BALTIC GENDER

Baltic Consortium on Promoting Gender Equality in Marine Research Organizations

Handbook of gender-sensitive indicators in the Baltic Gender project

This handbook describes the gender sensitive indicators, selected by the Baltic Gender project to look at sex-segregated and aggregated data from its eight partner institutions. These comprise 7 quantitative indicators (explained in sections 1-4) and 6 qualitative indicators (sections 5-8). The sections are organised in the context of what the indicators aim to monitor (i.e., career advancement and leadership, resources, decision making, recruitment, work and family, gender in research content, language, teaching).

For each indicator, a short description is given followed by the rationale, data needed / computation method, initial ideas for data analysis and comments / critical issues.

Index

1. Indicators for career advancement and leadership

1.1. Scissor diagram for academic staff

Type of indicator: quantitative

Definition of indicator

This indicator visualizes the current situation regarding women and men from (PhD) student to full professor levels. If women and men are moving on to the next level at the same degree the lines are straight (no scissor).

To visualize the indicator, the proportion of women and men at every career step that is applicable for the partner is plotted in a graph.

Rationale

Shaw & Stanton (2012) used a model that enabled them to identify the two key bottlenecks restricting the participation of women in academia: choice of undergraduate major and application to faculty positions. This means that there are (at least) two stages in the career that need extra attention. If we assume that at the first stage (choice of undergraduate major) the group resembles the pool of students studying a specific subject, measures that have an impact on the 'society at large' (from children to grown ups) are important, and that might be outside the primary scope of this project.

When it comes to the second stage (applications to faculty positions) the structures within academia might play a larger role for the advancement. What can be done to retain women and avoid a 'leaky pipeline'? Holmes (2014) discussed how the ADVANCE program (https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5383) promotes gender equity in academia. There are several different parts that need attention. Holmes (2014) stated that:

- For individual barriers, professional development workshops help make the implicit explicit
- For interactional barriers, learning about implicit bias can reduce its impact
- For institutional barriers, policy review and reform, such as enacting stop-the-tenure clock and dual-career policies, make the academy more people-friendly are important.

Computation method

Data needed

Number of women and men at the different academic positions:

Grade A (equivalent to full professor level)
Grade B (equivalent to associate professor level)
Grade C (equivalent to assistant professor level)
Postdoctoral positions
PhD students
(Master students)
(Bachelor students)

All data is at the level that the GEP is covering (e.g. department, institute).

→ Data collection on a yearly basis

Specifications

Proportion of women and men at each level is plotted in a graph.
Two lines are plotted
1) $W_{posX}/(W_{posX}+M_{posX})$
2) $M_{posX}/(W_{posX}+M_{posX})$

where W = number of women, M = number of men

Initial ideas for data analysis

Collected data can be used to examine if there is a proportionally higher loss of women than men from student level to professor level. To monitor the development over time at the respective institutes would be something to include in the GEPs, if not already there.

Comments/critical issues

The Grades (A-C) are defined differently in the different partner organisations (see the table below for the definitions of Baltic Gender partners), but the visualization is important for the work on the individual Gender Equality Plans (GEPs).

References

Holmes, M.A. (2014) Advancing women in oceanography – How NSF's ADVANCE program promotes gender equity in academia. Oceanography 27(4) suppl.: 30-38.

Shaw, A.K., & Stanton, D.E. (2012) Leaks in the pipeline: separating demographic inertia from ongoing gender differences in academia. Proceedings of the royal society B-biological sciences 279: 3736-3741.

BALTIC GENDER

Partner specific definition of grades in the Baltic Gender project

Patner institution	Country	Grade	Classification	explanations
UT-EMI	Estonia	A	Research Professor	(= Professor)
		B	Senior Research Fellow	(= Assistant professor)
		C	Research Fellow	(= Lecturer)
SYKE	Finland	A	Professors and leading scientists	-
		B	Researcher working under "work demandingness" categories 15–16	-
		C	Researcher working under "work demandingness" categories 13–14	-
GEOMAR	Germany	A	all permanent W3/W2 professorship positions	
		B	all other scientists on permanent positions	(including permanent group leaders, permanent Dr. habil and permanent honorary professors)
		C	non-permanent group leaders, non-permanent Dr. habil, W1 professorship positions, other non-permanent professorship positions (W2, honorary)	
CAU	Germany	A	Full professorship (C4 or W3)	
		B	Professorship (C3 or W2)	
		C	Juniorprofessor (W1)	
Kiel UAS	Germany	A	W3 professors	
		B	W2 professors	
		C	Scientific staff	Scientific staff either with a Masters degree or a PHD
IOW	Germany	A	full professor	
		B	Privatdozenten/associate professors	
		C	Not available	
KU	Lithuania	A	Professors, chief researchers	
		B	Associate professors, senior researchers	
		C	Lecturers, assistants, researchers and junior (assistant) researchers	
LU	Sweden	A	Professor	
		B	Senior lecturer	Universitetslektor
		C	Researcher, Associate senior lecturer, University teacher	Forskare, biträdande lektor, adjunkt

1.2. Glass Ceiling Index (GCI)

Type of indicator: quantitative

Definition of indicator

This indicator puts a number on the current situation for the possibilities of women and men to reach the highest ranks in academia. If women and men are equally recruited/promoted to the next career step (e.g. Grade A), compared to the pool in the career step they are in (e.g. Grade B) the index is 1.

