

Integrating gender into nature-based solution for water management:

From policy to practice

Objectives

This Knowledge brief is produced as part of the **ModULar Tools for Integrating enhanced natural treatment Solutions in Urban water CyclEs** (MULTISOURCE), an EU-funded project striving to facilitate the systematic, city-wide planning of nature-based solutions (NBS) for urban water treatment, storage, and reuse. It aims to strengthen the understanding and implementation of a gender-sensitive approach in NBS.

The brief provides an **overview of what a gender-sensitive approach is, what are the benefits of applying it in practice** and to what extent this approach is being practiced in MULTISOURCE, a Horizon-funded project. It also offers **guidance on how to further a gender-sensitive approach** when using NBS to tackle environmental, social and economic challenges.

The brief is based on knowledge acquired throughout the duration of MULTISOURCE, including the literature review on the interplay between NBS and gender, quantitative and qualitative research and knowledge gained on the gender mainstreaming practices within the project and in other Horizon-funded projects on NBS.

Who should read this brief

This knowledge brief is intended for practitioners responsible for water management and water treatment more specifically, including those involved in design and technology selection of NBS, risk assessment, creations of business models, infrastructure developers, planners and landscape architects, but also anyone interested in understanding how to develop gender-sensitive nature-based solutions.

How well is gender integrated into research and innovation at policy levels?

Gender equality has been an important priority of the European Research Area (ERA) since 2012. In order to achieve progress in this field, special attention was at the time devoted to the promotion of gender equality in careers, the promotion of gender parity at the decision-making levels, and at the same time, applicants were asked to integrate, where relevant, sex and gender analysis into research and innovation.

Evaluations of framework programmes nevertheless identified that there is still room for improvement when considering and designing gender-sensitive approaches, including in relation to systemic structural barriers and unconscious bias. To strengthen the commitment to gender equality in research and innovation, Horizon Europe introduced the following principles that need to be met when planning for projects:

- ***Adopting Gender equality plans (GEP) for all public bodies, research organisations and higher education establishments in order to obtain Horizon Europe Funding,***
- ***Ensuring gender balance among researchers in projects and among Horizon related advisory boards and evaluation panels,***
- ***Integrating the gender dimension into all research and innovation actions of the project proposal.***

BOX: GENDER TERMINOLOGY 1

When we are born, we are assigned a **biological sex** based on our outward physical characteristics. We are categorised as either female or male. This gender system that divides people into women and men is also known as gender binary.

According to the European Institute for Gender Equality, **gender** is defined as “social attributes and opportunities associated with being female and male and to the relationships between women and men and girls and boys, as well as to the relations between women and those between men.”

The first step in achieving **gender equality** is equality written in laws. But achieving equality also demands equal opportunities and options for women, men and non-binary persons, or in other words legal, social, political, economic and social equality.

How well is gender integrated into research and innovation at policy levels?

An important novelty in Horizon Europe is the requirement of mainstreaming gender into all research and innovation activities. Every project proposal therefore has to address the following considerations:

- **Reflect why sex and/or gender could matter:** *in what ways could taking into account the gender dimension provide added value in terms of creativity, excellence, and return on investment, both from public and private perspectives?*
- **Consider the production of new knowledge on gender:** *what is already known in the area of work of the project in terms of the gender dimension (e.g. related scientific literature) and what is missing? In many areas, gender knowledge still needs to be generated, a very good example of this is the nexus between gender and NBS for water treatment in countries of the Global North.*
- **Include the sex and gender aspects as part of a multidisciplinary approach:** *could cooperation with scientist and experts from social sciences, humanities or gender studies contribute to the creation of new knowledge and/or practices? The aim is to help concepts cross the borders of scientific fields and encourages research methods to evolve.*
- **Consider the social categories/factors intersecting with sex and gender:** *could an alternative formulation of a research problem influence which intersecting variables are relevant for analysis? The aim is to design intersectional research to illuminate the multiplicative effects of different, but interdependent, categories and factors.*

BOX: GENDER TERMINOLOGY 2

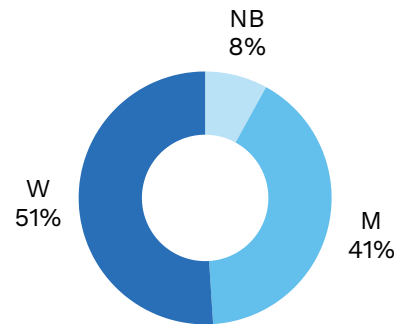
Inequalities between men, women and nonbinary persons persist in all societies in numerous areas, such as levels of power and opportunities, assigned responsibilities, perceived roles etc. When an approach acknowledges the existence of these perceived and ascribed differences, analyses their impact on all genders and actively works towards ensuring equality, it is considered as a **gender-sensitive approach**.

