Employment and career of Aalto University water and environmental engineering alumni

WAT ALUMNI SURVEY RESULTS 2017

MAA- JA VESITEKNIIKAN TUKI

Aalto University

Background

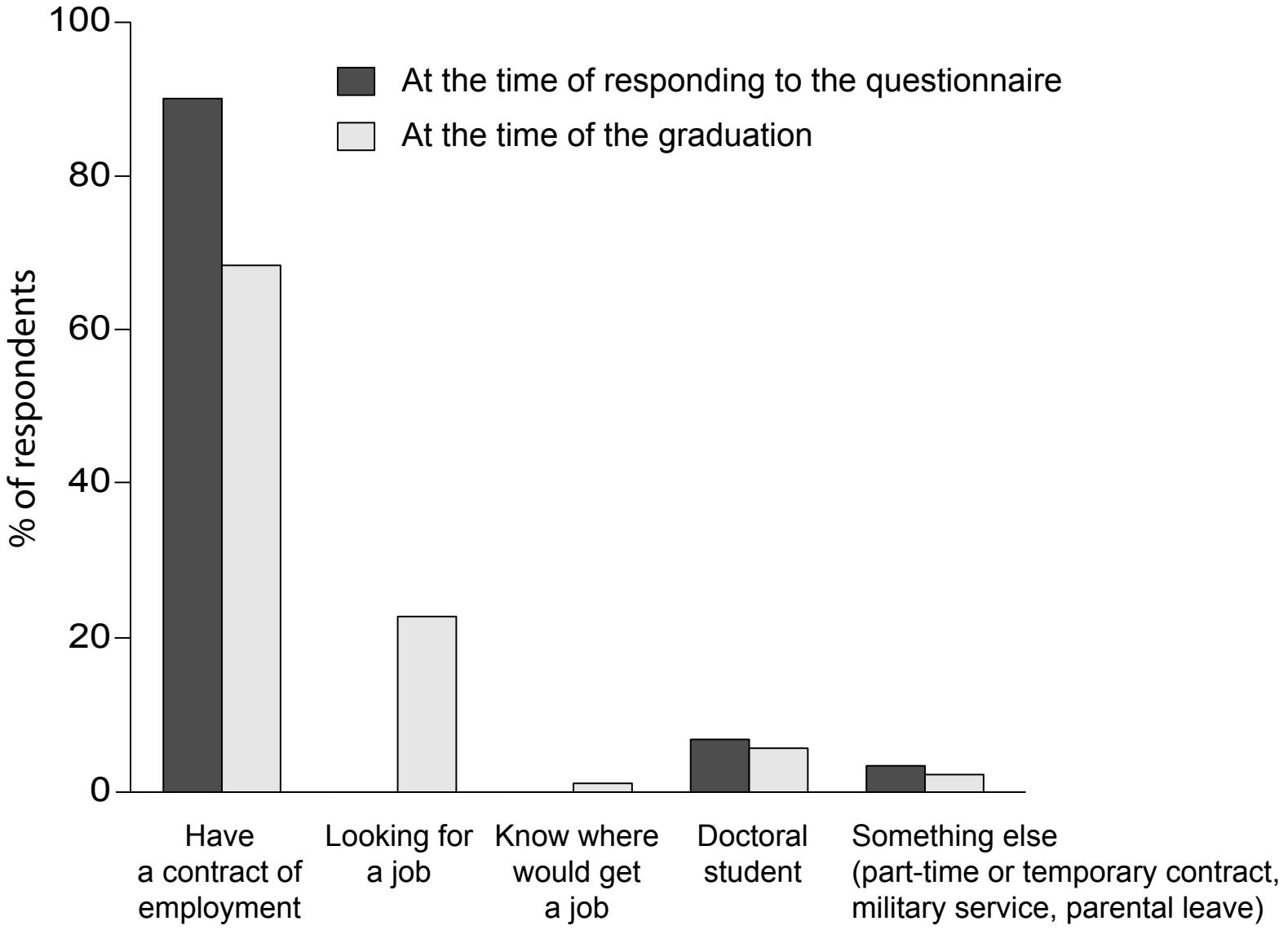
In 2007-2016, 191 water and environmental engineers graduated from Aalto University or Helsinki University of Technology

- Majors: water resources & hydraulic engineering, water supply & sewerage engineering, environmental engineering, water & environmental engineering
- 176 questionnaire invitations were sent, 88 replied

Response rate 50

- 64 women and 24 men replied
- 32 respondents had studied water & environmental engineering, 28 water resources & hydraulic engineering, 15 water supply & sewerage engineering, 13 environmental engineering as their major

