Strategic plan for gender equality at Faculty of Geo-Information Science and Earth Observation (ITC)- University of Twente

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Preface

This Gender Equality Plan (GEP)[2] of the Faculty of Geoinformation and Earth Observation (ITC) complements the Gender Equality Plan of the University of Twente[3] aiming to showcase and improve the integrity, cooperation and learning across male and female academics in and outside the Faculty **focusing specifically on Earth Observation and Geoinformation domains** to **further expand our (faculty) global reputation beyond capacity development**. It is a direct response to requirements defined by EU, Horizon Europe, Erasmus+, UN, NWO, ministry of education culture and research, VSNU, LNVH and KNAW on gender equality and diversity.

A bottom-up approach is followed in the preparation of this document with input from (the ITC community)[4], student representatives, and alums. The ITC staff involved in the EO4all initiative contributed and expressed their concerns/challenges and **identified possible tailored solutions to enhance gender equality by fostering equity in Earth Observation and Geoinformation fields** following the survey done by the Women in Copernicus[5]. Figure 1 illustrates the process of preparation and review of this document.

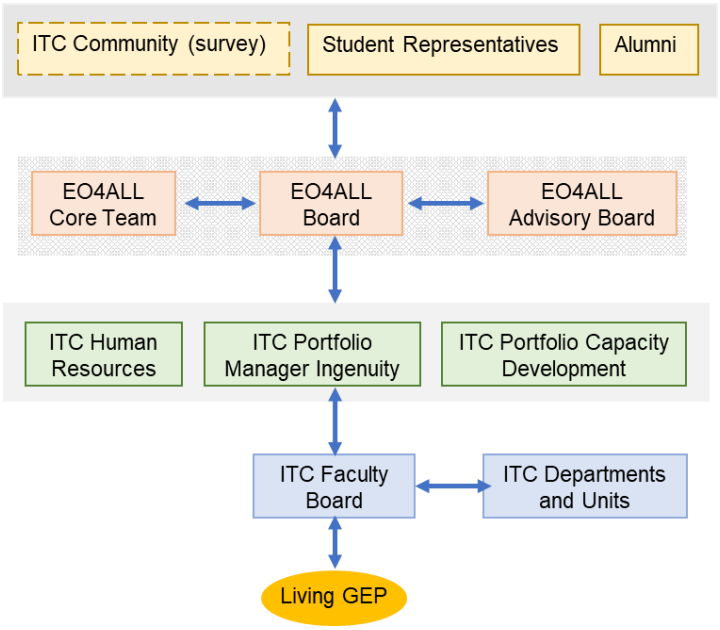

Figure 1. The bottom-up approach in the preparation and review process of ITC GEP.

[2] a set of commitments and actions that aim to promote gender equality in an organization through a process of structural change (Gender Equality in Academia and Research)

[3] GEP of University of Twente (https://www.utwente.nl/en/organisation/about/diversity/documents-and-links/Gender-equality-plan/)

[4] Survey of the integrity committee 2022

[5] Women in Copernicus – Global analysis of the survey https://womenincopernicus.eu/assets/survey2020/Global_Report.pdf

1. Background

The low number of women in Science, technology, engineering, and mathematics (STEM) is associated with various barriers, including discrimination and sexism, stereotypes, expectations, concerns, and fears related to study and profession (Riedler et al., 2021)[6]. The results of a survey conducted by Women in Copernicus (Figure 2) indicate that gender imbalance (average score: 3,58), gender bias (average score: 3,47), lack of self-confidence (average score: 3,34) and (potential) motherhood (average score: 3,19) are the most significant impediments for career paths of women working in the Earth Observation and Geoinformation and Copernicus sector.

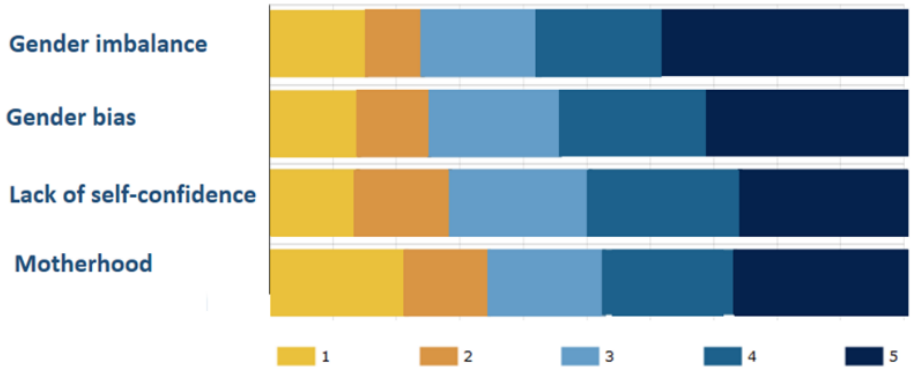

Figure 2: Barriers for women in Earth Observation and Geoinformation sector source:(Riedler et al., 2021), expressed in a score from 1 (lowest) to 5 (highest).

These results underline the significance of improved and gender-balanced education and working conditions to reduce stereotypes in education and society as a prerequisite to further opening the Earth Observation and Geoinformation sector to female talents.

The Faculty of ITC has a long heritage of remarkably diverse staff and student composition from different geographic regions of the globe. ITC capitalises on its international nature to encompass all forms of diversity, including but not limited to culture, religion, sex and gender. This diversity has served as the foundation for innovation and global recognition of ITC. However, gender diversity, particularly in higher academics (see section 2.1) and management positions (SEP Research Evaluation Report 2021)[7] is limited and requires a gender equality plan (GEP) and actions to develop a more equitable and sustainable future for ITC. The GEP and actions associated with it (see section 3 on planning and implementation) will have enormous benefits for the faculty, including

(i) Improved staff retention,
(ii) Enhanced reputation as an inclusive institution,
(iii) Increased creativity and innovation due to different perspectives that can be accounted for,
(iv) Increased diversity expands the pool of qualified candidates,
(v) Enhanced well-being at work (giving the opportunity of the staff to freely develop their skills, potential and fulfil their own expectations) will lead to a return on the investment,
(vi) A better work environment contributes to attracting more talented future staff/students,

[6] B. Riedler, Nathalie Stéphenne, Estefanía Aguilar-Moreno, Marie Jagaille, Aida Monfort-Muriach, Grazia Fiore, Natassa Antoniou (2021). Towards gender equality in education and career in the earth observation and gi sector, The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume XLIII-B5-2021, XXIV ISPRS Congress.