Gender mainstreaming is one of the tools that can be used to promote gender equality. It consists of integrating the gender perspective into the preparation, design, implementation, monitoring and evaluation of projects.

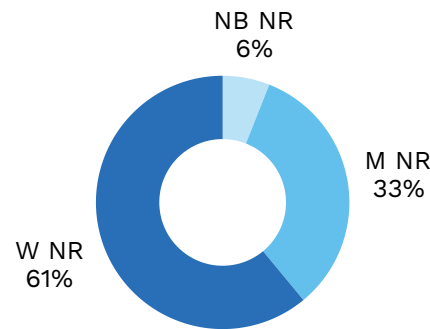
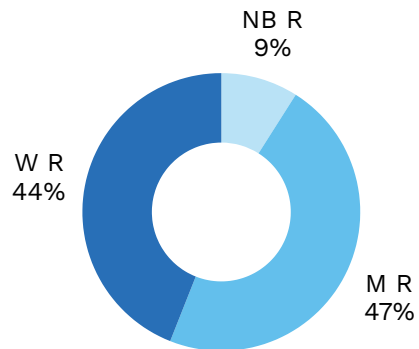
How well is gender integrated into research and innovation in practice?

1) Gender balance

Data collected in February 2024 shows that while participation of men (M), women (W) and non-binary (NB) persons in MULTISOURCE is not fully equal, there are nevertheless high levels of gender balance in the consortium.

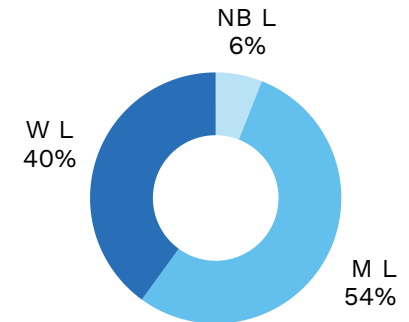


Despite the fact that there are slightly more than half women working on the project, their share among researchers (R) is lower and amounts to 44 % of all researchers, while they are more represented in the category of non-researchers (NR), making up 61 % of non-researchers.



They fare the worst when it comes to their share of package or task leads (L), out of which 40 % are women.

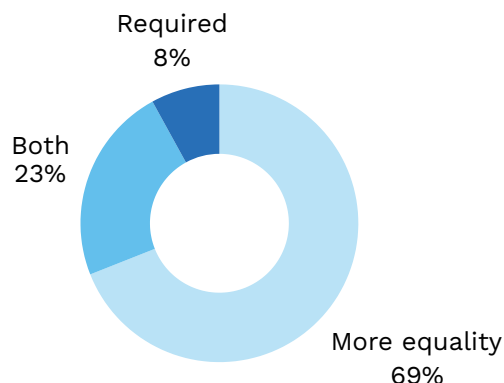
Men are overrepresented in the category of work package and task leads, as well as researchers, and underrepresented among non-researchers. Non-binary persons are slightly more represented in the category of researchers and underrepresented in both categories of work package and task leads, as well as non-researchers.



How well is gender integrated into research and innovation in practice?

2) Gender equality plans

As Horizon Europe requires GEP for all public bodies, research organisations and higher education establishments to obtain Horizon funding, all MULTISOURCE partners that have to comply with this demand have by the end of 2024 adopted GEPs. One of the organisations that does not have to fulfil this criterion was in the process of adopting it, while the four remaining ones that fit into this category did not have them in place. 76,5 % of the consortium thus had a GEP in place. Slightly more than 50 % of the organisations that cannot apply to Horizon Europe without the GEP had the plan in force already before this requirement.