The Glass Ceiling Index (GCI, She Figures 2015) compares the proportion of women at all Grades (A+B+C) to the proportion of women at the highest Grade (A). A score of less than 1 means that women are over-represented at Grade A level and a GCI score of more than 1 points towards a glass ceiling effect, meaning that women are under-represented in Grade A positions. In other words, the interpretation of the GCI is that the higher the value, the stronger the glass ceiling effect and the more difficult it is for women to move into a higher position.

GCI (She Figures): Proportion of women at Grades A+B+C/proportion of women at Grade A

The GCI can also be calculated to see if the stagnation is at Grade B to Grade A or at Grade C to Grade B
(at what stage are women lost?):

GCI (B-A): Proportion of women at Grades A+B/proportion of women at Grade A

GCI (C-B): Proportion of women at Grades B+C/proportion of women at Grade B

Rationale

Winslow & Davis (2016) discussed the 'clogging of the pipeline' at the stage of associate professors (not becoming full professors). For example in the United States there are more efforts on advancing women assistant professors to associate professors (also connected to a fixed time available to reach the associate professor level), whereas there is no fixed regulation (or time) for an associate professor to be promoted to a full professor.

There are several different parts that need attention if the GCI is not equal to 1. Holmes (2014) stated that:

- For individual barriers, professional development workshops help make the implicit explicit
- For interactional barriers, learning about implicit bias can reduce its impact
- For institutional barriers, policy review and reform, such as enacting stop-the-tenure clock and dual-career policies, make the academy more people-friendly are important.

Computation method

Data needed

Number of women and men at the different academic positions Grade A, Grade B, Grade C.

→ Data collection on a yearly basis

Specifications

$GCI_{(She\ Figures)} = (W_{Grade\ A+B+C}/(W_{Grade\ A+B+C}+M_{Grade\ A+B+C}))/ (W_{Grade\ A}/(W_{Grade\ A}+M_{Grade\ A}))$

$GCI_{(B-A)} = (W_{Grade\ A+B}/(W_{Grade\ A+B}+M_{Grade\ A+B}))/ (W_{Grade\ A}/(W_{Grade\ A}+M_{Grade\ A}))$

$GCI_{(C-B)} = (W_{Grade\ B+C}/(W_{Grade\ B+C}+M_{Grade\ B+C}))/ (W_{Grade\ B}/(W_{Grade\ B}+M_{Grade\ B}))$

where W = number of women, M = number of men

Initial ideas for data analysis

The GCI index shows if proportionally more women are lost between Grade C and Grade B than between Grade B and Grade A. This indicator could be used in the GEPs to keep track of where the bottle necks are in the organization and where emphasis on measures and structural changes are needed.

Comments/critical issues

The career path may not always be from Grade C to B and from Grade B to A; some researchers may jump from Grade C to A or may not strive to move onto Grade A once they are at Grade B. This depends on how the Grades are defined at the institutional level.

References

Holmes, M.A. (2014) Advancing women in oceanography – How NSF's ADVANCE program promotes gender equity in academia. Oceanography 27(4) suppl.: 30-38.

She Figures (2015) European Commission Directorate-General for Research and Innovation Directorate B – Open Innovation and Open Science Unit B.7 Science with and for Society, ISBN 978-92-79-48375-2, doi: 10.2777/744106, 224 pp.

Winslow, S. & Davis, S.N. (2016) Gender Inequality across the academic life course. Sociology Compass 10(5): 404-417.

2. Indicators for resources

2.1. Gender Pay Gap (GPG)

Type of indicator: quantitative

Definition of indicator

This indicator presents the average difference between the remuneration (incl. bonuses) for female and male employees for a given year based on mean hourly earnings.

This indicator is calculated as follows:

Gender pay gap (GPG) = (Average gross hourly earnings of paid men employees – Average gross hourly earnings of paid women employees) / Average gross hourly earnings of paid men employees (expressed in %).

In other words, the unadjusted GPG represents the difference between the average gross hourly earnings of paid men employees and of paid women employees as a percentage of the average gross hourly earnings of paid men employees.