[7] Space for Global Development ITC's 2021 Research Strategy Evaluation (https://www.utwente.nl/en/research/output/downloads/research-evaluatiereport-openbare-versie.pdf)

(vii) Increased fairness and democracy (women and men, regardless of their ethnic background and culture, offering the same opportunities and power),
(viii) Intensify the internal and external social dialogue and cooperation,
(ix) Add nuance and unique perspective in research and teaching (excellence in research quality and diversity of topics increases the innovations, thereby broadening the horizons and inclusion of unexplored fields and the overall quality of the research),
(x) Broaden the profile of the institution as a whole in order to increase its competitiveness. As a consequence, this will increase the economic benefits (investment in human capital, new users/target audience, more and diverse funded projects), and finally
(xi) Compliance with EU regulations and strategies.

This document utilises the strategies and recommendations of the two leading policy processes and documents, namely the Gender Equality Plan of the European Commission and the Gender Equality Plan of the University of Twente, to tailor a Gender Equality Plan for the Faculty of Geo-Information Science and Earth Observation, that is globally a pioneer in solving real-world problems using geospatial data and capacity development in the fields of Earth Observation and Geoinformation.

1.1. Gender Equality Plan of the European Commission

The GEPs are mandatory for participation in the European Commission's research framework programme. Horizon Europe establishes gender equality as a guiding principle, which seeks to eliminate gender inequality and intersect socioeconomic inequalities by tackling unconscious bias and systematic structural impediments. As a result, a new eligibility criterion has been considered for Horizon Europe funding for public entities, research organisations, and higher education institutions. In this regard, the Member States and Associated Countries are required to have a GEP in place by the time calls with deadlines in 2022 open. In addition, the inclusion of a gender perspective in all aspects of the Programme's research and innovation content is an operational objective for Horizon Europe and has become a requirement by default. The gender balance is considered as a priority, with a goal of 50% women on Horizon Europe-related advisory organisations such as boards, expert groups and review panels. The Commission has defined a number of actions in the context of research and higher education institutions to clearly express a strategic view on achieving gender equality (Figure 3). It emphasises that *broader diversity or anti-discrimination strategy and/or plan addressing gender among other issues, is not automatically equal to having a gender equality plan (GEP).”*

Accordingly, the GEP is considered as a collection of activities, including (i) *Conducting impact assessment/audits of procedures and practices to identify gender bias; (ii) Identifying and implementing innovative strategies to correct any bias; and (iii) Setting targets and monitoring progress via indicators.*
These activities can be considered in the following stages:

- ***Analysis stage,*** *in this stage, gender data is collected and assessed with a view to detecting gender inequalities and gender bias in the organisation; (see section 2.1)*
- ***Planning phase****, objectives are defined, targets, actions, and measures to remedy the identified problems are decided, resources and responsibilities are attributed, and timelines are agreed upon; (see section 3)*
- ***An implementation phase****, in which activities are implemented, and outreach efforts are undertaken to gradually expand the network of stakeholders; (see section 3)*

- ***A monitoring and evaluating phase**, in which the process and the progress are regularly followed through and assessed. Findings from the monitoring exercise(s) allow to adjust and to improve interventions so that their results can be optimised. (see section 4)*

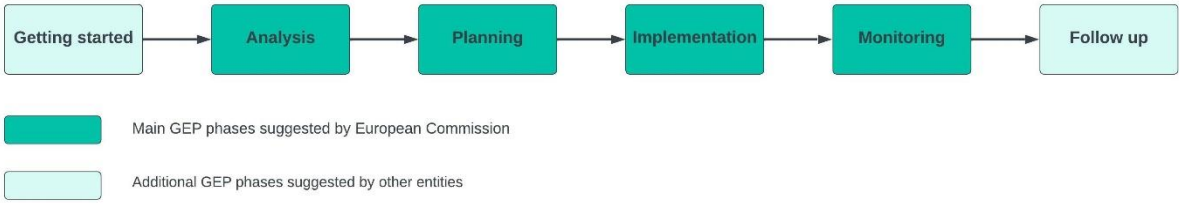

Figure 3: Pathway to gender equality plan as suggested by the European Commission [8]

Additionally, to be eligible for European Commission-Horizon Europe, a GEP must meet four mandatory process-related requirements as follows:

(I) ***Public documen***t: the GEP must be a formal document that is publicly available on the institution's website, and it should be signed by the institution's top management and is actively discussed inside the institution.

(II) ***Dedicated resources***: to implement the plan, a GEP must have dedicated resources and experience in gender equality. Organisations should examine the type and quantity of resources necessary to sustain a continuous process of organisational change.

(III) ***Data collection and monitoring***: organisations must collect gender-disaggregated data on staff (and students for universities) and report on it annually using indicators. Organisations should evaluate and elaborate on how to choose the most relevant indicators and data collection approaches, including the necessary resources, and ensure that data is released and monitored annually. This data should be used to inform the GEP's objectives and aims, as well as its indicators and continual progress review.

(IV) ***Training***: Gender equality education and awareness-raising activities must be incorporated within the GEP. These activities should involve the entire organisation and be a long-term, evidence-based approach. The exercises should include training on unconscious gender biases for staff and decision-makers as well as communication activities.

1.2. Gender Equality Plan at University of Twente (UT)

The GEP of UT gives an overview of ongoing activities and initiatives (See Annex 1). It also recommends additional (future) activities on initiatives to achieve gender equality at UT. These activities and initiatives are reflected in the university's long-term strategy (Shapping2030: https://www.utwente.nl/en/organisation/about/shaping2030/organisation/seg-inclusion/), research strategy (https://www.utwente.nl/en/research/vision/), human resource policy plan, and Diversity, Equity & Inclusion (DE&I) Team (https://www.utwente.nl/en/service-portal/topics/inclusion/). The mission of DE&I is further elaborated upon in the "Plan of Action on Diversity and Inclusion 2020-2022".