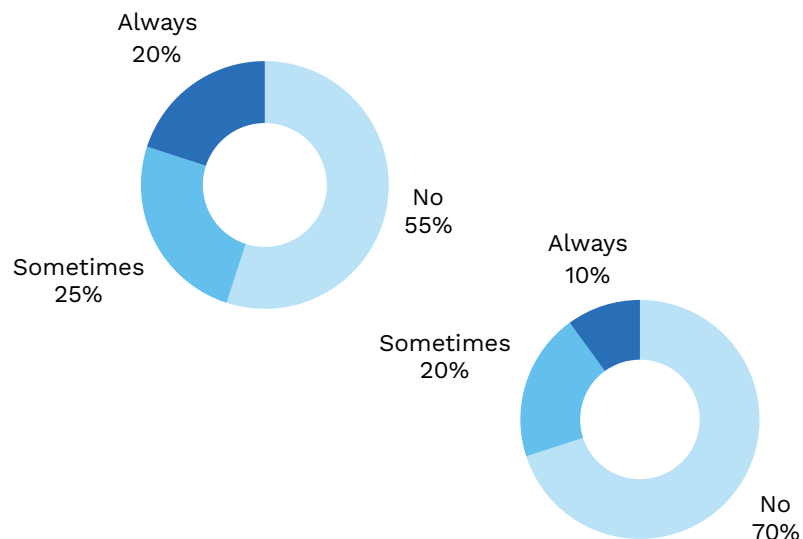
Nearly 70 % of the above organisations stated that they adopted the GEP because of the recognised need for more gender equality within their entity, 7,7 % due to the requirement, and 23 % listed both reasons. Only one organisation did not consult any internal or external gender expert in the process, while 77 % coordinated it internally with the office responsible for gender and/or social issues, 46 % attended training provided by the European Commission or other actors, and 54 % consulted external gender experts.



How well is gender integrated into research and innovation in practice?

3) Gender mainstreaming

This tool for promoting gender equality demands more attention than the previous two. Results from surveys carried out among MULTISOURCE partners during the first half of 2024 show that two important steps, necessary for informed gender mainstreaming, ought to be performed more often. The first step is the collection of gender-disaggregated data, which 55 % of respondents never carry out and only 20 % always do. Only based on disaggregated data is a gender analysis possible, which partners stated that is never conducted in 70 % and always in 10 % of the cases.



As part of the survey, partners also provided descriptive information about their modus operandi. Many experts are of the opinion that the collection of gender-disaggregated data either does not apply to their work or that other departments in their organisations are responsible for this task. Some stated that they try to collect disaggregated data, but are not sure when and where it is useful to do so, while in some instances this is forgotten or simply not required. Similarly, a gender analysis is by many not perceived as relevant to their work or perhaps understood as relevant for only some elements of the work (i.e. a gender analysis of invited persons attending the event aimed at presenting project results). Some stated that they are not certain when and how to conduct such an analysis, while some conduct the impact of their work on humans as a homogeneous group.

