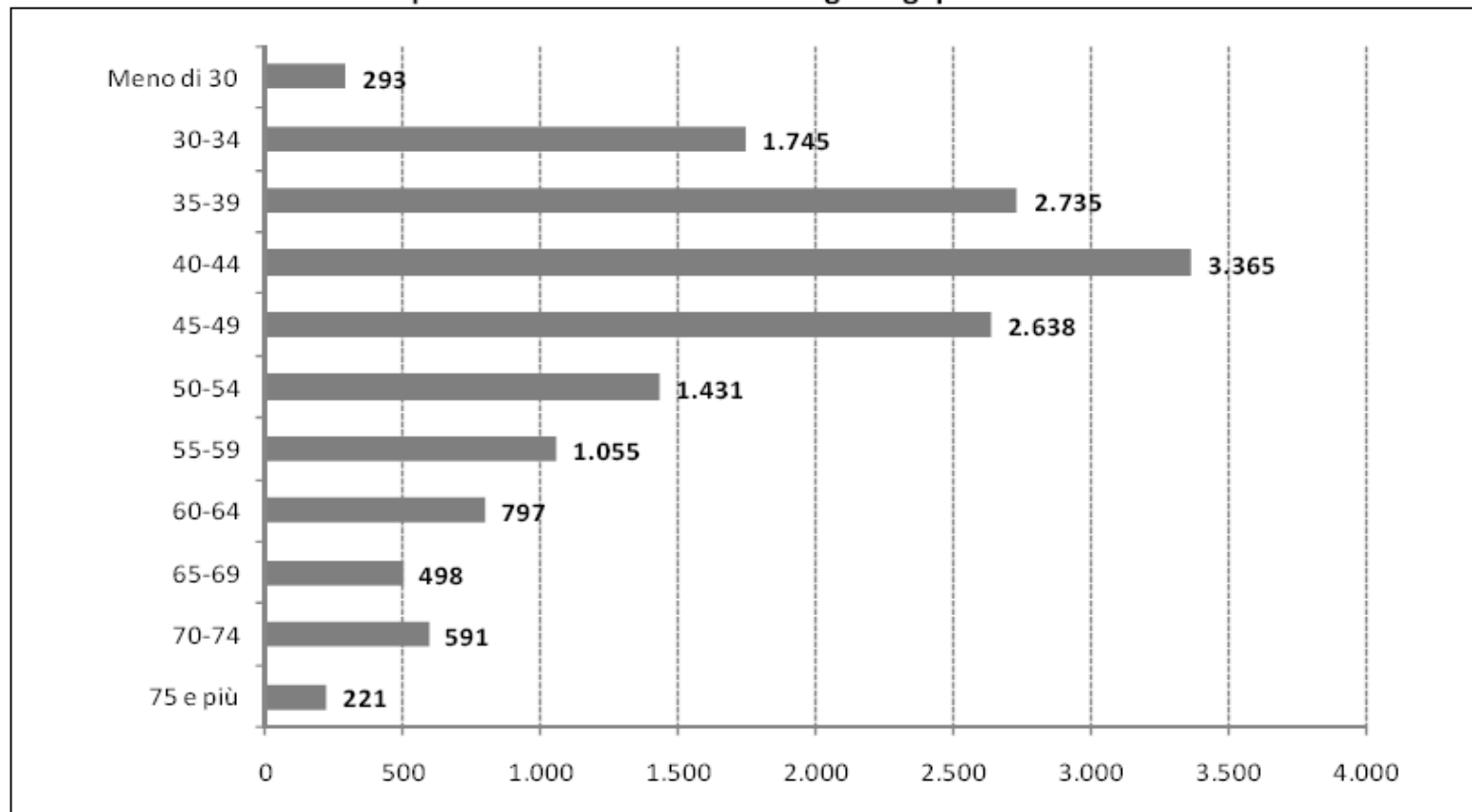


Fonte: elaborazione CRESME su dati MIUR

State's examination results



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Fonte: elaborazione CRESME su dati Consiglio nazionale dell'Ordine dei Geologi (26 gennaio 2009)