The GEP of the UT has three primary objectives to achieve gender parity: (I) increase the number of women in science, medicine, and engineering, (2) remove barriers and transform power structures in research institutions, and (3) integrate gender analysis into research.

[8] There are two more stages suggested by other European entities namely 'Getting started' and 'Follow up.' In the getting started phase, it is necessary to grasp the context, determine the support within and outside the organisation, and comprehend the gender mainstreaming cycle. What occurs following a GEP phase is that, based on the outcomes of the pevious phases, the organisation must develop a new GEP that builds on your experiences, lessons learned, and achievements while maintaining the sustainability of past GEP implementation rounds.

The first objective is being achieved through staff and student recruitment. Inclusive job vacancies are being written, and UT employers are being provided with diversity-proof selection training. Several activities are being conducted to increase the retention of a diverse staff. These include the Hypatia chairs, which transition of mid-career female academics into top academic (full professor) positions. Dual career support is another example which also provides several employee services. These include career counselling, customised coaching trajectories, and courses through the UT's Centre for Training and Development. The UT mentoring programme links junior staff to more senior staff of diverse backgrounds for one year is another attempt of UT to achieve the GEP objectives. The program enables senior staff to share their experiences and give candid career advice. In addition, surveys are currently being conducted to discover the causes of low retention and advancement for further intervention. The outcome of these surveys will be included in the next version of the document. Student recruitment is encouraged through Girls Day for high school students between the ages of ten and fifteen years and UT career services. The former encourages women to study science. The latter helps current students discover and follow a suitable career path. The gender scan educational program conducts surveys to develop material and services that facilitate student recruitment. Finally, awards are presented on an annual basis to recognise the achievements of female staff and students.

The second objective is addressed by increasing transparency, more DE&I initiatives and networks, changing the conditions of employment, and providing additional training and workshops. In this respect, the house of integrity addresses transparency regarding codes of conduct, research ethics, scientific integrity complaints, support structures (e.g., Ombuds officer), and tools to start dialogues and conversations on challenging topics. The integrity house also analysed equal pay to identify potential salary and bonus gaps. The conditions of employment targeted for change concern birth leave, parental leave, maternity leave, on-campus childcare, hybrid working, and flexible work time arrangements. Further, few training courses in UT address the topic of DE& I. These include diversity-proof selection, managing your career, active bystander training, and Scientific integrity, among others.

The third objective of UT GEP (integrating gender analysis into research) is achieved with the development of inclusive classroom holistic (gender-sensitive) research. The Centre of Expertise in Teaching and Learning gives teachers guidelines to overcome gender gaps in the classroom. The research on energy poverty, or Diversity, Equality and Inclusion for Embodied AI are examples of the related activities.

1.3. Structure of this document- ITC Gender Equality Plan

Expanding the objectives of the UT GEP and using the guidelines of the European Commission, the tailored GEP of the ITC faculty is built upon the results of the survey by Women in Copernicus (Figure 2) to address the most significant impediments to career paths of women working in the Earth Observation and Geoinformation including (i) gender imbalance, (ii) gender bias, (iii) lack of self-confidence, (iv) motherhood, (v) capacity building and (vi) social safety within the context of the faculty. Several universities have used the guidelines of the European Commission to develop a GEP [9]. Consequently, we have used these guidelines to establish this strategic plan for gender equality at the ITC faculty.

[9] https://eige.europa.eu/sites/default/files/uab_third_action_plan_2013-2017.pdf; https://eige.europa.eu/sites/default/files/maynooth-univ_gep_2014-2016.pdf: https://eige.europa.eu/sites/default/files/univ-helsinki_equality_plan_2013-2016.pdf: https://eige.europa.eu/sites/default/files/univ-vigo_gep.pdf

2. Gap analysis

The gender equality index developed by the European Commission indicates that the Netherlands has a relatively large gender gap (Figure 4), although is has a reputation to be a progressive European societies. Similarly, the World Economic Forum (2021) shows that the largest gender gap exists in NL in relation to economic participation and opportunity (e.g., the share of women in management and professional/technical positions). Thus, significant gender gaps are visible in all parts of society, including in research and education. As such, the ratio of female/male scientists and engineers in high-technology sectors in 2019 was 16/84 [10] in the Netherlands. Furthermore, women are generally paid less than men. For example, the equal pay day in 2021 was 11th November, i.e., after this day, female employees in the Netherland "work for free."

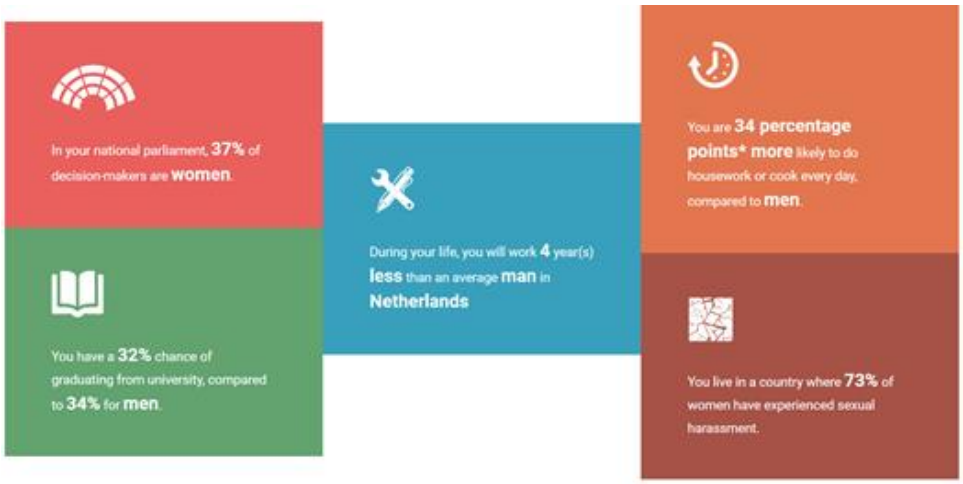

Figure 4. Gender Equality Index (Source: https://eige.europa.eu/gender-equality-index/game/NL/W)