Rationale

Gender Pay Gap captures enduring gender inequalities in research, in public service, and in the labour market in general (Smith 2010; Women & Work Commission 2009). The causes of the gender pay gap lie in the undervaluation of women's skills and capacities, the under-representation of women in decision-making positions, the unequal division of caring responsibilities, gender stereotypes and discriminatory practices in the workplace (both direct and indirect), and gender segregation across sectors and occupations (EGGE 2009; DG Justice 2014, pp. 5–8). Over years of work, this disparity contributes to a substantial pay difference between women and men, and continues to affect income through pension payouts after retirement. A Gender Pay Gap is also expected within science in Europe, because empirical studies show the gap for U.S. universities. Some of the general reasons for higher earnings of men seem to be applicable to science, too. Rabovsky/Lee (2017) provided evidence for a positive effect of the higher representation of women in decision-making boards at private universities (not at public non-profit universities) and salaries of untenured assistant professors.

Computation method

Data needed

$(E_{W,i})$: Average gross monthly earnings of women employees (including bonuses)

$(E_{M,i})$: Average gross monthly earnings of men employees (including bonuses)

$(T_{W,i})$: Mean of monthly working hours of women employees (by contract)

$(T_{M,i})$: Mean of monthly working hours of male employees (by contract)

(i) Denotes the category:

Academic divided into:

Grade A (equivalent to full professor level)
Grade B (equivalent to associate professor level)
Grade C (equivalent to assistant professor level)
Postdoctoral positions
PhD students

→ Data collection on a yearly basis

→The data collected does not include the mean hourly earnings. Therefore, they are calculated by dividing the mean monthly earning ($E_{W,I}$ for women, $E_{M,}I$ for men) by the mean monthly working hours ($T_{W,I}$ for women, $T_{M,I}$ for men).

Specifications

$$GPG = ((E_{M,i} / T_{M,i}) - (E_{W,i} / T_{W,i})) / (E_{M,i} / T_{M,i}) \text{ (in \%)}$$

Initial ideas for data analysis

If the payment of women and men is not equal, the GPG shows a percentage below or above zero. A positive GPG of e.g. 10% means that women earn 10% less than men do on average per hour. A negative GPG of e.g. 10% means that men earn 10% less than women do on average per hour. In order to investigate (and eventually reduce) systematic inequalities between female and male scientists in marine sciences, it is essential to monitor the gender pay gap differentiated by status groups (at least Grade A, Grade B, Grade C and – where applicable and data available – postdoctoral positions and PhD positions) over time on a yearly basis. Thus, the GPG does not account for the declining representation of women in higher ranking status groups (glass ceiling effect, indicator 1.2) but gives only information about (un)-equal payment on each level. It should also be taken into account how high the actual monthly income is in order to make a statement on the financial status of the employee.

If a gender pay gap of more than 5% on any of the income levels in an institution is identified as a steady trend over time, the reasons should be investigated; e.g. different amounts of bonuses or "age" effects in systems like the German where experience levels are automatically reflected in earnings on PhD- and postdoc-level. The 5 % level might be seen as relatively low difference where it is difficult to convince people in an institution to take action and might be caused by aspects not easily to be countered (e.g. single people with very high or low incomes).

Comments/critical issues

The suggested way to calculate the GPG within the science sector and specified for different status levels does already exclude two main explanations for wage differences (gender segregation across sectors/occupations and level of experience) between women and men. Consequently, a closer look at the working conditions at the institutions is necessary to find explanations for the GPG.

Whilst the GPG based on hourly earnings excludes income differences derived from the scope of the contract it does not show the gap between the monthly income women and men have available, which has short-term and long-term (pensions) impacts in the individual economic situation.

The GPG based on means (not on medians) does not account for distortion effects single very high or very low incomes might have. Therefore, the collection of non-aggregated data to also calculate the GPG based on median incomes and working hours would help to further explain the GPG based on means.

If a subgroup is very small (less than five cases) problems of anonymity and statistical validity may occur. It is therefore recommended to only calculate the GPG within status groups with at least five cases in the group.

References

DG Justice (2013) Tackling the gender pay gap in the European Union. Publications Office of the European Union, Luxembourg, available at https://publications.europa.eu/en/publication-detail/-/publication/c8ed6c6f-ce80-481b-8915-d95faf885514/language-en

European Commission's Expert Group on Gender and Employment (EGGE) (2009) Gender segregation in the labour market: Root causes, implications and policy responses in the EU. Publications Office of the European Union, Luxembourg, available at http://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=364&furtherPubs=yes

Rabovsky, T., & Lee, H. (2017) Exploring the Antecedents of the Gender Pay Gap in U.S. Higher Education. Public Administration Review, 0 (0), 0-11. doi: 10.1111/puar.12827.