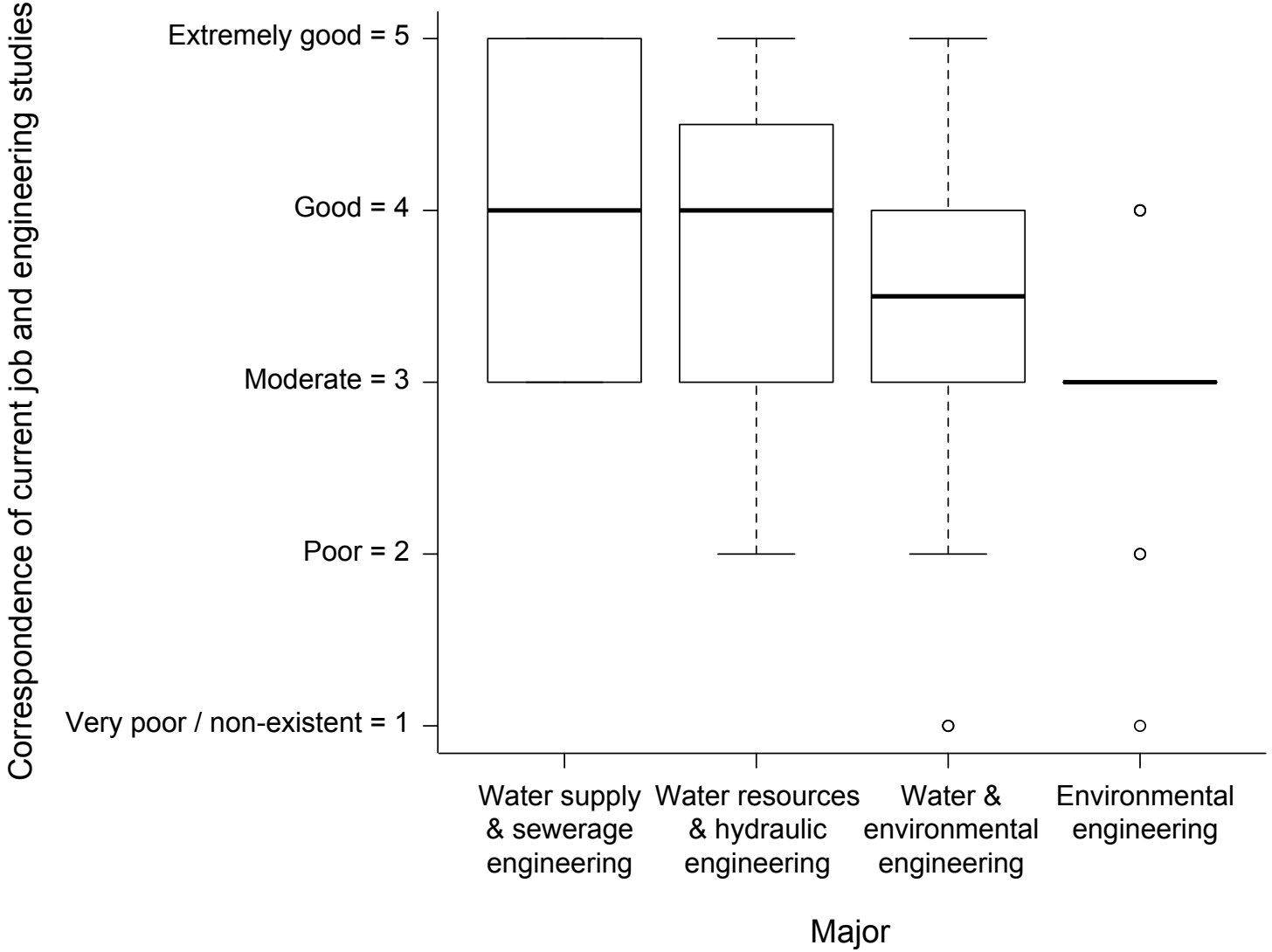
Employment


100
80
60
40
20
0
% of respondents
At the time of responding to the questionnaire
At the time of the graduation
Have a contract of employment
Looking for a job
Know where would get a job
Doctoral student
Something else (part-time or temporary contract, military service, parental leave)