Like all Dutch Universities, the UT and the Faculty of ITC are actively contributing to the United Nations' Sustainable Development Goals (SDGs). The importance of gender equality is stressed by SDG 5 and its targets and indicators on gender equality and women empowerment. For example, SDG indicator 5.5.2 measures the proportion of women in managerial positions. Generally, intersectionality, or compounded discrimination, is not widely recognised in public policy in many countries, hindering the achievement of the SDGs. Gender equality is strategic to the achievement of the SDGs. Besides SDG 5, gender equality links to several other SDGs, such as SDG 2 (zero hunger), SDG 8 (decent work and economic growth) and SDG 13 (climate change). This underscores a need to accelerate a shift from addressing gender equality on its own to tackling it alongside other causes of inequality. However, SDG 5 is not well covered in research outputs, in particular, for instance, the UT has very few publications on SDG 5 (less than 0.5% of SDG-related publications between 2010-2020) (Figure 5).

[10] https://eige.europa.eu/gender-equality-index/thematic-focus/digitalisation/country/NL

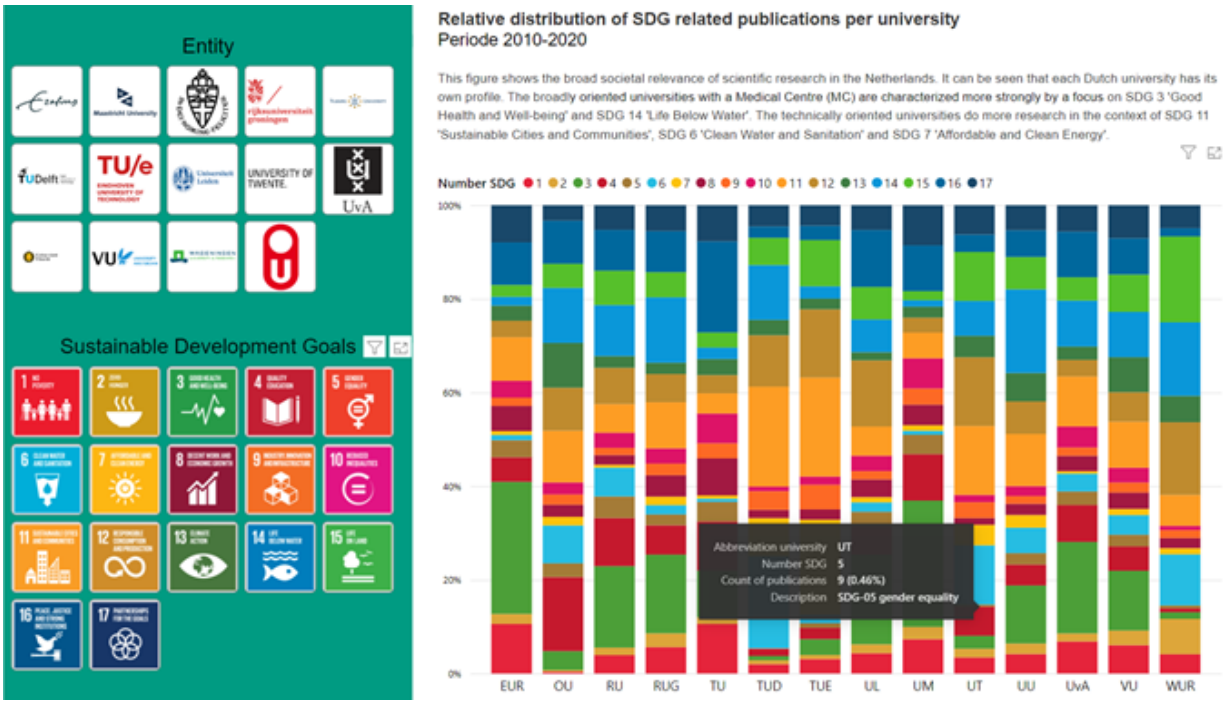

Figure 5. Publication on SDGs at Dutch Universities (Source: https://www.universiteitenvannederland.nl/en_GB/sdg-dashboard-english.html).

Generally, the Netherlands is one of the European countries with the lowest percentage (i.e., 25.8%) of female researchers; the National Action Plan has also picked this up for greater diversity and inclusion in Higher Education and Research). Besides the positive initiatives, in reality, figures of the network of female professors (LNVH) show a decline in the proportion of women in higher academic positions (Figure 6), which is consistent with previous years. Without understanding gender gaps and barriers, strategies might fail to achieve their intended results, career opportunities for all genders of staff will not be sufficiently addressed, and the capacities of female staff will be underutilised, which will reduce the competitiveness of the faculty and further university in research and education.

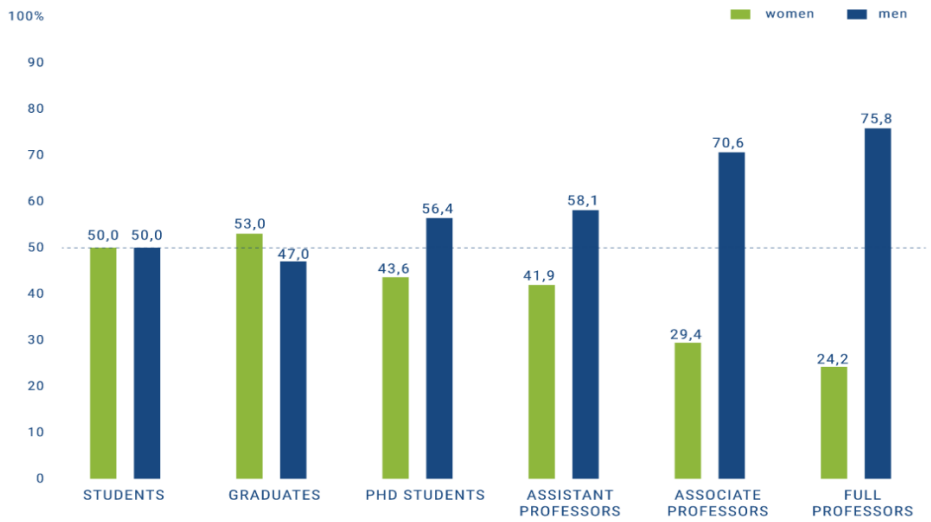

Figure 6. Gender distribution in Dutch universities at different academic levels (Source: LNVH report 2020).