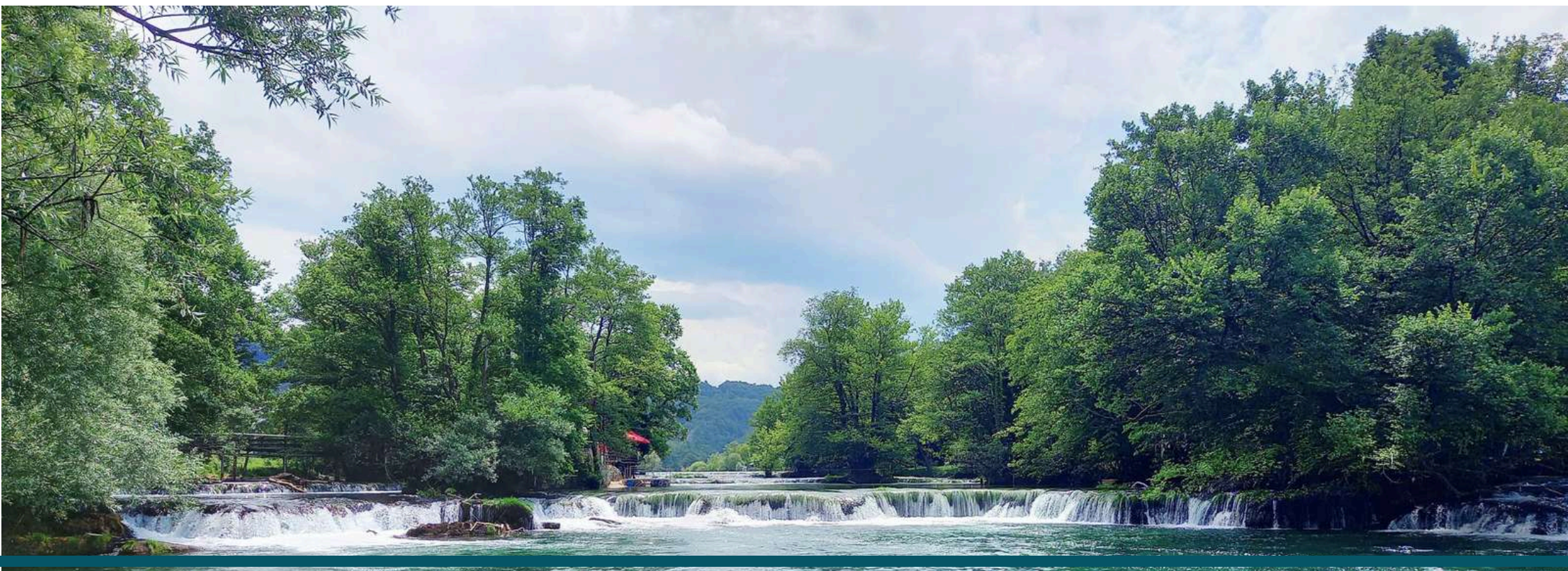
BOX: GENDER TERMINOLOGY 3

Gender-disaggregated statistics distinguishes between data collected for women, men and non-binary persons, recognising that groups are not homogeneous, reflecting the realities and different experiences of the lives of all genders.

Without a **gender analysis**, which identifies differences between women, men and non-binary persons relating to their relative position in a given situation or context, including their needs, opportunities, possibilities, constraints and power, it is not possible to integrate the gender dimension into projects. Such an analysis also assesses the implication of any planned actions on all genders. If it reveals unequal benefits from planned actions, **gender-specific activities and affirmative action** can be taken to dismantle existing inequalities.

How well is gender integrated into research and innovation in practice?

The concept of gender balance, on the other hand, is perceived as more relevant, wherein 64 % of respondents always consider it when conducting internal or external meetings and only 10 % never do. Also, when asked about the importance of gender mainstreaming in general and specifically about the possibilities of a more gender-sensitive approach in their work, the issue of equal representation was mentioned several times, may it be in research teams, at conferences or at decision-making positions.



Why does it pay off to be gender sensitive?

1) Increased opportunities for your organisation

Striving towards gender equality at the level of the institution is not only an issue of fairness, but also leads to an increased potential for growth and innovation through an increased pool of researchers. When levels of equality rise, workers report an increase in well-being, work satisfaction and higher levels of motivation. This means that not only does the pool of experts expand, but their levels of satisfaction rise as well.



Why does it pay off to be gender sensitive?

2) Higher effectiveness of solutions

By making use of an increased and more heterogenic pool of researchers, as well as by analysing and understanding that solutions might have varied impact on diverse groups, depending on their gender and other personal circumstances, adds effectiveness and scope to solutions.

Creating opportunities for professional practice that are interdisciplinary and transdisciplinary in nature, offering the opportunity for engineering and technological experts to work closely with experts from other teams, such as social science and humanities, leads to better and more tailored solutions.

VARIED IMPACT ON GROUPS - SEX

NBS can also be used to reduce microplastic pollution. Little is known about the impact of microplastics on human health, some studies have drawn the potential correlation between them and health issues, such as cardiovascular disease, cancer, low male fertility and fetal development. While some research exists on the impact of microplastic on male and female hormones and consequently their fertility, they neglect the fact that hormones are important not only for fertility and reproduction. They also play an important role in brain health, and research has shown that women's and men's brain age differently.

According to research, women account to 2 out of 3 people diagnosed for Alzheimer's disease, are twice as likely as men to experience major depression and are 3 times more likely to be diagnosed with autoimmune diseases. These changes start in the mid 50s, so in addition to the need of conducting a sex-disaggregated research about the impact of microplastic, it also needs to be age-disaggregated.

Why does it pay off to be gender sensitive?

3) Greater gender impact

Recognising that different groups have different rights, opportunities and possibilities, incorporating this knowledge when searching for environmental, economic or societal solutions and when necessary, taking affirmative action, leads to either not doing any harm or, preferably, to decreasing gender and other societal inequalities.

IGNORING GENDERED ROLES

The Research on the impact of applying a gender-sensitive approach on social equity and food sovereignty in urban gardens (UG), undertaken as part of MULTISOURCE, showed that gendered roles remain present in UG that did not integrate power asymmetry into their modus operandi. Women thus traditionally performed roles, such as garden care, social care and neighbourliness, while men took care of responsibilities related to building and leadership roles.