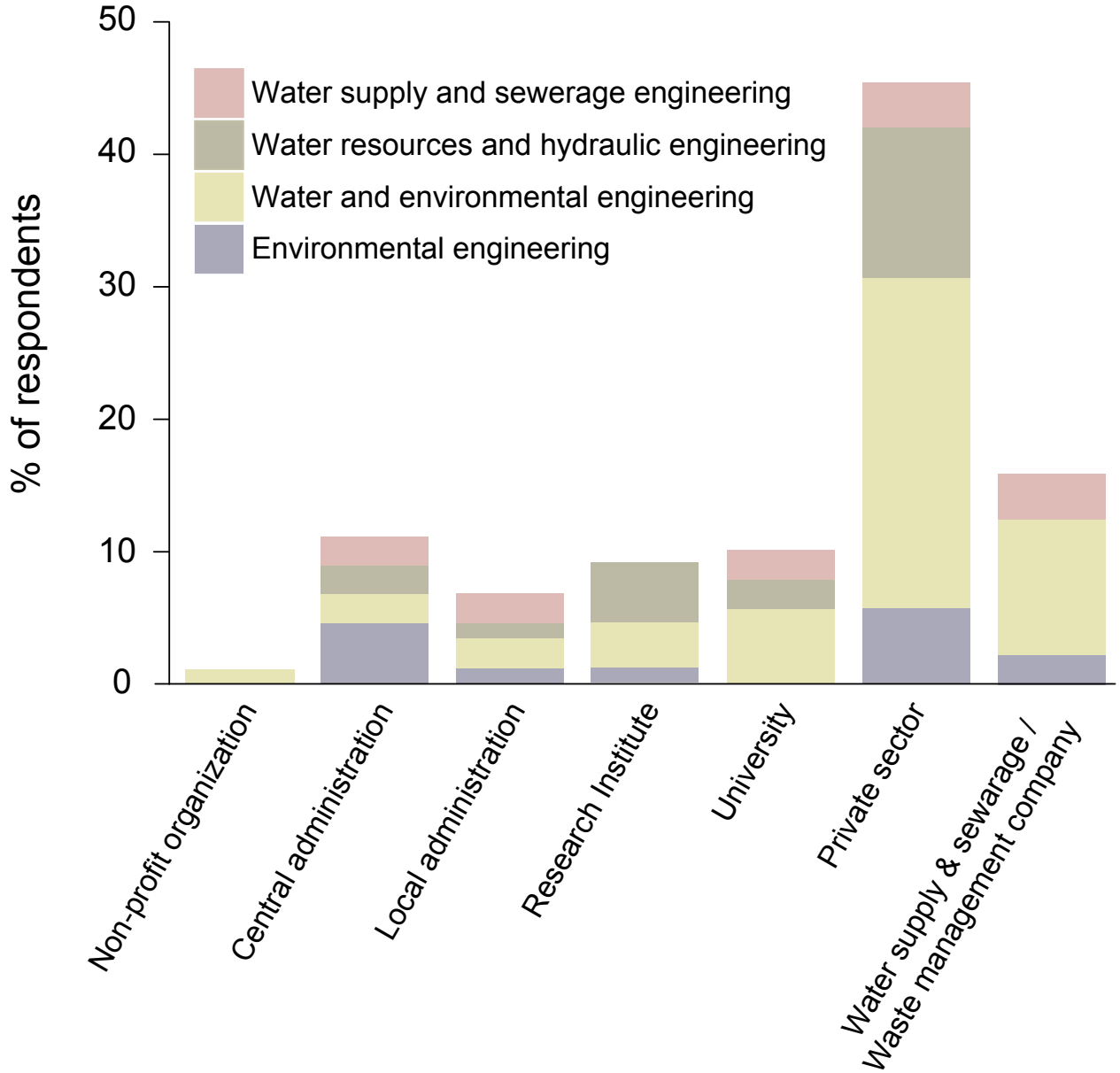
Employment, unemployment

- Employment situation is good, although several expressed their worries for the situation. A few had changed the field.
- 64% of the respondents have not been unemployed after graduation, 31% have been unemployed once, the rest two or three times.
- Over half of the respondents would choose the same field again.
  - Motivation for staying in the field: continuing interest, ideological matters, good and interesting job possibilities.
  - Motivation for leaving the field: restricted job possibilities, better employment prospects in other fields, there are so many interesting fields.

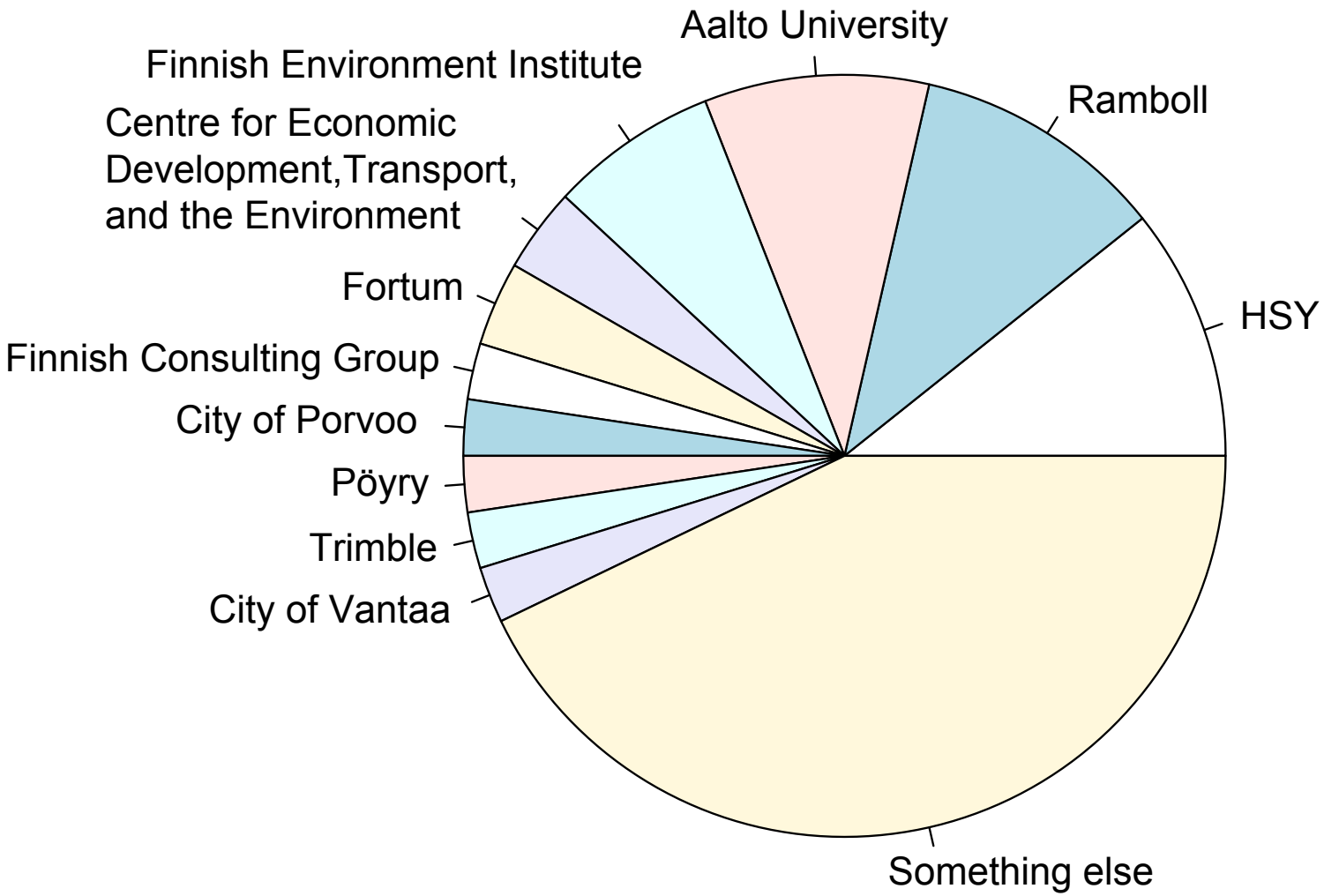
How well does the current job correspond to the engineering studies?