Presently, there is a large gender gap both at the faculty and university levels (see Figures 7 and 8). A first step towards understanding the gender gap at the UT/ITC will be not only to indicate the ratio of female/male staff at different career levels but to include a profound understanding of the gender gap at the UT/ITC. Therefore, we suggest a review of several gender gap indicators before developing a gender inclusion plan. Such indicators should include (as a minimum) the following:

- Proportion of women by type of employment (full-time, part-time) and job level
- Number of grant applications with male and female Principal Investigator (PI) and co-PI
- Success rate (female/male) grant applications
- Capacity development (training) (female/male)
- Income and benefits by career level (female/male)
- Concrete measures that ensure safety at work and during national/international travels
- Number of research on gender-specific topics (e.g., SDG 5)
- Percentage of courses at ITC that include gender-specific subjects
- Review of instruments that acknowledge career breaks (maternity leaves)
- Review of support provided for career development
- Number of UT training courses reviewed for gender-sensitivity and inclusivity (e.g., management courses might follow a male-dominant strategy)

2.1. The Numbers

The University of Twente (UT) is active in developing and implementing GEPs to offer equal opportunities for all staff and students. The UT, as a technical university, have a rather uneven balance between female and male staff, especially in senior positions (Figure 7)..

UNIVERSITY OF TWENTE.

TARGET FIGURES FOR FEMALE PROFESSORS

	PROFESSOR		ASSOCIATE PROFESSOR		ASSISTANT PROFESSOR		PHD CANDIDATE	
FACULTIES	2020	2025	2020	2025	2020	2025	2020	2025
BMS	39%	45%	28%	35%	49%	50%		
ET	21%	25%	13%	17%	15%	20%		
ITC	20%	27%	11%	13%	39%	40%		
S&T	8%	10%	14%	17%	32%	35%	29%	35%
EEMCS	12%	20%	13%	20%	30%	35%		
UT TOTAL	21%	25%	16%	20%	33%	36%		

Figure 7. Baseline data and targets for improving gender balance (Source: UT Gender Equality Plan, 2021).

Reflecting on the target figures of UT, the plans are not particularly ambitious, e.g., for ITC, an increase from 20% to 27% at the Professor level. However, even this relatively modest objective might not be attainable by top-down strategies if the core reasons of the problems are not identified, and female scientists are not involved in developing strategies to bridge the gender gap. The low number of female professors proves that over the years female scientists have been primarily in the background They have not benefited from most of the opportunities and capacities that existed in male-dominated

networks. In other words, current carrier trajectories lack sufficient understanding and flexibility to accommodate the varied demands of all genders. Reasons that hinder access to networks are various. For example, Earth Observation is one of the STEM fields dominated by male scientists where women often do not benefit from the opportunities that exist on the front lines[11] (e.g., low number of female project leaders of large grants, board members, and management seats). Access to male-dominated networks for women brings challenges which are related to social norms, culture and traditions. (e.g., low number of female project leaders of large grants, board members, and management seats). Access to male-dominated networks for women brings challenges which are related to social norms, culture and traditions.

The faculty of ITC has by far the highest number of female scientists in EO in the Netherlands as a result of the efforts made to increase the share of women in the last decade. Nevertheless, the number of female staff in higher academic and management positions remains low (Figures 8 and 9). Therefore, additional actions are required to improve the faculty's diversity and inclusion status quo.

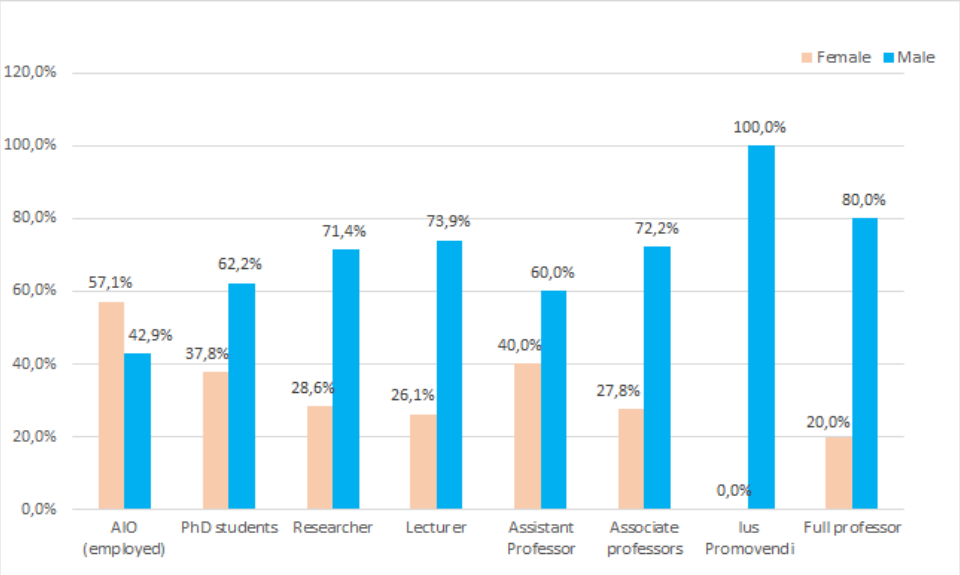

Figure 8. Gender distribution at different academic levels (Source: ITC HR, May 2022).