Smith, M. (2010) Analysis note: The gender pay gap in the EU – What policy responses? available at http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.191.874

Women & Work Commission (2009) Shaping a Fairer Future. A review of the recommendations of the Women and Work Commission three years on, available at http://eige.europa.eu/gender-mainstreaming/resources/united-kingdom/shaping-fairer-future-review-recommendations-women-and-work-commission-three-years

2.2. Part-time employment

Type of indicator: quantitative

Definition of indicator

This indicator compares the part-time employment rate amongst women and the part-time employment rate amongst men on a yearly basis.

This indicator is calculated as follows:

Part-time employment of women: no. of women with part-time contracts / no. of all women (expressed in %)
Part-time employment of men: no. of men with part-time contracts / no. of all men (expressed in %)

Rationale

Directive 2006/54/EC of 5 July 2006 lays down the principle of equal treatment of women and men in the EU, including in relation to their working conditions, access to promotion and occupational security schemes. According to the Council of the EU, part-time employment has many potential benefits, such as 'facilitating labour force participation', as well as offering 'an opportunity for both women and men to enhance their well-being, improve work/life balance and contribute to a more gender equal society' (Council of the European Union, 2014). At the same time, the Council warns of its 'potential to exacerbate gender differences in pay, working conditions and career advancement over the life cycle'. Studies have shown that there are fewer part-time jobs available in higher-level occupations, and that especially women with young children work part-time. Thus, women become stuck in lower-level jobs, in spite of the fact that many would prefer to return to full-time at a later stage, and that both career and earnings are negatively affected (Connolly and Gregory, 2008).

Computation method

Data needed

(W_i) Total number of women
(M_i) Total number of men
($W_{p,i}$) Number of women who work part-time
($M_{p,i}$) Number of men who work part-time

where,

(p) denotes part-time employment

(i) denotes the category:
    Academic divided into:
        Grade A (equivalent to full professor level)
        Grade B (equivalent to associate professor level)
        Grade C (equivalent to assistant professor level)

Postdoctoral positions
PhD students

→ data collection on a yearly basis

Specifications

Proportion of part-time women employees = $W_{P,i}/W_i$

Proportion of part-time men employees = $M_{P,i}/M_i$

Initial ideas for data analysis

This indicator shows if women and/or men researchers work part-time and if so, which gender works more often part-time. If there is a difference more than 5% between women and men and a steady trend over time, there is a need to explore the reasons and how part-time working affect the careers of female/male scientists. This indicator can be analysed together with the Gender Pay Gap to get a deeper understanding of the working situation.

Comments/critical issues

The results can give an indication of the relative working conditions of women and men researchers, but it is worth bearing in mind that this indicator does not explore the reasons behind differences. The investigation of reasons might be done via employee-surveys or qualitative analyses (interviews).

If a subgroup is very small (less than five cases) problems of anonymity and statistical validity may occur. It is therefore recommended to only consider the percentage of part-time employment within status groups with at least five cases in the group.

References

Connolly, M. and Gregory, M. (2008) The part-time pay penalty: earnings trajectories of British women. Oxford Economic Papers, 1–22.

Council of the European Union (2014) Council conclusions on women and the economy: Economic independence from the perspective of part-time work and self-employment. available at http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/lsa/143269.pdf

2.3. Sex of the chief scientist on scientific cruises

Type of indicator: quantitative

Definition of indicator

This indicator presents the proportion of women chief scientists on cruises in marine science and technology.

This indicator is calculated as follows:

Proportion of women chief scientists: no. of women chief scientists / no. of women + no. of men chief scientists (expressed in %)

Rationale

Marine Science and Technology is traditionally a male-dominated field, with a significant lack of women in leadership positions. Leading a ship cruise is one of the key aspects to move the career forward because the chief scientist on a cruise is usually the person who either leads the project the cruise is connected with or who applied successfully for ship time. Leading a ship cruise also means to have access to financial resources to carry out research projects with high relevance for the marine sciences community.

Computation method

Data needed

number of cruises organized by the partner institution

number of women chief scientists on cruises

number of men chief scientists on cruises

➔ data collection on a yearly basis

Initial ideas for data analysis

The indicator shows the proportion of women amongst all cruise leaders coming from one institution on a yearly basis. The underrepresentation of women in leading positions is also reflected in the proportion of women leading scientific cruises. There is a need to explore the reasons and to understand how it affects the careers of women scientists. This indicator can be analysed together with the scissor diagram and the glass ceiling index (WP1), since it is connected to career development. Because cruise leaders are also decision-makers on ship this indicator is connected to women's influence and representation in high-level positions, too.