On the other hand, UG that recognised power asymmetries in the society and systematically applied this lens in their work, albeit not directly related to gender, showed a positive impact on equity.

VARIED IMPACT ON GROUPS – GENDER

Research shows that the differences in the functioning of the brain are not only a consequence of genetics, but are also determined by gender-related socialisation and expectations. When it comes to mental health, women tend to internalise negative feelings, while men externalise them. Depression and anxiety are thus much more common in women, while alcoholism, suicide and aggression are in men. An important reason for this is gender inequality due to which men have more power than women in our societies. This leads to lower incomes for women for the same job and education, and research shows a negative impact of lower salaries on mental health.

Due to societal expectations, women carry the brunt of the burden of unpaid care and domestic work, which is also associated with greater mental health burden. Another consequence of unequal power and social roles is a lower self-worth and self-perception among women, as well as sexual and gender-based violence, which is in 90 % perpetrated against women.

Power asymmetry between men and women thus contributes to depression and anxiety. In order to fully comprehend the relation between women, men and depression, it would thus be necessary to conduct comprehensive interdisciplinary research in order to ascertain if it is only societal factors that contribute to it or does microplastic pollution also play an increasingly important role, and how could NBS contribute to the solution.

How to integrate gender into NBS?

1) Institutional level

Adoption of GEP

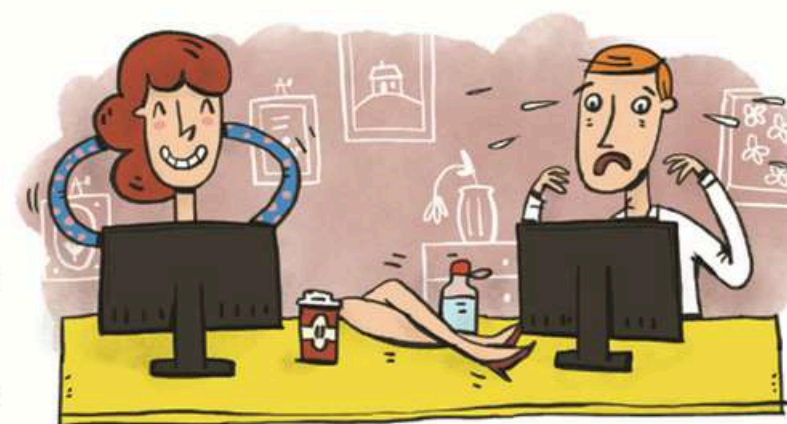
GEPs in many cases represent a top-down method that strives to foster a gender sensitive approach at all institutional levels. As such, its impact might be limited, as experience often shows that GEPs might be adopted as a requirement to obtain EU funding that does not infiltrate the internal functioning of the organisation. Despite this setback they are nevertheless an important step in the process of creating a more gender equal institutional environment. Numerous factors impact their success, but at least two are of high importance:

- **Support of the GEP from the management / leadership**, as it increases the perceived legitimacy and importance of the plan;
- **Yearly monitoring of the progress achieved**, evaluation of the GEP and based on the evaluation the adoption of a new and upgraded GEP.

Tim and his colleague Ana changed the signature in the e-mail. He communicated with customers in the same way as always, only signing as Ana.



All of a sudden he had three times more work! He had to convince the clients that he was doing his job well, that he was a professional. Just because he signed with a woman's name, even though he didn't do anything different. Ana, on the other hand, had more free time because of the man's signature.



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How to integrate gender into NBS?

While the following measures are part of GEPs, based on research, qualitative and quantitative interviews carried out during MULTISOURCE, they ought to be singled out as very important for achieving gender equality at the institutional level:

- **Gender equality training:** Training can take place on numerous topics, out of which it is important to point out: i) those aiming at exploring unconscious bias on one hand and the impact of gender stereotypes, norms and roles, not only on research and innovation, but also on our daily functioning and choices, which among others determine the work environment and work opportunities of genders, ii) those aiming at deepening knowledge on gender analysis and gender mainstreaming in work processes.
- **Promotion of work-life balance:** due to persisting stereotypical beliefs and roles, gender inequalities tend to be more pronounced in traditionally male professions, including research and innovation and STEM. It is thus more difficult for women to navigate, gain self-confidence and reach the highest academic positions, which makes it even more important to create a supportive environment that allow for a healthy work-life balance.