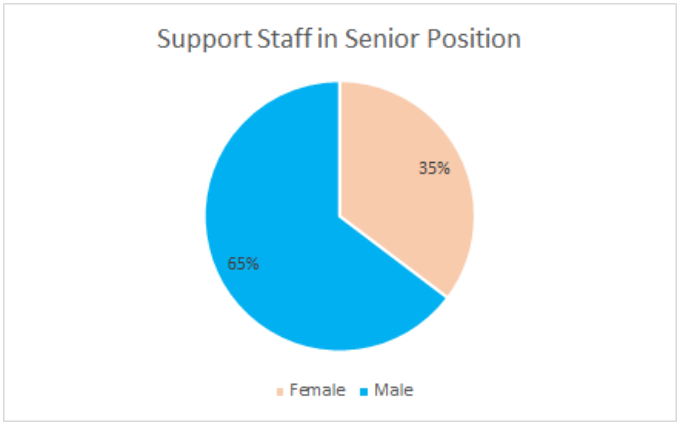

Figure 9. Gender distribution of support staff in a senior position (Source: ITC HR, May 2022).

[11] https://womenincopernicus.eu/

2.2 Strategic vision of the Faculty of ITC

The strategic vision for the Faculty of ITC, "Global Challenges, Local Actions: Vision, Values and Practice of ITC for 2020-2030", presents an overview of how ITC will empower society through capacity development, with which networks of universities and private sector will engage and how entrepreneurship and Open Science will be targeted in the new capacity development activities and educational programs in the coming years. In the strategic vision, the topic of inclusiveness is given a prominent role, while gender diversity is not covered. Inclusiveness and gender diversity are both carriers towards increasing the competitiveness of ITC and an important principle towards capacity development at ITC and in our partner countries. ITC has a long-standing tradition in capacity building and knowledge co-production, focussing on both the personal empowerment of individuals and the growth in knowledge and effectiveness of the institutes and locations they represent and serve around the world. As part of the strategic vision, inclusiveness must be paired with promoting gender diversity, opening opportunities and building capacities for all genders. **Therefore, the Gender Equality Plan (GEP) is a paired necessity to support the capacity development mandate of ITC to strengthen the capacities of individuals and partners.**

2.3 ITC evaluation

The importance of increasing diversity and supporting inclusion was also stressed by the ITC research evaluation committee in 2021. The recommendations made by the ITC research evaluation committee included improved gender balance as well as strategies to increase general diversity. The research evaluation committee and the ITC position document also stressed the importance of understanding diversity beyond counting male and female staff or students. Consequently, ITC needs to increase gender diversity and personal development of all gender, providing a supportive working and learning environment for all. The committee had specifically indicated that the faculty of ITC needs to:

- Offer training to hiring committees to actively consider diversity in recruitment, e.g., to recruit more female staff.
- At the more senior levels of leadership, more could be done to implement mechanisms to foster and expand all facets of diversity.
- Coordinate with the UT inclusion/diversity office.

A thorough understanding of the above points will help to define the best instruments to improve diversity and inclusion at the Faculty of ITC and to monitor the progress towards gender diversity. To execute the committee's gender diversity recommendations, the measures outlined in Table 2 must be addressed.

Table 2. Recommendations of the research review committee in 2021 on gender equality

Recommendations	Action points
• Lack of diversity at the senior scientific and management level • Diversity is more than only counting female and male • Implement mechanisms to promote and increase all facets of diversity • (Online) training on awareness of diversity	• *Conduct surveys and focus group discussions to understand the reasons, barriers and gaps in career paths, and gender inclusivity* • *Regular monitoring of diversity needs (genders, ethnicity, age, etc.) of ITC staff and students* • *Diversity and diversity office(rs) should be more active and visible at ITC*

• Make a clear target on what ITC wants to achieve in terms of diversity • Make the measures visible	• *Develop training materials and information campaigns for staff and students on diversity and inclusiveness* • Selection of *key performance indicators (KPI) for diversity and their monitoring* • *Dissemination of ITC progress towards diversity and inclusiveness*

3. Planning and implementation

Considering the observed gender gaps at ITC, it is imperative that within the currently growing top-down strategies for promoting gender equality, whenever opportunities arise (e.g., Hypatia positions), high priority be given to the experienced female staff. The inclusion of adequate female career opportunities and strategies would gain ITC internal balance and opportunities and worldwide impact. To achieve this, we need to develop strategies to break through formal and informal barriers as well as all forms of discrimination.

Following the results of a survey by Women in Copernicus (Figure 1), we organised objectives and actions according to the four identified barriers for women in EO and Geoinformation: gender imbalance; gender bias; lack of self-confidence; and motherhood. These objectives and action points and their prioritisation will be revisited once the results of the 2022 survey jointly prepared by the integrity committee are analysed to ensure that the plan is comprehensive and fully addresses the needs and concerns within the faculty.

3.1. Gender imbalance

Objective 1: Achieve a gender balance of MSc and PhD students and staff at all academic levels by 2030:

Actions:

1.1. Re-evaluate our target numbers to maximise the benefits of gender diversity and contribution to cultural change

1.2. Conduct annual assessments and adjustments in consultation with ITC management and staff (The first survey is jointly prepared by the integrity committee in 2022).

1.3. Create inclusive job postings by offering training courses for HR and staff members

1.4. Improve the onboarding programs to provide special attention to the needs of newly employed academic staff members

1.5. Exploit the in-house talents for upcoming research and education promotions before pursuing external recruitments (e.g. Hypatia positions).

1.6. Provide a supportive environment including training and mentorship to staff who are candidates for promotion. More than 50% of identified staff should be female.

1.7. Affirmative action on balancing male and female MSc and PhD student intake

3.2. Gender bias

Objective 2: Increase the transparency on how gender dimensions are being accounted for:

Actions:

2.1. Review the activities carried out by each department to achieve diversity

2.2. Review current ranges of compensation given to men and women staff by employment level and ensure that standard rates are provided equitably regardless of gender

2.3 Provide equal opportunities for talented staff, regardless of gender to reach their full potential.

2.4. Ensure gender-balanced recruitment, promotion and evaluation committees and working groups focused on defining the vision and mission of the faculty and departments

2.5. Obligatory online code of conduct training for all staff with hands-on examples of gender bias in practice and what to do against it.