Employer sectors

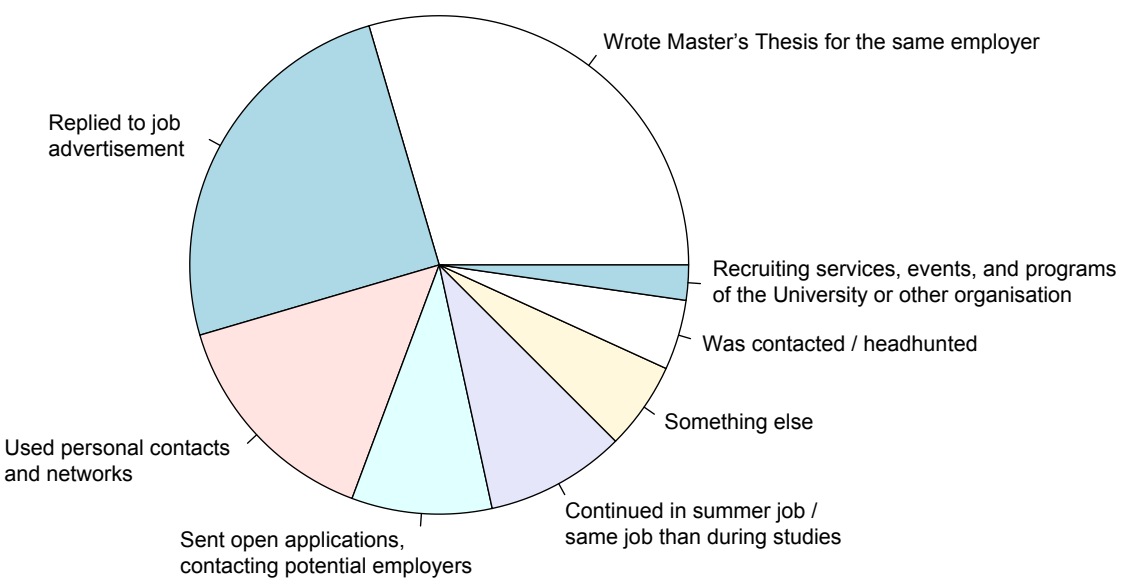


Employers

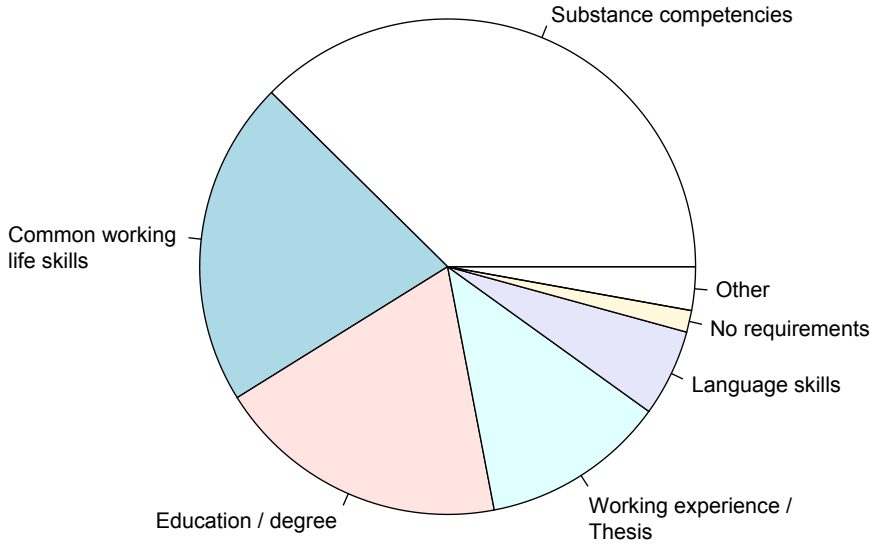

Aalto University
Ramboll
HSY
Something else
City of Vantaa
Trimble
Pöyry
City of Porvoo
Finnish Consulting Group
Fortum
Centre for Economic Development,Transport, and the Environment
Finnish Environment Institute

First job

How did you get your first job after graduation?