Comments/critical issues

This indicator is strongly connected to the number of women who lead projects in which sea going work is necessary and also to success in applying for ship time. It might be also

interesting to collect data on the length of the cruises and explore if the duration of the cruise varies between female and male leaders. If this is the case you should investigate the reasons. One might be that female chief scientists with children will opt for cruises of shorter duration. It is also worth exploring the total number of scientists on board, and the number of disciplines involved in the cruise. As well interesting to explore would be if cruises involving teaching/training are predominantly led by female, or the same disproportion is visible as in purely scientific cruises. These additional data might also help to shed light on the direction of the statistical correlation between the underrepresentation of women in leading positions and their underrepresentation as chief scientists on cruises. So far, it is unclear if women are underrepresented amongst cruise leaders because they are underrepresented in leading research positions or if they are underrepresented in leading positions because they only have limited chances to lead scientific cruises.

3. Indicator for decision making

Women's representation in committees

Type of indicator: quantitative

Definition of indicator

This indicator presents the proportion of women and men in the three most important boards and committees of an institution (e.g. Senate, Council, top-level-management) in comparison of at least three years. Each institution pre-defined these three boards/committees individually.

The indicator is calculated as follows:

Committee Representation of women = no. of women in committee / no. of men + no. of women in committee (expressed in %)

Rationale

The underrepresentation of women in crucial decision-making boards and committees of research institutions is one aspect of vertical segregation in science and academia. Female scientists are still "[…] under-represented in both top academic research and academic management leadership and decision-making positions." (EC 2018, p. 7). The overall representation in boards on the national level of all 29 EU countries was 28% in 2014, but this figure varies widely between EU countries (ibid.). National legislation, especially legal binding quota, shows positive effects on the representation of women in important boards over time. The equal representation of both women and men in decision-making processes is a prerequisite for equal participation in forward-looking decisions of an academic institution.

Research on the role of women in selection committees for professorship positions gave empirical evidence for a positive relationship. In a study on appointment procedures in the Netherlands, for example, it was shown that the success rate of female applicants increases with the number of women in selection committees; even in different disciplines and with different appointment procedures (van den Brink et al. 2006).

Computation method

Data needed

Number of women in the relevant boards

Number of men in the relevant boards

➔ At least data from the past three legislative terms

➔ Data on the three most important boards/committees

Specifications

No. women / total no. of men and women (in %)

Initial ideas for data analysis

Based on the data given, the analysis is rather straightforward. It should be looked at the given percentage of women amongst all members of a committee or board. We recommend comparing data with regard to the development over time. An equal share is reached if both women and men are represented evenly (50%) but at least not below 40% (because in some countries, the legal definition of equal representation is 40% and it is widely acknowledged that with a representation of 40% there is no structural discrimination at work anymore).

Comments/critical issues

To make a good analysis, first the election procedure as well as the system of proportional representation have to be taken into account. Second, there should be clear definitions on "important boards and committees". They should be involved in decision making on general strategic issues with relevance for the whole institution. Third, the composition of the board or committee has to be taken into account – there might be cases in which the institution does not elect all members of the committee, whereas a certain number of members are nominated externally. Third, it would be advisable to compare legislative terms because only new elections usually give an institution the chance to change the percentage of women and men in a committee or board. Finally, when discussing the share of women and reasons for underrepresentation you should be aware of the percentage of women in the basis population the board's members originate from. Especially on the professorship level, the number of women might be relatively small and this might be reflected in the board or committee.

References

European Commission (EC) (2018) Guidance to facilitate the implementation of targets to promote gender equality in research and innovation, available at https://ec.europa.eu/research/swafs/pdf/pub_gender_equality/KI-07-17-199-EN-N.pdf

van den Brink, M., Brouns, M., & Waslander, S. (2006) Does excellence have a gender?: A national research study on recruitment and selection procedures for professorial appointments in the Netherlands' Employee Relations. 28 (6), 523-539, doi: 10.1108/01425450610704470.

4. Indicator for recruitment

Percentage of women within the recruitment process

Type of indicator: quantitative

Definition of indicator

The indicator shows the proportion of applications from women & men vs. the proportion of women and men invited for job interviews vs. the proportion of women & men hired for a position by status groups on a yearly basis.