Age of the Italian Professional Geologists



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	1998	1999	2000	2001	2002	2003	2004	2005	2006
GEOLOGIA	925	819	731	851	823	866	840	714	543
Geologo	925	819	731	851	823	861	827	694	528
Geologo Iunior						5	13	20	15
INGEGNERIA CIVILE E AMBIENTALE							1.570	1.746	2.474
Ingegnere civile e ambientale							1.186	1.320	1.718
Ingegnere civile e ambientale Iunior							384	426	756

Fonte: elaborazione CRESME su dati MIUR

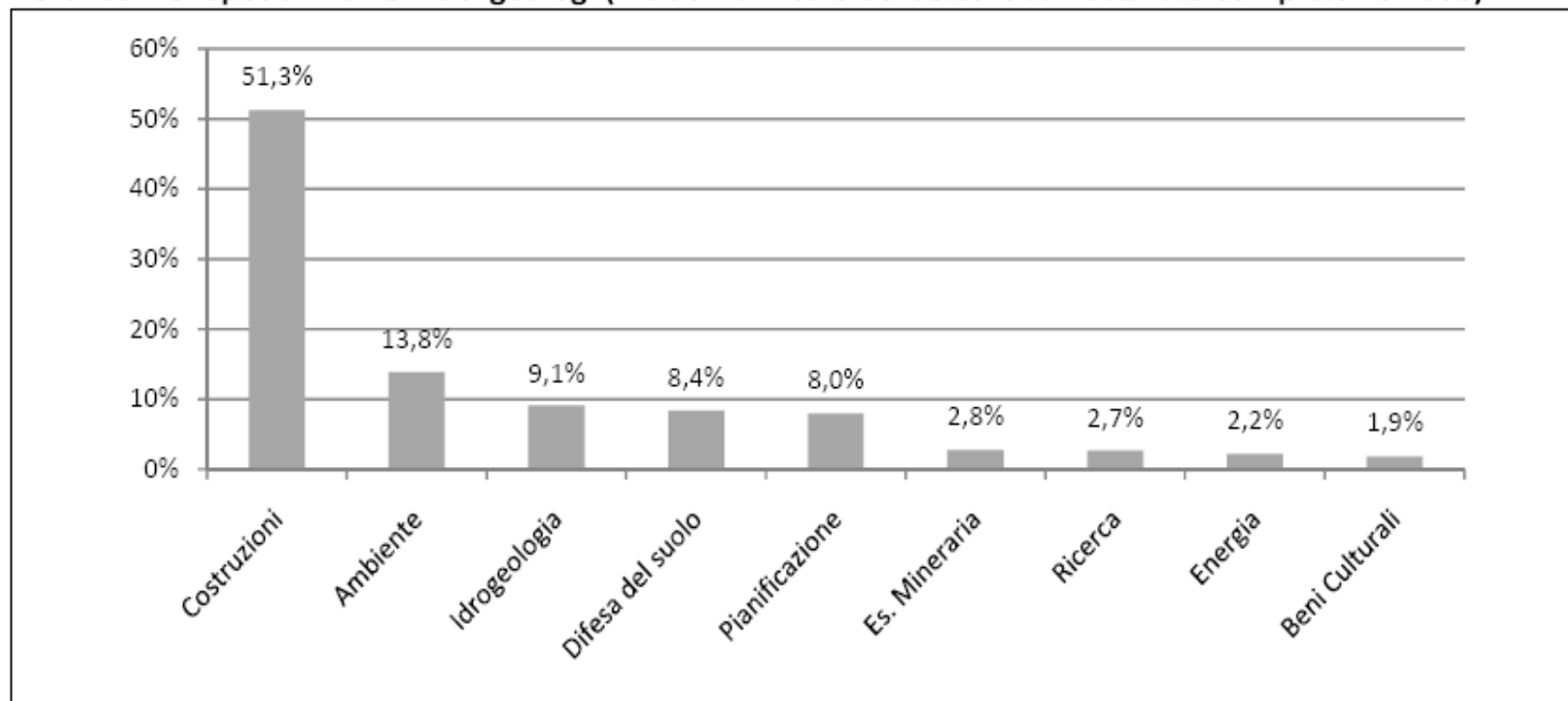
Geologists and Bachelors Vs. Engineers in Italy