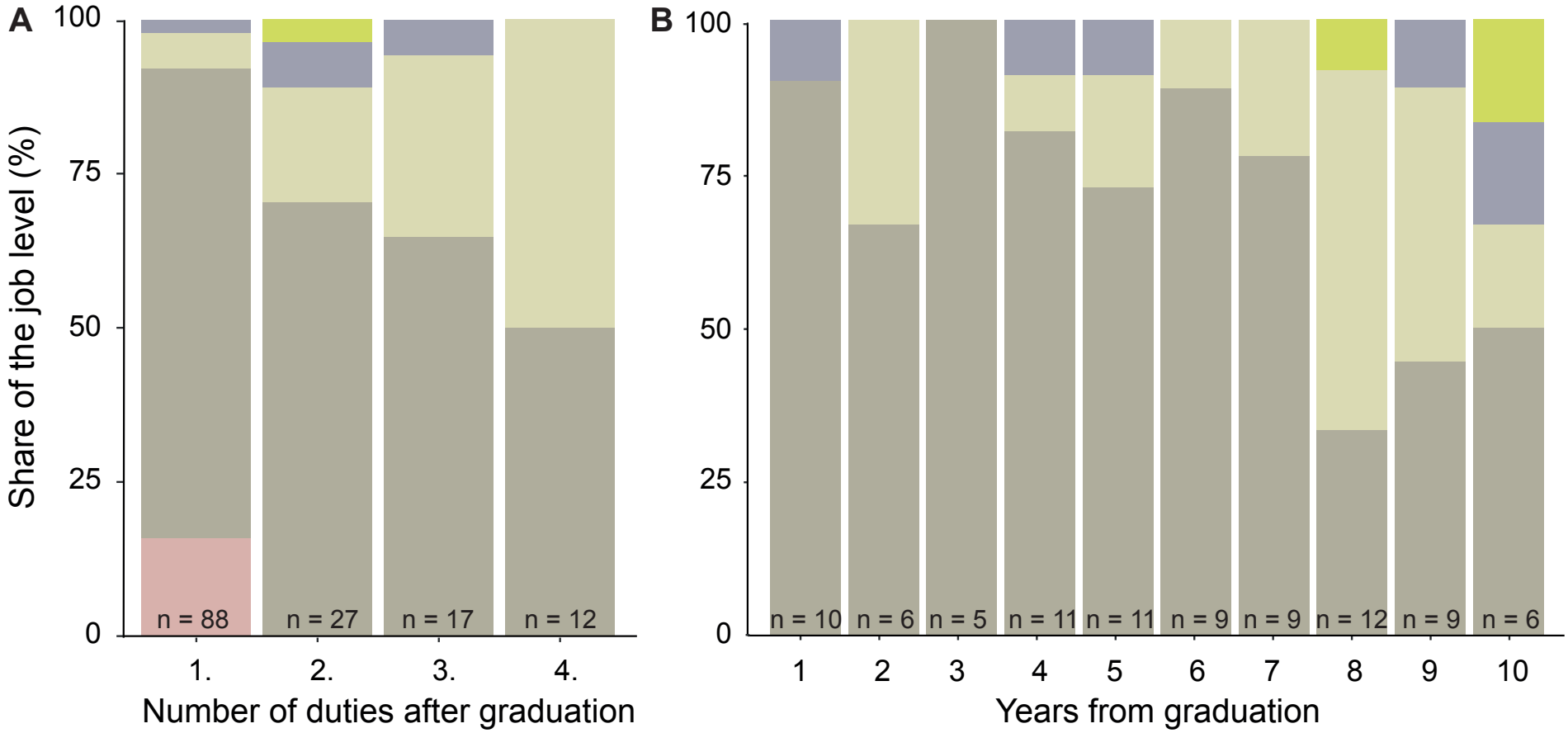


Requirements for the first job



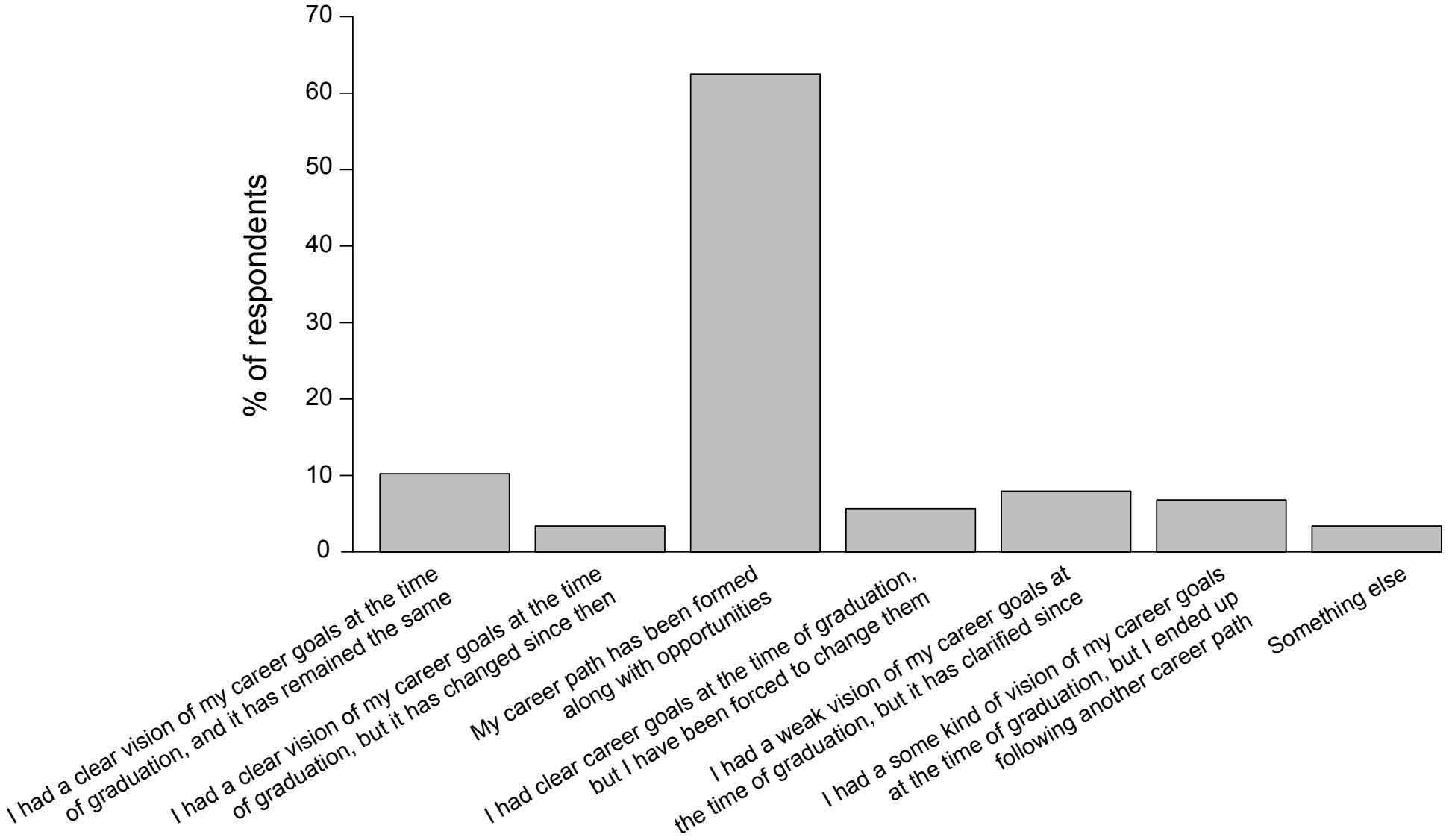
Karvinen, Vehmaa, Keskinen in review

Career path



Karvinen, Vehmaa, Keskinen in review

Career development



The central working life skills at different levels

Practical skills
Arrangement & coordination skills
Initiative & self-direction
Time management & prioritization