The indicator is calculated as follows:

Proportion of female applicants = female applicants / female applicants + male applicants (expressed in %)

Proportion of women invited for job interviews = women invited / women invited + men invited (expressed in %)

Proportion of women hired = women hired / women hired + men hired (expressed in %)

Rationale

Women get lost on the way to higher-ranking positions in academia. Gendered recruitment processes can partially explain the underrepresentation of women in academia because they are in many cases and often unconsciously favouring male scientists and structurally discriminating against women (van den Brink 2015; van den Brink et al. 2006). Consequently, the successful recruitment of women can help to overcome their underrepresentation. Three steps of a recruitment process should be investigated. First, a self-selection takes place before people apply for jobs. Women more often than men feel not attracted to (academic) high-ranking positions or not completely capable and fitting due to the male-dominated wording of job announcements, especially in languages where both female and male forms of words exist (Horvath 2015). Second, gender bias is still at work when applicants get invited to job interviews and recruited for positions. On the one hand, women are still evaluated as less competent and capable of filling a demanding position (Moss-Racusin et al. 2012; Madera et al. 2009), at least in some fields of natural sciences like biology and earth science (van den Brink et al. 2006, p. 525). On the other hand, they feel less comfortable in interview situations if language excludes them by the use of male wording (Horvath 2015). It consequently leads to underrepresentation of women amongst those selected for a position.

Computation method

    Data needed

    (P): Total number of open/advertised positions to be filled

    $(A_{W,i})$: Number of applications from women

    $(A_{M,i})$: Number of applications from men

$(I_{W,i})$: Number of women interviewed

$(I_{M,i})$: Number of men interviewed

$(R_{W,i})$: Number of women recruited

$(R_{M,i})$: Number of women recruited

(i)   Denotes the category
          Academic divided into:
                    Grade A (equivalent to full professor level)
                    Grade B (equivalent to associate professor level)
                    Grade C (equivalent to assistant professor level)
                    (Postdoctoral positions)
                    (PhD student)

→ data collection on a yearly basis

Specifications

Proportion of women applicants = $(A_{W,i} / (A_{W,i} + A_{M,i}))$

Proportion of women interviewees = $(I_{W,i} / (I_{W,i} + I_{M,i}))$

Proportion of women recruited = $(R_{W,i} / (R_{W,i} + R_{M,i}))$

Initial ideas for data analysis

When looking into the recruitments of a given year, the idea behind this indicator is to review if women and men have an equal chance of getting a job at a marine science institution. This has two implications. First, women should be as highly represented in the second (interviews) and third step (recruitment) as in the first step (applications) of an application process. Second, women and men should be equally represented amongst the applications in order to give the institution the chance to select from an adequate number of female and male applicants. Equal representation amongst applicants means 50% women and men, but at least not below 40% (because in some countries, the legal definition of equal representation is 40% and it is widely acknowledged that with a representation of 40% there is no structural discrimination at work anymore).

If the proportion of women and men vary widely to the disadvantage of women over an extended period of time, both when looking into the representation over the three steps of the recruitment process and into the number of female applicants, one should investigate the reasons. This gap might indicate to structural discrimination within the recruitment process.

Comments/critical issues

The goal is to fill every open position. If the number of open positions and the number of persons recruited vary widely over time, there might be several reasons for this (e.g., the position and/or the salary is not attractive enough, there are too few qualified scientists, people get job offers in one year but do not accept them before the next year). This is why the total number of open positions is collected, too.

In some institutions positions are not (always) filled in a competitive selection process. Such cases without competition application process should not be taken into account for this indicator. Thus, it might not be applicable to all status levels at all institutions.

References:

Horvath, L. K. (2015). Gender-fair language in the context of recruiting and evaluating leaders, in: Welpe, I. M., Brosi, P., Ritzenhöfer, L., & Schwarzmüller, T. (eds.), Auswahl von Männern und Frauen als Führungskräfte. Perspektiven aus Wirtschaft, Wissenschaft, Medien und Politik, Springer Gabler, 263-272.

Madera, J.M., Hebl, M. R., & Martin, R.C. (2009) Gender and letters of recommendation for academia: Agentic and communal differences, Journal of Applied Psychology, 94, 1591-1599.

Moss-Racusin, C. A., Dovidio J. F., Brescoll, V. L., Graham, M. J., & Handeslman, J. (2012) Science faculty's subtle gender biases favor male students, PNAS, 109 (41), 16474-16479. doi: 10.1073/pnas.1211286109.

van den Brink, M., (2015) Myths about meritocracy and transparency: The role of gender in academic recruitment, in: Peus, C., Braun, S., Hentschel, T., & Frey, D. (eds.), Personalauswahl in der Wissenschaft, Springer, 192-201. doi: 10.1007/978-3-662-48112-7_12.

van den Brink, M., Brouns, M., & Waslander, S. (2006) Does excellence have a gender?: A national research study on recruitment and selection procedures for professorial appointments in The Netherlands", Employee Relations, 28 (6), 523-539, doi: 10.1108/01425450610704470.

5. Indicators for work and family

5.1. Flexible working arrangements

Type of indicator: qualitative

Definition of indicator

This indicator portrays if flexible working arrangements are set in institutions of marine science and technology.