Objective 3: Achieve diversity, including gender, age and ethnicity, in management positions:

Actions:

3.1 Identify the barriers to retention and career progression through all-gender group discussions and surveys organised with staff members of all genders

3.3 Support potential candidates from all genders, age and ethnicity groups for institutional leadership through mentorship and by encouraging them to attend leadership, development trajectory and management courses

3.4. Run a new Hypatia Chair campaign to recruit female professors from both the internal and external pool of talents

3.5 Implement a "reward and recognition" initiative to support talents of all genders, ages and ethnicity

3.6 Launch annual recognition for the departments that demonstrate progress regarding retention/career progression of female academics

3.3. Boosting self-confidence and female leadership

Objective 4: Boosting self-confidence and leadership of female academic staff;

Actions:

4.1 Create opportunities for coaching, mentoring (by women and men) and networking in order to create a supportive environment in which people can thrive

4.2 Conduct inclusive and open conversations/meetings/groups to make all staff thrive

4.3 Organise meetings with male and female colleagues to show (alternative) role models that inspire others to pursue high professional career opportunities

4.4. Promote equal opportunities for female staff to express their opinions and be equally part of the decision-making process

3.4. Motherhood

Objective 5: To ensure that motherhood and parenting are not impediments to career advancements

Actions:

5.1. Facilitate affordable full-time childcare facilities at the workplace and during duty travel

5.2. Explore the possibilities to extend parental leave, e.g., rainbow families

5.3. Engage with the EO and Geoinformatics community to initiate programs that offer childcare facilities during conferences

5.4. Negotiate with funders to provide an additional stipend for student mothers so they may find it easier to communicate and travel if distant and provide better integration programs for their children if brought along

5.5. Identity possible challenges faced by staff members when taking parental leave

5.6 Encourage male employees to take parental leave

3.5 Safety

Objective 6: Increase the safety of students and staff members

Actions:

6.1. Familiarise staff members with the norms, rules and regulations related to gender and diversity available in the countries where education, research and capacity-building activities are carried out

6.2. Promote safety in travel and execution of fieldwork by providing support and comprehensive travel and fieldwork guidelines

6.3 Raise awareness about the code of conduct for relations in the workplace

6.4 Provide a safe and secure platform for everyone to be engaged in advocating for gender equality

3.6. Capacity building

In addition to the four identified barriers for women in EO and Geoinformation based on the survey "Women in Copernicus", EO4all will explicitly contribute to achieving gender equality inclusion in EO and Geoinformation-related education and research in the ITC target countries.

Objective 7: To improve education and research accessibility and quality in the target countries in EO and Geoinformation:

According to UNESCO, women account only for 30% of the world's researchers. Women do not have access or have limited access to education or research. Accessibility can be in terms of resources, data, materials, and tools, among others. Women's inaccessibility can be due to different factors, such as financial ability and political or social limitations. The patriarchal model, which still exists in many countries, leaves women in a subordinate position compared to men.

Consequently, women face numerous barriers related to knowledge, finances, skills and mobility due to their social and motherhood responsibilities. In addition, in many cultures and religions, women

have had limited or no access to advanced education[12], [13]. In addition, women often share that they do not feel safe working in STEM-related disciplines which are perceived as male-dominated[14] . To improve the access and quality of research and education in EO and Geoinformation, we propose the following:

Actions:

- Develop and implement a career awareness program for women in target countries
- ITC to become a part of the SERVIR initiative and propose free EO courses and student exchange.
- Organise workshops in different languages, webinars and podcasts with the goal of presenting EO/GEO technologies more gender-equal. These events will allow women to expand their contacts, providing support and a sense of connectivity.
- Establish partnerships with more Universities internally and externally to promote gender equality
- Create a network among universities to share teaching resources that can be used to bring EO/GEO technology to women around the world.
- Develop an internship programme to offer women the opportunity to acquire job experience and create a professional network.
- Write joint papers and proposals to promote gender equality in education and research

Objective 8: Improve the current partnerships in the target countries and be involved in new internal and external ones

Such can be, for example, AWiGIS @africwomeningis African Women in GIS which is a community made up of African women who are in the geospatial industry. An overview of the existing EU and global networks promoting gender equality, diversity and inclusion is presented in Annex 2.

To achieve this objective, the following actions should be considered:

Actions:

- Organise yearly workshops, side events and thematic meetings during thematic conferences to discuss questions, such as: 'What do we mean by gender equality?', 'What equity measurements should be implemented to achive gender equality?'
- Encourage the participants during the events to share experiences in the format of group discussions on questions such as the above.
- Organise online activities, such as interviews, podcasts and webinars that are focused on research and experiences of well-known scholars
- Initiate bimonthly informal online cafe talks to help maintain the established contacts and keep the involvement in the respective networks.
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[12] Liff, Sonia and Shepherd, Adrian and Wajcman, Judy and Rice, Ronald and Hargittai, Eszter, An Evolving Gender Digital Divide? (July 1, 2004). OII Internet Issue Brief No. 2, Available at SSRN: https://ssrn.com/abstract=1308492 or http://dx.doi.org/10.2139/ssrn.1308492

[13] Monica Stephens (2013), Gender and the GeoWeb: divisions in the production of user-generated cartographic information, GeoJournal volume 78, pages981–996.