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Strutture per specializzazioni del geologo (percentuale media del settore sul fatturato complessivo 2009)

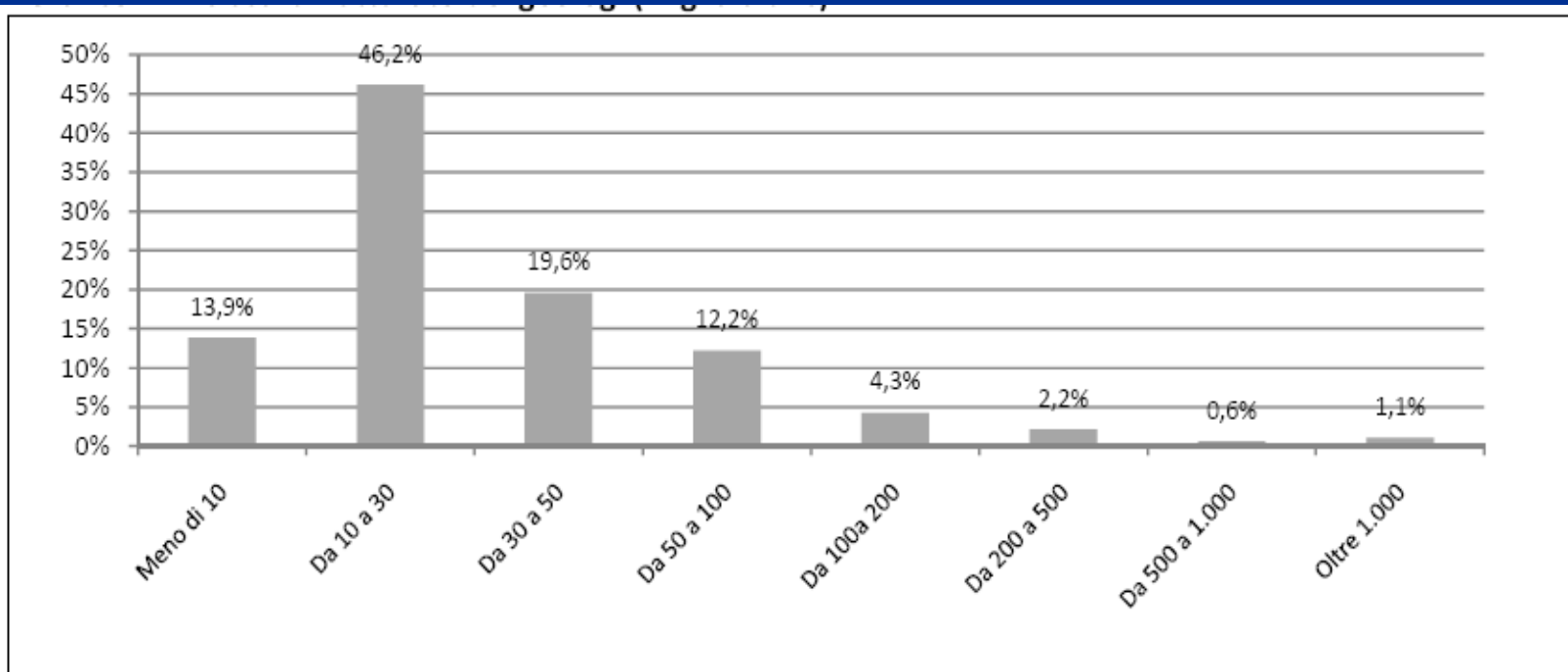


Fonte: Indagine campionaria Cresme 2009

Economical activities for Geologists in Italy



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Fonte: Indagine campionaria Cresme 2009