Flexible working arrangements include:
- Flexibility in working time (flexible hours, part-time work, holiday and field works planning etc.);
- Flexibility in place of work (home office, telecommuting etc.).

Therefore, the indicator will be split as follow:
- Flexible time arrangements;
- Flexible place of work arrangements.

This indicator presents the breakdown across three categories (marine science, marine technology and administration).

Rationale

OECD, 2016: "Working time flexibility can help working parents to reconcile their work-schedule with childcare centre and/or school hours, and can make an important contribution to employees' satisfaction with their work-life balance (Cazes et al., 2016). Working from home saves time on the commute and helps employees to be close to children and partners in case of care needs. However, flexible working is not without risks to employees since it may involve working longer hours causing fatigue and more stress (Golden, 2012; Lott and Chung, 2016). Flexible working may increase staff and overall workplace productivity, but changing workplace practices can incur short-term costs (Beauregard & Henry, 2009). Flexible working requires ample management and communication capacity to organize the greater variety in work patterns among a greater number of staff. The use of different flexible working arrangements depends on employee and business needs. Part-time work can be an option for employees who need to reduce their working hours on a permanent basis, but it comes at the price of reduced earnings. Women – often mothers - are on average three times more likely than men to work part-time in Europe and almost one in ten women on average work actually for fewer than 20 hours per week. Organising part-time work can also have a cost for employers who may have to adjust the workload or to assign workers to different jobs. The costs born by the two parties can be reduced by flexible working arrangements that do not require such a profound change in work organisation. In particular, when the workflow is not immediately dependent on consumer demand, employees may be able to start and end work at a time of their choosing or take breaks during the working day with approval from line management. Working from home can be occasional or regular, depending on business constraints, and requires a working relationship that is based upon trust and encourages employees to manage their own work. Technological progress and the growing use of internet, emails, laptops, etc. facilitate to

"be at work", but not "be in the office"".

Data needed

This indicator is framed as following:

Does the institution have…:

1. … flexible time arrangements in three different categories of staff (academic, technical, administrative)?

2. … flexible place of work arrangements in three different categories of staff (academic, technical, administrative)?

Initial ideas for data analysis

Flexible working arrangements can be clearly regulated and improved on institution level. Therefore, including flexible working arrangements in GEPs would be suitable.

References

Beauregard, T. A. and H. Lesley C. (2009) "Making the link between work-life balance practices and organizational performance", Human Resource Management Review, 19(1), pp.9-22.

Cazes, S., A. Hijzen and A. Saint-Martin (2016) "Measuring and assessing job quality: The OECD job quality framework", OECD Social, Employment and Migration Working Papers No. 174, http://dx.doi.org/10.1787/5jrp02kjw1mr-en.

Golden Th. (2012) "Altering the Effects of Work and Family Conflict on Exhaustion: Telework During Traditional and Nontraditional Work Hours", Journal of Business & Psychology, 27(3).

Lott Y. and H. Chung (2016) "Gender Discrepancies in the Outcomes of Schedule Control on Overtime Hours and Income in Germany", European Sociological Review, 2016, pp. 1–14.

OECD (2016) Be Flexible! Background brief on how workplace flexibility can help European employees to balance work and family.

5.2. Child care service

Type of indicator: qualitative

Definition of indicator

This indicator portrays if the child care service availability to all members of staff is supported by institution.

This indicator presents the breakdown across three categories (marine science, marine technology and administration).

Rationale

The ability of EU Member States to significantly increase the employment rate and decrease different gender gaps (e.g pay gaps) depends, among other things, on the availability of care services. EU reports highlight that in almost all countries the lack of high quality and affordable care services for children, disabled people and older people form a major barrier to reconciliation. Frequently, care services are inadequate, expensive, part-time and does not cover a full week of work (EIGE, 2015). One way to improve the situation is child care service provided by the institution.

Data needed

This indicator is framed as following:

- Does the institution support the child care service availability to all members of staff?

Initial ideas for data analysis

The usefulness of this indicator depends on how much is regulated at the municipality or national level.

Comments/critical issues

If *regular* child care availability is available at the municipality level and it totally satisfies the demand, the indicator should examine more specific needs such as organized childcare service availability during different activities, support in obtaining child care in a nearby day care, funding support for childcare during expeditions or conferences.