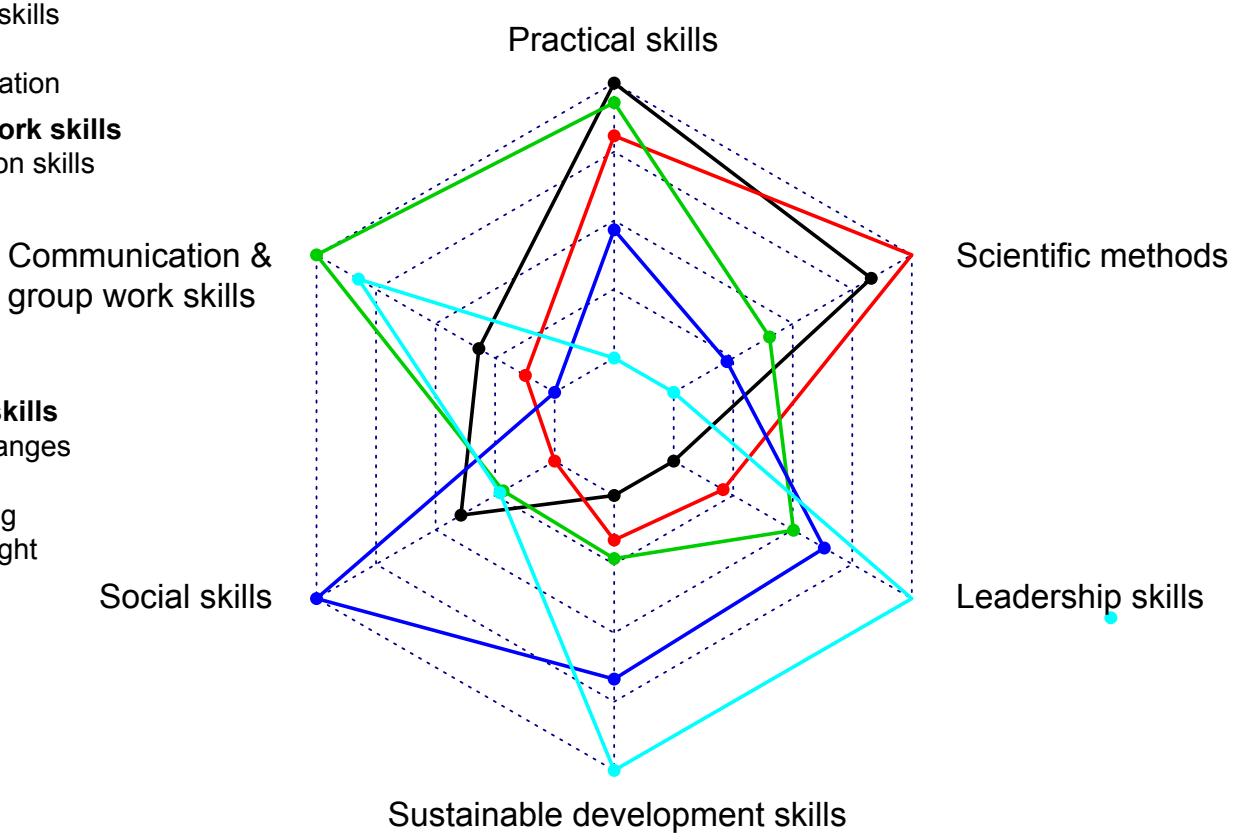
Communication & group work skills
Communication & presentation skills
Group work skills
Scientific writing

Social skills
Negotiation skills
Social skills

Sustainable development skills
Ability to make & execute changes
Creativity & flexibility
Ethical & value-based thinking
Future orientation & forethought
Systemic, wide-ranging, connective thinking
Transdiciplinarity, acting in multidiciplinary environments

Leadership skills
Leadership
Decision making & responsibility
Teaching & supervision

Scientific methods
Analytical & critical thinking
Comprehension & application of theories
Computational skills
Problem solving
Searching & updating information, active learning