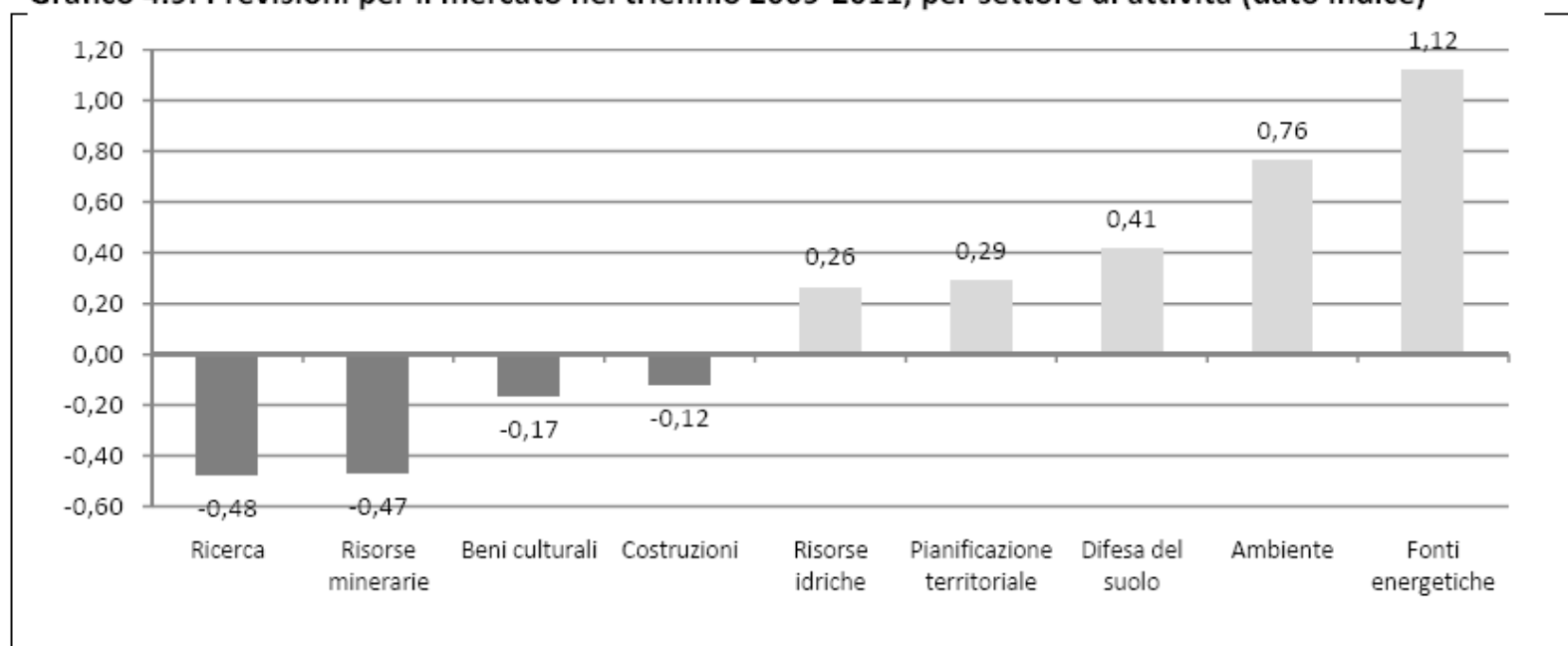
Turnover for Professional Geologists in Italy (in thousands €)



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Gráfico 15.1. Previsioni per il mercato nel triennio 2009-2011, per settore di attività (dato indice)