Reference

European Institute for Gender Equality (2015) Supporting reconciliation of work, family and private life, Good Practices. Luxembourg: Publications Office of the European Union. http://eige.europa.eu/rdc/eige-publications/supporting-reconciliation-work-family-and-private-life-good-practices

6. Indicators for gender in research content

6.1. Incorporation of gender analysis in research design and management

Type of indicator: qualitative

Definition of indicator

Gender analysis can help the planning and implementation of research projects so that the activities become more sensitised e.g. to
   a) gendered differences relevant for the formulation of research aims and questions, choice of methodologies and methods, and organization of citizen participation;
   b) the stereotypes and default identities on which the research setting rests;

Some research funders require the use of gender analysis. (http://genderedinnovations.stanford.edu/sex-and-gender-analysis-policies-major-granting-agencies.html). However, universities and research institutes can also adopt policies to enhance the use of gender analyses. The policy measures could include active promotion of the analysis (commitment), achieving of good examples and development of useful tools.

Rationale

Marine science and research can have gendered impacts. The impacts may be outcomes of the ways a research project defines critical topics and questions, identifies actors and elements relevant for change, focuses analytic attention and interprets the data and presents the findings. A gender analysis can help projects to acknowledge their own potentials and to make more informed choices regarding progress.

Data needed

This indicator will be framed as following:

- Does the institution actively promote the incorporation of gender analysis in research design and management? If yes, since when?

Initial ideas for data analysis

GEPs should be used to encourage the integration of gender dimension to research management.

Comments/critical issues

Methods of gender analysis are few and they may not appear relevant for marine research. No easy fixes exist or are likely to exist.

6.2. Incorporation of GEPs in research project plans and implementation

Type of indicator: qualitative

Definition of indicator

The indicator shows whether or not the research projects coordinated by the institute include gender equality plans in the research project proposals and realized research projects they coordinate.

Rationale

Gender equality plans (GEPs) implemented on a research project level can enforce good gender equality practises in relation to organizing the project work beyond the gender equality plans of the participating institutes. The project GEPs can help participants see the discriminating practises and find new ways to involve everyone equally to the project work. Some research funders require GEPs as part of the project plans.

Data needed

This indicator will be framed as following:

- Does the institution actively promote the inclusion of gender equality plans in research project management? If yes, since when?

Initial ideas for data analysis

Project-specific GEPs should be used to encourage the integration of gender equality measures on a research project level.

Comments/critical issues

Research funders have different requirements and templates for project proposals. The inclusion of GEPs or a gender analysis may not always be possible. However, project management should nonetheless support the achievement of gender equality. Project-specific GEPs can help in planning and organization of these efforts.

7. Indicator for language

Recommendations on gender sensitive language

Type of indicator: qualitative

Definition of indicator

Gender sensitive language is the realization of gender equality in written and spoken language. It promotes the use of gender-neutral terms where applicable.

Rationale

Gender-based discrimination starts with language, for instance through stereotyped views of women and men and/or the use of masculine language. We should seriously reflect on our language use if we want to promote gender equality.

Data needed

This indicator will be framed as following:

- Does the institution have any recommendations or guidelines on the use of gender sensitive language?

AREA	Recommendations exist		Guidelines exist	
	YES (since when?)	**NO**	**YES (since when?)**	**NO**
Teaching				
Official documents				
External communication				

Initial ideas for data analysis

Language is one of the most powerful means through which sexism and gender discrimination are perpetuated. Even if a language does not have a grammatical gender, or for instance uses gender neutral pronouns, there are at least some words referring specifically to the male or female gender. The aim of the indicator is to raise awareness, to encourage to think more carefully about the ways how to avoid discrimination between women and men with language (e.g., exclusion of women or stereotyped views of feminine and masculine roles).

Comments/critical issues

The indicator only shows if there is an awareness for gender-sensitive language use in the institution at all by looking at recommendations or guidelines. It does not allow conclusions about the degree of acceptance among its members.

8. Indicator for teaching

Recommendations on gender sensitive didactics

Type of indicator: qualitative

Definition of indicator

Didactics comprises teaching forms and methods presenting information to the students.

Rationale

From a didactics perspective, gender-sensitive teaching aims at equally supporting the learning of male and female students. It counteracts (unconsciously) biased aspects in the learning environment and in the interactions between teachers and students and among students.

Data needed

This indicator will be framed as following:

- Does the institution have any recommendations or guidelines on the use of gender sensitive didactics?

	YES (since when?)	NO
Recommendations exist		
Guidelines exist		
It is part of the teaching training		
Gender sensitive didactics is mentioned in the evaluation questionnaire of lectures		

Initial ideas for data analysis

The aim of this indicator is to check whether institutions that offer teaching pay attention to gender bias in classroom interactions and course design. Disciplinary cultures have an impact on the teaching and learning culture, and if traditionally male-dominated, they often allow spaces for gender discriminatory practices. Gender-sensitive didactics aims at improving pedagogical practices.

Comments/critical issues

It is difficult to collect empirical data/evidence about this matter - how can the realisation of gender-sensitive didactics in an institution be measured or the awareness of individual actors/teachers?