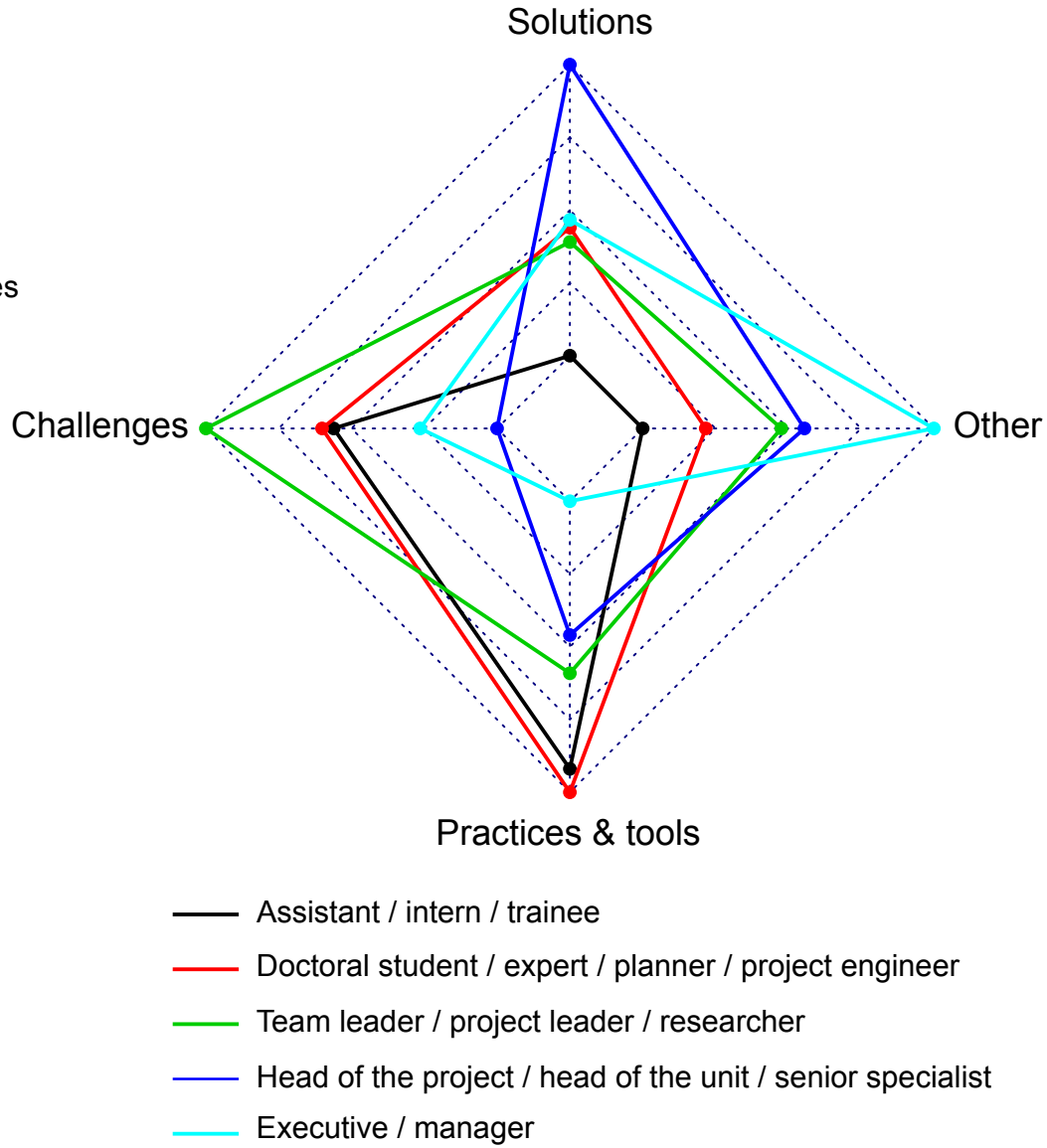
The central knowledge at different levels

Solutions
Circular economy & waste management
Governance & legislation of own field
Life cycle thinking
Principles of business & economy
Social responsibility
Theories of own field

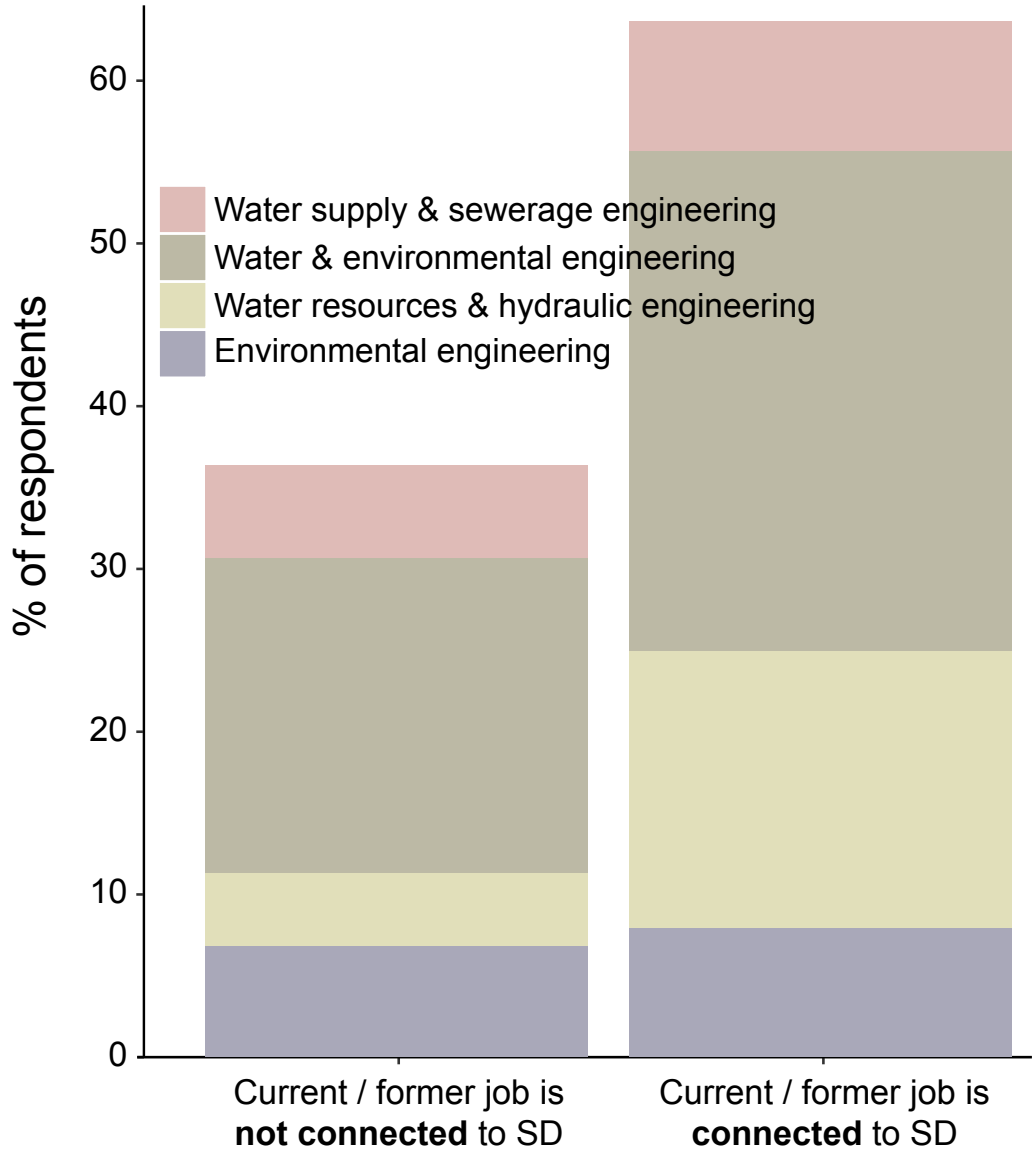
Challenges
Climate change
Cycling of phosphorus & nitrogen
Eutrophication & pollution
Global sustainable development challenges
Land-use change
Understanding significance of biodiversity

Practices & tools
Engineering knowledge (e.g. IT, Excel, GIS, programming)
Hydrology & hydraulics
Knowledge of environmental engineering practices
Knowledge of water supply & sewerage practices
Risk assessment

Other knowledge
Entrepreneurship
Knowledge of construction engineering pratices
Leadership
Knowledge of other fields (forestry, energy technology, understanding how society works)



Is the current or former job connected to sustainable development?