How to integrate gender into NBS?

2) Project level - staff

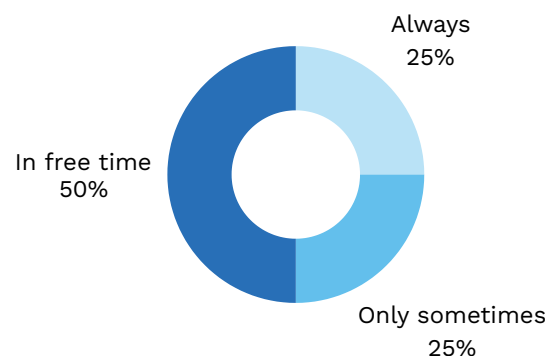
As already mentioned, the levels of gender balance are the highest when it comes to representation. Nevertheless, there is still some room for improvement:

- *Data on representation presented above show that while there is relative parity in overall numbers, the balance is not kept in various sub-groups. It is thus necessary to increase the number of women taking on the role of work package and task leaders, as well as researcher, and to increase the number of men acting as non-researcher.*
- *Ensuring that an environment is created in which all team members feel free to express their views. This is important, yet not sufficient, as all views must also be taken into consideration when making decisions.*

Having a **gender and diversity expert** within the project consortium promotes a gender-sensitive approach. Similar to GEPs, their impact is higher when they have the support from the project management and are included in all decision-making processes.

In addition to gender experts, projects would benefit from additional and consistent presence of gender focal points that have dedicated time to integrate the gender perspective in work packages and / or project partners.

When asked in a survey, half of MULTISOURCE staff responded that they have to use their free time to address gender in their work. Having **gender focal points** would turn gender mainstreaming into a paid project activity, giving it importance. In addition, focal points could also support and sensitise other experts belonging to the work package or colleagues from the same organisation.



How to integrate gender into NBS?

3) Project level - phases

Gender mainstreaming at all projects levels, starting with preparation and design, moving onto implementation and monitoring, and closing with evaluation, has shown to be the most difficult of all tasks when striving for a gender sensitive approach. Following are examples to follow during the project stages and activities, which contribute towards gender equality.

1) Situation analysis

- **Has a stakeholder analysis been undertaken at the planning stage?** Does this analysis include the usual suspects or has it identified new potentially relevant stakeholders?
- **Have these diverse stakeholders been involved** in order to express their needs, opportunities, expectations from the project?
- **Has data collected been disaggregated by sex?**
- **Has a gender analysis been undertaken at the planning stage** to understand:
 - *needs, gaps, opportunities, different situations and amounts of power of men and women at the project level?*
 - *the expected impact the project will have on men and women?*
- **Have gender experts and/or women organisations been included in project planning?**

2) Project design

- **Based on the gender analysis, have specific gender objectives and targets been articulated in the project proposal,** which ensure monitoring gender equality?
- **Based on the stakeholder needs analysis, have specific objectives and targets addressing the diverse needs been articulated** in the project proposal that will ensure monitoring of the progress?
- **Are resources allocated to the project to implement a gender strategy and an inclusive approach** (e.g. participatory approaches, gender assessments, specially targeted activities)?
- **Are resources allocated to ensure the inclusion of gender experts and gender focal points in the project?**

How to integrate gender into NBS?

3) Project implementation

- *Is the staff trained on gender issues, unconscious bias and the impact of intersecting personal circumstances that might additionally impact the person's individual position in society?*
- *Does the staff have support by gender experts and gender focal points to address the numerous gender issues in the project? Does the staff actively engage in gender mainstreaming or only when reminded to do so?*
- *Is all staff equally involved in all stages, including site location, research, implementation and management, and if this is the case, are their suggestions equally taken into account?*
- *Who has the power in the project, disaggregated by gender?*
- *Is this distribution of power the same at all levels of the project?*
- *Is the stakeholder analysis revisited at regular intervals in order to ensure that all relevant groups are involved in the project implementation?*
- *Is the gender and power analysis revisited at regular intervals, as well as the impact that the project is having on all genders?*
- *Does the project include strategies to reach out to the underrepresented genders and does it ensure that if included, they can participate on equal grounds in the project implementation? If yes, what kind of strategies?*
- *In what ways are feedbacks from stakeholders taken into account, disaggregated by gender? Are all feedbacks taken into account in a manner to ensure equal impact of the project on all stakeholders?*
- *How is gender mainstreamed into the project objectives that are not gender specific?*



How to integrate gender into NBS?