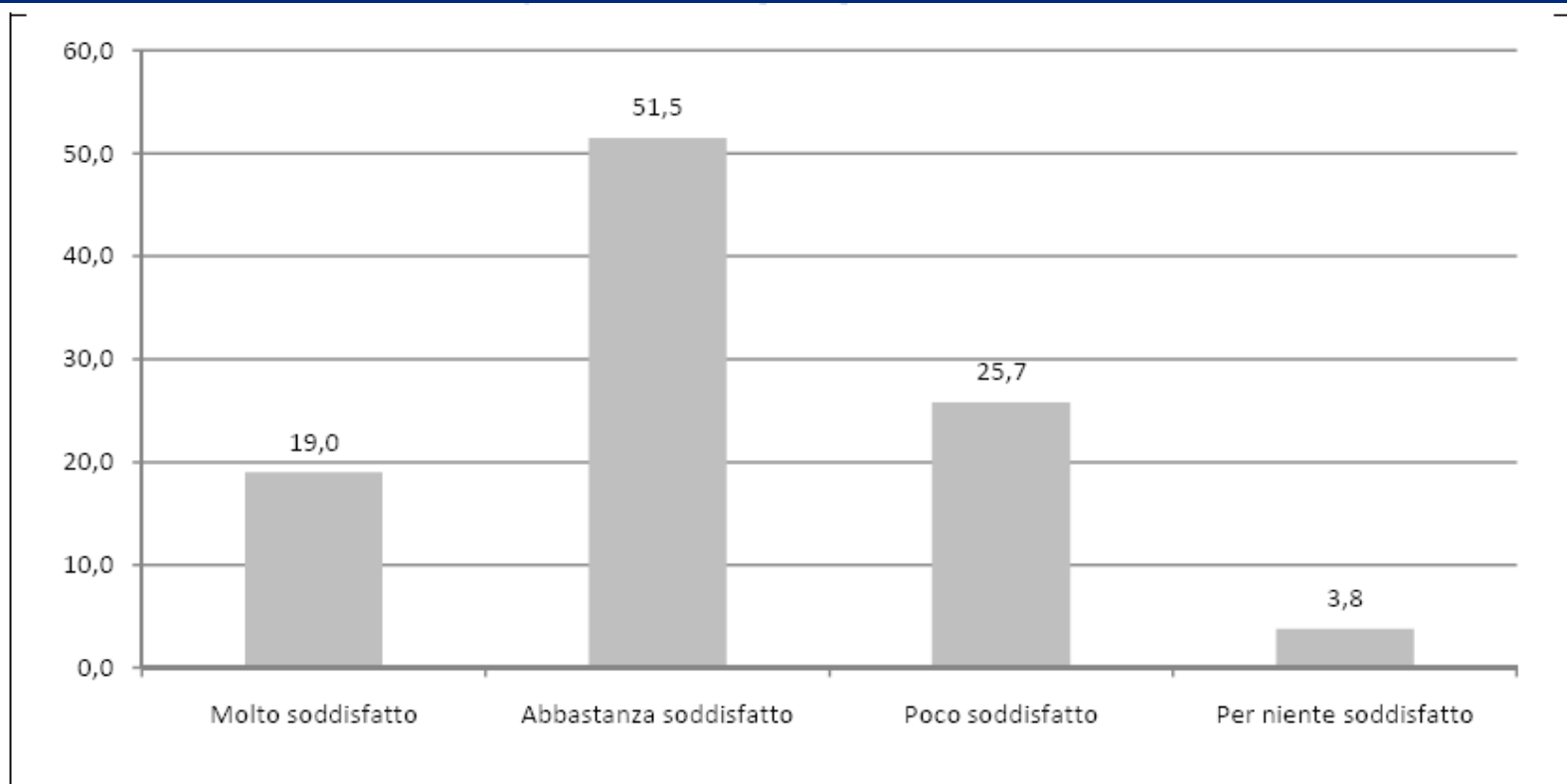


Fonte: Indagine campionaria Cresme 2009

Trend of the Market of Applied Geology (2009-2011) in different activities



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Fonte: Indagine campionaria Cresme 2009

How much are geologists satisfied?



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	Fino a 30 anni	Da 31 a 50 anni	Oltre 50 anni	Totale
Formazione	24,7%	21,8%	23,4%	22,3%
Software	17,9%	19,7%	25,0%	21,0%
Attrezzature informatiche	13,6%	19,6%	19,1%	19,2%
Attrezzature tecniche	27,4%	17,1%	17,6%	17,7%
Promozione	9,7%	9,0%	5,4%	8,1%
Comunicazione	5,4%	6,7%	4,8%	6,1%
Personale	1,3%	5,2%	4,8%	4,9%
Altro	0,0%	0,9%	0,0%	0,6%
Totale	100,0%	100,0%	100,0%	100,0%

Fonte: Indagine campionaria Cresme 2009

And, finally, what they will do in future to improve profession?



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Thank you for your attention!