[14] Elena Makarova, Belinda Aeschlimann and Walter Herzog (2019),The Gender Gap in STEM Fields: The Impact of the Gender Stereotype of Math and Science on Secondary Students' Career Aspirations, Front. Educ., 10 July 2019

3.7 Implementation and integration

In addition to the implementation of the actions distributed per objectives in the section above, ITC should improve and strengthen its presence and involvement in the UT internal networks, such as:

- **Female Faculty Network Twente** (FFNT) aims to establish and stimulate diverse cultures and support for inclusion and promote female academic leadership
- **OBP** – Vrouwennetwerk has been dedicated to organising activities since 2007 to support career paths for female UT staff
- **Diversity and Inclusion Advisory Board of UT** promoting diversity, equality and inclusion in hiring and career development
- **Shaping Expert Group** worked on connecting initiatives in support of Shaping 2020 and on recognition and rewarding initiative
- **Think with Pride** promoted diversity and inclusion at UT, mainly focused on LGBTQI + community
- **Future of Twente** unites organisations and companies in the region of Twente committed to including more female talents in the Twente business. UT is part of this organisation
- **Workplace Pride** is a non-profit foundation dedicated to improving the life of LGBTQI, and UT established a partnership with them
- **Keeping Talent** in Twente is a group of students working on improving growth and diversity

4. Monitoring

The implementations and proposed actions/plans will be monitored every two years through a self-audit by the human resources department of the faculty together with the diversity office, and the results will be reported to the ITC faculty board to assess the following indicators

- Gender balance of students and staff at all academic levels
- Increased and transparent actions on how gender dimensions are being taken into account
- Diversity, including gender, age and ethnicity in management positions, is achieved
- The rise in women's leaderships
- Principles of a fairly perceived motherhood
- Improvement of education and research accessibility and quality in the target countries in EO and Geoinformation
- Increase in the safety of staff members
- Improvement of the current partnerships in the target countries and be involved in new internal and external ones

Annexe 1

Table 1. Ongoing activities and initiatives in UT related to DE& I

No.	Ongoing activities and initiatives	links
1	Centre of Educational Support (CES) and Student Advice, Coaching and Counselling	https://www.utwente.nl/en/ces/sacc/personal-development/
2	Female Faculty Network Twente	https://www.utwente.nl/en/ffnt/
3	OBP – Vrouwennetwerk	https://www.utwente.nl/nl/obpvn/
4	Ambassadors' Network	
5	Shaping Expert Groups	https://www.utwente.nl/en/organisation/about/shaping2030/organisation/#shaping-expert-groups
6	Think with Pride	https://www.utwente.nl/nl/thinkwithprideut/
7	Future of Twente	https://www.futureoftwente.nl/
8	Keeping Talent in Twente	https://ktit.nl/en/
9	Kick-In	https://www.kick-in.nl/en/
10	More Than A Degree	https://su.utwente.nl/en/mtad/morethanadegree/
11	Incentive Fund	https://www.utwente.nl/en/service-portal/employment-personal-development/courses-career-and-professionalisation/dei-incentive-fund-created-by-ambassadors-network
12	Mindlab	https://www.utwente.nl/en/mindlab/

Annex 2. EU and global networks promoting gender equality, diversity and inclusion

No.	Name	Web
1	Euro Gender	https://eurogender.eige.europa.eu/about-eurogender
2	European Institute for Gender Equality	https://eige.europa.eu/
3	European Equality Law Network	https://www.equalitylaw.eu/
4	European Network of Equality Bodies (EQUINET)	https://equineteurope.org/
5	Gender Equality Network in Physics in the European Research Area (GENERA)	https://www.genera-network.eu/
6	The European Platform of Women Scientists (EPWS)	https://epws.org/
7	Women in Geoscience & Engineering (WGE)	https://eage.org/communities/women-in-geoscience-and-engineering/#
8	Researchers In Science for Equality (RISE), Leiden University	https://rise.nu/
9	Equality, Diversity & Inclusion Program (EDI), Utrecht University	https://www.uu.nl/en/organisation/equality-diversity-inclusion
10	Women in Technolog, Gender Equality for the Benefit of Science and Technology	https://wit-hub.web.cern.ch/
11	Equality, Diversity and Inclusion in Science and Health (EDI)	https://edisgroup.org/
12	Women in Science	https://www.womeninscience.net/
13	WISE, Diversity, Inclusion, Change	https://www.wisecampaign.org.uk/
14	Equality, Diversity and Inclusion Research, Innovation and Knowledge Exchange Network, Oxford Brookes University	https://www.brookes.ac.uk/research/networks/equality-diversity-and-inclusion-rike-network/
15	Association for Women in Science	https://www.awis.org/
16	Graduate Women in Science	https://www.gwis.org/?
17	Women in Geospatial	https://womeningeospatial.org/
18	Women in Copernicus	https://womenincopernicus.eu/
19	Network for Women in Earth Sciences (GAIA)	https://www.gaia-netwerk.nl/home

20	Network of EDI Academic Leads (NEDIAL)	https://nedial.ac.uk/
21	Tilburg University Network for Inclusion, Diversity & Equality (TIDE)	https://www.tilburguniversity.edu/about/working/gender-policy/network
22	Diversity Networks, (Cambridge University)	https://www.equality.admin.cam.ac.uk/diversity-networks
23	American Association for the Advancement of Science (AAAS)- Diversity, Equity & Inclusion	https://www.aaas.org/focus-areas/diversity-equity-inclusion
24	African Association of Women in Geosciences	http://aawg.org/
25	ADVANCEGeo Partnership	https://serc.carleton.edu/advancegeo/index.html
26	GeoLatinas- Latinas in Earth and Planetary Sciences	https://geolatinas.weebly.com/
27	National Association of Black Geoscientists (NABG)	http://www.nabg-us.org/
28	Geoscience Empowerment Network	https://jsg-gen.squarespace.com/
29	International Association for Geoscience Diversity (IAGD)	https://theiagd.org/
30	Women in Earth and Environmental Sciences in Australasia (WOMEESA)	https://www.womeesa.net/
31	Women Geoscientists in Canada	https://www.wgcanada.org/
32	Society of Latinxs/Hispanics in Earth and Space Science	https://ciresdiversity.colorado.edu/soless
33	Women in Global Monitoring of Environment and Security (GMES) and Africa	http://gmes4africa.blogspot.com/2022/02/day-of-women-and-girls-in-science-gmes-reply.html
34	Gender Climate Change & Agriculture in Africa (GECA) Research Institute	https://www.geca.esipps-int.org/
35	Integrated Disaster Risk Management Society, Women in Science and Practice Committee	https://idrim.org