In all actions we must consider alternatives that are in accordance with sustainable development

Projects are usually connected to decreasing environmental impacts and risk management

I sell pumps that are intended to decrease energy and water consumption.

I work with wellbeing of water systems.

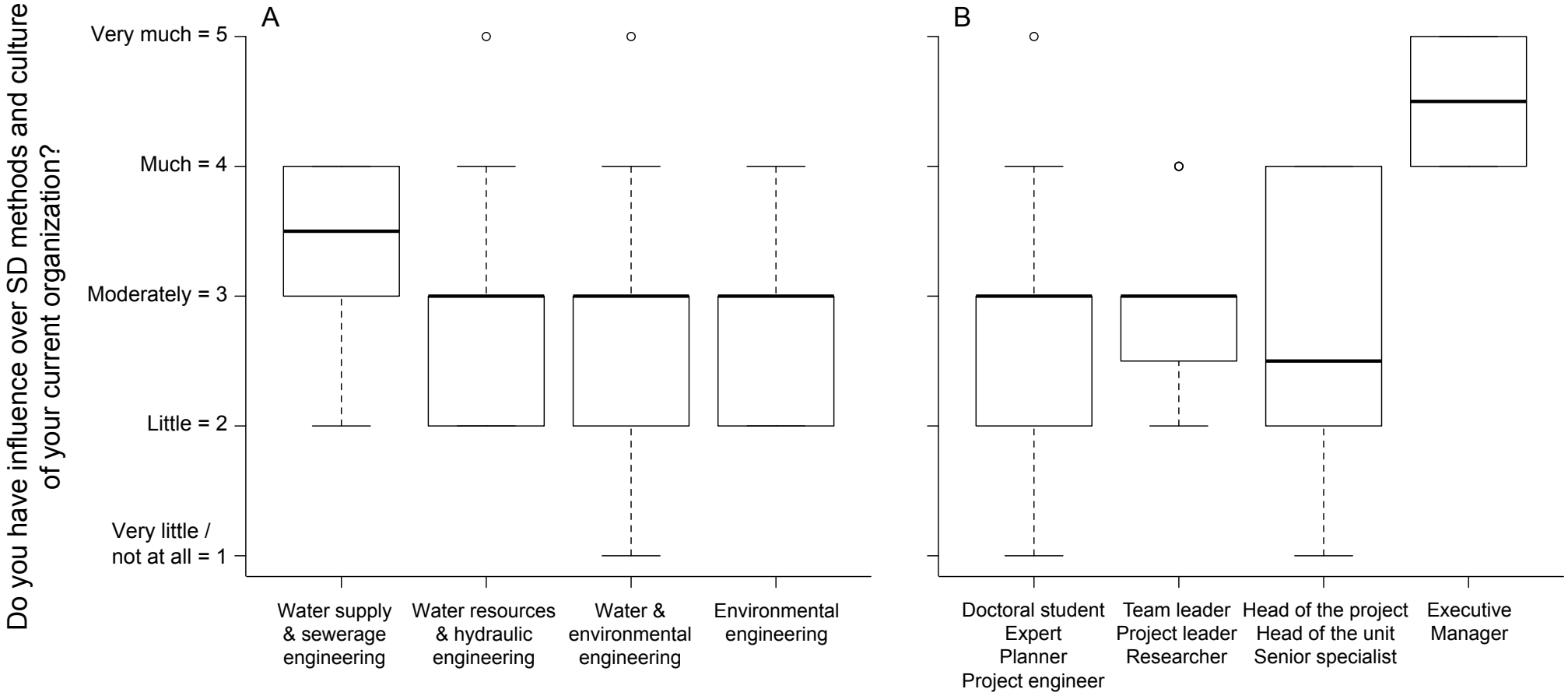
Development project situated in Africa

All the time should invent more sustainable practices

My work aims at sustaining biodiversity.

have to be taken into account in all actions

Do the alumni have power over sustainability decisions?



Large decisions are made at higher levels in the organization.

I am the only one who has the know—how. For the time being it is not utilized.

I produce new knowledge that can be used to determine courses of action.

Perceptions about sustainable development being a central theme in the new Master's Programme in Water and Environmental engineering...

Absolutely positive: n=28, *I think it is a good and timely theme, and it should be considered in all kinds of studies. Exporting water know-how is important and will likely only increase in the future.*

Positive: n=5, *I do not find the theme to be so significant in my job, but I consider it to be important for the society and a good central theme.*

Positive with some preconditions: n=11, *Sustainable development as such is an important goal and good theme, if the UN Sustainable Development Goals are taken into account and learned to see the big picture, as well as to specialize to some section.*

Slightly critical: n=7, *Wasn't sustainable development theme an every day matter already in the 90's?*

Critical: n=4, *Pay attention that you will continue to teach real technology and technical solutions, not just pretty theories. Engineers should be able to calculate and solve problems.*

Very critical: n=2, *Sustainable development cannot be the main theme...*

Contradictory: n=3

No response: n=28