4) Project monitoring

- *Is monitoring data disaggregated by sex and age?*
- *Is there regular monitoring of the gender-sensitive indicators and the impact of the project on all genders?*
- *Are institutional factors in partner organisations facilitating or hindering gender mainstreaming at the level of the project?*



How to integrate gender into NBS?

4) Planning for and during events

At all project stages events of various kinds are taking place, may it be for planning purposes, gathering or exchange of information, management or for educational and awareness raising purposes. In order to maximise the impact of the meetings, the following considerations need to be taken into consideration:

- *In what kind of spaces does your project operate? Who is allowed / invited in these spaces and who not? Who actually comes to these spaces?*
- *Is Inclusiveness and representation being considered when planning for events?*
- *If you have contacts / know persons that represent the stakeholders you identified as relevant, you can identify specific persons in a manner that will ensure gender parity and diversity.*
- *Broaden the list of identified stakeholders in order to include: other public institutions, social scientists, civil society organisation dealing with gender, diversity and water/climate change /environmental issues, civil society organisation / civic initiatives working with less privileged inhabitants in the city.*

Space = where there are opportunities for informal or formal interaction that shape the decisions and rules. There are different kind of spaces:

- closed spaces (behind closed doors, without opportunities for inclusion – ie mayor meetings, local gov't council)
- invited spaces (when persons in power invite people to participate in decision-making processes. They can offer the possibility for influence, but the agenda is usually predetermined – public consultation)
- created / claimed spaces (when less powerful persons come together, create their own space, and set their own agenda – ie grassroots campaigns, neighbourhood meetings)

How to integrate gender into NBS?

- *How does power operate in these spaces?*
 - *Who speaks and who does not? Who has the power to influence the decision? If not, why doesn't everyone have the same power to influence the decision? Can something be done to change that?*
 - *Are sector meetings at community level organized to overcome cultural barriers to women's participation, (cultural norms, seating arrangements, language and meeting times)?*





PRACTICAL TIPS FOR BEFORE, DURING AND AFTER MEETINGS

- a) Schedule the meeting to ensure broad participation (ie not on a religious holiday of any minorities or at times when children have afternoon activities or care work is most common)
- b) Distribute the agenda of the meeting in advance
- c) Describe the guiding practices at the beginning of the meeting, alongside its aim, in order to create mutual understanding and full transparency, which leads to more trust and willingness to engage.
- d) As part of the presentation, it is important to describe the intent to focus not only on environmental positive and negative impacts, but also on societal. You can provide an example for better understanding [1]. Invite participant to be creative and open-minded on the topic, as this practice is new in the field of NBS, so their thinking will be highly valued.
- e) Invite and encourage all participants to take part in the discussion.
- f) Capture all ideas and proposals before assessing them later on. When the assessment of relevance will take place, think of any unconscious personal biases.

[1] Potential examples: 1) higher costs of water will impact women (due to pay and pension gap) and persons will lower incomes more; 2) greening of cities can lead to gentrification; 3) green spaces for recreation are more beneficial to men, as men use them more for recreational activities, but women more for running errands; 4) new green areas are more accessible for men, as they are poorly lit and it is not safe for women to utilise them at night.



MULTISOURCE

enhanced natural treatment solutions

The overall goal of MULTISOURCE is to, together with local, national, and international stakeholders, demonstrate a variety of about Enhanced Natural Treatment Solutions (ENTS) treating a wide range of urban waters and to develop innovative tools, methods, and business models that support citywide planning and long-term operations and maintenance of nature-based solutions for water treatment, storage, and reuse in urban areas worldwide.

The project includes seven pilots treating a wide range of urban waters. Two individual municipalities (Girona, Spain; Oslo, Norway), two metropolitan municipalities (Lyon, France; Milan, Italy), and international partners in Brazil, Vietnam, and the USA will contribute to each of the main project activities: ENTS pilots, risk assessment, business models, technology selection, and the MULTISOURCE Planning Platform. The use of urban archetypes in the Planning Platform will enable users to quickly classify regions (in both developed or developing countries) suitable for the application of nature-based solutions for water treatment (NBSWT) and compare scenarios both with and without NBSWT.



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